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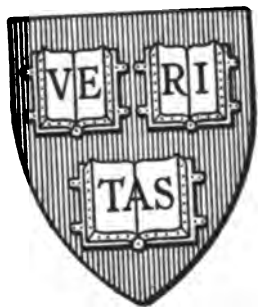
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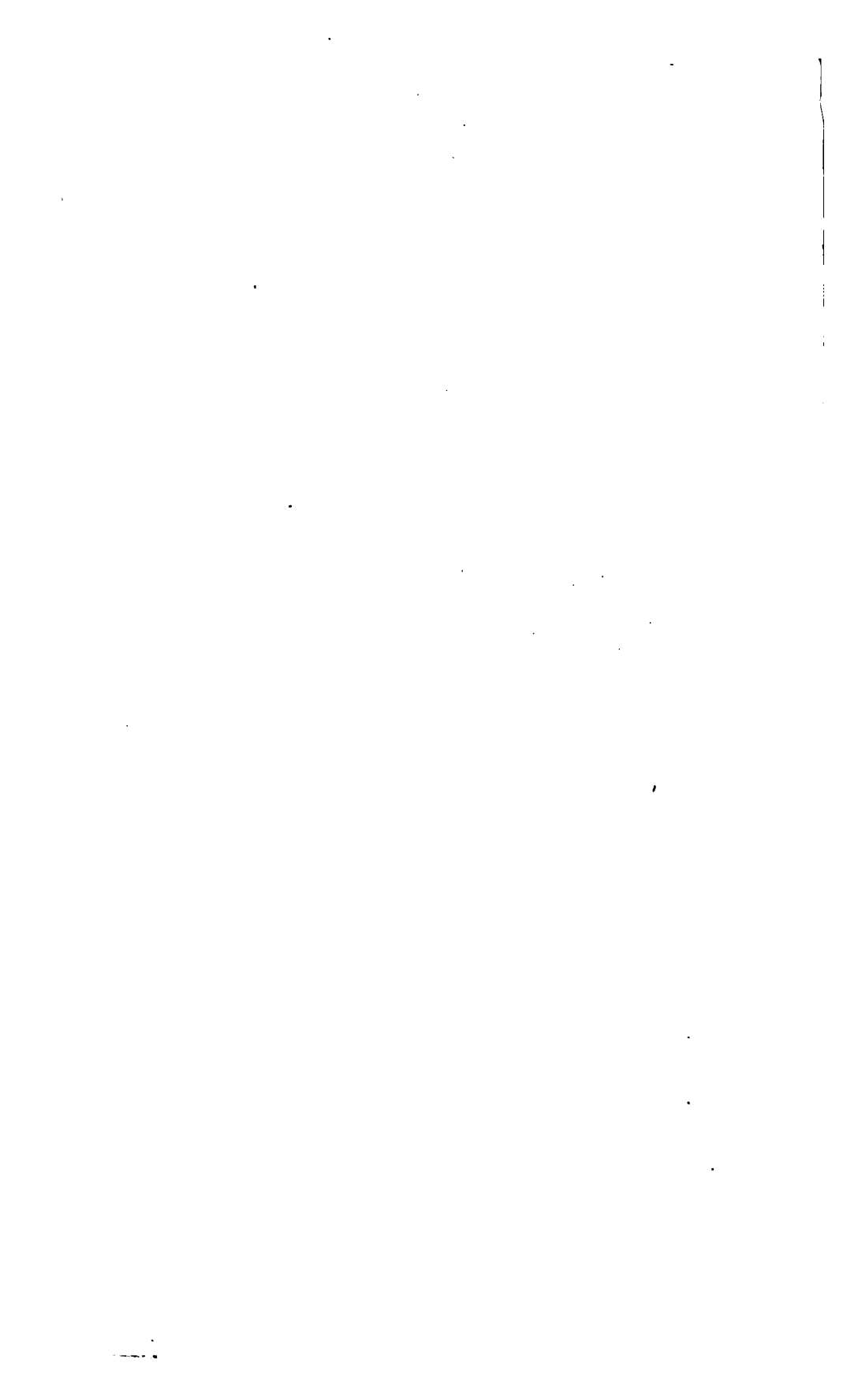
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TABLES
OF
LOGARITHMS OF NUMBERS,
AND OF
LOGARITHMIC SINES, TANGENTS AND SECANTS,
TO SEVEN PLACES OF DECIMALS;
TOGETHER WITH
OTHER TABLES OF FREQUENT USE
IN THE
STUDY OF MATHEMATICS,
AND IN
PRACTICAL CALCULATIONS.

BY
ANTHONY D. STANLEY, A. M.
Professor of Mathematics in Yale College.

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## P R E F A C E .

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THE following collection of tables has been prepared, chiefly with a view to meet the wants of college students. Tables of much less extent would perhaps be regarded by many as sufficient for this purpose: and such indeed are most of the tables in common use. These smaller tables are doubtless suitable enough for the illustration of principles and rules of calculation; but from the inaccurate results which they usually give in the solution of problems, they enable the mathematical student who employs them, to see but little of the use of tables to the computer. Tables in which the logarithms of numbers are carried to as many as seven places of decimals are needed for the proper solution of many of the problems to be met with in any common course of mathematics. Indeed logarithms of five or six places of decimals are now seldom used in calculations requiring any but the lowest degree of accuracy. In France, at the examinations for admission to the military and naval schools, candidates have for several years been required in their computations to use logarithms of seven decimal figures. The tables which are there most generally used are those of Callet. The tables of like extent most commonly employed in England are Hutton's: and those of Vega are most used in Germany. The only similar tables hitherto published in this country are Hassler's: and these have been found so inconvenient from the smallness of the type in which they are printed, that they are much less used than those of Hutton and Callet imported from abroad.

The following work is one of sufficient extent to furnish nearly the same aid to computers as is afforded by the tables of Hutton or Callet. In presenting it to the public, our principal concern is to show that proper care has been taken to secure its correctness, in carrying it through the press; as a new work of this kind inaccurately printed would be worse than useless. We therefore state the following particulars. The pages of the tables were first made by the printer to agree very nearly with the copy. Four or five proofs of each were afterwards read in connection

with different tables, before the work was printed. Two and in several cases three proofs were examined before the page was stereotyped, and two proofs from the plates were examined afterwards. This proof reading was done exclusively by the writer. In comparing the proofs with different tables, the corresponding columns of figures were in each case placed closely side by side, that the eye might readily detect any disagreement. An examination of the proofs with the assistance of another in the ordinary way, would have required much less time: but the other method was preferred as better suited for the detection of errors.

The tables employed in correcting the proofs were chiefly those of Vega, Callet, Hutton, Babbage and Shortrede. Babbage and Callet were most relied on for accuracy. But their tables were not found free from error. It is a common opinion with regard to works which have been stereotyped, that while they are open to correction as errors are discovered in them from time to time, they are also made permanently secure of whatever degree of accuracy they once acquire. But in using two copies of Callet's tables, one of recent and one of earlier date, it was seen that some errors from which the latter was free, had found their way into the former. A notice of several errors observed in the different tables which we have had occasion to examine, will be published in another place.

After the following tables were ready for the press, the editor found among the Memoirs of the Astronomical Society of London an article by Mr. Babbage, in which he mentions six errors that are common to almost all the tables of logarithms he has seen. From his own table these errors are of course excluded. And as that had been used in correcting the first proofs of the following table of logarithms, we were furnished with tolerable means of forming an opinion concerning the merits or defects of the first proof reading. On referring to the proofs concerned, it was found that all the errors in question had been noticed and corrected. Our second proofs of the table of logarithms were compared with Shortrede's table. We therefore examined this table with reference to the errors noticed by Babbage; and in it found five of them. We then referred to a list of nine or ten errors that we had discovered in the same table, and found all of these five among them; which encouraged the belief that not many errors had been overlooked in the second proof reading.

As we are informed that Babbage's table was employed in the correction of Shortrede's, it seems a little remarkable that all the five errors referred to should have escaped notice. But the general correctness of the latter table need not be therefore distrusted, as we may infer from what is stated above, that those errors form a large proportion of all the errors which it contains.

Next in importance to the table of logarithms of numbers, is that of logarithmic sines, tangents, &c. Hutton in his table of sines, tangents, &c. gives them only at intervals of a minute each, through all except the first two degrees of the quadrant, where sines and tangents are given for every second. The differences of successive sines, tangents, &c. in some parts of his table are accordingly quite large, and in finding intermediate sines, tangents, &c. the process of interpolation is inconveniently long. There is also room for considerable error in this process, unless second differences are taken into account, which would render the work still longer. In Callet's table, sines and tangents are given at intervals of seconds for the first five degrees, and sines, cosines, tangents and cotangents, at intervals of ten seconds for the whole of the quadrant. His table is therefore much more convenient than Hutton's. In one respect however it is less convenient, as it fails to give secants and cosecants, which Hutton does not omit.

We have endeavored to combine the main advantages of these two tables in the second table of this collection. In giving secants and cosecants, our table agrees with that of Hutton. It differs from his chiefly in giving sines, tangents, &c. at intervals of ten seconds instead of minutes, for the first fifteen degrees. In consequence of this and of a special arrangement for the first two degrees, no error greater than a unit in the last place of decimals can happen in any part of the table, from the neglect of second differences in interpolation; whereas there would have been room for errors thirty-six times as great as this, if the sines, tangents, &c. had been given, as in Hutton's table, only to minutes, after the second degree of the quadrant.

There are many cases in which a required result cannot be accurately determined, unless the result be known approximately from some preliminary calculation. This first calculation does not commonly require to be made with much exactness: and if it be logarithmic, it ought to be made with logarithms of less than

seven decimal figures. For convenient use in hasty calculations of this and other kinds, we have added to the larger tables of logarithms and logarithmic sines, tangents, &c. smaller tables of logarithms, antilogarithms, logarithmic sines, tangents, &c. carried only to five places of decimals.

Before we determined to embrace these tables in the collection to be made, we had intended that the two leading tables should be followed by a variety of smaller ones, useful in navigation, surveying, &c. Several such tables were accordingly selected and prepared for the press, but most of them were set aside to make room for the smaller logarithmic tables, which seemed likely to be of more general use. A few of the most important however have been retained, and will be found at the end of the volume.

The table on page 338 was copied from one in common use, the correctness of which we had no reason to distrust. But after this page was stereotyped, we observed that the numbers in it could not be depended on for accuracy in their final figures. This defect may however be deemed of little practical importance, as no great exactness is called for in cases where those numbers are used.

The table of meridional parts, which was prepared for the stereotyper immediately after page 338, was withheld till it could be examined, cursorily at least, with reference to such inaccuracies as had been observed in that page. And in this table too, several numbers were found erroneous, by a unit, in the final figure. These were corrected; but the table may still contain errors of the kind in question, as the examination was a hasty one, being much less thorough than it would have been had the occasion for it been earlier suggested. The numbers given in this table are carried to the first place of decimals. Meridional parts given in whole numbers, as they commonly are, are unsuitable for use in many cases where accuracy is demanded.

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**NOTZ.**—There is an error in several copies of the tables, that was occasioned by a mistake of the stereotyper in substituting 0 for a 6 which had been marked as imperfect, in the final proof for his use. The error is on page 205, in the cosine of  $7^{\circ} 50' 40''$ , which should be 9.9959169 instead of 9.9959109.



# INTRODUCTION.

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## LOGARITHMS.

ART. 1. A LOGARITHM of a number is the EXPONENT which shows what power\* that number is of a given number. Thus if the given number is 2, the logarithm of 8 is 3, that of 32 is 5, that of 64 is 6, &c. because  $8 = 2^3$ ,  $32 = 2^5$ ,  $64 = 2^6$ , &c. and if 3 is the given number, the logarithm of 9 is 2, that of 27 is 3, that of 81 is 4, &c. To distinguish the logarithms of one of these two classes from those of the other, the former are said to belong to a system of logarithms of which 2 is the base, and the latter to a system of which 3 is the base. To make either system complete, the logarithms of all the numbers 1, 2, 3, 4, &c. must be obtained, by regarding each number as a power of the base, and finding the exponent which denotes what that power is. Thus if the base is 2, each number is to be considered as a power of 2, and the exponent denoting the power is to be ascertained, and taken for the logarithm of the number. For example, let the number be 13: this is greater than  $2^3$  and less than  $2^4$ ; and there is some number between 3 and 4, which indicates what power 13 is of 2: that number is the logarithm of 13; and though not assignable at once, it may be determined without difficulty by various methods of calculation which need not be specified here.

Any number except one may be made the base of a system of logarithms; for by giving the number different indices, we may form powers of it that shall equal any numbers whatever; but as all the powers and roots of one are alike, we cannot represent other numbers by any powers or roots of the number one.

2. Logarithms are employed chiefly to facilitate numerical calculations. And for this purpose it is best to make use of the

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\* The word *power* is often used to denote a quantity with any index whether fractional or integral, positive or negative. In this sense,  $a^{\frac{1}{2}}$ ,  $a^{-2}$ ,  $a^5$  are all powers of  $a$ . With this extended meaning the term is employed in these pages.

logarithms of no more than one system. The method of preparing for use a system of logarithms, is to take the numbers 1, 2, 3, 4, &c. in their natural order, (to a greater or less extent as occasion demands,) and considering them all as powers of the base, to determine their logarithms accordingly, and then arrange the logarithms together with the numbers in a table. The system which has been chosen as most convenient, is that whose base is 10. It is for reasons pertaining to the common mode of reckoning by *tens*, (and to be stated more explicitly in Art. 17,) that this system is preferred. Logarithms in the system whose base is 10, are called *common* logarithms or Briggs'\* logarithms.

*The common logarithm of a number then is the exponent which shows what power that number is of 10.*

When the kind of logarithms spoken of is not specified, *common* logarithms are always to be understood.

3. The logarithms of the numbers which are exact powers of 10 are at once obvious: thus the logarithms of the numbers 1000, 100, 10, 1,  $\frac{1}{10}$ ,  $\frac{1}{100}$ ,  $\frac{1}{1000}$  are obviously 3, 2, 1, 0, -1, -2, -3, because those numbers are obviously the following powers of 10, viz.  $10^3$ ,  $10^2$ ,  $10^1$ ,  $10^0$ ,  $10^{-1}$ ,  $10^{-2}$ ,  $10^{-3}$ .

The logarithms of other numbers are fractional, and some calculation is necessary to determine accurately what they are.†

Thus for example, the logarithm of 587 is some number between *two* and *three*, because 587 is between 100 and 1000, and the logarithm of 100 is *two*, that of 1000, *three*. By a proper method of calculation it may be ascertained that the logarithm of 587 is greater than 2.7686381, and less than 2.7686382; and that it differs less from the former number than from the latter.

---

\* We are indebted to Lord Napier a Scottish mathematician, for the invention of logarithms. The first logarithmic tables were published by him in 1614. His system of logarithms had 2.718 . . . for its base. This system was assumed on account of a peculiarity that makes its logarithms a little easier of calculation than those of other systems. The logarithms of this system are commonly called *Naperian*, but are sometimes called also *hyperbolic* logarithms from certain remarkable relations which they have to a curve called the hyperbola. At the suggestion of Briggs a contemporary of Napier, the system in which 10 is the base was early substituted for the other and has ever since been the one in common use.

† Indeed the logarithms of such numbers are not capable of being expressed in fractions with *perfect exactness*; but they can be assigned with any lower degree of accuracy, and especially with all the accuracy that is requisite for practical purposes.

The logarithm of 587 is therefore very nearly 2.7686381. We might assign a number still nearer the true logarithm by proceeding to eight or more decimals; but for ordinary purposes it is sufficient to know the logarithm of a number accurately to the seventh decimal place. Accordingly 2.7686381 may in practice be regarded as the logarithm of 587.

4. Again the logarithm of 0.0357 is between  $-1$  and  $-2$ , because 0.0357 is less than 0.1 that is  $10^{-1}$ , and greater than 0.01 that is  $10^{-2}$ ; and by due calculation it has been found that the logarithm of 0.0357 differs but little from  $-1.4473318$ .

The logarithm as thus expressed consists of a negative whole number  $-1$  and a negative decimal  $-.4473318$ . There are reasons for avoiding the use of negative decimals in logarithms, which is done by substituting for them such equivalent expressions that each negative logarithm may be made to consist of a positive decimal and a negative whole number. Thus in the example before us, instead of  $-1.4473318$  is substituted the equivalent expression  $-1+.5526682$ : the whole logarithm thus becomes  $-2+.5526682$ , consisting of a negative integer  $-2$  and a positive decimal  $+.5526682$ .

To represent a logarithm which is thus composed of a negative integer and a positive decimal, the decimal without its sign  $+$  is placed immediately after the integer, and the sign  $-$  placed *over* the latter. Thus the logarithm of 0.0357 is  $\bar{2}.5526682$ , which is to be understood as equivalent to the expression  $-2+.5526682$ .

5. The integral parts of the logarithms of 587 and 0.0357, viz. 2 and  $-2$ , were easy to be determined; the logarithm of 587 being obviously more than 2 and less than 3, and the logarithm of 0.0357 being between  $-1$  and  $-2$ . Likewise in every case the integral part of a logarithm may be readily assigned. To distinguish the integral from the decimal part, the former is called the *index* or more commonly the *characteristic* of the logarithm, and the latter the *mantissa*. Thus 2 is the characteristic of the logarithm of 587, and .7686381 the mantissa;  $-2$  is the characteristic of the logarithm of 0.0357, and .5526682 the mantissa.

6. The *general rule* to determine the *characteristic* of a logarithm is as follows.

If the number whose logarithm is in question consists of one or more *integral* figures with or without a decimal annexed, the

characteristic of the logarithm is *one less* than the number of the *integral* figures.

Thus the characteristic of the logarithm of 504.27 is 2, as the integral figures viz. 504 are *three* in number. And the characteristic of the logarithm of 2.036 is 0, because the number 2.036 has *one* integral figure.

But if the number be *only a decimal fraction*, the characteristic of its logarithm is *negative*, and is *greater by one* than the number of *ciphers* at the beginning of the decimal.

Thus if the number concerned be the decimal .087, the characteristic of its logarithm is  $-2$  or as it should be stated  $\bar{2}$ ; and if the number be .275, the characteristic of its logarithm is  $\bar{1}$ .

7. In proof of these statements it may be observed that the least number having  $n$  integral figures is  $10^{n-1}$ ; the least number having 3 integral figures for example being  $10^2$  or 100, the least having 4 such figures being  $10^3$  or 1000, &c. and as there are  $n$  integral figures in the number  $10^{n-1}$ , the number of such figures in  $10^n$  is  $n+1$ . Accordingly if a number has  $n$  integral figures only, it must be less than  $10^n$ , but cannot be less than  $10^{n-1}$ , though it may be equal to this. Since then every number having  $n$  integral figures is either  $10^{n-1}$  or between  $10^{n-1}$  and  $10^n$ , its logarithm must be either  $n-1$  or between  $n-1$  and  $n$ , that is, must be either  $n-1$  or  $n-1 + a$  decimal; the characteristic therefore is  $n-1$ ; that is, the characteristic of the logarithm of a number having integral figures, is one less than the number of integral figures; as is stated in the first part of the rule given above.

Again, the least decimal number beginning with  $n$  ciphers is  $\frac{1}{10^{n+1}}$ ; the least decimal beginning with *one* cipher for example being .01 or  $\frac{1}{10^2}$ , the least beginning with two ciphers being .001 or  $\frac{1}{10^3}$ , &c. and as  $\frac{1}{10^{n+1}}$  is a decimal beginning with  $n$  ciphers,  $\frac{1}{10^n}$  is a decimal beginning with  $n-1$  ciphers. Accordingly, if a decimal begins with  $n$  ciphers, it must be less than  $\frac{1}{10^n}$ , but cannot be less than  $\frac{1}{10^{n+1}}$ , though it may be equal to this. Since then every decimal beginning with  $n$  ciphers is either

$\frac{1}{10^{n+1}}$ , that is  $10^{-(n+1)}$ , or between  $\frac{1}{10^{n+1}}$  and  $\frac{1}{10^n}$  that is between  $10^{-(n+1)}$  and  $10^{-n}$ , its logarithm must either be  $-(n+1)$  or be between  $-(n+1)$  and  $-n$ , that is, must be either  $-(n+1)$  or  $-(n+1) + a$  decimal; the characteristic therefore is  $-(n+1)$ ; so that the characteristic of the logarithm of a decimal is negative, and is one greater than the number of ciphers at the beginning of the decimal; as is stated in the second part of the foregoing rule.

8. When the characteristic of a logarithm is negative, it is often, for convenience, made positive by the addition of 10; which can lead to no error, if it be kept in mind that such a change has taken place, and due care be taken to make allowance for it afterwards, at a proper time.

Thus instead of the logarithms  $\bar{1}.8272047$ ,  $\bar{4}.0260108$ , we may write  $9.8272047$ ,  $6.0260108$ .

9. Since we have a rule by which we can readily find the *characteristic* of the *common* logarithm of any proposed number, tables are needed only to furnish the *mantissas* of logarithms. These mantissas have been calculated and arranged in tables to such an extent as has been found convenient for practical purposes. It is unnecessary here to describe the manner of computing them; it will be sufficient to show how they are arranged for use in the following tables. In describing these tables however, it is necessary to refer to certain properties of logarithms which will now be stated.

10. If  $L, M, N, \&c.$  be several numbers, and  $l, m, n, \&c.$  their logarithms in a system of which the base is  $b$ , the logarithm of  $LMN \&c.$  is equal to  $l+m+n+\&c.$

For from the nature of logarithms, (Art. 1)  $L=b^l, M=b^m, N=b^n, \&c.$  hence  $LMN \&c. = b^l b^m b^n \&c. = b^{l+m+n+\&c.}$ : but if  $LMN \&c.$  is the  $(l+m+n+\&c.)$ th power of  $b$ ,  $l+m+n+\&c.$  is the logarithm of  $LMN \&c.$  as was asserted.

*Therefore the logarithm of the product of several numbers equals the sum of the logarithms of the numbers.*

11. Again, if  $M$  and  $N$  be two numbers whose logarithms are  $m$  and  $n$ , the logarithm of  $M \div N$  equals  $m - n$ .

For as  $M=b^m$  and  $N=b^n, M \div N = b^m \div b^n = b^{m-n}$ .

*Therefore the logarithm of the quotient of one number divided by another is equal to the logarithm of the dividend diminished by that of the divisor.*

12. Again, if  $M$  is a number whose logarithm is  $m$ , the logarithm of  $M^n$  is  $mn$ .

For as  $M = b^m$ ,  $M^n = b^{mn}$ ; but if  $M^n$  is the  $n$ th power of the base  $b$ ,  $mn$  is the logarithm of  $M^n$ .

*Therefore the logarithm of any power of a number is obtained by multiplying the logarithm of that number into the number denoting the power.*

13. Finally, if  $M$  is a number whose logarithm is  $m$ , the logarithm of  $M^{\frac{1}{n}}$  is  $\frac{m}{n}$ .

For as  $M = b^m$ ,  $M^{\frac{1}{n}} = b^{\frac{m}{n}}$ .

*Therefore the logarithm of any root of a number is obtained by dividing the logarithm of that number by the number denoting the root.*

14. The following definition will prepare the way for one or two inferences to be drawn from these principles.

The *significant figures* of a number are those which remain after rejecting all *iphers* that occur either at the *end* or at the *beginning* of the number.

Thus the significant figures of 8021700 are 80217; those of the decimal .00010408 are 10408.

15. If two different numbers have the *same significant figures*, occurring in the same order, their logarithms will have different characteristics, but the *same mantissa*.

For two such numbers may be made alike, by merely removing the decimal point in one of them to the right or left; and as changing the position of the decimal point, is equivalent to multiplying or dividing by 10, 100, 1000, &c. the greater number must be equal to the smaller one multiplied by some exact power of 10, which we will denote by  $10^n$ ,  $n$  being a whole number; then (Art. 10) the logarithm of the greater number must be equal to the logarithm of the smaller number increased by the logarithm of  $10^n$  which is  $n$ . Now by adding the integer  $n$  to the smaller logarithm to obtain the greater, we alter the characteristic, but leave the mantissa unchanged. The logarithms of the two numbers therefore have like mantissas with unlike characteristics. Thus the logarithm of 108.06 is  $2 +$  a decimal, and that of 1080600 is  $6 +$  the same decimal, because  $1080600 = 108.06 \times 10^4$ ; also the logarithm of

.00203 is  $-3 +$  a decimal, while that of 20.3 is  $1 +$  the same decimal.

16. Again, if the logarithms of two numbers have different characteristics, but the *same mantissa*, the *significant figures* of the numbers must be the *same*, and must occur in the same order; and the numbers will differ only as to the position of the decimal point.

For then the difference of the logarithms is a whole number, which we may denote by  $n$ ; but this difference is the logarithm of the quotient of one of the numbers divided by the other (Art. 11); the quotient itself therefore is  $10^n$ , and accordingly one of the numbers is equal to the other multiplied by  $10^n$ ; but a number after being multiplied by any exact power of 10 as  $10^n$ , will have the same significant figures as before, and only the position of the decimal point will be changed. If for example, the logarithms of two numbers are  $2 +$  a decimal and  $-1 +$  the same decimal, and if it be known that the number to which the first logarithm belongs is 231.02, then we infer that the number to which the other logarithm belongs must be .23102. For the difference of the logarithms is the integer 3, and the quotient of the greater number divided by the less is therefore  $10^3$ ; but the greater is 231.02, as has been supposed; therefore the less is  $231.02 \div 10^3 = .23102$ .

17. What is stated in the two preceding articles will apply to the *common* logarithms of numbers only. Such logarithms are therefore much more convenient than others for general use; since when the common logarithm of any number has been found, those of various other numbers having the same significant figures are obtained without difficulty, simply by changing the characteristic, according to the principles stated above.

## TABLE OF LOGARITHMS OF NUMBERS: pp. 1-153.

18. This is a table of the numbers 1, 2, 3, &c. up to 100000, with the *mantissas* of their common logarithms, which are also the mantissas of the logarithms of other numbers whose *significant figures* fall between 1 and 100000. To these the proper *characteristics*, omitted for convenience, are to be prefixed according to the rule in Art. 6.

The first three pages contain all the numbers from 1 to 1000, (except those ending with 0,) arranged in columns headed *N*. By the side of each number, in the next column headed *Log*. is to be found the *mantissa* of its logarithm, carried to *seven* places of decimals, the decimal point being omitted, and the first three figures being separated a little from the other four, for ease of reading. Thus the true mantissa of the logarithms of 8, 37 and 809, are .9030900, .5682017 and .9079485, respectively.

In the subsequent pages, in columns on the left and headed *Num*. are all numbers from 1000 to 10000; the first two figures being stated only at convenient intervals, as they are the same for several numbers in succession. In the columns headed 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, are the mantissas of the logarithms of numbers carried to *seven* places of decimals, or rather the four last figures only of these mantissas, except in the column headed 0, where to some of the mantissas, the first three figures also are given. Each mantissa belongs to a number whose first four figures are opposite it in the left-hand column headed *Num*. and whose fifth figure stands at the head of the column containing the mantissa. And the whole logarithm of this number will be the mantissa with the characteristic 4 prefixed. These mantissas will accordingly be spoken of as the logarithms of the numbers composed of five figures in the way just mentioned, the characteristic 4 being understood as prefixed to each mantissa, in conformity with the rule in Art. 6.

Wherever the character . occurs, a *cipher* must be understood.

The use of the *space* between the columns headed 4 and 5 is, by dividing the page, to facilitate the finding of any column sought.

Also, at the beginning of each page the figures are made heavier, that as we consult the table they may more readily catch the eye.



In the columns headed *Diff. & Mult.* are several numbers placed opposite the nine digits, the number opposite 1 being in each case the difference of two consecutive logarithms in the table, and those opposite the other digits being corresponding multiples of the differences over them.

19. All this will be readily understood from the following indication of the meaning of the first part of page 6.

| Numbers. | Logarithms. | Numbers. | Logarithms. |
|----------|-------------|----------|-------------|
| 11200    | 4.0492180   | 11212    | 4.0496831   |
| 11201    | 4.0492568   | .....    | .....       |
| 11202    | 4.0492956   | 11218    | 4.0499154   |
| 11203    | 4.0493343   | 11219    | 4.0499541   |
| 11204    | 4.0493731   | 11220    | 4.0499929   |
| 11205    | 4.0494119   | 11221    | 4.0500316   |
| 11206    | 4.0494506   | 11222    | 4.0500703   |
| 11207    | 4.0494894   | .....    | .....       |
| 11208    | 4.0495281   | 11229    | 4.0503411   |
| 11209    | 4.0495669   | 11230    | 4.0503798   |
| 11210    | 4.0496056   | 11231    | 4.0504184   |
| 11211    | 4.0496444   | &c.      | &c.         |

Here it is seen that the leading figures 049 are those, not only of the mantissa of the logarithm of 11200, but also of all the following ones that come before the mark \*.

This mark \* which stands for 0, is used to give notice that for the mantissa in which it occurs, and for all succeeding mantissas to the end of the line, the three leading figures are to be found in the next lower line and under an *asterisk* standing opposite the character \*; whereas in other cases, the three leading figures of any mantissa are in the same line with the other four, or are the first to be found in a preceding line.

The use of the *asterisk* in connexion with the sign \*, is to mark more distinctly the line in which a change takes place in the three leading figures of the mantissa.

20. The difference of the first two mantissas on the page before us, which are .0492180 and .0492568, is if we neglect the decimal point, 388; the next difference viz. that of 0492568 and 0492956, is also 388; the next is 387; and so on in the following series, 388, 388, 387, 388, 387, 388, 387, 388, 387; these differences being found smaller and smaller as we proceed to the bottom of the page, where the difference between two consecutive mantissas

is 368. Now the differences 388, 387, 386, 385, &c. are placed in the column headed *Diff. & Mult.* each opposite the number 1; and the multiples of each difference by the numbers 2, 3, 4, . . . 9, are placed under that difference, and opposite these multipliers. The use of the multiples and differences will be stated below.

From *page 22* onward, there is a column marked *Diff.* which contains simply the differences between consecutive logarithms in the table, and is of but little use.

The manner of using the table of logarithms, may now be conveniently explained.

*To find the logarithm of a given number.*

21. If after rejecting ciphers at the beginning or end of the number when they occur, there are not more than *three* remaining figures, these figures are to be found in one of the columns headed *N.* on one of the *first three pages* of the table, and opposite the number, in the next column headed *Log.* will be found a number which with the decimal point prefixed is the mantissa of the required logarithm, carried to seven places of decimals. The characteristic of the logarithm must be supplied according to the rule in Art. 6.

The first three pages of the table are to be used only in the case just specified. The remainder of the table must be employed in every other case, and is available in that case also, though not so convenient then as the first three pages.

If then the first three pages of the table be disregarded, the *general method* of finding the logarithm of a number is the following.

22. First suppose the given number to consist of *five integral* figures not followed by a decimal.

The first four figures of the number will be found on the left in the column headed *Num.* of one of the pages of the table: and if the fifth figure is 0, the required logarithm carried to seven places of decimals, will be found opposite the first four figures in the next column headed 0; or at least the four last of the decimal figures will be found there, and the place of the three leading figures when vacant, must be supplied by those of the first previous logarithm in which all the seven decimal figures appear: but if the fifth figure of the given number is one of the *nine digits*, it will be found at the top of one of the nine columns which follow the column headed 0, and under this fifth figure

and opposite the first four will be found the last four decimal figures of the logarithm sought: the three leading figures are to be looked for in the column headed 0, and opposite the other four; and if not found there, they may be found a little above in the same column, unless the character \* either stands in place of one of the four decimal figures first obtained, or is somewhere on the left in the same line with them, in which case the three leading figures are to be found directly *under* an asterisk, that stands opposite the mark \*. The proper characteristic viz. 4, is to be prefixed to the seven decimal figures.

Thus the logarithms of 57100, 10350, 57680, 57708, 42083, 44978, 23449, are 4.7566361, 4.0149403, 4.7610253, 4.7612360, 4.6241067, 4.6530001, 4.3701243, respectively.

23. Next if the number concerned consist of *five integral* figures with a *decimal* fraction annexed, find the logarithm of the five integral figures by the preceding rule, and to this add a *correction* for the additional decimal; which is found by multiplying the decimal into the difference between the logarithm taken from the table and the following one.

Thus the logarithm of 10800.76 is found by taking the logarithm of 10800 from the table, and increasing this logarithm by the product of .76 into the difference between the logarithm of 10800 and the next one in the table, viz. that of 10801. Now the logarithm of 10800 is 4.0334238, and that of 10801 is 4.0334640; their difference viz. 402 multiplied into .76 gives 305.52, which we may call 306, taking the nearest whole number. This added to 4.0334238 will give 4.0334544 for the logarithm required.

It will be observed that the difference 402 has been regarded as a whole number, whereas it is really a decimal, the last figure 2 belonging to the seventh decimal place. But this can lead to no error, if after obtaining the correction 306 we make its last figure fall in the seventh decimal place when we add it to the logarithm 4.0334238.

The logarithms of 87012.9 and 27018.61 found in this way, are respectively 4.9395836 and 4.4316630.

24. The rule given for correcting a logarithm as found for five integral figures of a number, on account of an additional decimal, is derived from the consideration, that whatever is the difference between the logarithms of one number and the next in the table, the difference between the logarithms of the second number and

the succeeding one is the same, or is only one less; and so on: for, if for the difference of a unit in two numbers there is a certain difference in their logarithms, and for a difference of *two* in the numbers, twice the former difference in the logarithms, and so on, then we may infer that for half a unit added to the least number, there should be added to the logarithm of that number half the difference between this logarithm and the next, and in short, for any decimal part of a unit added to the least number, there should be added to its logarithm a proportional part of the difference between this and the next logarithm.

For example, the logarithm of 27018 is 4.4316532, that of 27019 is 4.4316693 which exceeds the former by 161, and that of 27020 is 4.4316853, being 160 greater than the preceding and 321 greater than the first logarithm: if then with an addition of *one* to the number 27018 there is an addition of 161 to its logarithm, and with an addition of *two* the addition to the logarithm is very nearly twice as great, an addition of .61 to the number should give an addition of  $.61 \times 161$  to its logarithm.

25. The logarithmic correction for the decimal part of a number may be considered as made up of corrections for the several figures of the decimal; and instead of multiplying the whole decimal at once into the difference of the logarithms concerned, we may multiply this difference by the first figure of the decimal, and as this figure stands for *tenths*, divide the product by 10, which will give the correction due to the first decimal figure; then multiply the difference by the second figure and divide by 100, to obtain the correction for that figure; next multiply by the third figure and divide by 1000, to obtain the correction for the third figure, and so on; and lastly take the sum of all these partial corrections, for the total correction required.

But the labor of such multiplications may be saved by using the columns of *differences and multiples* given in the table; for among these differences we may find the difference between any two consecutive logarithms of the table, and under it, its multiples by all the numbers 2, 3, 4, 5, 6, 7, 8, 9.

26. To obtain by this means the logarithmic correction due to the decimal part of a number, find the difference between the logarithm to be corrected and the next, look for that difference under the heading *Diff. & Mult.* and from it together with its eight multiples as found there, select the numbers corresponding

to the different figures of the decimal ; then having divided the number which belongs to the first decimal figure by 10, that which belongs to the second by 100, and so on, add together the quotients ; their sum will be the required correction. When one of the figures in the decimal concerned is 0, there will of course be no partial correction due to it.

To find for example, the logarithm of 98741.207.

The logarithm of the whole number 98741 is 4.9944975 ; the difference between this and the next tabular logarithm is 44 ; under 44 in the table of *differences and multiples* and opposite 2 is the number 88, which divided by 10 gives 8.8 for the first partial correction ; the second figure in the decimal .207 being 0 may be disregarded ; for the third figure the correction is .308, as 308 is the multiple opposite 7. The whole correction then is  $8.8 + .308 = 9.108$  or 9 nearly ; and the required logarithm is 4.9944984.

It is more convenient and sufficiently accurate to take account of one decimal figure only, in each partial correction. Thus in place of .308 in the preceding example, may be substituted simply .3.

27. In ascertaining the difference between one logarithm in the table and the next, it will generally be sufficient to find the last figure of this difference ; for this will show which of the differences at hand under the heading *Diff. & Mult.* is the one to be employed, as two that end with the same figure are not to be found near each other any where in the table, except on the 4th page. Thus in the case of the example preceding, the difference between 9944975 and 9945019 is obtained by taking 5 from 9, which shows that the difference ends with 4, and then looking in the table of *differences and multiples* for the nearest difference ending thus, which is found to be 44.

28. If the number whose logarithm is sought has *four or more* decimal figures, the logarithmic correction due to all after the *third* will be extremely small, and the required correction may be obtained with sufficient accuracy from the first three figures ; the third figure ought however to be increased by *one*, when the first neglected figure is 5 or more. Thus instead of the numbers 27109.345502, 10340.189601, we may employ 27109.346, 10340.19.

29. We have hitherto supposed the number whose logarithm is sought, to have five integral figures with or without a decimal

annexed; but if this is not the case, we may proceed to find its logarithm as if the first five of its significant figures were integral and the rest decimal, only taking care to substitute instead of the characteristic 4, the true characteristic of the logarithm of the given number as determined by the rule in Art. 6. For the logarithms of numbers having the same significant figures differ only with respect to the characteristic, as has been shown in Art. 15.

If the number proposed has *less* than five significant figures, the deficiency may be made up by the addition of ciphers.

30. The use of the table will now be illustrated by a few additional examples.

*To find the logarithm of 870358.63.*

|                                                    |           |
|----------------------------------------------------|-----------|
| Logarithm of 87035 without the characteristic,     | .9396939  |
| Addition for first figure of .863 . . . . .        | 40        |
| “ second “ . . . . .                               | 3         |
| “ third “ . . . . .                                | 0.2       |
|                                                    | <hr/>     |
| Logarithm of 870358.63 with proper characteristic, | 5.9396982 |

*To find the logarithm of 0.14031897.*

|                                               |           |
|-----------------------------------------------|-----------|
| Logarithm of 14031 . . . . .                  | .1470886  |
| Correction for first figure of .897 . . . . . | 248       |
| “ second “ . . . . .                          | 27.9      |
| “ third “ . . . . .                           | 2.2       |
|                                               | <hr/>     |
| Logarithm of .14031897 . . . . .              | 1.1471164 |

*To find the logarithm of 20.2147839.*

|                                             |           |
|---------------------------------------------|-----------|
| Logarithm of 20214 . . . . .                | .3056523  |
| Addition for first figure of .784 . . . . . | 149.8     |
| “ second “ . . . . .                        | 17.1      |
| “ third “ . . . . .                         | .9        |
|                                             | <hr/>     |
| Logarithm of 20.2147839 . . . . .           | 1.3056691 |

*To find the number answering to a given logarithm.*

31. First suppose the characteristic of the logarithm to be 4; the number sought will then have *five* integral figures. The first three figures of the given mantissa are to be found in a column headed 0, and the other four are to be looked for in the same column or in one of the nine following columns; and if they are there, the number sought will consist *only* of five integral figures, the last of which will be found over the four final

figures of the mantissa, at the head of the column, and the other four will be found opposite the same final figures, in the column on the left headed *Num.*; supposing the vacant places of that column to be filled with their appropriate figures.

Thus the number answering to the logarithm 4.3321758 is obtained by turning to a part of the table where the leading decimal figures of the logarithm are 332, as in page 23; we find there a mantissa exactly equal to the given one viz. 3321758, and supplying 4 the omitted characteristic of the table, we have the given logarithm 4.3321758; the number answering to which is 21487.

In like manner the numbers answering to the logarithms 4.5274108, 4.8430022, 4.5270883, 4.7869643, will be found to be 33683, 69663, 33658, 61230.

But if the given logarithm is not to be found in the table, falling between two consecutive logarithms found there, then the five integral figures of the number answering to the least of these logarithms, taken from the table as in the preceding case, will form the integral part of the required number; to which is to be annexed a decimal correction, for the excess of the given logarithm above the tabular one that answers to the five integral figures. The correction is found by dividing the difference of the given logarithm and the tabular logarithm next below it, by the difference between the two tabular logarithms next above and next below it.

This correction depends upon a comparison of the given logarithm with the two in the tables between which it falls, and is derived from the following proportion, which though not strictly accurate is nearly so.

The difference between the tabular logarithms, is to the difference of the corresponding numbers which is 1, as the difference between the least of these logarithms and the given one, to the difference of their corresponding numbers.

As the third term is less than the first, the fourth will be less than the second, that is less than 1. This term, which is found by dividing the third term by the first, when annexed as a decimal to the five integral figures corresponding to the least of the two tabular logarithms, will give the logarithm sought. Thus, if we seek the number whose logarithm is 4.7875397, this logarithm not being in the table, we find there two consecutive mantissas .7875384, .7875455, that with the addition of the omitted

characteristic 4 from two logarithms, of which one is greater and the other less than the given one; the number answering to the least of these is 61311, which is the integral part of the required number; to find the decimal part, we divide the difference between 397 and 384, by the difference between 455 and 384; the quotient viz.  $\frac{13}{71}$  or .183 nearly, added to 61311 gives 61311.183 for the number sought.

32. In converting  $\frac{13}{71}$  to a decimal fraction by the common method, we annex a cipher to 13, and for the first decimal figure take the number which multiplied by 71 will equal 130 or fall just below it; then after subtracting the product from 130 and annexing a cipher to the remainder, we proceed in the same way to find a second decimal figure, and so on.

Now this process may be shortened, by aid of the table of *differences* and *multiples*: for in that we find the difference 71 together with its multiples by all the digits 2, 3, . . . 9; having then annexed a cipher to 13, we see by glancing at these multiples, which one equals or falls next below 130; the digit opposite this is the first decimal figure sought; we then subtract this multiple from 130, and after adding a cipher as before, look again for the next lower multiple, opposite which is the second decimal figure sought; and so on.

Should any remainder, after having a cipher annexed, fall below the difference 71 itself, the decimal figure sought will be 0, and we may proceed immediately to find the next, by annexing an additional cipher to the remainder.

33. If instead of annexing ciphers to the remainders and subtracting the entire multiples, we leave the remainders unaltered and divide the multiples by 10, 100, 1000, &c. we shall obtain the same or very nearly the same result. It will be best, however, not to do this till after the first decimal figure is obtained. Thus in the preceding example, after obtaining the first decimal figure 1 and subtracting the corresponding number 71 from 130, we may seek the multiple which divided by 10 or with the omission of its last figure, shall equal or just fall below the remainder 59; this we shall find to be 568, opposite which is the digit 8, the second decimal figure sought; 568 divided by 10 is 56.8 or nearly 57; this taken from 59 leaves 2: we are now to look for the multiple which divided by 100 shall differ least from 2; this is 213, opposite which is the number 3, the third decimal figure sought.



In like manner let the numbers answering to the logarithms 4.8111890 and 4.1610157 be found: they are 64742.433 and 14488.243.

34. We have thus far supposed the characteristic of the given logarithm to be 4.

But if the logarithm have a different characteristic, we must seek the corresponding number as if the characteristic were 4, and instead of so placing the decimal point that the number shall have five integral figures, give it the position required by the true characteristic of the logarithm according to the rule in Art. 6: for if two logarithms differ only in their characteristics, the numbers answering to them will have the same significant figures, and will differ only as to the positions of their decimal points.

Thus to find the number whose logarithm is 3.9595809, look for it as if the characteristic of the logarithm were 4; but instead of placing the decimal point after the fifth figure, place it after the fourth, so that the number of integral figures may be one greater than the characteristic 3. The number so obtained will be 9111.3124.

In like manner shall we find that the numbers answering to the logarithms  $\bar{1}.6360175$ ,  $\bar{2}.7583012$ , are .43253129, .057319343, respectively.

35. We have then this *general rule* for finding the number answering to a given logarithm.

If the mantissa of the logarithm is to be found in the table, look opposite it in the column headed *Num.* on the left, for the first four figures of the number sought, and over it for the fifth figure. Then determine the place of the decimal point from the characteristic of the logarithm, according to the rule in Art. 6; annexing or prefixing ciphers, if necessary.

But if the mantissa of the logarithm proposed is not to be found in the table, take the one next below it; opposite this will be found the first four figures of the required number, and over it the fifth: then to find a few additional figures, (not more than three,) take the difference between the mantissa of the given logarithm and the mantissa next below it in the table, and also the difference between the latter and the next greater one in the table; look under the heading *Diff. & Mult.* for the latter difference, and from it with its eight multiples given there, select the number which is either equal to the former difference multiplied

by 10 or just below it; opposite this number will be found the sixth figure sought; subtract the number from the difference thus multiplied, and look for the largest multiple which divided by 10 gives a quotient less than the remainder or equal to it; opposite this multiple will be the seventh figure of the required number; find the difference of the quotient and remainder, and look opposite the multiple which divided by 100 comes nearest this difference, for the eighth figure.

36. A few examples are subjoined in illustration of the rule.

*To find the number whose logarithm is 6.8110210.*

First five figures of number sought . . . . . 64717  
 whose logarithm ends with 184.

First additional figure for diff. of 210 and 184 . . . . . 3  
 found opposite the multiplier 201.

Second additional figure for diff. of 260 and 201 . . . . . 8  
 opposite which is 536.

Third additional figure for diff. of 59 and 53.6 or 54 . . . . . 7.

Eight figures of the number then are . . . . . 64717387;  
 and the number itself is 6471738.7, having seven integral figures,  
 because 6 is the characteristic of the logarithm.

*To find the number whose logarithm is 3.4172019.*

First five figures of number sought . . . . . 26133

First figure of correction for diff. 126 . . . . . 7  
 opposite which is 1162.

Correction for diff. of 1162 and 1260 . . . . . 5  
 opposite which is 830.

Correction for diff. of 98 and 83 . . . . . 9.

Then as the given characteristic is  $\bar{3}$ , the required number is  
 .0026133759.

The numbers answering to the logarithms 2.7865943,  
 0.0294236,  $\bar{2}.4220180$ , 8.7230263, are in like manner found to  
 be 611.7786, 1.070098, .026425183, 528477220.

TABLE OF LOGARITHMIC SINES, TANGENTS, &C. pp. 155-277.

37. This is a table of the logarithms of sines, tangents, secants, cosines, cotangents and cosecants, carried to *seven* places of decimals. These logarithms are called *logarithmic* or *artificial* sines, tangents, &c. to distinguish them from the sines, tangents, &c. themselves, which are called *natural* sines, tangents, &c.

The natural sines, tangents, &c. are some of them greater and others less than unity. Their logarithms must accordingly have characteristics of which some are positive and some negative. In order to render these all positive, it has been found convenient to increase each one by 10: no error can result from this if we always bear in mind that they have been thus altered.

The *first two pages* viz. 156 and 157, being of a different character from the rest, and indeed not a necessary part of the table, may be here left out of view, to be subsequently described.

For the first 90 pages, that is from page 158 to page 247, the sines, tangents, &c. are given at intervals of 10 seconds; for the remainder of the table, at intervals of one minute. At the top and bottom of each page are numbers in heavy type, denoting degrees; next, in an abbreviated form, are the titles of the columns of numbers of which the body of the page is composed; in the right and left hand columns are numbers denoting minutes and tens of seconds for the first 90 pages, and minutes only for the remaining pages: in the former case, the minutes are printed in heavier type and with the mark ', to distinguish them from the numbers 10, 20, 30, 40, 50 denoting *tens of seconds*.

*To find the sine, tangent, &c. of a given arc.*

38. The following is the rule for finding the sine, tangent, &c. of a given number of *degrees* and *minutes*, from  $0^\circ$  to  $180^\circ$ .

Look for the degrees at the top or bottom of the page, and in the column at the side of the page under or over the degrees thus found look for the minutes: then if the degrees are at the top, look for the name of the required number at the top, otherwise at the bottom of the page; in the column under or over this name, and opposite the minutes already found, will be the number sought.

Thus to find from the table the sine of  $18^\circ 20'$ , we first look for  $18^\circ$  which we find at the *top* of the 251st page; and in the col-

umn under this at the side of the page we look for 20': we then look for the name of the required number viz. *sine*, at the top of the page, because 18° is there; and in the column under the name *sine* and opposite the 20 minutes, we find the required number which is 9.4976824; the omitted characteristic 9. being supplied.

The characteristic when omitted is always to be supplied as here.

In like manner it will be found that the cotangent of 126° 44' is 9.8729032, the secant of 89° 2' is 11.7728665, and the cosine of 175° 47' is 9.9988228.

If there are *tens of seconds* in addition to the given number of degrees and minutes, and the degrees are found on one of the first 90 pages, then by a similar method to the one just stated, we may find the sine, tangent, &c. of this number of degrees, minutes and seconds. We are to look for the degrees and minutes as before, and then finding the seconds between the given number of minutes and the next greater number of minutes, look opposite them for the number sought. Thus the cosine of 14° 5' 40'' is 9.9867250, the omitted figures 9.986, being supplied; and the tangent of 100° 37' 20'' is 10.7268913.

39. In all other cases the given number of degrees, minutes and seconds will not be found exactly in the table; but the given number of degrees and minutes, and frequently the even tens of seconds also, will be found there, with the corresponding sine, tangent, &c. and next to this sine, tangent, &c. will be found the sine, tangent, &c. for one minute or as the case may be for 10 seconds more; and the required sine, tangent, &c. will fall between the latter and the former: to obtain it, take from the table the former sine, tangent, &c. viz. that which belongs to the given number of degrees and minutes, or degrees, minutes, and even tens of seconds; and for the additional seconds prepare a correction, by multiplying them into the number that is found in the nearest column headed *diff. 1''*, opposite the place where the number sought would fall if inserted in the table: then if the tabular number to be corrected is the least of the two consecutive ones between which the required number falls, the correction thus obtained is to be added to it; but if it be the greatest, the correction is to be subtracted from it.

Thus to find the tangent of 19° 27' 45''.4, take from the table the tangent of 19° 27' which is 9.5479430, and for the seconds

45''.4 obtain a correction by multiplying 45.4 into 67.03 the number found in the nearest column headed dif. 1'' opposite the place where the required tangent would fall if inserted in the table; for it would fall between the tangents of  $19^{\circ} 27'$  and  $19^{\circ} 28'$ . The correction thus obtained is 3043.162 or 3043 if the fraction .162 be neglected. Then as the tangent of  $19^{\circ} 27'$  is less than that of  $19^{\circ} 28'$ , the tangent sought is  $9.5479430 + 3043$  or  $9.5482473$ , the correction being applied to the decimal part of the tabular number, as it should always be.

40. In explanation of the preceding rule, it may be observed that as the sines, tangents, &c. in the table, for the first 90 pages, are given at intervals of 10 seconds, the difference between any two consecutive ones is a difference for 10 seconds; and the part of this difference due to each of the 10 seconds would be a tenth of it, if the differences were the same for all intervals of the same number of seconds: though this is not strictly true to any extent, yet if we regard it as true for an extent only of 60 seconds or less, the resulting error in most cases will be extremely small. Accordingly, in the first 90 pages of the table, *one tenth* of each difference between two consecutive numbers is given, with the implied assumption that it would be the difference of consecutive sines, tangents, &c. for intervals of 1'' each, near the place where it occurs.

And in the latter part of the table, where the intervals are a *minute* each, the differences given for 1'' are the numbers which result from dividing the differences of the consecutive sines, tangents, &c. by 60.

Having thus the variations of sines, tangents, &c. given for intervals of 1'', we can readily find by multiplication the variations for any small number of seconds, and thus from a tabular sine, tangent, &c. near the required one, obtain the required one itself, by applying to the former a correction for the number of seconds' interval between the two.

The number of seconds for which a correction is required will always be less than 60.

41. It will be seen that each column of differences is made to answer for the two columns of tabular numbers on each side of it; one for sines and cosecants, another for tangents and cotangents, and a third for secants and cosines. The reason of this will be obvious if we consider that the natural sine of an angle multiplied by the cosecant of the same angle, equals the square

of the radius or unity; that the logarithm of the sine added to the logarithm of the cosecant accordingly equals 0 which is the logarithm of unity; and if 10 be added to the logarithmic sine and cosecant severally, their sum will become 20. The sum of the numbers given in the table for the sine and cosecant of the same angle, should then be 20 in every case; and if in passing through an interval of 1" or any number of seconds, the sine increases by a certain amount, the cosecant must, for the same interval of variation, decrease by the same amount. The corresponding sines and cosecants therefore vary by equal differences, but in opposite ways.

The same may be said of tangents and cotangents, and also of secants and cosines.

42. In finding a correction to be applied to a tabular number, we may perform the required multiplication in an abbreviated way.

Let the figures of the multiplier be taken in an inverted order, and let the *unit* figure be put under the place of *tenths* in the multiplicand; then if each figure of the multiplier be multiplied into the figure above it and into all the preceding figures of the multiplicand, the following ones being neglected, we shall have several partial products, in each of which the last figure belongs to the place of *tenths*, and the sum of which, if we neglect the final figure, will be the whole correction sought.

For example, if the difference for 1" taken from the table is 67.91, and the number of seconds for which the correction is to be made, 17".32, the method of procedure is as follows.

$$\begin{array}{r}
 67.91 \\
 2371 \\
 \hline
 679.1 \\
 475.3 \\
 20.1 \\
 1.2 \\
 \hline
 1175.7
 \end{array}$$

The correction therefore if we take the nearest whole number is 1176.

Instead of wholly neglecting portions of the multiplicand in the manner specified above, it will be better to regard them so far as is necessary to see what number must be carried from each to make the right hand figure of every partial product as correct as may be.

TABLE OF LOGARITHMIC SINES, &C. (31)

This method of multiplication may be applied to the preceding example thus,

$$\begin{array}{r}
 67.91 \\
 23\ 71 \\
 \hline
 679.1 \\
 475.4 \\
 20.4 \\
 1.4 \\
 \hline
 1176.3
 \end{array}$$

The integral result viz. 1176, does not differ from that before obtained: but in some cases one or two units would be gained in accuracy by the change in question.

43. Two or three examples may now be given, in further illustration of what may be deemed the best method of using the table of sines, tangents, &c.

*To find the cosine of 123° 11' 26".7.*

cos. 123° 11' = 9.7382412,

diff. 1" = 32.18, to be multiplied as below by 26.7.

$$\begin{array}{r}
 32.18 \\
 7\ 62 \\
 \hline
 643.6 \\
 193.1 \\
 22.5 \\
 \hline
 859.2
 \end{array}$$

The resulting correction 859, added to the above tabular number, gives 9.7383271 for the required cosine.

*To find the cosecant of 79° 14' 17".3.*

cosec. 79° 14' 10" = 10.0077094,

diff. 1" = 4.0, which multiplied by 7.3

gives the correction 29. This taken from the tabular number to be corrected, leaves 10.0077065 for the cosecant sought.

*To find the tangent of 168° 36' 47".8.*

tang. 168° 36' 40" = 9.3041318,

diff. 1" = 108.7,

$$\begin{array}{r}
 108.7 \\
 8\ 7 \\
 \hline
 760.9 \\
 87.0 \\
 \hline
 847.9
 \end{array}$$

Subtracting the correction 848, we obtain 9.3040470 for the tangent sought.

*To find the arc answering to a given sine, tangent, &c.*

44. As the sines, tangents, &c. given in the table are those of an exact number of degrees and minutes, or degrees, minutes and tens of seconds, if the proposed number happens to be the same with one of those in the table, it will of course be the sine, tangent, &c. of an exact number of degrees and minutes, or of degrees, minutes and tens of seconds.

Then look for the given sine, tangent, &c. in a column of the table over or under the appropriate name; and if it is found there, the number of degrees required will be found at the top or bottom of the page, according as the name of the given number is at the top or bottom of the column in which it is found; and under or over the number of degrees, in the column at the side, the required number of minutes or as the case may be of minutes and tens of seconds, will be found opposite the given number. Thus the sine 9.9651953 will be found to be the sine of  $67^{\circ} 22'$ . For, looking in the columns marked *sin.* at the top or bottom, we find the proposed number on page 255, in a column having the title *sin.* at the bottom; we therefore take the number of degrees given at the bottom of the page viz.  $67^{\circ}$ , and over this number of degrees, in the right-hand column, we find 22 standing opposite the given sine, for the required number of minutes.

In like manner shall we find that the tangent 9.3178527 is the tangent of  $11^{\circ} 44' 40''$ , the secant 10.8585473 is the secant of  $82^{\circ} 2' 20''$ .

45. There are two numbers of degrees at the top and also at the bottom of each page, one less and the other not less than  $90^{\circ}$ . Their sum is invariably  $179^{\circ}$ ; and under or over each is a column of minutes or of minutes and tens of seconds, at the side of the page, so arranged that the sum of every two opposite numbers in the two columns is  $60'$  or  $1^{\circ}$ . This added to the former sum makes  $180^{\circ}$ ; so that the number of degrees and minutes, as found on the right, is in every case the supplement of the corresponding number of degrees and minutes found on the left hand.



Either of these numbers belongs as properly to the sine, tangent, &c. corresponding to it in the table, as the other; for the *sine* of an angle and that of its supplement are the same: so is it with the *cosecant*. Also the *cosine* of an angle and that of its supplement agree in numerical value, though they have opposite signs. The same is true of the *secant*, *tangent* and *cotangent*.

But in practice, the nature of each case will generally determine whether the required number of degrees is or is not less than  $90^\circ$ .

46. If the proposed sine, tangent, &c. is not to be found exactly in the table, there are however two successive ones between which it falls; then look for these, and taking that which is opposite the least number of minutes or tens of seconds, find the corresponding number of degrees and minutes, or degrees, minutes and tens of seconds, as in the preceding case; and to correct this for the difference between the tabular sine, tangent, &c. just spoken of and the given one, add such a number of seconds as shall result from dividing that difference by the difference for  $1''$  as found at the proper place in the table. The sum will be the required number of degrees, minutes and seconds.

Thus, to find the number of degrees, minutes and seconds answering to the sine 9.9766321.

On the 251st page, in the column marked *sin.* at the bottom, will be found two consecutive numbers between which the proposed sine falls, one opposite 22 the other opposite 23 minutes; taking the former, we find  $71^\circ 22'$  for the corresponding number of degrees and minutes: the difference between the given sine and 9.9766171 is 150; this divided by 7.10 the difference for  $1''$  as found in the table, gives  $21''.13$  for the number of seconds which must be added to  $71^\circ 22'$  to make up the required number of degrees, minutes and seconds.

In like manner the cosine 9.8055233 will be found to be the cosine of  $50^\circ 16' 48''.88$ ; the tangent 9.3768555, the tangent of  $13^\circ 23' 44''.21$ ; the cosecant 10.0059330, the cosecant of  $80^\circ 33' 03''.14$ .

In each of these cases there is also a number of degrees, minutes and seconds *greater* than  $90^\circ$ , answering to the proposed sine, tangent, &c.

47. The number of seconds to be obtained by division according to the preceding rule, may be found most conveniently by cutting off figures from the divisor, instead of annexing ciphers to the dividend when there would be occasion for this in the common mode of dividing. It will be best however to add one cipher to the dividend at the outset. And when the dividend is thus multiplied by 10, if we multiply the divisor also by 10, the value of the quotient will not be affected.

Now for the first 90 pages of the table, the divisors (which are the tabular differences for 1",) have one decimal figure, and multiplying them by 10 makes them all integral. So far as these 90 pages are concerned, the following example will serve to show how the division is to be performed.

Let 2442 be the number to be divided, and 335.3 the tabular difference for 1" by which it is to be divided. Then annexing a cipher to 2442 and dividing by the whole number 3353, we obtain 7 for the first figure of the quotient and 949 for a remainder; if the division is continued, the rest of the quotient will be a decimal: to obtain the next figure, instead of annexing a cipher to 949, we cut off the right hand figure of the divisor and divide 949 by 335; the quotient is 2: this multiplied by 335 gives 670, and if we have regard to the figure cut off, so far as to see what ought to be carried from it to the product obtained from the other figures, we find that this product must be increased by 1, as six tenths is nearer *one* than *nothing*; then subtracting 671 from 949 we find the remainder 278 which divided by 33 gives 8 for the third quotient figure; multiplying by this and carrying 4 as we should do, we obtain 268; this taken from 278 leaves 10, which divided by 3 gives 3 for a fourth quotient figure. This process may be exhibited as follows.

$$\begin{array}{r}
 3353 \overline{)24420} (7.283 \\
 \underline{23471} \\
 949 \\
 \underline{671} \\
 278 \\
 \underline{268} \\
 10 \\
 10
 \end{array}$$

It will hardly ever be worth while to seek for more than *two* decimal figures.

48. From page 248 onwards, the tabular differences for 1" are carried to *two* places of decimals. If these when used for divisors be regarded as integral after the dividend is multiplied by 10, the quotient will be *ten* times too small; but it may readily be made correct by changing the place of the decimal point.

For example, to find the quotient of 1182 divided by 21.48, we may divide 11820 by 2148, as in the scheme annexed, which will give us the figures of the required quotient; but in order that they may have their *local* values, the decimal point must be put after the second figure instead of the first. The quotient as thus determined is 55.03.

$$\begin{array}{r}
 2148)11820(5503 \\
 \underline{10740} \\
 1080 \\
 \underline{1074} \\
 6 \\
 6
 \end{array}$$

49. The following examples may be of use in illustrating what precedes.

*Required the number of degrees, minutes and seconds, whose sine is 9.7035391.*

The number 9.7035329 is the sine of 30° 21'; the difference between 29 and 91 is 62; the tabular difference for 1" is 35.95.

Then,

$$\begin{array}{r}
 3595)620(1.72 \\
 \underline{360} \\
 260 \\
 \underline{252} \\
 8 \\
 7
 \end{array}$$

The answer therefore is 30° 21' 1".72.

*Required the number of degrees, minutes and seconds, whose cotangent is 10.8683783.*

10.8685308 is the cotangent of 7° 42' 30"; the difference of 5308 and 3783 is 1525; the tabular difference for 1", 158.4.

Then,

$$\begin{array}{r}
 1584)15250(9.63 \\
 \underline{14256} \\
 994 \\
 \underline{950} \\
 44 \\
 48
 \end{array}$$

The answer therefore is 7° 42' 39".63.

*We may now explain the use of pages 156 and 157.*

50. By turning to page 158 and several of the following pages, it will be seen that the numbers in the columns marked *diff. 1"* vary rapidly, the difference for the first interval of 10" being infinite, for the next 301030, for the next 176091, &c. whereas these differences further on in the table vary slowly, being nearly the same for several successive intervals of 10". Now in cases where the sine, tangent, &c. are not found in the table, we cannot determine them accurately by the rules we have given for the purpose, unless the differences in question vary slowly; as those rules are founded on the supposition that the differences are, for short distances in the table, nearly uniform. Accordingly, the 156th and 157th pages are prepared as a substitute for the *twelve* subsequent pages, to be used when strict accuracy is required.

In the columns headed *sin. tan. cot. cosec.* are given the logarithmic *sines, tangents, cotangents* and *cosecants*, to every minute of *two* degrees: the columns headed *sec.* and *cos.* contain the corresponding *secants* and *cosines*; of these however, all the figures except the last four are in each case to be found at the head or at the foot of the column. The left hand column of page 156 presents the number of seconds in each number of minutes opposite it in the next column. And in the left hand column of page 157, is given the number of seconds for every number of minutes from 1° or 60' to 2° or 120'.

Under the heading  $q - n$  are two columns of numbers, each consisting of four figures that are to be preceded by the figures 4.685 which stand above and below these columns. Each number in the first of these two columns is the excess of a logarithmic sine opposite and adjacent to it, above the logarithm of the opposite number of seconds at the side of the page on the left; and each number in the other column is the excess of the opposite and adjacent logarithmic tangent, above the logarithm of the opposite number of seconds. Thus 4.6855747 is the excess of 7.1626960 over the logarithm of 300 which is 2.4771213; and 4.6855788 is the excess of 7.7190026 over the logarithm of 1080 which is 3.0334238. The numbers in the columns under the heading  $q + n$ , are such as result from *adding* to each cotangent and cosecant in the adjacent columns, the logarithm of the opposite number of seconds. Thus 15.3144197 is the sum of 12.2140492 and

the logarithm of 1260 which is 3.1003705; and 15.3144398 is the sum of 11.8460925 and the logarithm of 2940 which is 3.4683473.

51. If the sines in the column headed *sin.* were not given, they might be found from the numbers in the next column. For if  $q$  be put for the sine of any number of minutes less than  $120'$  or  $2^\circ$  and  $n$  for the logarithm of the corresponding number of seconds, the value of  $q - n$  will be given by the table; which value increased by  $n$  will be the value of  $q$  the required sine. If for example the sine of  $1^\circ 23'$  be required, we shall find by looking in the first of the columns headed  $q - n$  on page 157, that  $q - n = 4.6855327$ : therefore  $q = 4.6855327 + n$ ; but the logarithm of 4980 the number of seconds in  $1^\circ 23'$  is 3.6972293: hence  $q = 8.3827620$ , the sine required.

In a corresponding manner may tangents, cotangents and cosecants be found. To find for example the cosecant of  $0^\circ 37'$ , we obtain from the table the equation  $q + n = 15.3144335$ , whence  $q = 15.3144335 - n$ ; and as the number of seconds in  $37'$  is 2220 whose logarithm is 3.3463530,  $q = 11.9680805$ .

52. The numbers in the columns headed  $q - n$  and  $q + n$ , are given only at intervals of  $1'$  or  $60''$ ; but they vary so slowly and regularly, that we may by a simple proportion find the corresponding numbers for intervening points with facility and accuracy.

To find for instance in the first of these columns the number belonging to  $0^\circ 40' 37''$ , we observe that its last four figures must be less than 5651 but greater than 5646: the difference of these two numbers viz. 5 being a variation for an interval of  $1'$  or  $60''$ , the part of this variation for  $37''$  may be found by the proportion  $60 : 37 :: 5 : x = \frac{185}{16} = 11.5625 = 3$  nearly. The last four figures of the required number are therefore 5648; and the number itself is 4.6855648. In like manner may we find the number that belongs, in either of the four columns headed  $q - n$  and  $q + n$ , to any number of degrees, minutes and seconds from  $0^\circ$  to  $2^\circ$ .

53. If the numbers thus found by interpolation be increased or as may be necessary diminished in each case by the logarithm of the corresponding number of seconds, the corresponding sines, tangents, cotangents and cosecants will be obtained. Let it be required for example to find the sine of  $1^\circ 3' 41''.79$ . By inspecting the column headed *sin.* on page 157, we shall find that the required sine is between 8.2630424 and 8.2698810. But to obtain it ac-

curately by interpolation in this column would be inconvenient, as the differences of the numbers there are large and vary rapidly.

If however, we put  $q$  for the required sine and  $n$  for the logarithm of the corresponding number of seconds, we can easily obtain the value of  $q - n$  from the proper column headed  $q - n$ : this value is 4.6855500; the correction for 41''.79 being nearly 6, which has to be taken from 5506. Now the number of seconds opposite  $1^\circ 3'$  in the table is 3780, which increased by 41.79 becomes 3821.79 whose logarithm we shall find to be 3.5822669; this is the value of  $n$ , and since  $q - n = 4.6855500$ ,  $q = 8.2678169$ , which is the sine required.

Again, to find the cotangent of  $0^\circ 57' 34''.46$ .

$$\begin{aligned} q + n &= 15.3143845 \\ n &= 3.5383802 \end{aligned}$$

$\therefore q = 11.7760043$ , the cotangent sought.

54. In like manner may these two pages be used, when the number of degrees, instead of being  $0^\circ$  or  $1^\circ$ , is  $88^\circ$ ,  $89^\circ$ ,  $90^\circ$ ,  $91^\circ$ ,  $178^\circ$  or  $179^\circ$ . But if the number of degrees be found at the bottom of the page, the title of the quantity sought must be looked for there also; and if the number of degrees is on the right hand, the number of minutes must be found in the right hand column; and in this case, the opposite number of seconds in the left hand column *diminished* by the given number of seconds, is that whose logarithm  $n$  is intended to represent.

Let it be required to find the tangent of  $88^\circ 21' 37''.5$ .

As  $88^\circ$  is at the bottom of the page and on the right hand, we are to look for the title *tan.* at the bottom, and for 21 the number of minutes, in the right hand column; opposite this number in the first column on the other side of the page will be found 5940, for the number of seconds to be diminished by 37.5 the given number of seconds; the logarithm of the remainder 5902.5 is 3.7710360, which is the value of  $n$ . Opposite 21' and 22', and over the title  $q + n$ , in the column next to the column of tangents, are to be found the numbers 3051 and 3075; the proper intermediate number for 21' 37''.5 is 3066. Therefore  $q + n = 15.3143066$ ; and hence  $q = 11.5432706$ , the tangent sought.

Again, to find the cosine of  $91^\circ 27' 43''.7$ .

$$\begin{aligned} q - n &= 4.6855277 \\ \log. 5263.7 &= n = 3.7212911 \end{aligned}$$

$\therefore q = 8.4068188$ , the required cosine.

To find the cosecant of  $179^\circ 19' 52''.25$ .

$$\begin{array}{r} q+n=15.3144350 \\ \log. 2407.75 = \quad n= 3.3816114 \\ \hline \end{array}$$

$\therefore q = 11.9328236$ , the cosecant sought.

55. The columns having the titles *sec. cos.* at the top, and *cosec. sin.* at the bottom, may be used for finding sines, cosines, secants and cosecants, in the ordinary way.

To obtain for example the cosine of  $1^\circ 17' 25''.5$ .

In the column headed *cos.* and opposite the  $17'$  which stands under  $1^\circ$ , will be found the number 8911; and opposite  $18'$ , the number 8882; the proper intermediate number for  $17' 25''.5$  is 8899, in which we have the last four figures of the required cosine; the preceding figures are 9.999, as found at the top or bottom of the column concerned. The complete cosine therefore is 9.9998899. Thus also the cosecant of  $90^\circ 55' 47''.5$  may be found to be 10.0000572.

Instead of the columns here referred to however, it is best to use the corresponding ones, in the *twelve* subsequent pages.

56. The 156th and 157th pages are likewise to be used, when with a *given sine, tangent, &c.* that falls within the limits of these pages, it is required to determine accurately the number of *degrees, minutes and seconds* to which it belongs. In employing them for this purpose, we have first to find the two consecutive sines, tangents, &c. between which the given one falls, and the corresponding values of  $q-n$  or  $q+n$ . We may then determine by interpolation the value of  $q-n$  or  $q+n$  as the case may be, for the given sine, tangent, &c. itself; which last quantity is represented by  $q$ . If  $q$  be diminished by  $q-n$  or taken from  $q+n$ , the remainder will be  $n$  the logarithm of a number of seconds, from which the number itself is to be found, and thence the required number of degrees, minutes and seconds.

Let it be required to find the degrees, minutes and seconds belonging to the tangent 8.2743291. This falls between the tangents of  $1^\circ 4'$  and  $1^\circ 5'$  opposite which in the preceding column under the heading  $q-n$  are the numbers 6250 and 6266; the intermediate number corresponding to the given tangent, will be found by ordinary interpolation to be 6260; the complete value of  $q-n$  is accordingly 4.6856260. Taking this from  $q$  that is 8.2743291, we find for the value of  $n$ , 3.5887031 which is the

logarithm of the number 3878.851. The number next less than this in the column of seconds is 3840, to which corresponds  $1^{\circ} 4'$ . The required number of degrees, minutes and seconds is therefore  $1^{\circ} 4' 38''.851$ .

Or if we take the number of degrees found on the right hand, we must look for the number of minutes in the right hand column, opposite the number of seconds next *greater* than 3878.851, viz. 3900, and take the difference of 3900 and 3878.851 for the number of the required seconds. In this way we shall obtain  $178^{\circ} 55' 21''.149$  for the number sought; which is evidently the supplement of the one before obtained.

If the title of the given quantity be at the bottom of the page, the required number of degrees is to be found there also.

57. To obtain the value of  $q - n$  or  $q + n$  corresponding to the given *sine, tangent, &c.* we may find *approximately* by the *general table* the required number of degrees, minutes and seconds, and take the value of  $q - n$  or  $q + n$  as the case may be, corresponding to the number thus found.

The required number of degrees, minutes and seconds in the preceding example, we shall readily find on page 164 to be nearly  $1^{\circ} 4' 40''$ . Then as the numbers in the proper column headed  $q - n$  on page 157 which correspond to  $1^{\circ} 4'$  and  $1^{\circ} 5'$  are 6250 and 6266, the intermediate number corresponding to  $1^{\circ} 4' 40''$  is easily seen to be 6261 nearly, which differs only a unit in the last place of figures from the result before obtained viz. 6260. And if we take 4.6856261 for the value of  $q - n$ , the value of  $n$  will be 3.5887030; which is the logarithm of 3878.85. The required number of degrees, minutes and seconds thus obtained is  $1^{\circ} 4' 38''.85$ , differing only a thousandth of a second from the previous result.

58. If the given quantity belongs to either of the columns headed *sec.* and *cos.* the required number of degrees, minutes and seconds is to be found in the ordinary way. In this case however, it is better to make use of one of the *twelve* subsequent pages.



TABLE OF NATURAL SINES AND COSINES. (41)

TABLE OF NATURAL SINES AND COSINES: pp. 279-287.

59. This is a table of natural sines and cosines for every minute from  $0^\circ$  to  $90^\circ$ , carried to *five* places of decimals. The decimal point, omitted for convenience, is to be prefixed to each sine and cosine as given in the table.

*To find the sine or cosine of a given number of degrees and minutes.*

If the given number is *less* than  $45^\circ$ , look for the degrees at the top of the page and for the minutes on the left: then opposite the minutes and under the degrees in the column headed *sin.* or *cos.* as the case may be, will be found the required sine or cosine.

If the number of degrees and minutes falls between  $45^\circ$  and  $90^\circ$ , the degrees must be looked for at the bottom of the page, and the minutes on the right: then opposite the minutes and over the degrees in the column having the proper title at the *foot*, will be found the required sine or cosine.

The *sine* of  $7^\circ 33'$  is .13139, and the *cosine* of  $67^\circ 31'$  is .38241.

60. At the top of each page and on the left hand are given the differences between consecutive numbers in the columns headed *sin.* These differences are for intervals of 1' or 60" each. In columns under them are given the proportional parts for every number of seconds less than 60; the part belonging to any number of seconds, standing opposite this number as found in the adjacent column of minutes.

There are like columns of differences and proportional parts on the *right*, over the title *Diff.* to be used in connexion with the columns headed *cos.*

*To find by aid of these columns the sine or cosine of a given number of degrees, minutes and SECONDS.*

Look for the two consecutive sines or cosines between which the required one must fall; find their difference and the proportional part of it belonging to the given number of seconds; this *added* to the *sine* of the given number of *degrees* and *minutes* or *subtracted* from the *cosine* as the case may be, will give the required sine or cosine.

To find the sine of  $28^{\circ} 43' 51''$ .

This must fall between the sines of  $28^{\circ} 43'$  and  $28^{\circ} 44'$ . The sine of  $28^{\circ} 43'$  as found in the table is 48048, and differs 25 from that of  $28^{\circ} 44'$ : 25 being a variation for 1' or 60'', to find the part belonging to 51'' look in the column of proportional parts under 25, and opposite 51 in the adjacent column of minutes, where will be found the number 21; which *added* to the sine of  $28^{\circ} 43'$  gives .48069 for the required sine.

To find the cosine of  $67^{\circ} 21' 37''$ .

The cosine of  $67^{\circ} 21'$  is .38510, and differs 27 from that of  $67^{\circ} 22'$ : the proportional part of 27 for 37'' is 17; which *subtracted* from .38510 gives .38493 for the cosine required.

61. If the number of degrees, minutes and seconds is between  $90^{\circ}$  and  $180^{\circ}$ , take the *cosine* or *sine* of its excess above  $90^{\circ}$ , according as the *sine* or *cosine* of the given number is required. Thus for the *sine* of  $143^{\circ} 20' 17''$  take the *cosine* of  $53^{\circ} 20' 17''$ , and for the *cosine* of  $117^{\circ} 26' 35''$  take the *sine* of  $27^{\circ} 26' 35''$ .

If regard is to be had to positive and negative signs, the *cosine* of more than  $90^{\circ}$  must be taken *negatively*.

62. *To find the number of degrees, minutes and seconds answering to a given sine or cosine.*

If the given number is the same with one of those in the table, the required number will consist of degrees and minutes only.

Then if the column which contains the given number has the *name* of that number at the top, the required degrees will be found there also, and the minutes will be found opposite the number, in the column of minutes on the left: but if the name of the given number appears at the *foot* of the column concerned, the degrees will be found *there*, and the minutes on the right.

The *sine* .92870 is that of  $68^{\circ} 14'$ , and the *cosine* .87321 is that of  $29^{\circ} 10'$ .

When the given sine or cosine is not to be found in the table, look for the two consecutive sines or cosines between which it falls; one of these must answer to the number of *degrees* and *minutes* required; find the difference between it and the given sine or cosine, also the difference between it and the other tabular sine or cosine; then under or over the latter difference in a column of proportional parts, find the former difference; opposite that, in the adjacent column of minutes, will be found the required number of *seconds*.

To find the number of degrees, minutes and seconds answering to the cosine .93208.

This falls between the cosines of  $21^{\circ} 14'$  and  $21^{\circ} 15'$  given in the table.  $21^{\circ} 14'$  is therefore the required number of degrees and minutes. The cosine of  $21^{\circ} 14'$  differs 3 from the given one, and differs 10 from the cosine of  $21^{\circ} 15'$ . On page 282 in the column of proportional parts *over* the difference 10, will be found the number 3 opposite the numbers from 15 to 20 in the adjacent column of minutes: one of these numbers is to be taken for the required number of seconds; let this be 18, as being near the middle of them; then  $21^{\circ} 14' 18''$  is the number of degrees, minutes and seconds required.

To find the number of degrees, minutes and seconds whose sine is .82036.

This falls between the sines of  $55^{\circ} 7'$  and  $55^{\circ} 8'$ . The sine of  $55^{\circ} 7'$  differs 4 from the given one, and differs 16 from that of  $55^{\circ} 8'$ . The number 4 in the column of proportional parts over the difference 16, stands opposite 15 in the adjacent column of minutes: this is to be taken for the required number of seconds.  $55^{\circ} 7' 15''$  is then the number of degrees, minutes and seconds sought.

#### TABLE OF LOGARITHMS OF NUMBERS: pp. 289-293.

63. This is a table of logarithms of numbers carried to *five* places of decimals. The logarithms are given without any characteristics; and to be fitted for use, must in each case be preceded by a decimal point and the proper characteristic as determined by the rule in Art. 6.

*To find by this table the logarithm of a given number.*

64. If the number consist of *three* significant figures, look for them in a column headed *N*: then in the next column headed *Log.* and opposite those figures will be found the mantissa of the logarithm sought.

The mantissa of the logarithm of 37.9 is .57864, and the whole logarithm 1.57864.

If the number has only two significant figures, annex a cipher, or if it has only one, annex two ciphers, and then proceed as before.

65. If the number consists of *more than three* significant figures, look for the logarithm answering to the first three significant figures, as in the preceding case: and then if these figures are found on one of the first three pages of the table, look opposite them in the column of proportional parts under the *fourth* figure, for a correction which is to be added to the logarithm of the first three figures; and if there is a *fifth* figure, then in the column under this and opposite the first three figures may be found a number which divided by 10 will give the proper additional correction: the correction due to a *sixth* figure may be found in a similar manner, the divisor 10 being however exchanged for 100.

To find the logarithm of 30.1745.

The decimal part of the logarithm of 301 is 47857; the correction for 7 is 101, for 4, 5.7, for 5, .72: the whole correction therefore is 107 nearly. Then 47964 preceded by the decimal point and the proper characteristic viz. 1 is the logarithm sought.

But if the first three figures of the given number with the corresponding logarithm are found in one of the *last two pages* of the table, look on the right, in the nearest column headed *D.* for the difference between this and the following logarithm; and look for the same difference on page 293 under the heading *D.* in the table of differences and proportional parts: then opposite this difference, and under the *fourth* figure of the number will be found the correction due to that figure, and under the *fifth*, 10 times the correction due to that, and under the *sixth*, 100 times the correction due to that; whence may be easily obtained the whole correction which added to the logarithm of the first three figures of the proposed number will give the logarithm sought.

To find the logarithm of 7.41809.

The logarithm of 741 as given in the table is 86982; the corresponding difference in the column headed *D.* is 58; opposite this difference and under 8, in the table of differences and proportional parts on page 293, stands the number 46, which is the first correction; and under 9 stands the number 52, one hundredth of which is the next correction: the whole correction therefore is 46.52 or 47 if the nearest integer be taken, and the required logarithm is .87029.

In seeking the number which corresponds to a given logarithm, the next table should be used.

## TABLE OF ANTILOGARITHMS: pp. 294-299.

66. This is a table of numbers answering to given logarithms. In the columns headed *L.* are the mantissas of logarithms carried to *three* places of decimals. In each column headed *Num.* are the first *five* figures of the numbers belonging to the mantissas in the preceding column.

To find by this table the number answering to a given logarithm.

67. If the mantissa of the logarithm consist of only *three* decimal figures, look for these figures in the column headed *L.* then in the next column headed *Num.* and opposite those figures, will be found the first five figures of the required number. The characteristic of the given logarithm will show where to place the decimal point in this number.

To find the number answering to the logarithm 2.057.

Opposite the decimal .057 as found in a column headed *L.* stands the number 11402 in the succeeding column headed *Num.* and as the index of the given logarithm is 2, the number sought must have *three* integral figures: it is therefore 114.02.

68. If the mantissa of the given logarithm consists of *more than three* figures, look for the number answering to the first *three* figures, as in the preceding case: and then if these figures are found on one of the last four pages of the table, look opposite them on the right in the adjacent table of proportional parts and in the column under the fourth figure, for a correction which is to be added to the number answering to the first three figures of the given mantissa; and if there is a fifth figure in the mantissa, then in the column under this, will be found a number which divided by 10 is the proper additional correction: if there is also a sixth figure, the correction due to that may be found in the same way, except that the divisor 10 must be changed to 100.

To find the number answering to the logarithm 5.830309.

Opposite the decimal .830 in the table is the number 67608, and under the heading 3 in the table of proportional parts is 47, the first correction; under 9 is 141, one hundredth of which is another correction: the sum of the two is 48 nearly, which added to 67608 gives 67656; and as the index of the logarithm is 5, the number sought must have *six* integral figures: it is therefore 676560.

But if the first three figures of the given mantissa with the number corresponding, are found on one of the first two pages of the table, look on the right in the adjacent column headed *D.* where will be found the difference between that and the following number, and look for the same difference on page 295 in the table of differences and proportional parts under the heading *D.* then opposite this difference, and under the *fourth* figure of the mantissa, will be found the correction due to that figure, under the *fifth*, 10 times the correction due to that, and under the *sixth*, 100 times the correction due to that.

To find the number belonging to the logarithm  $\bar{2}.016439$ .

The number answering to the decimal .016 in the table is 10375; the adjacent number in the column marked *D.* is 24; opposite the *difference* 24 in the table of proportional parts on page 295, stand 10 in the column headed 4, 7 in the column headed 3, and 22 in the column headed 9: the correction to be added to 10375 is therefore  $10 + .7 + .22$ , or 11 nearly; and as the index of the given logarithm is  $-2$ , the number sought must be .010386.

#### TABLE OF LOGARITHMIC SINES, TANGENTS, &c. pp. 300–322.

69. This is a table of artificial sines, tangents, &c. to every minute from  $0^\circ$  to  $180^\circ$ , carried to *five* places of decimals; and is designed for use in connexion with the two preceding tables.

*To find by this table the sine, tangent, &c. of a given number of degrees and minutes.*

Look for the number of degrees at the top or bottom of one of the pages; and according as this number is on the right or left, look on the right or left for the number of minutes: then opposite the minutes, will be found the last four or five figures of the required sine, tangent, &c. in the column having the corresponding title at the head or foot, according as the degrees are found at the top or bottom of the page: the preceding figures may be found either at the head or at the foot of the column in which the others occur.

Thus the tangent of  $96^\circ 36'$  is found to be 10.93665. In this case the title *tan.* is looked for at the bottom of the page, because  $96^\circ$  the given number of degrees is found there, and the minutes are looked for in the left hand column, as  $96^\circ$  is on the left of the accompanying number  $83^\circ$ .

TABLE OF LOGARITHMIC SINES, &c. (47)

When the numbers at the head and foot of a column are not the same, they are marked with an *asterisk*, and the upper or the lower one is to be prefixed to the numbers in the intervening column, according as these numbers are above or below that in which occurs the *character* \* standing for 0. This number itself must be preceded by the larger of the two numbers marked with the asterisk.

The cotangent of  $172^{\circ} 54'$  is 10.90463,  
 "  $172^{\circ} 50'$  " 10.90053,  
 "  $172^{\circ} 33'$  " 10.88351.

To find the sine, tangent, &c. of a given number of degrees, minutes and seconds.

70. If the number of degrees is  $0^{\circ}$ ,  $89^{\circ}$ ,  $90^{\circ}$  or  $179^{\circ}$ , it will be found at the beginning of the table on page 300; and the required sine, tangent, &c. is to be found as in the case where page 156 is employed. The method of using that page is pointed out in Arts. 51, 52, &c. One or two examples will be sufficient to show how we are to proceed in the case before us.

To find the tangent of  $90^{\circ} 23' 47''$ .

This must fall between the tangents of  $90^{\circ} 23'$  and  $90^{\circ} 24'$ . Opposite these tangents in the adjacent column stands the number 42, which is the last part of the quantity denoted by  $q+n$ , the first part viz. 15.314 being at the top and bottom of the columns headed  $q+n$ . 15.31442 is then the whole value of  $q+n$ .

The number of seconds in the left hand column opposite  $23'$  is 1380; this added to 47 gives 1427, the logarithm of which as obtained from page 289 is 3.15442: this is the value of  $n$ ; hence  $q$  the required tangent is 12.16000.

To find the cotangent of  $89^{\circ} 31' 26''$ .

This must fall between the cotangents of  $89^{\circ} 31'$  and  $89^{\circ} 32'$ , opposite which in the adjacent column headed  $q-n$  are the numbers 59 and 58, the former of which preceded by the figures 4.685 over and under the column headed  $q-n$ , gives 4.68559 for the value of  $q-n$ . In the column of seconds is the number 1740 opposite  $31'$  in the *right hand* column of minutes; which column is used in this case because  $89^{\circ}$  is a right hand number of degrees. 1740 *diminished* by 26 gives 1714, whose logarithm  $n$  is 3.23401. The required quantity  $q$  is therefore 7.91960.

In like manner the cosecant of  $179^{\circ} 46' 18''$  will be found to be 12.39956.

But if for example the *sine* of  $90^\circ 46' 42''$  be required, it is sufficient to look for it as the *sine* of  $90^\circ 47'$ , which is found at once to be 9.99996.

71. All of the table except the part just noticed, is to be used according to the following directions.

Find the *sine*, *tangent*, &c. of the given degrees and minutes, and according as this is less or is greater than the one required, correct it for the additional seconds, by adding or by subtracting the number in the adjacent column headed *d.* that stands opposite the given number of seconds as found in the left hand column of minutes.

If however the *sine*, *tangent*, &c. of the given degrees and minutes be found on one of the first *eight* pages of the table, correct it by adding or subtracting the product of the given number of seconds into the number in the adjacent column headed *d. 1''*, that stands between the tabular *sine*, *tangent*, &c. next greater and that next less than the required one.

To find the cotangent of  $72^\circ 36' 42''$ .

The cotangent of  $72^\circ 36'$  is 9.49607: and in the proper column headed *d.* is the number 31 opposite 42 in the left hand column of minutes. 31 *subtracted* from 9.49607 leaves 9.49576 for the cotangent sought.

To find the cosine of  $99^\circ 27' 44''.6$ .

The cosine of  $99^\circ 27'$  is 9.21534; the product of 44.6 into 1.27 the difference for  $1''$  as found in the table is 57 nearly, which added to 9.21534 gives 9.21591 for the cosine required.

To find the secant of  $166^\circ 41' 38''$ .

This must fall between the secants of  $166^\circ 41'$  and  $166^\circ 42'$  which are 10.01184 and 10.01181, their difference being 3: as this is a difference for an interval of one minute,  $\frac{3}{60}$  or  $\frac{1}{20}$  must be the difference for  $1''$ ; this multiplied by 38 is  $\frac{3}{5}$  or 2 nearly, which taken from 10.01184, leaves 10.01182 for the secant sought.

This example is designed to show how we are to proceed in all cases when the differences for  $1''$  are not to be found in the table.

*To find the number of degrees, minutes and seconds belonging to a given sine, tangent, &c.*

72. Look for the given *sine*, *tangent*, &c. in a column having the appropriate title at the top or bottom, and if it be found there,



the required number will consist of degrees and minutes only : then look for the degrees at the top or bottom of the page, according as the name of the given quantity is at the top or bottom of the column in which it is found ; and look for the minutes on the right or left, according as the right or left hand number of degrees is taken for the required one.

Thus if the quantity given is the secant 10.50004, we find it on page 309, in a column having the title *sec.* at the bottom. The number of degrees found there is, on the left hand  $108^\circ$ , and on the right  $71^\circ$  ; and the number of minutes is  $26'$  or  $34'$ , according as it is found on the left or on the right. The given number is therefore the secant of  $108^\circ 26'$  or  $71^\circ 34'$ .

73. But if the given sine, tangent, &c. is not to be found exactly in the table, look for the two consecutive ones between which it falls, and taking that which is opposite the least number of minutes, find the corresponding number of degrees and minutes, and for the additional number of seconds due to the difference between the given sine, tangent, &c. and the tabular one just specified, look in the left hand column of minutes opposite this difference as found in the appropriate column headed *d.*

Thus if the number of degrees, minutes and seconds whose cosine is 9.49741 be sought, we readily find for the required number of degrees and minutes  $71^\circ 40'$ , whose cosine is 9.49768, exceeding the given cosine by 27 : then in the left hand column of minutes, and opposite 27 in the appropriate column headed *d.* we find 43 for the required number of seconds. The number sought is therefore  $71^\circ 40' 43''$ .

If  $108^\circ$  be taken for the degrees instead of  $71^\circ$ , the minutes will be  $19'$  and the seconds  $17''$  or  $18''$ .

When the required number of degrees and minutes is found on one of the first *eight* pages of the table, the additional seconds are not to be found in the manner above indicated ; but to obtain them, we must divide the difference between the given sine, tangent, &c. and the sine, tangent, &c. of the required number of degrees and minutes, by the difference for  $1''$  as found in the appropriate column headed *d. 1''*. Thus if the degrees, minutes and seconds corresponding to the cotangent 10.99208 be sought, we find  $5^\circ 48'$  for the required degrees and minutes, the cotangent of which is 10.99321, exceeding the given cotangent by

113; this divided by 2.10 the difference for 1" as found in the table, gives 54 nearly for the required number of seconds.

To find the degrees, minutes and seconds whose cosecant is 10 00626.

This falls between 10.00628 and 10.00625, the cosecants of  $80^\circ 17'$  and  $80^\circ 18'$ , the former of which exceeds the latter by 3 and exceeds the given cosecant by 2: and as 3 is the difference for 1' or 60", the number of seconds to which the difference 2 is due, must be  $\frac{2}{3}$  of 60.

The number required is therefore  $80^\circ 17' 40''$ .

This example will serve to show how we are to proceed in all cases when the differences for 1" are not given in the table.

74. Lastly, if the required number of degrees is found to be either  $0^\circ$ ,  $89^\circ$ ,  $90^\circ$  or  $179^\circ$ , look opposite the sine, tangent, &c. nearest the given one, for the corresponding value of  $q - n$  or  $q + n$  in the adjacent column, and subtract the given quantity from  $q + n$  or diminish it by  $q - n$  as the case may be, to obtain  $n$  the logarithm of a number of seconds. Then having found the required number of degrees and minutes, look opposite the minutes and in the column on the left, for a number of seconds: the difference between this and the number whose logarithm is  $n$ , will be the number of seconds required.

Thus if the degrees, minutes and seconds answering to the cotangent 7.96304 be required; we find the nearest cotangent to be 7.96889, and the corresponding value of  $q - n$  to be 4.68559; which taken from the given cotangent leaves 3.27745 for the value of  $n$ . The number answering to this logarithm is 1894.3, as may be readily found from the table of antilogarithms. The required number of degrees and minutes is  $89^\circ 28'$ , and 1920 is the number of seconds on the left, opposite 28'. The required number of seconds therefore is  $25''.7$ , which is the difference between  $1920''$  and  $1894''.3$ .

If however the given number belong to one of the two columns headed *sec.* and *cos.* the required number is to be found directly by inspection. Thus if the cosecant 10.00004 be the number given, we shall find it in the table with  $89^\circ 11'$ ,  $89^\circ 12'$ ,— $89^\circ 16'$ , for corresponding numbers; either of which or rather the mean of them viz.  $89^\circ 13' 30''$  may be taken for the number sought.

TRAVERSE TABLE, OR TABLE OF DEPARTURE AND DIFFERENCE OF LATITUDE : pp. 323-329.

75. In this table are given the differences of latitude and the departures, to four or five places of decimals, for distances from 1 to 9 inclusive, and for courses or bearings from  $0^{\circ}$  to  $90^{\circ}$  at intervals of  $15'$ , as also for each of the 32 *quarter points* of the quadrant.

These distances may be reckoned as *tens, hundreds, thousands, &c.* or *tenths, hundredths, thousandths, &c.* if the position of the decimal point in each departure and difference of latitude in the table be changed accordingly.

*To find the departure and difference of latitude for a given distance and bearing.*

If the given bearing is less than  $45^{\circ}$ , look for it on the left in one of the pages of the table, and look for the distance at the top or bottom of the page : then over or under the distance and opposite the bearing, will be found the difference of latitude in the column *headed diff. lat.* and the departure in the next column : but if the bearing is more than  $45^{\circ}$ , look for it on the right ; and then for the difference of latitude, look in the column *over* the title *diff. lat.* and look for the departure in the *preceding* column.

Thus for the bearing  $10^{\circ} 45'$  and the distance 7, the difference of latitude and the departure will be found to be 6.8772 and 1.3057, respectively.

And for the bearing  $63^{\circ} 30'$  with the distance  $30 = 3$  *tens*, the difference of latitude and the departure are 13.3859 and 26.8480.

When the given distance has *more than one* significant figure, find the departure and difference of latitude for each numeral figure of the distance having regard to its local value, and take the sum of the several differences of latitude thus found, for the whole difference of latitude, and the sum of the several departures for the whole departure.

Thus, if with the bearing  $54^{\circ} 15'$  there be given the distance 63.049, we shall find the differences of latitude for the parts of the distance represented by the several figures 6, 3, 4, 9 to be 35.055, 1.75275, .02337, .0052582 : then, neglecting a few of the last decimal figures, we may take the sum of 35.055, 1.7527, .0234 and .0053, (which is 36.8364,) for the required difference of latitude. The departure found in like manner is 51.1685.

If the given bearing falls between two consecutive bearings in the table, the departure and difference of latitude may be found by interpolation in the usual way.

Thus if the distance be 4 and the bearing be  $6^{\circ} 20'$ , we shall find the difference of latitude to be 3.97553 and the departure 0.44125.

76. The traverse table will serve to show the comparative values of the parts of any right angled triangle: for if the hypotenuse be regarded as a distance, and one of the acute angles as a bearing, the opposite side will be the corresponding departure, and the remaining side the difference of latitude.

Of the four quantities, distance, bearing, departure, and difference of latitude, if any two be given, the others corresponding to these may be readily obtained. They are to be looked for at the place in the table where the two given ones shall be found to correspond.

Thus if there be given the departure 3.90518 and the difference of latitude 0.86576, 4 will be found for the corresponding distance, and  $77^{\circ} 30'$  for the bearing.

If the two given quantities cannot be found corresponding exactly in the table, the required quantities must be obtained by interpolation.

TABLE OF MERIDIONAL PARTS: pp. 330–337.

77. This is a table giving, to every minute of latitude, the length of Mercator's meridian expressed in geographical miles or minutes of an arc at the equator. The miles in the length of this meridian for any latitude, are called the *meridional parts* for that latitude. These parts carried to *tenths*, are placed in the table under the degrees and opposite the minutes of the corresponding latitudes. Thus the meridional parts for the latitude  $3^{\circ} 40'$  are 220.2, and for  $30^{\circ} 27'$  they are 1919.6.

WORKMAN'S TABLE FOR CORRECTING MIDDLE LATITUDE: p. 338.

78. If the departure made by a ship in sailing on a single course from one parallel of latitude to another, be reckoned in degrees, minutes and seconds upon a parallel whose latitude is a mean between the latitude left and the one arrived at, it will correspond

nearly with the difference of longitude made by the ship. But that the correspondence may be exact, the departure must be reckoned upon a parallel whose latitude is somewhat greater than the *middle latitude* just mentioned. The table in question is designed to furnish for the most important cases, the correction that must be added to the middle latitude to give this greater latitude.

The correction may be found *in minutes*, by looking under the difference of the two given latitudes and opposite the middle latitude.

Thus if the two latitudes concerned are  $37^\circ$  and  $53^\circ$ , the middle latitude is  $45^\circ$ , the difference of latitude  $16^\circ$ , and the required correction  $35'$ ; which added to the middle latitude gives  $45^\circ 35'$  for the middle latitude corrected.

TABLES: pp. 339, 340.

79. The use of the *Table for computing Compound Interest* is too obvious to require any illustration.

80. The use of the *Tables for interchanging Common and Hyperbolic Logarithms* may be learned from the three following examples.

(1.) The *common* logarithm of a number being 2.840651, to find the *hyperbolic* logarithm of the same number, with *nine* or *ten* decimal figures.

|                 |           |                     |
|-----------------|-----------|---------------------|
| 2               | . . . . . | 4.6051701860        |
| .8              | . . . . . | 1.8420680744        |
| .04             | . . . . . | 0.0921034037        |
| .0006           | . . . . . | 0.0013815511        |
| .00005          | . . . . . | 0.0001151293        |
| .000001         | . . . . . | 0.0000023026        |
| <u>2.840651</u> | . . . . . | <u>6.5408406471</u> |

If the given logarithm has a *negative* characteristic, we may proceed as in the following case.

(2.) To convert the *common* logarithm  $\bar{6}.89042$  into a *hyperbolic* logarithm carried to the *tenth* decimal place.

$$\bar{6}.89042 = -5.10958$$

|           |   |   |   |   |   |                         |
|-----------|---|---|---|---|---|-------------------------|
| 5         | . | . | . | . | . | 11.5129254650           |
| .1        | . | . | . | . | . | 0.2302585093            |
| .009      | . | . | . | . | . | 0.0207232658            |
| .0005     | . | . | . | . | . | 0.0011512925            |
| .00008    | . | . | . | . | . | 0.0001842068            |
| <hr/>     |   |   |   |   |   |                         |
| - 5.10958 | . | . | . | . | . | - 11.7652427394         |
|           |   |   |   |   |   | = $\bar{12}.2347572606$ |

(3.) The *hyperbolic* logarithm of a number being 3.0290119, to find the corresponding *common* logarithm with *ten* decimal figures.

|           |   |   |   |   |   |              |
|-----------|---|---|---|---|---|--------------|
| 3         | . | . | . | . | . | 1.3028834457 |
| .02       | . | . | . | . | . | 0.0086858896 |
| .009      | . | . | . | . | . | 0.0039086503 |
| .00001    | . | . | . | . | . | 0.0000043429 |
| .000001   | . | . | . | . | . | 0.0000004343 |
| .0000009  | . | . | . | . | . | 0.0000003909 |
| <hr/>     |   |   |   |   |   |              |
| 3.0290119 | . | . | . | . | . | 1.3154831537 |

81. To show the use of the *Table for finding the lengths of Circular Arcs* the following example will be sufficient.

To find the length of an arc of  $207^\circ 41' 38''.09$ , with *twelve* decimal figures.

|                  |   |   |   |   |   |                |
|------------------|---|---|---|---|---|----------------|
| 200°             | . | . | . | . | . | 3.490658503989 |
| 7°               | . | . | . | . | . | 0.122173047640 |
| 40'              | . | . | . | . | . | 0.011635528347 |
| 1'               | . | . | . | . | . | 0.000290888209 |
| 30''             | . | . | . | . | . | 0.000145444104 |
| 8''              | . | . | . | . | . | 0.000038785094 |
| 0''.09           | . | . | . | . | . | 0.000000436332 |
| <hr/>            |   |   |   |   |   |                |
| 207° 41' 38''.09 | . | . | . | . | . | 3.624942633715 |

82. With regard to the two tables on *page 340*, no explanation is necessary.

LOGARITHMS OF NUMBERS.

| N. | Log.     | N.  | Log.     | N.  | Log.     | N.  | Log.     | N.  | Log.     |
|----|----------|-----|----------|-----|----------|-----|----------|-----|----------|
| 1  | 000 0000 | 67  | 826 0748 | 134 | 127 1048 | 201 | 303 1961 | 267 | 426 5113 |
| 2  | 301 0300 | 68  | 832 5089 | 135 | 130 3338 | 202 | 305 3514 | 268 | 428 1348 |
| 3  | 477 1213 | 69  | 838 8491 | 136 | 133 5389 | 203 | 307 4960 | 269 | 429 7523 |
| 4  | 602 0600 | 71  | 851 2583 | 137 | 136 7206 | 204 | 309 6302 | 271 | 432 9693 |
| 5  | 698 9700 | 72  | 857 3325 | 138 | 139 8791 | 205 | 311 7539 | 272 | 434 5669 |
| 6  | 778 1513 | 73  | 863 3229 | 139 | 143 0148 | 206 | 313 8672 | 273 | 436 1626 |
| 7  | 845 0980 | 74  | 869 2317 | 141 | 149 2191 | 207 | 315 9703 | 274 | 437 7506 |
| 8  | 903 0900 | 75  | 875 0613 | 142 | 152 2883 | 208 | 318 0633 | 275 | 439 3327 |
| 9  | 954 2425 | 76  | 880 8136 | 143 | 155 3360 | 209 | 320 1463 | 276 | 440 9091 |
| 11 | 041 3927 | 77  | 886 4907 | 144 | 158 3625 | 211 | 324 2825 | 277 | 442 4798 |
| 12 | 079 1812 | 78  | 892 0946 | 145 | 161 3680 | 212 | 326 3359 | 278 | 444 0448 |
| 13 | 113 9434 | 79  | 897 6271 | 146 | 164 3529 | 213 | 328 3796 | 279 | 445 6042 |
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| 26 | 414 9733 | 93  | 968 4829 | 159 | 201 3971 | 226 | 354 1084 | 293 | 466 8676 |
| 27 | 431 3638 | 94  | 973 1279 | 161 | 206 8259 | 227 | 356 0259 | 294 | 468 3473 |
| 28 | 447 1580 | 95  | 979 4189 | 162 | 209 5150 | 228 | 357 9348 | 295 | 469 8220 |
| 29 | 462 3980 | 96  | 982 2712 | 163 | 212 1876 | 229 | 359 8355 | 296 | 471 2917 |
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| 33 | 518 5139 | 99  | 995 6352 | 166 | 220 1081 | 233 | 367 3559 | 299 | 475 6712 |
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| 41 | 612 7839 | 107 | 029 3838 | 174 | 240 5492 | 241 | 382 0170 | 307 | 487 1384 |
| 42 | 623 2493 | 108 | 033 4238 | 175 | 243 0380 | 242 | 383 8154 | 308 | 488 5507 |
| 43 | 633 4685 | 109 | 037 4265 | 176 | 245 5127 | 243 | 385 6063 | 309 | 489 9585 |
| 44 | 643 4527 | 111 | 045 3230 | 177 | 247 9733 | 244 | 387 3898 | 311 | 492 7604 |
| 45 | 653 2125 | 112 | 049 2180 | 178 | 250 4200 | 245 | 389 1661 | 312 | 494 1546 |
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| 47 | 672 0979 | 114 | 056 9049 | 181 | 257 6786 | 247 | 392 6970 | 314 | 496 9296 |
| 48 | 681 2412 | 115 | 060 6978 | 182 | 260 0714 | 248 | 394 4517 | 315 | 498 3106 |
| 49 | 690 1961 | 116 | 064 4580 | 183 | 262 4511 | 249 | 396 1993 | 316 | 499 6871 |
| 51 | 707 5702 | 117 | 068 1859 | 184 | 264 8178 | 251 | 399 6737 | 317 | 501 0593 |
| 52 | 716 0033 | 118 | 071 8820 | 185 | 267 1717 | 252 | 401 4005 | 318 | 502 4271 |
| 53 | 724 2759 | 119 | 075 5470 | 186 | 269 5129 | 253 | 403 1205 | 319 | 503 7907 |
| 54 | 732 3938 | 121 | 082 7854 | 187 | 271 8416 | 254 | 404 8337 | 321 | 506 5050 |
| 55 | 740 3627 | 122 | 086 3598 | 188 | 274 1578 | 255 | 406 5402 | 322 | 507 8559 |
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| 59 | 770 8520 | 126 | 100 3705 | 193 | 285 5573 | 259 | 413 2998 | 326 | 513 2176 |
| 61 | 785 3298 | 127 | 103 8037 | 194 | 287 8017 | 261 | 416 6405 | 327 | 514 5478 |
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| 64 | 806 1800 | 131 | 117 2713 | 197 | 294 4662 | 264 | 421 6039 | 331 | 519 8280 |
| 65 | 812 9134 | 132 | 120 5739 | 198 | 296 6652 | 265 | 423 2459 | 332 | 521 1381 |
| 66 | 819 5439 | 133 | 123 8516 | 199 | 298 8531 | 266 | 424 8816 | 333 | 522 4442 |

N. Log. N. Log. N. Log. N. Log. N. Log.

| N.  | Log.     | N.  | Log.     | N.  | Log.     | N.  | Log.     | N.  | Log.     |
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| 341 | 532 7544 | 407 | 609 5944 | 474 | 675 7783 | 541 | 733 1973 | 607 | 783 1887 |
| 342 | 534 0261 | 408 | 610 6602 | 475 | 676 6936 | 542 | 733 9993 | 608 | 783 9036 |
| 343 | 535 2941 | 409 | 611 7233 | 476 | 677 6070 | 543 | 734 7998 | 609 | 784 6173 |
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| 346 | 539 0761 | 413 | 615 9501 | 479 | 680 3355 | 546 | 737 1926 | 613 | 787 4605 |
| 347 | 540 3295 | 414 | 617 0003 | 481 | 682 1451 | 547 | 737 9873 | 614 | 788 1684 |
| 348 | 541 5792 | 415 | 618 0481 | 482 | 683 0470 | 548 | 738 7806 | 615 | 788 8751 |
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| 352 | 546 5427 | 418 | 621 1763 | 485 | 685 7417 | 552 | 741 9391 | 618 | 790 9885 |
| 353 | 547 7747 | 419 | 622 2140 | 486 | 686 6363 | 553 | 742 7251 | 619 | 791 6906 |
| 354 | 549 0033 | 421 | 624 2821 | 487 | 687 5290 | 554 | 743 5098 | 621 | 793 0916 |
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| 362 | 558 7086 | 428 | 631 4438 | 495 | 694 6052 | 562 | 749 7362 | 628 | 797 9596 |
| 363 | 559 9066 | 429 | 632 4573 | 496 | 695 4817 | 563 | 750 5084 | 629 | 798 6506 |
| 364 | 561 1014 | 431 | 634 4773 | 497 | 696 3564 | 564 | 751 2791 | 631 | 800 0294 |
| 365 | 562 2929 | 432 | 635 4837 | 498 | 697 2293 | 565 | 752 0484 | 632 | 800 7171 |
| 366 | 563 4811 | 433 | 636 4879 | 499 | 698 1005 | 566 | 752 8164 | 633 | 801 4037 |
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| 385 | 585 4607 | 452 | 655 1384 | 518 | 714 3298 | 585 | 767 1559 | 652 | 814 2476 |
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| N.  | Log.     | N.  | Log.     | N.  | Log.     | N.  | Log.     | N.  | Log.     |



LOGARITHMS OF NUMBERS.

3

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| 715 | 854 3060 | 782 | 893 2068 | 848 | 928 3959 | 915 | 961 4211 | 982 | 992 1115 |
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| N.  | Log.     | N.  | Log.     | N.  | Log.     | N.  | Log.     | N.  | Log.     |

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| <b>1000</b> | <b>000</b> | 0000 | 0434 | 0869 | 1303 | 1737 | 2171 | 2605 | 3039 | 3473 | 3907          | 1 | 430  | 432  | 434  |
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| 02          | *          | 8677 | 9111 | 9544 | 9977 | +411 | 0844 | 1277 | 1710 | 2143 | 2576          | 3 | 1290 | 1296 | 1302 |
| 03          | 001        | 3009 | 3442 | 3875 | 4308 | 4741 | 5174 | 5607 | 6039 | 6472 | 6905          | 4 | 1720 | 1728 | 1736 |
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| 06          |            | 5980 | 6411 | 6843 | 7275 | 7706 | 8138 | 8569 | 9001 | 9432 | 9863          | 7 | 3010 | 3024 | 3038 |
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| 08          |            | 4605 | 5036 | 5467 | 5898 | 6328 | 6759 | 7190 | 7620 | 8051 | 8481          | 9 | 3870 | 3888 | 3906 |
| 09          | *          | 8912 | 9342 | 9772 | +203 | 0633 | 1063 | 1493 | 1924 | 2354 | 2784          | 1 | 424  | 426  | 428  |
|             |            |      |      |      |      |      |      |      |      |      |               | 2 | 848  | 852  | 856  |
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| 13          |            | 6094 | 6523 | 6952 | 7380 | 7809 | 8238 | 8666 | 9094 | 9523 | 9951          | 6 | 2544 | 2556 | 2568 |
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|             |            |      |      |      |      |      |      |      |      |      |               | 4 | 1680 | 1684 | 1688 |
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| 22          |            | 4509 | 4934 | 5359 | 5784 | 6208 | 6633 | 7058 | 7483 | 7907 | 8332          | 7 | 2940 | 2947 | 2954 |
| 23          | *          | 8756 | 9181 | 9605 | +030 | 0454 | 0878 | 1303 | 1727 | 2151 | 2575          | 8 | 3360 | 3368 | 3376 |
| 24          | 010        | 3000 | 3424 | 3848 | 4272 | 4696 | 5120 | 5544 | 5967 | 6391 | 6815          | 9 | 3780 | 3789 | 3798 |
| 25          | *          | 7239 | 7662 | 8086 | 8510 | 8933 | 9357 | 9780 | +204 | 0627 | 1050          | 1 | 417  | 418  | 419  |
| 26          | 011        | 1474 | 1897 | 2320 | 2743 | 3166 | 3590 | 4013 | 4436 | 4859 | 5282          | 2 | 834  | 836  | 838  |
| 27          |            | 5704 | 6127 | 6550 | 6973 | 7396 | 7818 | 8241 | 8664 | 9086 | 9509          | 3 | 1251 | 1254 | 1257 |
| 28          | *          | 9931 | +354 | 0776 | 1198 | 1621 | 2043 | 2465 | 2887 | 3310 | 3732          | 4 | 1668 | 1672 | 1676 |
| 29          | 012        | 4154 | 4576 | 4998 | 5420 | 5842 | 6264 | 6685 | 7107 | 7529 | 7951          | 5 | 2085 | 2090 | 2095 |
|             |            |      |      |      |      |      |      |      |      |      |               | 6 | 2502 | 2508 | 2514 |
| 30          | * 8372     | 8794 | 9215 | 9637 | +059 | 0480 | 0901 | 1323 | 1744 | 2165 | 2586          | 7 | 2919 | 2926 | 2933 |
| 31          | 013        | 2587 | 3008 | 3429 | 3850 | 4271 | 4692 | 5113 | 5534 | 5955 | 6376          | 8 | 3336 | 3344 | 3352 |
| 32          | * 6797     | 7218 | 7639 | 8059 | 8480 | 8901 | 9321 | 9742 | +169 | 0583 | 1004          | 9 | 3753 | 3762 | 3771 |
| 33          | 014        | 1003 | 1424 | 1844 | 2264 | 2685 | 3105 | 3525 | 3945 | 4365 | 4785          | 1 | 414  | 415  | 416  |
| 34          |            | 5205 | 5625 | 6045 | 6465 | 6885 | 7305 | 7725 | 8144 | 8564 | 8984          | 2 | 828  | 830  | 832  |
| 35          | * 9403     | 9823 | +243 | 0662 | 1082 | 1501 | 1920 | 2340 | 2759 | 3178 | 3597          | 3 | 1242 | 1245 | 1248 |
| 36          | 015        | 3598 | 4017 | 4436 | 4855 | 5274 | 5693 | 6112 | 6531 | 6950 | 7369          | 4 | 1656 | 1660 | 1664 |
| 37          | * 7788     | 8206 | 8625 | 9044 | 9462 | 9881 | +300 | 0718 | 1137 | 1555 | 1974          | 5 | 2070 | 2075 | 2080 |
| 38          | 016        | 1974 | 2392 | 2810 | 3229 | 3647 | 4065 | 4483 | 4901 | 5319 | 5737          | 6 | 2484 | 2490 | 2496 |
| 39          |            | 6155 | 6573 | 6991 | 7409 | 7827 | 8245 | 8663 | 9080 | 9498 | 9916          | 7 | 2898 | 2905 | 2912 |
|             |            |      |      |      |      |      |      |      |      |      |               | 8 | 3312 | 3320 | 3328 |
| 40          | 017        | 0333 | 0751 | 1168 | 1586 | 2003 | 2421 | 2838 | 3256 | 3673 | 4090          | 9 | 3726 | 3735 | 3744 |
| 41          |            | 4507 | 4924 | 5342 | 5759 | 6176 | 6593 | 7010 | 7427 | 7844 | 8260          | 1 | 411  | 412  | 413  |
| 42          | * 8677     | 9094 | 9511 | 9927 | +344 | 0761 | 1177 | 1594 | 2010 | 2427 | 2842          | 2 | 822  | 824  | 826  |
| 43          | 018        | 2843 | 3259 | 3676 | 4092 | 4508 | 4925 | 5341 | 5757 | 6173 | 6589          | 3 | 1233 | 1236 | 1239 |
| 44          | *          | 7005 | 7421 | 7837 | 8253 | 8669 | 9084 | 9500 | 9916 | +332 | 0747          | 4 | 1644 | 1648 | 1652 |
| 45          | 019        | 1163 | 1578 | 1994 | 2410 | 2825 | 3240 | 3656 | 4071 | 4486 | 4902          | 5 | 2055 | 2060 | 2065 |
| 46          |            | 5317 | 5732 | 6147 | 6562 | 6977 | 7392 | 7807 | 8222 | 8637 | 9052          | 6 | 2466 | 2472 | 2478 |
| 47          | * 9467     | 9882 | +296 | 0711 | 1126 | 1540 | 1955 | 2369 | 2784 | 3198 | 3613          | 7 | 2877 | 2884 | 2891 |
| 48          | 020        | 3613 | 4027 | 4442 | 4856 | 5270 | 5684 | 6099 | 6513 | 6927 | 7341          | 8 | 3288 | 3296 | 3304 |
| 49          | *          | 7755 | 8169 | 8583 | 8997 | 9411 | 9824 | +238 | 0652 | 1066 | 1479          | 9 | 3699 | 3708 | 3717 |
| 50          | 021        | 1893 | 2307 | 2720 | 3134 | 3547 | 3961 | 4374 | 4787 | 5201 | 5614          | 1 | 408  | 409  | 410  |
| 51          |            | 6027 | 6440 | 6854 | 7267 | 7680 | 8093 | 8506 | 8919 | 9332 | 9745          | 2 | 816  | 818  | 820  |
| 52          | 022        | 0157 | 0570 | 0983 | 1396 | 1808 | 2221 | 2634 | 3046 | 3459 | 3871          | 3 | 1224 | 1227 | 1230 |
| 53          |            | 4284 | 4696 | 5109 | 5521 | 5933 | 6345 | 6758 | 7170 | 7582 | 7994          | 4 | 1632 | 1636 | 1640 |
| 54          | * 8406     | 8818 | 9230 | 9642 | +054 | 0466 | 0878 | 1289 | 1701 | 2113 | 2525          | 5 | 2040 | 2045 | 2050 |
| 55          | 023        | 2525 | 2936 | 3348 | 3759 | 4171 | 4582 | 4994 | 5405 | 5817 | 6228          | 6 | 2448 | 2454 | 2460 |
| 56          | * 6639     | 7050 | 7462 | 7873 | 8284 | 8695 | 9106 | 9517 | 9928 | +339 | 0339          | 7 | 2856 | 2863 | 2870 |
| 57          | 024        | 0750 | 1161 | 1572 | 1982 | 2393 | 2804 | 3214 | 3625 | 4036 | 4446          | 8 | 3264 | 3272 | 3280 |
| 58          |            | 4857 | 5267 | 5678 | 6088 | 6498 | 6909 | 7319 | 7729 | 8139 | 8549          | 9 | 3672 | 3681 | 3690 |
| 59          | * 8960     | 9370 | 9780 | +190 | 0600 | 1010 | 1419 | 1829 | 2239 | 2649 |               |   |      |      |      |

Num.

0 1 2 3 4 5 6 7 8 9

Diff. & Mult.

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6     | 7     | 8    | 9    | Diff. & Mult. |   |      |      |      |
|-------------|------------|------|------|------|------|------|-------|-------|------|------|---------------|---|------|------|------|
| <b>1060</b> | <b>025</b> | 3059 | 3468 | 3878 | 4288 | 4697 | 5107  | 5516  | 5926 | 6335 | 6744          | 1 | 405  | 406  | 407  |
| 61          | • 7154     | 7563 | 7972 | 8382 | 8791 | 9200 | 9609  | •0118 | 0427 | 0836 |               | 2 | 810  | 812  | 814  |
| 62          | 026        | 1245 | 1654 | 2063 | 2472 | 2881 | 3289  | 3698  | 4107 | 4515 | 4924          | 3 | 1215 | 1218 | 1221 |
| 63          |            | 5333 | 5741 | 6150 | 6558 | 6967 | 7375  | 7783  | 8192 | 8600 | 9008          | 4 | 1620 | 1624 | 1628 |
| 64          | • 9416     | 9824 | •233 | 0641 | 1049 |      | 1457  | 1865  | 2273 | 2680 | 3088          | 5 | 2025 | 2030 | 2035 |
| 65          | 027        | 3466 | 3904 | 4312 | 4719 | 5127 | 5535  | 5942  | 6350 | 6757 | 7165          | 6 | 2430 | 2436 | 2442 |
| 66          | • 7572     | 7979 | 8387 | 8794 | 9201 | 9609 | •0116 | 0423  | 0830 | 1237 |               | 7 | 2835 | 2842 | 2849 |
| 67          | 028        | 1644 | 2051 | 2458 | 2865 | 3272 | 3679  | 4086  | 4492 | 4899 | 5306          | 8 | 3240 | 3248 | 3256 |
| 68          |            | 5713 | 6119 | 6526 | 6932 | 7339 | 7745  | 8152  | 8558 | 8964 | 9371          | 9 | 3645 | 3654 | 3663 |
| 69          | • 9777     | •183 | 0590 | 0996 | 1402 |      | 1808  | 2214  | 2620 | 3026 | 3432          | 1 | 402  | 403  | 404  |
| <b>1070</b> | <b>029</b> | 3838 | 4244 | 4649 | 5055 | 5461 | 5867  | 6272  | 6678 | 7084 | 7489          | 2 | 804  | 806  | 808  |
| 71          | • 7895     | 8300 | 8706 | 9111 | 9516 | 9922 | •327  | 0732  | 1138 | 1543 |               | 3 | 1206 | 1209 | 1212 |
| 72          | 030        | 1948 | 2353 | 2758 | 3163 | 3568 | 3973  | 4378  | 4783 | 5188 | 5592          | 4 | 1608 | 1612 | 1616 |
| 73          |            | 5997 | 6402 | 6807 | 7211 | 7616 | 8020  | 8425  | 8830 | 9234 | 9638          | 5 | 2010 | 2015 | 2020 |
| 74          | 031        | 0043 | 0447 | 0851 | 1256 | 1660 | 2064  | 2468  | 2872 | 3277 | 3681          | 6 | 2412 | 2418 | 2424 |
| 75          |            | 4085 | 4489 | 4893 | 5296 | 5700 | 6104  | 6508  | 6912 | 7315 | 7719          | 7 | 2814 | 2821 | 2828 |
| 76          | • 8123     | 8526 | 8930 | 9333 | 9737 |      | •140  | 0544  | 0947 | 1350 | 1754          | 8 | 3216 | 3224 | 3232 |
| 77          | 032        | 2157 | 2560 | 2963 | 3367 | 3770 | 4173  | 4576  | 4979 | 5382 | 5785          | 9 | 3618 | 3627 | 3636 |
| 78          |            | 6188 | 6590 | 6993 | 7396 | 7799 | 8201  | 8604  | 9007 | 9409 | 9812          | 1 | 399  | 400  | 401  |
| 79          | 033        | 0214 | 0617 | 1019 | 1422 | 1824 | 2226  | 2629  | 3031 | 3433 | 3835          | 2 | 798  | 800  | 802  |
| <b>1080</b> |            | 4238 | 4640 | 5042 | 5444 | 5846 | 6248  | 6650  | 7052 | 7453 | 7855          | 3 | 1197 | 1200 | 1203 |
| 81          | • 8257     | 8659 | 9060 | 9462 | 9864 |      | •265  | 0667  | 1068 | 1470 | 1871          | 4 | 1596 | 1600 | 1604 |
| 82          | 034        | 2273 | 2674 | 3075 | 3477 | 3878 | 4279  | 4680  | 5081 | 5482 | 5884          | 5 | 1995 | 2000 | 2005 |
| 83          |            | 6285 | 6686 | 7087 | 7487 | 7888 | 8289  | 8690  | 9091 | 9491 | 9892          | 6 | 2394 | 2400 | 2406 |
| 84          | 035        | 0293 | 0693 | 1094 | 1495 | 1895 | 2296  | 2696  | 3096 | 3497 | 3897          | 7 | 2793 | 2800 | 2807 |
| 85          |            | 4297 | 4698 | 5098 | 5498 | 5898 | 6298  | 6698  | 7098 | 7498 | 7898          | 8 | 3192 | 3200 | 3208 |
| 86          | • 8298     | 8698 | 9098 | 9498 | 9898 |      | •297  | 0697  | 1097 | 1496 | 1895          | 9 | 3591 | 3600 | 3609 |
| 87          | 036        | 2295 | 2695 | 3094 | 3494 | 3893 | 4293  | 4692  | 5091 | 5491 | 5890          | 1 | 396  | 397  | 398  |
| 88          |            | 6289 | 6688 | 7087 | 7486 | 7885 | 8284  | 8683  | 9082 | 9481 | 9880          | 2 | 792  | 794  | 796  |
| 89          | 037        | 0279 | 0678 | 1076 | 1475 | 1874 | 2272  | 2671  | 3070 | 3468 | 3867          | 3 | 1188 | 1191 | 1194 |
| <b>1090</b> |            | 4265 | 4663 | 5062 | 5460 | 5858 | 6257  | 6655  | 7053 | 7451 | 7849          | 4 | 1584 | 1588 | 1592 |
| 91          | • 8248     | 8646 | 9044 | 9442 | 9839 |      | •237  | 0635  | 1033 | 1431 | 1829          | 5 | 1980 | 1985 | 1990 |
| 92          | 038        | 2226 | 2624 | 3022 | 3419 | 3817 | 4214  | 4612  | 5009 | 5407 | 5804          | 6 | 2376 | 2382 | 2388 |
| 93          |            | 6202 | 6599 | 6996 | 7393 | 7791 | 8188  | 8585  | 8982 | 9379 | 9776          | 7 | 2772 | 2779 | 2786 |
| 94          | 039        | 0173 | 0570 | 0967 | 1364 | 1761 | 2158  | 2554  | 2951 | 3348 | 3745          | 8 | 3168 | 3176 | 3184 |
| 95          |            | 4141 | 4538 | 4934 | 5331 | 5727 | 6124  | 6520  | 6917 | 7313 | 7709          | 9 | 3564 | 3573 | 3582 |
| 96          | • 8106     | 8502 | 8898 | 9294 | 9690 |      | •086  | 0482  | 0878 | 1274 | 1670          | 1 | 393  | 394  | 395  |
| 97          | 040        | 2066 | 2462 | 2858 | 3254 | 3650 | 4045  | 4441  | 4837 | 5232 | 5628          | 2 | 786  | 788  | 790  |
| 98          |            | 6023 | 6419 | 6814 | 7210 | 7605 | 8001  | 8396  | 8791 | 9187 | 9582          | 3 | 1179 | 1182 | 1185 |
| 99          | • 9977     | •372 | 0767 | 1162 | 1557 |      | 1952  | 2347  | 2742 | 3137 | 3532          | 4 | 1572 | 1576 | 1580 |
| <b>1100</b> | <b>041</b> | 3927 | 4322 | 4716 | 5111 | 5506 | 5900  | 6295  | 6690 | 7084 | 7479          | 5 | 1965 | 1970 | 1975 |
| 01          | • 7873     | 8268 | 8662 | 9056 | 9451 |      | •645  | •239  | 0633 | 1028 | 1422          | 6 | 2358 | 2364 | 2370 |
| 02          | 042        | 1816 | 2210 | 2604 | 2998 | 3392 | 3786  | 4180  | 4574 | 4968 | 5361          | 7 | 2751 | 2758 | 2765 |
| 03          |            | 5755 | 6149 | 6543 | 6936 | 7330 | 7723  | 8117  | 8510 | 8904 | 9297          | 8 | 3144 | 3152 | 3160 |
| 04          | • 9691     | •084 | 0477 | 0871 | 1264 |      | 1657  | 2050  | 2444 | 2837 | 3230          | 9 | 3537 | 3546 | 3555 |
| 05          |            | 043  | 3623 | 4016 | 4409 | 4802 | 5195  | 5587  | 5980 | 6373 | 6766          | 1 | 780  | 782  | 784  |
| 06          | • 7551     | 7944 | 8337 | 8729 | 9122 |      | 9514  | 9907  | •299 | 0692 | 1084          | 2 | 1170 | 1173 | 1176 |
| 07          | 044        | 1476 | 1869 | 2261 | 2653 | 3045 | 3437  | 3829  | 4222 | 4614 | 5006          | 3 | 1560 | 1564 | 1568 |
| 08          |            | 5398 | 5790 | 6181 | 6573 | 6965 | 7357  | 7749  | 8140 | 8532 | 8924          | 4 | 1950 | 1955 | 1960 |
| 09          | • 9315     | 9707 | •099 | 0490 | 0882 |      | 1273  | 1664  | 2056 | 2447 | 2839          | 5 | 2340 | 2346 | 2352 |
| <b>1110</b> | <b>045</b> | 3230 | 3621 | 4012 | 4403 | 4795 | 5186  | 5577  | 5968 | 6359 | 6750          | 6 | 2730 | 2737 | 2744 |
| 11          | • 7141     | 7531 | 7922 | 8313 | 8704 |      | 9095  | 9485  | 9876 | •267 | 0657          | 7 | 3120 | 3128 | 3136 |
| 12          | 046        | 1048 | 1438 | 1829 | 2219 | 2610 | 3000  | 3391  | 3781 | 4171 | 4561          | 8 | 3510 | 3519 | 3528 |
| 13          |            | 4952 | 5342 | 5732 | 6122 | 6512 | 6902  | 7292  | 7682 | 8072 | 8462          | 9 | 3900 | 3910 | 3920 |
| 14          | • 8852     | 9242 | 9632 | •021 | 0411 |      | 0801  | 1190  | 1580 | 1970 | 2359          | 1 | 774  | 776  | 778  |
| 15          |            | 047  | 2749 | 3138 | 3528 | 3917 | 4306  | 4696  | 5085 | 5474 | 5864          | 2 | 1161 | 1164 | 1167 |
| 16          | • 6642     | 7031 | 7420 | 7809 | 8198 |      | 8587  | 8976  | 9365 | 9754 | •143          | 3 | 1552 | 1552 | 1556 |
| 17          | 048        | 0532 | 0921 | 1309 | 1698 | 2087 | 2475  | 2864  | 3253 | 3641 | 4030          | 4 | 1943 | 1944 | 1945 |
| 18          |            | 4418 | 4806 | 5195 | 5583 | 5972 | 6360  | 6748  | 7136 | 7525 | 7913          | 5 | 2332 | 2328 | 2334 |
| 19          | • 8301     | 8689 | 9077 | 9465 | 9853 |      | •241  | 0629  | 1017 | 1405 | 1792          | 6 | 2720 | 2716 | 2723 |
|             |            |      |      |      |      |      |       |       |      |      |               | 7 | 3106 | 3104 | 3112 |
|             |            |      |      |      |      |      |       |       |      |      |               | 8 | 3483 | 3492 | 3501 |
|             |            |      |      |      |      |      |       |       |      |      |               | 9 |      |      |      |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6     | 7     | 8    | 9    | Diff. & Mult. |   |      |      |      |

| Num.        | 0          | 1      | 2     | 3     | 4     | 5    | 6     | 7     | 8     | 9     | Diff. & Mult. |   |      |      |      |
|-------------|------------|--------|-------|-------|-------|------|-------|-------|-------|-------|---------------|---|------|------|------|
| <b>1120</b> | <b>049</b> | 2180   | 2568  | 2956  | 3343  | 3731 | 4119  | 4506  | 4894  | 5281  | 5669          | 1 | 386  | 387  | 388  |
| 21          |            | 6056   | 6444  | 6831  | 7218  | 7606 | 7993  | 8380  | 8767  | 9154  | 9541          | 2 | 772  | 774  | 776  |
| 22          |            | • 9929 | • 316 | 0703  | 1090  | 1477 | 1863  | 2250  | 2637  | 3024  | 3411          | 3 | 1158 | 1161 | 1164 |
| 23          |            | 050    | 3798  | 4184  | 4571  | 4958 | 5344  | 5731  | 6117  | 6504  | 6890          | 4 | 1544 | 1548 | 1552 |
| 24          |            | • 7663 | 8049  | 8436  | 8822  | 9208 | 9595  | 9981  | • 367 | 0753  | 1139          | 5 | 1930 | 1935 | 1940 |
| 25          |            | 051    | 1525  | 1911  | 2297  | 2683 | 3069  | 3455  | 3841  | 4227  | 4612          | 6 | 2316 | 2322 | 2328 |
| 26          |            |        | 5384  | 5770  | 6155  | 6541 | 6926  | 7312  | 7697  | 8083  | 8468          | 7 | 2702 | 2709 | 2716 |
| 27          |            | • 9239 | 9624  | • 010 | 0395  | 0780 | 1166  | 1551  | 1936  | 2321  | 2706          | 8 | 3088 | 3096 | 3104 |
| 28          |            | 052    | 3091  | 3476  | 3861  | 4246 | 4631  | 5016  | 5400  | 5785  | 6170          | 9 | 3474 | 3483 | 3492 |
| 29          |            | • 6939 | 7324  | 7709  | 8093  | 8478 | 8861  | 9247  | 9631  | • 016 | 0400          | 1 | 383  | 384  | 385  |
| <b>1130</b> |            | 053    | 0784  | 1169  | 1553  | 1937 | 2321  | 2706  | 3090  | 3474  | 3858          | 2 | 766  | 768  | 770  |
| 31          |            |        | 4626  | 5010  | 5394  | 5778 | 6162  | 6546  | 6929  | 7313  | 7697          | 3 | 1149 | 1152 | 1155 |
| 32          |            | • 8464 | 8848  | 9232  | 9615  | 9999 | • 382 | 0766  | 1149  | 1532  | 1916          | 4 | 1532 | 1536 | 1540 |
| 33          |            | 054    | 2299  | 2682  | 3066  | 3449 | 3832  | 4215  | 4598  | 4981  | 5365          | 5 | 1915 | 1920 | 1925 |
| 34          |            | 6131   | 6514  | 6896  | 7279  | 7662 | 8045  | 8428  | 8811  | 9193  | 9576          | 6 | 2298 | 2304 | 2310 |
| 35          |            | • 9959 | • 341 | 0724  | 1106  | 1489 | 1871  | 2254  | 2636  | 3019  | 3401          | 7 | 2681 | 2688 | 2695 |
| 36          |            | 055    | 3783  | 4166  | 4548  | 4930 | 5312  | 5694  | 6077  | 6459  | 6841          | 8 | 3064 | 3072 | 3080 |
| 37          |            | • 7605 | 7987  | 8369  | 8750  | 9132 | 9514  | 9896  | • 278 | 0659  | 1041          | 9 | 3447 | 3456 | 3465 |
| 38          |            | 056    | 1423  | 1804  | 2186  | 2567 | 2949  | 3330  | 3712  | 4093  | 4475          | 1 | 380  | 381  | 382  |
| 39          |            |        | 5237  | 5619  | 6000  | 6381 | 6762  | 7143  | 7524  | 7905  | 8287          | 2 | 760  | 762  | 764  |
| <b>1140</b> |            | • 9049 | 9429  | 9810  | • 191 | 0572 | 0953  | 1334  | 1714  | 2095  | 2476          | 3 | 1140 | 1143 | 1146 |
| 41          |            | 057    | 2856  | 3237  | 3618  | 3998 | 4379  | 4759  | 5140  | 5520  | 5900          | 4 | 1520 | 1524 | 1528 |
| 42          |            | • 6661 | 7041  | 7422  | 7802  | 8182 | 8562  | 8942  | 9322  | 9702  | • 082         | 5 | 1900 | 1905 | 1910 |
| 43          |            | 058    | 0462  | 0842  | 1222  | 1602 | 1982  | 2362  | 2741  | 3121  | 3501          | 6 | 2280 | 2286 | 2292 |
| 44          |            |        | 4260  | 4640  | 5019  | 5399 | 5778  | 6158  | 6537  | 6917  | 7296          | 7 | 2660 | 2667 | 2674 |
| 45          |            | • 8055 | 8434  | 8813  | 9193  | 9572 | 9951  | • 330 | 0709  | 1088  | 1467          | 8 | 3040 | 3048 | 3056 |
| 46          |            | 059    | 1846  | 2225  | 2604  | 2983 | 3362  | 3741  | 4119  | 4498  | 4877          | 9 | 3420 | 3429 | 3438 |
| 47          |            |        | 5634  | 6013  | 6391  | 6770 | 7148  | 7527  | 7905  | 8284  | 8662          | 1 | 377  | 378  | 379  |
| 48          |            | • 9419 | 9797  | • 175 | 0554  | 0932 | 1310  | 1688  | 2066  | 2444  | 2822          | 2 | 754  | 756  | 758  |
| 49          |            | 060    | 3200  | 3578  | 3956  | 4334 | 4712  | 5090  | 5468  | 5845  | 6223          | 3 | 1131 | 1134 | 1137 |
| <b>1150</b> |            | • 6978 | 7356  | 7734  | 8111  | 8489 | 8866  | 9244  | 9621  | 9999  | • 376         | 4 | 1508 | 1512 | 1516 |
| 51          |            | 061    | 0753  | 1131  | 1508  | 1885 | 2262  | 2639  | 3017  | 3394  | 3771          | 5 | 1885 | 1890 | 1895 |
| 52          |            |        | 4525  | 4902  | 5279  | 5656 | 6032  | 6409  | 6786  | 7163  | 7540          | 6 | 2262 | 2268 | 2274 |
| 53          |            | • 8293 | 8670  | 9046  | 9423  | 9799 | • 176 | 0552  | 0929  | 1305  | 1682          | 7 | 2639 | 2646 | 2653 |
| 54          |            | 062    | 2058  | 2434  | 2811  | 3187 | 3563  | 3939  | 4316  | 4692  | 5068          | 8 | 3016 | 3024 | 3032 |
| 55          |            |        | 5820  | 6196  | 6572  | 6948 | 7324  | 7699  | 8075  | 8451  | 8827          | 9 | 3393 | 3402 | 3411 |
| 56          |            | • 9578 | 9954  | • 330 | 0705  | 1081 | 1456  | 1832  | 2207  | 2583  | 2958          | 1 | 374  | 375  | 376  |
| 57          |            | 063    | 3334  | 3709  | 4084  | 4460 | 4835  | 5210  | 5585  | 5960  | 6335          | 2 | 748  | 750  | 752  |
| 58          |            | • 7086 | 7461  | 7836  | 8211  | 8585 | 8960  | 9335  | 9710  | • 085 | 0460          | 3 | 1122 | 1125 | 1128 |
| 59          |            | 064    | 0834  | 1209  | 1584  | 1958 | 2333  | 2708  | 3082  | 3457  | 3831          | 4 | 1496 | 1500 | 1504 |
| <b>1160</b> |            |        | 4580  | 4954  | 5329  | 5703 | 6077  | 6451  | 6826  | 7200  | 7574          | 5 | 1870 | 1875 | 1880 |
| 61          |            | • 8322 | 8696  | 9070  | 9444  | 9818 | • 192 | 0566  | 0940  | 1314  | 1688          | 6 | 2244 | 2250 | 2256 |
| 62          |            | 065    | 2061  | 2435  | 2809  | 3182 | 3556  | 3930  | 4303  | 4677  | 5050          | 7 | 2618 | 2625 | 2632 |
| 63          |            |        | 5797  | 6171  | 6544  | 6917 | 7291  | 7664  | 8037  | 8410  | 8784          | 8 | 2992 | 3000 | 3008 |
| 64          |            | • 9530 | 9903  | • 276 | 0649  | 1022 | 1395  | 1768  | 2141  | 2514  | 2886          | 9 | 3366 | 3375 | 3384 |
| 65          |            | 066    | 3259  | 3632  | 4005  | 4377 | 4750  | 5123  | 5495  | 5868  | 6241          | 1 | 371  | 372  | 373  |
| 66          |            | • 6986 | 7358  | 7730  | 8103  | 8475 | 8847  | 9220  | 9592  | 9964  | • 336         | 2 | 742  | 744  | 746  |
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| 68          |            |        | 4428  | 4800  | 5172  | 5544 | 5915  | 6287  | 6659  | 7030  | 7402          | 4 | 1484 | 1488 | 1492 |
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| <b>1170</b> |            | 068    | 1859  | 2230  | 2601  | 2972 | 3343  | 3714  | 4085  | 4456  | 4827          | 6 | 2226 | 2232 | 2238 |
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| 72          |            | • 9276 | 9647  | • 017 | 0388  | 0758 | 1129  | 1499  | 1869  | 2240  | 2610          | 8 | 2968 | 2976 | 2984 |
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| 76          |            |        | 4073  | 4442  | 4812  | 5181 | 5550  | 5919  | 6288  | 6658  | 7027          | 3 | 1104 | 1107 | 1110 |
| 77          |            | • 7765 | 8134  | 8503  | 8871  | 9240 | 9609  | 9978  | • 347 | 0715  | 1084          | 4 | 1472 | 1476 | 1480 |
| 78          |            | 071    | 1453  | 1822  | 2190  | 2559 | 2927  | 3296  | 3664  | 4033  | 4401          | 5 | 1840 | 1845 | 1850 |
| 79          |            |        | 5138  | 5506  | 5875  | 6243 | 6611  | 6979  | 7348  | 7716  | 8084          | 6 | 2208 | 2214 | 2220 |
|             |            |        |       |       |       |      |       |       |       |       |               | 7 | 2576 | 2583 | 2590 |
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LOGARITHMS OF NUMBERS.

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| 82           | 6175   | 6542 | 6910 | 7277 | 7644 | 8011 | 8379  | 8746  | 9113  | 9480  | 3 1095 1098 1101 |
| 83           | • 9847 | +215 | 0584 | 0949 | 1316 | 1683 | 2050  | 2416  | 2783  | 3150  | 4 1460 1464 1468 |
| 84           | 073    | 3517 | 3884 | 4251 | 4617 | 4984 | 5351  | 5717  | 6084  | 6450  | 5 1825 1830 1835 |
| 85           | • 7184 | 7550 | 7916 | 8283 | 8649 | 9016 | 9382  | 9748  | +114  | 0481  | 6 2190 2196 2202 |
| 86           | 074    | 0847 | 1213 | 1579 | 1945 | 2311 | 2677  | 3043  | 3409  | 3775  | 7 2555 2562 2569 |
| 87           | 4507   | 4873 | 5239 | 5605 | 5970 | 6336 | 6702  | 7068  | 7433  | 7799  | 8 2920 2928 2936 |
| 88           | • 8164 | 8530 | 8895 | 9261 | 9626 | 9992 | +357  | 0723  | 1088  | 1453  | 9 3285 3294 3303 |
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| 92           | 076    | 2763 | 3127 | 3491 | 3855 | 4220 | 4584  | 4948  | 5312  | 5676  | 3 1086 1089 1092 |
| 93           | 6404   | 6768 | 7132 | 7496 | 7860 | 8224 | 8588  | 8952  | 9316  | 9680  | 4 1448 1452 1456 |
| 94           | 077    | 0043 | 0407 | 0771 | 1134 | 1498 | 1862  | 2225  | 2589  | 2952  | 5 1810 1815 1820 |
| 95           | 3679   | 4042 | 4406 | 4769 | 5133 | 5496 | 5859  | 6222  | 6585  | 6949  | 6 2172 2178 2184 |
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| <b>12 00</b> | 079    | 1812 | 2174 | 2536 | 2898 | 3260 | 3622  | 3983  | 4345  | 4707  | 1 359 360 361    |
| 01           | 5430   | 5792 | 6153 | 6515 | 6876 | 7238 | 7599  | 7961  | 8322  | 8683  | 2 718 720 722    |
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| 03           | 080    | 2656 | 3017 | 3378 | 3739 | 4100 | 4461  | 4822  | 5183  | 5543  | 4 1436 1440 1444 |
| 04           | 6265   | 6626 | 6986 | 7347 | 7707 | 8068 | 8429  | 8789  | 9150  | 9510  | 5 1795 1800 1805 |
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| 06           | 081    | 3473 | 3833 | 4193 | 4553 | 4913 | 5273  | 5633  | 5993  | 6353  | 7 2513 2520 2527 |
| 07           | • 7073 | 7432 | 7792 | 8152 | 8512 | 8871 | 9231  | 9591  | 9950  | +310  | 8 2872 2880 2888 |
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| 11           | 083    | 1441 | 1800 | 2159 | 2517 | 2876 | 3234  | 3593  | 3951  | 4309  | 2 712 714 716    |
| 12           | 5026   | 5385 | 5743 | 6101 | 6459 | 6817 | 7176  | 7534  | 7892  | 8250  | 3 1068 1071 1074 |
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| 14           | 084    | 2187 | 2545 | 2902 | 3260 | 3618 | 3975  | 4333  | 4690  | 5048  | 5 1780 1785 1790 |
| 15           | 5633   | 6120 | 6478 | 6835 | 7192 | 7550 | 7907  | 8264  | 8621  | 8979  | 6 2136 2142 2148 |
| 16           | • 9336 | 9693 | +050 | 0407 | 0764 | 1121 | 1478  | 1835  | 2192  | 2549  | 7 2492 2499 2506 |
| 17           | 085    | 2906 | 3263 | 3619 | 3976 | 4333 | 4690  | 5046  | 5403  | 5760  | 8 2848 2856 2864 |
| 18           | 6473   | 6829 | 7186 | 7542 | 7899 | 8255 | 8612  | 8968  | 9324  | 9681  | 9 3204 3213 3222 |
| 19           | 086    | 0037 | 0393 | 0750 | 1106 | 1462 | 1818  | 2174  | 2530  | 2886  |                  |
| <b>12 20</b> | 3598   | 3954 | 4310 | 4666 | 5022 | 5378 | 5734  | 6089  | 6445  | 6801  | 1 353 354 355    |
| 21           | • 7157 | 7512 | 7868 | 8224 | 8579 | 8935 | 9290  | 9646  | +001  | 0357  | 2 706 708 710    |
| 22           | 087    | 0712 | 1067 | 1423 | 1778 | 2133 | 2489  | 2844  | 3199  | 3554  | 3 1059 1062 1065 |
| 23           | 4265   | 4620 | 4975 | 5330 | 5685 | 6040 | 6395  | 6750  | 7104  | 7459  | 4 1412 1416 1420 |
| 24           | • 7814 | 8169 | 8524 | 8878 | 9233 | 9588 | 9943  | +297  | 0652  | 1006  | 5 1765 1770 1775 |
| 25           | 088    | 1361 | 1715 | 2070 | 2424 | 2779 | 3133  | 3488  | 3842  | 4196  | 6 2118 2124 2130 |
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| 27           | • 8446 | 8800 | 9153 | 9507 | 9861 | +215 | 0569  | 0923  | 1276  | 1630  | 8 2824 2832 2840 |
| 28           | 089    | 1984 | 2337 | 2691 | 3045 | 3398 | 3752  | 4105  | 4459  | 4812  | 9 3177 3186 3195 |
| 29           | 5519   | 5872 | 6226 | 6579 | 6932 | 7285 | 7639  | 7992  | 8345  | 8698  |                  |
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| 31           | 090    | 2581 | 2933 | 3286 | 3639 | 3991 | 4344  | 4697  | 5049  | 5402  | 2 700 702 704    |
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| 33           | • 9631 | 9983 | +335 | 0687 | 1039 | 1392 | 1744  | 2096  | 2448  | 2800  | 4 1400 1404 1408 |
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| 35           | 6670   | 7021 | 7373 | 7724 | 8076 | 8427 | 8779  | 9130  | 9482  | 9833  | 6 2100 2106 2112 |
| 36           | 092    | 0185 | 0536 | 0887 | 1239 | 1590 | 1941  | 2292  | 2644  | 2995  | 7 2450 2457 2464 |
| 37           | 3697   | 4048 | 4399 | 4750 | 5101 | 5452 | 5803  | 6154  | 6505  | 6856  | 8 2800 2808 2816 |
| 38           | • 7206 | 7557 | 7908 | 8259 | 8609 | 8960 | 9311  | 9661  | +012  | 0363  | 9 3150 3159 3168 |
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| 41          | • 7718          | 8068 | 8418 | 8768 | 9117 | 9467 | 9817 | •167 | 0517 | 0866 | 2             | 698  | 700  | 702  |
| 42          | 094 1216        | 1566 | 1915 | 2265 | 2614 | 2964 | 3313 | 3663 | 4012 | 4362 | 3             | 1047 | 1050 | 1053 |
| 43          | 4711            | 5061 | 5410 | 5759 | 6109 | 6458 | 6807 | 7156 | 7506 | 7855 | 4             | 1398 | 1400 | 1404 |
| 44          | • 8204          | 8553 | 8902 | 9251 | 9600 | 9949 | •298 | 0647 | 0996 | 1345 | 5             | 1745 | 1750 | 1755 |
| 45          | 095 1604        | 2042 | 2391 | 2740 | 3089 | 3437 | 3786 | 4135 | 4483 | 4832 | 6             | 2094 | 2100 | 2106 |
| 46          | 5180            | 5529 | 5877 | 6226 | 6574 | 6923 | 7271 | 7620 | 7968 | 8316 | 7             | 2443 | 2450 | 2457 |
| 47          | • 8665          | 9013 | 9361 | 9709 | •057 | 0406 | 0754 | 1102 | 1450 | 1798 | 8             | 2792 | 2800 | 2808 |
| 48          | 096 2146        | 2494 | 2842 | 3190 | 3538 | 3885 | 4233 | 4581 | 4929 | 5277 | 9             | 3141 | 3150 | 3159 |
| 49          | 5624            | 5972 | 6320 | 6667 | 7015 | 7363 | 7710 | 8058 | 8405 | 8753 |               |      |      |      |
| <b>1250</b> | • 9100          | 9448 | 9795 | •142 | 0490 | 0837 | 1184 | 1531 | 1879 | 2226 | 1             | 346  | 347  | 348  |
| 51          | 097 2573        | 2920 | 3267 | 3614 | 3962 | 4309 | 4656 | 5003 | 5349 | 5696 | 2             | 692  | 694  | 696  |
| 52          | 6043            | 6390 | 6737 | 7084 | 7431 | 7777 | 8124 | 8471 | 8817 | 9164 | 3             | 1038 | 1041 | 1044 |
| 53          | • 9511          | 9857 | •204 | 0536 | 0897 | 1243 | 1590 | 1936 | 2283 | 2629 | 4             | 1384 | 1388 | 1392 |
| 54          | 098 2975        | 3322 | 3668 | 4014 | 4360 | 4707 | 5053 | 5399 | 5745 | 6091 | 5             | 1730 | 1735 | 1740 |
| 55          | 6437            | 6783 | 7129 | 7475 | 7821 | 8167 | 8513 | 8859 | 9205 | 9551 | 6             | 2076 | 2082 | 2088 |
| 56          | • 9806          | •242 | 0588 | 0934 | 1279 | 1625 | 1971 | 2316 | 2662 | 3007 | 7             | 2422 | 2429 | 2436 |
| 57          | 099 3353        | 3698 | 4044 | 4389 | 4735 | 5080 | 5425 | 5771 | 6116 | 6461 | 8             | 2768 | 2776 | 2784 |
| 58          | 6806            | 7152 | 7497 | 7842 | 8187 | 8532 | 8877 | 9222 | 9567 | 9912 | 9             | 3114 | 3123 | 3132 |
| 59          | 100 0257        | 0602 | 0947 | 1292 | 1637 | 1982 | 2327 | 2671 | 3016 | 3361 |               |      |      |      |
| <b>1260</b> | 3705            | 4050 | 4395 | 4739 | 5084 | 5429 | 5773 | 6118 | 6462 | 6806 | 1             | 343  | 344  | 345  |
| 61          | • 7151          | 7495 | 7840 | 8184 | 8528 | 8873 | 9217 | 9561 | 9905 | •249 | 2             | 686  | 688  | 690  |
| 62          | 101 0504        | 0938 | 1282 | 1626 | 1970 | 2314 | 2658 | 3002 | 3346 | 3690 | 3             | 1029 | 1032 | 1035 |
| 63          | 4034            | 4377 | 4721 | 5065 | 5409 | 5752 | 6096 | 6440 | 6784 | 7127 | 4             | 1372 | 1376 | 1380 |
| 64          | • 7471          | 7814 | 8158 | 8501 | 8845 | 9188 | 9532 | 9875 | •219 | 0562 | 5             | 1715 | 1720 | 1725 |
| 65          | 102 0905        | 1249 | 1592 | 1935 | 2278 | 2621 | 2965 | 3308 | 3651 | 3994 | 6             | 2058 | 2064 | 2070 |
| 66          | 4337            | 4680 | 5023 | 5366 | 5709 | 6052 | 6395 | 6738 | 7081 | 7423 | 7             | 2401 | 2408 | 2415 |
| 67          | • 7760          | 8109 | 8452 | 8794 | 9137 | 9480 | 9822 | •165 | 0507 | 0850 | 8             | 2744 | 2752 | 2760 |
| 68          | 103 1193        | 1535 | 1877 | 2220 | 2562 | 2905 | 3247 | 3589 | 3932 | 4274 | 9             | 3087 | 3096 | 3105 |
| 69          | 4616            | 4958 | 5301 | 5643 | 5985 | 6327 | 6669 | 7011 | 7353 | 7695 |               |      |      |      |
| <b>1270</b> | • 8037          | 8379 | 8721 | 9063 | 9405 | 9747 | •089 | 0430 | 0772 | 1114 | 1             | 340  | 341  | 342  |
| 71          | 104 1450        | 1797 | 2139 | 2480 | 2822 | 3164 | 3505 | 3847 | 4188 | 4530 | 2             | 680  | 682  | 684  |
| 72          | 4871            | 5213 | 5554 | 5895 | 6237 | 6578 | 6919 | 7260 | 7602 | 7943 | 3             | 1020 | 1023 | 1026 |
| 73          | • 8284          | 8625 | 8966 | 9307 | 9648 | 9989 | •331 | 0671 | 1012 | 1353 | 4             | 1360 | 1364 | 1368 |
| 74          | 105 1694        | 2035 | 2376 | 2717 | 3058 | 3398 | 3739 | 4080 | 4421 | 4761 | 5             | 1700 | 1705 | 1710 |
| 75          | 5102            | 5442 | 5783 | 6124 | 6464 | 6805 | 7145 | •486 | 7826 | 8166 | 6             | 2040 | 2046 | 2052 |
| 76          | • 8507          | 8847 | 9187 | 9528 | 9868 | •208 | 0548 | 0889 | 1229 | 1569 | 7             | 2380 | 2387 | 2394 |
| 77          | 106 1909        | 2249 | 2589 | 2929 | 3269 | 3609 | 3949 | 4289 | 4629 | 4969 | 8             | 2720 | 2728 | 2736 |
| 78          | 5309            | 5648 | 5988 | 6328 | 6668 | 7007 | 7347 | 7687 | 8026 | 8366 | 9             | 3060 | 3069 | 3078 |
| 79          | • 8705          | 9045 | 9385 | 9724 | •063 | 0403 | 0742 | 1082 | 1421 | 1760 |               |      |      |      |
| <b>1280</b> | 107 2100        | 2439 | 2778 | 3117 | 3457 | 3796 | 4135 | 4474 | 4813 | 5152 | 1             | 337  | 338  | 339  |
| 81          | 5491            | 5830 | 6169 | 6508 | 6847 | 7186 | 7525 | 7864 | 8203 | 8541 | 2             | 674  | 676  | 678  |
| 82          | • 8880          | 9219 | 9558 | 9896 | •235 | 0574 | 0912 | 1251 | 1590 | 1928 | 3             | 1011 | 1014 | 1017 |
| 83          | 108 2267        | 2605 | 2944 | 3282 | 3620 | 3959 | 4297 | 4635 | 4974 | 5312 | 4             | 1348 | 1352 | 1356 |
| 84          | 5650            | 5988 | 6327 | 6665 | 7003 | 7341 | 7679 | 8017 | 8355 | 8693 | 5             | 1685 | 1690 | 1695 |
| 85          | • 9031          | 9369 | 9707 | •045 | 0383 | 0721 | 1059 | 1396 | 1734 | 2072 | 6             | 2022 | 2028 | 2034 |
| 86          | 109 2410        | 2747 | 3085 | 3423 | 3760 | 4098 | 4435 | 4773 | 5111 | 5448 | 7             | 2359 | 2366 | 2373 |
| 87          | 5785            | 6123 | 6460 | 6798 | 7135 | 7472 | 7810 | 8147 | 8484 | 8821 | 8             | 2696 | 2704 | 2712 |
| 88          | • 9159          | 9496 | 9833 | •170 | 0507 | 0844 | 1181 | 1518 | 1855 | 2192 | 9             | 3033 | 3042 | 3051 |
| 89          | 110 2529        | 2866 | 3203 | 3540 | 3877 | 4213 | 4550 | 4887 | 5224 | 5560 |               |      |      |      |
| <b>1290</b> | 5897            | 6234 | 6570 | 6907 | 7244 | 7580 | 7917 | 8253 | 8590 | 8926 | 1             | 334  | 335  | 336  |
| 91          | • 9262          | 9599 | 9935 | •272 | 0608 | 0944 | 1280 | 1617 | 1953 | 2289 | 2             | 668  | 670  | 672  |
| 92          | 111 2625        | 2961 | 3297 | 3633 | 3969 | 4306 | 4642 | 4977 | 5313 | 5649 | 3             | 1002 | 1005 | 1008 |
| 93          | 5985            | 6321 | 6657 | 6993 | 7329 | 7664 | 8000 | 8336 | 8671 | 9007 | 4             | 1336 | 1340 | 1344 |
| 94          | • 9343          | 9678 | •014 | 0350 | 0685 | 1021 | 1356 | 1691 | 2027 | 2362 | 5             | 1670 | 1675 | 1680 |
| 95          | 112 2698        | 3033 | 3368 | 3704 | 4039 | 4374 | 4709 | 5045 | 5380 | 5715 | 6             | 2004 | 2010 | 2016 |
| 96          | 6050            | 6385 | 6720 | 7055 | 7390 | 7725 | 8060 | 8395 | 8730 | 9065 | 7             | 2338 | 2345 | 2352 |
| 97          | • 9400          | 9735 | •069 | 0404 | 0739 | 1074 | 1408 | 1743 | 2078 | 2412 | 8             | 2672 | 2680 | 2688 |
| 98          | 113 2747        | 3081 | 3416 | 3751 | 4085 | 4420 | 4754 | 5088 | 5423 | 5757 | 9             | 3006 | 3015 | 3024 |
| 99          | 6092            | 6426 | 6760 | 7094 | 7429 | 7763 | 8097 | 8431 | 8765 | 9099 |               |      |      |      |



LOGARITHMS OF NUMBERS.

9

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| 01           | 114 2773 | 3107  | 3441  | 3774  | 4108  | 4442 | 4775 | 5109 | 5443 | 5776 | 2             | 662  | 664  | 666  |
| 02           | 6110     | 6443  | 6777  | 7110  | 7444  | 7777 | 8111 | 8444 | 8777 | 9111 | 3             | 993  | 996  | 999  |
| 03           | * 9444   | 9777  | *111  | 0444  | 0777  | 1110 | 1444 | 1777 | 2110 | 2443 | 4             | 1324 | 1328 | 1332 |
| 04           | 115 2776 | 3109  | 3442  | 3775  | 4108  | 4441 | 4774 | 5107 | 5439 | 5772 | 5             | 1655 | 1660 | 1665 |
| 05           | 6105     | 6438  | 6771  | 7103  | 7436  | 7769 | 8101 | 8434 | 8767 | 9099 | 6             | 1986 | 1992 | 1998 |
| 06           | * 9432   | 9764  | *097  | 0429  | 0762  | 1094 | 1427 | 1759 | 2091 | 2424 | 7             | 2317 | 2324 | 2331 |
| 07           | 116 2756 | 3088  | 3420  | 3753  | 4085  | 4417 | 4749 | 5081 | 5413 | 5745 | 8             | 2648 | 2656 | 2664 |
| 08           | 6077     | 6409  | 6741  | 7073  | 7405  | 7737 | 8069 | 8401 | 8733 | 9065 | 9             | 2979 | 2988 | 2997 |
| 09           | * 9396   | 9728  | *060  | 0392  | 0723  | 1055 | 1387 | 1718 | 2050 | 2381 |               |      |      |      |
| <b>13 10</b> | 117 2713 | 3044  | 3376  | 3707  | 4039  | 4370 | 4702 | 5033 | 5364 | 5696 |               |      |      |      |
| 11           | 6027     | 6358  | 6689  | 7021  | 7352  | 7683 | 8014 | 8345 | 8676 | 9007 | 1             | 328  | 329  | 330  |
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| 19           | 120 2448 | 2777  | 3106  | 3436  | 3765  | 4094 | 4423 | 4752 | 5081 | 5410 | 9             | 2952 | 2961 | 2970 |
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| 22           | 121 2315 | 2643  | 2972  | 3300  | 3628  | 3957 | 4285 | 4614 | 4942 | 5270 | 2             | 650  | 652  | 654  |
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| 26           | 5435     | 5763  | 6090  | 6418  | 6745  | 7073 | 7400 | 7727 | 8055 | 8382 | 6             | 1950 | 1956 | 1962 |
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| 32           | 5042     | 5368  | 5694  | 6020  | 6346  | 6672 | 6998 | 7324 | 7650 | 7976 | 2             | 644  | 646  | 648  |
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| <b>13 40</b> | 127 1048 | 1372  | 1696  | 2020  | 2344  | 2668 | 2992 | 3316 | 3640 | 3964 |               |      |      |      |
| 41           | 4288     | 4612  | 4935  | 5259  | 5583  | 5907 | 6230 | 6554 | 6878 | 7202 | 1             | 319  | 320  | 321  |
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| 47           | 3676     | 3998  | 4321  | 4643  | 4965  | 5288 | 5610 | 5932 | 6255 | 6577 | 7             | 2233 | 2240 | 2247 |
| 48           | 6899     | 7221  | 7543  | 7865  | 8187  | 8510 | 8832 | 9154 | 9476 | 9798 | 8             | 2552 | 2560 | 2568 |
| 49           | 130 0119 | 0441  | 0763  | 1085  | 1407  | 1729 | 2051 | 2372 | 2694 | 3016 | 9             | 2871 | 2880 | 2889 |
| <b>13 50</b> | 3338     | 3659  | 3981  | 4303  | 4624  | 4946 | 5267 | 5589 | 5911 | 6232 |               |      |      |      |
| 51           | 6553     | 6875  | 7196  | 7518  | 7839  | 8161 | 8482 | 8803 | 9124 | 9446 | 1             | 319  | 320  | 321  |
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| 56           | 132 2597 | 2917  | 3237  | 3558  | 3878  | 4198 | 4518 | 4838 | 5158 | 5478 | 6             | 1914 | 1920 | 1926 |
| 57           | 5798     | 6119  | 6439  | 6758  | 7078  | 7398 | 7718 | 8038 | 8358 | 8678 | 7             | 2233 | 2240 | 2247 |
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| 75          | 138 3027        | 3343  | 3659 | 3974 | 4290 | 4606 | 4922 | 5237 | 5553 | 5869 | 7 2219 2226   |
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| 84          | 141 1361        | 1675  | 1988 | 2302 | 2616 | 2930 | 3243 | 3557 | 3871 | 4184 | 7 2205 2212   |
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| 87          | 142 0765        | 1078  | 1391 | 1704 | 2017 | 2330 | 2643 | 2956 | 3269 | 3582 | 1 313 314     |
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| 89          | 7022            | 7335  | 7648 | 7960 | 8273 | 8586 | 8898 | 9211 | 9523 | 9836 | 3 939 942     |
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| 93          | * 9511          | 9823  | +135 | 0446 | 0758 | 1070 | 1381 | 1693 | 2005 | 2316 | 7 2191 2198   |
| 94          | 144 2628        | 2939  | 3251 | 3562 | 3874 | 4185 | 4497 | 4808 | 5119 | 5431 | 8 2504 2512   |
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| 07          | 148 2941        | 3250  | 3558 | 3867 | 4175 | 4484 | 4793 | 5101 | 5410 | 5718 | 3 927 930     |
| 08          | 6027            | 6335  | 6643 | 6952 | 7260 | 7569 | 7877 | 8185 | 8493 | 8802 | 4 1236 1240   |
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| 11          | 5270            | 5578  | 5886 | 6193 | 6501 | 6809 | 7116 | 7424 | 7732 | 8039 | 7 2163 2170   |
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| 14          | 4494            | 4801  | 5108 | 5415 | 5722 | 6030 | 6337 | 6644 | 6951 | 7257 | 1 307 308     |
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| 18          | 6762            | 7069  | 7375 | 7681 | 7987 | 8293 | 8600 | 8906 | 9212 | 9518 | 5 1535 1540   |
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|             |                 |       |      |      |      |      |      |      |      |      | 7 2149 2156   |
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| <b>1420</b> | <b>152</b> | 2883 | 3189 | 3495 | 3801 | 4107 | 4412 | 4718 | 5024 | 5329 | 5635          | 1 | 305  | 306  |
| 21          |            | 5941 | 6246 | 6552 | 6858 | 7163 | 7469 | 7774 | 8080 | 8385 | 8691          | 2 | 610  | 612  |
| 22          | *          | 8966 | 9301 | 9607 | 9912 | 217  | 0523 | 0828 | 1133 | 1439 | 1744          | 3 | 915  | 918  |
| 23          | 153        | 2049 | 2354 | 2659 | 2964 | 3270 | 3575 | 3880 | 4185 | 4490 | 4795          | 4 | 1220 | 1224 |
| 24          |            | 5100 | 5405 | 5710 | 6015 | 6320 | 6625 | 6929 | 7234 | 7539 | 7844          | 5 | 1525 | 1530 |
| 25          | *          | 8149 | 8453 | 8758 | 9063 | 9368 | 9672 | 9977 | 281  | 0586 | 0891          | 6 | 1830 | 1836 |
| 26          | 154        | 1195 | 1500 | 1804 | 2109 | 2413 | 2718 | 3022 | 3327 | 3631 | 3935          | 7 | 2135 | 2142 |
| 27          |            | 4240 | 4544 | 4848 | 5153 | 5457 | 5761 | 6065 | 6370 | 6674 | 6978          | 8 | 2440 | 2448 |
| 28          | *          | 7282 | 7586 | 7890 | 8194 | 8498 | 8802 | 9106 | 9410 | 9714 | 0018          | 9 | 2745 | 2754 |
| 29          | 155        | 0322 | 0626 | 0930 | 1234 | 1538 | 1842 | 2145 | 2449 | 2753 | 3057          | 1 | 303  | 304  |
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| 32          | *          | 9430 | 9733 | 0037 | 0340 | 0643 | 0946 | 1249 | 1553 | 1856 | 2159          | 4 | 1212 | 1216 |
| 33          | 150        | 2462 | 2765 | 3068 | 3371 | 3674 | 3977 | 4280 | 4583 | 4886 | 5189          | 5 | 1515 | 1520 |
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| 35          | *          | 8519 | 8822 | 9124 | 9427 | 9729 | 0032 | 0334 | 0637 | 0939 | 1242          | 7 | 2121 | 2128 |
| 36          | 157        | 1544 | 1847 | 2149 | 2452 | 2754 | 3056 | 3359 | 3661 | 3963 | 4265          | 8 | 2424 | 2432 |
| 37          |            | 4568 | 4870 | 5172 | 5474 | 5776 | 6079 | 6381 | 6683 | 6985 | 7287          | 9 | 2727 | 2736 |
| 38          | *          | 7589 | 7891 | 8193 | 8495 | 8797 | 9099 | 9401 | 9702 | 0004 | 0306          | 1 | 301  | 302  |
| 39          | 158        | 0608 | 0910 | 1212 | 1513 | 1815 | 2117 | 2418 | 2720 | 3022 | 3323          | 2 | 602  | 604  |
| 14 40       |            | 3625 | 3927 | 4228 | 4530 | 4831 | 5133 | 5434 | 5736 | 6037 | 6338          | 3 | 903  | 906  |
| 41          |            | 6640 | 6941 | 7243 | 7544 | 7845 | 8146 | 8448 | 8749 | 9050 | 9351          | 4 | 1204 | 1208 |
| 42          | *          | 9653 | 9954 | 0255 | 0556 | 0857 | 1158 | 1459 | 1760 | 2061 | 2362          | 5 | 1505 | 1510 |
| 43          | 159        | 2663 | 2964 | 3265 | 3566 | 3867 | 4168 | 4469 | 4770 | 5070 | 5371          | 6 | 1806 | 1812 |
| 44          |            | 5672 | 5973 | 6274 | 6574 | 6875 | 7175 | 7476 | 7777 | 8077 | 8378          | 7 | 2107 | 2114 |
| 45          | *          | 8678 | 8979 | 9280 | 9580 | 9881 | 0181 | 0481 | 0782 | 1082 | 1383          | 8 | 2408 | 2416 |
| 46          | 160        | 1683 | 1983 | 2284 | 2584 | 2884 | 3184 | 3485 | 3785 | 4085 | 4385          | 9 | 2709 | 2718 |
| 47          |            | 4685 | 4985 | 5285 | 5585 | 5885 | 6186 | 6486 | 6786 | 7086 | 7386          | 1 | 299  | 300  |
| 48          | *          | 7686 | 7986 | 8285 | 8585 | 8885 | 9185 | 9485 | 9785 | 0084 | 0384          | 2 | 598  | 600  |
| 49          | 161        | 0684 | 0984 | 1283 | 1583 | 1883 | 2182 | 2482 | 2781 | 3081 | 3380          | 3 | 897  | 900  |
| 14 50       |            | 3680 | 3980 | 4279 | 4578 | 4878 | 5177 | 5477 | 5776 | 6075 | 6375          | 4 | 1196 | 1200 |
| 51          |            | 6674 | 6973 | 7273 | 7572 | 7871 | 8170 | 8470 | 8769 | 9068 | 9367          | 5 | 1495 | 1500 |
| 52          | *          | 9666 | 9965 | 0264 | 0563 | 0862 | 1161 | 1460 | 1759 | 2058 | 2357          | 6 | 1794 | 1800 |
| 53          | 162        | 2656 | 2955 | 3254 | 3553 | 3852 | 4150 | 4449 | 4748 | 5047 | 5345          | 7 | 2093 | 2100 |
| 54          |            | 5644 | 5943 | 6241 | 6540 | 6839 | 7137 | 7436 | 7734 | 8033 | 8331          | 8 | 2392 | 2400 |
| 55          | *          | 8630 | 8928 | 9227 | 9525 | 9824 | 0122 | 0420 | 0719 | 1017 | 1315          | 9 | 2691 | 2700 |
| 56          | 163        | 1614 | 1912 | 2210 | 2508 | 2807 | 3105 | 3403 | 3701 | 3999 | 4297          | 1 | 297  | 298  |
| 57          |            | 4506 | 4804 | 5102 | 5400 | 5788 | 6086 | 6384 | 6682 | 6979 | 7277          | 2 | 594  | 596  |
| 58          | *          | 7575 | 7873 | 8171 | 8469 | 8767 | 9064 | 9362 | 9660 | 9958 | 0255          | 3 | 891  | 894  |
| 59          | 164        | 0553 | 0851 | 1148 | 1446 | 1743 | 2041 | 2339 | 2636 | 2934 | 3231          | 4 | 1188 | 1192 |
| 14 60       |            | 3529 | 3826 | 4123 | 4421 | 4718 | 5016 | 5313 | 5610 | 5908 | 6205          | 5 | 1485 | 1490 |
| 61          |            | 6502 | 6799 | 7097 | 7394 | 7691 | 7988 | 8285 | 8582 | 8880 | 9177          | 6 | 1782 | 1788 |
| 62          | *          | 9474 | 9771 | 0068 | 0365 | 0662 | 0959 | 1256 | 1553 | 1850 | 2146          | 7 | 2079 | 2086 |
| 63          | 165        | 2443 | 2740 | 3037 | 3334 | 3631 | 3927 | 4224 | 4521 | 4817 | 5114          | 8 | 2376 | 2384 |
| 64          |            | 5411 | 5707 | 6004 | 6301 | 6597 | 6894 | 7190 | 7487 | 7783 | 8080          | 9 | 2673 | 2682 |
| 65          | *          | 8376 | 8673 | 8969 | 9265 | 9562 | 9858 | 0155 | 0451 | 0747 | 1043          | 1 | 295  | 296  |
| 66          | 166        | 1340 | 1636 | 1932 | 2228 | 2525 | 2821 | 3117 | 3413 | 3709 | 4005          | 2 | 590  | 592  |
| 67          |            | 4301 | 4597 | 4893 | 5189 | 5485 | 5781 | 6077 | 6373 | 6669 | 6965          | 3 | 885  | 888  |
| 68          | *          | 7261 | 7556 | 7852 | 8148 | 8444 | 8740 | 9035 | 9331 | 9627 | 9922          | 4 | 1180 | 1184 |
| 69          | 167        | 0218 | 0514 | 0809 | 1105 | 1400 | 1696 | 1991 | 2287 | 2582 | 2878          | 5 | 1475 | 1480 |
| 14 70       |            | 3173 | 3469 | 3764 | 4060 | 4355 | 4650 | 4946 | 5241 | 5536 | 5831          | 6 | 1770 | 1776 |
| 71          |            | 6127 | 6422 | 6717 | 7012 | 7308 | 7603 | 7898 | 8193 | 8488 | 8783          | 7 | 2065 | 2072 |
| 72          | *          | 9078 | 9373 | 9668 | 9963 | 0258 | 0553 | 0848 | 1143 | 1438 | 1733          | 8 | 2360 | 2368 |
| 73          | 168        | 2027 | 2322 | 2617 | 2912 | 3207 | 3501 | 3796 | 4091 | 4386 | 4680          | 9 | 2655 | 2664 |
| 74          |            | 4975 | 5269 | 5564 | 5859 | 6153 | 6448 | 6742 | 7037 | 7331 | 7626          | 1 | 293  | 294  |
| 75          | *          | 7920 | 8215 | 8509 | 8803 | 9098 | 9392 | 9686 | 9981 | 0275 | 0569          | 2 | 586  | 588  |
| 76          | 169        | 0864 | 1158 | 1452 | 1746 | 2040 | 2335 | 2629 | 2923 | 3217 | 3511          | 3 | 879  | 882  |
| 77          |            | 3805 | 4099 | 4393 | 4687 | 4981 | 5275 | 5569 | 5863 | 6157 | 6450          | 4 | 1172 | 1176 |
| 78          | *          | 6744 | 7038 | 7332 | 7626 | 7920 | 8213 | 8507 | 8801 | 9094 | 9388          | 5 | 1465 | 1470 |
| 79          | 170        | 0982 | 1275 | 1569 | 1862 | 2156 | 2450 | 2744 | 3037 | 3331 | 3624          | 6 | 1758 | 1764 |
|             |            |      |      |      |      |      |      |      |      |      |               | 7 | 2051 | 2058 |
|             |            |      |      |      |      |      |      |      |      |      |               | 8 | 2344 | 2352 |
|             |            |      |      |      |      |      |      |      |      |      |               | 9 | 2637 | 2646 |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |   |      |      |

| Num.        | 0          | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | Diff. & Mult. |   |      |      |
|-------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|---|------|------|
| <b>1480</b> | <b>170</b> | 2617  | 2911  | 3204  | 3497  | 3791  | 4084  | 4377  | 4671  | 4964  | 5257          | 1 | 293  | 294  |
| 81          |            | 5551  | 5844  | 6137  | 6430  | 6723  | 7017  | 7310  | 7603  | 7896  | 8189          | 2 | 586  | 588  |
| 82          | *          | 8482  | 8775  | 9068  | 9361  | 9654  | 9947  | 10240 | 10533 | 10826 | 11119         | 3 | 879  | 882  |
| 83          | 171        | 1412  | 1704  | 1997  | 2290  | 2583  | 2876  | 3168  | 3461  | 3754  | 4046          | 4 | 1172 | 1176 |
| 84          |            | 4339  | 4632  | 4924  | 5217  | 5509  | 5802  | 6095  | 6387  | 6680  | 6972          | 5 | 1465 | 1470 |
| 85          |            | 7265  | 7557  | 7849  | 8142  | 8434  | 8727  | 9019  | 9311  | 9604  | 9896          | 6 | 1758 | 1764 |
| 86          | 172        | 0188  | 0480  | 0773  | 1065  | 1357  | 1649  | 1941  | 2233  | 2526  | 2818          | 7 | 2051 | 2058 |
| 87          |            | 3110  | 3402  | 3694  | 3986  | 4278  | 4570  | 4862  | 5154  | 5446  | 5737          | 8 | 2344 | 2352 |
| 88          |            | 6029  | 6321  | 6613  | 6905  | 7197  | 7488  | 7780  | 8072  | 8364  | 8655          | 9 | 2637 | 2646 |
| 89          | *          | 8947  | 9239  | 9530  | 9822  | 10113 | 10405 | 10697 | 10988 | 11280 | 11571         |   |      |      |
| <b>1490</b> | <b>173</b> | 1863  | 2154  | 2446  | 2737  | 3028  | 3320  | 3611  | 3903  | 4194  | 4485          | 1 | 291  | 292  |
| 91          |            | 4776  | 5068  | 5359  | 5650  | 5941  | 6233  | 6524  | 6815  | 7106  | 7397          | 2 | 582  | 584  |
| 92          | *          | 7688  | 7979  | 8270  | 8561  | 8852  | 9143  | 9434  | 9725  | 10016 | 10307         | 3 | 873  | 876  |
| 93          | 174        | 0598  | 0889  | 1180  | 1471  | 1761  | 2052  | 2343  | 2634  | 2925  | 3215          | 4 | 1164 | 1168 |
| 94          |            | 3506  | 3797  | 4087  | 4378  | 4669  | 4959  | 5250  | 5540  | 5831  | 6121          | 5 | 1455 | 1460 |
| 95          |            | 6412  | 6702  | 6993  | 7283  | 7574  | 7864  | 8155  | 8445  | 8735  | 9026          | 6 | 1746 | 1752 |
| 96          | *          | 9316  | 9606  | 9897  | 10187 | 10477 | 10767 | 11057 | 11348 | 11638 | 11928         | 7 | 2037 | 2044 |
| 97          | 175        | 2218  | 2508  | 2798  | 3088  | 3378  | 3668  | 3958  | 4248  | 4538  | 4828          | 8 | 2328 | 2336 |
| 98          |            | 5118  | 5408  | 5698  | 5988  | 6278  | 6567  | 6857  | 7147  | 7437  | 7727          | 9 | 2619 | 2628 |
| 99          | *          | 8016  | 8306  | 8596  | 8885  | 9175  | 9465  | 9754  | 10044 | 10333 | 10623         |   |      |      |
| <b>1500</b> | <b>176</b> | 0913  | 1202  | 1492  | 1781  | 2071  | 2360  | 2649  | 2939  | 3228  | 3518          | 1 | 289  | 290  |
| 01          |            | 3807  | 4096  | 4386  | 4675  | 4964  | 5253  | 5543  | 5832  | 6121  | 6410          | 2 | 578  | 580  |
| 02          |            | 6699  | 6988  | 7278  | 7567  | 7856  | 8145  | 8434  | 8723  | 9012  | 9301          | 3 | 867  | 870  |
| 03          | *          | 9590  | 9879  | 10168 | 10457 | 10745 | 11034 | 11323 | 11612 | 11901 | 12190         | 4 | 1156 | 1160 |
| 04          | 177        | 2478  | 2767  | 3056  | 3345  | 3633  | 3922  | 4211  | 4499  | 4788  | 5076          | 5 | 1445 | 1450 |
| 05          |            | 5365  | 5654  | 5942  | 6231  | 6519  | 6808  | 7096  | 7385  | 7673  | 7961          | 6 | 1734 | 1740 |
| 06          | *          | 8250  | 8538  | 8826  | 9115  | 9403  | 9691  | 9980  | 10268 | 10556 | 10844         | 7 | 2023 | 2030 |
| 07          | 178        | 1133  | 1421  | 1709  | 1997  | 2285  | 2573  | 2861  | 3149  | 3437  | 3725          | 8 | 2312 | 2320 |
| 08          |            | 4013  | 4301  | 4589  | 4877  | 5165  | 5453  | 5741  | 6029  | 6317  | 6605          | 9 | 2601 | 2610 |
| 09          |            | 6892  | 7180  | 7468  | 7756  | 8043  | 8331  | 8619  | 8907  | 9194  | 9482          |   |      |      |
| <b>1510</b> | <b>179</b> | 0657  | 0945  | 1232  | 1520  | 1807  | 2095  | 2382  | 2670  | 2957  | 3245          | 1 | 287  | 288  |
| 11          |            | 3133  | 3421  | 3709  | 3997  | 4285  | 4573  | 4861  | 5149  | 5437  | 5725          | 2 | 574  | 576  |
| 12          |            | 5518  | 5805  | 6092  | 6380  | 6667  | 6954  | 7241  | 7528  | 7815  | 8102          | 3 | 861  | 864  |
| 13          | *          | 8389  | 8676  | 8963  | 9250  | 9537  | 9824  | 10111 | 10398 | 10685 | 10972         | 4 | 1148 | 1152 |
| 14          | 180        | 1259  | 1546  | 1832  | 2119  | 2406  | 2693  | 2980  | 3266  | 3553  | 3840          | 5 | 1435 | 1440 |
| 15          |            | 4126  | 4413  | 4700  | 4986  | 5273  | 5559  | 5846  | 6133  | 6419  | 6706          | 6 | 1722 | 1728 |
| 16          |            | 6922  | 7208  | 7495  | 7781  | 8068  | 8354  | 8641  | 8927  | 9214  | 9500          | 7 | 2009 | 2016 |
| 17          | *          | 9856  | 10142 | 10428 | 10715 | 11001 | 11287 | 11573 | 11859 | 12145 | 12432         | 8 | 2296 | 2304 |
| 18          | 181        | 2718  | 3004  | 3290  | 3576  | 3862  | 4148  | 4434  | 4720  | 5006  | 5292          | 9 | 2583 | 2592 |
| 19          |            | 5578  | 5864  | 6150  | 6435  | 6721  | 7007  | 7293  | 7579  | 7864  | 8150          |   |      |      |
| <b>1520</b> | <b>182</b> | 0836  | 1122  | 1407  | 1693  | 1979  | 2264  | 2550  | 2836  | 3121  | 3407          | 1 | 285  | 286  |
| 21          |            | 3292  | 3578  | 3863  | 4149  | 4434  | 4720  | 5006  | 5292  | 5578  | 5863          | 2 | 570  | 572  |
| 22          |            | 5678  | 5963  | 6249  | 6534  | 6819  | 7105  | 7390  | 7676  | 7961  | 8247          | 3 | 855  | 858  |
| 23          | *          | 8699  | 8984  | 9269  | 9554  | 9839  | 10124 | 10409 | 10694 | 10979 | 11264         | 4 | 1140 | 1144 |
| 24          |            | 11264 | 11549 | 11834 | 12119 | 12404 | 12689 | 12974 | 13259 | 13544 | 13829         | 5 | 1425 | 1430 |
| 25          | 183        | 2698  | 2983  | 3268  | 3553  | 3837  | 4122  | 4407  | 4691  | 4976  | 5261          | 6 | 1710 | 1716 |
| 26          |            | 5545  | 5830  | 6114  | 6399  | 6684  | 6968  | 7253  | 7537  | 7822  | 8106          | 7 | 1995 | 2002 |
| 27          | *          | 8390  | 8675  | 8959  | 9244  | 9528  | 9812  | 10096 | 10381 | 10665 | 10949         | 8 | 2280 | 2288 |
| 28          | 184        | 1234  | 1518  | 1802  | 2086  | 2370  | 2654  | 2939  | 3223  | 3507  | 3791          | 9 | 2565 | 2574 |
| 29          |            | 4075  | 4359  | 4643  | 4927  | 5211  | 5495  | 5779  | 6063  | 6347  | 6630          |   |      |      |
| <b>1530</b> | <b>185</b> | 0914  | 1198  | 1482  | 1766  | 2050  | 2334  | 2618  | 2902  | 3186  | 3470          | 1 | 283  | 284  |
| 31          |            | 3392  | 3676  | 3960  | 4244  | 4528  | 4812  | 5096  | 5380  | 5664  | 5948          | 2 | 566  | 568  |
| 32          | 185        | 2588  | 2871  | 3155  | 3438  | 3721  | 4005  | 4288  | 4572  | 4855  | 5138          | 3 | 849  | 852  |
| 33          |            | 5422  | 5705  | 5988  | 6271  | 6555  | 6838  | 7121  | 7404  | 7687  | 7970          | 4 | 1132 | 1136 |
| 34          | *          | 8254  | 8537  | 8820  | 9103  | 9386  | 9669  | 9952  | 10235 | 10518 | 10801         | 5 | 1415 | 1420 |
| 35          | 186        | 1084  | 1367  | 1650  | 1932  | 2215  | 2498  | 2781  | 3064  | 3347  | 3629          | 6 | 1698 | 1704 |
| 36          |            | 3912  | 4195  | 4478  | 4760  | 5043  | 5326  | 5608  | 5891  | 6174  | 6456          | 7 | 1981 | 1988 |
| 37          |            | 6739  | 7021  | 7304  | 7586  | 7869  | 8151  | 8434  | 8716  | 8999  | 9281          | 8 | 2264 | 2272 |
| 38          | *          | 9563  | 9846  | 10128 | 10410 | 10693 | 10975 | 11257 | 11540 | 11822 | 12104         | 9 | 2547 | 2556 |
| 39          | 187        | 2386  | 2668  | 2951  | 3233  | 3515  | 3797  | 4079  | 4361  | 4643  | 4925          |   |      |      |
| Num.        | 0          | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | Diff. & Mult. |   |      |      |

LOGARITHMS OF NUMBERS.

| Num.       | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |   |      |      |
|------------|-----|------|------|------|------|------|------|------|------|------|---------------|---|------|------|
| <b>140</b> | 187 | 5207 | 5489 | 5771 | 6053 | 6335 | 6617 | 6899 | 7181 | 7463 | 7745          | 1 | 281  | 282  |
| 41         | •   | 8026 | 8308 | 8590 | 8872 | 9154 | 9435 | 9717 | 9999 | +280 | 0562          | 2 | 562  | 564  |
| 42         | 188 | 0844 | 1125 | 1407 | 1689 | 1970 | 2252 | 2533 | 2815 | 3096 | 3378          | 3 | 843  | 846  |
| 43         |     | 3659 | 3941 | 4222 | 4504 | 4785 | 5066 | 5348 | 5629 | 5910 | 6192          | 4 | 1124 | 1128 |
| 44         |     | 6473 | 6754 | 7035 | 7317 | 7598 | 7879 | 8160 | 8441 | 8723 | 9004          | 5 | 1405 | 1410 |
| 45         | •   | 9285 | 9566 | 9847 | +128 | 0409 | 0690 | 0971 | 1252 | 1533 | 1814          | 6 | 1686 | 1692 |
| 46         | 189 | 2095 | 2376 | 2657 | 2938 | 3218 | 3499 | 3780 | 4061 | 4342 | 4622          | 7 | 1967 | 1974 |
| 47         |     | 4903 | 5184 | 5465 | 5745 | 6026 | 6307 | 6587 | 6868 | 7148 | 7429          | 8 | 2248 | 2256 |
| 48         | •   | 7710 | 7990 | 8271 | 8551 | 8832 | 9112 | 9393 | 9673 | 9953 | +234          | 9 | 2529 | 2538 |
| 49         | 190 | 0514 | 0795 | 1075 | 1355 | 1636 | 1916 | 2196 | 2476 | 2757 | 3037          |   |      |      |
| <b>150</b> |     | 3317 | 3597 | 3877 | 4157 | 4438 | 4718 | 4998 | 5278 | 5558 | 5838          | 1 | 279  | 280  |
| 51         |     | 6118 | 6398 | 6678 | 6958 | 7238 | 7518 | 7798 | 8078 | 8357 | 8637          | 2 | 558  | 560  |
| 52         | •   | 8917 | 9197 | 9477 | 9757 | +036 | 0316 | 0596 | 0876 | 1155 | 1435          | 3 | 837  | 840  |
| 53         | 191 | 1715 | 1994 | 2274 | 2553 | 2833 | 3113 | 3392 | 3672 | 3951 | 4231          | 4 | 1116 | 1120 |
| 54         |     | 4510 | 4790 | 5069 | 5348 | 5628 | 5907 | 6187 | 6466 | 6745 | 7025          | 5 | 1395 | 1400 |
| 55         |     | 7304 | 7583 | 7862 | 8142 | 8421 | 8700 | 8979 | 9259 | 9538 | 9817          | 6 | 1674 | 1680 |
| 56         | 192 | 0066 | 0345 | 0624 | 0903 | 1212 | 1491 | 1770 | 2049 | 2328 | 2607          | 7 | 1953 | 1960 |
| 57         |     | 2886 | 3165 | 3444 | 3723 | 4002 | 4281 | 4559 | 4838 | 5117 | 5396          | 8 | 2232 | 2240 |
| 58         |     | 5675 | 5953 | 6232 | 6511 | 6789 | 7068 | 7347 | 7625 | 7904 | 8183          | 9 | 2511 | 2520 |
| 59         | •   | 8461 | 8740 | 9018 | 9297 | 9575 | 9854 | +132 | 0411 | 0689 | 0968          |   |      |      |
| <b>160</b> | 193 | 1246 | 1524 | 1803 | 2081 | 2359 | 2638 | 2916 | 3194 | 3473 | 3751          | 1 | 277  | 278  |
| 61         |     | 4029 | 4307 | 4585 | 4864 | 5142 | 5420 | 5698 | 5976 | 6254 | 6532          | 2 | 554  | 556  |
| 62         |     | 6810 | 7088 | 7366 | 7644 | 7922 | 8200 | 8478 | 8756 | 9034 | 9312          | 3 | 831  | 834  |
| 63         | •   | 9590 | 9868 | +145 | 0423 | 0701 | 0979 | 1257 | 1534 | 1812 | 2090          | 4 | 1108 | 1112 |
| 64         | 194 | 2367 | 2645 | 2923 | 3200 | 3478 | 3756 | 4033 | 4311 | 4588 | 4866          | 5 | 1385 | 1390 |
| 65         |     | 5143 | 5421 | 5698 | 5976 | 6253 | 6531 | 6808 | 7086 | 7363 | 7640          | 6 | 1662 | 1668 |
| 66         | •   | 7918 | 8195 | 8472 | 8749 | 9027 | 9304 | 9581 | 9858 | +136 | 0413          | 7 | 1939 | 1946 |
| 67         | 195 | 0690 | 0967 | 1244 | 1521 | 1798 | 2075 | 2353 | 2630 | 2907 | 3184          | 8 | 2216 | 2224 |
| 68         |     | 3461 | 3738 | 4014 | 4291 | 4568 | 4845 | 5122 | 5399 | 5676 | 5953          | 9 | 2493 | 2502 |
| 69         |     | 6122 | 6506 | 6883 | 7060 | 7336 | 7613 | 7890 | 8167 | 8443 | 8720          |   |      |      |
| <b>170</b> | •   | 8997 | 9273 | 9550 | 9826 | +103 | 0379 | 0656 | 0932 | 1209 | 1485          | 1 | 275  | 276  |
| 71         | 196 | 1762 | 2038 | 2315 | 2591 | 2867 | 3144 | 3420 | 3697 | 3973 | 4249          | 2 | 550  | 552  |
| 72         |     | 4525 | 4802 | 5078 | 5354 | 5630 | 5907 | 6183 | 6459 | 6735 | 7011          | 3 | 825  | 828  |
| 73         |     | 7287 | 7563 | 7839 | 8115 | 8391 | 8667 | 8943 | 9219 | 9495 | 9771          | 4 | 1100 | 1104 |
| 74         | 197 | 0047 | 0323 | 0599 | 0875 | 1151 | 1427 | 1702 | 1978 | 2254 | 2530          | 5 | 1375 | 1380 |
| 75         |     | 2866 | 3081 | 3357 | 3633 | 3908 | 4184 | 4460 | 4735 | 5011 | 5287          | 6 | 1650 | 1656 |
| 76         |     | 5562 | 5838 | 6113 | 6389 | 6664 | 6940 | 7215 | 7491 | 7766 | 8042          | 7 | 1925 | 1932 |
| 77         | •   | 8317 | 8592 | 8868 | 9143 | 9418 | 9694 | 9969 | +244 | 0520 | 0795          | 8 | 2200 | 2208 |
| 78         | 198 | 1070 | 1345 | 1620 | 1895 | 2171 | 2446 | 2721 | 2996 | 3271 | 3546          | 9 | 2475 | 2484 |
| 79         |     | 3821 | 4096 | 4371 | 4646 | 4921 | 5196 | 5471 | 5746 | 6021 | 6296          |   |      |      |
| <b>180</b> |     | 6571 | 6846 | 7121 | 7395 | 7670 | 7945 | 8220 | 8495 | 8769 | 9044          | 1 | 273  | 274  |
| 81         | •   | 9319 | 9593 | 9868 | +143 | 0417 | 0692 | 0967 | 1241 | 1516 | 1790          | 2 | 546  | 548  |
| 82         | 199 | 2065 | 2339 | 2614 | 2888 | 3163 | 3437 | 3712 | 3986 | 4260 | 4535          | 3 | 819  | 822  |
| 83         |     | 4809 | 5083 | 5358 | 5632 | 5906 | 6181 | 6455 | 6729 | 7003 | 7278          | 4 | 1092 | 1096 |
| 84         | •   | 7552 | 7826 | 8100 | 8374 | 8648 | 8922 | 9197 | 9471 | 9745 | +019          | 5 | 1365 | 1370 |
| 85         | 200 | 0293 | 0567 | 0841 | 1115 | 1389 | 1662 | 1936 | 2210 | 2484 | 2758          | 6 | 1638 | 1644 |
| 86         |     | 3032 | 3306 | 3579 | 3853 | 4127 | 4401 | 4674 | 4948 | 5222 | 5496          | 7 | 1911 | 1918 |
| 87         |     | 5769 | 6043 | 6317 | 6590 | 6864 | 7137 | 7411 | 7684 | 7958 | 8231          | 8 | 2184 | 2192 |
| 88         | •   | 8505 | 8778 | 9052 | 9325 | 9599 | 9872 | +146 | 0419 | 0692 | 0966          | 9 | 2457 | 2466 |
| 89         | 201 | 1239 | 1512 | 1786 | 2059 | 2332 | 2605 | 2879 | 3152 | 3425 | 3698          |   |      |      |
| <b>190</b> |     | 3971 | 4244 | 4517 | 4791 | 5064 | 5337 | 5610 | 5883 | 6156 | 6429          | 1 | 271  | 272  |
| 91         |     | 6702 | 6975 | 7248 | 7521 | 7794 | 8066 | 8339 | 8612 | 8885 | 9158          | 2 | 542  | 544  |
| 92         | •   | 9431 | 9703 | 9976 | +249 | 0522 | 0794 | 1067 | 1340 | 1612 | 1885          | 3 | 813  | 816  |
| 93         | 202 | 2158 | 2430 | 2703 | 2976 | 3248 | 3521 | 3793 | 4066 | 4338 | 4611          | 4 | 1084 | 1088 |
| 94         |     | 4883 | 5156 | 5428 | 5700 | 5973 | 6245 | 6518 | 6790 | 7062 | 7335          | 5 | 1355 | 1360 |
| 95         | •   | 7607 | 7879 | 8151 | 8424 | 8696 | 8968 | 9240 | 9512 | 9785 | +057          | 6 | 1626 | 1632 |
| 96         | 203 | 0329 | 0601 | 0873 | 1145 | 1417 | 1689 | 1961 | 2233 | 2505 | 2777          | 7 | 1897 | 1904 |
| 97         |     | 3049 | 3321 | 3593 | 3865 | 4137 | 4409 | 4681 | 4952 | 5224 | 5496          | 8 | 2168 | 2176 |
| 98         |     | 5768 | 6040 | 6311 | 6583 | 6855 | 7126 | 7398 | 7670 | 7941 | 8213          | 9 | 2439 | 2448 |
| 99         | •   | 8485 | 8756 | 9028 | 9299 | 9571 | 9842 | +114 | 0385 | 0657 | 0928          |   |      |      |

| Num.        | 0          | 1      | 2      | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |             |             |
|-------------|------------|--------|--------|------|------|------|------|------|------|------|---------------|-------------|-------------|
| <b>1600</b> | <b>204</b> | 1200   | 1471   | 1743 | 2014 | 2285 | 2557 | 2828 | 3099 | 3371 | 3642          | 1 271 272   |             |
| 01          |            | 3913   | 4185   | 4456 | 4727 | 4998 | 5269 | 5541 | 5812 | 6083 | 6354          | 2 542 544   |             |
| 02          |            | 6625   | 6896   | 7167 | 7438 | 7709 | 7980 | 8251 | 8522 | 8793 | 9064          | 3 813 816   |             |
| 03          |            | * 9335 | 9606   | 9877 | +148 | 0419 | 0690 | 0960 | 1231 | 1502 | 1773          | 4 1084 1088 |             |
| 04          |            | 205    | 2044   | 2314 | 2585 | 2856 | 3127 | 3397 | 3668 | 3939 | 4209          | 4480        | 5 1355 1360 |
| 05          |            | 4750   | 5021   | 5292 | 5562 | 5833 | 6103 | 6374 | 6644 | 6915 | 7185          | 6 1626 1632 |             |
| 06          |            | 7455   | 7726   | 7996 | 8267 | 8537 | 8807 | 9078 | 9348 | 9618 | 9889          | 7 1897 1904 |             |
| 07          |            | 206    | 0159   | 0429 | 0699 | 0969 | 1240 | 1510 | 1780 | 2050 | 2320          | 2590        | 8 2168 2176 |
| 08          |            | 2860   | 3131   | 3401 | 3671 | 3941 | 4211 | 4481 | 4751 | 5021 | 5291          | 9 2439 2448 |             |
| 09          |            | 5560   | 5830   | 6100 | 6370 | 6640 | 6910 | 7180 | 7449 | 7719 | 7989          |             |             |
| <b>1610</b> |            | * 8250 | 8520   | 8790 | 9060 | 9330 | 9607 | 9877 | +147 | 0416 | 0686          | 1 269 270   |             |
| 11          |            | 207    | 0955   | 1225 | 1495 | 1764 | 2034 | 2303 | 2573 | 2842 | 3112          | 3381        | 2 538 540   |
| 12          |            |        | 3650   | 3920 | 4189 | 4459 | 4728 | 4997 | 5267 | 5536 | 5805          | 6074        | 3 807 810   |
| 13          |            |        | 6344   | 6613 | 6882 | 7151 | 7421 | 7690 | 7959 | 8228 | 8497          | 8766        | 4 1076 1080 |
| 14          |            | * 9035 | 9304   | 9573 | 9842 | +111 | 0380 | 0649 | 0918 | 1187 | 1456          | 5 1345 1350 |             |
| 15          |            | 208    | 1725   | 1994 | 2263 | 2532 | 2801 | 3070 | 3338 | 3607 | 3876          | 4145        | 6 1614 1620 |
| 16          |            |        | 4414   | 4682 | 4951 | 5220 | 5488 | 5757 | 6026 | 6294 | 6563          | 6832        | 7 1883 1890 |
| 17          |            |        | 7100   | 7369 | 7637 | 7906 | 8174 | 8443 | 8711 | 8980 | 9248          | 9517        | 8 2152 2160 |
| 18          |            |        | * 9785 | +054 | 0322 | 0590 | 0859 | 1127 | 1395 | 1664 | 1932          | 2200        | 9 2421 2430 |
| 19          |            | 209    | 2468   | 2737 | 3005 | 3273 | 3541 | 3810 | 4078 | 4346 | 4614          | 4882        |             |
| <b>1620</b> |            |        | 5150   | 5418 | 5686 | 5954 | 6222 | 6490 | 6758 | 7026 | 7294          | 7562        | 1 267 268   |
| 21          |            | * 7830 | 8098   | 8366 | 8634 | 8902 | 9170 | 9437 | 9705 | 9973 | +241          | 2 534 536   |             |
| 22          |            | 210    | 0508   | 0776 | 1044 | 1312 | 1579 | 1847 | 2115 | 2382 | 2650          | 2918        | 3 801 804   |
| 23          |            |        | 3185   | 3453 | 3720 | 3988 | 4255 | 4523 | 4790 | 5058 | 5325          | 5593        | 4 1068 1072 |
| 24          |            |        | 5860   | 6128 | 6395 | 6662 | 6930 | 7197 | 7464 | 7732 | 7999          | 8266        | 5 1335 1340 |
| 25          |            |        | * 8534 | 8801 | 9068 | 9335 | 9603 | 9870 | +137 | 0404 | 0671          | 0938        | 6 1602 1608 |
| 26          |            | 211    | 1205   | 1472 | 1740 | 2007 | 2274 | 2541 | 2808 | 3075 | 3342          | 3609        | 7 1869 1876 |
| 27          |            |        | 3876   | 4142 | 4409 | 4676 | 4943 | 5210 | 5477 | 5744 | 6010          | 6277        | 8 2136 2144 |
| 28          |            |        | 6544   | 6811 | 7078 | 7344 | 7611 | 7878 | 8144 | 8411 | 8678          | 8944        | 9 2403 2412 |
| 29          |            | * 9211 | 9477   | 9744 | +011 | 0277 | 0544 | 0810 | 1077 | 1343 | 1610          |             |             |
| <b>1630</b> |            | 212    | 1876   | 2142 | 2409 | 2675 | 2942 | 3208 | 3474 | 3741 | 4007          | 4273        | 1 265 266   |
| 31          |            |        | 4540   | 4806 | 5072 | 5338 | 5605 | 5871 | 6137 | 6403 | 6669          | 6935        | 2 530 532   |
| 32          |            |        | 7202   | 7468 | 7734 | 8000 | 8266 | 8532 | 8798 | 9064 | 9330          | 9596        | 3 795 798   |
| 33          |            | * 9862 | +128   | 0394 | 0660 | 0926 | 1191 | 1457 | 1723 | 1989 | 2255          | 2521        | 4 1060 1064 |
| 34          |            | 213    | 2521   | 2786 | 3052 | 3318 | 3584 | 3849 | 4115 | 4381 | 4646          | 4912        | 5 1325 1330 |
| 35          |            |        | 5178   | 5443 | 5709 | 5974 | 6240 | 6505 | 6771 | 7037 | 7302          | 7568        | 6 1590 1596 |
| 36          |            |        | * 7833 | 8098 | 8364 | 8629 | 8895 | 9160 | 9425 | 9691 | 9956          | +221        | 7 1855 1862 |
| 37          |            | 214    | 0487   | 0752 | 1017 | 1283 | 1548 | 1813 | 2078 | 2343 | 2609          | 2874        | 8 2120 2128 |
| 38          |            |        | 3139   | 3404 | 3669 | 3934 | 4199 | 4464 | 4730 | 4995 | 5260          | 5525        | 9 2385 2394 |
| 39          |            |        | 5790   | 6055 | 6319 | 6584 | 6849 | 7114 | 7379 | 7644 | 7909          | 8174        |             |
| <b>1640</b> |            | * 8438 | 8703   | 8968 | 9233 | 9498 | 9762 | +027 | 0292 | 0556 | 0821          |             | 1 263 264   |
| 41          |            | 215    | 1086   | 1350 | 1615 | 1880 | 2144 | 2409 | 2673 | 2938 | 3203          | 3467        | 2 526 528   |
| 42          |            |        | 3732   | 3996 | 4260 | 4525 | 4789 | 5054 | 5318 | 5583 | 5847          | 6111        | 3 789 792   |
| 43          |            |        | 6326   | 6640 | 6904 | 7169 | 7433 | 7697 | 7961 | 8226 | 8490          | 8754        | 4 1052 1056 |
| 44          |            | * 9018 | 9282   | 9546 | 9811 | +075 | 0339 | 0603 | 0867 | 1131 | 1395          | 5 1315 1320 |             |
| 45          |            | 216    | 1659   | 1923 | 2187 | 2451 | 2715 | 2979 | 3243 | 3507 | 3771          | 4034        | 6 1578 1584 |
| 46          |            |        | 4206   | 4562 | 4826 | 5090 | 5354 | 5617 | 5881 | 6145 | 6409          | 6672        | 7 1841 1848 |
| 47          |            |        | 6936   | 7200 | 7463 | 7727 | 7991 | 8254 | 8518 | 8781 | 9045          | 9309        | 8 2104 2112 |
| 48          |            |        | * 9572 | 9836 | +099 | 0363 | 0626 | 0890 | 1153 | 1416 | 1680          | 1943        | 9 2367 2376 |
| 49          |            | 217    | 2207   | 2470 | 2733 | 2997 | 3260 | 3523 | 3786 | 4050 | 4313          | 4576        |             |
| <b>1650</b> |            |        | 4839   | 5103 | 5366 | 5629 | 5892 | 6155 | 6418 | 6682 | 6945          | 7208        | 1 261 262   |
| 51          |            |        | 7471   | 7734 | 7997 | 8260 | 8523 | 8786 | 9049 | 9312 | 9575          | 9838        | 2 522 524   |
| 52          |            | 218    | 0100   | 0363 | 0626 | 0889 | 1152 | 1415 | 1677 | 1940 | 2203          | 2466        | 3 783 786   |
| 53          |            |        | 2729   | 2991 | 3254 | 3517 | 3779 | 4042 | 4305 | 4567 | 4830          | 5092        | 4 1044 1048 |
| 54          |            |        | 5355   | 5618 | 5880 | 6143 | 6405 | 6668 | 6930 | 7193 | 7455          | 7718        | 5 1305 1310 |
| 55          |            | * 7980 | 8242   | 8505 | 8767 | 9030 | 9292 | 9554 | 9816 | +079 | 0341          | 6 1566 1572 |             |
| 56          |            | 219    | 0603   | 0866 | 1128 | 1390 | 1652 | 1914 | 2177 | 2439 | 2701          | 2963        | 7 1827 1834 |
| 57          |            |        | 3225   | 3487 | 3749 | 4011 | 4273 | 4535 | 4797 | 5059 | 5321          | 5583        | 8 2088 2096 |
| 58          |            |        | 5845   | 6107 | 6369 | 6631 | 6893 | 7155 | 7417 | 7678 | 7940          | 8202        | 9 2349 2358 |
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Num.

0 1 2 3 4 5 6 7 8 9

Diff. & Mult.



LOGARITHMS OF NUMBERS.

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|-------------|------------|------|------|------|------|------|------|------|------|------|---------------|---------------|------|------|
| <b>1660</b> | <b>220</b> | 1081 | 1342 | 1604 | 1866 | 2127 | 2389 | 2650 | 2912 | 3173 | 3435          | 1             | 260  | 261  |
| 61          |            | 3696 | 3958 | 4219 | 4481 | 4742 | 5003 | 5265 | 5526 | 5788 | 6049          | 2             | 520  | 522  |
| 62          |            | 6310 | 6571 | 6833 | 7094 | 7355 | 7617 | 7878 | 8139 | 8400 | 8661          | 3             | 780  | 783  |
| 63          | *          | 8922 | 9184 | 9445 | 9706 | 9967 | +228 | 0489 | 0750 | 1011 | 1272          | 4             | 1040 | 1044 |
| 64          | 221        | 1533 | 1794 | 2055 | 2316 | 2577 | 2838 | 3099 | 3360 | 3621 | 3882          | 5             | 1300 | 1305 |
| 65          |            | 4142 | 4403 | 4664 | 4925 | 5186 | 5446 | 5707 | 5968 | 6229 | 6489          | 6             | 1560 | 1566 |
| 66          |            | 6750 | 7011 | 7271 | 7532 | 7793 | 8053 | 8314 | 8574 | 8835 | 9095          | 7             | 1820 | 1827 |
| 67          | *          | 9356 | 9617 | 9877 | +138 | 0398 | 0658 | 0919 | 1179 | 1440 | 1700          | 8             | 2080 | 2088 |
| 68          | 222        | 1960 | 2221 | 2481 | 2741 | 3002 | 3262 | 3522 | 3783 | 4043 | 4303          | 9             | 2340 | 2349 |
| 69          |            | 4563 | 4824 | 5084 | 5344 | 5604 | 5864 | 6124 | 6384 | 6645 | 6905          |               |      |      |
| <b>1670</b> |            | 7165 | 7425 | 7685 | 7945 | 8205 | 8465 | 8725 | 8985 | 9245 | 9505          |               |      |      |
| 71          | *          | 9764 | +024 | 0284 | 0544 | 0804 | 1064 | 1324 | 1583 | 1843 | 2103          | 1             | 258  | 259  |
| 72          | 223        | 2363 | 2622 | 2882 | 3142 | 3402 | 3661 | 3921 | 4181 | 4440 | 4700          | 2             | 516  | 518  |
| 73          |            | 4959 | 5219 | 5479 | 5738 | 5998 | 6257 | 6517 | 6776 | 7036 | 7295          | 3             | 774  | 777  |
| 74          |            | 7555 | 7814 | 8073 | 8333 | 8592 | 8852 | 9111 | 9370 | 9630 | 9889          | 4             | 1032 | 1036 |
| 75          | 224        | 0148 | 0407 | 0667 | 0926 | 1185 | 1444 | 1704 | 1963 | 2222 | 2481          | 5             | 1290 | 1295 |
| 76          |            | 2740 | 2999 | 3258 | 3517 | 3777 | 4036 | 4295 | 4554 | 4813 | 5072          | 6             | 1548 | 1554 |
| 77          |            | 5331 | 5590 | 5849 | 6107 | 6366 | 6625 | 6884 | 7143 | 7402 | 7661          | 7             | 1806 | 1813 |
| 78          | *          | 7920 | 8178 | 8437 | 8696 | 8955 | 9213 | 9472 | 9731 | 9990 | +248          | 8             | 2064 | 2072 |
| 79          | 225        | 0507 | 0766 | 1024 | 1283 | 1541 | 1800 | 2059 | 2317 | 2576 | 2834          | 9             | 2322 | 2331 |
| <b>1680</b> |            | 3093 | 3351 | 3610 | 3868 | 4127 | 4385 | 4644 | 4902 | 5160 | 5419          |               |      |      |
| 81          |            | 5677 | 5935 | 6194 | 6452 | 6710 | 6969 | 7227 | 7485 | 7743 | 8002          | 1             | 256  | 257  |
| 82          | *          | 8260 | 8518 | 8776 | 9034 | 9293 | 9551 | 9809 | +067 | 0325 | 0583          | 2             | 512  | 514  |
| 83          | 226        | 0841 | 1099 | 1357 | 1615 | 1873 | 2131 | 2389 | 2647 | 2905 | 3163          | 3             | 768  | 771  |
| 84          |            | 3421 | 3679 | 3937 | 4194 | 4452 | 4710 | 4968 | 5226 | 5484 | 5741          | 4             | 1024 | 1028 |
| 85          |            | 5999 | 6257 | 6515 | 6772 | 7030 | 7288 | 7545 | 7803 | 8060 | 8318          | 5             | 1280 | 1285 |
| 86          | *          | 8576 | 8833 | 9091 | 9348 | 9606 | 9863 | +121 | 0378 | 0636 | 0893          | 6             | 1536 | 1542 |
| 87          | 227        | 1151 | 1408 | 1666 | 1923 | 2180 | 2438 | 2695 | 2953 | 3210 | 3467          | 7             | 1792 | 1799 |
| 88          |            | 3724 | 3982 | 4239 | 4496 | 4753 | 5011 | 5268 | 5525 | 5782 | 6039          | 8             | 2048 | 2056 |
| 89          |            | 6296 | 6554 | 6811 | 7068 | 7325 | 7582 | 7839 | 8096 | 8353 | 8610          | 9             | 2304 | 2313 |
| <b>1690</b> | *          | 8867 | 9124 | 9381 | 9638 | 9895 | +152 | 0409 | 0666 | 0922 | 1179          |               |      |      |
| 91          | 228        | 1436 | 1693 | 1950 | 2206 | 2463 | 2720 | 2977 | 3233 | 3490 | 3747          | 1             | 254  | 255  |
| 92          |            | 4004 | 4260 | 4517 | 4774 | 5030 | 5287 | 5543 | 5800 | 6057 | 6313          | 2             | 508  | 510  |
| 93          |            | 6570 | 6826 | 7083 | 7339 | 7596 | 7852 | 8108 | 8365 | 8621 | 8878          | 3             | 762  | 765  |
| 94          | *          | 9134 | 9390 | 9647 | 9903 | +159 | 0416 | 0672 | 0928 | 1185 | 1441          | 4             | 1016 | 1020 |
| 95          | 229        | 1697 | 1953 | 2209 | 2466 | 2722 | 2978 | 3234 | 3490 | 3746 | 4002          | 5             | 1270 | 1275 |
| 96          |            | 4258 | 4515 | 4771 | 5027 | 5283 | 5539 | 5795 | 6051 | 6307 | 6562          | 6             | 1524 | 1530 |
| 97          |            | 6818 | 7074 | 7330 | 7586 | 7842 | 8098 | 8354 | 8609 | 8865 | 9121          | 7             | 1778 | 1785 |
| 98          | *          | 9377 | 9633 | 9888 | +144 | 0400 | 0656 | 0911 | 1167 | 1423 | 1678          | 8             | 2032 | 2040 |
| 99          | 230        | 1934 | 2189 | 2445 | 2701 | 2956 | 3212 | 3467 | 3723 | 3978 | 4234          | 9             | 2286 | 2295 |
| <b>1700</b> |            | 4489 | 4745 | 5000 | 5256 | 5511 | 5766 | 6022 | 6277 | 6532 | 6788          |               |      |      |
| 01          |            | 7043 | 7298 | 7554 | 7809 | 8064 | 8320 | 8575 | 8830 | 9085 | 9340          | 1             | 252  | 253  |
| 02          | *          | 9596 | 9851 | +106 | 0361 | 0616 | 0871 | 1126 | 1381 | 1636 | 1891          | 2             | 506  | 509  |
| 03          | 231        | 2146 | 2401 | 2656 | 2911 | 3166 | 3421 | 3676 | 3931 | 4186 | 4441          | 3             | 756  | 759  |
| 04          |            | 4696 | 4951 | 5206 | 5460 | 5715 | 5970 | 6225 | 6480 | 6734 | 6989          | 4             | 1008 | 1012 |
| 05          |            | 7244 | 7499 | 7753 | 8008 | 8263 | 8517 | 8772 | 9026 | 9281 | 9536          | 5             | 1260 | 1265 |
| 06          | *          | 9790 | +045 | 0299 | 0554 | 0808 | 1063 | 1317 | 1572 | 1826 | 2081          | 6             | 1512 | 1518 |
| 07          | 232        | 2335 | 2590 | 2844 | 3098 | 3353 | 3607 | 3861 | 4116 | 4370 | 4624          | 7             | 1764 | 1771 |
| 08          |            | 4879 | 5133 | 5387 | 5641 | 5896 | 6150 | 6404 | 6658 | 6912 | 7166          | 8             | 2016 | 2024 |
| 09          |            | 7421 | 7675 | 7929 | 8183 | 8437 | 8691 | 8945 | 9199 | 9453 | 9707          | 9             | 2268 | 2277 |
| <b>1710</b> | *          | 9961 | +215 | 0469 | 0723 | 0977 | 1231 | 1485 | 1739 | 1992 | 2246          |               |      |      |
| 11          | 233        | 2500 | 2754 | 3008 | 3262 | 3515 | 3769 | 4023 | 4277 | 4530 | 4784          | 1             | 252  | 253  |
| 12          |            | 5038 | 5291 | 5545 | 5799 | 6052 | 6306 | 6559 | 6813 | 7067 | 7320          | 2             | 504  | 506  |
| 13          |            | 7574 | 7827 | 8081 | 8334 | 8588 | 8841 | 9095 | 9348 | 9601 | 9855          | 3             | 756  | 759  |
| 14          | 234        | 0108 | 0362 | 0615 | 0868 | 1122 | 1375 | 1628 | 1881 | 2135 | 2388          | 4             | 1008 | 1012 |
| 15          |            | 2641 | 2894 | 3148 | 3401 | 3654 | 3907 | 4160 | 4414 | 4667 | 4920          | 5             | 1260 | 1265 |
| 16          |            | 5173 | 5426 | 5679 | 5932 | 6185 | 6438 | 6691 | 6944 | 7197 | 7450          | 6             | 1512 | 1518 |
| 17          |            | 7703 | 7956 | 8209 | 8462 | 8715 | 8967 | 9220 | 9473 | 9726 | 9979          | 7             | 1764 | 1771 |
| 18          | 235        | 0232 | 0484 | 0737 | 0990 | 1243 | 1495 | 1748 | 2001 | 2253 | 2506          | 8             | 2016 | 2024 |
| 19          |            | 2759 | 3011 | 3264 | 3517 | 3769 | 4022 | 4274 | 4527 | 4779 | 5032          | 9             | 2268 | 2277 |
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|-------------|------------|------|------|------|------|------|------|------|------|------|---------------|---|------|------|
| <b>1720</b> | <b>235</b> | 5284 | 5537 | 5789 | 6042 | 6294 | 6547 | 6799 | 7052 | 7304 | 7556          | 1 | 252  | 253  |
| 21          | * 7809     | 8061 | 8313 | 8566 | 8818 |      | 9070 | 9323 | 9575 | 9827 | *079          | 2 | 504  | 506  |
| 22          | 236        | 0331 | 0584 | 0836 | 1088 | 1340 | 1592 | 1844 | 2097 | 2349 | 2601          | 3 | 756  | 759  |
| 23          |            | 2853 | 3105 | 3357 | 3609 | 3861 | 4113 | 4365 | 4617 | 4869 | 5121          | 4 | 1008 | 1012 |
| 24          |            | 5373 | 5625 | 5876 | 6128 | 6380 | 6632 | 6884 | 7136 | 7387 | 7639          | 5 | 1260 | 1265 |
| 25          | * 7891     | 8143 | 8394 | 8646 | 8898 |      | 9150 | 9401 | 9653 | 9905 | *156          | 6 | 1512 | 1518 |
| 26          | 237        | 0408 | 0660 | 0911 | 1163 | 1414 | 1666 | 1917 | 2169 | 2420 | 2672          | 7 | 1764 | 1771 |
| 27          |            | 2923 | 3175 | 3426 | 3678 | 3929 | 4181 | 4432 | 4683 | 4935 | 5186          | 8 | 2016 | 2024 |
| 28          |            | 5437 | 5689 | 5940 | 6191 | 6443 | 6694 | 6945 | 7196 | 7448 | 7699          | 9 | 2268 | 2277 |
| 29          | * 7950     | 8201 | 8452 | 8703 | 8955 |      | 9206 | 9457 | 9708 | 9959 | *210          |   |      |      |
| 17 30       | 238        | 0461 | 0712 | 0963 | 1214 | 1465 | 1716 | 1967 | 2218 | 2469 | 2720          |   |      |      |
| 31          |            | 2971 | 3222 | 3472 | 3723 | 3974 | 4225 | 4476 | 4727 | 4977 | 5228          |   |      |      |
| 32          |            | 5479 | 5730 | 5980 | 6231 | 6482 | 6732 | 6983 | 7234 | 7484 | 7735          |   |      |      |
| 33          | * 7988     | 8239 | 8490 | 8741 | 8992 |      | 9243 | 9494 | 9745 | 9996 | *240          | 1 | 250  | 251  |
| 34          | 239        | 0491 | 0741 | 0992 | 1242 | 1493 | 1743 | 1993 | 2244 | 2494 | 2744          | 2 | 500  | 502  |
| 35          |            | 2995 | 3245 | 3495 | 3746 | 3996 | 4246 | 4496 | 4747 | 4997 | 5247          | 3 | 750  | 753  |
| 36          |            | 5497 | 5747 | 5998 | 6248 | 6498 | 6748 | 6998 | 7248 | 7498 | 7748          | 4 | 1000 | 1004 |
| 37          | * 7998     | 8248 | 8498 | 8748 | 8998 |      | 9248 | 9498 | 9748 | 9998 | *248          | 5 | 1250 | 1255 |
| 38          | 240        | 0498 | 0748 | 0997 | 1247 | 1497 | 1747 | 1997 | 2247 | 2496 | 2746          | 6 | 1500 | 1506 |
| 39          |            | 2995 | 3246 | 3495 | 3745 | 3995 | 4244 | 4494 | 4744 | 4993 | 5243          | 7 | 1750 | 1757 |
| 17 40       |            | 5492 | 5742 | 5992 | 6241 | 6491 | 6740 | 6990 | 7239 | 7489 | 7738          | 8 | 2000 | 2008 |
| 41          | * 7988     | 8237 | 8487 | 8736 | 8985 |      | 9235 | 9484 | 9734 | 9983 | *232          | 9 | 2250 | 2259 |
| 42          | 241        | 0482 | 0731 | 0980 | 1229 | 1479 | 1728 | 1977 | 2226 | 2475 | 2725          |   |      |      |
| 43          |            | 2974 | 3223 | 3472 | 3721 | 3970 | 4220 | 4469 | 4718 | 4967 | 5216          |   |      |      |
| 44          |            | 5465 | 5714 | 5963 | 6212 | 6461 | 6710 | 6959 | 7208 | 7457 | 7705          |   |      |      |
| 45          | * 7954     | 8203 | 8452 | 8701 | 8950 |      | 9199 | 9447 | 9696 | 9945 | *194          | 1 | 248  | 249  |
| 46          | 242        | 0442 | 0691 | 0940 | 1189 | 1437 | 1686 | 1935 | 2183 | 2432 | 2680          | 2 | 496  | 498  |
| 47          |            | 2929 | 3178 | 3426 | 3675 | 3923 | 4172 | 4420 | 4669 | 4917 | 5166          | 3 | 744  | 747  |
| 48          |            | 5414 | 5663 | 5911 | 6160 | 6408 | 6656 | 6905 | 7153 | 7401 | 7650          | 4 | 992  | 996  |
| 49          | * 7898     | 8146 | 8395 | 8643 | 8891 |      | 9139 | 9388 | 9636 | 9884 | *132          | 5 | 1240 | 1245 |
| 17 50       | 243        | 0380 | 0629 | 0877 | 1125 | 1373 | 1621 | 1869 | 2117 | 2365 | 2613          | 6 | 1488 | 1494 |
| 51          |            | 2861 | 3109 | 3357 | 3605 | 3853 | 4101 | 4349 | 4597 | 4845 | 5093          | 7 | 1736 | 1743 |
| 52          |            | 5341 | 5589 | 5837 | 6085 | 6332 | 6580 | 6828 | 7076 | 7324 | 7571          | 8 | 1984 | 1992 |
| 53          | * 7819     | 8067 | 8315 | 8562 | 8810 |      | 9058 | 9305 | 9553 | 9801 | *048          | 9 | 2232 | 2241 |
| 54          | 244        | 0295 | 0543 | 0791 | 1039 | 1286 | 1534 | 1781 | 2029 | 2276 | 2524          |   |      |      |
| 55          |            | 2771 | 3019 | 3266 | 3514 | 3761 | 4008 | 4256 | 4503 | 4750 | 4998          |   |      |      |
| 56          |            | 5245 | 5492 | 5740 | 5987 | 6234 | 6482 | 6729 | 6976 | 7223 | 7470          |   |      |      |
| 57          |            | 7718 | 7965 | 8212 | 8459 | 8706 | 8953 | 9200 | 9448 | 9695 | 9942          |   |      |      |
| 58          | 245        | 0189 | 0436 | 0683 | 0930 | 1177 | 1424 | 1671 | 1918 | 2165 | 2411          | 1 | 246  | 247  |
| 59          |            | 2658 | 2905 | 3152 | 3399 | 3646 | 3893 | 4140 | 4386 | 4633 | 4880          | 2 | 492  | 494  |
| 17 60       |            | 5127 | 5373 | 5620 | 5867 | 6114 | 6360 | 6607 | 6854 | 7100 | 7347          | 3 | 738  | 741  |
| 61          |            | 7594 | 7840 | 8087 | 8333 | 8580 | 8826 | 9073 | 9320 | 9566 | 9813          | 4 | 984  | 988  |
| 62          | 246        | 0039 | 0306 | 0552 | 0798 | 1045 | 1291 | 1538 | 1784 | 2030 | 2277          | 5 | 1230 | 1235 |
| 63          |            | 2523 | 2769 | 3016 | 3262 | 3508 | 3755 | 4001 | 4247 | 4493 | 4740          | 6 | 1476 | 1482 |
| 64          |            | 4986 | 5232 | 5478 | 5724 | 5970 | 6217 | 6463 | 6709 | 6955 | 7201          | 7 | 1722 | 1729 |
| 65          |            | 7447 | 7693 | 7939 | 8185 | 8431 | 8677 | 8923 | 9169 | 9415 | 9661          | 8 | 1968 | 1976 |
| 66          | * 9907     | *153 | 0399 | 0645 | 0891 |      | 1136 | 1382 | 1628 | 1874 | 2120          | 9 | 2214 | 2223 |
| 67          | 247        | 2365 | 2611 | 2857 | 3103 | 3349 | 3594 | 3840 | 4086 | 4331 | 4577          |   |      |      |
| 68          |            | 4823 | 5068 | 5314 | 5559 | 5805 | 6051 | 6296 | 6542 | 6787 | 7033          |   |      |      |
| 69          |            | 7278 | 7524 | 7769 | 8015 | 8260 | 8506 | 8751 | 8997 | 9242 | 9487          |   |      |      |
| 17 70       | * 9733     | 9978 | *223 | 0469 | 0714 |      | 0959 | 1205 | 1450 | 1695 | 1940          | 1 | 244  | 245  |
| 71          | 248        | 2186 | 2431 | 2676 | 2921 | 3166 | 3412 | 3657 | 3902 | 4147 | 4392          | 2 | 488  | 490  |
| 72          |            | 4637 | 4882 | 5127 | 5372 | 5617 | 5862 | 6107 | 6352 | 6597 | 6842          | 3 | 732  | 735  |
| 73          |            | 7087 | 7332 | 7577 | 7822 | 8067 | 8312 | 8557 | 8802 | 9047 | 9291          | 4 | 976  | 980  |
| 74          | * 9536     | 9781 | *026 | 0271 | 0515 |      | 0760 | 1005 | 1249 | 1494 | 1739          | 5 | 1220 | 1225 |
| 75          | 249        | 1984 | 2228 | 2473 | 2718 | 2962 | 3207 | 3451 | 3696 | 3941 | 4185          | 6 | 1464 | 1470 |
| 76          |            | 4430 | 4674 | 4919 | 5163 | 5408 | 5652 | 5897 | 6141 | 6385 | 6630          | 7 | 1708 | 1715 |
| 77          |            | 6874 | 7119 | 7363 | 7607 | 7852 | 8096 | 8340 | 8584 | 8829 | 9073          | 8 | 1952 | 1960 |
| 78          | * 9318     | 9562 | 9806 | *050 | 0294 |      | 0539 | 0783 | 1027 | 1271 | 1515          | 9 | 2196 | 2205 |
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| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |   |      |      |
|-------------|------------|------|------|------|------|------|------|------|------|------|---------------|---|------|------|
| <b>1780</b> | <b>250</b> | 4200 | 4444 | 4688 | 4932 | 5176 | 5420 | 5664 | 5908 | 6151 | 6395          | 1 | 242  | 243  |
| 81          |            | 6639 | 6883 | 7127 | 7371 | 7614 | 7858 | 8102 | 8346 | 8590 | 8833          | 2 | 484  | 486  |
| 82          | *          | 9077 | 9321 | 9564 | 9808 | *052 | 0295 | 0539 | 0783 | 1026 | 1270          | 3 | 726  | 729  |
| 83          | 251        | 1513 | 1757 | 2001 | 2244 | 2488 | 2731 | 2975 | 3218 | 3462 | 3705          | 4 | 968  | 972  |
| 84          |            | 3949 | 4192 | 4435 | 4679 | 4922 | 5166 | 5409 | 5652 | 5896 | 6139          | 5 | 1210 | 1215 |
| 85          |            | 6382 | 6625 | 6869 | 7112 | 7355 | 7599 | 7842 | 8085 | 8328 | 8571          | 6 | 1452 | 1458 |
| 86          | *          | 8815 | 9058 | 9301 | 9544 | 9787 | *030 | 0273 | 0516 | 0759 | 1002          | 7 | 1694 | 1701 |
| 87          | 252        | 1246 | 1489 | 1732 | 1975 | 2218 | 2461 | 2703 | 2946 | 3189 | 3432          | 8 | 1936 | 1944 |
| 88          |            | 3675 | 3918 | 4161 | 4404 | 4647 | 4889 | 5132 | 5375 | 5618 | 5861          | 9 | 2178 | 2187 |
| 89          |            | 6103 | 6346 | 6589 | 6832 | 7074 | 7317 | 7560 | 7802 | 8045 | 8288          |   |      |      |
| 17 90       | *          | 8530 | 8773 | 9016 | 9258 | 9501 | 9743 | 9986 | *228 | 0471 | 0713          |   |      |      |
| 91          | 253        | 0956 | 1198 | 1441 | 1683 | 1926 | 2168 | 2411 | 2653 | 2895 | 3138          |   |      |      |
| 92          |            | 3380 | 3622 | 3865 | 4107 | 4349 | 4592 | 4834 | 5076 | 5318 | 5561          |   |      |      |
| 93          |            | 5803 | 6045 | 6287 | 6529 | 6772 | 7014 | 7256 | 7498 | 7740 | 7982          |   |      |      |
| 94          | *          | 8224 | 8466 | 8709 | 8951 | 9193 | 9435 | 9677 | 9919 | *161 | 0403          |   |      |      |
| 95          | 254        | 0645 | 0886 | 1128 | 1370 | 1612 | 1854 | 2096 | 2338 | 2580 | 2822          |   |      |      |
| 96          |            | 3063 | 3305 | 3547 | 3789 | 4030 | 4272 | 4514 | 4756 | 4997 | 5239          |   |      |      |
| 97          |            | 5481 | 5722 | 5964 | 6206 | 6447 | 6689 | 6931 | 7172 | 7414 | 7655          |   |      |      |
| 98          | *          | 7897 | 8138 | 8380 | 8621 | 8863 | 9104 | 9346 | 9587 | 9829 | *070          | 1 | 240  | 241  |
| 99          | 255        | 0312 | 0553 | 0794 | 1036 | 1277 | 1519 | 1760 | 2001 | 2242 | 2484          | 2 | 480  | 482  |
|             |            |      |      |      |      |      |      |      |      |      |               | 3 | 720  | 723  |
| 18 00       |            | 2725 | 2966 | 3208 | 3449 | 3690 | 3931 | 4172 | 4414 | 4655 | 4896          | 4 | 960  | 964  |
| 01          |            | 5137 | 5378 | 5619 | 5860 | 6102 | 6343 | 6584 | 6825 | 7066 | 7307          | 5 | 1200 | 1205 |
| 02          |            | 7548 | 7789 | 8030 | 8271 | 8512 | 8753 | 8994 | 9235 | 9475 | 9716          | 6 | 1440 | 1446 |
| 03          | *          | 9957 | *198 | 0439 | 0680 | 0921 | 1161 | 1402 | 1643 | 1884 | 2125          | 7 | 1680 | 1687 |
| 04          | 256        | 2365 | 2606 | 2847 | 3087 | 3328 | 3569 | 3810 | 4050 | 4291 | 4531          | 8 | 1920 | 1928 |
| 05          |            | 4772 | 5013 | 5253 | 5494 | 5734 | 5975 | 6215 | 6456 | 6696 | 6937          | 9 | 2160 | 2169 |
| 06          |            | 7177 | 7418 | 7658 | 7899 | 8139 | 8380 | 8620 | 8860 | 9101 | 9341          |   |      |      |
| 07          | *          | 9582 | 9822 | *062 | 0302 | 0543 | 0783 | 1023 | 1264 | 1504 | 1744          |   |      |      |
| 08          | 257        | 1984 | 2224 | 2465 | 2705 | 2945 | 3185 | 3425 | 3665 | 3905 | 4146          |   |      |      |
| 09          |            | 4386 | 4626 | 4866 | 5106 | 5346 | 5586 | 5826 | 6066 | 6306 | 6546          |   |      |      |
| 18 10       |            | 6786 | 7026 | 7266 | 7506 | 7745 | 7985 | 8225 | 8465 | 8705 | 8945          |   |      |      |
| 11          | *          | 9185 | 9424 | 9664 | 9904 | *144 | 0383 | 0623 | 0863 | 1103 | 1342          |   |      |      |
| 12          | 258        | 1582 | 1822 | 2061 | 2301 | 2541 | 2780 | 3020 | 3259 | 3499 | 3738          |   |      |      |
| 13          |            | 3978 | 4218 | 4457 | 4697 | 4936 | 5176 | 5415 | 5655 | 5894 | 6133          |   |      |      |
| 14          |            | 6373 | 6612 | 6852 | 7091 | 7330 | 7570 | 7809 | 8048 | 8288 | 8527          |   |      |      |
| 15          | *          | 8776 | 9006 | 9245 | 9484 | 9723 | 9963 | *202 | 0441 | 0680 | 0919          | 1 | 238  | 239  |
| 16          | 259        | 1158 | 1398 | 1637 | 1876 | 2115 | 2354 | 2593 | 2832 | 3071 | 3310          | 2 | 476  | 478  |
| 17          |            | 3549 | 3788 | 4027 | 4266 | 4505 | 4744 | 4983 | 5222 | 5461 | 5700          | 3 | 714  | 717  |
| 18          |            | 5939 | 6178 | 6417 | 6655 | 6894 | 7133 | 7372 | 7611 | 7849 | 8088          | 4 | 952  | 956  |
| 19          | *          | 8327 | 8566 | 8804 | 9043 | 9282 | 9521 | 9759 | 9998 | *237 | 0475          | 5 | 1190 | 1195 |
| 18 20       | 260        | 0714 | 0952 | 1191 | 1430 | 1668 | 1907 | 2145 | 2384 | 2622 | 2861          | 6 | 1428 | 1434 |
| 21          |            | 3099 | 3338 | 3576 | 3815 | 4053 | 4292 | 4530 | 4769 | 5007 | 5245          | 7 | 1666 | 1673 |
| 22          |            | 5484 | 5722 | 5960 | 6199 | 6437 | 6675 | 6914 | 7152 | 7390 | 7628          | 8 | 1904 | 1912 |
| 23          | *          | 7867 | 8105 | 8343 | 8581 | 8820 | 9058 | 9296 | 9534 | 9772 | *010          | 9 | 2142 | 2151 |
| 24          | 261        | 0248 | 0486 | 0725 | 0963 | 1201 | 1439 | 1677 | 1915 | 2153 | 2391          |   |      |      |
| 25          |            | 2629 | 2867 | 3105 | 3343 | 3580 | 3818 | 4056 | 4294 | 4532 | 4770          |   |      |      |
| 26          |            | 5008 | 5246 | 5483 | 5721 | 5959 | 6197 | 6435 | 6672 | 6910 | 7148          |   |      |      |
| 27          |            | 7385 | 7623 | 7861 | 8099 | 8336 | 8574 | 8811 | 9049 | 9287 | 9524          |   |      |      |
| 28          | *          | 9762 | 9999 | *237 | 0475 | 0712 | 0950 | 1187 | 1425 | 1662 | 1900          |   |      |      |
| 29          | 262        | 2137 | 2374 | 2612 | 2849 | 3087 | 3324 | 3562 | 3799 | 4036 | 4274          |   |      |      |
| 18 30       |            | 4511 | 4748 | 4986 | 5223 | 5460 | 5697 | 5935 | 6172 | 6409 | 6646          |   |      |      |
| 31          |            | 6883 | 7121 | 7358 | 7595 | 7832 | 8069 | 8306 | 8543 | 8781 | 9018          |   |      |      |
| 32          | *          | 9255 | 9492 | 9729 | 9966 | *203 | 0440 | 0677 | 0914 | 1151 | 1388          | 1 | 236  | 237  |
| 33          | 263        | 1625 | 1862 | 2098 | 2335 | 2572 | 2809 | 3046 | 3283 | 3520 | 3757          | 2 | 472  | 474  |
| 34          |            | 3993 | 4230 | 4467 | 4704 | 4940 | 5177 | 5414 | 5651 | 5887 | 6124          | 3 | 708  | 711  |
| 35          |            | 6361 | 6597 | 6834 | 7071 | 7307 | 7544 | 7780 | 8017 | 8254 | 8490          | 4 | 944  | 948  |
| 36          | *          | 8727 | 8963 | 9200 | 9436 | 9673 | 9909 | *146 | 0382 | 0619 | 0855          | 5 | 1180 | 1185 |
| 37          | 264        | 1092 | 1328 | 1564 | 1801 | 2037 | 2273 | 2510 | 2746 | 2982 | 3219          | 6 | 1416 | 1422 |
| 38          |            | 3455 | 3691 | 3928 | 4164 | 4400 | 4636 | 4873 | 5109 | 5345 | 5581          | 7 | 1652 | 1659 |
| 39          |            | 5817 | 6053 | 6290 | 6526 | 6762 | 6998 | 7234 | 7470 | 7706 | 7942          | 8 | 1888 | 1896 |
|             |            |      |      |      |      |      |      |      |      |      |               | 9 | 2124 | 2133 |

Num.

Diff. & Mult.



| Num.        | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult  |      |      |
|-------------|--------|------|------|------|------|------|------|------|------|------|---------------|------|------|
| <b>1840</b> | * 8178 | 8414 | 8650 | 8886 | 9122 | 9358 | 9594 | 9830 | +066 | 0302 | 1             | 235  | 236  |
| 41          | 265    | 0538 | 0774 | 1010 | 1246 | 1481 | 1717 | 1953 | 2189 | 2425 | 2             | 470  | 472  |
| 42          |        | 2866 | 3132 | 3368 | 3604 | 3839 | 4075 | 4311 | 4546 | 4782 | 3             | 705  | 708  |
| 43          |        | 5253 | 5489 | 5725 | 5960 | 6196 | 6431 | 6667 | 6903 | 7138 | 4             | 940  | 944  |
| 44          |        | 7609 | 7845 | 8080 | 8316 | 8551 | 8787 | 9022 | 9257 | 9493 | 5             | 1175 | 1180 |
| 45          | * 9964 | +199 | 0434 | 0670 | 0905 | 1140 | 1376 | 1611 | 1846 | 2082 | 6             | 1410 | 1416 |
| 46          | 266    | 2317 | 2552 | 2787 | 3023 | 3258 | 3493 | 3728 | 3963 | 4199 | 7             | 1645 | 1652 |
| 47          |        | 4669 | 4904 | 5139 | 5374 | 5609 | 5844 | 6080 | 6315 | 6550 | 8             | 1880 | 1888 |
| 48          |        | 7020 | 7255 | 7490 | 7725 | 7960 | 8195 | 8429 | 8664 | 8899 | 9             | 2115 | 2124 |
| 49          | * 9369 | 9604 | 9839 | +074 | 0309 | 0543 | 0778 | 1013 | 1248 | 1483 |               |      |      |
| 18 50       | 267    | 1717 | 1952 | 2187 | 2421 | 2656 | 2891 | 3126 | 3360 | 3595 |               |      |      |
| 51          |        | 4664 | 4899 | 5133 | 5368 | 5603 | 5837 | 5472 | 5706 | 5941 |               |      |      |
| 52          |        | 6410 | 6644 | 6879 | 7113 | 7348 | 7582 | 7817 | 8051 | 8285 |               |      |      |
| 53          | * 8754 | 8989 | 9223 | 9457 | 9692 | 9926 | +160 | 0394 | 0629 | 0863 | 1             | 233  | 234  |
| 54          | 268    | 1097 | 1332 | 1566 | 1800 | 2034 | 2268 | 2503 | 2737 | 2971 | 2             | 466  | 468  |
| 55          |        | 3439 | 3673 | 3907 | 4141 | 4376 | 4610 | 4844 | 5078 | 5312 | 3             | 699  | 702  |
| 56          |        | 5780 | 6014 | 6248 | 6482 | 6716 | 6950 | 7183 | 7417 | 7651 | 4             | 932  | 936  |
| 57          | * 8119 | 8353 | 8587 | 8821 | 9054 | 9288 | 9522 | 9756 | 9990 | +223 | 5             | 1165 | 1170 |
| 58          | 269    | 0457 | 0691 | 0925 | 1158 | 1392 | 1626 | 1859 | 2093 | 2327 | 6             | 1398 | 1404 |
| 59          |        | 2794 | 3028 | 3261 | 3495 | 3728 | 3962 | 4195 | 4429 | 4662 | 7             | 1631 | 1638 |
| 18 60       |        | 5129 | 5363 | 5596 | 5830 | 6063 | 6297 | 6530 | 6764 | 6997 | 8             | 1864 | 1872 |
| 61          |        | 7464 | 7697 | 7930 | 8164 | 8397 | 8630 | 8864 | 9097 | 9330 | 9             | 2097 | 2106 |
| 62          | * 9797 | +030 | 0263 | 0496 | 0730 | 0963 | 1196 | 1429 | 1662 | 1895 |               |      |      |
| 63          | 270    | 2129 | 2362 | 2595 | 2828 | 3061 | 3294 | 3527 | 3760 | 3993 |               |      |      |
| 64          |        | 4459 | 4692 | 4925 | 5158 | 5391 | 5624 | 5857 | 6090 | 6323 |               |      |      |
| 65          |        | 6788 | 7021 | 7254 | 7487 | 7720 | 7953 | 8185 | 8418 | 8651 |               |      |      |
| 66          | * 9116 | 9349 | 9582 | 9815 | +047 | 0280 | 0513 | 0745 | 0978 | 1211 |               |      |      |
| 67          | 271    | 1443 | 1676 | 1908 | 2141 | 2374 | 2606 | 2839 | 3071 | 3304 |               |      |      |
| 68          |        | 3769 | 4001 | 4234 | 4466 | 4699 | 4931 | 5163 | 5396 | 5628 |               |      |      |
| 69          |        | 6093 | 6325 | 6558 | 6790 | 7022 | 7255 | 7487 | 7719 | 7952 |               |      |      |
| 18 70       | * 8416 | 8648 | 8881 | 9113 | 9345 | 9577 | 9809 | +041 | 0274 | 0506 |               |      |      |
| 71          | 272    | 0738 | 0970 | 1202 | 1434 | 1666 | 1898 | 2130 | 2362 | 2594 |               |      |      |
| 72          |        | 3058 | 3290 | 3522 | 3754 | 3986 | 4218 | 4450 | 4682 | 4914 |               |      |      |
| 73          |        | 5378 | 5610 | 5841 | 6073 | 6305 | 6537 | 6769 | 7001 | 7232 |               |      |      |
| 74          |        | 7696 | 7928 | 8159 | 8391 | 8623 | 8854 | 9086 | 9318 | 9549 |               |      |      |
| 75          | 273    | 0013 | 0244 | 0476 | 0708 | 0939 | 1171 | 1402 | 1634 | 1865 | 1             | 231  | 232  |
| 76          |        | 2328 | 2560 | 2791 | 3023 | 3254 | 3486 | 3717 | 3949 | 4180 | 2             | 462  | 464  |
| 77          |        | 4643 | 4874 | 5105 | 5337 | 5568 | 5799 | 6031 | 6262 | 6493 | 3             | 693  | 696  |
| 78          |        | 6956 | 7187 | 7418 | 7650 | 7881 | 8112 | 8343 | 8574 | 8806 | 4             | 924  | 928  |
| 79          | * 9268 | 9499 | 9730 | 9961 | +192 | 0423 | 0654 | 0885 | 1116 | 1347 | 5             | 1155 | 1160 |
| 18 80       | 274    | 1578 | 1809 | 2040 | 2271 | 2502 | 2733 | 2964 | 3195 | 3426 | 6             | 1386 | 1392 |
| 81          |        | 3888 | 4119 | 4350 | 4581 | 4811 | 5042 | 5273 | 5504 | 5735 | 7             | 1617 | 1624 |
| 82          |        | 6166 | 6427 | 6658 | 6888 | 7119 | 7350 | 7581 | 7811 | 8042 | 8             | 1848 | 1856 |
| 83          | * 8503 | 8734 | 8964 | 9195 | 9426 | 9656 | 9887 | +117 | 0348 | 0578 | 9             | 2079 | 2088 |
| 84          | 275    | 0809 | 1039 | 1270 | 1500 | 1731 | 1961 | 2192 | 2422 | 2653 |               |      |      |
| 85          |        | 3114 | 3344 | 3574 | 3805 | 4035 | 4265 | 4496 | 4726 | 4956 |               |      |      |
| 86          |        | 5417 | 5647 | 5877 | 6108 | 6338 | 6568 | 6798 | 7028 | 7259 |               |      |      |
| 87          |        | 7719 | 7949 | 8179 | 8409 | 8640 | 8870 | 9100 | 9330 | 9560 |               |      |      |
| 88          | 276    | 0020 | 0250 | 0480 | 0710 | 0940 | 1170 | 1400 | 1630 | 1860 |               |      |      |
| 89          |        | 2320 | 2549 | 2779 | 3009 | 3239 | 3469 | 3699 | 3929 | 4158 |               |      |      |
| 18 90       |        | 4618 | 4848 | 5078 | 5307 | 5537 | 5767 | 5997 | 6226 | 6456 |               |      |      |
| 91          |        | 6915 | 7145 | 7375 | 7604 | 7834 | 8063 | 8293 | 8523 | 8752 |               |      |      |
| 92          | * 9211 | 9441 | 9670 | 9900 | +129 | 0359 | 0588 | 0818 | 1047 | 1277 | 1             | 229  | 230  |
| 93          | 277    | 1506 | 1736 | 1965 | 2194 | 2424 | 2653 | 2882 | 3112 | 3341 | 2             | 458  | 460  |
| 94          |        | 3800 | 4029 | 4258 | 4488 | 4717 | 4946 | 5175 | 5405 | 5634 | 3             | 687  | 690  |
| 95          |        | 6092 | 6321 | 6550 | 6780 | 7009 | 7238 | 7467 | 7696 | 7925 | 4             | 916  | 920  |
| 96          | * 8383 | 8612 | 8841 | 9070 | 9299 | 9528 | 9757 | 9986 | +215 | 0444 | 5             | 1145 | 1150 |
| 97          | 278    | 0673 | 0902 | 1131 | 1360 | 1589 | 1818 | 2047 | 2276 | 2504 | 6             | 1374 | 1380 |
| 98          |        | 2952 | 3191 | 3420 | 3648 | 3877 | 4106 | 4335 | 4564 | 4792 | 7             | 1603 | 1610 |
| 99          |        | 5250 | 5478 | 5707 | 5936 | 6164 | 6393 | 6622 | 6850 | 7079 | 8             | 1832 | 1840 |
|             |        |      |      |      |      |      |      |      |      |      | 9             | 2061 | 2070 |
| Num.        | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |      |      |



| Num.        | 0          | 1           | 2           | 3           | 4           | 5           | 6           | 7           | 8           | 9           | Diff. & Mult. |          |            |            |
|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|----------|------------|------------|
| <b>1900</b> | <b>278</b> | <b>7536</b> | <b>7765</b> | <b>7993</b> | <b>8222</b> | <b>8450</b> | <b>8679</b> | <b>8907</b> | <b>9136</b> | <b>9364</b> | <b>9593</b>   | <b>1</b> | <b>227</b> | <b>228</b> |
| 01          | * 9821     | +050        | 0278        | 0506        | 0735        | 0963        | 1192        | 1420        | 1648        | 1877        |               | 2        | 454        | 456        |
| 02          | 279        | 2105        | 2333        | 2562        | 2790        | 3018        | 3247        | 3475        | 3703        | 3931        | 4160          | 3        | 681        | 684        |
| 03          |            | 4388        | 4616        | 4844        | 5072        | 5301        | 5529        | 5757        | 5985        | 6213        | 6441          | 4        | 908        | 912        |
| 04          |            | 6669        | 6898        | 7126        | 7354        | 7582        | 7810        | 8038        | 8266        | 8494        | 8722          | 5        | 1135       | 1140       |
| 05          |            | * 8950      | 9178        | 9406        | 9634        | 9862        | +090        | 0317        | 0545        | 0773        | 1001          | 6        | 1362       | 1368       |
| 06          | 280        | 1229        | 1457        | 1685        | 1912        | 2140        | 2368        | 2596        | 2824        | 3051        | 3279          | 7        | 1589       | 1596       |
| 07          |            | 3507        | 3735        | 3962        | 4190        | 4418        | 4645        | 4873        | 5101        | 5328        | 5556          | 8        | 1816       | 1824       |
| 08          |            | 5784        | 6011        | 6239        | 6467        | 6694        | 6922        | 7149        | 7377        | 7604        | 7832          | 9        | 2043       | 2052       |
| 09          |            | * 8059      | 8287        | 8514        | 8742        | 8969        | 9197        | 9424        | 9651        | 9879        | +106          |          |            |            |
| 19 10       | 281        | 0334        | 0561        | 0788        | 1016        | 1243        | 1470        | 1698        | 1925        | 2152        | 2380          |          |            |            |
| 11          |            | 2607        | 2834        | 3061        | 3289        | 3516        | 3743        | 3970        | 4197        | 4425        | 4652          |          |            |            |
| 12          |            | 4879        | 5106        | 5333        | 5560        | 5787        | 6014        | 6242        | 6469        | 6696        | 6923          |          |            |            |
| 13          |            | 7150        | 7377        | 7604        | 7831        | 8058        | 8285        | 8512        | 8739        | 8966        | 9192          |          |            |            |
| 14          |            | * 9419      | 9646        | 9873        | +100        | 0327        | 0554        | 0781        | 1007        | 1234        | 1461          |          |            |            |
| 15          | 282        | 1688        | 1915        | 2141        | 2368        | 2595        | 2822        | 3048        | 3275        | 3502        | 3728          |          |            |            |
| 16          |            | 3955        | 4182        | 4408        | 4635        | 4862        | 5088        | 5315        | 5541        | 5768        | 5995          |          |            |            |
| 17          |            | 6221        | 6448        | 6674        | 6901        | 7127        | 7354        | 7580        | 7807        | 8033        | 8260          |          |            |            |
| 18          |            | * 8486      | 8712        | 8939        | 9165        | 9392        | 9618        | 9844        | +071        | 0297        | 0523          | 1        | 225        | 226        |
| 19          | 283        | 0750        | 0976        | 1202        | 1429        | 1655        | 1881        | 2107        | 2334        | 2560        | 2786          | 2        | 450        | 452        |
| 20          |            | 3012        | 3238        | 3465        | 3691        | 3917        | 4143        | 4369        | 4595        | 4821        | 5048          | 3        | 675        | 678        |
| 21          |            | 5274        | 5500        | 5726        | 5952        | 6178        | 6404        | 6630        | 6856        | 7082        | 7308          | 4        | 900        | 904        |
| 22          |            | 7534        | 7760        | 7986        | 8212        | 8438        | 8663        | 8889        | 9115        | 9341        | 9567          | 5        | 1125       | 1130       |
| 23          |            | * 9793      | +109        | 0245        | 0470        | 0696        | 0922        | 1148        | 1373        | 1599        | 1825          | 6        | 1350       | 1356       |
| 24          | 284        | 2051        | 2276        | 2502        | 2728        | 2953        | 3179        | 3405        | 3630        | 3856        | 4082          | 7        | 1575       | 1582       |
| 25          |            | 4307        | 4533        | 4759        | 4984        | 5210        | 5435        | 5661        | 5886        | 6112        | 6337          | 8        | 1800       | 1808       |
| 26          |            | 6563        | 6788        | 7014        | 7239        | 7465        | 7690        | 7916        | 8141        | 8366        | 8592          | 9        | 2025       | 2034       |
| 27          |            | * 8817      | 9043        | 9268        | 9493        | 9719        | 9944        | +169        | 0394        | 0620        | 0845          |          |            |            |
| 28          | 285        | 1070        | 1296        | 1521        | 1746        | 1971        | 2196        | 2422        | 2647        | 2872        | 3097          |          |            |            |
| 29          |            | 3322        | 3547        | 3773        | 3998        | 4223        | 4448        | 4673        | 4898        | 5123        | 5348          |          |            |            |
| 19 30       |            | 5573        | 5798        | 6023        | 6248        | 6473        | 6698        | 6923        | 7148        | 7373        | 7598          |          |            |            |
| 31          |            | 7823        | 8048        | 8273        | 8497        | 8722        | 8947        | 9172        | 9397        | 9622        | 9846          |          |            |            |
| 32          | 286        | 0071        | 0296        | 0521        | 0746        | 0970        | 1195        | 1420        | 1644        | 1869        | 2094          |          |            |            |
| 33          |            | 2319        | 2543        | 2768        | 2993        | 3217        | 3442        | 3666        | 3891        | 4116        | 4340          |          |            |            |
| 34          |            | 4565        | 4789        | 5014        | 5238        | 5463        | 5687        | 5912        | 6136        | 6361        | 6585          |          |            |            |
| 35          |            | 6810        | 7034        | 7259        | 7483        | 7707        | 7932        | 8156        | 8381        | 8605        | 8829          | 1        | 223        | 224        |
| 36          |            | * 9054      | 9278        | 9502        | 9726        | 9951        | +175        | 0399        | 0624        | 0848        | 1072          | 2        | 446        | 448        |
| 37          | 287        | 1296        | 1520        | 1745        | 1969        | 2193        | 2417        | 2641        | 2865        | 3090        | 3314          | 3        | 669        | 672        |
| 38          |            | 3538        | 3762        | 3986        | 4210        | 4434        | 4658        | 4882        | 5106        | 5330        | 5554          | 4        | 892        | 896        |
| 39          |            | 5778        | 6002        | 6226        | 6450        | 6674        | 6898        | 7122        | 7346        | 7570        | 7793          | 5        | 1115       | 1120       |
| 19 40       |            | * 8017      | 8241        | 8465        | 8689        | 8913        | 9136        | 9360        | 9584        | 9808        | +032          | 6        | 1338       | 1344       |
| 41          | 288        | 0255        | 0479        | 0703        | 0927        | 1150        | 1374        | 1598        | 1821        | 2045        | 2269          | 7        | 1561       | 1568       |
| 42          |            | 2492        | 2716        | 2939        | 3163        | 3387        | 3610        | 3834        | 4057        | 4281        | 4504          | 8        | 1784       | 1792       |
| 43          |            | 4728        | 4952        | 5175        | 5399        | 5622        | 5845        | 6069        | 6292        | 6516        | 6739          | 9        | 2007       | 2016       |
| 44          |            | 6963        | 7186        | 7409        | 7633        | 7856        | 8079        | 8303        | 8526        | 8749        | 8973          |          |            |            |
| 45          |            | * 9196      | 9419        | 9643        | 9866        | +089        | 0312        | 0536        | 0759        | 0982        | 1205          |          |            |            |
| 46          | 289        | 1428        | 1652        | 1875        | 2098        | 2321        | 2544        | 2767        | 2990        | 3213        | 3436          |          |            |            |
| 47          |            | 3660        | 3883        | 4106        | 4329        | 4552        | 4775        | 4998        | 5221        | 5444        | 5667          |          |            |            |
| 48          |            | 5890        | 6112        | 6335        | 6558        | 6781        | 7004        | 7227        | 7450        | 7673        | 7896          |          |            |            |
| 49          |            | * 8118      | 8341        | 8564        | 8787        | 9010        | 9232        | 9455        | 9678        | 9901        | +123          |          |            |            |
| 19 50       | 290        | 0346        | 0569        | 0792        | 1014        | 1237        | 1460        | 1682        | 1905        | 2127        | 2350          |          |            |            |
| 51          |            | 2573        | 2795        | 3018        | 3240        | 3463        | 3686        | 3908        | 4131        | 4353        | 4576          |          |            |            |
| 52          |            | 4798        | 5021        | 5243        | 5466        | 5688        | 5910        | 6133        | 6355        | 6578        | 6800          | 1        | 221        | 222        |
| 53          |            | 7022        | 7245        | 7467        | 7690        | 7912        | 8134        | 8356        | 8579        | 8801        | 9023          | 2        | 442        | 444        |
| 54          |            | * 9246      | 9468        | 9690        | 9912        | +135        | 0357        | 0579        | 0801        | 1023        | 1245          | 3        | 663        | 666        |
| 55          | 291        | 1468        | 1690        | 1912        | 2134        | 2356        | 2578        | 2800        | 3022        | 3244        | 3466          | 4        | 884        | 888        |
| 56          |            | 3689        | 3911        | 4133        | 4355        | 4577        | 4799        | 5020        | 5242        | 5464        | 5686          | 5        | 1105       | 1110       |
| 57          |            | 5908        | 6130        | 6352        | 6574        | 6796        | 7018        | 7240        | 7461        | 7683        | 7905          | 6        | 1326       | 1332       |
| 58          |            | * 8127      | 8349        | 8570        | 8792        | 9014        | 9236        | 9458        | 9679        | 9901        | +123          | 7        | 1547       | 1554       |
| 59          | 292        | 0344        | 0566        | 0788        | 1009        | 1231        | 1453        | 1674        | 1896        | 2118        | 2339          | 8        | 1768       | 1776       |
|             |            |             |             |             |             |             |             |             |             |             |               | 9        | 1989       | 1998       |
| Num.        | 0          | 1           | 2           | 3           | 4           | 5           | 6           | 7           | 8           | 9           | Diff. & Mult. |          |            |            |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |   |      |      |
|-------------|------------|------|------|------|------|------|------|------|------|------|---------------|---|------|------|
| <b>1960</b> | <b>292</b> | 2561 | 2782 | 3004 | 3225 | 3447 | 3668 | 3890 | 4111 | 4333 | 4554          | 1 | 221  | 222  |
| 61          |            | 4776 | 4997 | 5219 | 5440 | 5662 | 5883 | 6105 | 6326 | 6547 | 6769          | 2 | 442  | 444  |
| 62          |            | 6990 | 7211 | 7433 | 7654 | 7875 | 8097 | 8318 | 8539 | 8760 | 8982          | 3 | 663  | 666  |
| 63          | *          | 9203 | 9424 | 9645 | 9867 | +088 | 0309 | 0530 | 0751 | 0973 | 1194          | 4 | 884  | 888  |
| 64          | 293        | 1415 | 1636 | 1857 | 2078 | 2299 | 2520 | 2741 | 2962 | 3183 | 3405          | 5 | 1105 | 1110 |
| 65          |            | 3626 | 3847 | 4068 | 4289 | 4510 | 4730 | 4951 | 5172 | 5393 | 5614          | 6 | 1326 | 1332 |
| 66          |            | 5835 | 6056 | 6277 | 6498 | 6719 | 6940 | 7160 | 7381 | 7602 | 7823          | 7 | 1547 | 1554 |
| 67          | *          | 8044 | 8264 | 8485 | 8706 | 8927 | 9147 | 9368 | 9589 | 9810 | +030          | 8 | 1768 | 1776 |
| 68          | 294        | 0251 | 0472 | 0692 | 0913 | 1134 | 1354 | 1575 | 1795 | 2016 | 2237          | 9 | 1989 | 1998 |
| 69          |            | 2457 | 2678 | 2898 | 3119 | 3339 | 3560 | 3780 | 4001 | 4221 | 4442          |   |      |      |
| 19 70       |            | 4662 | 4883 | 5103 | 5324 | 5544 | 5764 | 5985 | 6205 | 6426 | 6646          |   |      |      |
| 71          |            | 6866 | 7087 | 7307 | 7527 | 7748 | 7968 | 8188 | 8408 | 8629 | 8849          |   |      |      |
| 72          | *          | 9069 | 9289 | 9510 | 9730 | 9950 | +170 | 0390 | 0610 | 0831 | 1051          |   |      |      |
| 73          | 295        | 1271 | 1491 | 1711 | 1931 | 2151 | 2371 | 2591 | 2811 | 3031 | 3251          |   |      |      |
| 74          |            | 3471 | 3691 | 3911 | 4131 | 4351 | 4571 | 4791 | 5011 | 5231 | 5451          |   |      |      |
| 75          |            | 5671 | 5891 | 6111 | 6331 | 6550 | 6770 | 6990 | 7210 | 7430 | 7650          |   |      |      |
| 76          |            | 7869 | 8089 | 8309 | 8529 | 8748 | 8968 | 9188 | 9408 | 9627 | 9847          |   |      |      |
| 77          | 296        | 0067 | 0286 | 0506 | 0726 | 0945 | 1165 | 1385 | 1604 | 1824 | 2043          |   |      |      |
| 78          |            | 2263 | 2482 | 2702 | 2922 | 3141 | 3361 | 3580 | 3800 | 4019 | 4238          | 1 | 219  | 220  |
| 79          |            | 4458 | 4677 | 4897 | 5116 | 5336 | 5555 | 5774 | 5994 | 6213 | 6433          | 2 | 438  | 440  |
| 19 80       |            | 6652 | 6871 | 7091 | 7310 | 7529 | 7748 | 7968 | 8187 | 8406 | 8626          | 3 | 657  | 660  |
| 81          | *          | 8845 | 9064 | 9283 | 9502 | 9722 | 9941 | +160 | 0379 | 0598 | 0817          | 4 | 876  | 880  |
| 82          | 297        | 1037 | 1256 | 1475 | 1694 | 1913 | 2132 | 2351 | 2570 | 2789 | 3008          | 5 | 1095 | 1100 |
| 83          |            | 3227 | 3446 | 3665 | 3884 | 4103 | 4322 | 4541 | 4760 | 4979 | 5198          | 6 | 1314 | 1320 |
| 84          |            | 5417 | 5636 | 5854 | 6073 | 6292 | 6511 | 6730 | 6949 | 7168 | 7386          | 7 | 1533 | 1540 |
| 85          |            | 7605 | 7824 | 8043 | 8261 | 8480 | 8699 | 8918 | 9136 | 9355 | 9574          | 8 | 1752 | 1760 |
| 86          | *          | 9792 | +011 | 0230 | 0448 | 0667 | 0886 | 1104 | 1323 | 1542 | 1760          | 9 | 1971 | 1980 |
| 87          | 298        | 1979 | 2197 | 2416 | 2634 | 2853 | 3071 | 3290 | 3508 | 3727 | 3945          |   |      |      |
| 88          |            | 4164 | 4382 | 4601 | 4819 | 5038 | 5256 | 5474 | 5693 | 5911 | 6129          |   |      |      |
| 89          |            | 6348 | 6566 | 6785 | 7003 | 7221 | 7439 | 7658 | 7876 | 8094 | 8313          |   |      |      |
| 19 90       | *          | 8531 | 8749 | 8967 | 9185 | 9404 | 9622 | 9840 | +058 | 0276 | 0494          |   |      |      |
| 91          | 299        | 0713 | 0931 | 1149 | 1367 | 1585 | 1803 | 2021 | 2239 | 2457 | 2675          |   |      |      |
| 92          |            | 2893 | 3111 | 3329 | 3547 | 3765 | 3983 | 4201 | 4419 | 4637 | 4855          |   |      |      |
| 93          |            | 5073 | 5291 | 5509 | 5727 | 5945 | 6162 | 6380 | 6598 | 6816 | 7034          |   |      |      |
| 94          |            | 7252 | 7469 | 7687 | 7905 | 8123 | 8340 | 8558 | 8776 | 8994 | 9211          |   |      |      |
| 95          | *          | 9429 | 9647 | 9864 | +082 | 0300 | 0517 | 0735 | 0953 | 1170 | 1388          | 1 | 217  | 218  |
| 96          | 300        | 1605 | 1823 | 2041 | 2258 | 2476 | 2693 | 2911 | 3128 | 3346 | 3563          | 2 | 434  | 436  |
| 97          |            | 3781 | 3998 | 4216 | 4433 | 4650 | 4868 | 5085 | 5303 | 5520 | 5737          | 3 | 651  | 654  |
| 98          |            | 5955 | 6172 | 6390 | 6607 | 6824 | 7042 | 7259 | 7476 | 7693 | 7911          | 4 | 868  | 872  |
| 99          | *          | 8128 | 8345 | 8562 | 8780 | 8997 | 9214 | 9431 | 9648 | 9866 | +083          | 5 | 1085 | 1090 |
| 20 00       | 301        | 0300 | 0517 | 0734 | 0951 | 1168 | 1386 | 1603 | 1820 | 2037 | 2254          | 6 | 1302 | 1308 |
| 01          |            | 2471 | 2688 | 2905 | 3122 | 3339 | 3556 | 3773 | 3990 | 4207 | 4424          | 7 | 1519 | 1526 |
| 02          |            | 4641 | 4858 | 5075 | 5291 | 5508 | 5725 | 5942 | 6159 | 6376 | 6593          | 8 | 1736 | 1744 |
| 03          |            | 6809 | 7026 | 7243 | 7460 | 7677 | 7893 | 8110 | 8327 | 8544 | 8760          | 9 | 1953 | 1962 |
| 04          | *          | 8977 | 9194 | 9411 | 9627 | 9844 | +061 | 0277 | 0494 | 0711 | 0927          |   |      |      |
| 05          | 302        | 1144 | 1360 | 1577 | 1794 | 2010 | 2227 | 2443 | 2660 | 2876 | 3093          |   |      |      |
| 06          |            | 3309 | 3526 | 3742 | 3959 | 4175 | 4392 | 4608 | 4825 | 5041 | 5257          |   |      |      |
| 07          |            | 5474 | 5690 | 5906 | 6123 | 6339 | 6556 | 6772 | 6988 | 7204 | 7421          |   |      |      |
| 08          |            | 7637 | 7853 | 8070 | 8286 | 8502 | 8718 | 8935 | 9151 | 9367 | 9583          |   |      |      |
| 09          | *          | 9799 | +016 | 0232 | 0448 | 0664 | 0880 | 1096 | 1312 | 1528 | 1745          |   |      |      |
| 20 10       | 303        | 1961 | 2177 | 2393 | 2609 | 2825 | 3041 | 3257 | 3473 | 3689 | 3905          |   |      |      |
| 11          |            | 4121 | 4337 | 4553 | 4769 | 4984 | 5200 | 5416 | 5632 | 5848 | 6064          |   |      |      |
| 12          |            | 6280 | 6496 | 6711 | 6927 | 7143 | 7359 | 7575 | 7790 | 8006 | 8222          | 1 | 215  | 216  |
| 13          | *          | 8438 | 8653 | 8869 | 9085 | 9301 | 9516 | 9732 | 9948 | +163 | 0379          | 2 | 430  | 432  |
| 14          | 304        | 0595 | 0810 | 1026 | 1242 | 1457 | 1673 | 1888 | 2104 | 2319 | 2535          | 3 | 645  | 648  |
| 15          |            | 2751 | 2966 | 3182 | 3397 | 3613 | 3828 | 4043 | 4259 | 4474 | 4690          | 4 | 860  | 864  |
| 16          |            | 4905 | 5121 | 5336 | 5552 | 5767 | 5982 | 6198 | 6413 | 6628 | 6844          | 5 | 1075 | 1080 |
| 17          |            | 7059 | 7274 | 7490 | 7705 | 7920 | 8135 | 8351 | 8566 | 8781 | 8996          | 6 | 1290 | 1296 |
| 18          | *          | 9212 | 9427 | 9642 | 9857 | +072 | 0288 | 0503 | 0718 | 0933 | 1148          | 7 | 1505 | 1512 |
| 19          | 305        | 1363 | 1578 | 1793 | 2008 | 2224 | 2439 | 2654 | 2869 | 3084 | 3299          | 8 | 1720 | 1728 |
|             |            |      |      |      |      |      |      |      |      |      |               | 9 | 1935 | 1944 |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |   |      |      |

| Num.        | 0          | 1      | 2     | 3     | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |   |      |      |
|-------------|------------|--------|-------|-------|------|------|------|------|------|------|---------------|---|------|------|
| <b>2020</b> | <b>305</b> | 3514   | 3729  | 3944  | 4159 | 4374 | 4589 | 4803 | 5018 | 5233 | 5448          | 1 | 214  | 215  |
| 21          |            | 5663   | 5878  | 6093  | 6308 | 6523 | 6737 | 6952 | 7167 | 7382 | 7597          | 2 | 428  | 430  |
| 22          |            | 7812   | 8026  | 8241  | 8456 | 8671 | 8885 | 9100 | 9315 | 9529 | 9744          | 3 | 642  | 645  |
| 23          |            | * 9959 | *174  | 0388  | 0603 | 0817 | 1032 | 1247 | 1461 | 1676 | 1891          | 4 | 856  | 860  |
| 24          |            | 306    | 2105  | 2320  | 2534 | 2749 | 2963 | 3178 | 3392 | 3607 | 3821          | 5 | 1070 | 1075 |
| 25          |            | 4250   | 4465  | 4679  | 4894 | 5108 | 5322 | 5537 | 5751 | 5966 | 6180          | 6 | 1284 | 1290 |
| 26          |            | 6394   | 6609  | 6823  | 7037 | 7252 | 7466 | 7680 | 7895 | 8109 | 8323          | 7 | 1498 | 1505 |
| 27          |            | * 8537 | *8752 | 8966  | 9180 | 9394 | 9609 | 9823 | *037 | 0251 | 0465          | 8 | 1712 | 1720 |
| 28          |            | 307    | 0680  | 0894  | 1108 | 1322 | 1536 | 1750 | 1964 | 2178 | 2392          | 9 | 1926 | 1935 |
| 29          |            | 2820   | 3035  | 3249  | 3463 | 3677 | 3891 | 4105 | 4319 | 4532 | 4746          |   |      |      |
| 30          |            | 4960   | 5174  | 5388  | 5602 | 5816 | 6030 | 6244 | 6458 | 6672 | 6885          |   |      |      |
| 31          |            | 7099   | 7313  | 7527  | 7741 | 7954 | 8168 | 8382 | 8596 | 8810 | 9023          |   |      |      |
| 32          |            | * 9237 | *9451 | 9664  | 9878 | *092 | 0306 | 0519 | 0733 | 0947 | 1160          |   |      |      |
| 33          |            | 308    | 1374  | 1587  | 1801 | 2015 | 2228 | 2442 | 2655 | 2869 | 3082          |   |      |      |
| 34          |            | 3509   | 3723  | 3936  | 4150 | 4363 | 4577 | 4790 | 5004 | 5217 | 5431          |   |      |      |
| 35          |            | 5644   | 5858  | 6071  | 6284 | 6498 | 6711 | 6924 | 7138 | 7351 | 7564          |   |      |      |
| 36          |            | 7778   | 7991  | 8204  | 8418 | 8631 | 8844 | 9057 | 9271 | 9484 | 9697          |   |      |      |
| 37          |            | * 9910 | *123  | 0337  | 0550 | 0763 | 0976 | 1189 | 1402 | 1616 | 1829          | 1 | 212  | 213  |
| 38          |            | 309    | 2042  | 2255  | 2468 | 2681 | 2894 | 3107 | 3320 | 3533 | 3746          | 2 | 424  | 426  |
| 39          |            | 4172   | 4385  | 4598  | 4811 | 5024 | 5237 | 5450 | 5663 | 5876 | 6089          | 3 | 636  | 639  |
| 40          |            | 6302   | 6515  | 6727  | 6940 | 7153 | 7366 | 7579 | 7792 | 8004 | 8217          | 4 | 848  | 852  |
| 41          |            | * 8430 | *8643 | 8856  | 9068 | 9281 | 9494 | 9707 | 9919 | *132 | 0345          | 5 | 1060 | 1065 |
| 42          |            | 310    | 0557  | 0770  | 0983 | 1195 | 1408 | 1621 | 1833 | 2046 | 2258          | 6 | 1272 | 1278 |
| 43          |            | 2684   | 2896  | 3109  | 3321 | 3534 | 3746 | 3959 | 4171 | 4384 | 4596          | 7 | 1484 | 1491 |
| 44          |            | 4809   | 5021  | 5234  | 5446 | 5659 | 5871 | 6084 | 6296 | 6508 | 6721          | 8 | 1696 | 1704 |
| 45          |            | 6933   | 7145  | 7358  | 7570 | 7783 | 7995 | 8207 | 8419 | 8632 | 8844          | 9 | 1908 | 1917 |
| 46          |            | * 9056 | *9269 | 9481  | 9693 | 9905 | *117 | 0330 | 0542 | 0754 | 0966          |   |      |      |
| 47          |            | 311    | 1178  | 1391  | 1603 | 1815 | 2027 | 2239 | 2451 | 2663 | 2875          |   |      |      |
| 48          |            | 3300   | 3512  | 3724  | 3936 | 4148 | 4360 | 4572 | 4784 | 4996 | 5208          |   |      |      |
| 49          |            | 5420   | 5632  | 5843  | 6055 | 6267 | 6479 | 6691 | 6903 | 7115 | 7327          |   |      |      |
| 50          |            | 7539   | 7750  | 7962  | 8174 | 8386 | 8598 | 8810 | 9021 | 9233 | 9445          |   |      |      |
| 51          |            | * 9657 | *9868 | *0080 | 0292 | 0504 | 0715 | 0927 | 1139 | 1350 | 1562          |   |      |      |
| 52          |            | 312    | 1774  | 1985  | 2197 | 2408 | 2620 | 2832 | 3043 | 3255 | 3466          |   |      |      |
| 53          |            | 3889   | 4101  | 4313  | 4524 | 4736 | 4947 | 5159 | 5370 | 5581 | 5793          |   |      |      |
| 54          |            | 6004   | 6216  | 6427  | 6639 | 6850 | 7061 | 7273 | 7484 | 7696 | 7907          |   |      |      |
| 55          |            | * 8118 | *8330 | 8541  | 8752 | 8964 | 9175 | 9386 | 9597 | 9809 | *020          | 1 | 210  | 211  |
| 56          |            | 313    | 0231  | 0442  | 0654 | 0865 | 1076 | 1287 | 1498 | 1709 | 1921          | 2 | 420  | 422  |
| 57          |            | 2343   | 2554  | 2765  | 2976 | 3187 | 3398 | 3610 | 3821 | 4032 | 4243          | 3 | 630  | 633  |
| 58          |            | 4454   | 4665  | 4876  | 5087 | 5298 | 5509 | 5720 | 5931 | 6142 | 6353          | 4 | 840  | 844  |
| 59          |            | 6563   | 6774  | 6985  | 7196 | 7407 | 7618 | 7829 | 8040 | 8251 | 8461          | 5 | 1050 | 1055 |
| 60          |            | * 8672 | *8883 | 9094  | 9305 | 9515 | 9726 | 9937 | *148 | 0358 | 0569          | 6 | 1260 | 1266 |
| 61          |            | 314    | 0780  | 0991  | 1201 | 1412 | 1623 | 1833 | 2044 | 2255 | 2465          | 7 | 1470 | 1477 |
| 62          |            | 2887   | 3097  | 3308  | 3518 | 3729 | 3940 | 4150 | 4361 | 4571 | 4782          | 8 | 1680 | 1688 |
| 63          |            | 4992   | 5203  | 5413  | 5624 | 5834 | 6045 | 6255 | 6466 | 6676 | 6887          | 9 | 1890 | 1899 |
| 64          |            | 7097   | 7307  | 7518  | 7728 | 7939 | 8149 | 8359 | 8570 | 8780 | 8990          |   |      |      |
| 65          |            | * 9201 | *9411 | 9621  | 9831 | *042 | 0252 | 0462 | 0672 | 0883 | 1093          |   |      |      |
| 66          |            | 315    | 1303  | 1513  | 1724 | 1934 | 2144 | 2354 | 2564 | 2774 | 2985          |   |      |      |
| 67          |            | 3405   | 3615  | 3825  | 4035 | 4245 | 4455 | 4665 | 4875 | 5085 | 5295          |   |      |      |
| 68          |            | 5505   | 5715  | 5925  | 6135 | 6345 | 6555 | 6765 | 6975 | 7185 | 7395          |   |      |      |
| 69          |            | 7605   | 7815  | 8025  | 8235 | 8444 | 8654 | 8864 | 9074 | 9284 | 9494          |   |      |      |
| 70          |            | * 9703 | *9913 | *123  | 0333 | 0543 | 0752 | 0962 | 1172 | 1382 | 1591          |   |      |      |
| 71          |            | 316    | 1801  | 2011  | 2220 | 2430 | 2640 | 2849 | 3059 | 3269 | 3478          |   |      |      |
| 72          |            | 3898   | 4107  | 4317  | 4526 | 4736 | 4945 | 5155 | 5364 | 5574 | 5784          |   |      |      |
| 73          |            | 5993   | 6203  | 6412  | 6621 | 6831 | 7040 | 7250 | 7459 | 7669 | 7878          |   |      |      |
| 74          |            | 8088   | 8297  | 8506  | 8716 | 8925 | 9134 | 9344 | 9553 | 9762 | 9972          |   |      |      |
| 75          |            | 317    | 0181  | 0390  | 0600 | 0809 | 1018 | 1227 | 1437 | 1646 | 1855          |   |      |      |
| 76          |            | 2273   | 2483  | 2692  | 2901 | 3110 | 3319 | 3528 | 3738 | 3947 | 4156          |   |      |      |
| 77          |            | 4365   | 4574  | 4783  | 4992 | 5201 | 5410 | 5619 | 5828 | 6037 | 6246          |   |      |      |
| 78          |            | 6455   | 6664  | 6873  | 7082 | 7291 | 7500 | 7709 | 7918 | 8127 | 8336          |   |      |      |
| 79          |            | * 8545 | *8754 | 8963  | 9172 | 9380 | 9589 | 9798 | *007 | 0216 | 0425          |   |      |      |
| Num.        | 0          | 1      | 2     | 3     | 4    | 5    | 6    | 7    | 8    | 9    | Diff. & Mult. |   |      |      |

| Num.        | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |      |
|-------------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|------|
| <b>2080</b> | 318 | 0633 | 0842 | 1051 | 1260 | 1468 | 1677 | 1886 | 2095 | 2303 | 2512  |               |      |
| 81          |     | 2721 | 2929 | 3138 | 3347 | 3556 | 3764 | 3973 | 4181 | 4390 | 4599  | 1             | 209  |
| 82          |     | 4807 | 5016 | 5224 | 5433 | 5642 | 5850 | 6059 | 6267 | 6476 | 6684  | 2             | 418  |
| 83          |     | 6893 | 7101 | 7310 | 7518 | 7727 | 7935 | 8143 | 8352 | 8560 | 8769  | 3             | 627  |
| 84          | •   | 8977 | 9186 | 9394 | 9602 | 9811 | •019 | 0227 | 0436 | 0644 | 0852  | 4             | 836  |
| 85          |     | 319  | 1061 | 1269 | 1477 | 1685 | 1894 | 2102 | 2310 | 2518 | 2727  | 5             | 1045 |
| 86          |     | 3143 | 3351 | 3559 | 3768 | 3976 | 4184 | 4392 | 4600 | 4808 | 5016  | 6             | 1254 |
| 87          |     | 5224 | 5433 | 5641 | 5849 | 6057 | 6265 | 6473 | 6681 | 6889 | 7097  | 7             | 1463 |
| 88          |     | 7305 | 7513 | 7721 | 7929 | 8137 | 8345 | 8553 | 8761 | 8969 | 9176  | 8             | 1672 |
| 89          | •   | 9384 | 9592 | 9800 | •008 | 0216 | 0424 | 0632 | 0839 | 1047 | 1255  | 9             | 1881 |
| <b>2090</b> | 320 | 1463 | 1671 | 1878 | 2086 | 2294 | 2502 | 2709 | 2917 | 3125 | 3333  | 1             | 208  |
| 91          |     | 3540 | 3748 | 3956 | 4163 | 4371 | 4579 | 4786 | 4994 | 5202 | 5409  | 2             | 416  |
| 92          |     | 5617 | 5824 | 6032 | 6240 | 6447 | 6655 | 6862 | 7070 | 7277 | 7485  | 3             | 624  |
| 93          |     | 7692 | 7900 | 8107 | 8315 | 8522 | 8730 | 8937 | 9145 | 9352 | 9559  | 4             | 832  |
| 94          | •   | 9767 | 9974 | •182 | 0389 | 0596 | 0804 | 1011 | 1218 | 1426 | 1633  | 5             | 1040 |
| 95          |     | 321  | 1840 | 2048 | 2255 | 2462 | 2669 | 2877 | 3084 | 3291 | 3498  | 6             | 1248 |
| 96          |     | 3913 | 4120 | 4327 | 4534 | 4742 | 4949 | 5156 | 5363 | 5570 | 5777  | 7             | 1456 |
| 97          |     | 5984 | 6191 | 6398 | 6606 | 6813 | 7020 | 7227 | 7434 | 7641 | 7848  | 8             | 1664 |
| 98          |     | 8055 | 8262 | 8469 | 8676 | 8883 | 9090 | 9297 | 9504 | 9711 | 9917  | 9             | 1872 |
| 99          | 322 | 0124 | 0331 | 0538 | 0745 | 0952 | 1159 | 1366 | 1572 | 1779 | 1986  | 1             | 207  |
| <b>2100</b> |     | 2193 | 2400 | 2607 | 2813 | 3020 | 3227 | 3434 | 3640 | 3847 | 4054  | 2             | 414  |
| 01          |     | 4261 | 4467 | 4674 | 4881 | 5087 | 5294 | 5501 | 5707 | 5914 | 6121  | 3             | 621  |
| 02          |     | 6327 | 6534 | 6740 | 6947 | 7153 | 7360 | 7567 | 7773 | 7980 | 8186  | 4             | 828  |
| 03          | •   | 8303 | 8509 | 8866 | 9012 | 9219 | 9425 | 9632 | 9838 | •045 | 0251  | 5             | 1035 |
| 04          | 323 | 0457 | 0664 | 0870 | 1077 | 1283 | 1489 | 1696 | 1902 | 2108 | 2315  | 6             | 1242 |
| 05          |     | 2521 | 2727 | 2934 | 3140 | 3346 | 3552 | 3759 | 3965 | 4171 | 4377  | 7             | 1449 |
| 06          |     | 4584 | 4790 | 4995 | 5202 | 5408 | 5615 | 5821 | 6027 | 6233 | 6439  | 8             | 1656 |
| 07          |     | 6645 | 6851 | 7058 | 7264 | 7470 | 7676 | 7882 | 8088 | 8294 | 8500  | 9             | 1863 |
| 08          | •   | 8706 | 8912 | 9118 | 9324 | 9530 | 9736 | 9942 | •148 | 0354 | 0560  | 1             | 206  |
| 09          | 324 | 0766 | 0972 | 1178 | 1384 | 1589 | 1795 | 2001 | 2207 | 2413 | 2619  | 2             | 412  |
| <b>2110</b> |     | 2825 | 3030 | 3236 | 3442 | 3648 | 3854 | 4059 | 4265 | 4471 | 4677  | 3             | 618  |
| 11          |     | 4882 | 5088 | 5294 | 5499 | 5705 | 5911 | 6117 | 6322 | 6528 | 6734  | 4             | 824  |
| 12          |     | 6939 | 7145 | 7350 | 7556 | 7762 | 7967 | 8173 | 8378 | 8584 | 8789  | 5             | 1030 |
| 13          | •   | 8995 | 9201 | 9406 | 9612 | 9817 | •023 | 0228 | 0433 | 0639 | 0844  | 6             | 1236 |
| 14          | 325 | 1050 | 1255 | 1461 | 1666 | 1872 | 2077 | 2282 | 2488 | 2693 | 2898  | 7             | 1442 |
| 15          |     | 3104 | 3309 | 3514 | 3720 | 3925 | 4130 | 4336 | 4541 | 4746 | 4951  | 8             | 1648 |
| 16          |     | 5157 | 5362 | 5567 | 5772 | 5978 | 6183 | 6388 | 6593 | 6798 | 7003  | 9             | 1854 |
| 17          |     | 7209 | 7414 | 7619 | 7824 | 8029 | 8234 | 8439 | 8644 | 8849 | 9055  | 1             | 205  |
| 18          | •   | 9260 | 9465 | 9670 | 9875 | •080 | 0285 | 0490 | 0695 | 0900 | 1105  | 2             | 410  |
| 19          | 326 | 1310 | 1515 | 1719 | 1924 | 2129 | 2334 | 2539 | 2744 | 2949 | 3154  | 3             | 615  |
| <b>2120</b> |     | 3359 | 3563 | 3768 | 3973 | 4178 | 4383 | 4588 | 4792 | 4997 | 5202  | 4             | 820  |
| 21          |     | 5407 | 5611 | 5816 | 6021 | 6226 | 6430 | 6635 | 6840 | 7044 | 7249  | 5             | 1025 |
| 22          |     | 7454 | 7658 | 7863 | 8068 | 8272 | 8477 | 8682 | 8886 | 9091 | 9295  | 6             | 1230 |
| 23          | •   | 9500 | 9705 | 9909 | •114 | 0318 | 0523 | 0727 | 0932 | 1136 | 1341  | 7             | 1435 |
| 24          | 327 | 1545 | 1750 | 1954 | 2158 | 2363 | 2567 | 2772 | 2976 | 3181 | 3385  | 8             | 1640 |
| 25          |     | 3589 | 3794 | 3998 | 4202 | 4407 | 4611 | 4815 | 5020 | 5224 | 5428  | 9             | 1845 |
| 26          |     | 5633 | 5837 | 6041 | 6245 | 6450 | 6654 | 6858 | 7062 | 7267 | 7471  | 1             | 204  |
| 27          |     | 7675 | 7879 | 8083 | 8287 | 8492 | 8696 | 8900 | 9104 | 9308 | 9512  | 2             | 408  |
| 28          | •   | 9716 | 9920 | •124 | 0328 | 0533 | 0737 | 0941 | 1145 | 1349 | 1553  | 3             | 612  |
| 29          | 328 | 1757 | 1961 | 2165 | 2369 | 2572 | 2776 | 2980 | 3184 | 3388 | 3592  | 4             | 816  |
| <b>2130</b> |     | 3796 | 4000 | 4204 | 4408 | 4612 | 4815 | 5019 | 5223 | 5427 | 5631  | 5             | 1020 |
| 31          |     | 5834 | 6038 | 6242 | 6446 | 6650 | 6853 | 7057 | 7261 | 7465 | 7668  | 6             | 1224 |
| 32          |     | 7872 | 8076 | 8279 | 8483 | 8687 | 8890 | 9094 | 9298 | 9501 | 9705  | 7             | 1428 |
| 33          | •   | 9909 | •112 | 0316 | 0519 | 0723 | 0926 | 1130 | 1334 | 1537 | 1741  | 8             | 1632 |
| 34          | 329 | 1944 | 2148 | 2351 | 2555 | 2758 | 2962 | 3165 | 3369 | 3572 | 3775  | 9             | 1836 |
| 35          |     | 3979 | 4182 | 4386 | 4589 | 4792 | 4996 | 5199 | 5402 | 5606 | 5809  | 1             | 203  |
| 36          |     | 6012 | 6216 | 6419 | 6622 | 6826 | 7029 | 7232 | 7436 | 7639 | 7842  | 2             | 406  |
| 37          |     | 8045 | 8248 | 8452 | 8655 | 8858 | 9061 | 9264 | 9468 | 9671 | 9874  | 3             | 609  |
| 38          | 330 | 0077 | 0280 | 0483 | 0686 | 0889 | 1093 | 1296 | 1499 | 1702 | 1905  | 4             | 812  |
| 39          |     | 2108 | 2311 | 2514 | 2717 | 2920 | 3123 | 3326 | 3529 | 3732 | 3935  | 5             | 1015 |
|             |     |      |      |      |      |      |      |      |      |      |       | 6             | 1218 |
|             |     |      |      |      |      |      |      |      |      |      |       | 7             | 1421 |
|             |     |      |      |      |      |      |      |      |      |      |       | 8             | 1624 |
|             |     |      |      |      |      |      |      |      |      |      |       | 9             | 1827 |
| Num.        | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |      |

| Num.         | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.     | Diff. & Mult. |                          |
|--------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|---------------|--------------------------|
| <b>2140</b>  | <b>330</b> | 4138     | 4341     | 4544     | 4747     | 4949     | 5152     | 5355     | 5558     | 5761     | 5964      |               |                          |
| 41           |            | 6167     | 6370     | 6572     | 6775     | 6978     | 7181     | 7384     | 7586     | 7789     | 7992      | 1 203         |                          |
| 42           | •          | 8195     | 8397     | 8600     | 8803     | 9006     | 9208     | 9411     | 9614     | 9816     | •019      | 2 406         |                          |
| 43           | <b>331</b> | 0222     | 0424     | 0627     | 0830     | 1032     | 1235     | 1437     | 1640     | 1843     | 2045      | 3 609         |                          |
| 44           |            | 2248     | 2450     | 2653     | 2855     | 3058     | 3261     | 3463     | 3666     | 3868     | 4070      | 4 812         |                          |
| 45           |            | 4273     | 4475     | 4678     | 4880     | 5083     | 5285     | 5488     | 5690     | 5892     | 6095      | 5 1015        |                          |
| 46           |            | 6297     | 6500     | 6702     | 6904     | 7107     | 7309     | 7511     | 7714     | 7916     | 8118      | 6 1218        |                          |
| 47           | •          | 8320     | 8523     | 8725     | 8927     | 9129     | 9332     | 9534     | 9736     | 9938     | •141      | 7 1421        |                          |
| 48           | <b>332</b> | 0343     | 0545     | 0747     | 0949     | 1151     | 1354     | 1556     | 1758     | 1960     | 2162      | 8 1624        |                          |
| 49           |            | 2364     | 2566     | 2768     | 2970     | 3172     | 3374     | 3577     | 3779     | 3981     | 4183      | 9 1827        |                          |
| <b>21 50</b> |            | 4385     | 4587     | 4789     | 4991     | 5193     | 5394     | 5596     | 5798     | 6000     | 6202      | 202 1 202     |                          |
| 51           |            | 6404     | 6606     | 6808     | 7010     | 7212     | 7414     | 7615     | 7817     | 8019     | 8221      | 2 404         |                          |
| 52           | •          | 8423     | 8624     | 8826     | 9028     | 9230     | 9432     | 9633     | 9835     | •037     | 202 3 606 |               |                          |
| 53           | <b>333</b> | 0440     | 0642     | 0844     | 1045     | 1247     | 1449     | 1650     | 1852     | 2054     | 2255      | 4 808         |                          |
| 54           |            | 2457     | 2659     | 2860     | 3062     | 3263     | 3465     | 3667     | 3868     | 4070     | 4271      | 5 1010        |                          |
| 55           |            | 4473     | 4674     | 4876     | 5077     | 5279     | 5480     | 5682     | 5883     | 6085     | 6286      | 6 1212        |                          |
| 56           |            | 6488     | 6689     | 6890     | 7092     | 7293     | 7495     | 7696     | 7897     | 8099     | 8300      | 7 1414        |                          |
| 57           | •          | 8501     | 8703     | 8904     | 9105     | 9307     | 9508     | 9709     | 9911     | •112     | 0313      | 8 1616        |                          |
| 58           | <b>334</b> | 0514     | 0716     | 0917     | 1118     | 1319     | 1521     | 1722     | 1923     | 2124     | 2325      | 9 1818        |                          |
| 59           |            | 2526     | 2728     | 2929     | 3130     | 3331     | 3532     | 3733     | 3934     | 4135     | 4336      | 1 201         |                          |
| <b>21 60</b> |            | 4538     | 4739     | 4940     | 5141     | 5342     | 5543     | 5744     | 5945     | 6146     | 6347      | 2 402         |                          |
| 61           |            | 6548     | 6749     | 6950     | 7151     | 7352     | 7552     | 7753     | 7954     | 8155     | 8356      | 3 603         |                          |
| 62           | •          | 8557     | 8758     | 8959     | 9159     | 9360     | 9561     | 9762     | 9963     | •164     | 0364      | 4 804         |                          |
| 63           | <b>335</b> | 0565     | 0766     | 0967     | 1168     | 1368     | 1569     | 1770     | 1970     | 2171     | 2372      | 5 1005        |                          |
| 64           |            | 2573     | 2773     | 2974     | 3175     | 3375     | 3576     | 3777     | 3977     | 4178     | 4378      | 6 1206        |                          |
| 65           |            | 4579     | 4780     | 4980     | 5181     | 5381     | 5582     | 5782     | 5983     | 6183     | 6384      | 7 1407        |                          |
| 66           |            | 6585     | 6785     | 6986     | 7186     | 7386     | 7587     | 7787     | 7988     | 8188     | 8389      | 8 1608        |                          |
| 67           | •          | 8589     | 8790     | 8990     | 9190     | 9391     | 9591     | 9791     | 9992     | •192     | 0392      | 9 1809        |                          |
| 68           | <b>336</b> | 0593     | 0793     | 0993     | 1194     | 1394     | 1594     | 1795     | 1995     | 2195     | 2395      | 1 200         |                          |
| 69           |            | 2596     | 2796     | 2996     | 3196     | 3396     | 3597     | 3797     | 3997     | 4197     | 4397      | 2 400         |                          |
| <b>21 70</b> |            | 4597     | 4797     | 4998     | 5198     | 5398     | 5598     | 5798     | 5998     | 6198     | 6398      | 3 600         |                          |
| 71           |            | 6598     | 6798     | 6998     | 7198     | 7398     | 7598     | 7798     | 7998     | 8198     | 8398      | 4 800         |                          |
| 72           | •          | 8598     | 8798     | 8998     | 9198     | 9398     | 9598     | 9798     | 9998     | •198     | 0398      | 5 1000        |                          |
| 73           | <b>337</b> | 0597     | 0797     | 0997     | 1197     | 1397     | 1596     | 1796     | 1996     | 2196     | 2396      | 6 1200        |                          |
| 74           |            | 2595     | 2795     | 2995     | 3195     | 3394     | 3594     | 3794     | 3994     | 4193     | 4393      | 7 1407        |                          |
| 75           |            | 4593     | 4792     | 4992     | 5192     | 5391     | 5591     | 5791     | 5990     | 6190     | 6389      | 8 1608        |                          |
| 76           |            | 6589     | 6788     | 6988     | 7188     | 7387     | 7587     | 7786     | 7986     | 8185     | 8385      | 9 1809        |                          |
| 77           | •          | 8584     | 8784     | 8983     | 9183     | 9382     | 9582     | 9781     | 9981     | •180     | 0379      | 1 200         |                          |
| 78           | <b>338</b> | 0579     | 0778     | 0978     | 1177     | 1376     | 1576     | 1775     | 1974     | 2174     | 2373      | 2 400         |                          |
| 79           |            | 2572     | 2772     | 2971     | 3170     | 3369     | 3569     | 3768     | 3967     | 4166     | 4366      | 3 600         |                          |
| <b>21 80</b> |            | 4565     | 4764     | 4963     | 5163     | 5362     | 5561     | 5760     | 5959     | 6158     | 6358      | 4 800         |                          |
| 81           |            | 6557     | 6756     | 6955     | 7154     | 7353     | 7552     | 7751     | 7950     | 8149     | 8348      | 5 1000        |                          |
| 82           | •          | 8547     | 8746     | 8946     | 9145     | 9344     | 9543     | 9742     | 9940     | •139     | 0338      | 6 1200        |                          |
| 83           | <b>339</b> | 0537     | 0736     | 0935     | 1134     | 1333     | 1532     | 1731     | 1930     | 2129     | 2327      | 7 1407        |                          |
| 84           |            | 2526     | 2725     | 2924     | 3123     | 3322     | 3520     | 3719     | 3918     | 4117     | 4316      | 8 1600        |                          |
| 85           |            | 4514     | 4713     | 4912     | 5111     | 5309     | 5508     | 5707     | 5906     | 6104     | 6303      | 9 1800        |                          |
| 86           |            | 6502     | 6700     | 6899     | 7098     | 7296     | 7495     | 7693     | 7892     | 8091     | 8289      | 1 199         |                          |
| 87           | •          | 8488     | 8686     | 8885     | 9084     | 9282     | 9481     | 9679     | 9878     | •076     | 0275      | 2 396         |                          |
| 88           | <b>340</b> | 0473     | 0672     | 0870     | 1069     | 1267     | 1466     | 1664     | 1862     | 2061     | 2259      | 3 594         |                          |
| 89           |            | 2458     | 2656     | 2854     | 3053     | 3251     | 3449     | 3648     | 3846     | 4045     | 4243      | 4 792         |                          |
| <b>21 90</b> |            | 4441     | 4639     | 4838     | 5036     | 5234     | 5433     | 5631     | 5829     | 6027     | 6226      | 5 990         |                          |
| 91           |            | 6424     | 6622     | 6820     | 7018     | 7217     | 7415     | 7613     | 7811     | 8009     | 8207      | 6 1188        |                          |
| 92           | •          | 8405     | 8604     | 8802     | 9000     | 9198     | 9396     | 9594     | 9792     | 9990     | •188      | 7 1386        |                          |
| 93           | <b>341</b> | 0386     | 0584     | 0782     | 0980     | 1178     | 1376     | 1574     | 1772     | 1970     | 2168      | 8 1584        |                          |
| 94           |            | 2366     | 2564     | 2762     | 2960     | 3158     | 3356     | 3554     | 3752     | 3950     | 4147      | 9 1782        |                          |
| 95           |            | 4345     | 4543     | 4741     | 4939     | 5137     | 5334     | 5532     | 5730     | 5928     | 6126      | 1 197         |                          |
| 96           |            | 6323     | 6521     | 6719     | 6917     | 7114     | 7312     | 7510     | 7708     | 7905     | 8103      | 2 394         |                          |
| 97           | •          | 8301     | 8498     | 8696     | 8894     | 9091     | 9289     | 9486     | 9684     | 9882     | •079      | 3 591         |                          |
| 98           | <b>342</b> | 0277     | 0474     | 0672     | 0870     | 1067     | 1265     | 1462     | 1660     | 1857     | 2055      | 4 788         |                          |
| 99           |            | 2252     | 2450     | 2647     | 2845     | 3042     | 3240     | 3437     | 3635     | 3832     | 4029      | 5 985         |                          |
|              |            |          |          |          |          |          |          |          |          |          |           | 6 1182        |                          |
|              |            |          |          |          |          |          |          |          |          |          |           | 7 1379        |                          |
|              |            |          |          |          |          |          |          |          |          |          |           | 8 1576        |                          |
|              |            |          |          |          |          |          |          |          |          |          |           | 9 1773        |                          |
| <b>Num.</b>  |            | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b>  | <b>Diff.</b>  | <b>Diff. &amp; Mult.</b> |

| Num.        | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.    | Diff. & Mult. |                          |
|-------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------------|--------------------------|
| <b>2200</b> | <b>342</b> | 4227     | 4424     | 4622     | 4819     | 5016     | 5214     | 5411     | 5608     | 5806     | 6003     |               |                          |
| 01          |            | 6200     | 6398     | 6595     | 6792     | 6990     | 7187     | 7384     | 7581     | 7779     | 7976     | 1             | 198                      |
| 02          |            | 8173     | 8370     | 8568     | 8765     | 8962     | 9159     | 9356     | 9554     | 9751     | 9948     | 2             | 366                      |
| 03          | <b>343</b> | 0145     | 0342     | 0539     | 0736     | 0933     | 1131     | 1328     | 1525     | 1722     | 1919     | 3             | 544                      |
| 04          |            | 2116     | 2313     | 2510     | 2707     | 2904     | 3101     | 3298     | 3495     | 3692     | 3889     | 4             | 792                      |
| 05          |            | 4086     | 4283     | 4480     | 4677     | 4874     | 5071     | 5268     | 5464     | 5661     | 5858     | 5             | 990                      |
| 06          |            | 6055     | 6252     | 6449     | 6646     | 6842     | 7039     | 7236     | 7433     | 7630     | 7827     | 6             | 1188                     |
| 07          |            | 8023     | 8220     | 8417     | 8614     | 8810     | 9007     | 9204     | 9401     | 9597     | 9794     | 7             | 1386                     |
| 08          |            | • 9991   | • 187    | 0384     | 0581     | 0777     | 0974     | 1171     | 1367     | 1564     | 1761     | 8             | 1584                     |
| 09          | <b>344</b> | 1957     | 2154     | 2350     | 2547     | 2743     | 2940     | 3137     | 3333     | 3530     | 3726     | 9             | 1782                     |
| <b>2210</b> |            | 3923     | 4119     | 4316     | 4512     | 4709     | 4905     | 5102     | 5298     | 5495     | 5691     | 1             | 197                      |
| 11          |            | 5887     | 6084     | 6280     | 6477     | 6673     | 6869     | 7066     | 7262     | 7459     | 7655     | 2             | 394                      |
| 12          |            | 7851     | 8048     | 8244     | 8440     | 8636     | 8833     | 9029     | 9225     | 9422     | 9618     | 3             | 591                      |
| 13          |            | • 9814   | • 010    | 0207     | 0403     | 0599     | 0795     | 0991     | 1188     | 1384     | 1580     | 4             | 788                      |
| 14          | <b>345</b> | 1776     | 1972     | 2168     | 2365     | 2561     | 2757     | 2953     | 3149     | 3345     | 3541     | 5             | 985                      |
| 15          |            | 3737     | 3933     | 4129     | 4325     | 4522     | 4718     | 4914     | 5110     | 5306     | 5502     | 6             | 1182                     |
| 16          |            | 5698     | 5894     | 6090     | 6285     | 6481     | 6677     | 6873     | 7069     | 7265     | 7461     | 7             | 1379                     |
| 17          |            | 7657     | 7853     | 8049     | 8245     | 8440     | 8636     | 8832     | 9028     | 9224     | 9420     | 8             | 1576                     |
| 18          |            | • 9615   | • 9811   | • 0007   | 0203     | 0399     | 0594     | 0790     | 0986     | 1182     | 1377     | 9             | 1773                     |
| 19          | <b>346</b> | 1573     | 1769     | 1964     | 2160     | 2356     | 2551     | 2747     | 2943     | 3138     | 3334     | 1             | 196                      |
| <b>2220</b> |            | 3530     | 3725     | 3921     | 4117     | 4312     | 4508     | 4703     | 4899     | 5094     | 5290     | 2             | 392                      |
| 21          |            | 5486     | 5681     | 5877     | 6072     | 6268     | 6463     | 6659     | 6854     | 7050     | 7245     | 3             | 588                      |
| 22          |            | 7441     | 7636     | 7831     | 8027     | 8222     | 8418     | 8613     | 8808     | 9004     | 9199     | 4             | 784                      |
| 23          |            | • 9305   | • 9500   | • 9785   | • 9981   | • 176    | 0371     | 0567     | 0762     | 0957     | 1153     | 5             | 980                      |
| 24          | <b>347</b> | 1348     | 1543     | 1738     | 1934     | 2129     | 2324     | 2519     | 2715     | 2910     | 3105     | 6             | 1176                     |
| 25          |            | 3300     | 3495     | 3691     | 3886     | 4081     | 4276     | 4471     | 4666     | 4861     | 5056     | 7             | 1372                     |
| 26          |            | 5252     | 5447     | 5642     | 5837     | 6032     | 6227     | 6422     | 6617     | 6812     | 7007     | 8             | 1568                     |
| 27          |            | 7202     | 7397     | 7592     | 7787     | 7982     | 8177     | 8372     | 8567     | 8762     | 8957     | 9             | 1764                     |
| 28          |            | • 9152   | • 9347   | • 9542   | • 9737   | • 9931   | • 126    | 0321     | 0516     | 0711     | 0906     | 1             | 195                      |
| 29          | <b>348</b> | 1101     | 1296     | 1490     | 1685     | 1880     | 2075     | 2270     | 2464     | 2659     | 2854     | 2             | 390                      |
| <b>2230</b> |            | 3049     | 3243     | 3438     | 3633     | 3828     | 4022     | 4217     | 4412     | 4606     | 4801     | 3             | 585                      |
| 31          |            | 4966     | 5160     | 5355     | 5550     | 5744     | 5960     | 6164     | 6358     | 6553     | 6747     | 4             | 780                      |
| 32          |            | 6942     | 7136     | 7331     | 7526     | 7720     | 7915     | 8109     | 8304     | 8498     | 8693     | 5             | 975                      |
| 33          |            | • 8887   | • 9082   | • 9276   | • 9471   | • 9665   | • 9860   | • 0054   | 0248     | 0443     | 0637     | 6             | 1170                     |
| 34          | <b>349</b> | 0832     | 1026     | 1220     | 1415     | 1609     | 1804     | 1998     | 2192     | 2387     | 2581     | 7             | 1365                     |
| 35          |            | 2775     | 2970     | 3164     | 3358     | 3552     | 3747     | 3941     | 4135     | 4330     | 4524     | 8             | 1560                     |
| 36          |            | 4718     | 4912     | 5106     | 5301     | 5495     | 5689     | 5883     | 6077     | 6272     | 6466     | 9             | 1755                     |
| 37          |            | 6660     | 6854     | 7048     | 7242     | 7436     | 7630     | 7825     | 8019     | 8213     | 8407     | 1             | 194                      |
| 38          |            | • 8601   | • 8795   | • 8989   | • 9183   | • 9377   | • 9571   | • 9765   | • 9959   | • 153    | 0347     | 2             | 388                      |
| 39          | <b>350</b> | 0541     | 0735     | 0929     | 1123     | 1317     | 1511     | 1705     | 1898     | 2092     | 2286     | 3             | 582                      |
| <b>2240</b> |            | 2480     | 2674     | 2868     | 3062     | 3256     | 3449     | 3643     | 3837     | 4031     | 4225     | 4             | 776                      |
| 41          |            | 4419     | 4612     | 4806     | 5000     | 5194     | 5387     | 5581     | 5775     | 5969     | 6162     | 5             | 970                      |
| 42          |            | 6356     | 6550     | 6743     | 6937     | 7131     | 7325     | 7518     | 7712     | 7905     | 8099     | 6             | 1164                     |
| 43          |            | • 8293   | • 8486   | • 8680   | • 8874   | • 9067   | • 9261   | • 9454   | • 9648   | • 9841   | • 0035   | 7             | 1358                     |
| 44          | <b>351</b> | 0229     | 0422     | 0616     | 0809     | 1003     | 1196     | 1390     | 1583     | 1777     | 1970     | 8             | 1552                     |
| 45          |            | 2163     | 2357     | 2550     | 2744     | 2937     | 3131     | 3324     | 3517     | 3711     | 3904     | 9             | 1746                     |
| 46          |            | 4098     | 4291     | 4484     | 4678     | 4871     | 5064     | 5258     | 5451     | 5644     | 5837     | 1             | 193                      |
| 47          |            | 6031     | 6224     | 6417     | 6611     | 6804     | 6997     | 7190     | 7383     | 7577     | 7770     | 2             | 386                      |
| 48          |            | 7963     | 8156     | 8349     | 8543     | 8736     | 8929     | 9122     | 9315     | 9508     | 9701     | 3             | 579                      |
| 49          |            | • 9895   | • 0088   | 0281     | 0474     | 0667     | 0860     | 1053     | 1246     | 1439     | 1632     | 4             | 772                      |
| <b>2250</b> |            | 352      | 1825     | 2018     | 2211     | 2404     | 2597     | 2790     | 2983     | 3176     | 3369     | 5             | 965                      |
| 51          |            | 3755     | 3948     | 4141     | 4334     | 4527     | 4720     | 4912     | 5105     | 5298     | 5491     | 6             | 1158                     |
| 52          |            | 5684     | 5877     | 6070     | 6262     | 6455     | 6648     | 6841     | 7034     | 7226     | 7419     | 7             | 1351                     |
| 53          |            | 7612     | 7805     | 7997     | 8190     | 8383     | 8576     | 8768     | 8961     | 9154     | 9346     | 8             | 1544                     |
| 54          |            | • 9539   | • 9732   | • 9924   | • 1117   | 0310     | 0502     | 0695     | 0888     | 1080     | 1273     | 9             | 1737                     |
| 55          | <b>353</b> | 1465     | 1658     | 1851     | 2043     | 2236     | 2428     | 2621     | 2813     | 3006     | 3198     | 1             | 192                      |
| 56          |            | 3391     | 3583     | 3776     | 3968     | 4161     | 4353     | 4546     | 4738     | 4931     | 5123     | 2             | 384                      |
| 57          |            | 5316     | 5508     | 5700     | 5893     | 6085     | 6278     | 6470     | 6662     | 6855     | 7047     | 3             | 576                      |
| 58          |            | 7239     | 7432     | 7624     | 7816     | 8009     | 8201     | 8393     | 8586     | 8778     | 8970     | 4             | 768                      |
| 59          |            | • 9162   | • 9355   | • 9547   | • 9739   | • 9931   | • 123    | 0316     | 0508     | 0700     | 0892     | 5             | 960                      |
| <b>Num.</b> |            | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b>  | <b>Diff. &amp; Mult.</b> |

LOGARITHMS OF NUMBERS.

| Num.         | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|--------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>2200</b>  | <b>354</b> | 1084     | 1277     | 1469     | 1661     | 1853     | 2045     | 2237     | 2429     | 2621     | 2814         |                          |
| 61           |            | 3006     | 3198     | 3390     | 3582     | 3774     | 3966     | 4158     | 4350     | 4542     | 4734         | 1                        |
| 62           |            | 4926     | 5118     | 5310     | 5502     | 5694     | 5886     | 6078     | 6270     | 6462     | 6654         | 2                        |
| 63           |            | 6846     | 7037     | 7229     | 7421     | 7613     | 7805     | 7997     | 8189     | 8381     | 8572         | 3                        |
| 64           | *          | 8764     | 8956     | 9148     | 9340     | 9531     | 9723     | 9915     | 10107    | 10299    | 10490        | 4                        |
| 65           | 355        | 0682     | 0874     | 1066     | 1257     | 1449     | 1641     | 1832     | 2024     | 2216     | 2407         | 5                        |
| 66           |            | 2599     | 2791     | 2982     | 3174     | 3366     | 3557     | 3749     | 3940     | 4132     | 4324         | 6                        |
| 67           |            | 4515     | 4707     | 4898     | 5090     | 5281     | 5473     | 5664     | 5856     | 6048     | 6239         | 7                        |
| 68           |            | 6431     | 6622     | 6813     | 7005     | 7196     | 7388     | 7579     | 7771     | 7962     | 8154         | 8                        |
| 69           | *          | 8345     | 8536     | 8728     | 8919     | 9111     | 9302     | 9493     | 9685     | 9876     | 10067        | 9                        |
| <b>22 70</b> | <b>356</b> | 0259     | 0450     | 0641     | 0832     | 1024     | 1215     | 1406     | 1598     | 1789     | 1980         | 1                        |
| 71           |            | 2171     | 2363     | 2554     | 2745     | 2936     | 3127     | 3319     | 3510     | 3701     | 3892         | 2                        |
| 72           |            | 4083     | 4275     | 4466     | 4657     | 4848     | 5039     | 5230     | 5421     | 5612     | 5803         | 3                        |
| 73           |            | 5994     | 6185     | 6376     | 6566     | 6759     | 6950     | 7141     | 7332     | 7523     | 7714         | 4                        |
| 74           |            | 7905     | 8096     | 8287     | 8478     | 8668     | 8859     | 9050     | 9241     | 9432     | 9623         | 5                        |
| 75           | *          | 9814     | 10005    | 10196    | 10387    | 10578    | 10768    | 10959    | 11150    | 11341    | 11532        | 6                        |
| 76           | 357        | 1723     | 1913     | 2104     | 2295     | 2486     | 2677     | 2867     | 3058     | 3249     | 3440         | 7                        |
| 77           |            | 3630     | 3821     | 4012     | 4202     | 4393     | 4584     | 4775     | 4965     | 5156     | 5347         | 8                        |
| 78           |            | 5537     | 5728     | 5918     | 6109     | 6300     | 6490     | 6681     | 6872     | 7062     | 7253         | 9                        |
| 79           |            | 7443     | 7634     | 7824     | 8015     | 8205     | 8396     | 8586     | 8777     | 8967     | 9158         |                          |
| <b>22 80</b> | <b>*</b>   | 9348     | 9539     | 9730     | 9920     | 10110    | 10301    | 10491    | 10682    | 10872    | 11062        | 1                        |
| 81           | 358        | 1253     | 1443     | 1634     | 1824     | 2014     | 2205     | 2395     | 2585     | 2776     | 2966         | 2                        |
| 82           |            | 3156     | 3347     | 3537     | 3727     | 3918     | 4108     | 4298     | 4488     | 4679     | 4869         | 3                        |
| 83           |            | 5059     | 5249     | 5440     | 5630     | 5820     | 6010     | 6200     | 6391     | 6581     | 6771         | 4                        |
| 84           |            | 6961     | 7151     | 7341     | 7531     | 7722     | 7912     | 8102     | 8292     | 8482     | 8672         | 5                        |
| 85           | *          | 8862     | 9052     | 9242     | 9432     | 9622     | 9812     | 10002    | 10192    | 10382    | 10572        | 6                        |
| 86           | 359        | 0762     | 0952     | 1142     | 1332     | 1522     | 1712     | 1902     | 2092     | 2282     | 2472         | 7                        |
| 87           |            | 2624     | 2814     | 3004     | 3194     | 3384     | 3574     | 3764     | 3954     | 4144     | 4334         | 8                        |
| 88           |            | 4560     | 4750     | 4940     | 5130     | 5319     | 5509     | 5699     | 5889     | 6079     | 6268         | 9                        |
| 89           |            | 6458     | 6648     | 6837     | 7027     | 7217     | 7406     | 7596     | 7786     | 7976     | 8165         |                          |
| <b>22 90</b> | <b>*</b>   | 8355     | 8544     | 8734     | 8924     | 9113     | 9303     | 9493     | 9682     | 9872     | 10061        | 1                        |
| 91           | 360        | 0251     | 0440     | 0630     | 0820     | 1009     | 1199     | 1388     | 1578     | 1767     | 1957         | 2                        |
| 92           |            | 2146     | 2336     | 2525     | 2715     | 2904     | 3093     | 3283     | 3472     | 3662     | 3851         | 3                        |
| 93           |            | 4041     | 4230     | 4419     | 4609     | 4798     | 4987     | 5177     | 5366     | 5555     | 5745         | 4                        |
| 94           |            | 5934     | 6123     | 6313     | 6502     | 6691     | 6881     | 7070     | 7259     | 7448     | 7638         | 5                        |
| 95           |            | 7827     | 8016     | 8205     | 8395     | 8584     | 8773     | 8962     | 9151     | 9341     | 9530         | 6                        |
| 96           | *          | 9719     | 9908     | 10097    | 10286    | 10475    | 10664    | 10854    | 11043    | 11232    | 11421        | 7                        |
| 97           | 361        | 1610     | 1799     | 1988     | 2177     | 2366     | 2555     | 2744     | 2933     | 3122     | 3311         | 8                        |
| 98           |            | 3500     | 3689     | 3878     | 4067     | 4256     | 4445     | 4634     | 4823     | 5012     | 5201         | 9                        |
| 99           |            | 5390     | 5579     | 5768     | 5956     | 6145     | 6334     | 6523     | 6712     | 6901     | 7090         |                          |
| <b>23 00</b> |            | 7278     | 7467     | 7656     | 7845     | 8034     | 8222     | 8411     | 8600     | 8789     | 8977         | 1                        |
| 01           | *          | 9166     | 9355     | 9544     | 9732     | 9921     | 10109    | 10298    | 10487    | 10676    | 10865        | 2                        |
| 02           | 362        | 1053     | 1242     | 1430     | 1619     | 1808     | 1996     | 2185     | 2374     | 2562     | 2751         | 3                        |
| 03           |            | 2939     | 3128     | 3317     | 3505     | 3694     | 3882     | 4071     | 4259     | 4448     | 4636         | 4                        |
| 04           |            | 4825     | 5013     | 5202     | 5390     | 5579     | 5767     | 5956     | 6144     | 6332     | 6521         | 5                        |
| 05           |            | 6709     | 6898     | 7086     | 7275     | 7463     | 7651     | 7840     | 8028     | 8216     | 8405         | 6                        |
| 06           | *          | 8593     | 8781     | 8970     | 9158     | 9346     | 9535     | 9723     | 9911     | 10099    | 10288        | 7                        |
| 07           | 363        | 0476     | 0664     | 0852     | 1041     | 1229     | 1417     | 1605     | 1794     | 1982     | 2170         | 8                        |
| 08           |            | 2358     | 2546     | 2734     | 2923     | 3111     | 3299     | 3487     | 3675     | 3863     | 4051         | 9                        |
| 09           |            | 4239     | 4427     | 4615     | 4804     | 4992     | 5180     | 5368     | 5556     | 5744     | 5932         |                          |
| <b>23 10</b> |            | 6120     | 6308     | 6496     | 6684     | 6872     | 7060     | 7248     | 7436     | 7624     | 7812         | 1                        |
| 11           |            | 7999     | 8187     | 8375     | 8563     | 8751     | 8939     | 9127     | 9315     | 9503     | 9690         | 2                        |
| 12           | *          | 9878     | 10066    | 10254    | 10442    | 10630    | 10817    | 11005    | 11193    | 11381    | 11569        | 3                        |
| 13           | 364        | 1756     | 1944     | 2132     | 2320     | 2507     | 2695     | 2883     | 3070     | 3258     | 3446         | 4                        |
| 14           |            | 3634     | 3821     | 4009     | 4197     | 4384     | 4572     | 4759     | 4947     | 5135     | 5322         | 5                        |
| 15           |            | 5510     | 5698     | 5885     | 6073     | 6260     | 6448     | 6635     | 6823     | 7010     | 7198         | 6                        |
| 16           |            | 7386     | 7573     | 7761     | 7948     | 8136     | 8323     | 8511     | 8698     | 8885     | 9073         | 7                        |
| 17           | *          | 9260     | 9448     | 9635     | 9823     | 10010    | 10197    | 10385    | 10572    | 10760    | 10947        | 8                        |
| 18           | 365        | 1134     | 1322     | 1509     | 1696     | 1884     | 2071     | 2258     | 2446     | 2633     | 2820         | 9                        |
| 19           |            | 3007     | 3195     | 3382     | 3569     | 3757     | 3944     | 4131     | 4318     | 4505     | 4693         |                          |
| <b>Num.</b>  | <b>0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |



| Num.        | 0               | 1      | 2    | 3     | 4     | 5      | 6    | 7     | 8      | 9      | Diff. | Diff. & Mult. |
|-------------|-----------------|--------|------|-------|-------|--------|------|-------|--------|--------|-------|---------------|
| <b>2320</b> | <b>365</b> 4880 | 5067   | 5254 | 5441  | 5629  | 5816   | 6003 | 6190  | 6377   | 6564   | 187   | 1   188       |
| 21          | 6751            | 6939   | 7126 | 7313  | 7500  | 7687   | 7874 | 8061  | 8248   | 8435   |       | 2   376       |
| 22          | • 8622          | 8809   | 8996 | 9183  | 9370  | 9557   | 9744 | 9931  | • 1118 | 0305   |       | 3   564       |
| 23          | <b>366</b> 0492 | 0679   | 0866 | 1053  | 1240  | 1427   | 1614 | 1801  | 1987   | 2174   |       | 4   752       |
| 24          | 2361            | 2548   | 2735 | 2922  | 3109  | 3296   | 3482 | 3669  | 3856   | 4043   |       | 5   940       |
| 25          | 4230            | 4416   | 4603 | 4790  | 4977  | 5163   | 5350 | 5537  | 5724   | 5910   |       | 6   1128      |
| 26          | 6097            | 6284   | 6471 | 6657  | 6844  | 7031   | 7217 | 7404  | 7591   | 7777   |       | 7   1316      |
| 27          | 7964            | 8150   | 8337 | 8524  | 8710  | 8897   | 9083 | 9270  | 9457   | 9643   |       | 8   1504      |
| 28          | • 9830          | • 0166 | 0203 | 0389  | 0576  | 0762   | 0949 | 1135  | 1322   | 1508   |       | 9   1692      |
| 29          | 367 1695        | 1881   | 2068 | 2254  | 2441  | 2627   | 2814 | 3000  | 3186   | 3373   |       |               |
| <b>2330</b> | 3559            | 3746   | 3932 | 4118  | 4305  | 4491   | 4677 | 4864  | 5050   | 5236   | 186   | 1   187       |
| 31          | 5423            | 5609   | 5795 | 5982  | 6168  | 6354   | 6540 | 6727  | 6913   | 7099   |       | 2   374       |
| 32          | 7285            | 7472   | 7658 | 7844  | 8030  | 8217   | 8403 | 8589  | 8775   | 8961   |       | 3   561       |
| 33          | • 9147          | 9334   | 9520 | 9706  | 9892  | • 0078 | 0264 | 0450  | 0636   | 0822   |       | 4   748       |
| 34          | <b>368</b> 1009 | 1195   | 1381 | 1567  | 1753  | 1939   | 2125 | 2311  | 2497   | 2683   |       | 5   935       |
| 35          | 2866            | 3055   | 3241 | 3427  | 3613  | 3799   | 3985 | 4171  | 4357   | 4542   |       | 6   1122      |
| 36          | 4728            | 4914   | 5100 | 5286  | 5472  | 5658   | 5844 | 6030  | 6215   | 6401   |       | 7   1309      |
| 37          | 6587            | 6773   | 6959 | 7145  | 7330  | 7516   | 7702 | 7888  | 8074   | 8259   |       | 8   1496      |
| 38          | • 8445          | 8631   | 8817 | 9002  | 9188  | 9374   | 9559 | 9745  | 9931   | • 1117 |       | 9   1683      |
| 39          | 369 0302        | 0488   | 0674 | 0859  | 1045  | 1230   | 1416 | 1602  | 1787   | 1973   |       |               |
| <b>2340</b> | 2159            | 2344   | 2530 | 2715  | 2901  | 3086   | 3272 | 3458  | 3643   | 3829   | 185   | 1   186       |
| 41          | 4014            | 4200   | 4385 | 4571  | 4756  | 4942   | 5127 | 5313  | 5498   | 5683   |       | 2   372       |
| 42          | 5869            | 6054   | 6240 | 6425  | 6611  | 6796   | 6981 | 7167  | 7352   | 7538   |       | 3   558       |
| 43          | 7723            | 7908   | 8094 | 8279  | 8464  | 8650   | 8835 | 9020  | 9205   | 9391   |       | 4   744       |
| 44          | • 9576          | 9761   | 9947 | • 132 | 0317  | 0502   | 0688 | 0873  | 1058   | 1243   |       | 5   930       |
| 45          | <b>370</b> 1428 | 1614   | 1799 | 1984  | 2169  | 2354   | 2540 | 2725  | 2910   | 3095   |       | 6   1116      |
| 46          | 3280            | 3465   | 3650 | 3835  | 4020  | 4206   | 4391 | 4576  | 4761   | 4946   |       | 7   1302      |
| 47          | 5131            | 5316   | 5501 | 5686  | 5871  | 6056   | 6241 | 6426  | 6611   | 6796   |       | 8   1488      |
| 48          | 6681            | 7166   | 7351 | 7536  | 7721  | 7906   | 8091 | 8275  | 8460   | 8645   |       | 9   1674      |
| 49          | • 8830          | 9015   | 9200 | 9385  | 9570  | 9755   | 9939 | • 124 | 0309   | 0494   |       |               |
| <b>2350</b> | 371 0679        | 0863   | 1048 | 1233  | 1418  | 1603   | 1787 | 1972  | 2157   | 2342   | 184   | 1   185       |
| 51          | 2526            | 2711   | 2896 | 3080  | 3265  | 3450   | 3635 | 3819  | 4004   | 4189   |       | 2   370       |
| 52          | 4373            | 4558   | 4742 | 4927  | 5112  | 5296   | 5481 | 5666  | 5850   | 6035   |       | 3   555       |
| 53          | 6219            | 6404   | 6588 | 6773  | 6957  | 7142   | 7327 | 7511  | 7696   | 7880   |       | 4   740       |
| 54          | 8065            | 8249   | 8434 | 8618  | 8802  | 8987   | 9171 | 9356  | 9540   | 9725   |       | 5   925       |
| 55          | • 9909          | • 0094 | 0278 | 0462  | 0647  | 0831   | 1015 | 1200  | 1384   | 1569   |       | 6   1110      |
| 56          | 372 1753        | 1937   | 2122 | 2306  | 2490  | 2674   | 2859 | 3043  | 3227   | 3412   |       | 7   1295      |
| 57          | 3596            | 3780   | 3964 | 4149  | 4333  | 4517   | 4701 | 4885  | 5070   | 5254   |       | 8   1480      |
| 58          | 5438            | 5622   | 5806 | 5991  | 6175  | 6359   | 6543 | 6727  | 6911   | 7095   |       | 9   1665      |
| 59          | 7279            | 7464   | 7648 | 7832  | 8016  | 8200   | 8384 | 8568  | 8752   | 8936   |       |               |
| <b>2360</b> | • 9120          | 9304   | 9488 | 9672  | 9856  | • 040  | 0224 | 0408  | 0592   | 0776   | 183   | 1   184       |
| 61          | 373 0960        | 1144   | 1328 | 1512  | 1696  | 1879   | 2063 | 2247  | 2431   | 2615   |       | 2   368       |
| 62          | 2799            | 2983   | 3167 | 3350  | 3534  | 3718   | 3902 | 4086  | 4270   | 4453   |       | 3   552       |
| 63          | 4637            | 4821   | 5005 | 5189  | 5372  | 5556   | 5740 | 5924  | 6107   | 6291   |       | 4   736       |
| 64          | 6475            | 6658   | 6842 | 7026  | 7210  | 7393   | 7577 | 7761  | 7944   | 8128   |       | 5   920       |
| 65          | 8311            | 8495   | 8679 | 8862  | 9046  | 9230   | 9413 | 9597  | 9780   | 9964   |       | 6   1104      |
| 66          | 374 0147        | 0331   | 0515 | 0698  | 0882  | 1065   | 1249 | 1432  | 1616   | 1799   |       | 7   1288      |
| 67          | 1983            | 2166   | 2350 | 2533  | 2716  | 2900   | 3083 | 3267  | 3450   | 3634   |       | 8   1472      |
| 68          | 3817            | 4000   | 4184 | 4367  | 4551  | 4734   | 4917 | 5101  | 5284   | 5467   |       | 9   1656      |
| 69          | 5651            | 5834   | 6017 | 6201  | 6384  | 6567   | 6750 | 6934  | 7117   | 7300   |       |               |
| <b>2370</b> | 7483            | 7667   | 7850 | 8033  | 8216  | 8400   | 8583 | 8766  | 8949   | 9132   | 183   | 1   183       |
| 71          | • 9316          | 9499   | 9682 | 9865  | • 048 | 0231   | 0414 | 0598  | 0781   | 0964   |       | 2   366       |
| 72          | 375 1147        | 1330   | 1513 | 1696  | 1879  | 2062   | 2245 | 2428  | 2611   | 2794   |       | 3   549       |
| 73          | 2977            | 3160   | 3343 | 3526  | 3709  | 3892   | 4075 | 4258  | 4441   | 4624   |       | 4   732       |
| 74          | 4807            | 4990   | 5173 | 5356  | 5539  | 5722   | 5905 | 6088  | 6270   | 6453   |       | 5   915       |
| 75          | 6636            | 6819   | 7002 | 7185  | 7368  | 7550   | 7733 | 7916  | 8099   | 8282   |       | 6   1098      |
| 76          | • 8464          | 8647   | 8830 | 9013  | 9195  | 9378   | 9561 | 9744  | 9926   | • 109  |       | 7   1281      |
| 77          | 376 0292        | 0475   | 0657 | 0840  | 1023  | 1205   | 1388 | 1571  | 1753   | 1936   |       | 8   1464      |
| 78          | 2119            | 2301   | 2484 | 2666  | 2849  | 3032   | 3214 | 3397  | 3579   | 3762   |       | 9   1647      |
| 79          | 3944            | 4127   | 4310 | 4492  | 4675  | 4857   | 5040 | 5222  | 5405   | 5587   |       |               |



LOGARITHMS OF NUMBERS.

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| 82   | •   | 9418 | 9600 | 9782 | 9965 | •147 | 0329 | 0511 | 0694 | 0876 | 1058  | 3<br>549      |
| 83   | 377 | 1240 | 1423 | 1605 | 1787 | 1969 | 2152 | 2334 | 2516 | 2698 | 2880  | 4<br>732      |
| 84   |     | 3063 | 3245 | 3427 | 3609 | 3791 | 3973 | 4155 | 4338 | 4520 | 4702  | 5<br>915      |
| 85   |     | 4884 | 5066 | 5248 | 5430 | 5612 | 5794 | 5976 | 6158 | 6340 | 6522  | 6<br>1098     |
| 86   |     | 6704 | 6886 | 7068 | 7250 | 7432 | 7614 | 7796 | 7978 | 8160 | 8342  | 7<br>1281     |
| 87   | •   | 8524 | 8706 | 8888 | 9070 | 9252 | 9434 | 9616 | 9798 | 9979 | •161  | 8<br>1464     |
| 88   | 378 | 0343 | 0525 | 0707 | 0889 | 1071 | 1252 | 1434 | 1616 | 1798 | 1980  | 9<br>1647     |
| 89   |     | 2161 | 2343 | 2525 | 2707 | 2889 | 3070 | 3252 | 3434 | 3616 | 3797  |               |
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| 91   |     | 5796 | 5977 | 6159 | 6341 | 6522 | 6704 | 6885 | 7067 | 7249 | 7430  | 2<br>364      |
| 92   |     | 7612 | 7793 | 7975 | 8156 | 8338 | 8519 | 8701 | 8882 | 9064 | 9245  | 3<br>546      |
| 93   | •   | 9427 | 9608 | 9790 | 9971 | •153 | 0334 | 0516 | 0697 | 0879 | 1060  | 4<br>728      |
| 94   | 379 | 1241 | 1423 | 1604 | 1786 | 1967 | 2148 | 2330 | 2511 | 2692 | 2874  | 5<br>910      |
| 95   |     | 3055 | 3237 | 3418 | 3599 | 3780 | 3962 | 4143 | 4324 | 4506 | 4687  | 6<br>1092     |
| 96   |     | 4868 | 5049 | 5231 | 5412 | 5593 | 5774 | 5956 | 6137 | 6318 | 6499  | 7<br>1274     |
| 97   |     | 6680 | 6862 | 7043 | 7224 | 7405 | 7586 | 7767 | 7948 | 8130 | 8311  | 8<br>1456     |
| 98   | •   | 8492 | 8673 | 8854 | 9035 | 9216 | 9397 | 9578 | 9759 | 9940 | •121  | 9<br>1638     |
| 99   | 380 | 0302 | 0484 | 0665 | 0846 | 1027 | 1208 | 1389 | 1570 | 1750 | 1931  |               |
| 2400 |     | 2112 | 2293 | 2474 | 2655 | 2836 | 3017 | 3198 | 3379 | 3560 | 3741  | 1<br>181      |
| 01   |     | 3922 | 4102 | 4283 | 4464 | 4645 | 4826 | 5007 | 5188 | 5368 | 5549  | 2<br>362      |
| 02   |     | 5730 | 5911 | 6092 | 6272 | 6453 | 6634 | 6815 | 6995 | 7176 | 7357  | 3<br>543      |
| 03   |     | 7538 | 7718 | 7899 | 8080 | 8261 | 8441 | 8622 | 8803 | 8983 | 9164  | 4<br>724      |
| 04   | •   | 9345 | 9525 | 9706 | 9887 | •007 | 0248 | 0428 | 0609 | 0790 | 0970  | 5<br>905      |
| 05   | 381 | 1151 | 1331 | 1512 | 1693 | 1873 | 2054 | 2234 | 2415 | 2595 | 2776  | 6<br>1086     |
| 06   |     | 2956 | 3137 | 3317 | 3498 | 3678 | 3859 | 4039 | 4220 | 4400 | 4580  | 7<br>1267     |
| 07   |     | 4761 | 4941 | 5122 | 5302 | 5483 | 5663 | 5843 | 6024 | 6204 | 6384  | 8<br>1448     |
| 08   |     | 6565 | 6745 | 6926 | 7106 | 7286 | 7467 | 7647 | 7827 | 8007 | 8188  | 9<br>1629     |
| 09   |     | 8368 | 8548 | 8729 | 8909 | 9089 | 9269 | 9450 | 9630 | 9810 | 9990  |               |
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| 11   |     | 1972 | 2152 | 2332 | 2512 | 2693 | 2873 | 3053 | 3233 | 3413 | 3593  | 2<br>360      |
| 12   |     | 3773 | 3953 | 4133 | 4313 | 4493 | 4673 | 4853 | 5033 | 5213 | 5393  | 3<br>540      |
| 13   |     | 5573 | 5753 | 5933 | 6113 | 6293 | 6473 | 6653 | 6833 | 7013 | 7193  | 4<br>720      |
| 14   |     | 7373 | 7553 | 7732 | 7912 | 8092 | 8272 | 8452 | 8632 | 8812 | 8992  | 5<br>900      |
| 15   | •   | 9171 | 9351 | 9531 | 9711 | 9891 | •070 | 0250 | 0430 | 0610 | 0790  | 6<br>1080     |
| 16   | 383 | 0969 | 1149 | 1329 | 1509 | 1688 | 1868 | 2048 | 2227 | 2407 | 2587  | 7<br>1260     |
| 17   |     | 2767 | 2946 | 3126 | 3306 | 3485 | 3665 | 3844 | 4024 | 4204 | 4383  | 8<br>1440     |
| 18   |     | 4563 | 4743 | 4922 | 5102 | 5281 | 5461 | 5640 | 5820 | 6000 | 6179  | 9<br>1620     |
| 19   |     | 6359 | 6538 | 6718 | 6897 | 7077 | 7256 | 7436 | 7615 | 7795 | 7974  |               |
| 2420 |     | 8154 | 8333 | 8513 | 8692 | 8871 | 9051 | 9230 | 9410 | 9589 | 9769  | 1<br>179      |
| 21   | •   | 9948 | •127 | 0307 | 0486 | 0665 | 0845 | 1024 | 1203 | 1383 | 1562  | 2<br>358      |
| 22   | 384 | 1741 | 1921 | 2100 | 2279 | 2459 | 2638 | 2817 | 2996 | 3176 | 3355  | 3<br>537      |
| 23   |     | 3534 | 3713 | 3893 | 4072 | 4251 | 4430 | 4609 | 4789 | 4968 | 5147  | 4<br>716      |
| 24   |     | 5326 | 5505 | 5684 | 5864 | 6043 | 6222 | 6401 | 6580 | 6759 | 6938  | 5<br>895      |
| 25   |     | 7117 | 7297 | 7476 | 7655 | 7834 | 8013 | 8192 | 8371 | 8550 | 8729  | 6<br>1074     |
| 26   | •   | 8908 | 9087 | 9266 | 9445 | 9624 | 9803 | 9982 | •161 | 0340 | 0519  | 7<br>1253     |
| 27   | 385 | 0698 | 0877 | 1056 | 1235 | 1413 | 1592 | 1771 | 1950 | 2129 | 2308  | 8<br>1432     |
| 28   |     | 2487 | 2666 | 2845 | 3023 | 3202 | 3381 | 3560 | 3739 | 3918 | 4096  | 9<br>1611     |
| 29   |     | 4275 | 4454 | 4633 | 4812 | 4990 | 5169 | 5348 | 5527 | 5705 | 5884  |               |
| 2430 |     | 6063 | 6241 | 6420 | 6599 | 6778 | 6956 | 7135 | 7314 | 7492 | 7671  | 1<br>178      |
| 31   |     | 7850 | 8028 | 8207 | 8386 | 8564 | 8743 | 8921 | 9100 | 9279 | 9457  | 2<br>356      |
| 32   | •   | 9636 | 9814 | 9993 | •171 | 0350 | 0528 | 0707 | 0886 | 1064 | 1243  | 3<br>534      |
| 33   | 386 | 1421 | 1600 | 1778 | 1957 | 2135 | 2314 | 2492 | 2670 | 2849 | 3027  | 4<br>712      |
| 34   |     | 3206 | 3384 | 3563 | 3741 | 3919 | 4098 | 4276 | 4455 | 4633 | 4811  | 5<br>890      |
| 35   |     | 4990 | 5168 | 5346 | 5525 | 5703 | 5881 | 6060 | 6238 | 6416 | 6595  | 6<br>1068     |
| 36   |     | 6773 | 6951 | 7129 | 7308 | 7486 | 7664 | 7842 | 8021 | 8199 | 8377  | 7<br>1246     |
| 37   | •   | 8555 | 8733 | 8911 | 9090 | 9268 | 9446 | 9624 | 9803 | 9981 | •159  | 8<br>1424     |
| 38   | 387 | 0337 | 0515 | 0693 | 0871 | 1049 | 1228 | 1406 | 1584 | 1762 | 1940  | 9<br>1602     |
| 39   |     | 2118 | 2296 | 2474 | 2652 | 2830 | 3008 | 3186 | 3364 | 3542 | 3720  |               |
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| 2440 | 387    | 389  | 4076 | 4254 | 4432 | 4610 | 4788 | 4966 | 5144 | 5322 | 5500  | 178           | 178  |
| 41   | 5678   | 5856 | 6034 | 6212 | 6389 | 6567 | 6745 | 6923 | 7101 | 7279 |       | 2             | 356  |
| 42   | 7457   | 7634 | 7812 | 7990 | 8168 | 8346 | 8524 | 8701 | 8879 | 9057 |       | 3             | 534  |
| 43   | • 9235 | 9412 | 9590 | 9768 | 9946 | +123 | 0301 | 0479 | 0657 | 0834 |       | 4             | 712  |
| 44   | 388    | 1012 | 1190 | 1367 | 1545 | 1723 | 1900 | 2078 | 2256 | 2433 | 2611  | 5             | 890  |
| 45   | 2789   | 2966 | 3144 | 3321 | 3499 | 3677 | 3854 | 4032 | 4209 | 4387 |       | 6             | 1068 |
| 46   | 4565   | 4742 | 4920 | 5097 | 5275 | 5452 | 5630 | 5807 | 5985 | 6162 |       | 7             | 1246 |
| 47   | 6340   | 6517 | 6695 | 6872 | 7050 | 7227 | 7404 | 7582 | 7759 | 7937 |       | 8             | 1424 |
| 48   | 8114   | 8292 | 8469 | 8646 | 8824 | 9001 | 9178 | 9356 | 9533 | 9711 |       | 9             | 1602 |
| 49   | • 9888 | +065 | 0243 | 0420 | 0597 | 0774 | 0952 | 1129 | 1306 | 1484 |       |               |      |
| 2450 | 389    | 1661 | 1838 | 2015 | 2193 | 2370 | 2547 | 2724 | 2902 | 3079 | 3256  | 177           | 177  |
| 51   | 3433   | 3610 | 3787 | 3965 | 4142 | 4319 | 4496 | 4673 | 4850 | 5028 |       | 1             | 354  |
| 52   | 5205   | 5382 | 5559 | 5736 | 5913 | 6090 | 6267 | 6444 | 6621 | 6798 |       | 2             | 531  |
| 53   | 6975   | 7153 | 7330 | 7507 | 7684 | 7861 | 8038 | 8215 | 8392 | 8569 |       | 3             | 708  |
| 54   | • 8746 | 8923 | 9100 | 9276 | 9453 | 9630 | 9807 | 9984 | +161 | 0338 |       | 4             | 885  |
| 55   | 390    | 0515 | 0692 | 0869 | 1046 | 1223 | 1399 | 1576 | 1753 | 1930 | 2107  | 5             | 1062 |
| 56   | 2284   | 2460 | 2637 | 2814 | 2991 | 3168 | 3344 | 3521 | 3698 | 3875 |       | 6             | 1239 |
| 57   | 4052   | 4228 | 4405 | 4582 | 4759 | 4935 | 5112 | 5289 | 5465 | 5642 |       | 7             | 1416 |
| 58   | 5819   | 5995 | 6172 | 6349 | 6525 | 6702 | 6879 | 7055 | 7232 | 7409 |       | 8             | 1593 |
| 59   | 7585   | 7762 | 7939 | 8115 | 8292 | 8468 | 8645 | 8821 | 8998 | 9175 |       | 9             |      |
| 2460 | • 9351 | 9528 | 9704 | 9881 | +057 | 0234 | 0410 | 0587 | 0763 | 0940 |       | 1             | 176  |
| 61   | 391    | 1116 | 1293 | 1469 | 1646 | 1822 | 1998 | 2175 | 2351 | 2528 | 2704  | 176           | 352  |
| 62   | 2880   | 3057 | 3233 | 3410 | 3586 | 3762 | 3939 | 4115 | 4291 | 4468 |       | 2             | 528  |
| 63   | 4644   | 4820 | 4997 | 5173 | 5349 | 5526 | 5702 | 5878 | 6055 | 6231 |       | 3             | 704  |
| 64   | 6407   | 6583 | 6760 | 6936 | 7112 | 7288 | 7464 | 7641 | 7817 | 7993 |       | 4             | 880  |
| 65   | 8169   | 8345 | 8522 | 8698 | 8874 | 9050 | 9226 | 9402 | 9578 | 9755 |       | 5             | 1056 |
| 66   | • 9931 | +107 | 0283 | 0459 | 0635 | 0811 | 0987 | 1163 | 1339 | 1515 |       | 6             | 1232 |
| 67   | 392    | 1691 | 1868 | 2044 | 2220 | 2396 | 2572 | 2748 | 2924 | 3100 | 3276  | 7             | 1408 |
| 68   | 3452   | 3628 | 3803 | 3979 | 4155 | 4331 | 4507 | 4683 | 4859 | 5035 |       | 8             | 1584 |
| 69   | 5211   | 5387 | 5563 | 5739 | 5914 | 6090 | 6266 | 6442 | 6618 | 6794 |       | 9             |      |
| 2470 | 6970   | 7145 | 7321 | 7497 | 7673 | 7849 | 8024 | 8200 | 8376 | 8552 |       | 1             | 175  |
| 71   | • 8727 | 8903 | 9079 | 9255 | 9430 | 9606 | 9782 | 9958 | +133 | 0309 |       | 2             | 350  |
| 72   | 393    | 0485 | 0660 | 0836 | 1012 | 1187 | 1363 | 1539 | 1714 | 1890 | 2066  | 3             | 525  |
| 73   | 2241   | 2417 | 2592 | 2768 | 2944 | 3119 | 3295 | 3470 | 3646 | 3821 |       | 4             | 700  |
| 74   | 3997   | 4172 | 4348 | 4524 | 4699 | 4875 | 5050 | 5226 | 5401 | 5577 |       | 5             | 875  |
| 75   | 5752   | 5928 | 6103 | 6278 | 6454 | 6629 | 6805 | 6980 | 7156 | 7331 |       | 6             | 1050 |
| 76   | 7506   | 7682 | 7857 | 8033 | 8208 | 8383 | 8559 | 8734 | 8909 | 9085 |       | 7             | 1225 |
| 77   | • 9260 | 9435 | 9611 | 9786 | 9961 | +137 | 0312 | 0487 | 0662 | 0838 |       | 8             | 1400 |
| 78   | 394    | 1013 | 1188 | 1364 | 1539 | 1714 | 1889 | 2064 | 2240 | 2415 | 2590  | 9             | 1575 |
| 79   | 2765   | 2940 | 3116 | 3291 | 3466 | 3641 | 3816 | 3991 | 4167 | 4342 |       |               |      |
| 2480 | 4517   | 4692 | 4867 | 5042 | 5217 | 5392 | 5567 | 5742 | 5918 | 6093 |       | 1             | 174  |
| 81   | 6268   | 6443 | 6618 | 6793 | 6968 | 7143 | 7318 | 7493 | 7668 | 7843 |       | 2             | 348  |
| 82   | 8018   | 8193 | 8368 | 8543 | 8718 | 8893 | 9068 | 9242 | 9417 | 9592 |       | 3             | 522  |
| 83   | • 9767 | 9942 | +117 | 0292 | 0467 | 0642 | 0817 | 0991 | 1166 | 1341 |       | 4             | 696  |
| 84   | 395    | 1516 | 1691 | 1866 | 2040 | 2215 | 2390 | 2565 | 2740 | 2914 | 3089  | 5             | 870  |
| 85   | 3264   | 3439 | 3613 | 3788 | 3963 | 4138 | 4312 | 4487 | 4662 | 4837 |       | 6             | 1044 |
| 86   | 5011   | 5186 | 5361 | 5535 | 5710 | 5885 | 6059 | 6234 | 6409 | 6583 |       | 7             | 1218 |
| 87   | 6758   | 6932 | 7107 | 7282 | 7456 | 7631 | 7805 | 7980 | 8155 | 8329 |       | 8             | 1392 |
| 88   | • 8504 | 8678 | 8853 | 9027 | 9202 | 9376 | 9551 | 9725 | 9900 | +074 |       | 9             | 1566 |
| 89   | 396    | 0249 | 0423 | 0598 | 0772 | 0947 | 1121 | 1296 | 1470 | 1645 | 1819  |               |      |
| 2490 | 1993   | 2168 | 2342 | 2517 | 2691 | 2865 | 3040 | 3214 | 3389 | 3563 |       | 1             | 174  |
| 91   | 3737   | 3912 | 4086 | 4260 | 4435 | 4609 | 4783 | 4958 | 5132 | 5306 |       | 2             | 348  |
| 92   | 5480   | 5655 | 5829 | 6003 | 6177 | 6352 | 6526 | 6700 | 6874 | 7049 |       | 3             | 522  |
| 93   | 7223   | 7397 | 7571 | 7745 | 7920 | 8094 | 8268 | 8442 | 8616 | 8790 |       | 4             | 696  |
| 94   | • 8964 | 9139 | 9313 | 9487 | 9661 | 9835 | +009 | 1183 | 0357 | 0531 |       | 5             | 870  |
| 95   | 397    | 0705 | 0880 | 1054 | 1228 | 1402 | 1576 | 1750 | 1924 | 2098 | 2272  | 174           | 1044 |
| 96   | 2446   | 2620 | 2794 | 2968 | 3142 | 3316 | 3490 | 3664 | 3838 | 4011 |       | 6             | 1218 |
| 97   | 4185   | 4359 | 4533 | 4707 | 4881 | 5055 | 5229 | 5403 | 5577 | 5750 |       | 7             | 1392 |
| 98   | 5924   | 6098 | 6272 | 6446 | 6620 | 6794 | 6967 | 7141 | 7315 | 7489 |       | 8             | 1566 |
| 99   | 7663   | 7836 | 8010 | 8184 | 8358 | 8531 | 8705 | 8879 | 9053 | 9226 |       | 9             |      |
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| 02    |        | 2873 | 3047  | 3220  | 3394  | 3567  | 3741  | 3914  | 4088  | 4261  | 4435  | 3 522         |
| 03    |        | 4608 | 4782  | 4956  | 5129  | 5302  | 5476  | 5649  | 5823  | 5996  | 6170  | 4 696         |
| 04    |        | 6343 | 6517  | 6690  | 6864  | 7037  | 7210  | 7384  | 7557  | 7731  | 7904  | 5 870         |
| 05    |        | 8077 | 8251  | 8424  | 8597  | 8771  | 8944  | 9117  | 9291  | 9464  | 9637  | 6 1044        |
| 06    | • 9811 | 9984 | • 157 | 0331  | 0504  | 0677  | 0850  | 1024  | 1197  | 1370  |       | 7 1218        |
| 07    | 399    | 1543 | 1717  | 1890  | 2063  | 2236  | 2409  | 2583  | 2756  | 2929  | 3102  | 8 1392        |
| 08    |        | 3275 | 3448  | 3622  | 3795  | 3968  | 4141  | 4314  | 4487  | 4660  | 4834  | 9 1566        |
| 09    |        | 5007 | 5180  | 5353  | 5526  | 5699  | 5872  | 6045  | 6218  | 6391  | 6564  |               |
| 25 10 |        | 6737 | 6910  | 7083  | 7256  | 7429  | 7602  | 7775  | 7948  | 8121  | 8294  | 173 1 173     |
| 11    | • 8467 | 8640 | 8813  | 8986  | 9159  | 9332  | 9505  | 9678  | 9851  | • 023 |       | 2 346         |
| 12    | 400    | 0196 | 0369  | 0542  | 0715  | 0888  | 1061  | 1234  | 1406  | 1579  | 1752  | 3 519         |
| 13    |        | 1925 | 2098  | 2271  | 2443  | 2616  | 2789  | 2962  | 3134  | 3307  | 3480  | 4 692         |
| 14    |        | 3653 | 3825  | 3998  | 4171  | 4344  | 4516  | 4689  | 4862  | 5035  | 5207  | 5 865         |
| 15    |        | 5380 | 5553  | 5725  | 5898  | 6071  | 6243  | 6416  | 6588  | 6761  | 6934  | 6 1038        |
| 16    |        | 7106 | 7279  | 7452  | 7624  | 7797  | 7969  | 8142  | 8314  | 8487  | 8660  | 7 1211        |
| 17    | • 8832 | 9005 | 9177  | 9350  | 9522  | 9695  | 9867  | • 040 | 0212  | 0385  |       | 8 1384        |
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| 19    |        | 2282 | 2454  | 2626  | 2799  | 2971  | 3144  | 3316  | 3488  | 3661  | 3833  |               |
| 25 20 |        | 4005 | 4178  | 4350  | 4522  | 4695  | 4867  | 5039  | 5212  | 5384  | 5556  | 172 1 172     |
| 21    |        | 5728 | 5901  | 6073  | 6245  | 6417  | 6590  | 6762  | 6934  | 7106  | 7279  | 2 344         |
| 22    |        | 7451 | 7623  | 7795  | 7967  | 8140  | 8312  | 8484  | 8656  | 8828  | 9000  | 3 516         |
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| 26    |        | 4333 | 4505  | 4677  | 4849  | 5021  | 5193  | 5365  | 5537  | 5709  | 5881  | 7 1204        |
| 27    |        | 6052 | 6224  | 6396  | 6568  | 6740  | 6912  | 7083  | 7255  | 7427  | 7599  | 8 1376        |
| 28    |        | 7771 | 7943  | 8114  | 8286  | 8458  | 8630  | 8801  | 8973  | 9145  | 9317  | 9 1548        |
| 29    | • 9488 | 9660 | 9832  | • 003 | 0175  | 0347  | 0519  | 0690  | 0862  | 1034  |       |               |
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| 33    |        | 6352 | 6523  | 6695  | 6866  | 7038  | 7209  | 7381  | 7552  | 7723  | 7895  | 4 684         |
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| 37    |        | 3205 | 3376  | 3547  | 3718  | 3889  | 4061  | 4232  | 4403  | 4574  | 4745  | 8 1368        |
| 38    |        | 4916 | 5087  | 5258  | 5429  | 5601  | 5772  | 5943  | 6114  | 6285  | 6456  | 9 1539        |
| 39    |        | 6627 | 6798  | 6969  | 7140  | 7311  | 7482  | 7653  | 7824  | 7995  | 8166  |               |
| 25 40 |        | 8337 | 8508  | 8679  | 8850  | 9021  | 9192  | 9363  | 9534  | 9705  | 9876  | 171 1 170     |
| 41    | 405    | 0047 | 0218  | 0388  | 0559  | 0730  | 0901  | 1072  | 1243  | 1414  | 1585  | 2 340         |
| 42    |        | 1755 | 1926  | 2097  | 2268  | 2439  | 2610  | 2780  | 2951  | 3122  | 3293  | 3 510         |
| 43    |        | 3464 | 3634  | 3805  | 3976  | 4147  | 4317  | 4488  | 4659  | 4830  | 5000  | 4 680         |
| 44    |        | 5171 | 5342  | 5512  | 5683  | 5854  | 6025  | 6195  | 6366  | 6537  | 6707  | 5 850         |
| 45    |        | 6878 | 7049  | 7219  | 7390  | 7560  | 7731  | 7902  | 8072  | 8243  | 8413  | 6 1020        |
| 46    | • 8584 | 8755 | 8925  | 9096  | 9266  | 9437  | 9607  | 9778  | 9948  | • 119 |       | 7 1190        |
| 47    | 406    | 0289 | 0460  | 0630  | 0801  | 0971  | 1142  | 1312  | 1483  | 1653  | 1824  | 8 1360        |
| 48    |        | 1994 | 2165  | 2335  | 2506  | 2676  | 2846  | 3017  | 3187  | 3358  | 3528  | 9 1530        |
| 49    |        | 3698 | 3869  | 4039  | 4209  | 4380  | 4550  | 4721  | 4891  | 5061  | 5231  |               |
| 25 50 |        | 5402 | 5572  | 5742  | 5913  | 6083  | 6253  | 6424  | 6594  | 6764  | 6934  | 170 1 169     |
| 51    |        | 7105 | 7275  | 7445  | 7615  | 7786  | 7956  | 8126  | 8296  | 8466  | 8637  | 2 338         |
| 52    | • 8807 | 8977 | 9147  | 9317  | 9487  | 9658  | 9828  | 9998  | • 168 | 0338  |       | 3 507         |
| 53    | 407    | 0508 | 0678  | 0848  | 1018  | 1189  | 1359  | 1529  | 1699  | 1869  | 2039  | 4 676         |
| 54    |        | 2209 | 2379  | 2549  | 2719  | 2889  | 3059  | 3229  | 3399  | 3569  | 3739  | 5 845         |
| 55    |        | 3909 | 4079  | 4249  | 4419  | 4589  | 4759  | 4929  | 5099  | 5269  | 5439  | 6 1015        |
| 56    |        | 5608 | 5778  | 5948  | 6118  | 6288  | 6458  | 6628  | 6798  | 6968  | 7137  | 7 1183        |
| 57    |        | 7307 | 7477  | 7647  | 7817  | 7987  | 8156  | 8326  | 8496  | 8666  | 8836  | 8 1352        |
| 58    | • 9005 | 9175 | 9345  | 9515  | 9684  | 9854  | • 024 | 0194  | 0363  | 0533  |       | 9 1521        |
| 59    | 408    | 0703 | 0873  | 1043  | 1212  | 1382  | 1551  | 1721  | 1891  | 2060  | 2230  |               |

| Num. | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |        |
|------|------|------|------|------|------|------|------|------|------|------|-------|---------------|--------|
| 2440 | 387  | 3898 | 4076 | 4254 | 4432 | 4610 | 4788 | 4966 | 5144 | 5322 | 5500  | 178           | 1 178  |
| 41   |      | 5678 | 5856 | 6034 | 6212 | 6389 | 6567 | 6745 | 6923 | 7101 | 7279  | 2             | 2 356  |
| 42   |      | 7457 | 7634 | 7812 | 7990 | 8168 | 8346 | 8524 | 8701 | 8879 | 9057  | 3             | 3 534  |
| 43   | •    | 9235 | 9412 | 9590 | 9768 | 9946 | +123 | 0301 | 0479 | 0657 | 0834  | 4             | 4 712  |
| 44   | 388  | 1012 | 1190 | 1367 | 1545 | 1723 | 1900 | 2078 | 2256 | 2433 | 2611  | 5             | 5 890  |
| 45   |      | 2789 | 2966 | 3144 | 3321 | 3499 | 3677 | 3854 | 4032 | 4209 | 4387  | 6             | 6 1068 |
| 46   |      | 4565 | 4742 | 4920 | 5097 | 5275 | 5452 | 5630 | 5807 | 5985 | 6162  | 7             | 7 1246 |
| 47   |      | 6340 | 6517 | 6695 | 6872 | 7050 | 7227 | 7404 | 7582 | 7759 | 7937  | 8             | 8 1424 |
| 48   |      | 8114 | 8292 | 8469 | 8646 | 8824 | 9001 | 9178 | 9356 | 9533 | 9711  | 9             | 9 1602 |
| 49   | •    | 9888 | •065 | 0243 | 0420 | 0597 | 0774 | 0952 | 1129 | 1306 | 1484  |               |        |
| 2450 | 389  | 1661 | 1838 | 2015 | 2193 | 2370 | 2547 | 2724 | 2902 | 3079 | 3256  |               |        |
| 51   |      | 3433 | 3610 | 3787 | 3965 | 4142 | 4319 | 4496 | 4673 | 4850 | 5028  |               |        |
| 52   |      | 5205 | 5382 | 5559 | 5736 | 5913 | 6090 | 6267 | 6444 | 6621 | 6798  |               |        |
| 53   |      | 6975 | 7152 | 7330 | 7507 | 7684 | 7861 | 8038 | 8215 | 8392 | 8569  | 177           | 1 177  |
| 54   | •    | 8746 | 8923 | 9100 | 9276 | 9453 | 9630 | 9807 | 9984 | +161 | 0338  | 2             | 2 354  |
| 55   | 390  | 0515 | 0692 | 0869 | 1046 | 1223 | 1399 | 1576 | 1753 | 1930 | 2107  | 3             | 3 531  |
| 56   |      | 2284 | 2460 | 2637 | 2814 | 2991 | 3168 | 3344 | 3521 | 3698 | 3875  | 4             | 4 708  |
| 57   |      | 4052 | 4228 | 4405 | 4582 | 4759 | 4935 | 5112 | 5289 | 5465 | 5642  | 5             | 5 885  |
| 58   |      | 5819 | 5995 | 6172 | 6349 | 6525 | 6702 | 6879 | 7055 | 7232 | 7409  | 6             | 6 1062 |
| 59   |      | 7585 | 7762 | 7939 | 8115 | 8292 | 8468 | 8645 | 8821 | 8998 | 9175  | 7             | 7 1239 |
| 2460 | •    | 9351 | 9528 | 9704 | 9881 | +057 | 0234 | 0410 | 0587 | 0763 | 0940  |               |        |
| 61   | 391  | 1116 | 1293 | 1469 | 1646 | 1822 | 1998 | 2175 | 2351 | 2528 | 2704  |               |        |
| 62   |      | 2880 | 3057 | 3233 | 3410 | 3586 | 3762 | 3939 | 4115 | 4291 | 4468  |               |        |
| 63   |      | 4644 | 4820 | 4997 | 5173 | 5349 | 5526 | 5702 | 5878 | 6055 | 6231  |               |        |
| 64   |      | 6407 | 6583 | 6760 | 6936 | 7112 | 7288 | 7464 | 7641 | 7817 | 7993  |               |        |
| 65   |      | 8169 | 8345 | 8522 | 8698 | 8874 | 9050 | 9226 | 9402 | 9578 | 9755  | 176           | 1 176  |
| 66   | •    | 9931 | +107 | 0283 | 0459 | 0635 | 0811 | 0987 | 1163 | 1339 | 1515  | 2             | 2 352  |
| 67   | 392  | 1691 | 1868 | 2044 | 2220 | 2396 | 2572 | 2748 | 2924 | 3100 | 3276  | 3             | 3 528  |
| 68   |      | 3452 | 3628 | 3803 | 3979 | 4155 | 4331 | 4507 | 4683 | 4859 | 5035  | 4             | 4 704  |
| 69   |      | 5211 | 5387 | 5563 | 5739 | 5914 | 6090 | 6266 | 6442 | 6618 | 6794  | 5             | 5 880  |
| 2470 | 6970 | 7145 | 7321 | 7497 | 7673 |      | 7849 | 8024 | 8200 | 8376 | 8552  |               |        |
| 71   | •    | 8727 | 8903 | 9079 | 9255 | 9430 | 9606 | 9782 | 9958 | +133 | 0309  |               |        |
| 72   | 393  | 0485 | 0660 | 0836 | 1012 | 1187 | 1363 | 1539 | 1714 | 1890 | 2066  |               |        |
| 73   |      | 2241 | 2417 | 2592 | 2768 | 2944 | 3119 | 3295 | 3470 | 3646 | 3821  |               |        |
| 74   |      | 3997 | 4172 | 4348 | 4524 | 4699 | 4875 | 5050 | 5226 | 5401 | 5577  |               |        |
| 75   |      | 5752 | 5927 | 6103 | 6278 | 6454 | 6629 | 6805 | 6980 | 7156 | 7331  |               |        |
| 76   |      | 7506 | 7682 | 7857 | 8033 | 8208 | 8383 | 8559 | 8734 | 8909 | 9085  |               |        |
| 77   | •    | 9260 | 9435 | 9611 | 9786 | 9961 | +137 | 0312 | 0487 | 0662 | 0838  |               |        |
| 78   | 394  | 1013 | 1188 | 1364 | 1539 | 1714 | 1889 | 2064 | 2240 | 2415 | 2590  |               |        |
| 79   |      | 2765 | 2940 | 3116 | 3291 | 3466 | 3641 | 3816 | 3991 | 4167 | 4342  |               |        |
| 2480 | 4517 | 4692 | 4867 | 5042 | 5217 |      | 5392 | 5567 | 5742 | 5918 | 6093  |               |        |
| 81   |      | 6268 | 6443 | 6618 | 6793 | 6968 | 7143 | 7318 | 7493 | 7668 | 7843  | 175           | 1 175  |
| 82   |      | 8018 | 8193 | 8368 | 8543 | 8718 | 8893 | 9068 | 9243 | 9417 | 9592  | 2             | 2 348  |
| 83   | •    | 9767 | 9942 | +117 | 0292 | 0467 | 0642 | 0817 | 0991 | 1166 | 1341  | 3             | 3 522  |
| 84   | 395  | 1516 | 1691 | 1866 | 2040 | 2215 | 2390 | 2565 | 2740 | 2914 | 3089  | 4             | 4 700  |
| 85   |      | 3264 | 3439 | 3613 | 3788 | 3963 | 4138 | 4312 | 4487 | 4662 | 4837  |               |        |
| 86   |      | 5011 | 5186 | 5361 | 5535 | 5710 | 5885 | 6059 | 6234 | 6409 | 6583  |               |        |
| 87   |      | 6758 | 6933 | 7107 | 7282 | 7456 | 7631 | 7805 | 7980 | 8155 | 8329  |               |        |
| 88   | •    | 8504 | 8678 | 8853 | 9027 | 9202 | 9376 | 9551 | 9725 | 9900 | +074  |               |        |
| 89   | 396  | 0249 | 0423 | 0598 | 0772 | 0947 | 1121 | 1296 | 1470 | 1645 | 1819  |               |        |
| 2490 | 1993 | 2168 | 2342 | 2517 | 2691 |      | 2865 | 3040 | 3214 | 3389 | 3563  |               |        |
| 91   |      | 3737 | 3912 | 4086 | 4260 | 4435 | 4609 | 4783 | 4958 | 5132 | 5306  |               |        |
| 92   |      | 5480 | 5655 | 5829 | 6003 | 6177 | 6352 | 6526 | 6700 | 6874 | 7049  |               |        |
| 93   |      | 7223 | 7397 | 7571 | 7745 | 7920 | 8094 | 8268 | 8442 | 8616 | 8790  |               |        |
| 94   | •    | 8964 | 9139 | 9313 | 9487 | 9661 | 9835 | +009 | 0183 | 0357 | 0531  |               |        |
| 95   | 397  | 0705 | 0880 | 1054 | 1228 | 1402 | 1576 | 1750 | 1924 | 2098 | 2272  |               |        |
| 96   |      | 2446 | 2620 | 2794 | 2968 | 3142 | 3316 | 3490 | 3664 | 3838 | 4011  | 174           | 1 174  |
| 97   |      | 4185 | 4359 | 4533 | 4707 | 4881 | 5055 | 5229 | 5403 | 5577 | 5750  | 2             | 2 348  |
| 98   |      | 5924 | 6098 | 6272 | 6446 | 6620 | 6794 | 6967 | 7141 | 7315 | 7489  | 3             | 3 522  |
| 99   |      | 7663 | 7836 | 8010 | 8184 | 8358 | 8531 | 8705 | 8879 | 9053 | 9226  | 4             | 4 696  |
|      |      |      |      |      |      |      |      |      |      |      |       | 5             | 5 870  |
|      |      |      |      |      |      |      |      |      |      |      |       | 6             | 6 1044 |
|      |      |      |      |      |      |      |      |      |      |      |       | 7             | 7 1218 |
|      |      |      |      |      |      |      |      |      |      |      |       | 8             | 8 1392 |
|      |      |      |      |      |      |      |      |      |      |      |       | 9             | 9 1566 |
| Num. | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |        |

LOGARITHMS OF NUMBERS.

| Num.         | 0        | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.                                                                     |                                                                                   |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <b>2500</b>  | • 9400   | 9574     | 9748     | 9921     | +095     | 0269     | 0442     | 0616     | 0790     | 0963     | 173          | 1 174<br>2 348<br>3 522<br>4 696<br>5 870<br>6 1044<br>7 1218<br>8 1392<br>9 1566 |                                                                                   |
| 01           | 398      | 1137     | 1311     | 1484     | 1658     | 1831     | 2005     | 2179     | 2352     | 2526     |              |                                                                                   |                                                                                   |
| 02           |          | 2873     | 3047     | 3220     | 3394     | 3567     | 3741     | 3914     | 4088     | 4261     |              |                                                                                   |                                                                                   |
| 03           |          | 4608     | 4782     | 4956     | 5129     | 5302     | 5476     | 5649     | 5823     | 5996     |              |                                                                                   |                                                                                   |
| 04           |          | 6343     | 6517     | 6690     | 6864     | 7037     | 7210     | 7384     | 7557     | 7731     |              |                                                                                   |                                                                                   |
| 05           |          | 8077     | 8251     | 8424     | 8597     | 8771     | 8944     | 9117     | 9291     | 9464     |              |                                                                                   |                                                                                   |
| 06           | • 9811   | 9984     | +157     | 0331     | 0504     | 0677     | 0850     | 1024     | 1197     | 1370     |              |                                                                                   |                                                                                   |
| 07           | 399      | 1543     | 1717     | 1890     | 2063     | 2236     | 2409     | 2583     | 2756     | 2929     |              |                                                                                   |                                                                                   |
| 08           |          | 3275     | 3448     | 3622     | 3795     | 3968     | 4141     | 4314     | 4487     | 4660     |              |                                                                                   |                                                                                   |
| 09           |          | 5007     | 5180     | 5353     | 5526     | 5699     | 5872     | 6045     | 6218     | 6391     |              |                                                                                   |                                                                                   |
| <b>25 10</b> |          | 6737     | 6910     | 7083     | 7256     | 7429     | 7602     | 7775     | 7948     | 8121     |              | 173                                                                               | 1 173<br>2 346<br>3 519<br>4 692<br>5 865<br>6 1038<br>7 1211<br>8 1384<br>9 1557 |
| 11           | • 8467   | 8640     | 8813     | 8986     | 9159     | 9332     | 9505     | 9678     | 9851     | +023     |              |                                                                                   |                                                                                   |
| 12           | 400      | 0196     | 0369     | 0542     | 0715     | 0888     | 1061     | 1234     | 1406     | 1579     |              |                                                                                   |                                                                                   |
| 13           |          | 1925     | 2098     | 2271     | 2443     | 2616     | 2789     | 2962     | 3134     | 3307     |              |                                                                                   |                                                                                   |
| 14           |          | 3653     | 3825     | 3998     | 4171     | 4344     | 4516     | 4689     | 4862     | 5035     |              |                                                                                   |                                                                                   |
| 15           |          | 5380     | 5553     | 5725     | 5898     | 6071     | 6243     | 6416     | 6588     | 6761     |              |                                                                                   |                                                                                   |
| 16           |          | 7106     | 7279     | 7452     | 7624     | 7797     | 7969     | 8142     | 8314     | 8487     |              |                                                                                   |                                                                                   |
| 17           | • 8832   | 9005     | 9177     | 9350     | 9522     | 9695     | 9867     | +040     | 0212     | 0385     |              |                                                                                   |                                                                                   |
| 18           | 401      | 0557     | 0730     | 0902     | 1075     | 1247     | 1420     | 1592     | 1764     | 1937     |              |                                                                                   |                                                                                   |
| 19           |          | 2282     | 2454     | 2626     | 2799     | 2971     | 3144     | 3316     | 3488     | 3661     |              |                                                                                   |                                                                                   |
| <b>25 20</b> |          | 4005     | 4178     | 4350     | 4522     | 4695     | 4867     | 5039     | 5212     | 5384     | 172          |                                                                                   | 1 172<br>2 344<br>3 516<br>4 688<br>5 860<br>6 1032<br>7 1204<br>8 1376<br>9 1548 |
| 21           |          | 5728     | 5901     | 6073     | 6245     | 6417     | 6590     | 6762     | 6934     | 7106     |              |                                                                                   |                                                                                   |
| 22           |          | 7451     | 7623     | 7795     | 7967     | 8140     | 8312     | 8484     | 8656     | 8828     |              |                                                                                   |                                                                                   |
| 23           | • 9173   | 9345     | 9517     | 9689     | 9861     | +033     | 0205     | 0377     | 0549     | 0721     |              |                                                                                   |                                                                                   |
| 24           | 402      | 0894     | 1066     | 1238     | 1410     | 1582     | 1754     | 1926     | 2098     | 2270     |              |                                                                                   |                                                                                   |
| 25           |          | 2614     | 2786     | 2958     | 3130     | 3302     | 3474     | 3646     | 3818     | 3990     |              |                                                                                   |                                                                                   |
| 26           |          | 4333     | 4505     | 4677     | 4849     | 5021     | 5193     | 5365     | 5537     | 5709     |              |                                                                                   |                                                                                   |
| 27           |          | 6052     | 6224     | 6396     | 6568     | 6740     | 6912     | 7083     | 7255     | 7427     |              |                                                                                   |                                                                                   |
| 28           |          | 7771     | 7942     | 8114     | 8286     | 8458     | 8630     | 8801     | 8973     | 9145     |              |                                                                                   |                                                                                   |
| 29           | • 9488   | 9660     | 9832     | +003     | 0175     | 0347     | 0519     | 0690     | 0862     | 1034     |              |                                                                                   |                                                                                   |
| <b>25 30</b> | 403      | 1205     | 1377     | 1549     | 1720     | 1892     | 2063     | 2235     | 2407     | 2578     |              | 171                                                                               | 1 171<br>2 342<br>3 513<br>4 684<br>5 855<br>6 1026<br>7 1197<br>8 1368<br>9 1539 |
| 31           |          | 2921     | 3093     | 3265     | 3436     | 3608     | 3779     | 3951     | 4122     | 4294     |              |                                                                                   |                                                                                   |
| 32           |          | 4637     | 4809     | 4980     | 5152     | 5323     | 5495     | 5666     | 5838     | 6009     |              |                                                                                   |                                                                                   |
| 33           |          | 6352     | 6523     | 6695     | 6866     | 7038     | 7209     | 7381     | 7552     | 7723     |              |                                                                                   |                                                                                   |
| 34           |          | 8066     | 8237     | 8409     | 8580     | 8752     | 8923     | 9094     | 9266     | 9437     |              |                                                                                   |                                                                                   |
| 35           | • 9780   | 9951     | +122     | 0294     | 0465     | 0636     | 0807     | 0979     | 1150     | 1321     |              |                                                                                   |                                                                                   |
| 36           | 404      | 1492     | 1664     | 1835     | 2006     | 2177     | 2349     | 2520     | 2691     | 2862     |              |                                                                                   |                                                                                   |
| 37           |          | 3205     | 3376     | 3547     | 3718     | 3889     | 4061     | 4232     | 4403     | 4574     |              |                                                                                   |                                                                                   |
| 38           |          | 4916     | 5087     | 5258     | 5429     | 5601     | 5772     | 5943     | 6114     | 6285     |              |                                                                                   |                                                                                   |
| 39           |          | 6627     | 6798     | 6969     | 7140     | 7311     | 7482     | 7653     | 7824     | 7995     |              |                                                                                   |                                                                                   |
| <b>25 40</b> |          | 8337     | 8508     | 8679     | 8850     | 9021     | 9192     | 9363     | 9534     | 9705     | 170          |                                                                                   | 1 170<br>2 340<br>3 510<br>4 680<br>5 850<br>6 1020<br>7 1190<br>8 1360<br>9 1530 |
| 41           | 405      | 0047     | 0218     | 0388     | 0559     | 0730     | 0901     | 1072     | 1243     | 1414     |              |                                                                                   |                                                                                   |
| 42           |          | 1755     | 1926     | 2097     | 2268     | 2439     | 2610     | 2780     | 2951     | 3122     |              |                                                                                   |                                                                                   |
| 43           |          | 3464     | 3634     | 3805     | 3976     | 4147     | 4317     | 4488     | 4659     | 4830     |              |                                                                                   |                                                                                   |
| 44           |          | 5171     | 5342     | 5512     | 5683     | 5854     | 6025     | 6195     | 6366     | 6537     |              |                                                                                   |                                                                                   |
| 45           |          | 6878     | 7049     | 7219     | 7390     | 7560     | 7731     | 7902     | 8072     | 8243     |              |                                                                                   |                                                                                   |
| 46           | • 8584   | 8755     | 8925     | 9096     | 9266     | 9437     | 9607     | 9778     | 9948     | +119     |              |                                                                                   |                                                                                   |
| 47           | 406      | 0289     | 0460     | 0630     | 0801     | 0971     | 1142     | 1312     | 1483     | 1653     |              |                                                                                   |                                                                                   |
| 48           |          | 1994     | 2165     | 2335     | 2506     | 2676     | 2846     | 3017     | 3187     | 3358     |              |                                                                                   |                                                                                   |
| 49           |          | 3698     | 3869     | 4039     | 4209     | 4380     | 4550     | 4721     | 4891     | 5061     |              |                                                                                   |                                                                                   |
| <b>25 50</b> |          | 5402     | 5572     | 5742     | 5913     | 6083     | 6253     | 6424     | 6594     | 6764     |              | 170                                                                               | 1 169<br>2 338<br>3 507<br>4 676<br>5 845<br>6 1014<br>7 1183<br>8 1352<br>9 1521 |
| 51           |          | 7105     | 7275     | 7445     | 7615     | 7786     | 7956     | 8126     | 8296     | 8466     |              |                                                                                   |                                                                                   |
| 52           | • 8807   | 8977     | 9147     | 9317     | 9487     | 9658     | 9828     | 9998     | +168     | 0338     |              |                                                                                   |                                                                                   |
| 53           | 407      | 0508     | 0678     | 0848     | 1018     | 1189     | 1359     | 1529     | 1699     | 1869     |              |                                                                                   |                                                                                   |
| 54           |          | 2209     | 2379     | 2549     | 2719     | 2889     | 3059     | 3229     | 3399     | 3569     |              |                                                                                   |                                                                                   |
| 55           |          | 3909     | 4079     | 4249     | 4419     | 4589     | 4759     | 4929     | 5099     | 5269     |              |                                                                                   |                                                                                   |
| 56           |          | 5608     | 5778     | 5948     | 6118     | 6288     | 6458     | 6628     | 6798     | 6968     |              |                                                                                   |                                                                                   |
| 57           |          | 7307     | 7477     | 7647     | 7817     | 7987     | 8156     | 8326     | 8496     | 8666     |              |                                                                                   |                                                                                   |
| 58           | • 9005   | 9175     | 9345     | 9515     | 9684     | 9854     | +024     | 0194     | 0363     | 0533     |              |                                                                                   |                                                                                   |
| 59           | 408      | 0703     | 0873     | 1043     | 1212     | 1382     | 1551     | 1721     | 1891     | 2060     |              |                                                                                   |                                                                                   |
| <b>Num.</b>  | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> |                                                                                   | <b>Diff. &amp; Mult.</b>                                                          |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>2500</b> | <b>408</b> | 2400 | 2569 | 2739 | 2909 | 3078 | 3248 | 3417 | 3587 | 3757 | 3926  |               |
| 61          |            | 4096 | 4265 | 4435 | 4604 | 4774 | 4944 | 5113 | 5283 | 5452 | 5622  | 1<br>2        |
| 62          |            | 5791 | 5961 | 6131 | 6300 | 6469 | 6639 | 6808 | 6978 | 7147 | 7317  | 3             |
| 63          |            | 7486 | 7656 | 7825 | 7994 | 8164 | 8333 | 8503 | 8672 | 8841 | 9011  | 4             |
| 64          | •          | 9180 | 9350 | 9519 | 9688 | 9858 | •027 | 0196 | 0366 | 0535 | 0704  | 5             |
| 65          | 409        | 0874 | 1043 | 1212 | 1382 | 1551 | 1720 | 1889 | 2059 | 2228 | 2397  | 6             |
| 66          |            | 2567 | 2736 | 2905 | 3074 | 3243 | 3413 | 3582 | 3751 | 3920 | 4089  | 7             |
| 67          |            | 4259 | 4428 | 4597 | 4766 | 4935 | 5105 | 5274 | 5443 | 5612 | 5781  | 8             |
| 68          |            | 5950 | 6119 | 6288 | 6458 | 6627 | 6796 | 6965 | 7134 | 7303 | 7472  | 9             |
| 69          |            | 7641 | 7810 | 7979 | 8148 | 8317 | 8486 | 8655 | 8824 | 8993 | 9162  | 169           |
| 25 70       | •          | 9331 | 9500 | 9669 | 9838 | •007 | 0176 | 0345 | 0514 | 0683 | 0852  |               |
| 71          | 410        | 1021 | 1190 | 1359 | 1527 | 1696 | 1865 | 2034 | 2203 | 2372 | 2541  |               |
| 72          |            | 2710 | 2878 | 3047 | 3216 | 3385 | 3554 | 3723 | 3891 | 4060 | 4229  |               |
| 73          |            | 4398 | 4567 | 4735 | 4904 | 5073 | 5242 | 5410 | 5579 | 5748 | 5917  | 1<br>2        |
| 74          |            | 6085 | 6254 | 6423 | 6592 | 6760 | 6929 | 7098 | 7266 | 7435 | 7604  | 3             |
| 75          |            | 7772 | 7941 | 8110 | 8278 | 8447 | 8616 | 8784 | 8953 | 9121 | 9290  | 4             |
| 76          | •          | 9459 | 9627 | 9796 | 9964 | •133 | 0301 | 0470 | 0639 | 0807 | 0976  | 5             |
| 77          | 411        | 1144 | 1313 | 1481 | 1650 | 1818 | 1987 | 2155 | 2324 | 2492 | 2661  | 6             |
| 78          |            | 2829 | 2998 | 3166 | 3334 | 3503 | 3671 | 3840 | 4008 | 4177 | 4345  | 7             |
| 79          |            | 4513 | 4682 | 4850 | 5019 | 5187 | 5355 | 5524 | 5692 | 5860 | 6029  | 8             |
| 25 80       |            | 6197 | 6365 | 6534 | 6702 | 6870 | 7039 | 7207 | 7375 | 7544 | 7712  | 9             |
| 81          |            | 7880 | 8048 | 8217 | 8385 | 8553 | 8721 | 8890 | 9058 | 9226 | 9394  |               |
| 82          | •          | 9562 | 9731 | 9899 | •067 | 0235 | 0403 | 0571 | 0740 | 0908 | 1076  |               |
| 83          | 412        | 1244 | 1412 | 1580 | 1748 | 1917 | 2085 | 2253 | 2421 | 2589 | 2757  |               |
| 84          |            | 2925 | 3093 | 3261 | 3429 | 3597 | 3765 | 3933 | 4101 | 4269 | 4437  | 168           |
| 85          |            | 4605 | 4773 | 4941 | 5109 | 5277 | 5445 | 5613 | 5781 | 5949 | 6117  | 1             |
| 86          |            | 6285 | 6453 | 6621 | 6789 | 6957 | 7125 | 7293 | 7461 | 7629 | 7797  | 2             |
| 87          |            | 7964 | 8132 | 8300 | 8468 | 8636 | 8804 | 8971 | 9139 | 9307 | 9475  | 3             |
| 88          | •          | 9643 | 9811 | 9978 | •146 | 0314 | 0482 | 0649 | 0817 | 0985 | 1153  | 4             |
| 89          | 413        | 1321 | 1488 | 1656 | 1824 | 1991 | 2159 | 2327 | 2495 | 2662 | 2830  | 5             |
| 25 90       |            | 2998 | 3165 | 3333 | 3501 | 3668 | 3836 | 4004 | 4171 | 4339 | 4507  | 6             |
| 91          |            | 4674 | 4842 | 5009 | 5177 | 5345 | 5512 | 5680 | 5847 | 6015 | 6182  | 7             |
| 92          |            | 6350 | 6518 | 6685 | 6853 | 7020 | 7188 | 7355 | 7523 | 7690 | 7858  | 8             |
| 93          |            | 8025 | 8193 | 8360 | 8528 | 8695 | 8863 | 9030 | 9197 | 9365 | 9532  | 9             |
| 94          | •          | 9700 | 9867 | •035 | 0202 | 0369 | 0537 | 0704 | 0872 | 1039 | 1206  |               |
| 95          | 414        | 1374 | 1541 | 1708 | 1876 | 2043 | 2210 | 2378 | 2545 | 2712 | 2880  |               |
| 96          |            | 3047 | 3214 | 3381 | 3549 | 3716 | 3883 | 4051 | 4218 | 4385 | 4552  |               |
| 97          |            | 4719 | 4887 | 5054 | 5221 | 5388 | 5556 | 5723 | 5890 | 6057 | 6224  |               |
| 98          |            | 6391 | 6559 | 6726 | 6893 | 7060 | 7227 | 7394 | 7561 | 7729 | 7896  |               |
| 99          |            | 8063 | 8230 | 8397 | 8564 | 8731 | 8898 | 9065 | 9232 | 9399 | 9566  | 167           |
| 26 00       | •          | 9733 | 9901 | •068 | 0235 | 0402 | 0569 | 0736 | 0903 | 1070 | 1237  |               |
| 01          | 415        | 1404 | 1570 | 1737 | 1904 | 2071 | 2238 | 2405 | 2572 | 2739 | 2906  |               |
| 02          |            | 3073 | 3240 | 3407 | 3574 | 3741 | 3907 | 4074 | 4241 | 4408 | 4575  |               |
| 03          |            | 4742 | 4909 | 5075 | 5242 | 5409 | 5576 | 5743 | 5909 | 6076 | 6243  |               |
| 04          |            | 6410 | 6577 | 6743 | 6910 | 7077 | 7244 | 7410 | 7577 | 7744 | 7911  |               |
| 05          |            | 8077 | 8244 | 8411 | 8577 | 8744 | 8911 | 9077 | 9244 | 9411 | 9577  |               |
| 06          | •          | 9744 | 9911 | •077 | 0244 | 0411 | 0577 | 0744 | 0911 | 1077 | 1244  |               |
| 07          | 416        | 1410 | 1577 | 1743 | 1910 | 2077 | 2243 | 2410 | 2576 | 2743 | 2909  |               |
| 08          |            | 3076 | 3242 | 3409 | 3575 | 3742 | 3908 | 4075 | 4241 | 4408 | 4574  |               |
| 09          |            | 4741 | 4907 | 5074 | 5240 | 5407 | 5573 | 5739 | 5906 | 6072 | 6239  |               |
| 26 10       |            | 6405 | 6571 | 6738 | 6904 | 7071 | 7237 | 7403 | 7570 | 7736 | 7902  |               |
| 11          |            | 8069 | 8235 | 8401 | 8568 | 8734 | 8900 | 9067 | 9233 | 9399 | 9565  |               |
| 12          | •          | 9732 | 9898 | •064 | 0231 | 0397 | 0563 | 0729 | 0895 | 1062 | 1228  |               |
| 13          | 417        | 1394 | 1560 | 1726 | 1893 | 2059 | 2225 | 2391 | 2557 | 2724 | 2890  |               |
| 14          |            | 3056 | 3222 | 3388 | 3554 | 3720 | 3886 | 4053 | 4219 | 4385 | 4551  |               |
| 15          |            | 4717 | 4883 | 5049 | 5215 | 5381 | 5547 | 5713 | 5879 | 6045 | 6211  |               |
| 16          |            | 6377 | 6543 | 6709 | 6875 | 7041 | 7207 | 7373 | 7539 | 7705 | 7871  |               |
| 17          |            | 8037 | 8203 | 8369 | 8535 | 8701 | 8867 | 9033 | 9199 | 9365 | 9531  |               |
| 18          | •          | 9696 | 9862 | •028 | 0194 | 0360 | 0526 | 0692 | 0857 | 1023 | 1189  |               |
| 19          | 418        | 1355 | 1521 | 1687 | 1852 | 2018 | 2184 | 2350 | 2516 | 2681 | 2847  | 166           |

| Num. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Diff. | Diff. & Mult. |
|------|---|---|---|---|---|---|---|---|---|---|-------|---------------|
|------|---|---|---|---|---|---|---|---|---|---|-------|---------------|

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>2620</b> | <b>418</b> | 3013 | 3179 | 3344 | 3510 | 3676 | 3842 | 4007 | 4173 | 4339 | 4505  |               |
| 21          |            | 4670 | 4836 | 5002 | 5167 | 5333 | 5499 | 5664 | 5830 | 5996 | 6161  | 1<br>166      |
| 22          |            | 6327 | 6493 | 6658 | 6824 | 6989 | 7155 | 7321 | 7486 | 7652 | 7817  | 2<br>332      |
| 23          |            | 7983 | 8148 | 8314 | 8480 | 8645 | 8811 | 8976 | 9142 | 9307 | 9473  | 3<br>498      |
| 24          | *          | 9638 | 9804 | 9969 | +135 | 0300 | 0466 | 0631 | 0797 | 0962 | 1128  | 4<br>664      |
| 25          | 419        | 1293 | 1459 | 1624 | 1789 | 1955 | 2120 | 2286 | 2451 | 2616 | 2782  | 5<br>830      |
| 26          |            | 2947 | 3113 | 3278 | 3443 | 3609 | 3774 | 3939 | 4105 | 4270 | 4435  | 6<br>996      |
| 27          |            | 4601 | 4766 | 4931 | 5097 | 5262 | 5427 | 5593 | 5758 | 5923 | 6088  | 7<br>1162     |
| 28          |            | 6254 | 6419 | 6584 | 6749 | 6915 | 7080 | 7245 | 7410 | 7575 | 7741  | 8<br>1328     |
| 29          |            | 7906 | 8071 | 8236 | 8401 | 8567 | 8732 | 8897 | 9062 | 9227 | 9392  | 9<br>1494     |
| <b>2630</b> | *          | 9557 | 9723 | 9888 | +053 | 0218 | 0383 | 0548 | 0713 | 0878 | 1043  |               |
| 31          | 420        | 1208 | 1374 | 1539 | 1704 | 1869 | 2034 | 2199 | 2364 | 2529 | 2694  | 165           |
| 32          |            | 2859 | 3024 | 3189 | 3354 | 3519 | 3684 | 3849 | 4014 | 4179 | 4344  | 1<br>165      |
| 33          |            | 4509 | 4674 | 4839 | 5003 | 5168 | 5333 | 5498 | 5663 | 5828 | 5993  | 2<br>330      |
| 34          |            | 6158 | 6323 | 6487 | 6652 | 6817 | 6982 | 7147 | 7312 | 7477 | 7641  | 3<br>495      |
| 35          |            | 7806 | 7971 | 8136 | 8301 | 8465 | 8630 | 8795 | 8960 | 9125 | 9289  | 4<br>660      |
| 36          | *          | 9454 | 9619 | 9784 | 9948 | +113 | 0278 | 0442 | 0607 | 0772 | 0937  | 5<br>825      |
| 37          | 421        | 1101 | 1266 | 1431 | 1595 | 1760 | 1925 | 2089 | 2254 | 2419 | 2583  | 6<br>990      |
| 38          |            | 2748 | 2913 | 3077 | 3242 | 3406 | 3571 | 3736 | 3900 | 4065 | 4229  | 7<br>1155     |
| 39          |            | 4394 | 4558 | 4723 | 4888 | 5052 | 5217 | 5381 | 5546 | 5710 | 5875  | 8<br>1320     |
| <b>2640</b> |            | 6039 | 6204 | 6368 | 6533 | 6697 | 6862 | 7026 | 7191 | 7355 | 7520  | 9<br>1485     |
| 41          |            | 7684 | 7848 | 8013 | 8177 | 8342 | 8506 | 8671 | 8835 | 8999 | 9164  |               |
| 42          | *          | 9328 | 9493 | 9657 | 9821 | 9986 | +150 | 0314 | 0479 | 0643 | 0807  |               |
| 43          | 422        | 0972 | 1136 | 1300 | 1465 | 1629 | 1793 | 1957 | 2122 | 2286 | 2450  |               |
| 44          |            | 2615 | 2779 | 2943 | 3107 | 3271 | 3436 | 3600 | 3764 | 3928 | 4093  |               |
| 45          |            | 4257 | 4421 | 4585 | 4749 | 4913 | 5078 | 5242 | 5406 | 5570 | 5734  |               |
| 46          |            | 5898 | 6063 | 6227 | 6391 | 6555 | 6719 | 6883 | 7047 | 7211 | 7375  |               |
| 47          |            | 7539 | 7703 | 7868 | 8032 | 8196 | 8360 | 8524 | 8688 | 8852 | 9016  |               |
| 48          | *          | 9180 | 9344 | 9508 | 9672 | 9836 | +000 | 0164 | 0328 | 0492 | 0656  | 164           |
| 49          | 423        | 0820 | 0984 | 1147 | 1311 | 1475 | 1639 | 1803 | 1967 | 2131 | 2295  | 1<br>164      |
| <b>2650</b> |            | 2459 | 2623 | 2786 | 2950 | 3114 | 3278 | 3442 | 3606 | 3770 | 3933  | 2<br>328      |
| 51          |            | 4097 | 4261 | 4425 | 4589 | 4753 | 4916 | 5080 | 5244 | 5408 | 5571  | 3<br>492      |
| 52          |            | 5735 | 5899 | 6063 | 6226 | 6390 | 6554 | 6718 | 6881 | 7045 | 7209  | 4<br>656      |
| 53          |            | 7372 | 7536 | 7700 | 7864 | 8027 | 8191 | 8355 | 8518 | 8682 | 8846  | 5<br>820      |
| 54          | *          | 9009 | 9173 | 9336 | 9500 | 9664 | 9827 | 9991 | +154 | 0318 | 0482  | 6<br>984      |
| 55          | 424        | 0645 | 0809 | 0972 | 1136 | 1300 | 1463 | 1627 | 1790 | 1954 | 2117  | 7<br>1148     |
| 56          |            | 2281 | 2444 | 2608 | 2771 | 2935 | 3098 | 3262 | 3425 | 3589 | 3752  | 8<br>1312     |
| 57          |            | 3916 | 4079 | 4242 | 4406 | 4569 | 4733 | 4896 | 5060 | 5223 | 5386  | 9<br>1476     |
| 58          |            | 5550 | 5713 | 5877 | 6040 | 6203 | 6367 | 6530 | 6693 | 6857 | 7020  |               |
| 59          |            | 7183 | 7347 | 7510 | 7673 | 7837 | 8000 | 8163 | 8327 | 8490 | 8653  | 1<br>163      |
| <b>2660</b> | *          | 8816 | 8980 | 9143 | 9306 | 9469 | 9633 | 9796 | 9959 | +122 | 0286  | 2<br>326      |
| 61          | 425        | 0449 | 0612 | 0775 | 0938 | 1102 | 1265 | 1428 | 1591 | 1754 | 1917  | 3<br>489      |
| 62          |            | 2081 | 2244 | 2407 | 2570 | 2733 | 2896 | 3059 | 3222 | 3385 | 3549  | 4<br>652      |
| 63          |            | 3712 | 3875 | 4038 | 4201 | 4364 | 4527 | 4690 | 4853 | 5016 | 5179  | 5<br>815      |
| 64          |            | 5342 | 5505 | 5668 | 5831 | 5994 | 6157 | 6320 | 6483 | 6646 | 6809  | 6<br>978      |
| 65          |            | 6972 | 7135 | 7298 | 7461 | 7624 | 7787 | 7950 | 8113 | 8276 | 8439  | 7<br>1141     |
| 66          | *          | 8601 | 8764 | 8927 | 9090 | 9253 | 9416 | 9579 | 9742 | 9904 | +067  | 8<br>1304     |
| 67          | 426        | 0230 | 0393 | 0556 | 0719 | 0881 | 1044 | 1207 | 1370 | 1533 | 1695  | 9<br>1467     |
| 68          |            | 1858 | 2021 | 2184 | 2347 | 2509 | 2672 | 2835 | 2998 | 3160 | 3323  |               |
| 69          |            | 3486 | 3648 | 3811 | 3974 | 4137 | 4299 | 4462 | 4625 | 4787 | 4950  |               |
| <b>2670</b> |            | 5113 | 5275 | 5438 | 5601 | 5763 | 5926 | 6088 | 6251 | 6414 | 6576  |               |
| 71          |            | 6739 | 6901 | 7064 | 7227 | 7389 | 7552 | 7714 | 7877 | 8039 | 8202  |               |
| 72          |            | 8365 | 8527 | 8690 | 8852 | 9015 | 9177 | 9340 | 9502 | 9665 | 9827  |               |
| 73          | *          | 9990 | +152 | 0315 | 0477 | 0639 | 0802 | 0964 | 1127 | 1289 | 1452  | 163           |
| 74          | 427        | 1614 | 1776 | 1939 | 2101 | 2264 | 2426 | 2588 | 2751 | 2913 | 3076  | 2<br>324      |
| 75          |            | 3238 | 3400 | 3563 | 3725 | 3887 | 4050 | 4212 | 4374 | 4536 | 4699  | 3<br>486      |
| 76          |            | 4861 | 5023 | 5186 | 5348 | 5510 | 5672 | 5835 | 5997 | 6159 | 6321  | 4<br>648      |
| 77          |            | 6484 | 6646 | 6808 | 6970 | 7133 | 7295 | 7457 | 7619 | 7781 | 7944  | 5<br>810      |
| 78          |            | 8106 | 8268 | 8430 | 8592 | 8754 | 8917 | 9079 | 9241 | 9403 | 9565  | 6<br>972      |
| 79          | *          | 9727 | 9889 | +051 | 0213 | 0376 | 0538 | 0700 | 0862 | 1024 | 1186  | 7<br>1134     |
|             |            |      |      |      |      |      |      |      |      |      |       | 8<br>1296     |
|             |            |      |      |      |      |      |      |      |      |      |       | 9<br>1458     |

| Num. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Diff. | Diff. & Mult. |
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|------|---|---|---|---|---|---|---|---|---|---|-------|---------------|

| Num.         | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |          |
|--------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|----------|
| <b>2680</b>  | <b>428</b> | 1348     | 1510     | 1672     | 1834     | 1996     | 2158     | 2320     | 2482     | 2644     | 2806         | 162                      | 1   162  |
| 81           |            | 2668     | 3130     | 3292     | 3454     | 3616     | 3778     | 3940     | 4102     | 4264     | 4426         |                          | 2   324  |
| 82           |            | 4588     | 4750     | 4912     | 5073     | 5235     | 5397     | 5559     | 5721     | 5883     | 6045         |                          | 3   486  |
| 83           |            | 6207     | 6369     | 6530     | 6692     | 6854     | 7016     | 7178     | 7340     | 7501     | 7663         |                          | 4   648  |
| 84           |            | 7825     | 7987     | 8149     | 8311     | 8472     | 8634     | 8796     | 8958     | 9119     | 9281         |                          | 5   810  |
| 85           | *          | 9443     | 9605     | 9766     | 9928     | +090     | 0252     | 0413     | 0575     | 0737     | 0898         |                          | 6   972  |
| 86           | 429        | 1060     | 1222     | 1383     | 1545     | 1707     | 1868     | 2030     | 2192     | 2353     | 2515         |                          | 7   1134 |
| 87           |            | 2677     | 2838     | 3000     | 3162     | 3323     | 3485     | 3646     | 3808     | 3969     | 4131         |                          | 8   1296 |
| 88           |            | 4293     | 4454     | 4616     | 4777     | 4939     | 5100     | 5262     | 5423     | 5585     | 5747         |                          | 9   1458 |
| 89           |            | 5908     | 6070     | 6231     | 6393     | 6554     | 6715     | 6877     | 7038     | 7200     | 7361         |                          |          |
| <b>2690</b>  |            | 7523     | 7684     | 7846     | 8007     | 8169     | 8330     | 8491     | 8653     | 8814     | 8976         |                          |          |
| 91           | *          | 9137     | 9298     | 9460     | 9621     | 9782     | 9944     | +105     | 0267     | 0428     | 0589         |                          |          |
| 92           | 430        | 0751     | 0912     | 1073     | 1235     | 1396     | 1557     | 1718     | 1880     | 2041     | 2202         |                          |          |
| 93           |            | 2364     | 2525     | 2686     | 2847     | 3009     | 3170     | 3331     | 3492     | 3653     | 3815         |                          |          |
| 94           |            | 3976     | 4137     | 4298     | 4460     | 4621     | 4782     | 4943     | 5104     | 5265     | 5427         |                          |          |
| 95           |            | 5588     | 5749     | 5910     | 6071     | 6232     | 6393     | 6554     | 6716     | 6877     | 7038         |                          |          |
| 96           |            | 7199     | 7360     | 7521     | 7682     | 7843     | 8004     | 8165     | 8326     | 8487     | 8648         |                          |          |
| 97           | *          | 8809     | 8970     | 9132     | 9293     | 9454     | 9615     | 9776     | 9937     | +098     | 0258         | 161                      | 1   161  |
| 98           | 431        | 0419     | 0580     | 0741     | 0902     | 1063     | 1224     | 1385     | 1546     | 1707     | 1868         |                          | 2   322  |
| 99           |            | 2029     | 2190     | 2351     | 2512     | 2672     | 2833     | 2994     | 3155     | 3316     | 3477         |                          | 3   483  |
| <b>27 00</b> |            | 3638     | 3798     | 3959     | 4120     | 4281     | 4442     | 4603     | 4763     | 4924     | 5085         |                          | 4   644  |
| 01           |            | 5246     | 5407     | 5567     | 5728     | 5889     | 6050     | 6210     | 6371     | 6532     | 6693         |                          | 5   805  |
| 02           |            | 6853     | 7014     | 7175     | 7336     | 7496     | 7657     | 7818     | 7978     | 8139     | 8300         |                          | 6   966  |
| 03           |            | 8460     | 8621     | 8782     | 8942     | 9103     | 9264     | 9424     | 9585     | 9746     | 9906         |                          | 7   1127 |
| 04           | 432        | 0067     | 0227     | 0388     | 0549     | 0709     | 0870     | 1030     | 1191     | 1352     | 1512         |                          | 8   1288 |
| 05           |            | 1673     | 1833     | 1994     | 2154     | 2315     | 2475     | 2636     | 2796     | 2957     | 3117         |                          | 9   1449 |
| 06           |            | 3278     | 3438     | 3599     | 3759     | 3920     | 4080     | 4241     | 4401     | 4562     | 4722         |                          |          |
| 07           |            | 4883     | 5043     | 5203     | 5364     | 5524     | 5685     | 5845     | 6005     | 6166     | 6326         |                          |          |
| 08           |            | 6487     | 6647     | 6807     | 6968     | 7128     | 7288     | 7449     | 7609     | 7769     | 7930         |                          |          |
| 09           |            | 8090     | 8250     | 8411     | 8571     | 8731     | 8892     | 9052     | 9212     | 9372     | 9533         |                          |          |
| <b>27 10</b> | *          | 9693     | 9853     | +013     | 0174     | 0334     | 0494     | 0654     | 0815     | 0975     | 1135         |                          |          |
| 11           | 433        | 1295     | 1455     | 1616     | 1776     | 1936     | 2096     | 2256     | 2416     | 2577     | 2737         |                          |          |
| 12           |            | 2897     | 3057     | 3217     | 3377     | 3537     | 3697     | 3858     | 4018     | 4178     | 4338         |                          |          |
| 13           |            | 4498     | 4658     | 4818     | 4978     | 5138     | 5298     | 5458     | 5618     | 5778     | 5938         |                          |          |
| 14           |            | 6098     | 6258     | 6418     | 6578     | 6738     | 6898     | 7058     | 7218     | 7378     | 7538         |                          |          |
| 15           |            | 7698     | 7858     | 8018     | 8178     | 8338     | 8498     | 8658     | 8818     | 8978     | 9138         |                          |          |
| 16           | *          | 9298     | 9458     | 9617     | 9777     | 9937     | +097     | 0257     | 0417     | 0577     | 0737         | 160                      | 1   160  |
| 17           | 434        | 0896     | 1056     | 1216     | 1376     | 1536     | 1696     | 1855     | 2015     | 2175     | 2335         |                          | 2   320  |
| 18           |            | 2495     | 2654     | 2814     | 2974     | 3134     | 3293     | 3453     | 3613     | 3773     | 3932         |                          | 3   480  |
| 19           |            | 4092     | 4252     | 4412     | 4571     | 4731     | 4891     | 5050     | 5210     | 5370     | 5529         |                          | 4   640  |
| <b>27 20</b> |            | 5689     | 5849     | 6008     | 6168     | 6328     | 6487     | 6647     | 6807     | 6966     | 7126         |                          | 5   800  |
| 21           |            | 7285     | 7445     | 7605     | 7764     | 7924     | 8083     | 8243     | 8403     | 8562     | 8722         |                          | 6   960  |
| 22           | *          | 8881     | 9041     | 9200     | 9360     | 9519     | 9679     | 9838     | 9998     | +157     | 0317         |                          | 7   1120 |
| 23           | 435        | 0476     | 0636     | 0795     | 0955     | 1114     | 1274     | 1433     | 1593     | 1752     | 1912         |                          | 8   1280 |
| 24           |            | 2071     | 2230     | 2390     | 2549     | 2709     | 2868     | 3028     | 3187     | 3346     | 3506         |                          | 9   1440 |
| 25           |            | 3665     | 3824     | 3984     | 4143     | 4303     | 4462     | 4621     | 4781     | 4940     | 5099         |                          |          |
| 26           |            | 5259     | 5418     | 5577     | 5736     | 5896     | 6055     | 6214     | 6374     | 6533     | 6692         |                          |          |
| 27           |            | 6851     | 7011     | 7170     | 7329     | 7488     | 7648     | 7807     | 7966     | 8125     | 8284         |                          |          |
| 28           |            | 8444     | 8603     | 8762     | 8921     | 9080     | 9240     | 9399     | 9558     | 9717     | 9876         |                          |          |
| 29           | 436        | 0035     | 0194     | 0354     | 0513     | 0672     | 0831     | 0990     | 1149     | 1308     | 1467         |                          |          |
| <b>27 30</b> |            | 1626     | 1786     | 1945     | 2104     | 2263     | 2422     | 2581     | 2740     | 2899     | 3058         |                          |          |
| 31           |            | 3217     | 3376     | 3535     | 3694     | 3853     | 4012     | 4171     | 4330     | 4489     | 4648         |                          |          |
| 32           |            | 4807     | 4966     | 5125     | 5284     | 5443     | 5602     | 5761     | 5920     | 6078     | 6237         |                          |          |
| 33           |            | 6396     | 6555     | 6714     | 6873     | 7032     | 7191     | 7350     | 7509     | 7667     | 7826         |                          |          |
| 34           |            | 7985     | 8144     | 8303     | 8462     | 8620     | 8779     | 8938     | 9097     | 9256     | 9415         |                          |          |
| 35           | *          | 9573     | 9732     | 9891     | +050     | 0208     | 0367     | 0526     | 0685     | 0843     | 1002         |                          |          |
| 36           | 437        | 1161     | 1320     | 1478     | 1637     | 1796     | 1955     | 2113     | 2272     | 2431     | 2589         |                          |          |
| 37           |            | 2748     | 2907     | 3065     | 3224     | 3383     | 3541     | 3700     | 3859     | 4017     | 4176         |                          |          |
| 38           |            | 4334     | 4493     | 4652     | 4810     | 4969     | 5127     | 5286     | 5445     | 5603     | 5762         |                          |          |
| 39           |            | 5920     | 6079     | 6237     | 6396     | 6555     | 6713     | 6872     | 7030     | 7189     | 7347         |                          |          |
| <b>Num.</b>  | <b>0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |          |



LOGARITHMS OF NUMBERS.

33

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>2740</b> | <b>437</b> | 7506 | 7664 | 7823 | 7981 | 8140 | 8298 | 8457 | 8615 | 8773 | 8932  | 1 159         |
| 41          | *          | 9090 | 9249 | 9407 | 9566 | 9724 | 9883 | +041 | 0109 | 0358 | 0516  | 2 316         |
| 42          | <b>438</b> | 0675 | 0833 | 0991 | 1150 | 1308 | 1466 | 1625 | 1783 | 1941 | 2100  | 3 477         |
| 43          |            | 2258 | 2416 | 2575 | 2733 | 2891 | 3050 | 3208 | 3366 | 3525 | 3683  | 4 636         |
| 44          |            | 3841 | 3999 | 4158 | 4316 | 4474 | 4632 | 4791 | 4949 | 5107 | 5265  | 5 795         |
| 45          |            | 5423 | 5582 | 5740 | 5898 | 6056 | 6214 | 6373 | 6531 | 6689 | 6847  | 6 954         |
| 46          |            | 7005 | 7163 | 7322 | 7480 | 7638 | 7796 | 7954 | 8112 | 8270 | 8428  | 7 1113        |
| 47          | *          | 8587 | 8745 | 8903 | 9061 | 9219 | 9377 | 9535 | 9693 | 9851 | +009  | 8 1272        |
| 48          | <b>439</b> | 0167 | 0325 | 0483 | 0641 | 0799 | 0957 | 1115 | 1273 | 1431 | 1589  | 9 1431        |
| 49          |            | 1747 | 1905 | 2063 | 2221 | 2379 | 2537 | 2695 | 2853 | 3011 | 3169  |               |
| <b>2750</b> |            | 3327 | 3485 | 3643 | 3801 | 3959 | 4116 | 4274 | 4432 | 4590 | 4748  |               |
| 51          |            | 4906 | 5064 | 5222 | 5379 | 5537 | 5695 | 5853 | 6011 | 6169 | 6326  |               |
| 52          |            | 6484 | 6642 | 6800 | 6958 | 7115 | 7273 | 7431 | 7589 | 7747 | 7904  |               |
| 53          |            | 8062 | 8220 | 8378 | 8535 | 8693 | 8851 | 9009 | 9166 | 9324 | 9482  | 1 158         |
| 54          | *          | 9639 | 9797 | 9955 | +112 | 0270 | 0428 | 0585 | 0743 | 0901 | 1058  | 2 316         |
| 55          | <b>440</b> | 1216 | 1374 | 1531 | 1689 | 1847 | 2004 | 2162 | 2319 | 2477 | 2635  | 3 474         |
| 56          |            | 2792 | 2950 | 3107 | 3265 | 3422 | 3580 | 3738 | 3895 | 4053 | 4210  | 4 632         |
| 57          |            | 4368 | 4525 | 4683 | 4840 | 4998 | 5155 | 5313 | 5470 | 5628 | 5785  | 5 790         |
| 58          |            | 5943 | 6100 | 6258 | 6415 | 6572 | 6730 | 6887 | 7045 | 7202 | 7360  | 6 948         |
| 59          |            | 7517 | 7674 | 7832 | 7989 | 8147 | 8304 | 8461 | 8619 | 8776 | 8933  | 7 1106        |
| <b>2760</b> | *          | 9091 | 9248 | 9406 | 9563 | 9720 | 9878 | +035 | 0192 | 0349 | 0507  | 8 1264        |
| 61          | <b>441</b> | 0664 | 0821 | 0979 | 1136 | 1293 | 1450 | 1608 | 1765 | 1922 | 2080  | 9 1422        |
| 62          |            | 2237 | 2394 | 2551 | 2708 | 2866 | 3023 | 3180 | 3337 | 3494 | 3652  |               |
| 63          |            | 3809 | 3966 | 4123 | 4280 | 4438 | 4595 | 4752 | 4909 | 5066 | 5223  |               |
| 64          |            | 5380 | 5538 | 5695 | 5852 | 6009 | 6166 | 6323 | 6480 | 6637 | 6794  |               |
| 65          |            | 6951 | 7108 | 7265 | 7423 | 7580 | 7737 | 7894 | 8051 | 8208 | 8365  | 1 157         |
| 66          |            | 8522 | 8679 | 8836 | 8993 | 9150 | 9307 | 9464 | 9621 | 9778 | 9935  | 2 314         |
| 67          | <b>442</b> | 0092 | 0249 | 0405 | 0562 | 0719 | 0876 | 1033 | 1190 | 1347 | 1504  | 3 471         |
| 68          |            | 1661 | 1818 | 1975 | 2132 | 2288 | 2445 | 2602 | 2759 | 2916 | 3073  | 4 628         |
| 69          |            | 3230 | 3386 | 3543 | 3700 | 3857 | 4014 | 4171 | 4327 | 4484 | 4641  | 5 785         |
| <b>2770</b> |            | 4798 | 4954 | 5111 | 5268 | 5425 | 5582 | 5738 | 5895 | 6052 | 6209  | 6 942         |
| 71          |            | 6365 | 6522 | 6679 | 6835 | 6992 | 7149 | 7306 | 7462 | 7619 | 7776  | 7 1099        |
| 72          |            | 7932 | 8089 | 8246 | 8402 | 8559 | 8716 | 8872 | 9029 | 9185 | 9342  | 8 1256        |
| 73          | *          | 9499 | 9655 | 9812 | 9969 | +125 | 0028 | 0184 | 0340 | 0495 | 0651  | 9 1413        |
| 74          | <b>443</b> | 1065 | 1221 | 1378 | 1534 | 1691 | 1847 | 2004 | 2160 | 2317 | 2473  |               |
| 75          |            | 2630 | 2786 | 2943 | 3099 | 3256 | 3412 | 3569 | 3725 | 3882 | 4038  |               |
| 76          |            | 4195 | 4351 | 4507 | 4664 | 4820 | 4977 | 5133 | 5290 | 5446 | 5602  |               |
| 77          |            | 5759 | 5915 | 6072 | 6228 | 6384 | 6541 | 6697 | 6853 | 7010 | 7166  |               |
| 78          |            | 7322 | 7479 | 7635 | 7791 | 7948 | 8104 | 8260 | 8417 | 8573 | 8729  |               |
| 79          | *          | 8885 | 9041 | 9198 | 9354 | 9511 | 9667 | 9823 | 9979 | +136 | 0292  | 1 156         |
| <b>2780</b> | <b>444</b> | 0448 | 0604 | 0760 | 0917 | 1073 | 1229 | 1385 | 1541 | 1698 | 1854  | 2 312         |
| 81          |            | 2010 | 2166 | 2322 | 2478 | 2635 | 2791 | 2947 | 3103 | 3259 | 3415  | 3 468         |
| 82          |            | 3571 | 3727 | 3883 | 4040 | 4196 | 4352 | 4508 | 4664 | 4820 | 4976  | 4 624         |
| 83          |            | 5132 | 5288 | 5444 | 5600 | 5756 | 5912 | 6068 | 6224 | 6380 | 6536  | 5 780         |
| 84          |            | 6692 | 6848 | 7004 | 7160 | 7316 | 7472 | 7628 | 7784 | 7940 | 8096  | 6 936         |
| 85          |            | 8252 | 8408 | 8564 | 8720 | 8876 | 9032 | 9188 | 9343 | 9499 | 9655  | 7 1092        |
| 86          | *          | 9811 | 9967 | +123 | 0279 | 0435 | 0590 | 0746 | 0902 | 1058 | 1214  | 8 1248        |
| 87          | <b>445</b> | 1370 | 1526 | 1681 | 1837 | 1993 | 2149 | 2305 | 2460 | 2616 | 2772  | 9 1404        |
| 88          |            | 2928 | 3083 | 3239 | 3395 | 3551 | 3706 | 3862 | 4018 | 4174 | 4329  |               |
| 89          |            | 4485 | 4641 | 4797 | 4952 | 5108 | 5264 | 5419 | 5575 | 5731 | 5886  |               |
| <b>2790</b> |            | 6042 | 6198 | 6353 | 6509 | 6665 | 6820 | 6976 | 7132 | 7287 | 7443  |               |
| 91          |            | 7598 | 7754 | 7910 | 8065 | 8221 | 8376 | 8532 | 8687 | 8843 | 8999  | 1 155         |
| 92          | *          | 9154 | 9310 | 9465 | 9621 | 9776 | 9932 | +087 | 0243 | 0398 | 0554  | 2 310         |
| 93          | <b>446</b> | 0709 | 0865 | 1020 | 1176 | 1331 | 1487 | 1642 | 1798 | 1953 | 2109  | 3 465         |
| 94          |            | 2264 | 2419 | 2575 | 2730 | 2886 | 3041 | 3197 | 3352 | 3507 | 3663  | 4 620         |
| 95          |            | 3818 | 3974 | 4129 | 4284 | 4440 | 4595 | 4750 | 4906 | 5061 | 5216  | 5 775         |
| 96          |            | 5372 | 5527 | 5682 | 5838 | 5993 | 6148 | 6304 | 6459 | 6614 | 6769  | 6 930         |
| 97          |            | 6925 | 7080 | 7235 | 7390 | 7546 | 7701 | 7856 | 8011 | 8167 | 8322  | 7 1085        |
| 98          |            | 8477 | 8632 | 8788 | 8943 | 9098 | 9253 | 9408 | 9563 | 9719 | 9874  | 8 1240        |
| 99          | <b>447</b> | 0029 | 0184 | 0339 | 0494 | 0650 | 0805 | 0960 | 1115 | 1270 | 1425  | 9 1395        |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff.    | Diff. & Mult. |         |
|--------------|------------|------|------|------|------|------|------|------|------|------|----------|---------------|---------|
| <b>2800</b>  | <b>447</b> | 1580 | 1735 | 1891 | 2046 | 2201 | 2356 | 2511 | 2666 | 2821 | 2976     | 155           | 1   156 |
| 01           | 3131       | 3286 | 3441 | 3596 | 3751 | 3906 | 4061 | 4216 | 4371 | 4526 | 2   312  |               |         |
| 02           | 4681       | 4836 | 4991 | 5146 | 5301 | 5456 | 5611 | 5766 | 5921 | 6076 | 3   468  |               |         |
| 03           | 6231       | 6386 | 6541 | 6696 | 6851 | 7006 | 7161 | 7315 | 7470 | 7625 | 4   624  |               |         |
| 04           | 7780       | 7935 | 8090 | 8245 | 8400 | 8554 | 8709 | 8864 | 9019 | 9174 | 5   780  |               |         |
| 05           | * 9329     | 9483 | 9638 | 9793 | 9948 | 103  | 0258 | 0412 | 0567 | 0722 | 6   936  |               |         |
| 06           | 448 0877   | 1031 | 1186 | 1341 | 1496 | 1650 | 1805 | 1960 | 2115 | 2269 | 7   1092 |               |         |
| 07           | 2424       | 2579 | 2734 | 2888 | 3043 | 3198 | 3352 | 3507 | 3662 | 3816 | 8   1248 |               |         |
| 08           | 3971       | 4126 | 4280 | 4435 | 4590 | 4744 | 4899 | 5054 | 5208 | 5363 | 9   1404 |               |         |
| 09           | 5517       | 5672 | 5827 | 5981 | 6136 | 6290 | 6445 | 6600 | 6754 | 6909 |          |               |         |
| <b>28 10</b> | 7063       | 7218 | 7372 | 7527 | 7681 | 7836 | 7990 | 8145 | 8299 | 8454 | 154      | 1   155       |         |
| 11           | 8608       | 8763 | 8917 | 9072 | 9226 | 9381 | 9535 | 9690 | 9844 | 9999 |          | 2   310       |         |
| 12           | 449 0153   | 0308 | 0462 | 0616 | 0771 | 0925 | 1080 | 1234 | 1389 | 1543 |          | 3   465       |         |
| 13           | 1697       | 1852 | 2006 | 2160 | 2315 | 2469 | 2624 | 2778 | 2932 | 3087 |          | 4   620       |         |
| 14           | 3241       | 3395 | 3550 | 3704 | 3858 | 4013 | 4167 | 4321 | 4475 | 4630 |          | 5   775       |         |
| 15           | 4784       | 4938 | 5093 | 5247 | 5401 | 5555 | 5710 | 5864 | 6018 | 6172 |          | 6   930       |         |
| 16           | 6327       | 6481 | 6635 | 6789 | 6943 | 7098 | 7252 | 7406 | 7560 | 7714 |          | 7   1085      |         |
| 17           | 7868       | 8023 | 8177 | 8331 | 8485 | 8639 | 8793 | 8948 | 9102 | 9256 |          | 8   1240      |         |
| 18           | * 9410     | 9564 | 9718 | 9872 | 1026 | 0180 | 0334 | 0489 | 0643 | 0797 |          | 9   1395      |         |
| 19           | 450 0951   | 1105 | 1259 | 1413 | 1567 | 1721 | 1875 | 2029 | 2183 | 2337 |          |               |         |
| <b>28 20</b> | 2491       | 2645 | 2799 | 2953 | 3107 | 3261 | 3415 | 3569 | 3723 | 3877 | 153      | 1   154       |         |
| 21           | 4031       | 4185 | 4339 | 4493 | 4647 | 4801 | 4954 | 5108 | 5262 | 5416 |          | 2   308       |         |
| 22           | 5570       | 5724 | 5878 | 6032 | 6186 | 6340 | 6493 | 6647 | 6801 | 6955 |          | 3   462       |         |
| 23           | 7109       | 7263 | 7416 | 7570 | 7724 | 7878 | 8032 | 8186 | 8339 | 8493 |          | 4   616       |         |
| 24           | * 8647     | 8801 | 8954 | 9108 | 9262 | 9416 | 9570 | 9723 | 9877 | 1031 |          | 5   770       |         |
| 25           | 451 0185   | 0338 | 0492 | 0646 | 0799 | 0953 | 1107 | 1261 | 1414 | 1568 |          | 6   924       |         |
| 26           | 1722       | 1875 | 2029 | 2183 | 2336 | 2490 | 2644 | 2797 | 2951 | 3104 |          | 7   1078      |         |
| 27           | 3258       | 3412 | 3565 | 3719 | 3873 | 4026 | 4180 | 4333 | 4487 | 4640 |          | 8   1232      |         |
| 28           | 4794       | 4948 | 5101 | 5255 | 5408 | 5562 | 5715 | 5869 | 6022 | 6176 |          | 9   1386      |         |
| 29           | 6329       | 6483 | 6636 | 6790 | 6943 | 7097 | 7250 | 7404 | 7557 | 7711 |          |               |         |
| <b>28 30</b> | 7864       | 8018 | 8171 | 8325 | 8478 | 8632 | 8785 | 8938 | 9092 | 9245 | 152      | 1   153       |         |
| 31           | * 9399     | 9552 | 9705 | 9859 | 1012 | 0166 | 0319 | 0472 | 0626 | 0779 |          | 2   306       |         |
| 32           | 452 0932   | 1086 | 1239 | 1393 | 1546 | 1699 | 1853 | 2006 | 2159 | 2312 |          | 3   459       |         |
| 33           | 2466       | 2619 | 2772 | 2926 | 3079 | 3232 | 3385 | 3539 | 3692 | 3845 |          | 4   612       |         |
| 34           | 3998       | 4152 | 4305 | 4458 | 4611 | 4765 | 4918 | 5071 | 5224 | 5377 |          | 5   765       |         |
| 35           | 5531       | 5684 | 5837 | 5990 | 6143 | 6297 | 6450 | 6603 | 6756 | 6909 |          | 6   918       |         |
| 36           | 7062       | 7215 | 7369 | 7522 | 7675 | 7828 | 7981 | 8134 | 8287 | 8440 |          | 7   1071      |         |
| 37           | 8593       | 8746 | 8900 | 9053 | 9206 | 9359 | 9512 | 9665 | 9818 | 9971 |          | 8   1224      |         |
| 38           | 453 0124   | 0277 | 0430 | 0583 | 0736 | 0889 | 1042 | 1195 | 1348 | 1501 |          | 9   1377      |         |
| 39           | 1654       | 1807 | 1960 | 2113 | 2266 | 2419 | 2572 | 2725 | 2878 | 3030 |          |               |         |
| <b>28 40</b> | 3183       | 3336 | 3489 | 3642 | 3795 | 3948 | 4101 | 4254 | 4407 | 4559 | 151      | 1   152       |         |
| 41           | 4712       | 4865 | 5018 | 5171 | 5324 | 5477 | 5629 | 5782 | 5935 | 6088 |          | 2   304       |         |
| 42           | 6241       | 6394 | 6546 | 6699 | 6852 | 7005 | 7158 | 7310 | 7463 | 7616 |          | 3   456       |         |
| 43           | 7709       | 7921 | 8074 | 8227 | 8380 | 8532 | 8685 | 8838 | 8990 | 9143 |          | 4   608       |         |
| 44           | * 9269     | 9449 | 9601 | 9754 | 9907 | 1059 | 0212 | 0365 | 0517 | 0670 |          | 5   760       |         |
| 45           | 454 0823   | 0975 | 1128 | 1281 | 1433 | 1586 | 1739 | 1891 | 2044 | 2196 |          | 6   912       |         |
| 46           | 2349       | 2502 | 2654 | 2807 | 2959 | 3112 | 3264 | 3417 | 3570 | 3722 |          | 7   1064      |         |
| 47           | 3875       | 4027 | 4180 | 4332 | 4485 | 4637 | 4790 | 4942 | 5095 | 5247 |          | 8   1216      |         |
| 48           | 5400       | 5552 | 5705 | 5857 | 6010 | 6162 | 6315 | 6467 | 6620 | 6772 |          | 9   1368      |         |
| 49           | 6924       | 7077 | 7229 | 7382 | 7534 | 7687 | 7839 | 7991 | 8144 | 8296 |          |               |         |
| <b>28 50</b> | 8449       | 8601 | 8753 | 8906 | 9058 | 9210 | 9363 | 9515 | 9668 | 9820 | 150      | 1   151       |         |
| 51           | * 9972     | 1125 | 1277 | 1429 | 1581 | 0734 | 0886 | 1038 | 1191 | 1343 |          | 2   302       |         |
| 52           | 455 1495   | 1647 | 1800 | 1952 | 2104 | 2257 | 2409 | 2561 | 2713 | 2865 |          | 3   454       |         |
| 53           | 3018       | 3170 | 3322 | 3474 | 3627 | 3779 | 3931 | 4083 | 4235 | 4388 |          | 4   606       |         |
| 54           | 4540       | 4692 | 4844 | 4996 | 5148 | 5300 | 5453 | 5605 | 5757 | 5909 |          | 5   758       |         |
| 55           | 6061       | 6213 | 6365 | 6517 | 6670 | 6822 | 6974 | 7126 | 7278 | 7430 |          | 6   910       |         |
| 56           | 7582       | 7734 | 7886 | 8038 | 8190 | 8342 | 8494 | 8646 | 8798 | 8950 |          | 7   1062      |         |
| 57           | * 9102     | 9254 | 9406 | 9558 | 9710 | 9862 | 1014 | 0166 | 0318 | 0470 |          | 8   1214      |         |
| 58           | 456 0622   | 0774 | 0926 | 1078 | 1230 | 1382 | 1534 | 1686 | 1838 | 1990 |          | 9   1366      |         |
| 59           | 2142       | 2293 | 2445 | 2597 | 2749 | 2901 | 3053 | 3205 | 3357 | 3508 |          |               |         |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>2860</b> | <b>456</b> | 3660 | 3812 | 3964 | 4116 | 4268 | 4420 | 4571 | 4723 | 4875 | 5027  |               |
| 61          |            | 5179 | 5330 | 5482 | 5634 | 5786 | 5938 | 6089 | 6241 | 6393 | 6545  | 1 152         |
| 62          |            | 6696 | 6848 | 7000 | 7152 | 7303 | 7455 | 7607 | 7758 | 7910 | 8062  | 2 304         |
| 63          |            | 8213 | 8365 | 8517 | 8669 | 8820 | 8972 | 9124 | 9275 | 9427 | 9578  | 3 456         |
| 64          | *          | 9730 | 9882 | +033 | 0185 | 0337 | 0488 | 0640 | 0791 | 0943 | 1095  | 4 608         |
| 65          | 457        | 1246 | 1398 | 1549 | 1701 | 1853 | 2004 | 2156 | 2307 | 2459 | 2610  | 5 760         |
| 66          |            | 2762 | 2913 | 3065 | 3216 | 3368 | 3519 | 3671 | 3822 | 3974 | 4125  | 6 912         |
| 67          |            | 4277 | 4428 | 4580 | 4731 | 4883 | 5034 | 5186 | 5337 | 5489 | 5640  | 7 1064        |
| 68          |            | 5791 | 5943 | 6094 | 6246 | 6397 | 6549 | 6700 | 6851 | 7003 | 7154  | 8 1216        |
| 69          |            | 7305 | 7457 | 7608 | 7760 | 7911 | 8062 | 8214 | 8365 | 8516 | 8668  | 9 1368        |
| <b>2870</b> | *          | 8819 | 8970 | 9122 | 9273 | 9424 | 9576 | 9727 | 9878 | +029 | 0181  |               |
| 71          | 458        | 0332 | 0483 | 0634 | 0786 | 0937 | 1088 | 1239 | 1391 | 1542 | 1693  | 1 151         |
| 72          |            | 1844 | 1996 | 2147 | 2298 | 2449 | 2600 | 2752 | 2903 | 3054 | 3205  | 2 302         |
| 73          |            | 3356 | 3507 | 3659 | 3810 | 3961 | 4112 | 4263 | 4414 | 4565 | 4717  | 3 453         |
| 74          |            | 4868 | 5019 | 5170 | 5321 | 5472 | 5623 | 5774 | 5925 | 6076 | 6227  | 4 604         |
| 75          |            | 6378 | 6530 | 6681 | 6832 | 6983 | 7134 | 7285 | 7436 | 7587 | 7738  | 5 755         |
| 76          |            | 7889 | 8040 | 8191 | 8342 | 8493 | 8644 | 8795 | 8946 | 9097 | 9248  | 6 906         |
| 77          | *          | 9399 | 9550 | 9701 | 9851 | +002 | 0153 | 0304 | 0455 | 0606 | 0757  | 7 1057        |
| 78          | 459        | 0908 | 1059 | 1210 | 1361 | 1511 | 1662 | 1813 | 1964 | 2115 | 2266  | 8 1208        |
| 79          |            | 2417 | 2567 | 2718 | 2869 | 3020 | 3171 | 3322 | 3472 | 3623 | 3774  | 9 1359        |
| <b>2880</b> |            | 3925 | 4076 | 4226 | 4377 | 4528 | 4679 | 4830 | 4980 | 5131 | 5282  |               |
| 81          |            | 5433 | 5583 | 5734 | 5885 | 6036 | 6186 | 6337 | 6488 | 6638 | 6789  | 1 150         |
| 82          |            | 6940 | 7090 | 7241 | 7392 | 7542 | 7693 | 7844 | 7994 | 8145 | 8296  | 2 300         |
| 83          |            | 8446 | 8597 | 8748 | 8898 | 9049 | 9200 | 9350 | 9501 | 9651 | 9802  | 3 450         |
| 84          | *          | 9953 | +103 | 0254 | 0404 | 0555 | 0705 | 0856 | 1007 | 1157 | 1308  | 4 600         |
| 85          | 460        | 1458 | 1609 | 1759 | 1910 | 2060 | 2211 | 2361 | 2512 | 2662 | 2813  | 5 750         |
| 86          |            | 2963 | 3114 | 3264 | 3415 | 3566 | 3716 | 3866 | 4017 | 4167 | 4317  | 6 900         |
| 87          |            | 4468 | 4618 | 4769 | 4919 | 5070 | 5220 | 5370 | 5521 | 5671 | 5821  | 7 1050        |
| 88          |            | 5972 | 6122 | 6273 | 6423 | 6573 | 6724 | 6874 | 7024 | 7175 | 7325  | 8 1200        |
| 89          |            | 7475 | 7626 | 7776 | 7926 | 8077 | 8227 | 8377 | 8528 | 8678 | 8828  | 9 1350        |
| <b>2890</b> | *          | 8978 | 9129 | 9279 | 9429 | 9579 | 9730 | 9880 | +030 | 0180 | 0331  |               |
| 91          | 461        | 0481 | 0631 | 0781 | 0931 | 1082 | 1232 | 1382 | 1532 | 1683 | 1833  | 1 149         |
| 92          |            | 1983 | 2133 | 2283 | 2433 | 2584 | 2734 | 2884 | 3034 | 3184 | 3334  | 2 296         |
| 93          |            | 3484 | 3634 | 3785 | 3935 | 4085 | 4235 | 4385 | 4535 | 4685 | 4835  | 3 444         |
| 94          |            | 4985 | 5135 | 5285 | 5435 | 5585 | 5736 | 5886 | 6036 | 6186 | 6336  | 4 592         |
| 95          |            | 6486 | 6636 | 6786 | 6936 | 7086 | 7236 | 7386 | 7536 | 7686 | 7836  | 5 740         |
| 96          |            | 7986 | 8136 | 8285 | 8435 | 8585 | 8735 | 8885 | 9035 | 9185 | 9335  | 6 888         |
| 97          | *          | 9485 | 9635 | 9785 | 9935 | +085 | 0234 | 0384 | 0534 | 0684 | 0834  | 7 1036        |
| 98          | 462        | 0984 | 1134 | 1284 | 1433 | 1583 | 1733 | 1883 | 2033 | 2183 | 2332  | 8 1184        |
| 99          |            | 2482 | 2632 | 2782 | 2932 | 3081 | 3231 | 3381 | 3531 | 3680 | 3830  | 9 1341        |
| <b>2900</b> |            | 3980 | 4130 | 4279 | 4429 | 4579 | 4729 | 4878 | 5028 | 5178 | 5328  |               |
| 01          |            | 5477 | 5627 | 5777 | 5926 | 6076 | 6226 | 6375 | 6525 | 6675 | 6824  | 1 148         |
| 02          |            | 6974 | 7124 | 7273 | 7423 | 7573 | 7722 | 7872 | 8022 | 8171 | 8321  | 2 296         |
| 03          |            | 8470 | 8620 | 8770 | 8919 | 9069 | 9218 | 9368 | 9517 | 9667 | 9817  | 3 444         |
| 04          | *          | 9966 | +116 | 0265 | 0415 | 0564 | 0714 | 0863 | 1013 | 1162 | 1312  | 4 592         |
| 05          | 463        | 1461 | 1611 | 1760 | 1910 | 2059 | 2209 | 2358 | 2508 | 2657 | 2807  | 5 740         |
| 06          |            | 2956 | 3106 | 3255 | 3404 | 3554 | 3703 | 3853 | 4002 | 4152 | 4301  | 6 888         |
| 07          |            | 4450 | 4600 | 4749 | 4898 | 5048 | 5197 | 5347 | 5496 | 5645 | 5795  | 7 1036        |
| 08          |            | 5944 | 6093 | 6243 | 6392 | 6541 | 6691 | 6840 | 6989 | 7139 | 7288  | 8 1184        |
| 09          |            | 7437 | 7587 | 7736 | 7885 | 8034 | 8184 | 8333 | 8482 | 8631 | 8781  | 9 1332        |
| <b>2910</b> | *          | 8930 | 9079 | 9228 | 9378 | 9527 | 9676 | 9825 | 9974 | +124 | 0273  |               |
| 11          | 464        | 0422 | 0571 | 0720 | 0870 | 1019 | 1168 | 1317 | 1466 | 1615 | 1765  | 1 148         |
| 12          |            | 1914 | 2063 | 2212 | 2361 | 2510 | 2659 | 2808 | 2958 | 3107 | 3256  | 2 296         |
| 13          |            | 3405 | 3554 | 3703 | 3852 | 4001 | 4150 | 4299 | 4448 | 4597 | 4746  | 3 444         |
| 14          |            | 4895 | 5045 | 5194 | 5343 | 5492 | 5641 | 5790 | 5939 | 6088 | 6237  | 4 592         |
| 15          |            | 6386 | 6535 | 6684 | 6833 | 6981 | 7130 | 7279 | 7428 | 7577 | 7726  | 5 740         |
| 16          |            | 7875 | 8024 | 8173 | 8322 | 8471 | 8620 | 8769 | 8918 | 9067 | 9215  | 6 888         |
| 17          | *          | 9364 | 9513 | 9662 | 9811 | 9960 | +109 | 0258 | 0406 | 0555 | 0704  | 7 1036        |
| 18          | 465        | 0853 | 1002 | 1151 | 1299 | 1448 | 1597 | 1746 | 1895 | 2043 | 2192  | 8 1184        |
| 19          |            | 2341 | 2490 | 2639 | 2787 | 2936 | 3085 | 3234 | 3382 | 3531 | 3680  | 9 1332        |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |      |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|------|
| <b>2020</b> | <b>465</b> | 3829 | 3977 | 4126 | 4275 | 4423 | 4572 | 4721 | 4870 | 5018 | 5167  | 1             | 149  |
| 21          |            | 5316 | 5464 | 5613 | 5762 | 5910 | 6059 | 6208 | 6356 | 6505 | 6653  | 2             | 298  |
| 22          |            | 6802 | 6951 | 7099 | 7248 | 7397 | 7545 | 7694 | 7842 | 7991 | 8140  | 3             | 447  |
| 23          |            | 8288 | 8437 | 8585 | 8734 | 8882 | 9031 | 9180 | 9328 | 9477 | 9625  | 4             | 596  |
| 24          | *          | 9774 | 9922 | *071 | 0219 | 0368 | 0516 | 0665 | 0813 | 0962 | 1110  | 5             | 745  |
| 25          | 466        | 1259 | 1407 | 1556 | 1704 | 1853 | 2001 | 2149 | 2298 | 2446 | 2595  | 6             | 894  |
| 26          |            | 2743 | 2892 | 3040 | 3188 | 3337 | 3485 | 3634 | 3782 | 3930 | 4079  | 7             | 1043 |
| 27          |            | 4227 | 4376 | 4524 | 4672 | 4821 | 4969 | 5117 | 5266 | 5414 | 5562  | 8             | 1192 |
| 28          |            | 5711 | 5859 | 6007 | 6156 | 6304 | 6452 | 6601 | 6749 | 6897 | 7045  | 9             | 1341 |
| 29          |            | 7194 | 7342 | 7490 | 7639 | 7787 | 7935 | 8083 | 8232 | 8380 | 8528  |               |      |
| 30          | *          | 8676 | 8824 | 8973 | 9121 | 9269 | 9417 | 9565 | 9714 | 9862 | *010  | 148           |      |
| 31          | 467        | 0158 | 0306 | 0455 | 0603 | 0751 | 0899 | 1047 | 1195 | 1343 | 1492  |               |      |
| 32          |            | 1640 | 1788 | 1936 | 2084 | 2232 | 2380 | 2528 | 2676 | 2824 | 2973  |               |      |
| 33          |            | 3121 | 3269 | 3417 | 3565 | 3713 | 3861 | 4009 | 4157 | 4305 | 4453  |               |      |
| 34          |            | 4601 | 4749 | 4897 | 5045 | 5193 | 5341 | 5489 | 5637 | 5785 | 5933  |               |      |
| 35          |            | 6081 | 6229 | 6377 | 6525 | 6673 | 6821 | 6969 | 7117 | 7265 | 7413  |               |      |
| 36          |            | 7561 | 7708 | 7856 | 8004 | 8152 | 8300 | 8448 | 8596 | 8744 | 8892  |               |      |
| 37          | *          | 9039 | 9187 | 9335 | 9483 | 9631 | 9779 | 9927 | *074 | 0222 | 0370  | 1             | 148  |
| 38          | 468        | 0518 | 0666 | 0814 | 0961 | 1109 | 1257 | 1405 | 1553 | 1700 | 1848  | 2             | 296  |
| 39          |            | 1996 | 2144 | 2291 | 2439 | 2587 | 2735 | 2882 | 3030 | 3178 | 3326  | 3             | 444  |
| 40          |            | 3473 | 3621 | 3769 | 3916 | 4064 | 4212 | 4360 | 4507 | 4655 | 4803  | 4             | 592  |
| 41          |            | 4950 | 5098 | 5246 | 5393 | 5541 | 5689 | 5836 | 5984 | 6131 | 6279  | 5             | 740  |
| 42          |            | 6427 | 6574 | 6722 | 6870 | 7017 | 7165 | 7312 | 7460 | 7607 | 7755  | 6             | 888  |
| 43          |            | 7903 | 8050 | 8198 | 8345 | 8493 | 8640 | 8788 | 8935 | 9083 | 9231  | 7             | 1036 |
| 44          | *          | 9378 | 9526 | 9673 | 9821 | 9968 | *116 | 0263 | 0411 | 0558 | 0706  | 8             | 1184 |
| 45          | 469        | 0853 | 1000 | 1148 | 1295 | 1443 | 1590 | 1738 | 1885 | 2033 | 2180  | 9             | 1332 |
| 46          |            | 2327 | 2475 | 2622 | 2770 | 2917 | 3064 | 3212 | 3359 | 3507 | 3654  |               |      |
| 47          |            | 3801 | 3949 | 4096 | 4243 | 4391 | 4538 | 4685 | 4833 | 4980 | 5127  |               |      |
| 48          |            | 5275 | 5422 | 5569 | 5717 | 5864 | 6011 | 6159 | 6306 | 6453 | 6600  |               |      |
| 49          |            | 6748 | 6895 | 7042 | 7190 | 7337 | 7484 | 7631 | 7778 | 7926 | 8073  |               |      |
| 50          |            | 8220 | 8367 | 8515 | 8662 | 8809 | 8956 | 9103 | 9251 | 9398 | 9545  |               |      |
| 51          | *          | 9692 | 9839 | 9986 | *134 | 0281 | 0428 | 0575 | 0722 | 0869 | 1016  |               |      |
| 52          | 470        | 1164 | 1311 | 1458 | 1605 | 1752 | 1899 | 2046 | 2193 | 2340 | 2487  |               |      |
| 53          |            | 2634 | 2782 | 2929 | 3076 | 3223 | 3370 | 3517 | 3664 | 3811 | 3958  |               |      |
| 54          |            | 4105 | 4252 | 4399 | 4546 | 4693 | 4840 | 4987 | 5134 | 5281 | 5428  |               |      |
| 55          |            | 5575 | 5722 | 5869 | 6016 | 6163 | 6310 | 6457 | 6604 | 6750 | 6897  |               |      |
| 56          |            | 7044 | 7191 | 7338 | 7485 | 7632 | 7779 | 7926 | 8073 | 8219 | 8366  |               |      |
| 57          |            | 8513 | 8660 | 8807 | 8954 | 9101 | 9248 | 9394 | 9541 | 9688 | 9835  |               |      |
| 58          | *          | 9982 | *129 | 0275 | 0422 | 0569 | 0716 | 0863 | 1009 | 1156 | 1303  |               |      |
| 59          | 471        | 1450 | 1596 | 1743 | 1890 | 2037 | 2183 | 2330 | 2477 | 2624 | 2770  |               |      |
| 60          |            | 2917 | 3064 | 3211 | 3357 | 3504 | 3651 | 3797 | 3944 | 4091 | 4237  |               |      |
| 61          |            | 4384 | 4531 | 4677 | 4824 | 4971 | 5117 | 5264 | 5411 | 5557 | 5704  |               |      |
| 62          |            | 5851 | 5997 | 6144 | 6290 | 6437 | 6584 | 6730 | 6877 | 7023 | 7170  |               |      |
| 63          |            | 7317 | 7463 | 7610 | 7756 | 7903 | 8049 | 8196 | 8342 | 8489 | 8635  |               |      |
| 64          | *          | 8782 | 8929 | 9075 | 9222 | 9368 | 9515 | 9661 | 9808 | 9954 | *101  |               |      |
| 65          | 472        | 0247 | 0393 | 0540 | 0686 | 0833 | 0979 | 1126 | 1272 | 1419 | 1565  |               |      |
| 66          |            | 1711 | 1858 | 2004 | 2151 | 2297 | 2444 | 2590 | 2736 | 2883 | 3029  |               |      |
| 67          |            | 3175 | 3322 | 3468 | 3615 | 3761 | 3907 | 4054 | 4200 | 4346 | 4493  |               |      |
| 68          |            | 4639 | 4785 | 4932 | 5078 | 5224 | 5371 | 5517 | 5663 | 5809 | 5956  |               |      |
| 69          |            | 6102 | 6248 | 6395 | 6541 | 6687 | 6833 | 6980 | 7126 | 7272 | 7418  |               |      |
| 70          |            | 7564 | 7711 | 7857 | 8003 | 8149 | 8295 | 8442 | 8588 | 8734 | 8880  |               |      |
| 71          | *          | 9027 | 9173 | 9319 | 9465 | 9611 | 9757 | 9903 | *050 | 0196 | 0342  |               |      |
| 72          | 473        | 0488 | 0634 | 0780 | 0926 | 1073 | 1219 | 1365 | 1511 | 1657 | 1803  |               |      |
| 73          |            | 1949 | 2095 | 2241 | 2387 | 2533 | 2679 | 2825 | 2972 | 3118 | 3264  |               |      |
| 74          |            | 3410 | 3556 | 3702 | 3848 | 3994 | 4140 | 4286 | 4432 | 4578 | 4724  |               |      |
| 75          |            | 4870 | 5016 | 5162 | 5308 | 5454 | 5600 | 5746 | 5892 | 6037 | 6183  |               |      |
| 76          |            | 6329 | 6475 | 6621 | 6767 | 6913 | 7059 | 7205 | 7351 | 7497 | 7642  |               |      |
| 77          |            | 7788 | 7934 | 8080 | 8226 | 8372 | 8518 | 8664 | 8809 | 8955 | 9101  |               |      |
| 78          | *          | 9247 | 9393 | 9539 | 9684 | 9830 | 9976 | *122 | 0268 | 0413 | 0559  |               |      |
| 79          | 474        | 0705 | 0851 | 0997 | 1142 | 1288 | 1434 | 1580 | 1725 | 1871 | 2017  |               |      |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |      |

| Num.        | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|-------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>2900</b> | <b>474</b> | 2163     | 2308     | 2454     | 2600     | 2746     | 2891     | 3037     | 3183     | 3328     | 3474         |                          |
| 81          |            | 3620     | 3765     | 3911     | 4057     | 4202     | 4348     | 4494     | 4639     | 4785     | 4931         | 1<br>146                 |
| 82          |            | 5076     | 5222     | 5368     | 5513     | 5659     | 5805     | 5950     | 6096     | 6241     | 6387         | 2<br>292                 |
| 83          |            | 6533     | 6678     | 6824     | 6969     | 7115     | 7260     | 7406     | 7552     | 7697     | 7843         | 3<br>438                 |
| 84          |            | 7988     | 8134     | 8279     | 8425     | 8570     | 8716     | 8861     | 9007     | 9152     | 9298         | 4<br>584                 |
| 85          | *          | 9443     | 9589     | 9734     | 9880     | 10025    | 0171     | 0316     | 0462     | 0607     | 0753         | 5<br>730                 |
| 86          | 475        | 0808     | 1043     | 1189     | 1334     | 1480     | 1625     | 1771     | 1916     | 2061     | 2207         | 6<br>876                 |
| 87          |            | 2352     | 2498     | 2643     | 2788     | 2934     | 3079     | 3225     | 3370     | 3515     | 3661         | 7<br>1022                |
| 88          |            | 3806     | 3951     | 4097     | 4242     | 4387     | 4533     | 4678     | 4823     | 4969     | 5114         | 8<br>1168                |
| 89          |            | 5259     | 5404     | 5550     | 5695     | 5840     | 5986     | 6131     | 6276     | 6421     | 6567         | 9<br>1314                |
| <b>2990</b> |            | 6712     | 6857     | 7002     | 7148     | 7293     | 7438     | 7583     | 7729     | 7874     | 8019         |                          |
| 91          |            | 8164     | 8309     | 8455     | 8600     | 8745     | 8890     | 9035     | 9180     | 9326     | 9471         |                          |
| 92          | *          | 9616     | 9761     | 9906     | 10051    | 0196     | 0342     | 0487     | 0632     | 0777     | 0922         |                          |
| 93          | 476        | 1067     | 1212     | 1357     | 1502     | 1648     | 1793     | 1938     | 2083     | 2228     | 2373         | 1<br>145                 |
| 94          |            | 2518     | 2663     | 2808     | 2953     | 3098     | 3243     | 3388     | 3533     | 3678     | 3823         | 2<br>290                 |
| 95          |            | 3968     | 4113     | 4258     | 4403     | 4548     | 4693     | 4838     | 4983     | 5128     | 5273         | 3<br>435                 |
| 96          |            | 5418     | 5563     | 5708     | 5853     | 5998     | 6143     | 6288     | 6433     | 6578     | 6723         | 4<br>580                 |
| 97          |            | 6867     | 7012     | 7157     | 7302     | 7447     | 7592     | 7737     | 7882     | 8027     | 8171         | 5<br>725                 |
| 98          |            | 8316     | 8461     | 8606     | 8751     | 8896     | 9041     | 9185     | 9330     | 9475     | 9620         | 6<br>870                 |
| 99          | *          | 9765     | 9909     | 10054    | 0199     | 0344     | 0489     | 0633     | 0778     | 0923     | 1068         | 7<br>1015                |
| <b>3000</b> | 477        | 1213     | 1357     | 1502     | 1647     | 1792     | 1936     | 2081     | 2226     | 2371     | 2515         |                          |
| 01          |            | 2660     | 2805     | 2949     | 3094     | 3239     | 3383     | 3528     | 3673     | 3818     | 3962         | 8<br>1160                |
| 02          |            | 4107     | 4252     | 4396     | 4541     | 4686     | 4830     | 4975     | 5119     | 5264     | 5409         | 9<br>1305                |
| 03          |            | 5553     | 5698     | 5843     | 5987     | 6132     | 6276     | 6421     | 6566     | 6710     | 6855         |                          |
| 04          |            | 6999     | 7144     | 7288     | 7433     | 7578     | 7722     | 7867     | 8011     | 8156     | 8300         |                          |
| 05          |            | 8445     | 8589     | 8734     | 8878     | 9023     | 9167     | 9312     | 9456     | 9601     | 9745         |                          |
| 06          | *          | 9890     | 10034    | 0179     | 0323     | 0468     | 0612     | 0757     | 0901     | 1045     | 1190         | 1<br>144                 |
| 07          | 478        | 1334     | 1479     | 1623     | 1768     | 1912     | 2056     | 2201     | 2345     | 2490     | 2634         | 2<br>288                 |
| 08          |            | 2778     | 2923     | 3067     | 3211     | 3356     | 3500     | 3645     | 3789     | 3933     | 4078         | 3<br>432                 |
| 09          |            | 4222     | 4366     | 4511     | 4655     | 4799     | 4943     | 5088     | 5232     | 5376     | 5521         | 4<br>576                 |
| <b>3010</b> |            | 5665     | 5809     | 5954     | 6098     | 6242     | 6386     | 6531     | 6675     | 6819     | 6963         |                          |
| 11          |            | 7108     | 7252     | 7396     | 7540     | 7684     | 7829     | 7973     | 8117     | 8261     | 8405         | 5<br>720                 |
| 12          |            | 8550     | 8694     | 8838     | 8982     | 9126     | 9271     | 9415     | 9559     | 9703     | 9847         | 6<br>864                 |
| 13          | *          | 9991     | 10135    | 0280     | 0424     | 0568     | 0712     | 0856     | 1000     | 1144     | 1288         | 7<br>1008                |
| 14          | 479        | 1432     | 1577     | 1721     | 1865     | 2009     | 2153     | 2297     | 2441     | 2585     | 2729         | 8<br>1152                |
| 15          |            | 2873     | 3017     | 3161     | 3305     | 3449     | 3593     | 3737     | 3881     | 4025     | 4169         | 9<br>1296                |
| 16          |            | 4313     | 4457     | 4601     | 4745     | 4889     | 5033     | 5177     | 5321     | 5465     | 5609         |                          |
| 17          |            | 5753     | 5897     | 6041     | 6185     | 6329     | 6473     | 6617     | 6761     | 6905     | 7048         | 1<br>143                 |
| 18          |            | 7192     | 7336     | 7480     | 7624     | 7768     | 7912     | 8056     | 8200     | 8343     | 8487         | 2<br>286                 |
| 19          |            | 8631     | 8775     | 8919     | 9063     | 9207     | 9350     | 9494     | 9638     | 9782     | 9926         | 3<br>429                 |
| <b>3020</b> | 480        | 0069     | 0213     | 0357     | 0501     | 0645     | 0788     | 0932     | 1076     | 1220     | 1363         | 4<br>572                 |
| 21          |            | 1507     | 1651     | 1795     | 1939     | 2082     | 2226     | 2370     | 2513     | 2657     | 2801         | 5<br>715                 |
| 22          |            | 2945     | 3088     | 3232     | 3376     | 3519     | 3663     | 3807     | 3950     | 4094     | 4238         | 6<br>858                 |
| 23          |            | 4381     | 4525     | 4669     | 4812     | 4956     | 5100     | 5243     | 5387     | 5531     | 5674         | 7<br>1001                |
| 24          |            | 5818     | 5961     | 6105     | 6249     | 6392     | 6536     | 6679     | 6823     | 6967     | 7110         | 8<br>1144                |
| 25          |            | 7254     | 7397     | 7541     | 7684     | 7828     | 7972     | 8115     | 8259     | 8402     | 8546         | 9<br>1287                |
| 26          |            | 8689     | 8833     | 8976     | 9120     | 9263     | 9407     | 9550     | 9694     | 9837     | 9981         |                          |
| 27          | 481        | 0124     | 0268     | 0411     | 0555     | 0698     | 0842     | 0985     | 1128     | 1272     | 1415         |                          |
| 28          |            | 1559     | 1702     | 1846     | 1989     | 2132     | 2276     | 2419     | 2563     | 2706     | 2849         |                          |
| 29          |            | 2993     | 3136     | 3279     | 3423     | 3566     | 3710     | 3853     | 3996     | 4140     | 4283         |                          |
| <b>3030</b> |            | 4426     | 4570     | 4713     | 4856     | 5000     | 5143     | 5286     | 5429     | 5573     | 5716         |                          |
| 31          |            | 5859     | 6003     | 6146     | 6289     | 6432     | 6576     | 6719     | 6862     | 7005     | 7149         | 1<br>142                 |
| 32          |            | 7292     | 7435     | 7578     | 7722     | 7865     | 8008     | 8151     | 8295     | 8438     | 8581         | 2<br>284                 |
| 33          | *          | 8724     | 8867     | 9010     | 9154     | 9297     | 9440     | 9583     | 9726     | 9869     | 10013        | 3<br>426                 |
| 34          | 482        | 0156     | 0299     | 0442     | 0585     | 0728     | 0871     | 1015     | 1158     | 1301     | 1444         | 4<br>568                 |
| 35          |            | 1587     | 1730     | 1873     | 2016     | 2159     | 2302     | 2445     | 2589     | 2732     | 2875         | 5<br>710                 |
| 36          |            | 3018     | 3161     | 3304     | 3447     | 3590     | 3733     | 3876     | 4019     | 4162     | 4305         | 6<br>852                 |
| 37          |            | 4448     | 4591     | 4734     | 4877     | 5020     | 5163     | 5306     | 5449     | 5592     | 5735         | 7<br>994                 |
| 38          |            | 5878     | 6021     | 6164     | 6307     | 6449     | 6592     | 6735     | 6878     | 7021     | 7164         | 8<br>1136                |
| 39          |            | 7307     | 7450     | 7593     | 7736     | 7879     | 8021     | 8164     | 8307     | 8450     | 8593         | 9<br>1278                |
| <b>Num.</b> | <b>0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |

| Num.        | 0      | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|--------|--------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>3040</b> | * 8736 | 8879   | 9022 | 9164 | 9307 | 9450 | 9593 | 9736 | 9879 | •021 |       | 1<br>143      |
| 41          | 483    | 0164   | 0307 | 0450 | 0593 | 0735 | 0878 | 1021 | 1164 | 1307 | 1449  | 2<br>286      |
| 42          |        | 1592   | 1735 | 1878 | 2020 | 2163 | 2306 | 2449 | 2591 | 2734 | 2877  | 3<br>429      |
| 43          |        | 3020   | 3162 | 3305 | 3448 | 3590 | 3733 | 3876 | 4018 | 4161 | 4304  | 4<br>572      |
| 44          |        | 4440   | 4589 | 4732 | 4874 | 5017 | 5160 | 5302 | 5445 | 5588 | 5730  | 5<br>715      |
| 45          |        | 5873   | 6016 | 6158 | 6301 | 6443 | 6586 | 6729 | 6871 | 7014 | 7156  | 6<br>858      |
| 46          |        | 7299   | 7442 | 7584 | 7727 | 7869 | 8012 | 8154 | 8297 | 8439 | 8582  | 7<br>1001     |
| 47          |        | * 8725 | 8867 | 9010 | 9152 | 9295 | 9437 | 9580 | 9722 | 9865 | •007  | 8<br>1144     |
| 48          | 484    | 0150   | 0292 | 0435 | 0577 | 0720 | 0862 | 1004 | 1147 | 1289 | 1432  | 9<br>1287     |
| 49          |        | 1574   | 1717 | 1859 | 2002 | 2144 | 2286 | 2429 | 2571 | 2714 | 2856  |               |
| 30 50       | 2998   | 3141   | 3283 | 3426 | 3568 | 3710 | 3853 | 3995 | 4137 | 4280 |       |               |
| 51          | 4422   | 4564   | 4707 | 4849 | 4991 | 5134 | 5276 | 5418 | 5561 | 5703 |       |               |
| 52          | 5845   | 5988   | 6130 | 6272 | 6414 | 6557 | 6699 | 6841 | 6984 | 7126 |       |               |
| 53          | 7268   | 7410   | 7553 | 7695 | 7837 | 7979 | 8121 | 8264 | 8406 | 8548 |       |               |
| 54          | 8690   | 8833   | 8975 | 9117 | 9259 | 9401 | 9543 | 9686 | 9828 | 9970 |       |               |
| 55          | 485    | 0112   | 0254 | 0396 | 0539 | 0681 | 0823 | 0965 | 1107 | 1249 | 1391  |               |
| 56          |        | 1533   | 1676 | 1818 | 1960 | 2102 | 2244 | 2386 | 2528 | 2670 | 2812  |               |
| 57          |        | 2954   | 3096 | 3239 | 3381 | 3523 | 3665 | 3807 | 3949 | 4091 | 4233  | 1<br>142      |
| 58          |        | 4375   | 4517 | 4659 | 4801 | 4943 | 5085 | 5227 | 5369 | 5511 | 5653  | 2<br>284      |
| 59          |        | 5795   | 5937 | 6079 | 6221 | 6363 | 6505 | 6647 | 6788 | 6930 | 7072  | 3<br>426      |
| 30 60       | 7214   | 7356   | 7498 | 7640 | 7782 | 7924 | 8066 | 8208 | 8350 | 8491 |       | 4<br>568      |
| 61          | 8633   | 8775   | 8917 | 9059 | 9201 | 9343 | 9484 | 9626 | 9768 | 9910 |       | 5<br>710      |
| 62          | 480    | 0052   | 0194 | 0336 | 0477 | 0619 | 0761 | 0903 | 1045 | 1186 | 1328  | 6<br>852      |
| 63          |        | 1470   | 1612 | 1754 | 1895 | 2037 | 2179 | 2321 | 2462 | 2604 | 2746  | 7<br>994      |
| 64          |        | 2888   | 3029 | 3171 | 3313 | 3455 | 3596 | 3738 | 3880 | 4021 | 4163  | 8<br>1136     |
| 65          |        | 4305   | 4446 | 4588 | 4730 | 4872 | 5013 | 5155 | 5297 | 5438 | 5580  | 9<br>1278     |
| 66          |        | 5722   | 5863 | 6005 | 6146 | 6288 | 6430 | 6571 | 6713 | 6855 | 6996  |               |
| 67          |        | 7138   | 7279 | 7421 | 7563 | 7704 | 7846 | 7987 | 8129 | 8270 | 8412  |               |
| 68          |        | 8554   | 8695 | 8837 | 8978 | 9120 | 9261 | 9403 | 9544 | 9686 | 9827  |               |
| 69          |        | * 9969 | •110 | 0252 | 0393 | 0535 | 0676 | 0818 | 0959 | 1101 | 1242  |               |
| 30 70       | 487    | 1384   | 1525 | 1667 | 1808 | 1950 | 2091 | 2232 | 2374 | 2515 | 2657  |               |
| 71          |        | 2798   | 2940 | 3081 | 3222 | 3364 | 3505 | 3647 | 3788 | 3929 | 4071  |               |
| 72          |        | 4212   | 4353 | 4495 | 4636 | 4778 | 4919 | 5060 | 5202 | 5343 | 5484  |               |
| 73          |        | 5626   | 5767 | 5908 | 6050 | 6191 | 6332 | 6473 | 6615 | 6756 | 6897  |               |
| 74          |        | 7039   | 7180 | 7321 | 7462 | 7604 | 7745 | 7886 | 8027 | 8169 | 8310  | 1<br>141      |
| 75          |        | 8451   | 8592 | 8734 | 8875 | 9016 | 9157 | 9299 | 9440 | 9581 | 9722  | 2<br>282      |
| 76          |        | * 9863 | •004 | 0146 | 0287 | 0428 | 0569 | 0710 | 0852 | 0993 | 1134  | 3<br>423      |
| 77          | 488    | 1275   | 1416 | 1557 | 1698 | 1839 | 1981 | 2122 | 2263 | 2404 | 2545  | 4<br>564      |
| 78          |        | 2686   | 2827 | 2968 | 3109 | 3251 | 3392 | 3533 | 3674 | 3815 | 3956  | 5<br>705      |
| 79          |        | 4097   | 4238 | 4379 | 4520 | 4661 | 4802 | 4943 | 5084 | 5225 | 5366  | 6<br>846      |
| 30 80       | 5507   | 5648   | 5789 | 5930 | 6071 | 6212 | 6353 | 6494 | 6635 | 6776 |       | 7<br>987      |
| 81          |        | 6917   | 7058 | 7199 | 7340 | 7481 | 7622 | 7763 | 7904 | 8045 | 8185  | 8<br>1128     |
| 82          |        | 8326   | 8467 | 8608 | 8749 | 8890 | 9031 | 9172 | 9313 | 9454 | 9594  | 9<br>1269     |
| 83          |        | * 9735 | 9876 | •017 | 0158 | 0299 | 0440 | 0580 | 0721 | 0862 | 1003  |               |
| 84          | 489    | 1144   | 1285 | 1425 | 1566 | 1707 | 1848 | 1989 | 2129 | 2270 | 2411  |               |
| 85          |        | 2552   | 2692 | 2833 | 2974 | 3115 | 3256 | 3396 | 3537 | 3678 | 3818  |               |
| 86          |        | 3959   | 4100 | 4241 | 4381 | 4522 | 4663 | 4804 | 4944 | 5085 | 5226  |               |
| 87          |        | 5366   | 5507 | 5648 | 5788 | 5929 | 6070 | 6210 | 6351 | 6492 | 6632  |               |
| 88          |        | 6773   | 6914 | 7054 | 7195 | 7335 | 7476 | 7617 | 7757 | 7898 | 8038  |               |
| 89          |        | 8179   | 8320 | 8460 | 8601 | 8741 | 8882 | 9023 | 9163 | 9304 | 9444  |               |
| 30 90       | * 9585 | 9725   | 9866 | •006 | 0147 | 0287 | 0428 | 0569 | 0709 | 0850 |       |               |
| 91          | 490    | 0990   | 1131 | 1271 | 1412 | 1552 | 1693 | 1833 | 1973 | 2114 | 2254  | 1<br>140      |
| 92          |        | 2395   | 2535 | 2676 | 2816 | 2957 | 3097 | 3238 | 3378 | 3518 | 3659  | 2<br>280      |
| 93          |        | 3799   | 3940 | 4080 | 4220 | 4361 | 4501 | 4642 | 4782 | 4922 | 5063  | 3<br>420      |
| 94          |        | 5203   | 5343 | 5484 | 5624 | 5765 | 5905 | 6045 | 6186 | 6326 | 6466  | 4<br>560      |
| 95          |        | 6607   | 6747 | 6888 | 7027 | 7168 | 7308 | 7448 | 7589 | 7729 | 7869  | 5<br>700      |
| 96          |        | 8010   | 8150 | 8290 | 8430 | 8571 | 8711 | 8851 | 8991 | 9132 | 9272  | 6<br>840      |
| 97          |        | * 9412 | 9552 | 9693 | 9833 | 9973 | •113 | 0253 | 0394 | 0534 | 0674  | 7<br>980      |
| 98          | 491    | 0814   | 0954 | 1094 | 1235 | 1375 | 1515 | 1655 | 1795 | 1935 | 2076  | 8<br>1120     |
| 99          |        | 2216   | 2356 | 2496 | 2636 | 2776 | 2916 | 3057 | 3197 | 3337 | 3477  | 9<br>1260     |
| Num.        | 0      | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |      |
|-------------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|------|
| <b>3100</b> | 491 | 3617 | 3757 | 3897 | 4037 | 4177 | 4317 | 4457 | 4597 | 4738 | 4878  | 1             | 140  |
| 01          |     | 5018 | 5158 | 5298 | 5438 | 5578 | 5718 | 5858 | 5998 | 6138 | 6278  | 2             | 280  |
| 02          |     | 6418 | 6558 | 6698 | 6838 | 6978 | 7118 | 7258 | 7398 | 7538 | 7678  | 3             | 420  |
| 03          |     | 7818 | 7958 | 8098 | 8238 | 8378 | 8517 | 8657 | 8797 | 8937 | 9077  | 4             | 560  |
| 04          | *   | 9217 | 9357 | 9497 | 9637 | 9777 | 9917 | +057 | 0196 | 0336 | 0476  | 5             | 700  |
| 05          | 492 | 0616 | 0756 | 0896 | 1036 | 1175 | 1315 | 1455 | 1595 | 1735 | 1875  | 6             | 840  |
| 06          |     | 2015 | 2154 | 2294 | 2434 | 2574 | 2714 | 2853 | 2993 | 3133 | 3273  | 7             | 980  |
| 07          |     | 3413 | 3552 | 3692 | 3832 | 3972 | 4111 | 4251 | 4391 | 4531 | 4670  | 8             | 1120 |
| 08          |     | 4810 | 4950 | 5090 | 5229 | 5369 | 5509 | 5648 | 5788 | 5928 | 6068  | 9             | 1260 |
| 09          |     | 6207 | 6347 | 6487 | 6626 | 6766 | 6906 | 7045 | 7185 | 7325 | 7464  |               |      |
| <b>3110</b> |     | 7604 | 7744 | 7883 | 8023 | 8162 | 8302 | 8442 | 8581 | 8721 | 8861  |               |      |
| 11          | *   | 9000 | 9140 | 9279 | 9419 | 9558 | 9698 | 9838 | 9977 | +117 | 0256  |               |      |
| 12          | 493 | 0396 | 0535 | 0675 | 0815 | 0954 | 1094 | 1233 | 1373 | 1512 | 1652  |               |      |
| 13          |     | 1791 | 1931 | 2070 | 2210 | 2349 | 2489 | 2628 | 2768 | 2907 | 3047  |               |      |
| 14          |     | 3186 | 3326 | 3465 | 3604 | 3744 | 3883 | 4023 | 4162 | 4302 | 4441  |               |      |
| 15          |     | 4581 | 4720 | 4859 | 4999 | 5138 | 5278 | 5417 | 5556 | 5696 | 5835  |               |      |
| 16          |     | 5974 | 6114 | 6253 | 6393 | 6532 | 6671 | 6811 | 6950 | 7089 | 7229  |               |      |
| 17          |     | 7368 | 7507 | 7647 | 7786 | 7925 | 8065 | 8204 | 8343 | 8483 | 8622  |               |      |
| 18          | *   | 8761 | 8900 | 9040 | 9179 | 9318 | 9457 | 9597 | 9736 | 9875 | +015  | 1             | 139  |
| 19          | 494 | 0154 | 0293 | 0432 | 0571 | 0711 | 0850 | 0989 | 1128 | 1268 | 1407  | 2             | 278  |
| <b>3120</b> |     | 1546 | 1685 | 1824 | 1964 | 2103 | 2242 | 2381 | 2520 | 2659 | 2799  | 3             | 417  |
| 21          |     | 2938 | 3077 | 3216 | 3355 | 3494 | 3633 | 3773 | 3912 | 4051 | 4190  | 4             | 556  |
| 22          |     | 4329 | 4468 | 4607 | 4746 | 4885 | 5024 | 5164 | 5303 | 5442 | 5581  | 5             | 695  |
| 23          |     | 5720 | 5859 | 5998 | 6137 | 6276 | 6415 | 6554 | 6693 | 6832 | 6971  | 6             | 834  |
| 24          |     | 7110 | 7249 | 7388 | 7527 | 7666 | 7805 | 7944 | 8083 | 8222 | 8361  | 7             | 973  |
| 25          |     | 8500 | 8639 | 8778 | 8917 | 9056 | 9195 | 9334 | 9473 | 9612 | 9751  | 8             | 1112 |
| 26          | *   | 9890 | +029 | 0168 | 0307 | 0445 | 0584 | 0723 | 0862 | 1001 | 1140  | 9             | 1251 |
| 27          | 495 | 1279 | 1418 | 1557 | 1695 | 1834 | 1973 | 2112 | 2251 | 2390 | 2529  |               |      |
| 28          |     | 2667 | 2806 | 2945 | 3084 | 3223 | 3362 | 3500 | 3639 | 3778 | 3917  |               |      |
| 29          |     | 4056 | 4194 | 4333 | 4472 | 4611 | 4750 | 4888 | 5027 | 5166 | 5305  |               |      |
| <b>3130</b> |     | 5443 | 5582 | 5721 | 5860 | 5998 | 6137 | 6276 | 6415 | 6553 | 6692  |               |      |
| 31          |     | 6831 | 6969 | 7108 | 7247 | 7385 | 7524 | 7663 | 7802 | 7940 | 8079  |               |      |
| 32          |     | 8218 | 8356 | 8495 | 8634 | 8772 | 8911 | 9049 | 9188 | 9327 | 9465  |               |      |
| 33          | *   | 9604 | 9743 | 9881 | +020 | 0158 | 0297 | 0436 | 0574 | 0713 | 0851  |               |      |
| 34          | 496 | 0990 | 1128 | 1267 | 1406 | 1544 | 1683 | 1821 | 1960 | 2098 | 2237  |               |      |
| 35          |     | 2375 | 2514 | 2653 | 2791 | 2930 | 3068 | 3207 | 3345 | 3484 | 3622  | 1             | 138  |
| 36          |     | 3761 | 3899 | 4038 | 4176 | 4314 | 4453 | 4591 | 4730 | 4868 | 5007  | 2             | 276  |
| 37          |     | 5145 | 5284 | 5422 | 5560 | 5699 | 5837 | 5976 | 6114 | 6253 | 6391  | 3             | 414  |
| 38          |     | 6529 | 6668 | 6806 | 6945 | 7083 | 7221 | 7360 | 7498 | 7636 | 7775  | 4             | 552  |
| 39          |     | 7913 | 8052 | 8190 | 8328 | 8467 | 8605 | 8743 | 8882 | 9020 | 9158  | 5             | 690  |
| <b>3140</b> | *   | 9296 | 9435 | 9573 | 9711 | 9850 | 9988 | +126 | 0265 | 0403 | 0541  | 6             | 828  |
| 41          | 497 | 0679 | 0818 | 0956 | 1094 | 1232 | 1371 | 1509 | 1647 | 1785 | 1924  | 7             | 966  |
| 42          |     | 2062 | 2200 | 2338 | 2476 | 2615 | 2753 | 2891 | 3029 | 3167 | 3306  | 8             | 1104 |
| 43          |     | 3444 | 3582 | 3720 | 3858 | 3996 | 4135 | 4273 | 4411 | 4549 | 4687  | 9             | 1242 |
| 44          |     | 4825 | 4964 | 5102 | 5240 | 5378 | 5516 | 5654 | 5792 | 5930 | 6068  |               |      |
| 45          |     | 6206 | 6345 | 6483 | 6621 | 6759 | 6897 | 7035 | 7173 | 7311 | 7449  |               |      |
| 46          |     | 7587 | 7725 | 7863 | 8001 | 8139 | 8277 | 8415 | 8553 | 8691 | 8829  |               |      |
| 47          | *   | 8967 | 9105 | 9243 | 9381 | 9519 | 9657 | 9795 | 9933 | +071 | 0209  |               |      |
| 48          | 498 | 0347 | 0485 | 0623 | 0761 | 0899 | 1037 | 1175 | 1313 | 1451 | 1589  |               |      |
| 49          |     | 1727 | 1865 | 2002 | 2140 | 2278 | 2416 | 2554 | 2692 | 2830 | 2968  |               |      |
| <b>3150</b> |     | 3106 | 3243 | 3381 | 3519 | 3657 | 3795 | 3933 | 4071 | 4208 | 4346  |               |      |
| 51          |     | 4484 | 4622 | 4760 | 4897 | 5035 | 5173 | 5311 | 5449 | 5587 | 5724  |               |      |
| 52          |     | 5862 | 6000 | 6138 | 6275 | 6413 | 6551 | 6689 | 6826 | 6964 | 7102  | 1             | 137  |
| 53          |     | 7240 | 7377 | 7515 | 7653 | 7791 | 7928 | 8066 | 8204 | 8341 | 8479  | 2             | 274  |
| 54          |     | 8617 | 8755 | 8892 | 9030 | 9168 | 9305 | 9443 | 9581 | 9718 | 9856  | 3             | 411  |
| 55          | *   | 9994 | +131 | 0269 | 0407 | 0544 | 0682 | 0819 | 0957 | 1095 | 1232  | 4             | 548  |
| 56          | 499 | 1370 | 1508 | 1645 | 1783 | 1920 | 2058 | 2196 | 2333 | 2471 | 2608  | 5             | 685  |
| 57          |     | 2746 | 2883 | 3021 | 3158 | 3296 | 3434 | 3571 | 3709 | 3846 | 3984  | 6             | 822  |
| 58          |     | 4121 | 4259 | 4396 | 4534 | 4671 | 4809 | 4946 | 5084 | 5221 | 5359  | 7             | 959  |
| 59          |     | 5496 | 5634 | 5771 | 5909 | 6046 | 6184 | 6321 | 6459 | 6596 | 6733  | 8             | 1096 |
|             |     |      |      |      |      |      |      |      |      |      |       | 9             | 1233 |
| Num.        | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |      |

| Num.        | 0          | 1           | 2           | 3           | 4           | 5           | 6           | 7           | 8           | 9           | Diff.       | Diff. & Mult. |               |
|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|
| <b>3160</b> | <b>499</b> | <b>6871</b> | <b>7008</b> | <b>7146</b> | <b>7283</b> | <b>7421</b> | <b>7558</b> | <b>7695</b> | <b>7833</b> | <b>7970</b> | <b>8108</b> |               |               |
| 61          |            | 8245        | 8382        | 8520        | 8657        | 8794        | 8932        | 9069        | 9207        | 9344        | 9481        | 1<br>138      |               |
| 62          | *          | 9619        | 9756        | 9893        | +031        | 0168        | 0305        | 0443        | 0580        | 0717        | 0855        | 2<br>276      |               |
| 63          | 500        | 0992        | 1129        | 1267        | 1404        | 1541        | 1678        | 1816        | 1953        | 2090        | 2227        | 3<br>414      |               |
| 64          |            | 2365        | 2502        | 2639        | 2777        | 2914        | 3051        | 3188        | 3325        | 3463        | 3600        | 4<br>552      |               |
| 65          |            | 3737        | 3874        | 4012        | 4149        | 4286        | 4423        | 4560        | 4698        | 4835        | 4972        | 5<br>690      |               |
| 66          |            | 5109        | 5246        | 5383        | 5521        | 5658        | 5795        | 5932        | 6069        | 6206        | 6344        | 6<br>828      |               |
| 67          |            | 6481        | 6618        | 6755        | 6892        | 7029        | 7166        | 7303        | 7440        | 7578        | 7715        | 7<br>966      |               |
| 68          |            | 7852        | 7989        | 8126        | 8263        | 8400        | 8537        | 8674        | 8811        | 8948        | 9085        | 8<br>1104     |               |
| 69          | *          | 9222        | 9359        | 9496        | 9634        | 9771        | 9908        | +045        | 0182        | 0319        | 0456        | 9<br>1242     |               |
| <b>3170</b> | <b>501</b> | <b>0593</b> | <b>0730</b> | <b>0867</b> | <b>1004</b> | <b>1141</b> | <b>1278</b> | <b>1415</b> | <b>1552</b> | <b>1688</b> | <b>1825</b> | 137           |               |
| 71          |            | 1962        | 2099        | 2236        | 2373        | 2510        | 2647        | 2784        | 2921        | 3058        | 3195        | 1<br>137      |               |
| 72          |            | 3332        | 3469        | 3606        | 3743        | 3879        | 4016        | 4153        | 4290        | 4427        | 4564        | 2<br>274      |               |
| 73          |            | 4701        | 4838        | 4974        | 5111        | 5248        | 5385        | 5522        | 5659        | 5796        | 5932        | 3<br>411      |               |
| 74          |            | 6069        | 6206        | 6343        | 6480        | 6617        | 6753        | 6890        | 7027        | 7164        | 7301        | 4<br>548      |               |
| 75          |            | 7437        | 7574        | 7711        | 7848        | 7984        | 8121        | 8258        | 8395        | 8531        | 8668        | 5<br>685      |               |
| 76          | *          | 8805        | 8942        | 9078        | 9215        | 9352        | 9489        | 9625        | 9762        | 9899        | +035        | 6<br>822      |               |
| 77          | 502        | 0172        | 0309        | 0446        | 0582        | 0719        | 0856        | 0992        | 1129        | 1266        | 1402        | 7<br>959      |               |
| 78          |            | 1539        | 1676        | 1812        | 1949        | 2086        | 2222        | 2359        | 2495        | 2632        | 2769        | 8<br>1095     |               |
| 79          |            | 2905        | 3042        | 3178        | 3315        | 3452        | 3588        | 3725        | 3861        | 3998        | 4135        | 9<br>1233     |               |
| <b>3180</b> |            | <b>4271</b> | <b>4408</b> | <b>4544</b> | <b>4681</b> | <b>4817</b> | <b>4954</b> | <b>5091</b> | <b>5227</b> | <b>5364</b> | <b>5500</b> |               |               |
| 81          |            | 5637        | 5773        | 5910        | 6046        | 6183        | 6319        | 6456        | 6592        | 6729        | 6865        | 1<br>137      |               |
| 82          |            | 7002        | 7138        | 7275        | 7411        | 7548        | 7684        | 7821        | 7957        | 8093        | 8230        | 2<br>274      |               |
| 83          |            | 8366        | 8503        | 8639        | 8776        | 8912        | 9049        | 9185        | 9321        | 9458        | 9594        | 3<br>411      |               |
| 84          | *          | 9731        | 9867        | +003        | 0140        | 0276        | 0413        | 0549        | 0685        | 0822        | 0958        | 4<br>548      |               |
| 85          | 503        | 1094        | 1231        | 1367        | 1503        | 1640        | 1776        | 1912        | 2049        | 2185        | 2321        | 5<br>685      |               |
| 86          |            | 2458        | 2594        | 2730        | 2867        | 3003        | 3139        | 3276        | 3412        | 3548        | 3684        | 6<br>822      |               |
| 87          |            | 3821        | 3957        | 4093        | 4229        | 4366        | 4502        | 4638        | 4774        | 4911        | 5047        | 7<br>959      |               |
| 88          |            | 5183        | 5319        | 5456        | 5592        | 5728        | 5864        | 6000        | 6137        | 6273        | 6409        | 8<br>1095     |               |
| 89          |            | 6545        | 6681        | 6818        | 6954        | 7090        | 7226        | 7362        | 7498        | 7635        | 7771        | 9<br>1233     |               |
| <b>3190</b> |            | <b>7907</b> | <b>8043</b> | <b>8179</b> | <b>8315</b> | <b>8451</b> | <b>8587</b> | <b>8724</b> | <b>8860</b> | <b>8996</b> | <b>9132</b> |               |               |
| 91          | *          | 9268        | 9404        | 9540        | 9676        | 9812        | 9948        | +085        | 0221        | 0357        | 0493        | 1<br>137      |               |
| 92          | 504        | 0629        | 0765        | 0901        | 1037        | 1173        | 1309        | 1445        | 1581        | 1717        | 1853        | 2<br>274      |               |
| 93          |            | 1989        | 2125        | 2261        | 2397        | 2533        | 2669        | 2805        | 2941        | 3077        | 3213        | 3<br>411      |               |
| 94          |            | 3349        | 3485        | 3621        | 3757        | 3893        | 4029        | 4165        | 4301        | 4437        | 4573        | 4<br>548      |               |
| 95          |            | 4709        | 4845        | 4980        | 5116        | 5252        | 5388        | 5524        | 5660        | 5796        | 5932        | 5<br>685      |               |
| 96          |            | 6068        | 6204        | 6339        | 6475        | 6611        | 6747        | 6883        | 7019        | 7155        | 7291        | 6<br>822      |               |
| 97          |            | 7426        | 7562        | 7698        | 7834        | 7970        | 8106        | 8242        | 8377        | 8513        | 8649        | 7<br>959      |               |
| 98          | *          | 8785        | 8920        | 9056        | 9192        | 9328        | 9464        | 9599        | 9735        | 9871        | +007        | 8<br>1095     |               |
| 99          | 505        | 0142        | 0278        | 0414        | 0550        | 0685        | 0821        | 0957        | 1093        | 1228        | 1364        | 9<br>1233     |               |
| <b>3200</b> |            | <b>1500</b> | <b>1635</b> | <b>1771</b> | <b>1907</b> | <b>2043</b> | <b>2178</b> | <b>2314</b> | <b>2450</b> | <b>2585</b> | <b>2721</b> |               |               |
| 01          |            | 2857        | 2992        | 3128        | 3264        | 3399        | 3535        | 3671        | 3806        | 3942        | 4078        | 1<br>137      |               |
| 02          |            | 4213        | 4349        | 4485        | 4620        | 4756        | 4891        | 5027        | 5163        | 5298        | 5434        | 2<br>274      |               |
| 03          |            | 5769        | 5905        | 5841        | 5976        | 6112        | 6247        | 6383        | 6518        | 6654        | 6790        | 3<br>411      |               |
| 04          |            | 6925        | 7061        | 7196        | 7332        | 7467        | 7603        | 7738        | 7874        | 8009        | 8145        | 4<br>548      |               |
| 05          |            | 8280        | 8416        | 8551        | 8687        | 8822        | 8958        | 9093        | 9229        | 9364        | 9500        | 5<br>685      |               |
| 06          | *          | 9635        | 9771        | 9906        | +042        | 0177        | 0312        | 0448        | 0583        | 0719        | 0854        | 6<br>822      |               |
| 07          | 506        | 0990        | 1125        | 1260        | 1396        | 1531        | 1667        | 1802        | 1937        | 2073        | 2208        | 7<br>959      |               |
| 08          |            | 2344        | 2479        | 2614        | 2750        | 2885        | 3020        | 3156        | 3291        | 3426        | 3562        | 8<br>1095     |               |
| 09          |            | 3697        | 3833        | 3968        | 4103        | 4238        | 4374        | 4509        | 4644        | 4780        | 4915        | 9<br>1233     |               |
| <b>3210</b> |            | <b>5050</b> | <b>5186</b> | <b>5321</b> | <b>5456</b> | <b>5591</b> | <b>5727</b> | <b>5862</b> | <b>5997</b> | <b>6133</b> | <b>6268</b> |               |               |
| 11          |            | 6403        | 6538        | 6674        | 6809        | 6944        | 7079        | 7214        | 7350        | 7485        | 7620        | 1<br>137      |               |
| 12          |            | 7755        | 7891        | 8026        | 8161        | 8296        | 8431        | 8567        | 8702        | 8837        | 8972        | 2<br>274      |               |
| 13          | *          | 9107        | 9242        | 9378        | 9513        | 9648        | 9783        | 9918        | +053        | 0188        | 0324        | 3<br>411      |               |
| 14          | 507        | 0459        | 0594        | 0729        | 0864        | 0999        | 1134        | 1269        | 1405        | 1540        | 1675        | 4<br>548      |               |
| 15          |            | 1810        | 1945        | 2080        | 2215        | 2350        | 2485        | 2620        | 2755        | 2890        | 3025        | 5<br>685      |               |
| 16          |            | 3160        | 3295        | 3430        | 3566        | 3701        | 3836        | 3971        | 4106        | 4241        | 4376        | 6<br>822      |               |
| 17          |            | 4511        | 4646        | 4781        | 4916        | 5051        | 5186        | 5321        | 5456        | 5590        | 5725        | 7<br>959      |               |
| 18          |            | 5860        | 5995        | 6130        | 6265        | 6400        | 6535        | 6670        | 6805        | 6940        | 7075        | 8<br>1095     |               |
| 19          |            | 7210        | 7345        | 7480        | 7614        | 7749        | 7884        | 8019        | 8154        | 8289        | 8424        | 9<br>1215     |               |
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LOGARITHMS OF NUMBERS.

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| <b>2220</b>  | <b>507</b> | 8559 | 8664 | 8828 | 8663 | 9008 | 9233 | 9368 | 9503 | 9638 | 9772  |               |
| 21           | *          | 9907 | 0042 | 0177 | 0312 | 0447 | 0581 | 0716 | 0851 | 0986 | 1121  | 1 135         |
| 22           | 598        | 1255 | 1300 | 1525 | 1660 | 1794 | 1929 | 2064 | 2199 | 2334 | 2468  | 2 270         |
| 23           |            | 2603 | 2738 | 2873 | 3007 | 3142 | 3277 | 3411 | 3546 | 3681 | 3816  | 3 405         |
| 24           |            | 3950 | 4085 | 4220 | 4354 | 4489 | 4624 | 4758 | 4893 | 5028 | 5163  | 4 540         |
| 25           |            | 5297 | 5432 | 5567 | 5701 | 5836 | 5970 | 6105 | 6240 | 6374 | 6509  | 5 675         |
| 26           |            | 6644 | 6778 | 6913 | 7047 | 7182 | 7317 | 7451 | 7586 | 7720 | 7855  | 6 810         |
| 27           |            | 7990 | 8124 | 8259 | 8393 | 8528 | 8663 | 8797 | 8932 | 9066 | 9201  | 7 945         |
| 28           | *          | 9335 | 9470 | 9604 | 9739 | 9873 | *008 | 0142 | 0277 | 0411 | 0546  | 8 1080        |
| 29           | 509        | 0680 | 0815 | 0949 | 1084 | 1218 | 1353 | 1487 | 1622 | 1756 | 1891  | 9 1215        |
| <b>32 30</b> |            | 2025 | 2160 | 2294 | 2429 | 2563 | 2697 | 2832 | 2966 | 3101 | 3235  |               |
| 31           |            | 3370 | 3504 | 3638 | 3773 | 3907 | 4042 | 4176 | 4310 | 4445 | 4579  |               |
| 32           |            | 4714 | 4848 | 4982 | 5117 | 5251 | 5385 | 5520 | 5654 | 5788 | 5923  |               |
| 33           |            | 6057 | 6191 | 6326 | 6460 | 6594 | 6729 | 6863 | 6997 | 7132 | 7266  |               |
| 34           |            | 7400 | 7534 | 7669 | 7803 | 7937 | 8072 | 8206 | 8340 | 8474 | 8609  |               |
| 35           |            | 8743 | 8877 | 9011 | 9146 | 9280 | 9414 | 9548 | 9682 | 9817 | 9951  |               |
| 36           | 510        | 0085 | 0219 | 0354 | 0488 | 0622 | 0756 | 0890 | 1024 | 1159 | 1293  |               |
| 37           |            | 1427 | 1561 | 1695 | 1829 | 1964 | 2098 | 2232 | 2366 | 2500 | 2634  | 1 134         |
| 38           |            | 2768 | 2903 | 3037 | 3171 | 3305 | 3439 | 3573 | 3707 | 3841 | 3975  | 2 268         |
| 39           |            | 4109 | 4244 | 4378 | 4512 | 4646 | 4780 | 4914 | 5048 | 5182 | 5316  | 3 402         |
| <b>32 40</b> |            | 5450 | 5584 | 5718 | 5852 | 5986 | 6120 | 6254 | 6388 | 6522 | 6656  | 4 536         |
| 41           |            | 6790 | 6924 | 7058 | 7192 | 7326 | 7460 | 7594 | 7728 | 7862 | 7996  | 5 670         |
| 42           |            | 8130 | 8264 | 8398 | 8532 | 8666 | 8800 | 8934 | 9068 | 9202 | 9336  | 6 804         |
| 43           | *          | 9469 | 9603 | 9737 | 9871 | *005 | 0139 | 0273 | 0407 | 0541 | 0675  | 7 938         |
| 44           | 511        | 0808 | 0942 | 1076 | 1210 | 1344 | 1478 | 1612 | 1745 | 1879 | 2013  | 8 1072        |
| 45           |            | 2147 | 2281 | 2415 | 2548 | 2682 | 2816 | 2950 | 3084 | 3218 | 3351  | 9 1206        |
| 46           |            | 3485 | 3619 | 3753 | 3887 | 4020 | 4154 | 4288 | 4422 | 4555 | 4689  |               |
| 47           |            | 4823 | 4957 | 5090 | 5224 | 5358 | 5492 | 5625 | 5759 | 5893 | 6026  |               |
| 48           |            | 6160 | 6294 | 6428 | 6561 | 6695 | 6829 | 6962 | 7096 | 7230 | 7363  |               |
| 49           |            | 7497 | 7631 | 7764 | 7898 | 8032 | 8165 | 8299 | 8433 | 8566 | 8700  |               |
| <b>32 50</b> | *          | 8834 | 8967 | 9101 | 9234 | 9368 | 9502 | 9635 | 9769 | 9903 | *036  |               |
| 51           | 512        | 0170 | 0303 | 0437 | 0570 | 0704 | 0838 | 0971 | 1105 | 1238 | 1372  |               |
| 52           |            | 1505 | 1639 | 1772 | 1906 | 2040 | 2173 | 2307 | 2440 | 2574 | 2707  |               |
| 53           |            | 2841 | 2974 | 3108 | 3241 | 3375 | 3508 | 3642 | 3775 | 3909 | 4042  |               |
| 54           |            | 4175 | 4309 | 4442 | 4576 | 4709 | 4843 | 4976 | 5110 | 5243 | 5377  |               |
| 55           |            | 5510 | 5643 | 5777 | 5910 | 6044 | 6177 | 6310 | 6444 | 6577 | 6711  | 1 133         |
| 56           |            | 6844 | 6977 | 7111 | 7244 | 7377 | 7511 | 7644 | 7778 | 7911 | 8044  | 2 266         |
| 57           |            | 8178 | 8311 | 8444 | 8578 | 8711 | 8844 | 8978 | 9111 | 9244 | 9377  | 3 399         |
| 58           | *          | 9511 | 9644 | 9777 | 9911 | *044 | 0177 | 0311 | 0444 | 0577 | 0710  | 4 532         |
| 59           | 513        | 0844 | 0977 | 1110 | 1243 | 1377 | 1510 | 1643 | 1776 | 1910 | 2043  | 5 665         |
| <b>32 60</b> |            | 2176 | 2309 | 2442 | 2576 | 2709 | 2842 | 2975 | 3108 | 3242 | 3375  | 6 798         |
| 61           |            | 3508 | 3641 | 3774 | 3908 | 4041 | 4174 | 4307 | 4440 | 4573 | 4706  | 7 931         |
| 62           |            | 4840 | 4973 | 5106 | 5239 | 5372 | 5505 | 5638 | 5771 | 5905 | 6038  | 8 1064        |
| 63           |            | 6171 | 6304 | 6437 | 6570 | 6703 | 6836 | 6969 | 7102 | 7235 | 7368  | 9 1197        |
| 64           |            | 7502 | 7635 | 7768 | 7901 | 8034 | 8167 | 8300 | 8433 | 8566 | 8699  |               |
| 65           | *          | 8832 | 8965 | 9098 | 9231 | 9364 | 9497 | 9630 | 9763 | 9896 | *029  |               |
| 66           | 514        | 0162 | 0295 | 0428 | 0561 | 0694 | 0827 | 0960 | 1093 | 1225 | 1358  |               |
| 67           |            | 1491 | 1624 | 1757 | 1890 | 2023 | 2156 | 2289 | 2422 | 2555 | 2688  |               |
| 68           |            | 2820 | 2953 | 3086 | 3219 | 3352 | 3485 | 3618 | 3751 | 3883 | 4016  |               |
| 69           |            | 4149 | 4282 | 4415 | 4548 | 4681 | 4813 | 4946 | 5079 | 5212 | 5345  |               |
| <b>32 70</b> |            | 5478 | 5610 | 5743 | 5876 | 6009 | 6142 | 6274 | 6407 | 6540 | 6673  |               |
| 71           |            | 6805 | 6938 | 7071 | 7204 | 7336 | 7469 | 7602 | 7735 | 7867 | 8000  |               |
| 72           |            | 8133 | 8266 | 8398 | 8531 | 8664 | 8797 | 8929 | 9062 | 9195 | 9327  | 1 132         |
| 73           | *          | 9460 | 9593 | 9725 | 9858 | 9991 | *123 | 0256 | 0389 | 0521 | 0654  | 2 264         |
| 74           | 515        | 0787 | 0919 | 1052 | 1185 | 1317 | 1450 | 1583 | 1715 | 1848 | 1980  | 3 396         |
| 75           |            | 2113 | 2246 | 2378 | 2511 | 2643 | 2776 | 2909 | 3041 | 3174 | 3306  | 4 528         |
| 76           |            | 3439 | 3571 | 3704 | 3837 | 3969 | 4102 | 4234 | 4367 | 4499 | 4632  | 5 660         |
| 77           |            | 4764 | 4897 | 5029 | 5162 | 5294 | 5427 | 5560 | 5692 | 5825 | 5957  | 6 792         |
| 78           |            | 6089 | 6222 | 6354 | 6487 | 6619 | 6752 | 6884 | 7017 | 7149 | 7282  | 7 924         |
| 79           |            | 7414 | 7547 | 7679 | 7811 | 7944 | 8076 | 8209 | 8341 | 8474 | 8606  | 8 1056        |
|              |            |      |      |      |      |      |      |      |      |      |       | 9 1188        |

Num.

0 1 2 3 4 5 6 7 8 9

Diff.

Diff. & Mult.

| Num.        | 0   | 1    | 2     | 3    | 4    | 5    | 6    | 7     | 8     | 9    | Diff. | Diff. & Mult. |
|-------------|-----|------|-------|------|------|------|------|-------|-------|------|-------|---------------|
| <b>3280</b> | 515 | 8738 | 8871  | 9003 | 9136 | 9268 | 9400 | 9533  | 9665  | 9798 | 9930  | 1<br>133      |
| 81          | 516 | 0062 | 0195  | 0327 | 0459 | 0592 | 0724 | 0856  | 0989  | 1121 | 1253  | 2<br>266      |
| 82          |     | 1386 | 1518  | 1650 | 1783 | 1915 | 2047 | 2180  | 2312  | 2444 | 2577  | 3<br>399      |
| 83          |     | 2709 | 2841  | 2973 | 3106 | 3238 | 3370 | 3502  | 3635  | 3767 | 3899  | 4<br>532      |
| 84          |     | 4031 | 4164  | 4296 | 4428 | 4560 | 4693 | 4825  | 4957  | 5089 | 5222  | 5<br>665      |
| 85          |     | 5354 | 5486  | 5618 | 5750 | 5883 | 6015 | 6147  | 6279  | 6411 | 6543  | 6<br>798      |
| 86          |     | 6676 | 6808  | 6940 | 7072 | 7204 | 7336 | 7469  | 7601  | 7733 | 7865  | 7<br>931      |
| 87          |     | 7997 | 8129  | 8261 | 8393 | 8526 | 8658 | 8790  | 8922  | 9054 | 9186  | 8<br>1064     |
| 88          |     | 9318 | 9450  | 9582 | 9714 | 9846 | 9978 | 1111  | 0243  | 0375 | 0507  | 9<br>1197     |
| 89          | 517 | 0639 | 0771  | 0903 | 1035 | 1167 | 1299 | 1431  | 1563  | 1695 | 1827  |               |
| <b>3290</b> |     | 1959 | 2091  | 2223 | 2355 | 2487 | 2619 | 2751  | 2883  | 3015 | 3147  | 132           |
| 91          |     | 3279 | 3411  | 3543 | 3675 | 3807 | 3939 | 4071  | 4202  | 4334 | 4466  |               |
| 92          |     | 4598 | 4730  | 4862 | 4994 | 5126 | 5258 | 5390  | 5522  | 5654 | 5785  |               |
| 93          |     | 5917 | 6049  | 6181 | 6313 | 6445 | 6577 | 6709  | 6840  | 6972 | 7104  |               |
| 94          |     | 7236 | 7368  | 7500 | 7631 | 7763 | 7895 | 8027  | 8159  | 8291 | 8422  |               |
| 95          |     | 8554 | 8686  | 8818 | 8950 | 9081 | 9213 | 9345  | 9477  | 9608 | 9740  |               |
| 96          |     | 9872 | 10004 | 0136 | 0267 | 0399 | 0531 | 0663  | 0794  | 0926 | 1058  |               |
| 97          | 518 | 1189 | 1321  | 1453 | 1585 | 1716 | 1848 | 1980  | 2111  | 2243 | 2375  | 1<br>132      |
| 98          |     | 2507 | 2638  | 2770 | 2902 | 3033 | 3165 | 3297  | 3428  | 3560 | 3692  | 2<br>264      |
| 99          |     | 3823 | 3955  | 4086 | 4218 | 4350 | 4481 | 4613  | 4745  | 4876 | 5008  | 3<br>396      |
| <b>3300</b> |     | 5139 | 5271  | 5403 | 5534 | 5666 | 5797 | 5929  | 6061  | 6192 | 6324  | 4<br>528      |
| 01          |     | 6455 | 6587  | 6718 | 6850 | 6981 | 7113 | 7245  | 7376  | 7508 | 7639  | 5<br>660      |
| 02          |     | 7771 | 7902  | 8034 | 8165 | 8297 | 8428 | 8560  | 8691  | 8823 | 8954  | 6<br>792      |
| 03          |     | 9086 | 9217  | 9349 | 9480 | 9612 | 9743 | 9875  | 10006 | 0137 | 0269  | 7<br>924      |
| 04          | 519 | 0400 | 0532  | 0663 | 0795 | 0926 | 1058 | 1189  | 1320  | 1452 | 1583  | 8<br>1056     |
| 05          |     | 1715 | 1846  | 1977 | 2109 | 2240 | 2372 | 2503  | 2634  | 2766 | 2897  | 9<br>1188     |
| 06          |     | 3028 | 3160  | 3291 | 3423 | 3554 | 3685 | 3817  | 3948  | 4079 | 4211  |               |
| 07          |     | 4342 | 4473  | 4605 | 4736 | 4867 | 4999 | 5130  | 5261  | 5392 | 5524  |               |
| 08          |     | 5655 | 5786  | 5918 | 6049 | 6180 | 6311 | 6443  | 6574  | 6705 | 6836  |               |
| 09          |     | 6968 | 7099  | 7230 | 7361 | 7493 | 7624 | 7755  | 7886  | 8018 | 8149  |               |
| <b>3310</b> |     | 8280 | 8411  | 8542 | 8674 | 8805 | 8936 | 9067  | 9198  | 9329 | 9461  | 131           |
| 11          |     | 9592 | 9723  | 9854 | 9985 | 1116 | 0248 | 0379  | 0510  | 0641 | 0772  |               |
| 12          | 520 | 0903 | 1034  | 1166 | 1297 | 1428 | 1559 | 1690  | 1821  | 1952 | 2083  |               |
| 13          |     | 2214 | 2345  | 2477 | 2608 | 2739 | 2870 | 3001  | 3132  | 3263 | 3394  |               |
| 14          |     | 3525 | 3656  | 3787 | 3918 | 4049 | 4180 | 4311  | 4442  | 4573 | 4704  | 1<br>131      |
| 15          |     | 4835 | 4966  | 5097 | 5228 | 5359 | 5490 | 5621  | 5752  | 5883 | 6014  | 2<br>262      |
| 16          |     | 6145 | 6276  | 6407 | 6538 | 6669 | 6800 | 6931  | 7062  | 7193 | 7324  | 3<br>393      |
| 17          |     | 7455 | 7586  | 7717 | 7847 | 7978 | 8109 | 8240  | 8371  | 8502 | 8633  | 4<br>524      |
| 18          |     | 8764 | 8895  | 9026 | 9156 | 9287 | 9418 | 9549  | 9680  | 9811 | 9942  | 5<br>655      |
| 19          | 521 | 0073 | 0203  | 0334 | 0465 | 0596 | 0727 | 0858  | 0988  | 1119 | 1250  | 6<br>786      |
| <b>3320</b> |     | 1381 | 1512  | 1642 | 1773 | 1904 | 2035 | 2166  | 2296  | 2427 | 2558  | 7<br>917      |
| 21          |     | 2689 | 2820  | 2950 | 3081 | 3212 | 3343 | 3473  | 3604  | 3735 | 3866  | 8<br>1048     |
| 22          |     | 3995 | 4127  | 4258 | 4388 | 4519 | 4650 | 4781  | 4911  | 5042 | 5173  | 9<br>1179     |
| 23          |     | 5303 | 5434  | 5565 | 5695 | 5826 | 5957 | 6088  | 6218  | 6349 | 6479  |               |
| 24          |     | 6610 | 6741  | 6871 | 7002 | 7133 | 7263 | 7394  | 7525  | 7655 | 7786  |               |
| 25          |     | 7916 | 8047  | 8178 | 8308 | 8439 | 8570 | 8700  | 8831  | 8961 | 9092  |               |
| 26          |     | 9222 | 9353  | 9484 | 9614 | 9745 | 9875 | 10006 | 0136  | 0267 | 0397  |               |
| 27          | 522 | 0528 | 0659  | 0789 | 0920 | 1050 | 1181 | 1311  | 1442  | 1572 | 1703  |               |
| 28          |     | 1833 | 1964  | 2094 | 2225 | 2355 | 2486 | 2616  | 2747  | 2877 | 3007  |               |
| 29          |     | 3138 | 3268  | 3399 | 3529 | 3660 | 3790 | 3921  | 4051  | 4181 | 4312  |               |
| <b>3330</b> |     | 4442 | 4573  | 4703 | 4834 | 4964 | 5094 | 5225  | 5355  | 5486 | 5616  |               |
| 31          |     | 5746 | 5877  | 6007 | 6137 | 6268 | 6398 | 6529  | 6659  | 6789 | 6920  |               |
| 32          |     | 7050 | 7180  | 7311 | 7441 | 7571 | 7702 | 7832  | 7962  | 8093 | 8223  | 1<br>130      |
| 33          |     | 8353 | 8483  | 8614 | 8744 | 8874 | 9005 | 9135  | 9265  | 9395 | 9526  | 2<br>260      |
| 34          |     | 9656 | 9786  | 9916 | 1047 | 0177 | 0307 | 0437  | 0568  | 0698 | 0828  | 3<br>390      |
| 35          | 523 | 0958 | 1089  | 1219 | 1349 | 1479 | 1609 | 1740  | 1870  | 2000 | 2130  | 4<br>520      |
| 36          |     | 2260 | 2391  | 2521 | 2651 | 2781 | 2911 | 3041  | 3172  | 3302 | 3432  | 5<br>650      |
| 37          |     | 3562 | 3692  | 3822 | 3952 | 4083 | 4213 | 4343  | 4473  | 4603 | 4733  | 6<br>780      |
| 38          |     | 4863 | 4993  | 5124 | 5254 | 5384 | 5514 | 5644  | 5774  | 5904 | 6034  | 7<br>910      |
| 39          |     | 6164 | 6294  | 6424 | 6554 | 6684 | 6814 | 6945  | 7075  | 7205 | 7335  | 8<br>1040     |
|             |     |      |       |      |      |      |      |       |       |      |       | 9<br>1170     |
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LOGARITHMS OF NUMBERS.

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| 3340 | 523 | 7465 | 7595 | 7725 | 7855 | 7985 | 8115 | 8245 | 8375 | 8505 | 8635  | 130           | 1 130  |
| 41   |     | 8765 | 8895 | 9025 | 9155 | 9285 | 9415 | 9545 | 9675 | 9805 | 9935  |               | 2 260  |
| 42   | 524 | 0064 | 0194 | 0324 | 0454 | 0584 | 0714 | 0844 | 0974 | 1104 | 1234  |               | 3 390  |
| 43   |     | 1364 | 1494 | 1624 | 1753 | 1883 | 2013 | 2143 | 2273 | 2403 | 2533  |               | 4 520  |
| 44   |     | 2663 | 2793 | 2922 | 3052 | 3182 | 3312 | 3442 | 3572 | 3702 | 3831  |               | 5 650  |
| 45   |     | 3961 | 4091 | 4221 | 4351 | 4481 | 4610 | 4740 | 4870 | 5000 | 5130  |               | 6 780  |
| 46   |     | 5259 | 5389 | 5519 | 5649 | 5779 | 5908 | 6038 | 6168 | 6298 | 6427  |               | 7 910  |
| 47   |     | 6557 | 6687 | 6817 | 6946 | 7076 | 7206 | 7336 | 7465 | 7595 | 7725  |               | 8 1040 |
| 48   |     | 7854 | 7984 | 8114 | 8244 | 8373 | 8503 | 8633 | 8762 | 8892 | 9022  |               | 9 1170 |
| 49   | *   | 9151 | 9281 | 9411 | 9540 | 9670 | 9800 | 9929 | 0059 | 0189 | 0318  |               |        |
| 3350 | 525 | 0448 | 0578 | 0707 | 0837 | 0967 | 1096 | 1226 | 1355 | 1485 | 1615  |               |        |
| 51   |     | 1744 | 1874 | 2003 | 2133 | 2263 | 2392 | 2522 | 2651 | 2781 | 2911  |               | 1 129  |
| 52   |     | 3040 | 3170 | 3299 | 3429 | 3558 | 3688 | 3817 | 3947 | 4076 | 4206  |               | 2 258  |
| 53   |     | 4336 | 4465 | 4595 | 4724 | 4854 | 4983 | 5113 | 5242 | 5372 | 5501  |               | 3 387  |
| 54   |     | 5631 | 5760 | 5890 | 6019 | 6148 | 6278 | 6407 | 6537 | 6666 | 6796  |               | 4 516  |
| 55   |     | 6925 | 7055 | 7184 | 7314 | 7443 | 7572 | 7702 | 7831 | 7961 | 8090  |               | 5 645  |
| 56   |     | 8220 | 8349 | 8478 | 8608 | 8737 | 8867 | 8996 | 9125 | 9255 | 9384  |               | 6 774  |
| 57   | *   | 9513 | 9643 | 9772 | 9902 | 0031 | 0160 | 0290 | 0419 | 0548 | 0678  |               | 7 903  |
| 58   | 526 | 0807 | 0936 | 1066 | 1195 | 1324 | 1454 | 1583 | 1712 | 1841 | 1971  |               | 8 1032 |
| 59   |     | 2100 | 2229 | 2359 | 2488 | 2617 | 2746 | 2876 | 3005 | 3134 | 3264  |               | 9 1161 |
| 3360 | 330 | 3522 | 3651 | 3781 | 3910 |      | 4039 | 4168 | 4297 | 4427 | 4556  |               |        |
| 61   |     | 4685 | 4814 | 4944 | 5073 | 5202 | 5331 | 5460 | 5590 | 5719 | 5848  |               | 1 129  |
| 62   |     | 5977 | 6106 | 6235 | 6365 | 6494 | 6623 | 6752 | 6881 | 7010 | 7140  |               | 2 258  |
| 63   |     | 7269 | 7398 | 7527 | 7656 | 7785 | 7914 | 8043 | 8173 | 8302 | 8431  |               | 3 387  |
| 64   |     | 8560 | 8689 | 8818 | 8947 | 9076 | 9205 | 9334 | 9463 | 9593 | 9722  |               | 4 516  |
| 65   | *   | 9851 | 9980 | 0109 | 0238 | 0367 | 0496 | 0625 | 0754 | 0883 | 1012  |               | 5 645  |
| 66   | 527 | 1141 | 1270 | 1399 | 1528 | 1657 | 1786 | 1915 | 2044 | 2173 | 2302  |               | 6 774  |
| 67   |     | 2431 | 2560 | 2689 | 2818 | 2947 | 3076 | 3205 | 3334 | 3463 | 3592  |               | 7 903  |
| 68   |     | 3721 | 3850 | 3979 | 4108 | 4237 | 4366 | 4494 | 4623 | 4752 | 4881  |               | 8 1032 |
| 69   |     | 5010 | 5139 | 5268 | 5397 | 5526 | 5655 | 5783 | 5912 | 6041 | 6170  |               | 9 1161 |
| 3370 | 620 | 6428 | 6557 | 6686 | 6814 |      | 6943 | 7072 | 7201 | 7330 | 7459  |               |        |
| 71   |     | 7588 | 7716 | 7845 | 7974 | 8103 | 8232 | 8360 | 8489 | 8618 | 8747  |               | 1 129  |
| 72   | *   | 8876 | 9004 | 9133 | 9262 | 9391 | 9520 | 9648 | 9777 | 9906 | 0035  |               | 2 258  |
| 73   | 528 | 0163 | 0292 | 0421 | 0550 | 0678 | 0807 | 0936 | 1065 | 1193 | 1322  |               | 3 387  |
| 74   |     | 1451 | 1579 | 1708 | 1837 | 1966 | 2094 | 2223 | 2352 | 2480 | 2609  |               | 4 516  |
| 75   |     | 2738 | 2866 | 2995 | 3124 | 3252 | 3381 | 3510 | 3638 | 3767 | 3896  |               | 5 645  |
| 76   |     | 4024 | 4153 | 4282 | 4410 | 4539 | 4668 | 4796 | 4925 | 5053 | 5182  |               | 6 774  |
| 77   |     | 5311 | 5439 | 5568 | 5696 | 5825 | 5954 | 6082 | 6211 | 6339 | 6468  |               | 7 903  |
| 78   |     | 6506 | 6725 | 6854 | 6982 | 7111 | 7239 | 7368 | 7496 | 7625 | 7753  |               | 8 1032 |
| 79   |     | 7882 | 8010 | 8139 | 8267 | 8396 | 8525 | 8653 | 8782 | 8910 | 9039  |               | 9 1161 |
| 3380 | *   | 9167 | 9295 | 9424 | 9552 | 9681 | 9809 | 9938 | 0066 | 0195 | 0323  |               |        |
| 81   | 529 | 0452 | 0580 | 0709 | 0837 | 0965 | 1094 | 1222 | 1351 | 1479 | 1608  |               | 1 129  |
| 82   |     | 1736 | 1864 | 1993 | 2121 | 2250 | 2378 | 2506 | 2635 | 2763 | 2892  |               | 2 258  |
| 83   |     | 3020 | 3148 | 3277 | 3405 | 3533 | 3662 | 3790 | 3919 | 4047 | 4175  |               | 3 387  |
| 84   |     | 4304 | 4432 | 4560 | 4689 | 4817 | 4945 | 5074 | 5202 | 5330 | 5458  |               | 4 516  |
| 85   |     | 5587 | 5715 | 5843 | 5972 | 6100 | 6228 | 6356 | 6485 | 6613 | 6741  |               | 5 645  |
| 86   |     | 6870 | 6998 | 7126 | 7254 | 7383 | 7511 | 7639 | 7767 | 7896 | 8024  |               | 6 774  |
| 87   |     | 8152 | 8280 | 8408 | 8537 | 8665 | 8793 | 8921 | 9049 | 9178 | 9306  |               | 7 903  |
| 88   | *   | 9434 | 9562 | 9690 | 9819 | 9947 | 0075 | 0203 | 0331 | 0459 | 0588  |               | 8 1032 |
| 89   | 530 | 0716 | 0844 | 0972 | 1100 | 1228 | 1356 | 1485 | 1613 | 1741 | 1869  |               | 9 1161 |
| 3390 | 199 | 2125 | 2253 | 2381 | 2509 |      | 2637 | 2766 | 2894 | 3022 | 3150  |               |        |
| 91   |     | 3278 | 3406 | 3534 | 3662 | 3790 | 3918 | 4046 | 4174 | 4302 | 4430  |               | 1 129  |
| 92   |     | 4558 | 4686 | 4814 | 4942 | 5071 | 5199 | 5327 | 5455 | 5583 | 5711  |               | 2 258  |
| 93   |     | 5839 | 5967 | 6095 | 6223 | 6351 | 6479 | 6607 | 6734 | 6862 | 6990  |               | 3 387  |
| 94   |     | 7118 | 7246 | 7374 | 7502 | 7630 | 7758 | 7886 | 8014 | 8142 | 8270  |               | 4 516  |
| 95   |     | 8398 | 8526 | 8654 | 8782 | 8909 | 9037 | 9165 | 9293 | 9421 | 9549  |               | 5 645  |
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| 97   | 531 | 0955 | 1083 | 1211 | 1339 | 1467 | 1595 | 1722 | 1850 | 1978 | 2106  |               | 7 903  |
| 98   |     | 2234 | 2362 | 2490 | 2617 | 2745 | 2873 | 3001 | 3128 | 3256 | 3384  |               | 8 1032 |
| 99   |     | 3512 | 3639 | 3767 | 3895 | 4023 | 4150 | 4278 | 4406 | 4534 | 4661  |               | 9 1161 |
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| Num.        | 0          | 1     | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|-------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>3400</b> | <b>831</b> | 4789  | 4917 | 5045 | 5172 | 5300 | 5428 | 5556 | 5683 | 5811 | 5939  |               |
| 01          | 6066       | 6194  | 6322 | 6449 | 6577 | 6705 | 6832 | 6960 | 7088 | 7215 |       | 1   128       |
| 02          | 7343       | 7471  | 7598 | 7726 | 7854 | 7981 | 8109 | 8237 | 8364 | 8492 |       | 2   256       |
| 03          | 8619       | 8747  | 8875 | 9002 | 9130 | 9258 | 9385 | 9513 | 9640 | 9768 |       | 3   384       |
| 04          | * 9896     | *023  | 0151 | 0278 | 0406 | 0533 | 0661 | 0789 | 0916 | 1044 |       | 4   512       |
| 05          | 532        | 1171  | 1299 | 1426 | 1554 | 1681 | 1809 | 1936 | 2064 | 2191 | 2319  | 5   640       |
| 06          | 2446       | 2574  | 2701 | 2829 | 2956 | 3084 | 3211 | 3339 | 3466 | 3594 |       | 6   768       |
| 07          | 3721       | 3849  | 3976 | 4104 | 4231 | 4359 | 4486 | 4614 | 4741 | 4868 |       | 7   896       |
| 08          | 4996       | 5123  | 5251 | 5378 | 5506 | 5633 | 5760 | 5888 | 6015 | 6143 |       | 8   1024      |
| 09          | 6270       | 6397  | 6525 | 6652 | 6780 | 6907 | 7034 | 7162 | 7289 | 7416 |       | 9   1152      |
| 34 10       | 7544       | 7671  | 7799 | 7926 | 8053 | 8181 | 8308 | 8435 | 8563 | 8690 |       |               |
| 11          | 8817       | 8945  | 9072 | 9199 | 9326 | 9454 | 9581 | 9708 | 9836 | 9963 |       |               |
| 12          | 533        | 0090  | 0218 | 0345 | 0472 | 0599 | 0727 | 0854 | 0981 | 1108 | 1236  |               |
| 13          | 1363       | 1490  | 1617 | 1745 | 1872 | 1999 | 2126 | 2254 | 2381 | 2508 |       |               |
| 14          | 2635       | 2762  | 2890 | 3017 | 3144 | 3271 | 3398 | 3526 | 3653 | 3780 |       |               |
| 15          | 3907       | 4034  | 4161 | 4289 | 4416 | 4543 | 4670 | 4797 | 4924 | 5051 |       |               |
| 16          | 5179       | 5306  | 5433 | 5560 | 5687 | 5814 | 5941 | 6068 | 6196 | 6323 |       |               |
| 17          | 6450       | 6577  | 6704 | 6831 | 6958 | 7085 | 7212 | 7339 | 7466 | 7594 |       |               |
| 18          | 7721       | 7848  | 7975 | 8102 | 8229 | 8356 | 8483 | 8610 | 8737 | 8864 |       |               |
| 19          | * 8991     | *118  | 9245 | 9372 | 9499 | 9626 | 9753 | 9880 | *007 | 0134 |       | 127           |
| 34 20       | 534        | 0261  | 0388 | 0515 | 0642 | 0769 | 0896 | 1023 | 1150 | 1277 | 1404  |               |
| 21          | 1531       | 1658  | 1785 | 1912 | 2039 | 2165 | 2292 | 2419 | 2546 | 2673 |       |               |
| 22          | 2800       | 2927  | 3054 | 3181 | 3308 | 3435 | 3561 | 3688 | 3815 | 3942 |       |               |
| 23          | 4069       | 4196  | 4323 | 4450 | 4576 | 4703 | 4830 | 4957 | 5084 | 5211 |       |               |
| 24          | 5338       | 5464  | 5591 | 5718 | 5845 | 5972 | 6099 | 6225 | 6352 | 6479 |       |               |
| 25          | 6606       | 6733  | 6859 | 6986 | 7113 | 7240 | 7366 | 7493 | 7620 | 7747 |       |               |
| 26          | 7874       | 8000  | 8127 | 8254 | 8381 | 8507 | 8634 | 8761 | 8888 | 9014 |       | 1   127       |
| 27          | * 9141     | *9268 | 9394 | 9521 | 9648 | 9775 | 9901 | *028 | 0155 | 0281 |       | 2   254       |
| 28          | 535        | 0408  | 0535 | 0662 | 0788 | 0915 | 1042 | 1168 | 1295 | 1422 | 1548  |               |
| 29          | 1675       | 1801  | 1928 | 2055 | 2181 | 2308 | 2435 | 2562 | 2688 | 2815 |       | 3   381       |
| 34 30       | 2941       | 3068  | 3194 | 3321 | 3448 | 3574 | 3701 | 3827 | 3954 | 4081 |       | 4   508       |
| 31          | 4207       | 4334  | 4460 | 4587 | 4713 | 4840 | 4967 | 5093 | 5220 | 5346 |       | 5   635       |
| 32          | 5473       | 5599  | 5726 | 5852 | 5979 | 6105 | 6232 | 6359 | 6485 | 6612 |       | 6   762       |
| 33          | 6738       | 6865  | 6991 | 7118 | 7244 | 7371 | 7497 | 7623 | 7750 | 7876 |       | 7   889       |
| 34          | 8003       | 8129  | 8256 | 8382 | 8509 | 8635 | 8762 | 8888 | 9015 | 9141 |       | 8   1016      |
| 35          | * 9267     | *9394 | 9520 | 9647 | 9773 | 9900 | *026 | 0152 | 0279 | 0405 |       | 9   1143      |
| 36          | 536        | 0532  | 0658 | 0784 | 0911 | 1037 | 1163 | 1290 | 1416 | 1543 | 1669  |               |
| 37          | 1795       | 1922  | 2048 | 2174 | 2301 | 2427 | 2553 | 2680 | 2806 | 2932 |       |               |
| 38          | 3059       | 3185  | 3311 | 3438 | 3564 | 3690 | 3817 | 3943 | 4069 | 4195 |       |               |
| 39          | 4322       | 4448  | 4574 | 4701 | 4827 | 4953 | 5079 | 5206 | 5332 | 5458 |       |               |
| 34 40       | 5584       | 5711  | 5837 | 5963 | 6089 | 6216 | 6342 | 6468 | 6594 | 6721 |       |               |
| 41          | 6847       | 6973  | 7099 | 7225 | 7352 | 7478 | 7604 | 7730 | 7856 | 7982 |       |               |
| 42          | 8109       | 8235  | 8361 | 8487 | 8613 | 8739 | 8866 | 8992 | 9118 | 9244 |       |               |
| 43          | * 9370     | *9496 | 9622 | 9749 | 9875 | *001 | 0127 | 0253 | 0379 | 0505 |       |               |
| 44          | 537        | 0631  | 0758 | 0884 | 1010 | 1136 | 1262 | 1388 | 1514 | 1640 | 1766  |               |
| 45          | 1892       | 2018  | 2144 | 2270 | 2396 | 2522 | 2649 | 2775 | 2901 | 3027 |       |               |
| 46          | 3153       | 3279  | 3405 | 3531 | 3657 | 3783 | 3909 | 4035 | 4161 | 4287 |       |               |
| 47          | 4413       | 4539  | 4665 | 4791 | 4917 | 5043 | 5169 | 5295 | 5421 | 5547 |       |               |
| 48          | 5673       | 5799  | 5924 | 6050 | 6176 | 6302 | 6428 | 6554 | 6680 | 6806 |       |               |
| 49          | 6932       | 7058  | 7184 | 7310 | 7436 | 7561 | 7687 | 7813 | 7939 | 8065 |       |               |
| 34 50       | 8101       | 8317  | 8443 | 8569 | 8694 | 8820 | 8946 | 9072 | 9198 | 9324 |       |               |
| 51          | * 9450     | *9575 | 9701 | 9827 | 9953 | *079 | 0205 | 0330 | 0456 | 0582 |       |               |
| 52          | 538        | 0708  | 0834 | 0959 | 1085 | 1211 | 1337 | 1463 | 1588 | 1714 | 1840  |               |
| 53          | 1966       | 2092  | 2217 | 2343 | 2469 | 2595 | 2720 | 2846 | 2972 | 3098 |       |               |
| 54          | 3223       | 3349  | 3475 | 3601 | 3726 | 3852 | 3978 | 4103 | 4229 | 4355 |       |               |
| 55          | 4481       | 4606  | 4732 | 4858 | 4983 | 5109 | 5235 | 5360 | 5486 | 5612 |       |               |
| 56          | 5737       | 5863  | 5989 | 6114 | 6240 | 6366 | 6491 | 6617 | 6743 | 6868 |       |               |
| 57          | 6994       | 7119  | 7245 | 7371 | 7496 | 7622 | 7747 | 7873 | 7999 | 8124 |       |               |
| 58          | 8250       | 8375  | 8501 | 8627 | 8752 | 8878 | 9003 | 9129 | 9255 | 9380 |       |               |
| 59          | * 9506     | *9631 | 9757 | 9882 | *008 | 0133 | 0259 | 0384 | 0510 | 0635 |       |               |
| Num.        | 0          | 1     | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.         | 0          | 1      | 2    | 3    | 4    | 5     | 6    | 7    | 8    | 9    | Diff. | Dir. & Mult. |      |
|--------------|------------|--------|------|------|------|-------|------|------|------|------|-------|--------------|------|
| <b>3400</b>  | <b>539</b> | 0761   | 0887 | 1012 | 1138 | 1263  | 1389 | 1514 | 1640 | 1765 | 1891  | 1            | 126  |
| 61           |            | 2016   | 2141 | 2267 | 2392 | 2518  | 2643 | 2769 | 2894 | 3020 | 3145  | 2            | 252  |
| 62           |            | 3271   | 3396 | 3522 | 3647 | 3772  | 3898 | 4023 | 4149 | 4274 | 4400  | 3            | 378  |
| 63           |            | 4525   | 4650 | 4776 | 4901 | 5027  | 5152 | 5277 | 5403 | 5528 | 5653  | 4            | 504  |
| 64           |            | 5779   | 5904 | 6030 | 6155 | 6280  | 6406 | 6531 | 6656 | 6782 | 6907  | 5            | 630  |
| 65           |            | 7032   | 7158 | 7283 | 7408 | 7534  | 7659 | 7784 | 7910 | 8035 | 8160  | 6            | 756  |
| 66           |            | 8266   | 8411 | 8536 | 8661 | 8787  | 8912 | 9037 | 9163 | 9288 | 9413  | 7            | 882  |
| 67           |            | * 9538 | 9664 | 9789 | 9914 | 10039 | 0165 | 0290 | 0415 | 0540 | 0666  | 8            | 1008 |
| 68           | 540        | 0791   | 0916 | 1041 | 1167 | 1292  | 1417 | 1542 | 1667 | 1793 | 1918  | 9            | 1134 |
| 69           |            | 2043   | 2168 | 2293 | 2419 | 2544  | 2669 | 2794 | 2919 | 3044 | 3170  |              |      |
| <b>34 70</b> |            | 3295   | 3420 | 3545 | 3670 | 3795  | 3920 | 4046 | 4171 | 4296 | 4421  |              |      |
| 71           |            | 4546   | 4671 | 4796 | 4921 | 5047  | 5172 | 5297 | 5422 | 5547 | 5672  |              |      |
| 72           |            | 5797   | 5922 | 6047 | 6172 | 6297  | 6423 | 6548 | 6673 | 6798 | 6923  |              |      |
| 73           |            | 7048   | 7173 | 7298 | 7423 | 7548  | 7673 | 7798 | 7923 | 8048 | 8173  |              |      |
| 74           |            | 8298   | 8423 | 8548 | 8673 | 8798  | 8923 | 9048 | 9173 | 9298 | 9423  | 125          |      |
| 75           |            | * 9548 | 9673 | 9798 | 9923 | 10048 | 0173 | 0298 | 0423 | 0548 | 0673  |              |      |
| 76           | 541        | 0798   | 0923 | 1048 | 1172 | 1297  | 1422 | 1547 | 1672 | 1797 | 1922  | 1            | 125  |
| 77           |            | 2047   | 2172 | 2297 | 2422 | 2546  | 2671 | 2796 | 2921 | 3046 | 3171  | 2            | 250  |
| 78           |            | 3296   | 3421 | 3546 | 3670 | 3795  | 3920 | 4045 | 4170 | 4295 | 4419  | 3            | 375  |
| 79           |            | 4544   | 4669 | 4794 | 4919 | 5044  | 5168 | 5293 | 5418 | 5543 | 5668  | 4            | 500  |
| <b>34 80</b> |            | 5792   | 5917 | 6042 | 6167 | 6292  | 6416 | 6541 | 6666 | 6791 | 6915  | 5            | 625  |
| 81           |            | 7040   | 7165 | 7290 | 7415 | 7539  | 7664 | 7789 | 7913 | 8038 | 8163  | 6            | 750  |
| 82           |            | 8288   | 8412 | 8537 | 8662 | 8787  | 8911 | 9036 | 9161 | 9285 | 9410  | 7            | 875  |
| 83           |            | * 9535 | 9659 | 9784 | 9909 | 10033 | 0158 | 0283 | 0407 | 0532 | 0657  | 8            | 1000 |
| 84           | 542        | 0781   | 0906 | 1031 | 1155 | 1280  | 1405 | 1529 | 1654 | 1779 | 1903  | 9            | 1125 |
| 85           |            | 2028   | 2152 | 2277 | 2402 | 2526  | 2651 | 2775 | 2900 | 3025 | 3149  |              |      |
| 86           |            | 3274   | 3398 | 3523 | 3648 | 3772  | 3897 | 4021 | 4146 | 4270 | 4395  |              |      |
| 87           |            | 4519   | 4644 | 4769 | 4893 | 5018  | 5142 | 5267 | 5391 | 5516 | 5640  |              |      |
| 88           |            | 5765   | 5889 | 6014 | 6138 | 6263  | 6387 | 6512 | 6636 | 6761 | 6885  |              |      |
| 89           |            | 7010   | 7134 | 7259 | 7383 | 7508  | 7632 | 7756 | 7881 | 8005 | 8130  |              |      |
| <b>34 90</b> |            | 8254   | 8379 | 8503 | 8628 | 8752  | 8876 | 9001 | 9125 | 9250 | 9374  |              |      |
| 91           |            | * 9498 | 9623 | 9747 | 9872 | 9996  | +120 | 0245 | 0369 | 0494 | 0618  |              |      |
| 92           | 543        | 0742   | 0867 | 0991 | 1115 | 1240  | 1364 | 1488 | 1613 | 1737 | 1862  |              |      |
| 93           |            | 1986   | 2110 | 2235 | 2359 | 2483  | 2607 | 2732 | 2856 | 2980 | 3105  |              |      |
| 94           |            | 3229   | 3353 | 3478 | 3602 | 3726  | 3850 | 3975 | 4099 | 4223 | 4348  | 1            | 124  |
| 95           |            | 4472   | 4596 | 4720 | 4845 | 4969  | 5093 | 5217 | 5342 | 5466 | 5590  | 2            | 248  |
| 96           |            | 5714   | 5838 | 5963 | 6087 | 6211  | 6335 | 6460 | 6584 | 6708 | 6832  | 3            | 372  |
| 97           |            | 6956   | 7081 | 7205 | 7329 | 7453  | 7577 | 7701 | 7826 | 7950 | 8074  | 4            | 496  |
| 98           |            | 8198   | 8322 | 8446 | 8571 | 8695  | 8819 | 8943 | 9067 | 9191 | 9315  | 5            | 620  |
| 99           |            | * 9439 | 9564 | 9688 | 9812 | 9936  | +060 | 0184 | 0308 | 0432 | 0556  | 6            | 744  |
| <b>35 00</b> |            | 544    | 0680 | 0805 | 0929 | 1053  | 1177 | 1301 | 1425 | 1549 | 1673  | 7            | 868  |
| 01           |            | 1921   | 2045 | 2169 | 2293 | 2417  | 2541 | 2665 | 2789 | 2913 | 3037  | 8            | 992  |
| 02           |            | 3161   | 3285 | 3409 | 3533 | 3657  | 3781 | 3905 | 4029 | 4153 | 4277  | 9            | 1116 |
| 03           |            | 4401   | 4525 | 4649 | 4773 | 4897  | 5021 | 5145 | 5269 | 5393 | 5517  |              |      |
| 04           |            | 5641   | 5765 | 5889 | 6013 | 6137  | 6261 | 6385 | 6508 | 6632 | 6756  |              |      |
| 05           |            | 6880   | 7004 | 7128 | 7252 | 7376  | 7500 | 7624 | 7747 | 7871 | 7995  |              |      |
| 06           |            | 8119   | 8243 | 8367 | 8491 | 8615  | 8738 | 8862 | 8986 | 9110 | 9234  |              |      |
| 07           |            | * 9358 | 9481 | 9605 | 9729 | 9853  | 9977 | +101 | 0224 | 0348 | 0472  |              |      |
| 08           | 545        | 0506   | 0720 | 0843 | 0967 | 1091  | 1215 | 1339 | 1462 | 1586 | 1710  |              |      |
| 09           |            | 1834   | 1957 | 2081 | 2205 | 2329  | 2452 | 2576 | 2700 | 2824 | 2947  |              |      |
| <b>35 10</b> |            | 3071   | 3195 | 3319 | 3442 | 3566  | 3690 | 3813 | 3937 | 4061 | 4185  |              |      |
| 11           |            | 4308   | 4432 | 4556 | 4679 | 4803  | 4927 | 5050 | 5174 | 5298 | 5421  |              |      |
| 12           |            | 5545   | 5669 | 5792 | 5916 | 6040  | 6163 | 6287 | 6411 | 6534 | 6658  | 1            | 123  |
| 13           |            | 6781   | 6905 | 7029 | 7152 | 7276  | 7400 | 7523 | 7647 | 7770 | 7894  | 2            | 246  |
| 14           |            | 8018   | 8141 | 8265 | 8388 | 8512  | 8635 | 8759 | 8883 | 9006 | 9130  | 3            | 369  |
| 15           |            | * 9253 | 9377 | 9500 | 9624 | 9747  | 9871 | 9995 | +118 | 0242 | 0365  | 4            | 492  |
| 16           | 546        | 0489   | 0612 | 0736 | 0859 | 0983  | 1106 | 1230 | 1353 | 1477 | 1600  | 5            | 615  |
| 17           |            | 1724   | 1847 | 1971 | 2094 | 2218  | 2341 | 2465 | 2588 | 2711 | 2835  | 6            | 738  |
| 18           |            | 2958   | 3082 | 3205 | 3329 | 3452  | 3576 | 3699 | 3822 | 3946 | 4069  | 7            | 861  |
| 19           |            | 4193   | 4316 | 4439 | 4563 | 4686  | 4810 | 4933 | 5056 | 5180 | 5303  | 8            | 984  |
|              |            |        |      |      |      |       |      |      |      |      |       | 9            | 1107 |
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|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|------|
| <b>3520</b> | <b>546</b> | 5427 | 5550 | 5673 | 5797 | 5920 | 6043 | 6167 | 6290 | 6414 | 6537  | 1             | 124  |
| 21          |            | 6660 | 6784 | 6907 | 7030 | 7154 | 7277 | 7400 | 7524 | 7647 | 7770  | 2             | 248  |
| 22          |            | 7894 | 8017 | 8140 | 8263 | 8387 | 8510 | 8633 | 8757 | 8880 | 9003  | 3             | 372  |
| 23          | *          | 9126 | 9250 | 9373 | 9496 | 9620 | 9743 | 9866 | 9989 | 1113 | 1236  | 4             | 496  |
| 24          | 547        | 0359 | 0482 | 0605 | 0729 | 0852 | 0975 | 1098 | 1222 | 1345 | 1468  | 5             | 620  |
| 25          |            | 1591 | 1714 | 1838 | 1961 | 2084 | 2207 | 2330 | 2454 | 2577 | 2700  | 6             | 744  |
| 26          |            | 2823 | 2946 | 3069 | 3193 | 3316 | 3439 | 3562 | 3685 | 3808 | 3931  | 7             | 868  |
| 27          |            | 4055 | 4178 | 4301 | 4424 | 4547 | 4670 | 4793 | 4916 | 5040 | 5163  | 8             | 992  |
| 28          |            | 5286 | 5409 | 5532 | 5655 | 5778 | 5901 | 6024 | 6147 | 6270 | 6394  | 9             | 1116 |
| 29          |            | 6517 | 6640 | 6763 | 6886 | 7009 | 7132 | 7255 | 7378 | 7501 | 7624  |               |      |
| 35 30       |            | 7747 | 7870 | 7993 | 8116 | 8239 | 8362 | 8485 | 8608 | 8731 | 8854  | 123           |      |
| 31          | *          | 8977 | 9100 | 9223 | 9346 | 9469 | 9592 | 9715 | 9838 | 9961 | 1084  |               |      |
| 32          | 548        | 0207 | 0330 | 0453 | 0576 | 0699 | 0822 | 0945 | 1068 | 1191 | 1313  |               |      |
| 33          |            | 1436 | 1559 | 1682 | 1805 | 1928 | 2051 | 2174 | 2297 | 2420 | 2543  |               |      |
| 34          |            | 2665 | 2788 | 2911 | 3034 | 3157 | 3280 | 3403 | 3526 | 3648 | 3771  |               |      |
| 35          |            | 3894 | 4017 | 4140 | 4263 | 4386 | 4508 | 4631 | 4754 | 4877 | 5000  |               |      |
| 36          |            | 5123 | 5245 | 5368 | 5491 | 5614 | 5737 | 5859 | 5982 | 6105 | 6228  |               |      |
| 37          |            | 6351 | 6473 | 6596 | 6719 | 6842 | 6964 | 7087 | 7210 | 7333 | 7456  |               |      |
| 38          |            | 7578 | 7701 | 7824 | 7947 | 8069 | 8192 | 8315 | 8437 | 8560 | 8683  |               |      |
| 39          |            | 8806 | 8928 | 9051 | 9174 | 9296 | 9419 | 9542 | 9665 | 9787 | 9910  |               |      |
| 35 40       | 549        | 0033 | 0155 | 0278 | 0401 | 0523 | 0646 | 0769 | 0891 | 1014 | 1137  |               |      |
| 41          |            | 1259 | 1382 | 1505 | 1627 | 1750 | 1872 | 1995 | 2118 | 2240 | 2363  |               |      |
| 42          |            | 2486 | 2608 | 2731 | 2853 | 2976 | 3099 | 3221 | 3344 | 3466 | 3589  |               |      |
| 43          |            | 3712 | 3834 | 3957 | 4079 | 4202 | 4324 | 4447 | 4569 | 4692 | 4815  |               |      |
| 44          |            | 4937 | 5060 | 5182 | 5305 | 5427 | 5550 | 5672 | 5795 | 5917 | 6040  |               |      |
| 45          |            | 6162 | 6285 | 6407 | 6530 | 6652 | 6775 | 6897 | 7020 | 7142 | 7265  |               |      |
| 46          |            | 7387 | 7510 | 7632 | 7755 | 7877 | 8000 | 8122 | 8245 | 8367 | 8489  | 1             | 123  |
| 47          |            | 8612 | 8734 | 8857 | 8979 | 9102 | 9224 | 9346 | 9469 | 9591 | 9714  | 2             | 246  |
| 48          | *          | 9836 | 9959 | 1081 | 1203 | 1326 | 1448 | 1570 | 1693 | 1815 | 1938  | 3             | 369  |
| 49          | 550        | 1060 | 1182 | 1305 | 1427 | 1549 | 1672 | 1794 | 1917 | 2039 | 2161  | 4             | 492  |
| 35 50       |            | 2284 | 2406 | 2528 | 2651 | 2773 | 2895 | 3017 | 3140 | 3262 | 3384  | 5             | 615  |
| 51          |            | 3507 | 3629 | 3751 | 3874 | 3996 | 4118 | 4240 | 4363 | 4485 | 4607  | 6             | 738  |
| 52          |            | 4730 | 4852 | 4974 | 5096 | 5219 | 5341 | 5463 | 5585 | 5708 | 5830  | 7             | 861  |
| 53          |            | 5952 | 6074 | 6197 | 6319 | 6441 | 6563 | 6685 | 6808 | 6930 | 7052  | 8             | 984  |
| 54          |            | 7174 | 7296 | 7419 | 7541 | 7663 | 7785 | 7907 | 8030 | 8152 | 8274  | 9             | 1107 |
| 55          |            | 8396 | 8518 | 8640 | 8763 | 8885 | 9007 | 9129 | 9251 | 9373 | 9495  |               |      |
| 56          | *          | 9618 | 9740 | 9862 | 9984 | 1106 | 1228 | 1350 | 1472 | 1594 | 1717  |               |      |
| 57          | 551        | 0839 | 0961 | 1083 | 1205 | 1327 | 1449 | 1571 | 1693 | 1815 | 1937  |               |      |
| 58          |            | 2059 | 2181 | 2304 | 2426 | 2548 | 2670 | 2792 | 2914 | 3036 | 3158  |               |      |
| 59          |            | 3280 | 3402 | 3524 | 3646 | 3768 | 3890 | 4012 | 4134 | 4256 | 4378  | 122           |      |
| 35 60       |            | 4500 | 4622 | 4744 | 4866 | 4988 | 5110 | 5232 | 5354 | 5476 | 5598  |               |      |
| 61          |            | 5720 | 5842 | 5964 | 6086 | 6208 | 6329 | 6451 | 6573 | 6695 | 6817  |               |      |
| 62          |            | 6939 | 7061 | 7183 | 7305 | 7427 | 7549 | 7671 | 7793 | 7914 | 8036  |               |      |
| 63          |            | 8158 | 8280 | 8402 | 8524 | 8646 | 8768 | 8890 | 9011 | 9133 | 9255  |               |      |
| 64          | *          | 9377 | 9499 | 9621 | 9743 | 9864 | 9986 | 1108 | 1230 | 1352 | 1474  |               |      |
| 65          | 552        | 0595 | 0717 | 0839 | 0961 | 1083 | 1204 | 1326 | 1448 | 1570 | 1692  |               |      |
| 66          |            | 1813 | 1935 | 2057 | 2179 | 2301 | 2422 | 2544 | 2666 | 2788 | 2909  |               |      |
| 67          |            | 3031 | 3153 | 3275 | 3396 | 3518 | 3640 | 3762 | 3883 | 4005 | 4127  |               |      |
| 68          |            | 4248 | 4370 | 4492 | 4614 | 4735 | 4857 | 4979 | 5100 | 5222 | 5344  |               |      |
| 69          |            | 5465 | 5587 | 5709 | 5831 | 5952 | 6074 | 6196 | 6317 | 6439 | 6561  |               |      |
| 35 70       |            | 6682 | 6804 | 6925 | 7047 | 7169 | 7290 | 7412 | 7534 | 7655 | 7777  |               |      |
| 71          |            | 7899 | 8020 | 8141 | 8263 | 8385 | 8507 | 8628 | 8750 | 8871 | 8993  |               |      |
| 72          | *          | 9115 | 9236 | 9358 | 9479 | 9601 | 9722 | 9844 | 9965 | 1087 | 1209  |               |      |
| 73          | 553        | 0330 | 0452 | 0573 | 0695 | 0816 | 0938 | 1059 | 1181 | 1302 | 1424  |               |      |
| 74          |            | 1545 | 1667 | 1789 | 1910 | 2032 | 2153 | 2275 | 2396 | 2517 | 2639  |               |      |
| 75          |            | 2760 | 2882 | 3003 | 3125 | 3246 | 3368 | 3489 | 3611 | 3732 | 3854  |               |      |
| 76          |            | 3975 | 4097 | 4218 | 4339 | 4461 | 4582 | 4704 | 4825 | 4947 | 5068  |               |      |
| 77          |            | 5189 | 5311 | 5432 | 5554 | 5675 | 5796 | 5918 | 6039 | 6161 | 6282  |               |      |
| 78          |            | 6403 | 6525 | 6646 | 6767 | 6889 | 7010 | 7132 | 7253 | 7374 | 7496  |               |      |
| 79          |            | 7617 | 7738 | 7860 | 7981 | 8102 | 8224 | 8345 | 8466 | 8588 | 8709  |               |      |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |      |
|             |            |      |      |      |      |      |      |      |      |      |       | 1             | 122  |
|             |            |      |      |      |      |      |      |      |      |      |       | 2             | 244  |
|             |            |      |      |      |      |      |      |      |      |      |       | 3             | 366  |
|             |            |      |      |      |      |      |      |      |      |      |       | 4             | 488  |
|             |            |      |      |      |      |      |      |      |      |      |       | 5             | 610  |
|             |            |      |      |      |      |      |      |      |      |      |       | 6             | 732  |
|             |            |      |      |      |      |      |      |      |      |      |       | 7             | 854  |
|             |            |      |      |      |      |      |      |      |      |      |       | 8             | 976  |
|             |            |      |      |      |      |      |      |      |      |      |       | 9             | 1098 |

| Num.         | 0        | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |      |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|------|
| <b>3500</b>  | 553      | 8830     | 8952     | 9073     | 9194     | 9315     | 9437     | 9558     | 9679     | 9801     | 9922         |                          |      |
| 81           | 554      | 0043     | 0164     | 0286     | 0407     | 0528     | 0650     | 0771     | 0892     | 1013     | 1135         | 1                        | 122  |
| 82           | 1256     | 1377     | 1498     | 1620     | 1741     |          | 1862     | 1983     | 2104     | 2226     | 2347         | 2                        | 244  |
| 83           | 2468     | 2589     | 2710     | 2832     | 2953     |          | 3074     | 3195     | 3316     | 3438     | 3559         | 3                        | 366  |
| 84           | 3680     | 3801     | 3922     | 4044     | 4165     |          | 4286     | 4407     | 4528     | 4649     | 4770         | 4                        | 488  |
| 85           | 4892     | 5013     | 5134     | 5255     | 5376     |          | 5497     | 5618     | 5740     | 5861     | 5982         | 5                        | 610  |
| 86           | 6103     | 6224     | 6345     | 6466     | 6587     |          | 6708     | 6829     | 6951     | 7072     | 7193         | 6                        | 732  |
| 87           | 7314     | 7435     | 7556     | 7677     | 7798     |          | 7919     | 8040     | 8161     | 8282     | 8403         | 7                        | 854  |
| 88           | 8524     | 8645     | 8766     | 8887     | 9008     |          | 9130     | 9251     | 9372     | 9493     | 9614         | 8                        | 976  |
| 89           | • 9735   | 9856     | 9977     | • 0098   | 0219     |          | 0340     | 0461     | 0582     | 0703     | 0824         | 9                        | 1098 |
| <b>35 90</b> | 555      | 0944     | 1065     | 1186     | 1307     | 1428     | 1549     | 1670     | 1791     | 1912     | 2033         |                          |      |
| 91           | 2154     | 2275     | 2396     | 2517     | 2638     |          | 2759     | 2880     | 3001     | 3121     | 3242         |                          |      |
| 92           | 3363     | 3484     | 3605     | 3726     | 3847     |          | 3968     | 4089     | 4210     | 4330     | 4451         |                          |      |
| 93           | 4572     | 4693     | 4814     | 4935     | 5056     |          | 5176     | 5297     | 5418     | 5539     | 5660         |                          |      |
| 94           | 5781     | 5902     | 6022     | 6143     | 6264     |          | 6385     | 6506     | 6627     | 6747     | 6868         |                          |      |
| 95           | 6980     | 7101     | 7221     | 7341     | 7462     |          | 7583     | 7704     | 7825     | 7945     | 8066         |                          |      |
| 96           | 8197     | 8318     | 8438     | 8559     | 8680     |          | 8801     | 8921     | 9042     | 9163     | 9284         |                          |      |
| 97           | • 9404   | 9525     | 9646     | 9767     | 9887     |          | • 0008   | 0129     | 0249     | 0370     | 0491         |                          |      |
| 98           | 556      | 0612     | 0732     | 0853     | 0974     | 1094     | 1215     | 1336     | 1456     | 1577     | 1698         | 1                        | 121  |
| 99           | 1818     | 1939     | 2060     | 2180     | 2301     |          | 2422     | 2542     | 2663     | 2784     | 2904         | 2                        | 242  |
| <b>36 00</b> | 3025     | 3146     | 3266     | 3387     | 3508     |          | 3628     | 3749     | 3869     | 3990     | 4111         |                          |      |
| 01           | 4231     | 4352     | 4472     | 4593     | 4714     |          | 4834     | 4955     | 5075     | 5196     | 5317         |                          |      |
| 02           | 5437     | 5558     | 5678     | 5799     | 5919     |          | 6040     | 6160     | 6281     | 6402     | 6522         |                          |      |
| 03           | 6643     | 6763     | 6884     | 7004     | 7125     |          | 7245     | 7366     | 7486     | 7607     | 7727         |                          |      |
| 04           | 7847     | 7968     | 8089     | 8209     | 8330     |          | 8450     | 8571     | 8691     | 8812     | 8932         |                          |      |
| 05           | • 9053   | 9173     | 9294     | 9414     | 9535     |          | 9555     | 9775     | 9896     | • 016    | 0137         |                          |      |
| 06           | 557      | 0257     | 0378     | 0498     | 0619     | 0739     | 0859     | 0980     | 1100     | 1221     | 1341         |                          |      |
| 07           | 1461     | 1582     | 1702     | 1823     | 1943     |          | 2063     | 2184     | 2304     | 2425     | 2545         |                          |      |
| 08           | 2655     | 2786     | 2906     | 3026     | 3147     |          | 3267     | 3387     | 3508     | 3628     | 3748         |                          |      |
| 09           | 3869     | 3989     | 4109     | 4230     | 4350     |          | 4470     | 4591     | 4711     | 4831     | 4952         |                          |      |
| <b>36 10</b> | 5072     | 5192     | 5313     | 5433     | 5553     |          | 5673     | 5794     | 5914     | 6034     | 6155         |                          |      |
| 11           | 6275     | 6395     | 6515     | 6636     | 6756     |          | 6876     | 6996     | 7117     | 7237     | 7357         |                          |      |
| 12           | 7477     | 7598     | 7718     | 7838     | 7958     |          | 8079     | 8199     | 8319     | 8439     | 8559         |                          |      |
| 13           | 8680     | 8800     | 8920     | 9040     | 9160     |          | 9281     | 9401     | 9521     | 9641     | 9761         |                          |      |
| 14           | • 9881   | • 0002   | 0122     | 0242     | 0362     |          | 0482     | 0602     | 0723     | 0843     | 0963         |                          |      |
| 15           | 558      | 1083     | 1203     | 1323     | 1443     | 1564     | 1684     | 1804     | 1924     | 2044     | 2164         |                          |      |
| 16           | 2284     | 2404     | 2524     | 2645     | 2765     |          | 2885     | 3005     | 3125     | 3245     | 3365         |                          |      |
| 17           | 3485     | 3605     | 3725     | 3845     | 3965     |          | 4085     | 4205     | 4325     | 4446     | 4566         |                          |      |
| 18           | 4686     | 4806     | 4926     | 5046     | 5166     |          | 5286     | 5406     | 5526     | 5646     | 5766         |                          |      |
| 19           | 5886     | 6006     | 6126     | 6246     | 6366     |          | 6486     | 6606     | 6726     | 6846     | 6966         |                          |      |
| <b>36 20</b> | 7086     | 7206     | 7326     | 7446     | 7566     |          | 7686     | 7805     | 7925     | 8045     | 8165         |                          |      |
| 21           | 8285     | 8405     | 8525     | 8645     | 8765     |          | 8885     | 9005     | 9125     | 9245     | 9365         |                          |      |
| 22           | • 9484   | 9604     | 9724     | 9844     | 9964     |          | • 0084   | 0204     | 0324     | 0444     | 0563         |                          |      |
| 23           | 559      | 0683     | 0803     | 0923     | 1043     | 1163     | 1283     | 1403     | 1522     | 1642     | 1762         |                          |      |
| 24           | 1882     | 2002     | 2122     | 2241     | 2361     |          | 2481     | 2601     | 2721     | 2840     | 2960         |                          |      |
| 25           | 3080     | 3200     | 3320     | 3440     | 3559     |          | 3679     | 3799     | 3919     | 4038     | 4158         |                          |      |
| 26           | 4278     | 4398     | 4518     | 4637     | 4757     |          | 4877     | 4997     | 5116     | 5236     | 5356         |                          |      |
| 27           | 5476     | 5595     | 5715     | 5835     | 5954     |          | 6074     | 6194     | 6314     | 6433     | 6553         |                          |      |
| 28           | 6673     | 6792     | 6912     | 7032     | 7152     |          | 7271     | 7391     | 7511     | 7630     | 7750         |                          |      |
| 29           | 7870     | 7989     | 8109     | 8229     | 8348     |          | 8468     | 8588     | 8707     | 8827     | 8947         |                          |      |
| <b>36 30</b> | • 9066   | 9186     | 9306     | 9425     | 9545     |          | 9664     | 9784     | 9904     | • 023    | 0143         |                          |      |
| 31           | 560      | 0262     | 0382     | 0502     | 0621     | 0741     | 0860     | 0980     | 1100     | 1219     | 1339         |                          |      |
| 32           | 1458     | 1578     | 1698     | 1817     | 1937     |          | 2056     | 2176     | 2295     | 2415     | 2534         |                          |      |
| 33           | 2654     | 2774     | 2893     | 3013     | 3132     |          | 3252     | 3371     | 3491     | 3610     | 3730         |                          |      |
| 34           | 3849     | 3969     | 4088     | 4208     | 4327     |          | 4447     | 4566     | 4686     | 4805     | 4925         |                          |      |
| 35           | 5044     | 5164     | 5283     | 5403     | 5522     |          | 5641     | 5761     | 5880     | 6000     | 6119         |                          |      |
| 36           | 6236     | 6355     | 6475     | 6594     | 6714     |          | 6836     | 6955     | 7075     | 7194     | 7314         |                          |      |
| 37           | 7433     | 7552     | 7672     | 7791     | 7911     |          | 8030     | 8149     | 8269     | 8388     | 8508         |                          |      |
| 38           | 8627     | 8746     | 8866     | 8985     | 9104     |          | 9224     | 9343     | 9463     | 9582     | 9701         |                          |      |
| 39           | • 9821   | 9940     | • 0059   | 0179     | 0298     |          | 0417     | 0537     | 0656     | 0775     | 0895         |                          |      |
| <b>Num.</b>  | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |      |

| Num.        | 0          | 1    | 2    | 3    | 4     | 5     | 6    | 7    | 8    | 9     | Diff. | Diff. & Mult. |      |
|-------------|------------|------|------|------|-------|-------|------|------|------|-------|-------|---------------|------|
| <b>3640</b> | <b>561</b> | 1014 | 1133 | 1252 | 1372  | 1491  | 1610 | 1730 | 1849 | 1968  | 2088  |               |      |
| 41          |            | 2207 | 2326 | 2445 | 2565  | 2684  | 2803 | 2922 | 3042 | 3161  | 3280  | 1             | 120  |
| 42          |            | 3399 | 3519 | 3638 | 3757  | 3876  | 3996 | 4115 | 4234 | 4353  | 4472  | 2             | 240  |
| 43          |            | 4592 | 4711 | 4830 | 4949  | 5069  | 5188 | 5307 | 5426 | 5545  | 5665  | 3             | 360  |
| 44          |            | 5784 | 5903 | 6022 | 6141  | 6260  | 6380 | 6499 | 6618 | 6737  | 6856  | 4             | 480  |
| 45          |            | 6975 | 7094 | 7214 | 7333  | 7452  | 7571 | 7690 | 7809 | 7928  | 8048  | 5             | 600  |
| 46          |            | 8167 | 8286 | 8405 | 8524  | 8643  | 8762 | 8881 | 9000 | 9119  | 9239  | 6             | 720  |
| 47          | *          | 9358 | 9477 | 9596 | 9715  | 9834  | 9953 | 1012 | 1019 | 10310 | 10429 | 7             | 840  |
| 48          | 562        | 0548 | 0667 | 0786 | 0905  | 1024  | 1144 | 1263 | 1382 | 1501  | 1620  | 8             | 960  |
| 49          |            | 1739 | 1858 | 1977 | 2096  | 2215  | 2334 | 2453 | 2572 | 2691  | 2810  | 9             | 1080 |
| <b>3650</b> |            | 2929 | 3048 | 3167 | 3286  | 3405  | 3524 | 3642 | 3761 | 3880  | 3999  | 119           |      |
| 51          |            | 4118 | 4237 | 4356 | 4475  | 4594  | 4713 | 4832 | 4951 | 5070  | 5189  |               |      |
| 52          |            | 5308 | 5427 | 5546 | 5664  | 5783  | 5902 | 6021 | 6140 | 6259  | 6378  |               |      |
| 53          |            | 6497 | 6616 | 6734 | 6853  | 6972  | 7091 | 7210 | 7329 | 7448  | 7567  |               |      |
| 54          |            | 7685 | 7804 | 7923 | 8042  | 8161  | 8280 | 8398 | 8517 | 8636  | 8755  |               |      |
| 55          |            | 8874 | 8993 | 9111 | 9230  | 9349  | 9468 | 9587 | 9705 | 9824  | 9943  |               |      |
| 56          | 563        | 0062 | 0181 | 0299 | 0418  | 0537  | 0656 | 0775 | 0893 | 1012  | 1131  |               |      |
| 57          |            | 1250 | 1368 | 1487 | 1606  | 1725  | 1843 | 1962 | 2081 | 2200  | 2318  |               |      |
| 58          |            | 2437 | 2556 | 2674 | 2793  | 2912  | 3031 | 3149 | 3268 | 3387  | 3505  |               |      |
| 59          |            | 3624 | 3743 | 3861 | 3980  | 4099  | 4218 | 4336 | 4455 | 4574  | 4692  |               |      |
| <b>3660</b> |            | 4811 | 4930 | 5048 | 5167  | 5285  | 5404 | 5523 | 5641 | 5760  | 5879  |               |      |
| 61          |            | 5997 | 6116 | 6235 | 6353  | 6472  | 6590 | 6709 | 6828 | 6946  | 7065  |               |      |
| 62          |            | 7183 | 7302 | 7421 | 7539  | 7658  | 7776 | 7895 | 8013 | 8132  | 8251  |               |      |
| 63          |            | 8369 | 8488 | 8606 | 8725  | 8843  | 8962 | 9081 | 9199 | 9318  | 9436  |               |      |
| 64          | *          | 9555 | 9673 | 9792 | 9910  | 10029 | 0147 | 0266 | 0384 | 0503  | 0621  |               |      |
| 65          | 564        | 0740 | 0858 | 0977 | 1095  | 1214  | 1332 | 1451 | 1569 | 1688  | 1806  |               |      |
| 66          |            | 1925 | 2043 | 2162 | 2280  | 2398  | 2517 | 2635 | 2754 | 2872  | 2991  | 1             | 119  |
| 67          |            | 3109 | 3228 | 3346 | 3464  | 3583  | 3701 | 3820 | 3938 | 4056  | 4175  | 2             | 238  |
| 68          |            | 4293 | 4412 | 4530 | 4648  | 4767  | 4885 | 5004 | 5122 | 5240  | 5359  | 3             | 357  |
| 69          |            | 5477 | 5595 | 5714 | 5832  | 5951  | 6069 | 6187 | 6306 | 6424  | 6542  | 4             | 476  |
| <b>3670</b> |            | 6661 | 6779 | 6897 | 7016  | 7134  | 7252 | 7371 | 7489 | 7607  | 7726  | 5             | 595  |
| 71          |            | 7844 | 7962 | 8080 | 8199  | 8317  | 8435 | 8554 | 8672 | 8790  | 8908  | 6             | 714  |
| 72          | *          | 9027 | 9145 | 9263 | 9382  | 9500  | 9618 | 9736 | 9855 | 9973  | 10091 | 7             | 833  |
| 73          | 565        | 0209 | 0328 | 0446 | 0564  | 0682  | 0800 | 0919 | 1037 | 1155  | 1273  | 8             | 952  |
| 74          |            | 1392 | 1510 | 1628 | 1746  | 1864  | 1983 | 2101 | 2219 | 2337  | 2455  | 9             | 1071 |
| 75          |            | 2573 | 2692 | 2810 | 2928  | 3046  | 3164 | 3282 | 3401 | 3519  | 3637  |               |      |
| 76          |            | 3755 | 3873 | 3991 | 4109  | 4228  | 4346 | 4464 | 4582 | 4700  | 4818  |               |      |
| 77          |            | 4936 | 5054 | 5173 | 5291  | 5409  | 5527 | 5645 | 5763 | 5881  | 5999  |               |      |
| 78          |            | 6117 | 6235 | 6353 | 6471  | 6590  | 6708 | 6826 | 6944 | 7062  | 7180  |               |      |
| 79          |            | 7298 | 7416 | 7534 | 7652  | 7770  | 7888 | 8006 | 8124 | 8242  | 8360  |               |      |
| <b>3680</b> |            | 8478 | 8596 | 8714 | 8832  | 8950  | 9068 | 9186 | 9304 | 9422  | 9540  | 118           |      |
| 81          | *          | 9658 | 9776 | 9894 | 10012 | 0130  | 0248 | 0366 | 0484 | 0602  | 0720  |               |      |
| 82          | 566        | 0838 | 0956 | 1074 | 1192  | 1310  | 1428 | 1545 | 1663 | 1781  | 1899  |               |      |
| 83          |            | 2017 | 2135 | 2253 | 2371  | 2489  | 2607 | 2725 | 2843 | 2960  | 3078  |               |      |
| 84          |            | 3196 | 3314 | 3432 | 3550  | 3668  | 3786 | 3903 | 4021 | 4139  | 4257  |               |      |
| 85          |            | 4375 | 4493 | 4611 | 4728  | 4846  | 4964 | 5082 | 5200 | 5318  | 5435  |               |      |
| 86          |            | 5553 | 5671 | 5789 | 5907  | 6025  | 6142 | 6260 | 6378 | 6496  | 6614  |               |      |
| 87          |            | 6731 | 6849 | 6967 | 7085  | 7203  | 7320 | 7438 | 7556 | 7674  | 7791  |               |      |
| 88          |            | 7909 | 8027 | 8145 | 8262  | 8380  | 8498 | 8616 | 8733 | 8851  | 8969  |               |      |
| 89          | *          | 9087 | 9204 | 9322 | 9440  | 9557  | 9675 | 9793 | 9911 | 10028 | 10146 |               |      |
| <b>3690</b> |            | 567  | 0264 | 0381 | 0499  | 0617  | 0734 | 0852 | 0970 | 1087  | 1205  |               |      |
| 91          |            | 1440 | 1558 | 1676 | 1793  | 1911  | 2029 | 2146 | 2264 | 2382  | 2499  |               |      |
| 92          |            | 2617 | 2735 | 2852 | 2970  | 3087  | 3205 | 3323 | 3440 | 3558  | 3675  | 1             | 118  |
| 93          |            | 3793 | 3911 | 4028 | 4146  | 4263  | 4381 | 4499 | 4616 | 4734  | 4851  | 2             | 236  |
| 94          |            | 4969 | 5086 | 5204 | 5322  | 5439  | 5557 | 5674 | 5792 | 5909  | 6027  | 3             | 354  |
| 95          |            | 6144 | 6262 | 6379 | 6497  | 6615  | 6732 | 6850 | 6967 | 7085  | 7202  | 4             | 472  |
| 96          |            | 7320 | 7437 | 7554 | 7672  | 7790  | 7907 | 8025 | 8142 | 8260  | 8377  | 5             | 590  |
| 97          |            | 8495 | 8612 | 8729 | 8847  | 8964  | 9082 | 9199 | 9317 | 9434  | 9552  | 6             | 708  |
| 98          | *          | 9669 | 9787 | 9904 | 10021 | 0139  | 0256 | 0374 | 0491 | 0608  | 0726  | 7             | 826  |
| 99          | 568        | 0843 | 0961 | 1078 | 1196  | 1313  | 1430 | 1548 | 1665 | 1782  | 1900  | 8             | 944  |
|             |            |      |      |      |       |       |      |      |      |       |       | 9             | 1062 |
| Num.        | 0          | 1    | 2    | 3    | 4     | 5     | 6    | 7    | 8    | 9     | Diff. | Diff. & Mult. |      |



LOGARITHMS OF NUMBERS.

| Num.        | 0          | 1    | 2    | 3    | 4    | 5     | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |          |
|-------------|------------|------|------|------|------|-------|------|------|------|------|-------|---------------|----------|
| <b>3700</b> | <b>568</b> | 2017 | 2135 | 2252 | 2369 | 2487  | 2604 | 2721 | 2839 | 2956 | 3074  | 117           | 1   118  |
| 01          |            | 3191 | 3308 | 3426 | 3543 | 3660  | 3778 | 3895 | 4012 | 4130 | 4247  |               | 2   236  |
| 02          |            | 4364 | 4481 | 4599 | 4716 | 4833  | 4951 | 5068 | 5185 | 5303 | 5420  |               | 3   354  |
| 03          |            | 5537 | 5654 | 5772 | 5889 | 6006  | 6123 | 6241 | 6358 | 6475 | 6593  |               | 4   472  |
| 04          |            | 6710 | 6827 | 6944 | 7062 | 7179  | 7296 | 7413 | 7530 | 7648 | 7765  |               | 5   590  |
| 05          |            | 7882 | 7999 | 8117 | 8234 | 8351  | 8468 | 8585 | 8703 | 8820 | 8937  |               | 6   708  |
| 06          | *          | 9054 | 9171 | 9289 | 9406 | 9523  | 9640 | 9757 | 9874 | 9992 | •109  |               | 7   826  |
| 07          | 569        | 0226 | 0343 | 0460 | 0577 | 0694  | 0812 | 0929 | 1046 | 1163 | 1280  |               | 8   944  |
| 08          |            | 1397 | 1514 | 1631 | 1749 | 1866  | 1983 | 2100 | 2217 | 2334 | 2451  |               | 9   1062 |
| 09          |            | 2568 | 2685 | 2803 | 2920 | 3037  | 3154 | 3271 | 3388 | 3505 | 3622  |               |          |
| <b>3710</b> |            | 3739 | 3856 | 3973 | 4090 | 4207  | 4324 | 4441 | 4558 | 4675 | 4793  | 117           | 1   117  |
| 11          |            | 4910 | 5027 | 5144 | 5261 | 5378  | 5495 | 5612 | 5729 | 5846 | 5963  |               | 2   234  |
| 12          |            | 6080 | 6197 | 6314 | 6431 | 6548  | 6665 | 6782 | 6899 | 7016 | 7133  |               | 3   351  |
| 13          |            | 7249 | 7366 | 7483 | 7600 | 7717  | 7834 | 7951 | 8068 | 8185 | 8302  |               | 4   468  |
| 14          |            | 8419 | 8536 | 8653 | 8770 | 8887  | 9004 | 9121 | 9237 | 9354 | 9471  |               | 5   585  |
| 15          | *          | 9588 | 9705 | 9822 | 9939 | •056  | 0173 | 0290 | 0406 | 0523 | 0640  |               | 6   702  |
| 16          | 570        | 0757 | 0874 | 0991 | 1108 | 1225  | 1341 | 1458 | 1575 | 1692 | 1809  |               | 7   819  |
| 17          |            | 1926 | 2042 | 2159 | 2276 | 2393  | 2510 | 2627 | 2743 | 2860 | 2977  |               | 8   936  |
| 18          |            | 3094 | 3211 | 3327 | 3444 | 3561  | 3678 | 3795 | 3911 | 4028 | 4145  |               | 9   1053 |
| 19          |            | 4262 | 4379 | 4495 | 4612 | 4729  | 4846 | 4962 | 5079 | 5196 | 5313  |               |          |
| <b>3720</b> |            | 5429 | 5546 | 5663 | 5780 | 5896  | 6013 | 6130 | 6247 | 6363 | 6480  | 116           | 1   116  |
| 21          |            | 6597 | 6713 | 6830 | 6947 | 7064  | 7180 | 7297 | 7414 | 7530 | 7647  |               | 2   232  |
| 22          |            | 7764 | 7880 | 7997 | 8114 | 8230  | 8347 | 8464 | 8580 | 8697 | 8814  |               | 3   348  |
| 23          |            | 8930 | 9047 | 9164 | 9280 | 9397  | 9514 | 9630 | 9747 | 9863 | 9980  |               | 4   464  |
| 24          | 571        | 0097 | 0213 | 0330 | 0447 | 0563  | 0680 | 0796 | 0913 | 1030 | 1146  |               | 5   580  |
| 25          |            | 1263 | 1379 | 1496 | 1613 | 1729  | 1846 | 1962 | 2079 | 2195 | 2312  |               | 6   696  |
| 26          |            | 2429 | 2545 | 2662 | 2778 | 2895  | 3011 | 3128 | 3244 | 3361 | 3477  |               | 7   812  |
| 27          |            | 3594 | 3710 | 3827 | 3943 | 4060  | 4177 | 4293 | 4410 | 4526 | 4643  |               | 8   928  |
| 28          |            | 4759 | 4876 | 4992 | 5109 | 5225  | 5341 | 5458 | 5574 | 5691 | 5807  |               | 9   1044 |
| 29          |            | 5924 | 6040 | 6157 | 6273 | 6390  | 6506 | 6622 | 6739 | 6855 | 6972  |               |          |
| <b>3730</b> |            | 7088 | 7205 | 7321 | 7438 | 7554  | 7670 | 7787 | 7903 | 8020 | 8136  | 116           | 1   116  |
| 31          |            | 8252 | 8369 | 8485 | 8602 | 8718  | 8834 | 8951 | 9067 | 9184 | 9300  |               | 2   232  |
| 32          | *          | 9416 | 9533 | 9650 | 9765 | 9882  | 9999 | •115 | 0231 | 0347 | 0464  |               | 3   348  |
| 33          | 572        | 0580 | 0696 | 0813 | 0929 | 1045  | 1162 | 1278 | 1394 | 1511 | 1627  |               | 4   464  |
| 34          |            | 1743 | 1859 | 1976 | 2092 | 2208  | 2325 | 2441 | 2557 | 2674 | 2790  |               | 5   580  |
| 35          |            | 2906 | 3022 | 3137 | 3255 | 3371  | 3487 | 3604 | 3720 | 3836 | 3952  |               | 6   696  |
| 36          |            | 4069 | 4185 | 4301 | 4417 | 4534  | 4650 | 4766 | 4882 | 4999 | 5115  |               | 7   812  |
| 37          |            | 5231 | 5347 | 5463 | 5580 | 5697  | 5812 | 5928 | 6044 | 6161 | 6277  |               | 8   928  |
| 38          |            | 6333 | 6509 | 6625 | 6741 | 6858  | 6974 | 7090 | 7206 | 7322 | 7438  |               | 9   1044 |
| 39          |            | 7555 | 7671 | 7787 | 7903 | 8019  | 8135 | 8252 | 8368 | 8484 | 8600  |               |          |
| <b>3740</b> |            | 8716 | 8833 | 8949 | 9064 | 9180  | 9297 | 9413 | 9529 | 9645 | 9761  | 116           | 1   115  |
| 41          | *          | 9877 | 9993 | •109 | 0225 | 0341  | 0457 | 0574 | 0690 | 0806 | 0922  |               | 2   230  |
| 42          | 573        | 1033 | 1154 | 1270 | 1386 | 1502  | 1618 | 1734 | 1850 | 1966 | 2082  |               | 3   346  |
| 43          |            | 2194 | 2314 | 2430 | 2546 | 2662  | 2778 | 2894 | 3010 | 3126 | 3242  |               | 4   462  |
| 44          |            | 3358 | 3474 | 3590 | 3706 | 3822  | 3938 | 4054 | 4170 | 4286 | 4402  |               | 5   578  |
| 45          |            | 4518 | 4634 | 4750 | 4866 | 4982  | 5098 | 5214 | 5330 | 5446 | 5562  |               | 6   694  |
| 46          |            | 5678 | 5794 | 5910 | 6026 | 6142  | 6258 | 6373 | 6489 | 6605 | 6721  |               | 7   810  |
| 47          |            | 6837 | 6953 | 7069 | 7185 | 7301  | 7416 | 7532 | 7648 | 7764 | 7880  |               | 8   926  |
| 48          |            | 7976 | 8112 | 8228 | 8343 | 8459  | 8575 | 8691 | 8807 | 8923 | 9039  |               | 9   1042 |
| 49          | *          | 9154 | 9270 | 9386 | 9502 | 9618  | 9734 | 9849 | 9965 | •081 | 0197  |               |          |
| <b>3750</b> | 574        | 0313 | 0428 | 0544 | 0660 | 0776  | 0892 | 1007 | 1123 | 1239 | 1355  | 115           | 1   115  |
| 51          |            | 1471 | 1586 | 1702 | 1818 | 1934  | 2050 | 2165 | 2281 | 2397 | 2513  |               | 2   230  |
| 52          |            | 2628 | 2744 | 2860 | 2976 | 3091  | 3207 | 3323 | 3438 | 3554 | 3670  |               | 3   346  |
| 53          |            | 3786 | 3911 | 4017 | 4133 | 4248  | 4364 | 4480 | 4595 | 4711 | 4827  |               | 4   462  |
| 54          |            | 4943 | 5059 | 5174 | 5290 | 5405  | 5521 | 5637 | 5752 | 5868 | 5984  |               | 5   578  |
| 55          |            | 6097 | 6215 | 6331 | 6446 | 6562  | 6678 | 6793 | 6909 | 7025 | 7140  |               | 6   694  |
| 56          |            | 7256 | 7371 | 7487 | 7603 | 7718  | 7834 | 7950 | 8065 | 8181 | 8296  |               | 7   810  |
| 57          |            | 8412 | 8528 | 8643 | 8759 | 8874  | 8990 | 9105 | 9221 | 9337 | 9452  |               | 8   926  |
| 58          | *          | 9588 | 9693 | 9799 | 9914 | •0030 | 0146 | 0261 | 0377 | 0492 | 0608  |               | 9   1042 |
| 59          | 575        | 0723 | 0839 | 0954 | 1070 | 1185  | 1301 | 1416 | 1532 | 1647 | 1763  |               |          |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Meth. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>3760</b> | <b>878</b> | 1878 | 1994 | 2109 | 2225 | 2340 | 2456 | 2571 | 2687 | 2802 | 2918  |               |
| 61          | 3033       | 3149 | 3264 | 3380 | 3495 | 3611 | 3726 | 3842 | 3957 | 4072 |       | 1   116       |
| 62          | 4188       | 4303 | 4419 | 4534 | 4650 | 4765 | 4881 | 4996 | 5111 | 5227 |       | 2   232       |
| 63          | 5342       | 5458 | 5573 | 5688 | 5804 | 5919 | 6035 | 6150 | 6265 | 6381 |       | 3   348       |
| 64          | 6496       | 6612 | 6727 | 6842 | 6958 | 7073 | 7188 | 7304 | 7419 | 7534 |       | 4   464       |
| 65          | 7650       | 7765 | 7881 | 7996 | 8111 | 8227 | 8342 | 8457 | 8573 | 8688 |       | 5   580       |
| 66          | 8803       | 8918 | 9034 | 9149 | 9264 | 9380 | 9495 | 9610 | 9726 | 9841 |       | 6   696       |
| 67          | * 9956     | +071 | 0187 | 0302 | 0417 | 0533 | 0648 | 0763 | 0878 | 0994 |       | 7   812       |
| 68          | 576        | 1109 | 1224 | 1339 | 1455 | 1570 | 1685 | 1800 | 1916 | 2031 | 2146  | 8   928       |
| 69          | 2261       | 2377 | 2492 | 2607 | 2722 | 2837 | 2953 | 3068 | 3183 | 3298 |       | 9   1044      |
| <b>3770</b> | 3414       | 3529 | 3644 | 3759 | 3874 | 3989 | 4105 | 4220 | 4335 | 4450 |       |               |
| 71          | 4565       | 4680 | 4796 | 4911 | 5026 | 5141 | 5256 | 5371 | 5487 | 5602 |       |               |
| 72          | 5717       | 5832 | 5947 | 6062 | 6177 | 6292 | 6408 | 6523 | 6638 | 6753 |       |               |
| 73          | 6868       | 6983 | 7098 | 7213 | 7328 | 7444 | 7559 | 7674 | 7789 | 7904 |       |               |
| 74          | 8019       | 8134 | 8249 | 8364 | 8479 | 8594 | 8709 | 8824 | 8939 | 9055 |       |               |
| 75          | * 9170     | 9285 | 9400 | 9515 | 9630 | 9745 | 9860 | 9975 | +090 | 0205 |       |               |
| 76          | 577        | 0320 | 0435 | 0550 | 0665 | 0780 | 0895 | 1010 | 1125 | 1240 | 1355  | 115           |
| 77          | 1470       | 1585 | 1700 | 1815 | 1930 | 2045 | 2160 | 2275 | 2390 | 2505 |       |               |
| 78          | 2620       | 2734 | 2849 | 2964 | 3079 | 3194 | 3309 | 3424 | 3539 | 3654 |       |               |
| 79          | 3769       | 3884 | 3999 | 4114 | 4229 | 4343 | 4458 | 4573 | 4688 | 4803 |       |               |
| <b>3780</b> | 4918       | 5033 | 5148 | 5263 | 5378 | 5492 | 5607 | 5722 | 5837 | 5952 |       |               |
| 81          | 6067       | 6182 | 6296 | 6411 | 6526 | 6641 | 6756 | 6871 | 6986 | 7100 |       |               |
| 82          | 7215       | 7330 | 7445 | 7560 | 7675 | 7789 | 7904 | 8019 | 8134 | 8249 |       |               |
| 83          | 8363       | 8478 | 8593 | 8708 | 8823 | 8937 | 9052 | 9167 | 9282 | 9397 |       |               |
| 84          | * 9511     | 9626 | 9741 | 9856 | 9970 | +085 | 0200 | 0315 | 0429 | 0544 |       |               |
| 85          | 578        | 0659 | 0774 | 0888 | 1003 | 1118 | 1233 | 1347 | 1462 | 1577 | 1691  |               |
| 86          | 1806       | 1921 | 2036 | 2150 | 2265 | 2380 | 2494 | 2609 | 2724 | 2838 |       | 1   115       |
| 87          | 2953       | 3068 | 3182 | 3297 | 3412 | 3526 | 3641 | 3756 | 3870 | 3985 |       | 2   230       |
| 88          | 4100       | 4214 | 4329 | 4444 | 4558 | 4673 | 4788 | 4902 | 5017 | 5131 |       | 3   345       |
| 89          | 5246       | 5361 | 5475 | 5590 | 5705 | 5819 | 5934 | 6048 | 6163 | 6278 |       | 4   460       |
| <b>3790</b> | 6392       | 6507 | 6621 | 6736 | 6850 | 6965 | 7080 | 7194 | 7309 | 7423 |       | 5   575       |
| 91          | 7538       | 7652 | 7767 | 7882 | 7996 | 8111 | 8225 | 8340 | 8454 | 8569 |       | 6   690       |
| 92          | 8683       | 8798 | 8912 | 9027 | 9141 | 9256 | 9370 | 9485 | 9599 | 9714 |       | 7   805       |
| 93          | * 9828     | 9943 | +057 | 0172 | 0286 | 0401 | 0515 | 0630 | 0744 | 0859 |       | 8   920       |
| 94          | 579        | 0973 | 1088 | 1202 | 1317 | 1431 | 1546 | 1660 | 1774 | 1889 | 2003  | 9   1035      |
| 95          | 2118       | 2232 | 2347 | 2461 | 2576 | 2690 | 2804 | 2919 | 3033 | 3148 |       |               |
| 96          | 3262       | 3376 | 3491 | 3605 | 3720 | 3834 | 3948 | 4063 | 4177 | 4292 |       |               |
| 97          | 4406       | 4520 | 4635 | 4749 | 4863 | 4978 | 5092 | 5207 | 5321 | 5435 |       |               |
| 98          | 5550       | 5664 | 5778 | 5893 | 6007 | 6121 | 6236 | 6350 | 6464 | 6579 |       |               |
| 99          | 6693       | 6807 | 6922 | 7036 | 7150 | 7264 | 7379 | 7493 | 7607 | 7722 |       |               |
| <b>3800</b> | 7836       | 7950 | 8065 | 8179 | 8293 | 8407 | 8522 | 8636 | 8750 | 8864 |       |               |
| 01          | * 8979     | 9093 | 9207 | 9321 | 9436 | 9550 | 9664 | 9778 | 9893 | +007 |       |               |
| 02          | 580        | 0121 | 0235 | 0350 | 0464 | 0578 | 0692 | 0806 | 0921 | 1035 | 1149  |               |
| 03          | 1263       | 1377 | 1492 | 1606 | 1720 | 1834 | 1948 | 2063 | 2177 | 2291 |       |               |
| 04          | 2405       | 2519 | 2633 | 2748 | 2862 | 2976 | 3090 | 3204 | 3318 | 3432 |       |               |
| 05          | 3547       | 3661 | 3775 | 3889 | 4003 | 4117 | 4231 | 4346 | 4460 | 4574 |       |               |
| 06          | 4688       | 4802 | 4916 | 5030 | 5144 | 5258 | 5372 | 5487 | 5601 | 5715 |       |               |
| 07          | 5829       | 5943 | 6057 | 6171 | 6285 | 6399 | 6513 | 6627 | 6741 | 6855 |       |               |
| 08          | 6969       | 7083 | 7197 | 7312 | 7426 | 7540 | 7654 | 7768 | 7882 | 7996 |       |               |
| 09          | 8110       | 8224 | 8338 | 8452 | 8566 | 8680 | 8794 | 8908 | 9022 | 9136 |       | 114           |
| <b>3810</b> | * 9250     | 9364 | 9478 | 9592 | 9706 | 9820 | 9934 | +048 | 0162 | 0276 |       |               |
| 11          | 581        | 0389 | 0503 | 0617 | 0731 | 0845 | 0959 | 1073 | 1187 | 1301 | 1415  |               |
| 12          | 1529       | 1643 | 1757 | 1871 | 1985 | 2099 | 2212 | 2326 | 2440 | 2554 |       | 1   114       |
| 13          | 2668       | 2782 | 2896 | 3010 | 3124 | 3238 | 3351 | 3465 | 3579 | 3693 |       | 2   228       |
| 14          | 3807       | 3921 | 4035 | 4148 | 4262 | 4376 | 4490 | 4604 | 4718 | 4832 |       | 3   342       |
| 15          | 4945       | 5059 | 5173 | 5287 | 5401 | 5515 | 5628 | 5742 | 5856 | 5970 |       | 4   456       |
| 16          | 6084       | 6197 | 6311 | 6425 | 6539 | 6653 | 6766 | 6880 | 6994 | 7108 |       | 5   570       |
| 17          | 7222       | 7335 | 7449 | 7563 | 7677 | 7790 | 7904 | 8018 | 8132 | 8245 |       | 6   684       |
| 18          | 8359       | 8473 | 8587 | 8700 | 8814 | 8928 | 9042 | 9155 | 9269 | 9383 |       | 7   798       |
| 19          | * 9497     | 9610 | 9724 | 9838 | 9951 | +065 | 0179 | 0293 | 0406 | 0520 |       | 8   912       |
|             |            |      |      |      |      |      |      |      |      |      |       | 9   1026      |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Meth. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>3820</b> | <b>582</b> | 0634 | 0747 | 0861 | 0975 | 1088 | 1202 | 1316 | 1429 | 1543 | 1657  |               |
| 21          | 1770       | 1884 | 1998 | 2111 | 2225 | 2339 | 2452 | 2566 | 2680 | 2793 |       | 1   114       |
| 22          | 2907       | 3020 | 3134 | 3248 | 3361 | 3475 | 3589 | 3702 | 3816 | 3929 |       | 2   228       |
| 23          | 4043       | 4157 | 4270 | 4384 | 4497 | 4611 | 4725 | 4838 | 4952 | 5065 |       | 3   342       |
| 24          | 5179       | 5292 | 5406 | 5520 | 5633 | 5747 | 5860 | 5974 | 6087 | 6201 |       | 4   456       |
| 25          | 6314       | 6428 | 6541 | 6655 | 6769 | 6882 | 6996 | 7109 | 7223 | 7336 |       | 5   570       |
| 26          | 7450       | 7563 | 7677 | 7790 | 7904 | 8017 | 8131 | 8244 | 8358 | 8471 |       | 6   684       |
| 27          | 8585       | 8698 | 8812 | 8925 | 9039 | 9152 | 9265 | 9379 | 9492 | 9606 |       | 7   798       |
| 28          | * 9719     | 9833 | 9946 | +060 | 0173 | 0287 | 0400 | 0513 | 0627 | 0740 |       | 8   912       |
| 29          | 583        | 0854 | 0967 | 1081 | 1194 | 1307 | 1421 | 1534 | 1648 | 1761 | 1874  | 9   1026      |
| 38 30       | 1988       | 2101 | 2215 | 2328 | 2441 | 2555 | 2668 | 2781 | 2895 | 3008 |       |               |
| 31          | 3122       | 3235 | 3348 | 3462 | 3575 | 3688 | 3802 | 3915 | 4028 | 4142 |       |               |
| 32          | 4255       | 4368 | 4482 | 4595 | 4708 | 4822 | 4935 | 5048 | 5162 | 5275 |       |               |
| 33          | 5388       | 5501 | 5615 | 5728 | 5841 | 5955 | 6068 | 6181 | 6295 | 6408 |       |               |
| 34          | 6521       | 6634 | 6748 | 6861 | 6974 | 7087 | 7201 | 7314 | 7427 | 7540 |       |               |
| 35          | 7654       | 7767 | 7880 | 7993 | 8107 | 8220 | 8333 | 8446 | 8560 | 8673 |       |               |
| 36          | 8786       | 8899 | 9012 | 9126 | 9239 | 9352 | 9465 | 9578 | 9692 | 9805 |       |               |
| 37          | * 9918     | +031 | 0144 | 0258 | 0371 | 0484 | 0597 | 0710 | 0823 | 0937 |       | 1   113       |
| 38          | 584        | 1050 | 1163 | 1276 | 1389 | 1502 | 1615 | 1729 | 1842 | 1955 | 2068  | 2   226       |
| 39          | 2181       | 2294 | 2407 | 2520 | 2634 | 2747 | 2860 | 2973 | 3086 | 3199 |       | 3   339       |
| 38 40       | 3312       | 3425 | 3538 | 3652 | 3765 | 3878 | 3991 | 4104 | 4217 | 4330 |       | 4   452       |
| 41          | 4443       | 4556 | 4669 | 4782 | 4895 | 5008 | 5121 | 5234 | 5348 | 5461 |       | 5   565       |
| 42          | 5574       | 5687 | 5800 | 5913 | 6026 | 6139 | 6252 | 6365 | 6478 | 6591 |       | 6   678       |
| 43          | 6704       | 6817 | 6930 | 7043 | 7156 | 7269 | 7382 | 7495 | 7608 | 7721 |       | 7   791       |
| 44          | 7834       | 7947 | 8060 | 8173 | 8286 | 8399 | 8512 | 8625 | 8738 | 8850 |       | 8   904       |
| 45          | 8963       | 9076 | 9189 | 9302 | 9415 | 9528 | 9641 | 9754 | 9867 | 9980 |       | 9   1017      |
| 46          | 585        | 0093 | 0206 | 0319 | 0432 | 0545 | 0657 | 0770 | 0883 | 0996 | 1109  |               |
| 47          | 1222       | 1335 | 1448 | 1561 | 1673 | 1786 | 1899 | 2012 | 2125 | 2238 |       |               |
| 48          | 2351       | 2463 | 2576 | 2689 | 2802 | 2915 | 3028 | 3141 | 3253 | 3366 |       |               |
| 49          | 3479       | 3592 | 3705 | 3818 | 3930 | 4043 | 4156 | 4269 | 4382 | 4494 |       |               |
| 38 50       | 4607       | 4720 | 4833 | 4946 | 5058 | 5171 | 5284 | 5397 | 5510 | 5622 |       |               |
| 51          | 5735       | 5848 | 5961 | 6073 | 6186 | 6299 | 6412 | 6525 | 6637 | 6750 |       |               |
| 52          | 6863       | 6976 | 7088 | 7201 | 7314 | 7426 | 7539 | 7652 | 7765 | 7877 |       |               |
| 53          | 7990       | 8103 | 8216 | 8328 | 8441 | 8554 | 8666 | 8779 | 8892 | 9004 |       |               |
| 54          | * 9117     | 9230 | 9342 | 9455 | 9568 | 9681 | 9793 | 9906 | +019 | 0131 |       | 1   112       |
| 55          | 586        | 0244 | 0356 | 0469 | 0582 | 0694 | 0807 | 0920 | 1032 | 1145 | 1258  | 2   224       |
| 56          | 1370       | 1483 | 1596 | 1708 | 1821 | 1933 | 2046 | 2159 | 2271 | 2384 |       | 3   336       |
| 57          | 2496       | 2609 | 2722 | 2834 | 2947 | 3059 | 3172 | 3285 | 3397 | 3510 |       | 4   448       |
| 58          | 3622       | 3735 | 3847 | 3960 | 4072 | 4185 | 4298 | 4410 | 4523 | 4635 |       | 5   560       |
| 59          | 4748       | 4860 | 4973 | 5085 | 5198 | 5310 | 5423 | 5535 | 5648 | 5761 |       | 6   672       |
| 38 60       | 5873       | 5986 | 6098 | 6211 | 6323 | 6436 | 6548 | 6661 | 6773 | 6886 |       | 7   784       |
| 61          | 6998       | 7110 | 7223 | 7335 | 7448 | 7560 | 7673 | 7785 | 7898 | 8010 |       | 8   896       |
| 62          | 8123       | 8235 | 8348 | 8460 | 8572 | 8685 | 8797 | 8910 | 9022 | 9135 |       | 9   1008      |
| 63          | * 9247     | 9360 | 9472 | 9584 | 9697 | 9809 | 9922 | +034 | 0146 | 0259 |       |               |
| 64          | 587        | 0371 | 0484 | 0596 | 0708 | 0821 | 0933 | 1045 | 1158 | 1270 | 1383  |               |
| 65          | 1495       | 1607 | 1720 | 1832 | 1944 | 2057 | 2169 | 2281 | 2394 | 2506 |       |               |
| 66          | 2618       | 2731 | 2843 | 2955 | 3068 | 3180 | 3292 | 3405 | 3517 | 3629 |       |               |
| 67          | 3742       | 3854 | 3966 | 4079 | 4191 | 4303 | 4416 | 4528 | 4640 | 4752 |       |               |
| 68          | 4865       | 4977 | 5089 | 5201 | 5314 | 5426 | 5538 | 5651 | 5763 | 5875 |       |               |
| 69          | 5987       | 6100 | 6212 | 6324 | 6436 | 6549 | 6661 | 6773 | 6885 | 6997 |       |               |
| 38 70       | 7110       | 7222 | 7334 | 7446 | 7559 | 7671 | 7783 | 7895 | 8007 | 8120 |       |               |
| 71          | 8232       | 8344 | 8456 | 8568 | 8680 | 8793 | 8905 | 9017 | 9129 | 9241 |       |               |
| 72          | * 9353     | 9466 | 9578 | 9690 | 9802 | 9914 | +026 | 0139 | 0251 | 0363 |       | 1   111       |
| 73          | 588        | 0475 | 0587 | 0699 | 0811 | 0923 | 1036 | 1148 | 1260 | 1372 | 1484  | 2   222       |
| 74          | 1596       | 1708 | 1820 | 1932 | 2045 | 2157 | 2269 | 2381 | 2493 | 2605 |       | 3   333       |
| 75          | 2717       | 2829 | 2941 | 3053 | 3165 | 3277 | 3389 | 3502 | 3614 | 3726 |       | 4   444       |
| 76          | 3838       | 3950 | 4062 | 4174 | 4286 | 4398 | 4510 | 4622 | 4734 | 4846 |       | 5   555       |
| 77          | 4958       | 5070 | 5182 | 5294 | 5406 | 5518 | 5630 | 5742 | 5854 | 5966 |       | 6   666       |
| 78          | 6078       | 6190 | 6302 | 6414 | 6526 | 6638 | 6750 | 6862 | 6974 | 7086 |       | 7   777       |
| 79          | 7198       | 7310 | 7422 | 7534 | 7646 | 7758 | 7870 | 7981 | 8093 | 8205 |       | 8   888       |
|             |            |      |      |      |      |      |      |      |      |      |       | 9   999       |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 80    | 888 | 8317 | 8429 | 8541 | 8653 | 8765 | 8877 | 8989 | 9101 | 9213 | 9325  |               |
| 81    | *   | 9436 | 9548 | 9660 | 9772 | 9884 | 9996 | +108 | 0220 | 0332 | 0443  | 1 112         |
| 82    | 589 | 0555 | 0667 | 0779 | 0891 | 1003 | 1115 | 1227 | 1338 | 1450 | 1562  | 2 224         |
| 83    |     | 1674 | 1786 | 1898 | 2009 | 2121 | 2233 | 2345 | 2457 | 2569 | 2680  | 3 336         |
| 84    |     | 2792 | 2904 | 3016 | 3128 | 3239 | 3351 | 3463 | 3575 | 3687 | 3798  | 4 448         |
| 85    |     | 3910 | 4022 | 4134 | 4246 | 4357 | 4469 | 4581 | 4693 | 4804 | 4916  | 5 560         |
| 86    |     | 5028 | 5140 | 4251 | 5363 | 5475 | 5587 | 5698 | 5810 | 5922 | 6034  | 6 672         |
| 87    |     | 6145 | 6257 | 6369 | 6481 | 6592 | 6704 | 6816 | 6927 | 7039 | 7151  | 7 784         |
| 88    |     | 7263 | 7374 | 7486 | 7598 | 7709 | 7821 | 7933 | 8044 | 8156 | 8268  | 8 866         |
| 89    |     | 8379 | 8491 | 8603 | 8714 | 8826 | 8938 | 9049 | 9161 | 9273 | 9384  | 9 1008        |
| 38 90 | *   | 9496 | 9608 | 9719 | 9831 | 9943 | +054 | 0166 | 0277 | 0389 | 0501  |               |
| 91    | 590 | 0612 | 0724 | 0836 | 0947 | 1059 | 1170 | 1282 | 1394 | 1505 | 1617  |               |
| 92    |     | 1728 | 1840 | 1951 | 2063 | 2175 | 2286 | 2398 | 2509 | 2621 | 2732  |               |
| 93    |     | 2844 | 2956 | 3067 | 3179 | 3290 | 3402 | 3513 | 3625 | 3736 | 3848  |               |
| 94    |     | 3959 | 4071 | 4183 | 4294 | 4406 | 4517 | 4629 | 4740 | 4852 | 4963  |               |
| 95    |     | 5075 | 5186 | 5298 | 5409 | 5521 | 5632 | 5744 | 5855 | 5967 | 6078  |               |
| 96    |     | 6189 | 6301 | 6412 | 6524 | 6635 | 6747 | 6858 | 6970 | 7081 | 7193  |               |
| 97    |     | 7304 | 7415 | 7527 | 7638 | 7750 | 7861 | 7973 | 8084 | 8196 | 8307  |               |
| 98    |     | 8418 | 8530 | 8641 | 8753 | 8864 | 8975 | 9087 | 9198 | 9310 | 9421  |               |
| 99    | *   | 9532 | 9644 | 9755 | 9866 | 9978 | +089 | 0201 | 0312 | 0423 | 0535  |               |
| 39 00 | 591 | 0646 | 0757 | 0869 | 0980 | 1091 | 1203 | 1314 | 1426 | 1537 | 1648  |               |
| 01    |     | 1760 | 1871 | 1982 | 2093 | 2205 | 2316 | 2427 | 2539 | 2650 | 2761  |               |
| 02    |     | 2873 | 2984 | 3095 | 3207 | 3318 | 3429 | 3540 | 3652 | 3763 | 3874  |               |
| 03    |     | 3986 | 4097 | 4208 | 4319 | 4431 | 4542 | 4653 | 4764 | 4876 | 4987  |               |
| 04    |     | 5098 | 5209 | 5321 | 5432 | 5543 | 5654 | 5765 | 5877 | 5988 | 6099  |               |
| 05    |     | 6210 | 6322 | 6433 | 6544 | 6655 | 6766 | 6878 | 6989 | 7100 | 7211  |               |
| 06    |     | 7322 | 7434 | 7545 | 7656 | 7767 | 7878 | 7989 | 8101 | 8212 | 8323  | 1 111         |
| 07    |     | 8434 | 8545 | 8656 | 8768 | 8879 | 8990 | 9101 | 9212 | 9323 | 9434  | 2 222         |
| 08    | *   | 9546 | 9657 | 9768 | 9879 | 9990 | +101 | 0212 | 0323 | 0434 | 0546  | 3 333         |
| 09    | 592 | 0657 | 0768 | 0879 | 0990 | 1101 | 1212 | 1323 | 1434 | 1545 | 1656  | 4 444         |
| 39 10 |     | 1768 | 1879 | 1990 | 2101 | 2212 | 2323 | 2434 | 2545 | 2656 | 2767  | 5 555         |
| 11    |     | 2878 | 2989 | 3100 | 3211 | 3322 | 3433 | 3544 | 3655 | 3766 | 3877  | 6 666         |
| 12    |     | 3988 | 4099 | 4210 | 4321 | 4432 | 4543 | 4654 | 4765 | 4876 | 4987  | 7 777         |
| 13    |     | 5098 | 5209 | 5320 | 5431 | 5542 | 5653 | 5764 | 5875 | 5986 | 6097  | 8 888         |
| 14    |     | 6208 | 6319 | 6430 | 6541 | 6652 | 6763 | 6874 | 6985 | 7096 | 7207  | 9 999         |
| 15    |     | 7318 | 7429 | 7540 | 7650 | 7761 | 7872 | 7983 | 8094 | 8205 | 8316  |               |
| 16    |     | 8427 | 8538 | 8649 | 8760 | 8870 | 8981 | 9092 | 9203 | 9314 | 9425  |               |
| 17    | *   | 9536 | 9647 | 9757 | 9868 | 9979 | +090 | 0201 | 0312 | 0423 | 0533  |               |
| 18    | 593 | 0644 | 0755 | 0866 | 0977 | 1088 | 1199 | 1309 | 1420 | 1531 | 1642  |               |
| 19    |     | 1753 | 1863 | 1974 | 2085 | 2196 | 2307 | 2417 | 2528 | 2639 | 2750  |               |
| 39 20 |     | 2861 | 2971 | 3082 | 3193 | 3304 | 3415 | 3525 | 3636 | 3747 | 3858  |               |
| 21    |     | 3968 | 4079 | 4190 | 4301 | 4411 | 4522 | 4633 | 4744 | 4854 | 4965  |               |
| 22    |     | 5076 | 5187 | 5297 | 5408 | 5519 | 5630 | 5740 | 5851 | 5962 | 6072  |               |
| 23    |     | 6183 | 6294 | 6404 | 6515 | 6626 | 6737 | 6847 | 6958 | 7069 | 7179  |               |
| 24    |     | 7290 | 7401 | 7511 | 7622 | 7733 | 7843 | 7954 | 8065 | 8175 | 8286  |               |
| 25    |     | 8397 | 8507 | 8618 | 8729 | 8839 | 8950 | 9060 | 9171 | 9282 | 9392  |               |
| 26    | *   | 9503 | 9614 | 9724 | 9835 | 9945 | +056 | 0167 | 0277 | 0388 | 0498  |               |
| 27    | 594 | 0609 | 0720 | 0830 | 0941 | 1051 | 1162 | 1273 | 1383 | 1494 | 1604  |               |
| 28    |     | 1715 | 1825 | 1936 | 2046 | 2157 | 2268 | 2378 | 2489 | 2599 | 2710  |               |
| 29    |     | 2820 | 2931 | 3041 | 3152 | 3262 | 3373 | 3483 | 3594 | 3704 | 3815  |               |
| 39 30 |     | 3926 | 4036 | 4147 | 4257 | 4368 | 4478 | 4588 | 4699 | 4809 | 4920  |               |
| 31    |     | 5030 | 5141 | 5251 | 5362 | 5472 | 5583 | 5693 | 5804 | 5914 | 6025  |               |
| 32    |     | 6135 | 6246 | 6356 | 6466 | 6577 | 6687 | 6798 | 6908 | 7019 | 7129  |               |
| 33    |     | 7239 | 7350 | 7460 | 7571 | 7681 | 7792 | 7902 | 8012 | 8123 | 8233  |               |
| 34    |     | 8344 | 8454 | 8564 | 8675 | 8785 | 8895 | 9006 | 9116 | 9227 | 9337  |               |
| 35    | *   | 9447 | 9558 | 9668 | 9778 | 9889 | 9999 | +110 | 0220 | 0330 | 0441  |               |
| 36    | 595 | 0551 | 0661 | 0772 | 0882 | 0992 | 1103 | 1213 | 1323 | 1434 | 1544  |               |
| 37    |     | 1654 | 1764 | 1875 | 1985 | 2095 | 2206 | 2316 | 2426 | 2537 | 2647  |               |
| 38    |     | 2757 | 2867 | 2978 | 3088 | 3198 | 3308 | 3419 | 3529 | 3639 | 3750  |               |
| 39    |     | 3860 | 3970 | 4080 | 4191 | 4301 | 4411 | 4521 | 4632 | 4742 | 4852  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>3940</b> | <b>595</b> | 4962 | 5072 | 5183 | 5293 | 5403 | 5513 | 5624 | 5734 | 5844 | 5954  |               |
| 41          | 6064       | 6175 | 6285 | 6395 | 6505 | 6615 | 6725 | 6836 | 6946 | 7056 |       | 1   110       |
| 42          | 7166       | 7276 | 7387 | 7497 | 7607 | 7717 | 7827 | 7937 | 8047 | 8158 |       | 2   220       |
| 43          | 8268       | 8378 | 8488 | 8598 | 8708 | 8818 | 8929 | 9039 | 9149 | 9259 |       | 3   330       |
| 44          | • 9369     | 9479 | 9589 | 9699 | 9810 | 9920 | •030 | 0140 | 0250 | 0360 |       | 4   440       |
| 45          | 596        | 0470 | 0580 | 0690 | 0800 | 0910 | 1020 | 1131 | 1241 | 1351 | 1461  | 5   550       |
| 46          | 1571       | 1681 | 1791 | 1901 | 2011 | 2121 | 2231 | 2341 | 2451 | 2561 |       | 6   660       |
| 47          | 2671       | 2781 | 2891 | 3001 | 3111 | 3221 | 3331 | 3441 | 3551 | 3661 |       | 7   770       |
| 48          | 3771       | 3881 | 3991 | 4101 | 4211 | 4321 | 4431 | 4541 | 4651 | 4761 |       | 8   880       |
| 49          | 4871       | 4981 | 5091 | 5201 | 5311 | 5421 | 5531 | 5641 | 5751 | 5861 | 110   | 9   990       |
| <b>3950</b> | 5971       | 6081 | 6191 | 6301 | 6411 | 6521 | 6631 | 6741 | 6850 | 6960 |       |               |
| 51          | 7070       | 7180 | 7290 | 7400 | 7510 | 7620 | 7730 | 7840 | 7950 | 8059 |       |               |
| 52          | 8169       | 8279 | 8389 | 8499 | 8609 | 8719 | 8829 | 8939 | 9048 | 9158 |       |               |
| 53          | • 9268     | 9378 | 9488 | 9598 | 9708 | 9817 | 9927 | •037 | 0147 | 0257 |       |               |
| 54          | 597        | 0367 | 0476 | 0586 | 0696 | 0806 | 0916 | 1026 | 1135 | 1245 |       |               |
| 55          | 1465       | 1575 | 1684 | 1794 | 1904 | 2014 | 2124 | 2233 | 2343 | 2453 |       |               |
| 56          | 2563       | 2673 | 2782 | 2892 | 3002 | 3112 | 3221 | 3331 | 3441 | 3551 |       |               |
| 57          | 3661       | 3770 | 3880 | 3990 | 4099 | 4209 | 4319 | 4429 | 4538 | 4648 |       |               |
| 58          | 4758       | 4868 | 4977 | 5087 | 5197 | 5306 | 5416 | 5526 | 5636 | 5745 |       |               |
| 59          | 5855       | 5965 | 6074 | 6184 | 6294 | 6403 | 6513 | 6623 | 6733 | 6842 |       |               |
| <b>3960</b> | 6952       | 7062 | 7171 | 7281 | 7391 | 7500 | 7610 | 7719 | 7829 | 7939 |       |               |
| 61          | 8048       | 8158 | 8268 | 8377 | 8487 | 8597 | 8706 | 8816 | 8925 | 9035 |       |               |
| 62          | • 9145     | 9254 | 9364 | 9474 | 9583 | 9693 | 9802 | 9912 | •022 | 0131 |       |               |
| 63          | 598        | 0241 | 0350 | 0460 | 0569 | 0679 | 0789 | 0898 | 1008 | 1117 | 1227  |               |
| 64          | 1336       | 1446 | 1556 | 1665 | 1775 | 1884 | 1994 | 2103 | 2213 | 2322 |       |               |
| 65          | 2432       | 2541 | 2651 | 2761 | 2870 | 2980 | 3089 | 3199 | 3308 | 3418 |       |               |
| 66          | 3527       | 3637 | 3746 | 3856 | 3965 | 4075 | 4184 | 4294 | 4403 | 4513 |       | 1   109       |
| 67          | 4622       | 4731 | 4841 | 4950 | 5060 | 5169 | 5279 | 5388 | 5498 | 5607 |       | 2   218       |
| 68          | 5717       | 5826 | 5936 | 6045 | 6154 | 6264 | 6373 | 6483 | 6592 | 6702 |       | 3   327       |
| 69          | 6811       | 6920 | 7030 | 7139 | 7249 | 7358 | 7467 | 7577 | 7686 | 7796 |       | 4   436       |
| <b>3970</b> | 7905       | 8014 | 8124 | 8233 | 8343 | 8452 | 8561 | 8671 | 8780 | 8890 |       | 5   545       |
| 71          | 8999       | 9108 | 9218 | 9327 | 9436 | 9546 | 9655 | 9764 | 9874 | 9983 |       | 6   654       |
| 72          | 599        | 0092 | 0202 | 0311 | 0420 | 0530 | 0639 | 0748 | 0858 | 0967 | 1076  | 7   763       |
| 73          | 1186       | 1295 | 1404 | 1514 | 1623 | 1732 | 1841 | 1951 | 2060 | 2169 |       | 8   872       |
| 74          | 2279       | 2388 | 2497 | 2606 | 2716 | 2825 | 2934 | 3044 | 3153 | 3262 |       | 9   981       |
| 75          | 3371       | 3481 | 3590 | 3699 | 3808 | 3918 | 4027 | 4136 | 4245 | 4355 |       |               |
| 76          | 4464       | 4573 | 4682 | 4791 | 4901 | 5010 | 5119 | 5228 | 5338 | 5447 |       |               |
| 77          | 5556       | 5665 | 5774 | 5884 | 5993 | 6102 | 6211 | 6320 | 6429 | 6539 |       |               |
| 78          | 6648       | 6757 | 6866 | 6975 | 7084 | 7194 | 7303 | 7412 | 7521 | 7630 |       |               |
| 79          | 7739       | 7849 | 7958 | 8067 | 8176 | 8285 | 8394 | 8503 | 8612 | 8722 |       |               |
| <b>3980</b> | 8831       | 8940 | 9049 | 9158 | 9267 | 9376 | 9485 | 9594 | 9704 | 9813 |       |               |
| 81          | • 9922     | •031 | 0140 | 0249 | 0358 | 0467 | 0576 | 0685 | 0794 | 0903 |       |               |
| 82          | 600        | 1013 | 1122 | 1231 | 1340 | 1449 | 1558 | 1667 | 1776 | 1885 | 1994  |               |
| 83          | 2103       | 2212 | 2321 | 2430 | 2539 | 2648 | 2757 | 2866 | 2975 | 3084 |       |               |
| 84          | 3193       | 3302 | 3411 | 3520 | 3629 | 3738 | 3847 | 3956 | 4065 | 4174 |       |               |
| 85          | 4283       | 4392 | 4501 | 4610 | 4719 | 4828 | 4937 | 5046 | 5155 | 5264 |       |               |
| 86          | 5373       | 5482 | 5591 | 5700 | 5809 | 5918 | 6027 | 6136 | 6244 | 6353 |       |               |
| 87          | 6462       | 6571 | 6680 | 6789 | 6898 | 7007 | 7116 | 7225 | 7334 | 7443 |       |               |
| 88          | 7551       | 7660 | 7769 | 7878 | 7987 | 8096 | 8205 | 8314 | 8423 | 8531 |       |               |
| 89          | 8640       | 8749 | 8858 | 8967 | 9076 | 9185 | 9294 | 9402 | 9511 | 9620 |       |               |
| <b>3990</b> | • 9729     | 9838 | 9947 | •055 | 0164 | 0273 | 0382 | 0491 | 0600 | 0708 |       |               |
| 91          | 601        | 0817 | 0926 | 1035 | 1144 | 1253 | 1361 | 1470 | 1579 | 1688 | 1797  |               |
| 92          | 1905       | 2014 | 2123 | 2232 | 2340 | 2449 | 2558 | 2667 | 2776 | 2884 |       | 1   108       |
| 93          | 2993       | 3102 | 3211 | 3319 | 3428 | 3537 | 3646 | 3754 | 3863 | 3972 |       | 2   216       |
| 94          | 4081       | 4189 | 4298 | 4407 | 4516 | 4624 | 4733 | 4841 | 4950 | 5059 |       | 3   324       |
| 95          | 5168       | 5277 | 5385 | 5494 | 5603 | 5711 | 5820 | 5929 | 6037 | 6146 |       | 4   432       |
| 96          | 6255       | 6363 | 6472 | 6581 | 6690 | 6798 | 6907 | 7016 | 7124 | 7233 |       | 5   540       |
| 97          | 7341       | 7450 | 7559 | 7667 | 7776 | 7885 | 7993 | 8102 | 8211 | 8319 |       | 6   648       |
| 98          | 8428       | 8537 | 8645 | 8754 | 8862 | 8971 | 9080 | 9188 | 9297 | 9405 |       | 7   756       |
| 99          | • 9514     | 9623 | 9731 | 9840 | 9948 | •057 | 0166 | 0274 | 0383 | 0491 |       | 8   864       |
|             |            |      |      |      |      |      |      |      |      |      |       | 9   972       |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |               |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|---------------|
| <b>4000</b> | <b>602</b> | 0600 | 0708 | 0817 | 0926 | 1034 | 1143 | 1251 | 1360 | 1468 | 1577  | 1             | 109           |
| 01          |            | 1686 | 1794 | 1903 | 2011 | 2120 | 2228 | 2337 | 2445 | 2554 | 2662  | 2             | 218           |
| 02          |            | 2771 | 2879 | 2988 | 3096 | 3205 | 3313 | 3422 | 3530 | 3639 | 3747  | 3             | 327           |
| 03          |            | 3856 | 3964 | 4073 | 4181 | 4290 | 4398 | 4507 | 4615 | 4724 | 4832  | 4             | 436           |
| 04          |            | 4941 | 5049 | 5158 | 5266 | 5375 | 5483 | 5591 | 5700 | 5808 | 5917  | 5             | 545           |
| 05          |            | 6025 | 6134 | 6242 | 6351 | 6459 | 6567 | 6676 | 6784 | 6893 | 7001  | 6             | 654           |
| 06          |            | 7109 | 7218 | 7326 | 7435 | 7543 | 7651 | 7760 | 7868 | 7977 | 8085  | 7             | 763           |
| 07          |            | 8193 | 8302 | 8410 | 8519 | 8627 | 8735 | 8844 | 8952 | 9060 | 9169  | 8             | 872           |
| 08          | *          | 9277 | 9385 | 9494 | 9602 | 9711 | 9819 | 9927 | 0036 | 0144 | 0252  | 9             | 981           |
| 09          | 603        | 0361 | 0469 | 0577 | 0686 | 0794 | 0902 | 1010 | 1119 | 1227 | 1335  |               |               |
| 40 10       |            | 1444 | 1552 | 1660 | 1769 | 1877 | 1985 | 2093 | 2202 | 2310 | 2418  |               |               |
| 11          |            | 2527 | 2635 | 2743 | 2851 | 2960 | 3068 | 3176 | 3284 | 3393 | 3501  |               |               |
| 12          |            | 3609 | 3717 | 3826 | 3934 | 4042 | 4150 | 4259 | 4367 | 4475 | 4583  |               |               |
| 13          |            | 4692 | 4800 | 4908 | 5016 | 5124 | 5233 | 5341 | 5449 | 5557 | 5665  |               |               |
| 14          |            | 5774 | 5882 | 5990 | 6098 | 6206 | 6315 | 6423 | 6531 | 6639 | 6747  |               |               |
| 15          |            | 6855 | 6964 | 7072 | 7180 | 7288 | 7396 | 7504 | 7613 | 7721 | 7829  |               |               |
| 16          |            | 7937 | 8045 | 8153 | 8261 | 8370 | 8478 | 8586 | 8694 | 8802 | 8910  |               |               |
| 17          |            | 9018 | 9126 | 9235 | 9343 | 9451 | 9559 | 9667 | 9775 | 9883 | 9991  |               |               |
| 18          | 604        | 0099 | 0207 | 0315 | 0424 | 0532 | 0640 | 0748 | 0856 | 0964 | 1072  |               |               |
| 19          | 1180       | 1288 | 1396 | 1504 | 1612 |      | 1720 | 1828 | 1936 | 2044 | 2152  |               |               |
| 40 20       |            | 2261 | 2369 | 2477 | 2585 | 2693 | 2801 | 2909 | 3017 | 3125 | 3233  |               |               |
| 21          |            | 3341 | 3449 | 3557 | 3665 | 3773 | 3881 | 3989 | 4097 | 4205 | 4313  |               |               |
| 22          |            | 4421 | 4529 | 4637 | 4745 | 4853 | 4961 | 5068 | 5176 | 5284 | 5392  |               |               |
| 23          |            | 5500 | 5608 | 5716 | 5824 | 5932 | 6040 | 6148 | 6256 | 6364 | 6472  |               |               |
| 24          |            | 6580 | 6688 | 6796 | 6903 | 7011 | 7119 | 7227 | 7335 | 7443 | 7551  |               |               |
| 25          |            | 7659 | 7767 | 7875 | 7983 | 8090 | 8198 | 8306 | 8414 | 8522 | 8630  |               |               |
| 26          |            | 8738 | 8846 | 8953 | 9061 | 9169 | 9277 | 9385 | 9493 | 9601 | 9708  | 1             | 108           |
| 27          | *          | 9816 | 9924 | 0032 | 0140 | 0248 | 0355 | 0463 | 0571 | 0679 | 0787  | 2             | 216           |
| 28          | 605        | 0895 | 1002 | 1110 | 1218 | 1326 | 1434 | 1541 | 1649 | 1757 | 1865  | 3             | 324           |
| 29          | 1973       | 2080 | 2188 | 2296 | 2404 |      | 2512 | 2619 | 2727 | 2835 | 2943  | 4             | 432           |
| 40 30       |            | 3050 | 3158 | 3266 | 3374 | 3482 | 3589 | 3697 | 3805 | 3912 | 4020  | 5             | 540           |
| 31          |            | 4128 | 4236 | 4343 | 4451 | 4559 | 4667 | 4774 | 4882 | 4990 | 5098  | 6             | 648           |
| 32          |            | 5205 | 5313 | 5421 | 5528 | 5636 | 5744 | 5851 | 5959 | 6067 | 6175  | 7             | 756           |
| 33          |            | 6282 | 6390 | 6498 | 6605 | 6713 | 6821 | 6928 | 7036 | 7144 | 7251  | 8             | 864           |
| 34          |            | 7359 | 7467 | 7574 | 7682 | 7790 | 7897 | 8005 | 8112 | 8220 | 8328  | 9             | 972           |
| 35          |            | 8435 | 8543 | 8651 | 8758 | 8866 | 8974 | 9081 | 9189 | 9296 | 9404  |               |               |
| 36          | *          | 9512 | 9619 | 9727 | 9834 | 9942 | 0050 | 0157 | 0265 | 0372 | 0480  |               |               |
| 37          | 606        | 0587 | 0695 | 0803 | 0910 | 1018 | 1125 | 1233 | 1340 | 1448 | 1556  |               |               |
| 38          |            | 1663 | 1771 | 1878 | 1986 | 2093 | 2201 | 2308 | 2416 | 2523 | 2631  |               |               |
| 39          |            | 2739 | 2846 | 2954 | 3061 | 3169 | 3276 | 3384 | 3491 | 3599 | 3706  |               |               |
| 40 40       |            | 3814 | 3921 | 4029 | 4136 | 4244 | 4351 | 4459 | 4566 | 4674 | 4781  |               |               |
| 41          |            | 4889 | 4996 | 5103 | 5211 | 5318 | 5426 | 5533 | 5641 | 5748 | 5856  |               |               |
| 42          |            | 5963 | 6071 | 6178 | 6285 | 6393 | 6500 | 6608 | 6715 | 6823 | 6930  |               |               |
| 43          |            | 7037 | 7145 | 7252 | 7360 | 7467 | 7574 | 7682 | 7789 | 7897 | 8004  |               |               |
| 44          |            | 8111 | 8219 | 8326 | 8434 | 8541 | 8648 | 8756 | 8863 | 8971 | 9078  |               |               |
| 45          | *          | 9185 | 9293 | 9400 | 9507 | 9615 | 9722 | 9829 | 9937 | 0044 | 0151  |               |               |
| 46          | 607        | 0259 | 0366 | 0473 | 0581 | 0688 | 0795 | 0903 | 1010 | 1117 | 1225  |               |               |
| 47          |            | 1332 | 1439 | 1547 | 1654 | 1761 | 1869 | 1976 | 2083 | 2190 | 2298  |               |               |
| 48          |            | 2405 | 2512 | 2620 | 2727 | 2834 | 2941 | 3049 | 3156 | 3263 | 3371  |               |               |
| 49          |            | 3478 | 3585 | 3692 | 3800 | 3907 | 4014 | 4121 | 4229 | 4336 | 4443  |               |               |
| 40 50       |            | 4550 | 4657 | 4765 | 4872 | 4979 | 5086 | 5194 | 5301 | 5408 | 5515  |               |               |
| 51          |            | 5622 | 5730 | 5837 | 5944 | 6051 | 6158 | 6266 | 6373 | 6480 | 6587  |               |               |
| 52          |            | 6694 | 6802 | 6909 | 7016 | 7123 | 7230 | 7337 | 7445 | 7552 | 7659  |               |               |
| 53          |            | 7766 | 7873 | 7980 | 8087 | 8195 | 8302 | 8409 | 8516 | 8623 | 8730  |               |               |
| 54          |            | 8837 | 8945 | 9052 | 9159 | 9266 | 9373 | 9480 | 9587 | 9694 | 9801  |               |               |
| 55          | *          | 9909 | 0016 | 0123 | 0230 | 0337 | 0444 | 0551 | 0658 | 0765 | 0872  |               |               |
| 56          | 608        | 0979 | 1087 | 1194 | 1301 | 1408 | 1515 | 1622 | 1729 | 1836 | 1943  |               |               |
| 57          |            | 2050 | 2157 | 2264 | 2371 | 2478 | 2585 | 2692 | 2799 | 2906 | 3013  |               |               |
| 58          |            | 3120 | 3227 | 3334 | 3441 | 3548 | 3656 | 3763 | 3870 | 3977 | 4084  |               |               |
| 59          |            | 4191 | 4298 | 4404 | 4511 | 4618 | 4725 | 4832 | 4939 | 5046 | 5153  |               |               |
| Num.        |            | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | Diff.         | Diff. & Mult. |

| Num.         | 0          | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8     | 9    | Diff. | Diff. & Mult. |   |     |
|--------------|------------|--------|------|------|------|------|------|------|-------|------|-------|---------------|---|-----|
| <b>40 60</b> | <b>608</b> | 5260   | 5367 | 5474 | 5581 | 5688 | 5795 | 5902 | 6009  | 6116 | 6223  |               | 1 | 107 |
| 61           |            | 6330   | 6437 | 6544 | 6651 | 6758 | 6865 | 6972 | 7078  | 7185 | 7292  |               | 2 | 214 |
| 62           |            | 7399   | 7506 | 7613 | 7720 | 7827 | 7934 | 8041 | 8148  | 8254 | 8361  |               | 3 | 321 |
| 63           |            | 8468   | 8575 | 8682 | 8789 | 8896 | 9003 | 9110 | 9216  | 9323 | 9430  |               | 4 | 428 |
| 64           |            | * 9537 | 9644 | 9751 | 9858 | 9964 | +071 | 0178 | 0285  | 0392 | 0499  |               | 5 | 535 |
| 65           | 609        | 0605   | 0712 | 0819 | 0926 | 1033 | 1140 | 1246 | 1353  | 1460 | 1567  |               | 6 | 642 |
| 66           |            | 1674   | 1781 | 1887 | 1994 | 2101 | 2208 | 2315 | 2421  | 2528 | 2635  |               | 7 | 749 |
| 67           |            | 2742   | 2849 | 2955 | 3062 | 3169 | 3276 | 3382 | 3489  | 3596 | 3703  |               | 8 | 856 |
| 68           |            | 3809   | 3916 | 4023 | 4130 | 4236 | 4343 | 4450 | 4557  | 4663 | 4770  |               | 9 | 963 |
| 69           |            | 4877   | 4984 | 5090 | 5197 | 5304 | 5411 | 5517 | 5624  | 5731 | 5837  |               |   |     |
| <b>40 70</b> |            | 5944   | 6051 | 6157 | 6264 | 6371 | 6478 | 6584 | 6691  | 6798 | 6904  |               |   |     |
| 71           |            | 7011   | 7118 | 7224 | 7331 | 7438 | 7544 | 7651 | 7758  | 7864 | 7971  |               |   |     |
| 72           |            | 8078   | 8184 | 8291 | 8398 | 8504 | 8611 | 8718 | 8824  | 8931 | 9037  |               |   |     |
| 73           |            | * 9144 | 9251 | 9357 | 9464 | 9571 | 9677 | 9784 | 9890  | 9997 | +104  |               |   |     |
| 74           | 610        | 0210   | 0317 | 0423 | 0530 | 0637 | 0743 | 0850 | 0956  | 1063 | 1170  |               |   |     |
| 75           |            | 1276   | 1383 | 1489 | 1596 | 1702 | 1809 | 1916 | 2022  | 2129 | 2235  |               |   |     |
| 76           |            | 2342   | 2448 | 2555 | 2661 | 2768 | 2874 | 2981 | 3088  | 3194 | 3301  |               |   |     |
| 77           |            | 3407   | 3514 | 3620 | 3727 | 3833 | 3940 | 4046 | 4153  | 4259 | 4366  |               |   |     |
| 78           |            | 4472   | 4579 | 4685 | 4792 | 4898 | 5005 | 5111 | 5218  | 5324 | 5431  |               |   |     |
| 79           |            | 5537   | 5644 | 5750 | 5856 | 5963 | 6069 | 6176 | 6282  | 6389 | 6495  |               |   |     |
| <b>40 80</b> |            | 6602   | 6708 | 6815 | 6921 | 7027 | 7134 | 7240 | 7347  | 7453 | 7560  |               |   |     |
| 81           |            | 7666   | 7772 | 7879 | 7985 | 8092 | 8198 | 8304 | 8411  | 8517 | 8624  |               |   |     |
| 82           |            | 8730   | 8836 | 8943 | 9049 | 9156 | 9262 | 9368 | 9475  | 9581 | 9687  |               |   |     |
| 83           |            | * 9794 | 9900 | +007 | 0113 | 0219 | 0326 | 0432 | 0538  | 0645 | 0751  |               |   |     |
| 84           | 611        | 0857   | 0964 | 1070 | 1176 | 1283 | 1389 | 1495 | 1602  | 1708 | 1814  |               |   |     |
| 85           |            | 1921   | 2027 | 2133 | 2240 | 2346 | 2452 | 2558 | 2665  | 2771 | 2877  |               | 1 | 106 |
| 86           |            | 2984   | 3090 | 3196 | 3302 | 3409 | 3515 | 3621 | 3728  | 3834 | 3940  |               | 2 | 212 |
| 87           |            | 4046   | 4153 | 4259 | 4365 | 4471 | 4578 | 4684 | 4790  | 4896 | 5003  |               | 3 | 318 |
| 88           |            | 5109   | 5215 | 5321 | 5428 | 5534 | 5640 | 5746 | 5852  | 5959 | 6065  |               | 4 | 424 |
| 89           |            | 6171   | 6277 | 6384 | 6490 | 6596 | 6702 | 6808 | 6915  | 7021 | 7127  |               | 5 | 530 |
| <b>40 90</b> |            | 7233   | 7339 | 7445 | 7552 | 7658 | 7764 | 7870 | 7976  | 8082 | 8189  |               | 6 | 636 |
| 91           |            | 8295   | 8401 | 8507 | 8613 | 8719 | 8826 | 8932 | 9038  | 9144 | 9250  |               | 7 | 742 |
| 92           |            | * 9356 | 9462 | 9569 | 9675 | 9781 | 9887 | 9993 | +0099 | 0205 | 0311  |               | 8 | 848 |
| 93           | 612        | 0417   | 0524 | 0630 | 0736 | 0842 | 0948 | 1054 | 1160  | 1266 | 1372  |               | 9 | 954 |
| 94           |            | 1478   | 1584 | 1691 | 1797 | 1903 | 2009 | 2115 | 2221  | 2327 | 2433  |               |   |     |
| 95           |            | 2539   | 2645 | 2751 | 2857 | 2963 | 3069 | 3175 | 3281  | 3387 | 3493  |               |   |     |
| 96           |            | 3599   | 3706 | 3812 | 3918 | 4024 | 4130 | 4236 | 4342  | 4448 | 4554  |               |   |     |
| 97           |            | 4660   | 4766 | 4872 | 4978 | 5084 | 5190 | 5296 | 5402  | 5508 | 5614  |               |   |     |
| 98           |            | 5720   | 5826 | 5931 | 6037 | 6143 | 6249 | 6355 | 6461  | 6567 | 6673  |               |   |     |
| 99           |            | 6779   | 6885 | 6991 | 7097 | 7203 | 7309 | 7415 | 7521  | 7627 | 7733  |               |   |     |
| <b>41 00</b> |            | 7839   | 7944 | 8050 | 8156 | 8262 | 8368 | 8474 | 8580  | 8686 | 8792  |               |   |     |
| 01           |            | 8898   | 9004 | 9109 | 9215 | 9321 | 9427 | 9533 | 9639  | 9745 | 9851  |               |   |     |
| 02           |            | * 9957 | +062 | 0168 | 0274 | 0380 | 0486 | 0592 | 0698  | 0803 | 0909  |               |   |     |
| 03           | 613        | 1015   | 1121 | 1227 | 1333 | 1439 | 1544 | 1650 | 1756  | 1862 | 1968  |               |   |     |
| 04           |            | 2074   | 2179 | 2285 | 2391 | 2497 | 2603 | 2708 | 2814  | 2920 | 3026  |               |   |     |
| 05           |            | 3132   | 3237 | 3343 | 3449 | 3555 | 3661 | 3766 | 3872  | 3978 | 4084  |               |   |     |
| 06           |            | 4189   | 4295 | 4401 | 4507 | 4613 | 4718 | 4824 | 4930  | 5036 | 5141  |               |   |     |
| 07           |            | 5247   | 5353 | 5459 | 5564 | 5670 | 5776 | 5881 | 5987  | 6093 | 6199  |               |   |     |
| 08           |            | 6304   | 6410 | 6516 | 6621 | 6727 | 6833 | 6939 | 7044  | 7150 | 7256  |               |   |     |
| 09           |            | 7361   | 7467 | 7573 | 7678 | 7784 | 7890 | 7996 | 8101  | 8207 | 8313  |               |   |     |
| <b>41 10</b> |            | 8418   | 8524 | 8630 | 8735 | 8841 | 8947 | 9052 | 9158  | 9263 | 9369  |               |   |     |
| 11           |            | * 9475 | 9580 | 9686 | 9792 | 9897 | +003 | 0109 | 0214  | 0320 | 0425  |               | 1 | 105 |
| 12           | 614        | 0531   | 0637 | 0742 | 0848 | 0954 | 1059 | 1165 | 1270  | 1376 | 1482  |               | 2 | 210 |
| 13           |            | 1587   | 1693 | 1798 | 1904 | 2009 | 2115 | 2221 | 2326  | 2432 | 2537  |               | 3 | 315 |
| 14           |            | 2643   | 2748 | 2854 | 2960 | 3065 | 3171 | 3276 | 3382  | 3487 | 3593  |               | 4 | 420 |
| 15           |            | 3698   | 3804 | 3909 | 4015 | 4121 | 4226 | 4332 | 4437  | 4543 | 4648  |               | 5 | 525 |
| 16           |            | 4754   | 4859 | 4965 | 5070 | 5176 | 5281 | 5387 | 5492  | 5598 | 5703  |               | 6 | 630 |
| 17           |            | 5809   | 5914 | 6020 | 6125 | 6231 | 6336 | 6442 | 6547  | 6652 | 6758  |               | 7 | 735 |
| 18           |            | 6863   | 6969 | 7074 | 7180 | 7285 | 7391 | 7496 | 7602  | 7707 | 7812  |               | 8 | 840 |
| 19           |            | 7918   | 8023 | 8129 | 8234 | 8340 | 8445 | 8550 | 8656  | 8761 | 8867  |               | 9 | 945 |
| Num.         | 0          | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8     | 9    | Diff. | Diff. & Mult. |   |     |

106

| Num.  | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|----------|------|------|------|------|------|------|------|------|------|-------|---------------|
| 4120  | 614 8972 | 9078 | 9183 | 9288 | 9394 | 9499 | 9605 | 9710 | 9815 | 9921 | 1     | 106           |
| 21    | 615 0026 | 0132 | 0237 | 0342 | 0448 | 0553 | 0658 | 0764 | 0869 | 0975 | 2     | 212           |
| 22    | 1080     | 1185 | 1291 | 1396 | 1501 | 1607 | 1712 | 1817 | 1923 | 2028 | 3     | 318           |
| 23    | 2133     | 2239 | 2344 | 2449 | 2555 | 2660 | 2765 | 2871 | 2976 | 3081 | 4     | 424           |
| 24    | 3187     | 3292 | 3397 | 3502 | 3608 | 3713 | 3818 | 3924 | 4029 | 4134 | 5     | 530           |
| 25    | 4240     | 4345 | 4450 | 4555 | 4661 | 4766 | 4871 | 4976 | 5082 | 5187 | 6     | 636           |
| 26    | 5292     | 5397 | 5503 | 5608 | 5713 | 5818 | 5924 | 6029 | 6134 | 6239 | 7     | 742           |
| 27    | 6345     | 6450 | 6555 | 6660 | 6766 | 6871 | 6976 | 7081 | 7186 | 7292 | 8     | 848           |
| 28    | 7397     | 7502 | 7607 | 7712 | 7818 | 7923 | 8028 | 8133 | 8238 | 8344 | 9     | 954           |
| 29    | 8449     | 8554 | 8659 | 8764 | 8870 | 8975 | 9080 | 9185 | 9290 | 9395 |       |               |
| 41 30 | * 9501   | 9606 | 9711 | 9816 | 9921 | +026 | 0131 | 0237 | 0342 | 0447 |       |               |
| 31    | 616 0552 | 0657 | 0762 | 0867 | 0972 | 1078 | 1183 | 1288 | 1393 | 1498 |       |               |
| 32    | 1603     | 1708 | 1813 | 1918 | 2024 | 2129 | 2234 | 2339 | 2444 | 2549 |       |               |
| 33    | 2654     | 2759 | 2864 | 2969 | 3074 | 3179 | 3284 | 3389 | 3495 | 3600 |       |               |
| 34    | 3705     | 3810 | 3915 | 4020 | 4125 | 4230 | 4335 | 4440 | 4545 | 4650 |       |               |
| 35    | 4755     | 4860 | 4965 | 5070 | 5175 | 5280 | 5385 | 5490 | 5595 | 5700 |       |               |
| 36    | 5805     | 5910 | 6015 | 6120 | 6225 | 6330 | 6435 | 6540 | 6645 | 6750 | 105   |               |
| 37    | 6855     | 6960 | 7065 | 7170 | 7275 | 7380 | 7485 | 7590 | 7695 | 7800 |       |               |
| 38    | 7905     | 8010 | 8115 | 8220 | 8325 | 8430 | 8535 | 8639 | 8744 | 8849 |       |               |
| 39    | 8954     | 9059 | 9164 | 9269 | 9374 | 9479 | 9584 | 9689 | 9794 | 9899 |       |               |
| 41 40 | 617 0003 | 0108 | 0213 | 0318 | 0423 | 0528 | 0633 | 0738 | 0843 | 0947 |       |               |
| 41    | 1052     | 1157 | 1262 | 1367 | 1472 | 1577 | 1682 | 1786 | 1891 | 1996 |       |               |
| 42    | 2101     | 2206 | 2311 | 2415 | 2520 | 2625 | 2730 | 2835 | 2940 | 3045 |       |               |
| 43    | 3149     | 3254 | 3359 | 3464 | 3569 | 3673 | 3778 | 3883 | 3988 | 4093 |       |               |
| 44    | 4197     | 4302 | 4407 | 4512 | 4617 | 4721 | 4826 | 4931 | 5036 | 5141 |       |               |
| 45    | 5245     | 5350 | 5455 | 5560 | 5664 | 5769 | 5874 | 5979 | 6083 | 6188 |       |               |
| 46    | 6293     | 6398 | 6502 | 6607 | 6712 | 6817 | 6921 | 7026 | 7131 | 7236 |       |               |
| 47    | 7340     | 7445 | 7550 | 7655 | 7759 | 7864 | 7969 | 8073 | 8178 | 8283 |       |               |
| 48    | 8387     | 8492 | 8597 | 8702 | 8806 | 8911 | 9016 | 9120 | 9225 | 9330 |       |               |
| 49    | * 9434   | 9539 | 9644 | 9748 | 9853 | 9958 | +062 | 0167 | 0272 | 0376 |       |               |
| 41 50 | 618 0481 | 0586 | 0690 | 0795 | 0900 | 1004 | 1109 | 1213 | 1318 | 1423 |       |               |
| 51    | 1527     | 1632 | 1737 | 1841 | 1946 | 2050 | 2155 | 2260 | 2364 | 2469 |       |               |
| 52    | 2573     | 2678 | 2783 | 2887 | 2992 | 3096 | 3201 | 3306 | 3410 | 3515 |       |               |
| 53    | 3619     | 3724 | 3828 | 3933 | 4038 | 4142 | 4247 | 4351 | 4456 | 4560 |       |               |
| 54    | 4665     | 4769 | 4874 | 4979 | 5083 | 5188 | 5292 | 5397 | 5501 | 5606 |       |               |
| 55    | 5710     | 5815 | 5919 | 6024 | 6128 | 6233 | 6337 | 6442 | 6546 | 6651 |       |               |
| 56    | 6755     | 6860 | 6964 | 7069 | 7173 | 7278 | 7382 | 7487 | 7591 | 7696 |       |               |
| 57    | 7800     | 7905 | 8009 | 8114 | 8218 | 8323 | 8427 | 8531 | 8636 | 8740 |       |               |
| 58    | 8845     | 8949 | 9054 | 9158 | 9263 | 9367 | 9471 | 9576 | 9680 | 9785 |       |               |
| 59    | * 9889   | 9994 | +095 | 0202 | 0307 | 0411 | 0516 | 0620 | 0725 | 0829 |       |               |
| 41 60 | 619 0933 | 1038 | 1142 | 1246 | 1351 | 1455 | 1560 | 1664 | 1768 | 1873 |       |               |
| 61    | 1977     | 2082 | 2186 | 2290 | 2395 | 2499 | 2603 | 2708 | 2812 | 2916 |       |               |
| 62    | 3021     | 3125 | 3229 | 3334 | 3438 | 3542 | 3647 | 3751 | 3855 | 3960 |       |               |
| 63    | 4064     | 4168 | 4273 | 4377 | 4481 | 4586 | 4690 | 4794 | 4899 | 5003 |       |               |
| 64    | 5107     | 5212 | 5316 | 5420 | 5524 | 5629 | 5733 | 5837 | 5942 | 6046 |       |               |
| 65    | 6150     | 6254 | 6359 | 6463 | 6567 | 6671 | 6776 | 6880 | 6984 | 7088 |       |               |
| 66    | 7193     | 7297 | 7401 | 7505 | 7610 | 7714 | 7818 | 7922 | 8027 | 8131 |       |               |
| 67    | 8235     | 8339 | 8443 | 8548 | 8652 | 8756 | 8860 | 8964 | 9069 | 9173 |       |               |
| 68    | * 9277   | 9381 | 9485 | 9589 | 9694 | 9798 | 9902 | +006 | 0111 | 0215 |       |               |
| 69    | 620 0319 | 0423 | 0527 | 0631 | 0736 | 0840 | 0944 | 1048 | 1152 | 1256 |       |               |
| 41 70 | 1361     | 1465 | 1569 | 1673 | 1777 | 1881 | 1985 | 2090 | 2194 | 2298 |       |               |
| 71    | 2402     | 2506 | 2610 | 2714 | 2818 | 2922 | 3027 | 3131 | 3235 | 3339 |       |               |
| 72    | 3443     | 3547 | 3651 | 3755 | 3859 | 3963 | 4068 | 4172 | 4276 | 4380 |       |               |
| 73    | 4484     | 4588 | 4692 | 4796 | 4900 | 5004 | 5108 | 5212 | 5316 | 5420 |       |               |
| 74    | 5524     | 5628 | 5733 | 5837 | 5941 | 6045 | 6149 | 6253 | 6357 | 6461 |       |               |
| 75    | 6565     | 6669 | 6773 | 6877 | 6981 | 7085 | 7189 | 7293 | 7397 | 7501 |       |               |
| 76    | 7605     | 7709 | 7813 | 7917 | 8021 | 8125 | 8229 | 8333 | 8437 | 8541 | 104   |               |
| 77    | 8645     | 8749 | 8853 | 8957 | 9061 | 9165 | 9269 | 9373 | 9477 | 9581 |       |               |
| 78    | * 9684   | 9788 | 9892 | 9996 | +100 | 0204 | 0308 | 0412 | 0516 | 0620 |       |               |
| 79    | 621 0724 | 0828 | 0932 | 1035 | 1139 | 1243 | 1347 | 1451 | 1555 | 1659 |       |               |
| Num.  | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |



LOGARITHMS OF NUMBERS.

57

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Meth. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 100   | 621 | 1763 | 1867 | 1971 | 2075 | 2178 | 2281 | 2386 | 2490 | 2594 | 2698  | 1<br>104      |
| 81    |     | 2802 | 2906 | 3009 | 3113 | 3217 | 3321 | 3425 | 3529 | 3633 | 3736  | 2<br>208      |
| 82    |     | 3840 | 3944 | 4048 | 4152 | 4256 | 4359 | 4463 | 4567 | 4671 | 4775  | 3<br>312      |
| 83    |     | 4879 | 4982 | 5086 | 5190 | 5294 | 5398 | 5502 | 5605 | 5709 | 5813  | 4<br>416      |
| 84    |     | 5917 | 6021 | 6124 | 6228 | 6332 | 6436 | 6540 | 6643 | 6747 | 6851  | 5<br>520      |
| 85    |     | 6955 | 7058 | 7162 | 7266 | 7370 | 7473 | 7577 | 7681 | 7785 | 7888  | 6<br>624      |
| 86    |     | 7992 | 8096 | 8200 | 8303 | 8407 | 8511 | 8615 | 8718 | 8822 | 8926  | 7<br>728      |
| 87    |     | 9030 | 9133 | 9237 | 9341 | 9444 | 9548 | 9652 | 9756 | 9859 | 9963  | 8<br>832      |
| 88    | 622 | 0067 | 0170 | 0274 | 0378 | 0482 | 0585 | 0689 | 0793 | 0896 | 1000  | 9<br>936      |
| 89    |     | 1104 | 1207 | 1311 | 1415 | 1518 | 1622 | 1726 | 1829 | 1933 | 2037  |               |
| 41 90 |     | 2140 | 2244 | 2348 | 2451 | 2555 | 2658 | 2762 | 2866 | 2969 | 3073  |               |
| 91    |     | 3177 | 3280 | 3384 | 3487 | 3591 | 3695 | 3798 | 3902 | 4006 | 4109  |               |
| 92    |     | 4213 | 4316 | 4420 | 4524 | 4627 | 4731 | 4834 | 4938 | 5041 | 5145  |               |
| 93    |     | 5249 | 5352 | 5456 | 5559 | 5663 | 5766 | 5870 | 5974 | 6077 | 6181  |               |
| 94    |     | 6284 | 6388 | 6491 | 6595 | 6698 | 6802 | 6906 | 7009 | 7113 | 7216  |               |
| 95    |     | 7320 | 7423 | 7527 | 7630 | 7734 | 7837 | 7941 | 8044 | 8148 | 8251  |               |
| 96    |     | 8355 | 8458 | 8562 | 8665 | 8769 | 8872 | 8976 | 9079 | 9183 | 9286  |               |
| 97    | *   | 9390 | 9493 | 9597 | 9700 | 9804 | 9907 | +011 | 0114 | 0217 | 0321  |               |
| 98    | 623 | 0424 | 0528 | 0631 | 0735 | 0838 | 0942 | 1045 | 1148 | 1252 | 1355  |               |
| 99    |     | 1459 | 1562 | 1666 | 1769 | 1872 | 1976 | 2079 | 2183 | 2286 | 2389  |               |
| 42 00 |     | 2493 | 2596 | 2700 | 2803 | 2906 | 3010 | 3113 | 3217 | 3320 | 3423  |               |
| 01    |     | 3527 | 3630 | 3734 | 3837 | 3940 | 4044 | 4147 | 4250 | 4354 | 4457  |               |
| 02    |     | 4560 | 4664 | 4767 | 4871 | 4974 | 5077 | 5181 | 5284 | 5387 | 5491  |               |
| 03    |     | 5594 | 5697 | 5801 | 5904 | 6007 | 6111 | 6214 | 6317 | 6420 | 6524  |               |
| 04    |     | 6627 | 6730 | 6834 | 6937 | 7040 | 7144 | 7247 | 7350 | 7453 | 7557  |               |
| 05    |     | 7660 | 7763 | 7867 | 7970 | 8073 | 8176 | 8280 | 8383 | 8486 | 8589  | 1<br>103      |
| 06    |     | 8693 | 8796 | 8899 | 9002 | 9106 | 9209 | 9312 | 9415 | 9519 | 9622  | 2<br>206      |
| 07    | *   | 9725 | 9828 | 9932 | +035 | 0138 | 0241 | 0344 | 0448 | 0551 | 0654  | 3<br>309      |
| 08    | 624 | 0757 | 0861 | 0964 | 1067 | 1170 | 1273 | 1377 | 1480 | 1583 | 1686  | 4<br>412      |
| 09    |     | 1789 | 1892 | 1995 | 2099 | 2202 | 2305 | 2408 | 2511 | 2615 | 2718  | 5<br>515      |
| 42 10 |     | 2821 | 2924 | 3027 | 3130 | 3234 | 3337 | 3440 | 3543 | 3646 | 3749  | 6<br>618      |
| 11    |     | 3852 | 3956 | 4059 | 4162 | 4265 | 4368 | 4471 | 4574 | 4677 | 4781  | 7<br>721      |
| 12    |     | 4884 | 4987 | 5090 | 5193 | 5296 | 5399 | 5502 | 5605 | 5708 | 5812  | 8<br>824      |
| 13    |     | 5915 | 6018 | 6121 | 6224 | 6327 | 6430 | 6533 | 6636 | 6739 | 6842  | 9<br>927      |
| 14    |     | 6945 | 7048 | 7151 | 7254 | 7358 | 7461 | 7564 | 7667 | 7770 | 7873  |               |
| 15    |     | 7976 | 8079 | 8182 | 8285 | 8388 | 8491 | 8594 | 8697 | 8800 | 8903  |               |
| 16    |     | 9006 | 9109 | 9212 | 9315 | 9418 | 9521 | 9624 | 9727 | 9830 | 9933  |               |
| 17    | 625 | 0036 | 0139 | 0242 | 0345 | 0448 | 0551 | 0654 | 0757 | 0860 | 0963  | 103           |
| 18    |     | 1066 | 1169 | 1272 | 1375 | 1478 | 1581 | 1683 | 1786 | 1889 | 1992  |               |
| 19    |     | 2095 | 2198 | 2301 | 2404 | 2507 | 2610 | 2713 | 2816 | 2919 | 3022  |               |
| 42 20 |     | 3125 | 3227 | 3330 | 3433 | 3536 | 3639 | 3742 | 3845 | 3948 | 4051  |               |
| 21    |     | 4154 | 4256 | 4359 | 4462 | 4565 | 4668 | 4771 | 4874 | 4977 | 5079  |               |
| 22    |     | 5182 | 5285 | 5388 | 5491 | 5594 | 5697 | 5799 | 5902 | 6005 | 6108  |               |
| 23    |     | 6211 | 6314 | 6416 | 6519 | 6622 | 6725 | 6828 | 6931 | 7033 | 7136  |               |
| 24    |     | 7239 | 7342 | 7445 | 7548 | 7650 | 7753 | 7856 | 7959 | 8062 | 8164  |               |
| 25    |     | 8267 | 8370 | 8473 | 8575 | 8678 | 8781 | 8884 | 8987 | 9089 | 9192  |               |
| 26    | *   | 9295 | 9398 | 9500 | 9603 | 9706 | 9809 | 9911 | +014 | 0117 | 0220  |               |
| 27    | 626 | 0322 | 0425 | 0528 | 0631 | 0733 | 0836 | 0939 | 1042 | 1144 | 1247  |               |
| 28    |     | 1350 | 1453 | 1555 | 1658 | 1761 | 1863 | 1966 | 2069 | 2171 | 2274  |               |
| 29    |     | 2377 | 2480 | 2582 | 2685 | 2788 | 2890 | 2993 | 3096 | 3198 | 3301  |               |
| 42 30 |     | 3404 | 3506 | 3609 | 3712 | 3814 | 3917 | 4020 | 4122 | 4225 | 4328  |               |
| 31    |     | 4430 | 4533 | 4636 | 4738 | 4841 | 4943 | 5046 | 5149 | 5251 | 5354  | 1<br>102      |
| 32    |     | 5457 | 5559 | 5662 | 5764 | 5867 | 5970 | 6072 | 6175 | 6277 | 6380  | 2<br>204      |
| 33    |     | 6483 | 6585 | 6688 | 6790 | 6893 | 6996 | 7098 | 7201 | 7303 | 7406  | 3<br>306      |
| 34    |     | 7509 | 7611 | 7714 | 7816 | 7919 | 8021 | 8124 | 8226 | 8329 | 8432  | 4<br>408      |
| 35    |     | 8534 | 8637 | 8739 | 8842 | 8944 | 9047 | 9149 | 9252 | 9354 | 9457  | 5<br>510      |
| 36    | *   | 9560 | 9662 | 9765 | 9867 | 9970 | +072 | 0175 | 0277 | 0380 | 0482  | 6<br>612      |
| 37    | 627 | 0585 | 0687 | 0790 | 0892 | 0995 | 1097 | 1200 | 1302 | 1405 | 1507  | 7<br>714      |
| 38    |     | 1610 | 1712 | 1814 | 1917 | 2019 | 2122 | 2224 | 2327 | 2429 | 2532  | 8<br>816      |
| 39    |     | 2634 | 2737 | 2839 | 2942 | 3044 | 3146 | 3249 | 3351 | 3454 | 3556  | 9<br>918      |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Meth. |

| Num. | 0      | 1    | 2      | 3    | 4      | 5      | 6    | 7      | 8      | 9    | Diff.   | Diff. & Mult. |
|------|--------|------|--------|------|--------|--------|------|--------|--------|------|---------|---------------|
| 4240 | 627    | 3659 | 3761   | 3863 | 3966   | 4068   | 4171 | 4273   | 4376   | 4478 | 4580    | 1   103       |
| 41   | 4683   | 4785 | 4888   | 4990 | 5092   | 5195   | 5297 | 5399   | 5502   | 5604 | 2   206 |               |
| 42   | 5707   | 5809 | 5911   | 6014 | 6116   | 6219   | 6321 | 6423   | 6526   | 6628 | 3   309 |               |
| 43   | 6730   | 6833 | 6935   | 7037 | 7140   | 7242   | 7344 | 7447   | 7549   | 7651 | 4   412 |               |
| 44   | 7754   | 7856 | 7958   | 8061 | 8163   | 8265   | 8368 | 8470   | 8572   | 8675 | 5   515 |               |
| 45   | 8777   | 8879 | 8982   | 9084 | 9186   | 9288   | 9391 | 9493   | 9595   | 9698 | 6   618 |               |
| 46   | • 9800 | 9902 | • 0004 | 0107 | 0209   | 0311   | 0414 | 0516   | 0618   | 0720 | 7   721 |               |
| 47   | 628    | 0823 | 0925   | 1027 | 1129   | 1232   | 1334 | 1436   | 1538   | 1641 | 8   824 |               |
| 48   | 1845   | 1947 | 2050   | 2152 | 2254   | 2356   | 2458 | 2561   | 2663   | 2765 | 9   927 |               |
| 49   | 2867   | 2970 | 3072   | 3174 | 3276   | 3378   | 3481 | 3583   | 3685   | 3787 |         |               |
| 4250 | 3889   | 3991 | 4094   | 4196 | 4298   | 4400   | 4502 | 4605   | 4707   | 4809 |         |               |
| 51   | 4911   | 5013 | 5115   | 5218 | 5320   | 5422   | 5524 | 5626   | 5728   | 5830 |         |               |
| 52   | 5933   | 6035 | 6137   | 6239 | 6341   | 6443   | 6545 | 6647   | 6750   | 6852 |         |               |
| 53   | 6954   | 7056 | 7158   | 7260 | 7362   | 7464   | 7566 | 7669   | 7771   | 7873 |         |               |
| 54   | 7975   | 8077 | 8179   | 8281 | 8383   | 8485   | 8587 | 8689   | 8792   | 8894 |         |               |
| 55   | 8996   | 9098 | 9200   | 9302 | 9404   | 9506   | 9608 | 9710   | 9812   | 9914 |         |               |
| 56   | 629    | 0016 | 0118   | 0220 | 0322   | 0424   | 0526 | 0628   | 0730   | 0832 | 102     |               |
| 57   | 1037   | 1139 | 1241   | 1343 | 1445   | 1547   | 1649 | 1751   | 1853   | 1955 |         |               |
| 58   | 2057   | 2159 | 2261   | 2363 | 2465   | 2567   | 2668 | 2770   | 2872   | 2974 |         |               |
| 59   | 3076   | 3178 | 3280   | 3382 | 3484   | 3586   | 3688 | 3790   | 3892   | 3994 |         |               |
| 4260 | 4096   | 4198 | 4300   | 4402 | 4504   | 4606   | 4708 | 4810   | 4911   | 5013 |         |               |
| 61   | 5115   | 5217 | 5319   | 5421 | 5523   | 5625   | 5727 | 5829   | 5931   | 6033 |         |               |
| 62   | 6134   | 6236 | 6338   | 6440 | 6542   | 6644   | 6746 | 6848   | 6950   | 7051 |         |               |
| 63   | 7153   | 7255 | 7357   | 7459 | 7561   | 7663   | 7765 | 7866   | 7968   | 8070 |         |               |
| 64   | 8172   | 8274 | 8376   | 8478 | 8579   | 8681   | 8783 | 8885   | 8987   | 9089 |         |               |
| 65   | • 9190 | 9292 | 9394   | 9496 | 9598   | 9699   | 9801 | 9903   | • 0005 | 0107 |         |               |
| 66   | 630    | 0209 | 0310   | 0412 | 0514   | 0616   | 0717 | 0819   | 0921   | 1023 | 102     |               |
| 67   | 1226   | 1328 | 1430   | 1532 | 1634   | 1735   | 1837 | 1939   | 2041   | 2142 | 204     |               |
| 68   | 2244   | 2346 | 2448   | 2549 | 2651   | 2753   | 2855 | 2956   | 3058   | 3160 | 306     |               |
| 69   | 3262   | 3363 | 3465   | 3567 | 3668   | 3770   | 3872 | 3974   | 4075   | 4177 | 408     |               |
| 4270 | 4279   | 4380 | 4482   | 4584 | 4686   | 4787   | 4889 | 4991   | 5092   | 5194 | 510     |               |
| 71   | 5296   | 5397 | 5499   | 5601 | 5702   | 5804   | 5906 | 6007   | 6109   | 6211 | 612     |               |
| 72   | 6312   | 6414 | 6516   | 6617 | 6719   | 6821   | 6922 | 7024   | 7126   | 7227 | 714     |               |
| 73   | 7329   | 7431 | 7532   | 7634 | 7735   | 7837   | 7939 | 8040   | 8142   | 8244 | 816     |               |
| 74   | 8345   | 8447 | 8548   | 8650 | 8752   | 8853   | 8955 | 9056   | 9158   | 9260 | 918     |               |
| 75   | • 9361 | 9463 | 9564   | 9666 | 9768   | 9869   | 9971 | • 0072 | 0174   | 0275 |         |               |
| 76   | 631    | 0377 | 0479   | 0580 | 0682   | 0783   | 0885 | 0986   | 1088   | 1189 | 1291    |               |
| 77   | 1393   | 1494 | 1596   | 1697 | 1799   | 1900   | 2002 | 2103   | 2205   | 2306 |         |               |
| 78   | 2408   | 2509 | 2611   | 2712 | 2814   | 2915   | 3017 | 3118   | 3220   | 3321 |         |               |
| 79   | 3423   | 3524 | 3626   | 3727 | 3829   | 3930   | 4032 | 4133   | 4235   | 4336 |         |               |
| 4280 | 4438   | 4539 | 4641   | 4742 | 4844   | 4945   | 5046 | 5148   | 5249   | 5351 |         |               |
| 81   | 5452   | 5554 | 5655   | 5757 | 5858   | 5959   | 6061 | 6162   | 6264   | 6365 |         |               |
| 82   | 6467   | 6568 | 6669   | 6771 | 6872   | 6974   | 7075 | 7177   | 7278   | 7379 |         |               |
| 83   | 7481   | 7582 | 7684   | 7785 | 7886   | 7988   | 8089 | 8190   | 8292   | 8393 |         |               |
| 84   | 8495   | 8596 | 8697   | 8799 | 8900   | 9001   | 9103 | 9204   | 9306   | 9407 |         |               |
| 85   | • 9508 | 9610 | 9711   | 9812 | 9914   | • 0015 | 0116 | 0218   | 0319   | 0420 |         |               |
| 86   | 632    | 0522 | 0623   | 0724 | 0826   | 0927   | 1028 | 1130   | 1231   | 1332 | 1434    |               |
| 87   | 1535   | 1636 | 1737   | 1839 | 1940   | 2041   | 2143 | 2244   | 2345   | 2446 |         |               |
| 88   | 2548   | 2649 | 2750   | 2852 | 2953   | 3054   | 3155 | 3257   | 3358   | 3459 |         |               |
| 89   | 3560   | 3662 | 3763   | 3864 | 3965   | 4067   | 4168 | 4269   | 4370   | 4472 |         |               |
| 4290 | 4573   | 4674 | 4775   | 4877 | 4978   | 5079   | 5180 | 5282   | 5383   | 5484 |         |               |
| 91   | 5585   | 5686 | 5788   | 5889 | 5990   | 6091   | 6192 | 6294   | 6395   | 6496 |         |               |
| 92   | 6597   | 6698 | 6800   | 6901 | 7002   | 7103   | 7204 | 7305   | 7407   | 7508 |         |               |
| 93   | 7609   | 7710 | 7811   | 7912 | 8014   | 8115   | 8216 | 8317   | 8418   | 8519 | 101     |               |
| 94   | 8620   | 8722 | 8823   | 8924 | 9025   | 9126   | 9227 | 9328   | 9429   | 9531 | 202     |               |
| 95   | • 9632 | 9733 | 9834   | 9935 | • 0036 | 0137   | 0238 | 0339   | 0441   | 0542 | 303     |               |
| 96   | 633    | 0643 | 0744   | 0845 | 0946   | 1047   | 1148 | 1249   | 1350   | 1451 | 404     |               |
| 97   | 1654   | 1755 | 1856   | 1957 | 2058   | 2159   | 2260 | 2361   | 2462   | 2563 | 505     |               |
| 98   | 2664   | 2765 | 2866   | 2967 | 3068   | 3169   | 3270 | 3371   | 3472   | 3573 | 606     |               |
| 99   | 3674   | 3775 | 3876   | 3978 | 4079   | 4180   | 4281 | 4382   | 4483   | 4584 | 707     |               |
|      |        |      |        |      |        |        |      |        |        |      | 808     |               |
|      |        |      |        |      |        |        |      |        |        |      | 909     |               |
| Num. | 0      | 1    | 2      | 3    | 4      | 5      | 6    | 7      | 8      | 9    | Diff.   | Diff. & Mult. |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |         |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|---------|
| 4300  | 633 | 4685 | 4786 | 4887 | 4988 | 5089 | 5190 | 5291 | 5391 | 5492 | 5593  | 101           | 1   101 |
| 01    |     | 5694 | 5795 | 5896 | 5997 | 6098 | 6199 | 6300 | 6401 | 6502 | 6603  |               | 2   202 |
| 02    |     | 6704 | 6805 | 6906 | 7007 | 7108 | 7209 | 7310 | 7411 | 7512 | 7613  |               | 3   303 |
| 03    |     | 7713 | 7814 | 7915 | 8016 | 8117 | 8218 | 8319 | 8420 | 8521 | 8622  |               | 4   404 |
| 04    |     | 8723 | 8824 | 8924 | 9025 | 9126 | 9227 | 9328 | 9429 | 9530 | 9631  |               | 5   505 |
| 05    | *   | 9732 | 9832 | 9933 | 0034 | 0135 | 0236 | 0337 | 0438 | 0539 | 0639  |               | 6   606 |
| 06    | 634 | 0740 | 0841 | 0942 | 1043 | 1144 | 1245 | 1345 | 1446 | 1547 | 1648  |               | 7   707 |
| 07    |     | 1749 | 1850 | 1950 | 2051 | 2152 | 2253 | 2354 | 2455 | 2555 | 2656  |               | 8   808 |
| 08    |     | 2757 | 2858 | 2959 | 3059 | 3160 | 3261 | 3362 | 3463 | 3563 | 3664  |               | 9   909 |
| 09    |     | 3765 | 3866 | 3967 | 4067 | 4168 | 4269 | 4370 | 4470 | 4571 | 4672  |               |         |
| 43 10 |     | 4773 | 4873 | 4974 | 5075 | 5176 | 5276 | 5377 | 5478 | 5579 | 5679  |               |         |
| 11    |     | 5780 | 5881 | 5982 | 6082 | 6183 | 6284 | 6385 | 6485 | 6586 | 6687  |               |         |
| 12    |     | 6788 | 6888 | 6989 | 7090 | 7190 | 7291 | 7392 | 7492 | 7593 | 7694  |               |         |
| 13    |     | 7795 | 7895 | 7996 | 8097 | 8197 | 8298 | 8399 | 8499 | 8600 | 8701  |               |         |
| 14    |     | 8801 | 8902 | 9003 | 9103 | 9204 | 9305 | 9405 | 9506 | 9607 | 9707  |               |         |
| 15    | *   | 9808 | 9909 | 0009 | 0110 | 0211 | 0311 | 0412 | 0512 | 0613 | 0714  |               |         |
| 16    | 635 | 0814 | 0915 | 1016 | 1116 | 1217 | 1317 | 1418 | 1519 | 1619 | 1720  |               |         |
| 17    |     | 1820 | 1921 | 2022 | 2122 | 2223 | 2323 | 2424 | 2525 | 2625 | 2726  |               |         |
| 18    |     | 2826 | 2927 | 3028 | 3128 | 3229 | 3329 | 3430 | 3530 | 3631 | 3731  |               |         |
| 19    |     | 3832 | 3933 | 4033 | 4134 | 4234 | 4335 | 4435 | 4536 | 4636 | 4737  |               |         |
| 43 20 |     | 4837 | 4938 | 5039 | 5139 | 5240 | 5340 | 5441 | 5541 | 5642 | 5742  |               |         |
| 21    |     | 5843 | 5943 | 6044 | 6144 | 6245 | 6345 | 6446 | 6546 | 6647 | 6747  |               |         |
| 22    |     | 6848 | 6948 | 7049 | 7149 | 7250 | 7350 | 7450 | 7551 | 7651 | 7752  |               |         |
| 23    |     | 7852 | 7953 | 8053 | 8154 | 8254 | 8355 | 8455 | 8556 | 8656 | 8756  |               |         |
| 24    |     | 8857 | 8957 | 9058 | 9158 | 9259 | 9359 | 9459 | 9560 | 9660 | 9761  |               |         |
| 25    | *   | 9861 | 9962 | 0062 | 0162 | 0263 | 0363 | 0464 | 0564 | 0664 | 0765  |               |         |
| 26    | 636 | 0865 | 0966 | 1066 | 1166 | 1267 | 1367 | 1467 | 1568 | 1668 | 1769  | 1   100       |         |
| 27    |     | 1869 | 1969 | 2070 | 2170 | 2270 | 2371 | 2471 | 2571 | 2672 | 2772  | 2   200       |         |
| 28    |     | 2873 | 2973 | 3073 | 3174 | 3274 | 3374 | 3475 | 3575 | 3675 | 3776  | 3   300       |         |
| 29    |     | 3876 | 3976 | 4076 | 4177 | 4277 | 4377 | 4478 | 4578 | 4678 | 4779  | 4   400       |         |
| 43 30 |     | 4879 | 4979 | 5080 | 5180 | 5280 | 5380 | 5481 | 5581 | 5681 | 5782  | 5   500       |         |
| 31    |     | 5882 | 5982 | 6082 | 6183 | 6283 | 6383 | 6483 | 6584 | 6684 | 6784  | 6   600       |         |
| 32    |     | 6884 | 6985 | 7085 | 7185 | 7285 | 7386 | 7486 | 7586 | 7686 | 7787  | 7   700       |         |
| 33    |     | 7887 | 7987 | 8087 | 8188 | 8288 | 8388 | 8488 | 8588 | 8689 | 8789  | 8   800       |         |
| 34    |     | 8889 | 8989 | 9089 | 9190 | 9290 | 9390 | 9490 | 9590 | 9691 | 9791  | 9   900       |         |
| 35    | *   | 9891 | 9991 | 0091 | 0192 | 0292 | 0392 | 0492 | 0592 | 0692 | 0793  |               |         |
| 36    | 637 | 0893 | 0993 | 1093 | 1193 | 1293 | 1394 | 1494 | 1594 | 1694 | 1794  |               |         |
| 37    |     | 1894 | 1994 | 2094 | 2195 | 2295 | 2395 | 2495 | 2595 | 2695 | 2795  |               |         |
| 38    |     | 2895 | 2996 | 3096 | 3196 | 3296 | 3396 | 3496 | 3596 | 3696 | 3796  |               |         |
| 39    |     | 3897 | 3997 | 4097 | 4197 | 4297 | 4397 | 4497 | 4597 | 4697 | 4797  |               |         |
| 43 40 |     | 4897 | 4997 | 5097 | 5197 | 5298 | 5398 | 5498 | 5598 | 5698 | 5798  |               |         |
| 41    |     | 5898 | 5998 | 6098 | 6198 | 6298 | 6398 | 6498 | 6598 | 6698 | 6798  |               |         |
| 42    |     | 6898 | 6998 | 7098 | 7198 | 7298 | 7398 | 7498 | 7598 | 7698 | 7798  |               |         |
| 43    |     | 7898 | 7998 | 8098 | 8198 | 8298 | 8398 | 8498 | 8598 | 8698 | 8798  |               |         |
| 44    |     | 8898 | 8998 | 9098 | 9198 | 9298 | 9398 | 9498 | 9598 | 9698 | 9798  |               |         |
| 45    | *   | 9898 | 9998 | 0098 | 0198 | 0298 | 0398 | 0497 | 0597 | 0697 | 0797  |               |         |
| 46    | 638 | 0897 | 0997 | 1097 | 1197 | 1297 | 1397 | 1497 | 1597 | 1697 | 1796  |               |         |
| 47    |     | 1896 | 1996 | 2096 | 2196 | 2296 | 2396 | 2496 | 2596 | 2696 | 2795  |               |         |
| 48    |     | 2895 | 2995 | 3095 | 3195 | 3295 | 3395 | 3495 | 3594 | 3694 | 3794  |               |         |
| 49    |     | 3894 | 3994 | 4094 | 4194 | 4294 | 4393 | 4493 | 4593 | 4693 | 4793  |               |         |
| 43 50 |     | 4893 | 4992 | 5092 | 5192 | 5292 | 5392 | 5492 | 5591 | 5691 | 5791  |               |         |
| 51    |     | 5891 | 5990 | 6090 | 6190 | 6290 | 6390 | 6490 | 6589 | 6689 | 6789  |               |         |
| 52    |     | 6889 | 6989 | 7088 | 7188 | 7288 | 7388 | 7488 | 7587 | 7687 | 7787  |               |         |
| 53    |     | 7887 | 7986 | 8086 | 8186 | 8286 | 8385 | 8485 | 8585 | 8685 | 8784  |               |         |
| 54    |     | 8884 | 8984 | 9084 | 9183 | 9283 | 9383 | 9483 | 9582 | 9682 | 9782  |               |         |
| 55    | *   | 9882 | 9981 | 0081 | 0181 | 0280 | 0380 | 0480 | 0580 | 0679 | 0779  |               |         |
| 56    | 639 | 0879 | 0978 | 1078 | 1178 | 1277 | 1377 | 1477 | 1577 | 1676 | 1776  | 1   99        |         |
| 57    |     | 1876 | 1975 | 2075 | 2175 | 2274 | 2374 | 2474 | 2573 | 2673 | 2773  | 2   99        |         |
| 58    |     | 2872 | 2972 | 3072 | 3171 | 3271 | 3371 | 3470 | 3570 | 3669 | 3769  | 3   99        |         |
| 59    |     | 3869 | 3968 | 4068 | 4168 | 4267 | 4367 | 4466 | 4566 | 4666 | 4765  | 4   99        |         |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |         |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>4360</b> | <b>639</b> | 4865 | 4965 | 5064 | 5164 | 5263 | 5363 | 5463 | 5562 | 5662 | 5761  |               |
| 61          |            | 5861 | 5960 | 6060 | 6160 | 6259 | 6359 | 6458 | 6558 | 6657 | 6757  | 1   100       |
| 62          |            | 6857 | 6956 | 7056 | 7155 | 7255 | 7354 | 7454 | 7553 | 7653 | 7753  | 2   200       |
| 63          |            | 7852 | 7952 | 8051 | 8151 | 8250 | 8350 | 8449 | 8549 | 8648 | 8748  | 3   300       |
| 64          |            | 8847 | 8947 | 9046 | 9146 | 9245 | 9345 | 9444 | 9544 | 9643 | 9743  | 4   400       |
| 65          | *          | 9842 | 9942 | 0041 | 0141 | 0240 | 0340 | 0439 | 0539 | 0638 | 0738  | 5   500       |
| 66          | 640        | 0837 | 0937 | 1036 | 1136 | 1235 | 1335 | 1434 | 1534 | 1633 | 1732  | 6   600       |
| 67          |            | 1832 | 1931 | 2031 | 2130 | 2230 | 2329 | 2429 | 2528 | 2627 | 2727  | 7   700       |
| 68          |            | 2826 | 2926 | 3025 | 3125 | 3224 | 3323 | 3423 | 3522 | 3622 | 3721  | 8   800       |
| 69          |            | 3820 | 3920 | 4019 | 4119 | 4218 | 4317 | 4417 | 4516 | 4616 | 4715  | 9   900       |
| 43 70       |            | 4814 | 4914 | 5013 | 5113 | 5212 | 5311 | 5411 | 5510 | 5609 | 5709  |               |
| 71          |            | 5808 | 5907 | 6007 | 6106 | 6205 | 6305 | 6404 | 6504 | 6603 | 6702  |               |
| 72          |            | 6802 | 6901 | 7000 | 7100 | 7199 | 7298 | 7398 | 7497 | 7596 | 7695  |               |
| 73          |            | 7795 | 7894 | 7993 | 8093 | 8192 | 8291 | 8391 | 8490 | 8589 | 8688  |               |
| 74          |            | 8788 | 8887 | 8986 | 9086 | 9185 | 9284 | 9383 | 9483 | 9582 | 9681  |               |
| 75          | *          | 9781 | 9880 | 9979 | 0078 | 0178 | 0277 | 0376 | 0475 | 0575 | 0674  |               |
| 76          | 641        | 0773 | 0872 | 0972 | 1071 | 1170 | 1269 | 1369 | 1468 | 1567 | 1666  |               |
| 77          |            | 1765 | 1865 | 1964 | 2063 | 2162 | 2262 | 2361 | 2460 | 2559 | 2658  |               |
| 78          |            | 2758 | 2857 | 2956 | 3055 | 3154 | 3254 | 3353 | 3452 | 3551 | 3650  |               |
| 79          |            | 3749 | 3849 | 3948 | 4047 | 4146 | 4245 | 4344 | 4444 | 4543 | 4642  |               |
| 43 80       |            | 4741 | 4840 | 4939 | 5039 | 5138 | 5237 | 5336 | 5435 | 5534 | 5633  |               |
| 81          |            | 5733 | 5832 | 5931 | 6030 | 6129 | 6228 | 6327 | 6426 | 6526 | 6625  |               |
| 82          |            | 6724 | 6823 | 6922 | 7021 | 7120 | 7219 | 7318 | 7417 | 7517 | 7616  |               |
| 83          |            | 7715 | 7814 | 7913 | 8012 | 8111 | 8210 | 8309 | 8408 | 8507 | 8606  |               |
| 84          |            | 8705 | 8805 | 8904 | 9003 | 9102 | 9201 | 9300 | 9399 | 9498 | 9597  |               |
| 85          | *          | 9696 | 9795 | 9894 | 9993 | 0092 | 0191 | 0290 | 0389 | 0488 | 0587  |               |
| 86          | 642        | 0686 | 0785 | 0884 | 0983 | 1082 | 1181 | 1280 | 1379 | 1478 | 1577  | 1   99        |
| 87          |            | 1676 | 1775 | 1874 | 1973 | 2072 | 2171 | 2270 | 2369 | 2468 | 2567  | 2   198       |
| 88          |            | 2666 | 2765 | 2864 | 2963 | 3062 | 3161 | 3260 | 3359 | 3458 | 3557  | 3   297       |
| 89          |            | 3656 | 3755 | 3854 | 3953 | 4052 | 4151 | 4249 | 4348 | 4447 | 4546  | 4   396       |
| 43 90       |            | 4645 | 4744 | 4843 | 4942 | 5041 | 5140 | 5239 | 5338 | 5437 | 5535  | 5   495       |
| 91          |            | 5634 | 5733 | 5832 | 5931 | 6030 | 6129 | 6228 | 6327 | 6426 | 6524  | 6   594       |
| 92          |            | 6623 | 6722 | 6821 | 6920 | 7019 | 7118 | 7217 | 7315 | 7414 | 7513  | 7   693       |
| 93          |            | 7612 | 7711 | 7810 | 7909 | 8007 | 8106 | 8205 | 8304 | 8403 | 8502  | 8   792       |
| 94          |            | 8601 | 8699 | 8798 | 8897 | 8996 | 9095 | 9194 | 9292 | 9391 | 9490  | 9   891       |
| 95          | *          | 9589 | 9688 | 9786 | 9885 | 9984 | 0083 | 0182 | 0280 | 0379 | 0478  |               |
| 96          | 643        | 0577 | 0676 | 0774 | 0873 | 0972 | 1071 | 1170 | 1268 | 1367 | 1466  |               |
| 97          |            | 1565 | 1663 | 1762 | 1861 | 1960 | 2058 | 2157 | 2256 | 2355 | 2454  |               |
| 98          |            | 2552 | 2651 | 2750 | 2848 | 2947 | 3046 | 3145 | 3243 | 3342 | 3441  |               |
| 99          |            | 3540 | 3638 | 3737 | 3836 | 3935 | 4033 | 4132 | 4231 | 4329 | 4428  |               |
| 44 00       |            | 4527 | 4625 | 4724 | 4823 | 4922 | 5020 | 5119 | 5218 | 5316 | 5415  |               |
| 01          |            | 5514 | 5612 | 5711 | 5810 | 5908 | 6007 | 6106 | 6204 | 6303 | 6402  |               |
| 02          |            | 6500 | 6599 | 6698 | 6797 | 6895 | 6994 | 7092 | 7191 | 7290 | 7388  |               |
| 03          |            | 7487 | 7585 | 7684 | 7783 | 7881 | 7980 | 8079 | 8177 | 8276 | 8374  |               |
| 04          |            | 8473 | 8572 | 8670 | 8769 | 8868 | 8966 | 9065 | 9163 | 9262 | 9361  |               |
| 05          | *          | 9459 | 9558 | 9656 | 9755 | 9853 | 9952 | 0051 | 0149 | 0248 | 0346  |               |
| 06          | 644        | 0445 | 0543 | 0642 | 0741 | 0839 | 0938 | 1036 | 1135 | 1233 | 1332  |               |
| 07          |            | 1431 | 1529 | 1628 | 1726 | 1825 | 1923 | 2022 | 2120 | 2219 | 2317  |               |
| 08          |            | 2416 | 2514 | 2613 | 2711 | 2810 | 2908 | 3007 | 3105 | 3204 | 3302  |               |
| 09          |            | 3401 | 3499 | 3598 | 3696 | 3795 | 3893 | 3992 | 4090 | 4189 | 4287  |               |
| 44 10       |            | 4386 | 4484 | 4583 | 4681 | 4780 | 4878 | 4977 | 5075 | 5174 | 5272  |               |
| 11          |            | 5371 | 5469 | 5567 | 5666 | 5764 | 5863 | 5961 | 6060 | 6158 | 6257  |               |
| 12          |            | 6355 | 6453 | 6552 | 6650 | 6749 | 6847 | 6946 | 7044 | 7142 | 7241  |               |
| 13          |            | 7339 | 7438 | 7536 | 7635 | 7733 | 7831 | 7930 | 8028 | 8127 | 8225  |               |
| 14          |            | 8323 | 8422 | 8520 | 8618 | 8717 | 8815 | 8914 | 9012 | 9110 | 9209  |               |
| 15          | *          | 9307 | 9405 | 9504 | 9602 | 9701 | 9799 | 9897 | 9996 | 0094 | 0192  |               |
| 16          | 645        | 0291 | 0389 | 0487 | 0586 | 0684 | 0782 | 0881 | 0979 | 1077 | 1176  | 1   98        |
| 17          |            | 1274 | 1372 | 1471 | 1569 | 1667 | 1766 | 1864 | 1962 | 2061 | 2159  | 2   196       |
| 18          |            | 2257 | 2355 | 2454 | 2552 | 2650 | 2749 | 2847 | 2945 | 3043 | 3142  | 3   294       |
| 19          |            | 3240 | 3338 | 3437 | 3535 | 3633 | 3731 | 3830 | 3928 | 4026 | 4124  | 4   392       |
|             |            |      |      |      |      |      |      |      |      |      |       | 5   490       |
|             |            |      |      |      |      |      |      |      |      |      |       | 6   588       |
|             |            |      |      |      |      |      |      |      |      |      |       | 7   686       |
|             |            |      |      |      |      |      |      |      |      |      |       | 8   784       |
|             |            |      |      |      |      |      |      |      |      |      |       | 9   882       |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3     | 4     | 5     | 6    | 7     | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|-------|-------|-------|------|-------|------|------|-------|---------------|
| <b>4420</b> | <b>645</b> | 4223 | 4321 | 4419  | 4517  | 4616  | 4714 | 4812  | 4910 | 5009 | 5107  |               |
| 21          |            | 5205 | 5303 | 5402  | 5500  | 5598  | 5696 | 5795  | 5893 | 5991 | 6089  | 1             |
| 22          |            | 6187 | 6286 | 6384  | 6482  | 6580  | 6678 | 6777  | 6875 | 6973 | 7071  | 2             |
| 23          |            | 7169 | 7268 | 7366  | 7464  | 7562  | 7660 | 7758  | 7857 | 7955 | 8053  | 3             |
| 24          |            | 8151 | 8249 | 8348  | 8446  | 8544  | 8642 | 8740  | 8838 | 8936 | 9035  | 4             |
| 25          | *          | 9133 | 9231 | 9329  | 9427  | 9525  | 9623 | 9722  | 9820 | 9918 | 10016 | 5             |
| 26          | 646        | 0114 | 0212 | 0310  | 0408  | 0507  | 0605 | 0703  | 0801 | 0899 | 0997  | 6             |
| 27          |            | 1095 | 1193 | 1291  | 1390  | 1488  | 1586 | 1684  | 1782 | 1880 | 1978  | 7             |
| 28          |            | 2076 | 2174 | 2272  | 2370  | 2468  | 2566 | 2665  | 2763 | 2861 | 2959  | 8             |
| 29          |            | 3057 | 3155 | 3253  | 3351  | 3449  | 3547 | 3645  | 3743 | 3841 | 3939  | 9             |
| <b>4430</b> |            | 4037 | 4135 | 4233  | 4331  | 4429  | 4527 | 4625  | 4723 | 4821 | 4919  | 98            |
| 31          |            | 5018 | 5116 | 5214  | 5312  | 5410  | 5508 | 5606  | 5704 | 5802 | 5900  |               |
| 32          |            | 5998 | 6096 | 6193  | 6291  | 6389  | 6487 | 6585  | 6683 | 6781 | 6879  |               |
| 33          |            | 6977 | 7075 | 7173  | 7271  | 7369  | 7467 | 7565  | 7663 | 7761 | 7859  |               |
| 34          |            | 7957 | 8055 | 8153  | 8251  | 8349  | 8447 | 8545  | 8642 | 8740 | 8838  |               |
| 35          |            | 8936 | 9034 | 9132  | 9230  | 9328  | 9426 | 9524  | 9622 | 9720 | 9817  |               |
| 36          | *          | 9915 | 1013 | 1011  | 1009  | 1007  | 0405 | 0503  | 0601 | 0699 | 0797  |               |
| 37          | 647        | 0894 | 0992 | 1090  | 1188  | 1286  | 1384 | 1482  | 1579 | 1677 | 1775  |               |
| 38          |            | 1873 | 1971 | 2069  | 2167  | 2264  | 2362 | 2460  | 2558 | 2656 | 2754  |               |
| 39          |            | 2851 | 2949 | 3047  | 3145  | 3243  | 3341 | 3438  | 3536 | 3634 | 3732  |               |
| <b>4440</b> |            | 3830 | 3928 | 4025  | 4123  | 4221  | 4319 | 4417  | 4514 | 4612 | 4710  |               |
| 41          |            | 4808 | 4906 | 5003  | 5101  | 5199  | 5297 | 5394  | 5492 | 5590 | 5688  |               |
| 42          |            | 5786 | 5883 | 5981  | 6079  | 6177  | 6274 | 6372  | 6470 | 6568 | 6665  |               |
| 43          |            | 6763 | 6861 | 6959  | 7056  | 7154  | 7252 | 7350  | 7447 | 7545 | 7643  |               |
| 44          |            | 7741 | 7838 | 7936  | 8034  | 8131  | 8229 | 8327  | 8425 | 8522 | 8620  |               |
| 45          |            | 8718 | 8815 | 8913  | 9011  | 9108  | 9206 | 9304  | 9402 | 9499 | 9597  |               |
| 46          | *          | 9695 | 9792 | 9890  | 9988  | 10085 | 0183 | 0281  | 0378 | 0476 | 0574  | 1             |
| 47          | 648        | 0671 | 0769 | 0867  | 0964  | 1062  | 1160 | 1257  | 1355 | 1453 | 1550  | 2             |
| 48          |            | 1648 | 1745 | 1843  | 1941  | 2038  | 2136 | 2234  | 2331 | 2429 | 2526  | 3             |
| 49          |            | 2624 | 2722 | 2819  | 2917  | 3015  | 3112 | 3210  | 3307 | 3405 | 3503  | 4             |
| <b>4450</b> |            | 3600 | 3698 | 3795  | 3893  | 3990  | 4088 | 4186  | 4283 | 4381 | 4478  | 5             |
| 51          |            | 4576 | 4674 | 4771  | 4869  | 4966  | 5064 | 5161  | 5259 | 5356 | 5454  | 6             |
| 52          |            | 5552 | 5649 | 5747  | 5844  | 5942  | 6039 | 6137  | 6234 | 6332 | 6429  | 7             |
| 53          |            | 6527 | 6624 | 6722  | 6820  | 6917  | 7015 | 7112  | 7210 | 7307 | 7405  | 8             |
| 54          |            | 7502 | 7600 | 7697  | 7795  | 7892  | 7990 | 8087  | 8185 | 8282 | 8380  | 9             |
| 55          |            | 8477 | 8575 | 8672  | 8770  | 8867  | 8964 | 9062  | 9159 | 9257 | 9354  |               |
| 56          | *          | 9452 | 9549 | 9647  | 9744  | 9842  | 9939 | 10037 | 0134 | 0231 | 0329  |               |
| 57          | 649        | 0426 | 0524 | 0621  | 0719  | 0816  | 0914 | 1011  | 1108 | 1206 | 1303  |               |
| 58          |            | 1401 | 1498 | 1595  | 1693  | 1790  | 1888 | 1985  | 2083 | 2180 | 2277  |               |
| 59          |            | 2375 | 2472 | 2570  | 2667  | 2764  | 2862 | 2959  | 3056 | 3154 | 3251  |               |
| <b>4460</b> |            | 3349 | 3446 | 3543  | 3641  | 3738  | 3835 | 3933  | 4030 | 4128 | 4225  |               |
| 61          |            | 4322 | 4420 | 4517  | 4614  | 4712  | 4809 | 4906  | 5004 | 5101 | 5198  |               |
| 62          |            | 5296 | 5393 | 5490  | 5588  | 5685  | 5782 | 5880  | 5977 | 6074 | 6172  |               |
| 63          |            | 6269 | 6366 | 6463  | 6561  | 6658  | 6755 | 6853  | 6950 | 7047 | 7145  |               |
| 64          |            | 7242 | 7339 | 7436  | 7534  | 7631  | 7728 | 7826  | 7923 | 8020 | 8117  |               |
| 65          |            | 8215 | 8312 | 8409  | 8506  | 8604  | 8701 | 8798  | 8895 | 8993 | 9090  |               |
| 66          | *          | 9187 | 9284 | 9382  | 9479  | 9576  | 9673 | 9771  | 9868 | 9965 | 10062 |               |
| 67          | 650        | 0160 | 0257 | 0354  | 0451  | 0548  | 0646 | 0743  | 0840 | 0937 | 1034  |               |
| 68          |            | 1132 | 1229 | 1326  | 1423  | 1520  | 1618 | 1715  | 1812 | 1909 | 2006  |               |
| 69          |            | 2104 | 2201 | 2298  | 2395  | 2492  | 2589 | 2687  | 2784 | 2881 | 2978  |               |
| <b>4470</b> |            | 3075 | 3172 | 3270  | 3367  | 3464  | 3561 | 3658  | 3755 | 3852 | 3950  |               |
| 71          |            | 4047 | 4144 | 4241  | 4338  | 4435  | 4532 | 4629  | 4727 | 4824 | 4921  |               |
| 72          |            | 5018 | 5115 | 5212  | 5309  | 5406  | 5503 | 5601  | 5698 | 5795 | 5892  |               |
| 73          |            | 5989 | 6086 | 6183  | 6280  | 6377  | 6474 | 6571  | 6669 | 6766 | 6863  |               |
| 74          |            | 6960 | 7057 | 7154  | 7251  | 7348  | 7445 | 7542  | 7639 | 7736 | 7833  |               |
| 75          |            | 7930 | 8027 | 8124  | 8222  | 8319  | 8416 | 8513  | 8610 | 8707 | 8804  |               |
| 76          |            | 8901 | 8998 | 9095  | 9192  | 9289  | 9386 | 9483  | 9580 | 9677 | 9774  |               |
| 77          | *          | 9871 | 9968 | 10065 | 10162 | 10259 | 0356 | 0453  | 0550 | 0647 | 0744  |               |
| 78          | 651        | 0841 | 0938 | 1035  | 1132  | 1229  | 1326 | 1423  | 1520 | 1617 | 1714  |               |
| 79          |            | 1811 | 1908 | 2005  | 2102  | 2198  | 2295 | 2392  | 2489 | 2586 | 2683  |               |
| <b>4480</b> |            |      |      |       |       |       |      |       |      |      |       | 1             |
|             |            |      |      |       |       |       |      |       |      |      |       | 2             |
|             |            |      |      |       |       |       |      |       |      |      |       | 3             |
|             |            |      |      |       |       |       |      |       |      |      |       | 4             |
|             |            |      |      |       |       |       |      |       |      |      |       | 5             |
|             |            |      |      |       |       |       |      |       |      |      |       | 6             |
|             |            |      |      |       |       |       |      |       |      |      |       | 7             |
|             |            |      |      |       |       |       |      |       |      |      |       | 8             |
|             |            |      |      |       |       |       |      |       |      |      |       | 9             |
| <b>4490</b> |            |      |      |       |       |       |      |       |      |      |       | 97            |
|             |            |      |      |       |       |       |      |       |      |      |       | 1             |
|             |            |      |      |       |       |       |      |       |      |      |       | 2             |
|             |            |      |      |       |       |       |      |       |      |      |       | 3             |
|             |            |      |      |       |       |       |      |       |      |      |       | 4             |
|             |            |      |      |       |       |       |      |       |      |      |       | 5             |
|             |            |      |      |       |       |       |      |       |      |      |       | 6             |
|             |            |      |      |       |       |       |      |       |      |      |       | 7             |
|             |            |      |      |       |       |       |      |       |      |      |       | 8             |
|             |            |      |      |       |       |       |      |       |      |      |       | 9             |

| Num.        | 0          | 1      | 2    | 3      | 4    | 5    | 6      | 7      | 8     | 9      | Diff. | Diff. & Mult. |
|-------------|------------|--------|------|--------|------|------|--------|--------|-------|--------|-------|---------------|
| <b>4480</b> | <b>651</b> | 2780   | 2877 | 2974   | 3071 | 3168 | 3265   | 3362   | 3459  | 3556   | 3653  |               |
| 81          |            | 3749   | 3846 | 3943   | 4040 | 4137 | 4234   | 4331   | 4428  | 4525   | 4622  |               |
| 82          |            | 4719   | 4815 | 4912   | 5009 | 5106 | 5203   | 5300   | 5397  | 5494   | 5591  |               |
| 83          |            | 5687   | 5784 | 5881   | 5978 | 6075 | 6172   | 6269   | 6366  | 6463   | 6559  |               |
| 84          |            | 6656   | 6753 | 6850   | 6947 | 7043 | 7140   | 7237   | 7334  | 7431   | 7528  |               |
| 85          |            | 7624   | 7721 | 7818   | 7915 | 8012 | 8109   | 8205   | 8302  | 8399   | 8496  |               |
| 86          |            | 8593   | 8690 | 8786   | 8883 | 8980 | 9077   | 9174   | 9270  | 9367   | 9464  |               |
| 87          |            | • 9561 | 9657 | 9754   | 9851 | 9948 | • 045  | 0141   | 0238  | 0335   | 0432  |               |
| 88          | <b>652</b> | 0528   | 0625 | 0722   | 0819 | 0916 | 1012   | 1109   | 1206  | 1303   | 1399  |               |
| 89          |            | 1496   | 1593 | 1690   | 1786 | 1883 | 1980   | 2076   | 2173  | 2270   | 2367  |               |
| <b>4490</b> |            | 2463   | 2560 | 2657   | 2754 | 2850 | 2947   | 3044   | 3140  | 3237   | 3334  | 1             |
| 91          |            | 3431   | 3527 | 3624   | 3721 | 3817 | 3914   | 4011   | 4107  | 4204   | 4301  | 2             |
| 92          |            | 4397   | 4494 | 4591   | 4688 | 4784 | 4881   | 4978   | 5074  | 5171   | 5268  | 3             |
| 93          |            | 5364   | 5461 | 5558   | 5654 | 5751 | 5847   | 5944   | 6041  | 6137   | 6234  | 4             |
| 94          |            | 6331   | 6427 | 6524   | 6621 | 6717 | 6814   | 6910   | 7007  | 7104   | 7200  | 5             |
| 95          |            | 7297   | 7394 | 7490   | 7587 | 7683 | 7780   | 7877   | 7973  | 8070   | 8166  | 6             |
| 96          |            | 8263   | 8360 | 8456   | 8553 | 8649 | 8746   | 8843   | 8939  | 9036   | 9132  | 7             |
| 97          |            | • 9229 | 9325 | 9422   | 9519 | 9615 | 9712   | 9808   | 9905  | • 0001 | 0098  | 8             |
| 98          | <b>653</b> | 0195   | 0291 | 0388   | 0484 | 0581 | 0677   | 0774   | 0870  | 0967   | 1063  | 9             |
| 99          |            | 1160   | 1256 | 1353   | 1450 | 1546 | 1643   | 1739   | 1836  | 1932   | 2029  |               |
| <b>4500</b> |            | 2125   | 2222 | 2318   | 2415 | 2511 | 2608   | 2704   | 2801  | 2897   | 2994  |               |
| 01          |            | 3090   | 3187 | 3283   | 3380 | 3476 | 3573   | 3669   | 3765  | 3862   | 3958  |               |
| 02          |            | 4055   | 4151 | 4248   | 4344 | 4441 | 4537   | 4634   | 4730  | 4827   | 4923  |               |
| 03          |            | 5019   | 5116 | 5212   | 5309 | 5405 | 5502   | 5598   | 5695  | 5791   | 5887  |               |
| 04          |            | 5984   | 6080 | 6177   | 6273 | 6369 | 6466   | 6562   | 6659  | 6755   | 6852  |               |
| 05          |            | 6948   | 7044 | 7141   | 7237 | 7334 | 7430   | 7526   | 7623  | 7719   | 7815  |               |
| 06          |            | 7912   | 8008 | 8105   | 8201 | 8297 | 8394   | 8490   | 8586  | 8683   | 8779  |               |
| 07          |            | 8876   | 8972 | 9068   | 9165 | 9261 | 9357   | 9454   | 9550  | 9646   | 9743  |               |
| 08          |            | • 9839 | 9935 | • 0032 | 0128 | 0224 | 0321   | 0417   | 0513  | 0610   | 0706  |               |
| 09          | <b>654</b> | 0802   | 0899 | 0995   | 1091 | 1188 | 1284   | 1380   | 1477  | 1573   | 1669  |               |
| <b>4510</b> |            | 1765   | 1862 | 1958   | 2054 | 2151 | 2247   | 2343   | 2439  | 2536   | 2632  |               |
| 11          |            | 2728   | 2825 | 2921   | 3017 | 3113 | 3210   | 3306   | 3402  | 3498   | 3595  |               |
| 12          |            | 3691   | 3787 | 3883   | 3980 | 4076 | 4172   | 4268   | 4365  | 4461   | 4557  |               |
| 13          |            | 4653   | 4750 | 4846   | 4942 | 5038 | 5134   | 5231   | 5327  | 5423   | 5519  |               |
| 14          |            | 5616   | 5712 | 5808   | 5904 | 6000 | 6097   | 6193   | 6289  | 6385   | 6481  |               |
| 15          |            | 6578   | 6674 | 6770   | 6866 | 6962 | 7058   | 7155   | 7251  | 7347   | 7443  |               |
| 16          |            | 7539   | 7635 | 7732   | 7828 | 7924 | 8020   | 8116   | 8212  | 8309   | 8405  |               |
| 17          |            | 8501   | 8597 | 8693   | 8789 | 8885 | 8982   | 9078   | 9174  | 9270   | 9366  |               |
| 18          |            | • 9462 | 9558 | 9655   | 9751 | 9847 | 9943   | • 0039 | 0135  | 0231   | 0327  |               |
| 19          | <b>655</b> | 0423   | 0520 | 0616   | 0712 | 0808 | 0904   | 1000   | 1096  | 1192   | 1288  |               |
| <b>4520</b> |            | 1384   | 1480 | 1577   | 1673 | 1769 | 1865   | 1961   | 2057  | 2153   | 2249  |               |
| 21          |            | 2345   | 2441 | 2537   | 2633 | 2729 | 2825   | 2921   | 3017  | 3113   | 3210  |               |
| 22          |            | 3306   | 3402 | 3498   | 3594 | 3690 | 3786   | 3882   | 3978  | 4074   | 4170  |               |
| 23          |            | 4266   | 4362 | 4458   | 4554 | 4650 | 4746   | 4842   | 4938  | 5034   | 5130  |               |
| 24          |            | 5226   | 5322 | 5418   | 5514 | 5610 | 5706   | 5802   | 5898  | 5994   | 6090  |               |
| 25          |            | 6186   | 6282 | 6378   | 6474 | 6570 | 6666   | 6762   | 6858  | 6954   | 7050  |               |
| 26          |            | 7145   | 7241 | 7337   | 7433 | 7529 | 7625   | 7721   | 7817  | 7913   | 8009  |               |
| 27          |            | 8105   | 8201 | 8297   | 8393 | 8489 | 8585   | 8681   | 8777  | 8873   | 8969  |               |
| 28          |            | 9064   | 9160 | 9256   | 9352 | 9448 | 9544   | 9640   | 9736  | 9832   | 9927  |               |
| 29          | <b>656</b> | 0023   | 0119 | 0215   | 0311 | 0407 | 0503   | 0599   | 0694  | 0790   | 0886  |               |
| <b>4530</b> |            | 0982   | 1078 | 1174   | 1270 | 1365 | 1461   | 1557   | 1653  | 1749   | 1845  |               |
| 31          |            | 1941   | 2036 | 2132   | 2228 | 2324 | 2420   | 2516   | 2612  | 2707   | 2803  |               |
| 32          |            | 2899   | 2995 | 3091   | 3186 | 3282 | 3378   | 3474   | 3570  | 3666   | 3761  |               |
| 33          |            | 3857   | 3953 | 4049   | 4145 | 4240 | 4336   | 4432   | 4528  | 4624   | 4719  |               |
| 34          |            | 4815   | 4911 | 5007   | 5103 | 5198 | 5294   | 5390   | 5486  | 5581   | 5677  |               |
| 35          |            | 5773   | 5869 | 5964   | 6060 | 6156 | 6252   | 6347   | 6443  | 6539   | 6635  |               |
| 36          |            | 6730   | 6826 | 6922   | 7018 | 7113 | 7209   | 7305   | 7401  | 7496   | 7592  |               |
| 37          |            | 7688   | 7784 | 7879   | 7975 | 8071 | 8166   | 8262   | 8358  | 8454   | 8549  |               |
| 38          |            | 8645   | 8741 | 8836   | 8932 | 9028 | 9123   | 9219   | 9315  | 9410   | 9506  |               |
| 39          |            | • 9602 | 9698 | 9793   | 9889 | 9985 | • 0080 | 0176   | 0272  | 0367   | 0463  |               |
| <b>4540</b> |            | 0559   | 0655 | 0751   | 0847 | 0943 | 1039   | 1135   | 1231  | 1327   | 1423  | 1             |
| 41          |            | 1519   | 1615 | 1711   | 1807 | 1903 | 1999   | 2095   | 2191  | 2287   | 2383  | 2             |
| 42          |            | 2469   | 2565 | 2661   | 2757 | 2853 | 2949   | 3045   | 3141  | 3237   | 3333  | 3             |
| 43          |            | 3419   | 3515 | 3611   | 3707 | 3803 | 3899   | 3995   | 4091  | 4187   | 4283  | 4             |
| 44          |            | 4373   | 4469 | 4565   | 4661 | 4757 | 4853   | 4949   | 5045  | 5141   | 5237  | 5             |
| 45          |            | 5191   | 5287 | 5383   | 5479 | 5575 | 5671   | 5767   | 5863  | 5959   | 6055  | 6             |
| 46          |            | 6003   | 6099 | 6195   | 6291 | 6387 | 6483   | 6579   | 6675  | 6771   | 6867  | 7             |
| 47          |            | 6813   | 6909 | 7005   | 7101 | 7197 | 7293   | 7389   | 7485  | 7581   | 7677  | 8             |
| 48          |            | 7673   | 7769 | 7865   | 7961 | 8057 | 8153   | 8249   | 8345  | 8441   | 8537  | 9             |
| 49          |            | 8533   | 8629 | 8725   | 8821 | 8917 | 9013   | 9109   | 9205  | 9301   | 9397  |               |
| 50          |            | 9393   | 9489 | 9585   | 9681 | 9777 | 9873   | 9969   | 10000 |        |       |               |

|   |     |
|---|-----|
| 1 | 97  |
| 2 | 194 |
| 3 | 291 |
| 4 | 388 |
| 5 | 485 |
| 6 | 582 |
| 7 | 679 |
| 8 | 776 |
| 9 | 873 |

|   |     |
|---|-----|
| 1 | 96  |
| 2 | 192 |
| 3 | 288 |
| 4 | 384 |
| 5 | 480 |
| 6 | 576 |
| 7 | 672 |
| 8 | 768 |
| 9 | 864 |

96

| Num.         | 0               | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|--------------|-----------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>4540</b>  | <b>657</b> 0559 | 0654 | 0750 | 0845 | 0941 | 1037 | 1132 | 1228 | 1324 | 1419 |       | 1   96        |
| 41           | 1515            | 1611 | 1706 | 1802 | 1898 | 1993 | 2089 | 2184 | 2280 | 2376 |       | 2   192       |
| 42           | 2471            | 2567 | 2663 | 2758 | 2854 | 2949 | 3045 | 3141 | 3236 | 3332 |       | 3   268       |
| 43           | 3427            | 3523 | 3619 | 3714 | 3810 | 3905 | 4001 | 4096 | 4192 | 4288 |       | 4   384       |
| 44           | 4383            | 4479 | 4574 | 4670 | 4766 | 4861 | 4957 | 5052 | 5148 | 5243 |       | 5   480       |
| 45           | 5339            | 5434 | 5530 | 5626 | 5721 | 5817 | 5912 | 6008 | 6103 | 6199 |       | 6   576       |
| 46           | 6294            | 6390 | 6485 | 6581 | 6676 | 6772 | 6867 | 6963 | 7059 | 7154 |       | 7   672       |
| 47           | 7250            | 7345 | 7441 | 7536 | 7632 | 7727 | 7823 | 7918 | 8014 | 8109 |       | 8   768       |
| 48           | 8205            | 8300 | 8396 | 8491 | 8587 | 8682 | 8777 | 8873 | 8968 | 9064 |       | 9   864       |
| 49           | * 9159          | 9255 | 9350 | 9446 | 9541 | 9637 | 9732 | 9828 | 9923 | +019 |       |               |
| <b>45 50</b> | <b>658</b> 0114 | 0209 | 0305 | 0400 | 0496 | 0591 | 0687 | 0782 | 0877 | 0973 |       |               |
| 51           | 1068            | 1164 | 1259 | 1355 | 1450 | 1545 | 1641 | 1736 | 1832 | 1927 |       |               |
| 52           | 2023            | 2118 | 2213 | 2309 | 2404 | 2500 | 2595 | 2690 | 2786 | 2881 |       |               |
| 53           | 2977            | 3072 | 3167 | 3263 | 3358 | 3453 | 3549 | 3644 | 3740 | 3835 |       |               |
| 54           | 3930            | 4026 | 4121 | 4216 | 4312 | 4407 | 4502 | 4598 | 4693 | 4788 |       |               |
| 55           | 4884            | 4979 | 5074 | 5170 | 5265 | 5361 | 5456 | 5551 | 5647 | 5742 |       |               |
| 56           | 5837            | 5932 | 6028 | 6123 | 6218 | 6314 | 6409 | 6504 | 6600 | 6695 |       |               |
| 57           | 6790            | 6886 | 6981 | 7076 | 7171 | 7267 | 7362 | 7457 | 7553 | 7648 |       |               |
| 58           | 7743            | 7838 | 7934 | 8029 | 8124 | 8220 | 8315 | 8410 | 8505 | 8601 |       |               |
| 59           | 8696            | 8791 | 8886 | 8982 | 9077 | 9172 | 9267 | 9363 | 9458 | 9553 |       |               |
| <b>45 60</b> | <b>* 9648</b>   | 9744 | 9839 | 9934 | +029 | 0125 | 0220 | 0315 | 0410 | 0506 |       |               |
| 61           | 659 0601        | 0696 | 0791 | 0886 | 0982 | 1077 | 1172 | 1267 | 1362 | 1458 |       |               |
| 62           | 1553            | 1648 | 1743 | 1838 | 1934 | 2029 | 2124 | 2219 | 2314 | 2410 |       |               |
| 63           | 2505            | 2600 | 2695 | 2790 | 2885 | 2981 | 3076 | 3171 | 3266 | 3361 |       |               |
| 64           | 3456            | 3551 | 3647 | 3742 | 3837 | 3932 | 4027 | 4122 | 4218 | 4313 |       |               |
| 65           | 4408            | 4503 | 4598 | 4693 | 4788 | 4883 | 4979 | 5074 | 5169 | 5264 |       |               |
| 66           | 5359            | 5454 | 5549 | 5644 | 5740 | 5835 | 5930 | 6025 | 6120 | 6215 |       |               |
| 67           | 6310            | 6405 | 6500 | 6595 | 6690 | 6786 | 6881 | 6976 | 7071 | 7166 |       |               |
| 68           | 7261            | 7356 | 7451 | 7546 | 7641 | 7736 | 7831 | 7926 | 8021 | 8117 |       |               |
| 69           | 8212            | 8307 | 8402 | 8497 | 8592 | 8687 | 8782 | 8877 | 8972 | 9067 |       |               |
| <b>45 70</b> | <b>* 9162</b>   | 9257 | 9352 | 9447 | 9542 | 9637 | 9732 | 9827 | 9922 | +017 |       |               |
| 71           | 660 0112        | 0207 | 0302 | 0397 | 0492 | 0587 | 0682 | 0777 | 0872 | 0967 |       |               |
| 72           | 1062            | 1157 | 1252 | 1347 | 1442 | 1537 | 1632 | 1727 | 1822 | 1917 |       |               |
| 73           | 2012            | 2107 | 2202 | 2297 | 2392 | 2487 | 2582 | 2677 | 2772 | 2867 |       |               |
| 74           | 2962            | 3057 | 3151 | 3246 | 3341 | 3436 | 3531 | 3626 | 3721 | 3816 |       |               |
| 75           | 3911            | 4006 | 4101 | 4196 | 4291 | 4386 | 4481 | 4575 | 4670 | 4765 |       |               |
| 76           | 4860            | 4955 | 5050 | 5145 | 5240 | 5335 | 5430 | 5524 | 5619 | 5714 |       |               |
| 77           | 5809            | 5904 | 5999 | 6094 | 6189 | 6284 | 6378 | 6473 | 6568 | 6663 |       |               |
| 78           | 6758            | 6853 | 6948 | 7042 | 7137 | 7232 | 7327 | 7422 | 7517 | 7612 |       |               |
| 79           | 7706            | 7801 | 7896 | 7991 | 8086 | 8181 | 8275 | 8370 | 8465 | 8560 |       |               |
| <b>45 80</b> | <b>8655</b>     | 8750 | 8844 | 8939 | 9034 | 9129 | 9224 | 9318 | 9413 | 9508 |       |               |
| 81           | * 9603          | 9698 | 9793 | 9887 | 9982 | +077 | 0172 | 0266 | 0361 | 0456 |       |               |
| 82           | 661 0551        | 0646 | 0740 | 0835 | 0930 | 1025 | 1120 | 1214 | 1309 | 1404 |       |               |
| 83           | 1499            | 1593 | 1688 | 1783 | 1878 | 1972 | 2067 | 2162 | 2257 | 2351 |       |               |
| 84           | 2446            | 2541 | 2636 | 2730 | 2825 | 2920 | 3015 | 3109 | 3204 | 3299 |       |               |
| 85           | 3393            | 3488 | 3583 | 3678 | 3772 | 3867 | 3962 | 4056 | 4151 | 4246 |       |               |
| 86           | 4341            | 4435 | 4530 | 4625 | 4719 | 4814 | 4909 | 5003 | 5098 | 5193 |       |               |
| 87           | 5287            | 5382 | 5477 | 5571 | 5666 | 5761 | 5855 | 5950 | 6045 | 6139 |       |               |
| 88           | 6234            | 6329 | 6423 | 6518 | 6613 | 6707 | 6802 | 6897 | 6991 | 7086 |       |               |
| 89           | 7181            | 7275 | 7370 | 7464 | 7559 | 7654 | 7748 | 7843 | 7938 | 8032 |       |               |
| <b>45 90</b> | <b>8127</b>     | 8221 | 8316 | 8411 | 8505 | 8600 | 8695 | 8789 | 8884 | 8978 |       |               |
| 91           | 9073            | 9168 | 9262 | 9357 | 9451 | 9546 | 9640 | 9735 | 9830 | 9924 |       |               |
| 92           | 662 0019        | 0113 | 0208 | 0303 | 0397 | 0492 | 0586 | 0681 | 0775 | 0870 |       |               |
| 93           | 0964            | 1059 | 1154 | 1248 | 1343 | 1437 | 1532 | 1626 | 1721 | 1815 |       |               |
| 94           | 1910            | 2004 | 2099 | 2194 | 2288 | 2383 | 2477 | 2572 | 2666 | 2761 |       |               |
| 95           | 2855            | 2950 | 3044 | 3139 | 3233 | 3328 | 3422 | 3517 | 3611 | 3706 |       |               |
| 96           | 3800            | 3895 | 3989 | 4084 | 4178 | 4273 | 4367 | 4462 | 4556 | 4651 |       |               |
| 97           | 4745            | 4840 | 4934 | 5028 | 5123 | 5217 | 5312 | 5406 | 5501 | 5595 |       |               |
| 98           | 5690            | 5784 | 5879 | 5973 | 6067 | 6162 | 6256 | 6351 | 6445 | 6540 |       |               |
| 99           | 6634            | 6729 | 6823 | 6917 | 7012 | 7106 | 7201 | 7295 | 7389 | 7484 |       |               |
|              |                 |      |      |      |      |      |      |      |      |      |       | 1   94        |
|              |                 |      |      |      |      |      |      |      |      |      |       | 2   188       |
|              |                 |      |      |      |      |      |      |      |      |      |       | 3   282       |
|              |                 |      |      |      |      |      |      |      |      |      |       | 4   376       |
|              |                 |      |      |      |      |      |      |      |      |      |       | 5   470       |
|              |                 |      |      |      |      |      |      |      |      |      |       | 6   564       |
|              |                 |      |      |      |      |      |      |      |      |      |       | 7   658       |
|              |                 |      |      |      |      |      |      |      |      |      |       | 8   752       |
|              |                 |      |      |      |      |      |      |      |      |      |       | 9   846       |
| Num.         | 0               | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>4600</b> | <b>662</b> | 7578 | 7673 | 7767 | 7862 | 7956 | 8050 | 8145 | 8239 | 8334 | 8428  | 1<br>95       |
| 01          |            | 8522 | 8617 | 8711 | 8805 | 8900 | 8994 | 9089 | 9183 | 9277 | 9372  | 2<br>190      |
| 02          | *          | 9466 | 9561 | 9655 | 9749 | 9844 | 9938 | +032 | 0127 | 0221 | 0315  | 3<br>285      |
| 03          | 663        | 0410 | 0504 | 0598 | 0693 | 0787 | 0881 | 0976 | 1070 | 1164 | 1259  | 4<br>380      |
| 04          |            | 1353 | 1447 | 1542 | 1636 | 1730 | 1825 | 1919 | 2013 | 2108 | 2202  | 5<br>475      |
| 05          |            | 2296 | 2391 | 2485 | 2579 | 2674 | 2768 | 2862 | 2956 | 3051 | 3145  | 6<br>570      |
| 06          |            | 3239 | 3334 | 3428 | 3522 | 3616 | 3711 | 3805 | 3899 | 3994 | 4088  | 7<br>665      |
| 07          |            | 4182 | 4276 | 4371 | 4465 | 4559 | 4653 | 4748 | 4842 | 4936 | 5030  | 8<br>760      |
| 08          |            | 5125 | 5219 | 5313 | 5407 | 5502 | 5596 | 5690 | 5784 | 5879 | 5973  | 9<br>855      |
| 09          |            | 6067 | 6161 | 6256 | 6350 | 6444 | 6538 | 6632 | 6727 | 6821 | 6915  |               |
| <b>4610</b> |            | 7009 | 7103 | 7198 | 7292 | 7386 | 7480 | 7574 | 7669 | 7763 | 7857  |               |
| 11          |            | 7951 | 8045 | 8140 | 8234 | 8328 | 8422 | 8516 | 8610 | 8705 | 8799  |               |
| 12          |            | 8893 | 8987 | 9081 | 9175 | 9270 | 9364 | 9458 | 9552 | 9646 | 9740  |               |
| 13          | *          | 9835 | 9929 | +023 | 0117 | 0211 | 0305 | 0399 | 0494 | 0588 | 0682  |               |
| 14          | 664        | 0776 | 0870 | 0964 | 1058 | 1152 | 1247 | 1341 | 1435 | 1529 | 1623  |               |
| 15          |            | 1717 | 1811 | 1905 | 1999 | 2093 | 2188 | 2282 | 2376 | 2470 | 2564  |               |
| 16          |            | 2658 | 2752 | 2846 | 2940 | 3034 | 3128 | 3222 | 3317 | 3411 | 3505  |               |
| 17          |            | 3599 | 3693 | 3787 | 3881 | 3975 | 4069 | 4163 | 4257 | 4351 | 4445  |               |
| 18          |            | 4539 | 4633 | 4727 | 4821 | 4915 | 5009 | 5104 | 5198 | 5292 | 5386  |               |
| 19          |            | 5480 | 5574 | 5668 | 5762 | 5856 | 5950 | 6044 | 6138 | 6232 | 6326  |               |
| <b>4620</b> |            | 6420 | 6514 | 6608 | 6702 | 6796 | 6890 | 6984 | 7078 | 7172 | 7266  | 94            |
| 21          |            | 7360 | 7454 | 7548 | 7642 | 7736 | 7830 | 7924 | 8018 | 8111 | 8205  |               |
| 22          |            | 8299 | 8393 | 8487 | 8581 | 8675 | 8769 | 8863 | 8957 | 9051 | 9145  |               |
| 23          | *          | 9239 | 9333 | 9427 | 9521 | 9615 | 9709 | 9803 | 9896 | 9990 | +084  |               |
| 24          | 665        | 0178 | 0272 | 0366 | 0460 | 0554 | 0648 | 0742 | 0836 | 0930 | 1023  |               |
| 25          |            | 1117 | 1211 | 1305 | 1399 | 1493 | 1587 | 1681 | 1775 | 1869 | 1962  | 1<br>94       |
| 26          |            | 2056 | 2150 | 2244 | 2338 | 2432 | 2526 | 2620 | 2713 | 2807 | 2901  | 2<br>188      |
| 27          |            | 2995 | 3089 | 3183 | 3277 | 3370 | 3464 | 3558 | 3652 | 3746 | 3840  | 3<br>282      |
| 28          |            | 3934 | 4027 | 4121 | 4215 | 4309 | 4403 | 4497 | 4590 | 4684 | 4778  | 4<br>376      |
| 29          |            | 4872 | 4966 | 5059 | 5153 | 5247 | 5341 | 5435 | 5529 | 5622 | 5716  | 5<br>470      |
| <b>4630</b> |            | 5810 | 5904 | 5998 | 6091 | 6185 | 6279 | 6373 | 6466 | 6560 | 6654  | 6<br>564      |
| 31          |            | 6748 | 6842 | 6935 | 7029 | 7123 | 7217 | 7310 | 7404 | 7498 | 7592  | 7<br>658      |
| 32          |            | 7686 | 7779 | 7873 | 7967 | 8061 | 8154 | 8248 | 8342 | 8436 | 8529  | 8<br>752      |
| 33          |            | 8623 | 8717 | 8810 | 8904 | 8998 | 9092 | 9185 | 9279 | 9373 | 9467  | 9<br>846      |
| 34          | *          | 9560 | 9654 | 9748 | 9841 | 9935 | +029 | 0123 | 0216 | 0310 | 0404  |               |
| 35          | 666        | 0497 | 0591 | 0685 | 0778 | 0872 | 0966 | 1060 | 1153 | 1247 | 1341  |               |
| 36          |            | 1434 | 1528 | 1622 | 1715 | 1809 | 1903 | 1996 | 2090 | 2184 | 2277  |               |
| 37          |            | 2371 | 2465 | 2558 | 2652 | 2746 | 2839 | 2933 | 3027 | 3120 | 3214  |               |
| 38          |            | 3307 | 3401 | 3495 | 3588 | 3682 | 3776 | 3869 | 3963 | 4056 | 4150  |               |
| 39          |            | 4244 | 4337 | 4431 | 4525 | 4618 | 4712 | 4805 | 4899 | 4993 | 5086  |               |
| <b>4640</b> |            | 5180 | 5273 | 5367 | 5461 | 5554 | 5648 | 5741 | 5835 | 5929 | 6022  |               |
| 41          |            | 6116 | 6209 | 6303 | 6396 | 6490 | 6584 | 6677 | 6771 | 6864 | 6958  |               |
| 42          |            | 7051 | 7145 | 7238 | 7332 | 7426 | 7519 | 7613 | 7706 | 7800 | 7893  |               |
| 43          |            | 7987 | 8080 | 8174 | 8267 | 8361 | 8454 | 8548 | 8642 | 8735 | 8829  |               |
| 44          |            | 8922 | 9016 | 9109 | 9203 | 9296 | 9390 | 9483 | 9577 | 9670 | 9764  |               |
| 45          | *          | 9857 | 9951 | +044 | 0138 | 0231 | 0325 | 0418 | 0512 | 0605 | 0699  |               |
| 46          | 667        | 0792 | 0886 | 0979 | 1072 | 1166 | 1259 | 1353 | 1446 | 1540 | 1633  |               |
| 47          |            | 1727 | 1820 | 1914 | 2007 | 2101 | 2194 | 2287 | 2381 | 2474 | 2568  |               |
| 48          |            | 2661 | 2755 | 2848 | 2941 | 3035 | 3128 | 3222 | 3315 | 3408 | 3502  |               |
| 49          |            | 3595 | 3689 | 3782 | 3876 | 3969 | 4063 | 4156 | 4249 | 4343 | 4436  |               |
| <b>4650</b> |            | 4530 | 4623 | 4716 | 4810 | 4903 | 4996 | 5090 | 5183 | 5277 | 5370  |               |
| 51          |            | 5463 | 5557 | 5650 | 5744 | 5837 | 5930 | 6024 | 6117 | 6210 | 6304  |               |
| 52          |            | 6397 | 6490 | 6584 | 6677 | 6770 | 6864 | 6957 | 7051 | 7144 | 7237  | 1<br>93       |
| 53          |            | 7331 | 7424 | 7517 | 7611 | 7704 | 7797 | 7891 | 7984 | 8077 | 8170  | 2<br>186      |
| 54          |            | 8264 | 8357 | 8450 | 8544 | 8637 | 8730 | 8824 | 8917 | 9010 | 9104  | 3<br>279      |
| 55          | *          | 9197 | 9290 | 9383 | 9477 | 9570 | 9663 | 9757 | 9850 | 9943 | +036  | 4<br>372      |
| 56          | 668        | 0130 | 0223 | 0316 | 0410 | 0503 | 0596 | 0689 | 0783 | 0876 | 0969  | 5<br>465      |
| 57          |            | 1062 | 1156 | 1249 | 1342 | 1435 | 1529 | 1622 | 1715 | 1808 | 1902  | 6<br>558      |
| 58          |            | 1995 | 2088 | 2181 | 2275 | 2368 | 2461 | 2554 | 2647 | 2741 | 2834  | 7<br>651      |
| 59          |            | 2927 | 3020 | 3114 | 3207 | 3300 | 3393 | 3486 | 3580 | 3673 | 3766  | 8<br>744      |
|             |            |      |      |      |      |      |      |      |      |      |       | 9<br>837      |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |



| Num. | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|--------|------|------|------|------|------|------|------|------|------|-------|---------------|
| 4660 | 668    | 3859 | 3952 | 4046 | 4139 | 4232 | 4325 | 4418 | 4511 | 4605 | 4698  |               |
| 61   | 4791   | 4884 | 4977 | 5071 | 5164 | 5257 | 5350 | 5443 | 5536 | 5630 |       |               |
| 62   | 5723   | 5816 | 5909 | 6002 | 6095 | 6188 | 6282 | 6375 | 6468 | 6561 |       |               |
| 63   | 6654   | 6747 | 6840 | 6934 | 7027 | 7120 | 7213 | 7306 | 7399 | 7492 |       |               |
| 64   | 7585   | 7679 | 7772 | 7865 | 7958 | 8051 | 8144 | 8237 | 8330 | 8423 |       |               |
| 65   | 8516   | 8610 | 8703 | 8796 | 8889 | 8982 | 9075 | 9168 | 9261 | 9354 |       |               |
| 66   | * 9447 | 9540 | 9633 | 9727 | 9820 | 9913 | +006 | 0099 | 0192 | 0285 |       |               |
| 67   | 669    | 0378 | 0471 | 0564 | 0657 | 0750 | 0843 | 0936 | 1029 | 1122 | 1215  |               |
| 68   | 1308   | 1402 | 1495 | 1588 | 1681 | 1774 | 1867 | 1960 | 2053 | 2146 |       |               |
| 69   | 2239   | 2332 | 2425 | 2518 | 2611 | 2704 | 2797 | 2890 | 2983 | 3076 |       |               |
| 4670 | 3169   | 3262 | 3355 | 3448 | 3541 | 3634 | 3727 | 3820 | 3913 | 4006 |       |               |
| 71   | 4099   | 4192 | 4285 | 4378 | 4471 | 4564 | 4656 | 4749 | 4842 | 4935 |       |               |
| 72   | 5028   | 5121 | 5214 | 5307 | 5400 | 5493 | 5586 | 5679 | 5772 | 5865 |       |               |
| 73   | 5958   | 6051 | 6144 | 6237 | 6330 | 6422 | 6515 | 6608 | 6701 | 6794 |       |               |
| 74   | 6887   | 6980 | 7073 | 7166 | 7259 | 7352 | 7445 | 7537 | 7630 | 7723 |       |               |
| 75   | 7816   | 7909 | 8002 | 8095 | 8188 | 8281 | 8373 | 8466 | 8559 | 8652 |       |               |
| 76   | 8745   | 8838 | 8931 | 9024 | 9117 | 9209 | 9302 | 9395 | 9488 | 9581 |       |               |
| 77   | * 9674 | 9767 | 9859 | 9952 | +045 | 0138 | 0231 | 0324 | 0416 | 0509 |       |               |
| 78   | 670    | 0602 | 0695 | 0788 | 0881 | 0974 | 1066 | 1159 | 1252 | 1345 | 1438  |               |
| 79   | 1530   | 1623 | 1716 | 1809 | 1902 | 1995 | 2087 | 2180 | 2273 | 2366 |       |               |
| 4680 | 2459   | 2551 | 2644 | 2737 | 2830 | 2922 | 3015 | 3108 | 3201 | 3294 |       |               |
| 81   | 3386   | 3479 | 3572 | 3665 | 3758 | 3850 | 3943 | 4036 | 4129 | 4222 |       |               |
| 82   | 4314   | 4407 | 4500 | 4592 | 4685 | 4778 | 4871 | 4963 | 5056 | 5149 |       |               |
| 83   | 5242   | 5334 | 5427 | 5520 | 5613 | 5705 | 5798 | 5891 | 5983 | 6076 |       |               |
| 84   | 6169   | 6262 | 6354 | 6447 | 6540 | 6632 | 6725 | 6818 | 6911 | 7003 |       |               |
| 85   | 7096   | 7189 | 7281 | 7374 | 7467 | 7559 | 7652 | 7745 | 7837 | 7930 |       |               |
| 86   | 8023   | 8116 | 8208 | 8301 | 8394 | 8486 | 8579 | 8672 | 8764 | 8857 |       |               |
| 87   | 8950   | 9042 | 9135 | 9228 | 9320 | 9413 | 9505 | 9598 | 9691 | 9783 |       |               |
| 88   | * 9876 | 9969 | +061 | 0154 | 0247 | 0339 | 0432 | 0524 | 0617 | 0710 |       |               |
| 89   | 671    | 0802 | 0895 | 0988 | 1080 | 1173 | 1265 | 1358 | 1451 | 1543 | 1636  |               |
| 4690 | 1728   | 1821 | 1914 | 2006 | 2099 | 2191 | 2284 | 2377 | 2469 | 2562 |       |               |
| 91   | 2654   | 2747 | 2839 | 2932 | 3025 | 3117 | 3210 | 3302 | 3395 | 3487 |       |               |
| 92   | 3580   | 3673 | 3765 | 3858 | 3950 | 4043 | 4135 | 4228 | 4320 | 4413 |       |               |
| 93   | 4506   | 4598 | 4691 | 4783 | 4876 | 4968 | 5061 | 5153 | 5246 | 5338 |       |               |
| 94   | 5431   | 5523 | 5616 | 5708 | 5801 | 5893 | 5986 | 6078 | 6171 | 6263 |       |               |
| 95   | 6356   | 6448 | 6541 | 6633 | 6726 | 6818 | 6911 | 7003 | 7096 | 7188 |       |               |
| 96   | 7281   | 7373 | 7466 | 7558 | 7651 | 7743 | 7836 | 7928 | 8021 | 8113 |       |               |
| 97   | 8206   | 8298 | 8391 | 8483 | 8575 | 8668 | 8760 | 8853 | 8945 | 9038 |       |               |
| 98   | 9130   | 9223 | 9315 | 9407 | 9500 | 9592 | 9685 | 9777 | 9870 | 9962 |       |               |
| 99   | 672    | 0054 | 0147 | 0239 | 0332 | 0424 | 0517 | 0609 | 0701 | 0794 | 0886  |               |
| 4700 | 0979   | 1071 | 1163 | 1256 | 1348 | 1441 | 1533 | 1625 | 1718 | 1810 |       |               |
| 01   | 1903   | 1995 | 2087 | 2180 | 2272 | 2364 | 2457 | 2549 | 2642 | 2734 |       |               |
| 02   | 2826   | 2919 | 3011 | 3103 | 3196 | 3288 | 3380 | 3473 | 3565 | 3657 |       |               |
| 03   | 3750   | 3842 | 3934 | 4027 | 4119 | 4211 | 4304 | 4396 | 4488 | 4581 |       |               |
| 04   | 4673   | 4765 | 4858 | 4950 | 5042 | 5135 | 5227 | 5319 | 5412 | 5504 |       |               |
| 05   | 5596   | 5689 | 5781 | 5873 | 5965 | 6058 | 6150 | 6242 | 6335 | 6427 |       |               |
| 06   | 6519   | 6612 | 6704 | 6796 | 6888 | 6981 | 7073 | 7165 | 7257 | 7350 |       |               |
| 07   | 7442   | 7534 | 7627 | 7719 | 7811 | 7903 | 7996 | 8088 | 8180 | 8272 |       |               |
| 08   | 8365   | 8457 | 8549 | 8641 | 8734 | 8826 | 8918 | 9010 | 9102 | 9195 |       |               |
| 09   | * 9287 | 9379 | 9471 | 9564 | 9656 | 9748 | 9840 | 9932 | +025 | 0117 |       |               |
| 4710 | 673    | 0209 | 0301 | 0393 | 0486 | 0578 | 0670 | 0762 | 0854 | 0947 | 1039  |               |
| 11   | 1131   | 1223 | 1315 | 1408 | 1500 | 1592 | 1684 | 1776 | 1868 | 1961 |       |               |
| 12   | 2053   | 2145 | 2237 | 2329 | 2421 | 2514 | 2606 | 2698 | 2790 | 2882 |       |               |
| 13   | 2974   | 3067 | 3159 | 3251 | 3343 | 3435 | 3527 | 3619 | 3712 | 3804 |       |               |
| 14   | 3896   | 3988 | 4080 | 4172 | 4264 | 4356 | 4449 | 4541 | 4633 | 4725 |       |               |
| 15   | 4817   | 4909 | 5001 | 5093 | 5185 | 5277 | 5370 | 5462 | 5554 | 5646 |       |               |
| 16   | 5738   | 5830 | 5922 | 6014 | 6106 | 6198 | 6290 | 6383 | 6475 | 6567 |       |               |
| 17   | 6659   | 6751 | 6843 | 6935 | 7027 | 7119 | 7211 | 7303 | 7395 | 7487 |       |               |
| 18   | 7579   | 7671 | 7763 | 7855 | 7947 | 8040 | 8132 | 8224 | 8316 | 8408 |       |               |
| 19   | 8500   | 8592 | 8684 | 8776 | 8868 | 8960 | 9052 | 9144 | 9236 | 9328 |       |               |
| Num. | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

93

|   |     |
|---|-----|
| 1 | 03  |
| 2 | 186 |
| 3 | 279 |
| 4 | 372 |
| 5 | 465 |
| 6 | 558 |
| 7 | 651 |
| 8 | 744 |
| 9 | 837 |

|   |     |
|---|-----|
| 1 | 92  |
| 2 | 184 |
| 3 | 276 |
| 4 | 368 |
| 5 | 460 |
| 6 | 552 |
| 7 | 644 |
| 8 | 736 |
| 9 | 828 |

| Num.  | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|--------|------|------|------|------|------|------|------|------|------|-------|---------------|
| 4720  | * 9420 | 9512 | 9604 | 9696 | 9788 | 9880 | 9972 | +064 | 0156 | 0248 | 92    |               |
| 21    | 674    | 0340 | 0432 | 0524 | 0616 | 0708 | 0800 | 0892 | 0984 | 1076 |       | 1168          |
| 22    | 1260   | 1352 | 1444 | 1536 | 1628 | 1720 | 1812 | 1904 | 1996 | 2088 |       |               |
| 23    | 2179   | 2271 | 2363 | 2455 | 2547 | 2639 | 2731 | 2823 | 2915 | 3007 |       |               |
| 24    | 3099   | 3191 | 3283 | 3375 | 3467 | 3559 | 3650 | 3742 | 3834 | 3926 |       |               |
| 25    | 4018   | 4110 | 4202 | 4294 | 4386 | 4478 | 4570 | 4661 | 4753 | 4845 |       |               |
| 26    | 4937   | 5029 | 5121 | 5213 | 5305 | 5397 | 5489 | 5580 | 5672 | 5764 |       |               |
| 27    | 5885   | 5948 | 6040 | 6132 | 6224 | 6315 | 6407 | 6499 | 6591 | 6683 |       |               |
| 28    | 6775   | 6867 | 6958 | 7050 | 7142 | 7234 | 7326 | 7418 | 7509 | 7601 |       |               |
| 29    | 7693   | 7785 | 7877 | 7969 | 8060 | 8152 | 8244 | 8336 | 8428 | 8520 |       |               |
| 47 30 | 8611   | 8703 | 8795 | 8887 | 8979 | 9070 | 9162 | 9254 | 9346 | 9438 |       | 1 92          |
| 31    | * 9529 | 9621 | 9713 | 9805 | 9897 | 9988 | +080 | 0172 | 0264 | 0356 |       | 2 164         |
| 32    | 675    | 0447 | 0539 | 0631 | 0723 | 0814 | 0906 | 0998 | 1090 | 1182 |       | 3 276         |
| 33    | 1365   | 1457 | 1549 | 1640 | 1732 | 1824 | 1916 | 2007 | 2099 | 2191 |       | 4 368         |
| 34    | 2283   | 2374 | 2466 | 2558 | 2649 | 2741 | 2833 | 2925 | 3016 | 3108 |       | 5 460         |
| 35    | 3200   | 3292 | 3383 | 3475 | 3567 | 3658 | 3750 | 3842 | 3934 | 4025 |       | 6 552         |
| 36    | 4117   | 4209 | 4300 | 4392 | 4484 | 4575 | 4667 | 4759 | 4850 | 4942 |       | 7 644         |
| 37    | 5034   | 5126 | 5217 | 5309 | 5401 | 5492 | 5584 | 5676 | 5767 | 5859 |       | 8 736         |
| 38    | 5951   | 6042 | 6134 | 6226 | 6317 | 6409 | 6501 | 6592 | 6684 | 6775 |       | 9 828         |
| 39    | 6867   | 6959 | 7050 | 7142 | 7234 | 7325 | 7417 | 7509 | 7600 | 7692 |       |               |
| 47 40 | 7783   | 7875 | 7967 | 8058 | 8150 | 8242 | 8333 | 8425 | 8516 | 8608 |       |               |
| 41    | 8700   | 8791 | 8883 | 8974 | 9066 | 9158 | 9249 | 9341 | 9432 | 9524 |       |               |
| 42    | * 9615 | 9707 | 9799 | 9890 | 9982 | +073 | 0165 | 0257 | 0348 | 0440 |       |               |
| 43    | 676    | 0531 | 0623 | 0714 | 0806 | 0897 | 0989 | 1081 | 1172 | 1264 |       |               |
| 44    | 1447   | 1538 | 1630 | 1721 | 1813 | 1905 | 1996 | 2088 | 2179 | 2271 |       |               |
| 45    | 2362   | 2454 | 2545 | 2637 | 2728 | 2820 | 2911 | 3003 | 3094 | 3186 |       |               |
| 46    | 3277   | 3369 | 3460 | 3552 | 3643 | 3735 | 3826 | 3918 | 4009 | 4101 |       |               |
| 47    | 4192   | 4284 | 4375 | 4467 | 4558 | 4650 | 4741 | 4833 | 4924 | 5016 |       |               |
| 48    | 5107   | 5199 | 5290 | 5382 | 5473 | 5564 | 5656 | 5747 | 5839 | 5930 |       |               |
| 49    | 6022   | 6113 | 6205 | 6296 | 6387 | 6479 | 6570 | 6662 | 6753 | 6845 |       |               |
| 47 50 | 6936   | 7028 | 7119 | 7210 | 7302 | 7393 | 7485 | 7576 | 7667 | 7759 |       |               |
| 51    | 7850   | 7942 | 8033 | 8125 | 8216 | 8307 | 8399 | 8490 | 8582 | 8673 |       |               |
| 52    | 8764   | 8856 | 8947 | 9038 | 9130 | 9221 | 9313 | 9404 | 9495 | 9587 |       |               |
| 53    | * 9678 | 9770 | 9861 | 9952 | +044 | 0135 | 0226 | 0318 | 0409 | 0500 |       |               |
| 54    | 677    | 0592 | 0683 | 0774 | 0866 | 0957 | 1049 | 1140 | 1231 | 1323 |       |               |
| 55    | 1505   | 1597 | 1688 | 1779 | 1871 | 1962 | 2053 | 2145 | 2236 | 2327 |       |               |
| 56    | 2418   | 2510 | 2601 | 2692 | 2784 | 2875 | 2966 | 3058 | 3149 | 3240 |       |               |
| 57    | 3332   | 3423 | 3514 | 3605 | 3697 | 3788 | 3879 | 3971 | 4062 | 4153 |       |               |
| 58    | 4244   | 4336 | 4427 | 4518 | 4609 | 4701 | 4792 | 4883 | 4975 | 5066 |       |               |
| 59    | 5157   | 5248 | 5340 | 5431 | 5522 | 5613 | 5705 | 5796 | 5887 | 5978 |       |               |
| 47 60 | 6070   | 6161 | 6252 | 6343 | 6434 | 6526 | 6617 | 6708 | 6799 | 6891 |       |               |
| 61    | 6982   | 7073 | 7164 | 7255 | 7347 | 7438 | 7529 | 7620 | 7712 | 7803 |       |               |
| 62    | 7894   | 7985 | 8076 | 8168 | 8259 | 8350 | 8441 | 8532 | 8623 | 8715 |       |               |
| 63    | 8806   | 8897 | 8988 | 9079 | 9171 | 9262 | 9353 | 9444 | 9535 | 9626 |       |               |
| 64    | * 9718 | 9809 | 9900 | 9991 | +082 | 0173 | 0264 | 0356 | 0447 | 0538 |       | 1 91          |
| 65    | 678    | 0629 | 0720 | 0811 | 0902 | 0994 | 1085 | 1176 | 1267 | 1358 |       | 2 182         |
| 66    | 1540   | 1632 | 1723 | 1814 | 1905 | 1996 | 2087 | 2178 | 2269 | 2360 |       | 3 273         |
| 67    | 2452   | 2543 | 2634 | 2725 | 2816 | 2907 | 2998 | 3089 | 3180 | 3271 |       | 4 364         |
| 68    | 3362   | 3454 | 3545 | 3636 | 3727 | 3818 | 3909 | 4000 | 4091 | 4182 |       | 5 455         |
| 69    | 4273   | 4364 | 4455 | 4546 | 4637 | 4729 | 4820 | 4911 | 5002 | 5093 |       | 6 546         |
| 47 70 | 5184   | 5275 | 5366 | 5457 | 5548 | 5639 | 5730 | 5821 | 5912 | 6003 |       | 7 637         |
| 71    | 6094   | 6185 | 6276 | 6367 | 6458 | 6549 | 6640 | 6731 | 6822 | 6913 |       | 8 728         |
| 72    | 7004   | 7095 | 7186 | 7277 | 7368 | 7459 | 7550 | 7641 | 7732 | 7823 |       | 9 819         |
| 73    | 7914   | 8005 | 8096 | 8187 | 8278 | 8369 | 8460 | 8551 | 8642 | 8733 |       |               |
| 74    | 8824   | 8915 | 9006 | 9097 | 9188 | 9279 | 9370 | 9461 | 9552 | 9643 |       |               |
| 75    | * 9734 | 9825 | 9916 | +007 | 0098 | 0188 | 0279 | 0370 | 0461 | 0552 |       |               |
| 76    | 679    | 0643 | 0734 | 0825 | 0916 | 1007 | 1098 | 1189 | 1280 | 1371 |       |               |
| 77    | 1552   | 1643 | 1734 | 1825 | 1916 | 2007 | 2098 | 2189 | 2280 | 2371 |       |               |
| 78    | 2461   | 2552 | 2643 | 2734 | 2825 | 2916 | 3007 | 3098 | 3189 | 3279 |       |               |
| 79    | 3370   | 3461 | 3552 | 3643 | 3734 | 3825 | 3916 | 4007 | 4097 | 4188 |       |               |
| Num.  | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |



| Num.        | 0               | 1     | 2    | 3     | 4    | 5    | 6     | 7    | 8     | 9     | Diff. | Diff. & Mult. |
|-------------|-----------------|-------|------|-------|------|------|-------|------|-------|-------|-------|---------------|
| <b>4840</b> | <b>684</b> 8454 | 8543  | 8633 | 8723  | 8813 | 8902 | 8992  | 9082 | 9171  | 9261  |       |               |
| 41          | • 9351          | 9441  | 9530 | 9620  | 9710 | 9799 | 9889  | 9979 | • 068 | 0158  |       |               |
| 42          | <b>685</b> 0248 | 0338  | 0427 | 0517  | 0607 | 0696 | 0786  | 0876 | 0965  | 1055  |       |               |
| 43          | 1145            | 1234  | 1324 | 1414  | 1503 | 1593 | 1683  | 1772 | 1862  | 1952  |       |               |
| 44          | 2041            | 2131  | 2221 | 2310  | 2400 | 2490 | 2579  | 2669 | 2759  | 2848  |       |               |
| 45          | 2938            | 3027  | 3117 | 3207  | 3296 | 3386 | 3476  | 3565 | 3655  | 3744  |       |               |
| 46          | 3834            | 3924  | 4013 | 4103  | 4193 | 4282 | 4372  | 4461 | 4551  | 4641  |       |               |
| 47          | 4730            | 4820  | 4909 | 4999  | 5089 | 5178 | 5268  | 5357 | 5447  | 5537  |       |               |
| 48          | 5626            | 5716  | 5805 | 5895  | 5984 | 6074 | 6164  | 6253 | 6343  | 6432  |       |               |
| 49          | 6522            | 6611  | 6701 | 6791  | 6880 | 6970 | 7059  | 7149 | 7238  | 7328  | 1     | 90            |
| 48 50       | 7417            | 7507  | 7596 | 7686  | 7776 | 7865 | 7955  | 8044 | 8134  | 8223  | 2     | 180           |
| 51          | 8313            | 8402  | 8492 | 8581  | 8671 | 8760 | 8850  | 8939 | 9029  | 9118  | 3     | 270           |
| 52          | • 9208          | 9297  | 9387 | 9476  | 9566 | 9655 | 9745  | 9834 | 9924  | • 013 | 4     | 360           |
| 53          | <b>686</b> 0103 | 0192  | 0282 | 0371  | 0461 | 0550 | 0640  | 0729 | 0819  | 0908  | 5     | 450           |
| 54          | <b>0998</b>     | 1087  | 1177 | 1266  | 1356 | 1445 | 1535  | 1624 | 1713  | 1803  | 6     | 540           |
| 55          | 1892            | 1982  | 2071 | 2161  | 2250 | 2340 | 2429  | 2518 | 2608  | 2697  | 7     | 630           |
| 56          | 2787            | 2876  | 2966 | 3055  | 3145 | 3234 | 3323  | 3413 | 3502  | 3592  | 8     | 720           |
| 57          | 3681            | 3770  | 3860 | 3949  | 4039 | 4128 | 4217  | 4307 | 4396  | 4486  | 9     | 810           |
| 58          | 4575            | 4665  | 4754 | 4843  | 4933 | 5022 | 5111  | 5201 | 5290  | 5380  |       |               |
| 59          | 5469            | 5558  | 5648 | 5737  | 5826 | 5916 | 6005  | 6095 | 6184  | 6273  |       |               |
| 48 60       | 6363            | 6452  | 6541 | 6631  | 6720 | 6809 | 6899  | 6988 | 7078  | 7167  |       |               |
| 61          | 7256            | 7346  | 7435 | 7524  | 7614 | 7703 | 7792  | 7882 | 7971  | 8060  |       |               |
| 62          | 8150            | 8239  | 8328 | 8418  | 8507 | 8596 | 8685  | 8775 | 8864  | 8953  |       |               |
| 63          | 9043            | 9132  | 9221 | 9311  | 9400 | 9489 | 9578  | 9668 | 9757  | 9846  |       |               |
| 64          | • <b>9936</b>   | • 025 | 0114 | 0204  | 0293 | 0382 | 0471  | 0561 | 0650  | 0739  |       |               |
| 65          | <b>687</b> 0828 | 0918  | 1007 | 1096  | 1186 | 1275 | 1364  | 1453 | 1543  | 1632  |       |               |
| 66          | 1721            | 1810  | 1900 | 1989  | 2078 | 2167 | 2257  | 2346 | 2435  | 2524  |       |               |
| 67          | 2613            | 2703  | 2792 | 2881  | 2970 | 3060 | 3149  | 3238 | 3327  | 3416  |       |               |
| 68          | 3506            | 3595  | 3684 | 3773  | 3863 | 3952 | 4041  | 4130 | 4219  | 4309  |       |               |
| 69          | 4398            | 4487  | 4576 | 4665  | 4755 | 4844 | 4933  | 5022 | 5111  | 5200  |       |               |
| 48 70       | 5290            | 5379  | 5468 | 5557  | 5646 | 5735 | 5825  | 5914 | 6003  | 6092  |       |               |
| 71          | 6181            | 6270  | 6360 | 6449  | 6538 | 6627 | 6716  | 6805 | 6895  | 6984  |       |               |
| 72          | 7073            | 7162  | 7251 | 7340  | 7429 | 7518 | 7608  | 7697 | 7786  | 7875  |       |               |
| 73          | 7964            | 8053  | 8142 | 8231  | 8321 | 8410 | 8499  | 8588 | 8677  | 8766  |       |               |
| 74          | 8855            | 8944  | 9033 | 9123  | 9212 | 9301 | 9390  | 9479 | 9568  | 9657  |       |               |
| 75          | • <b>9746</b>   | 9835  | 9924 | • 013 | 0103 | 0192 | 0281  | 0370 | 0459  | 0548  |       |               |
| 76          | <b>688</b> 0637 | 0726  | 0815 | 0904  | 0993 | 1082 | 1171  | 1260 | 1349  | 1439  |       |               |
| 77          | 1528            | 1617  | 1706 | 1795  | 1884 | 1973 | 2062  | 2151 | 2240  | 2329  |       |               |
| 78          | 2418            | 2507  | 2596 | 2685  | 2774 | 2863 | 2952  | 3041 | 3130  | 3219  |       |               |
| 79          | 3308            | 3397  | 3486 | 3575  | 3664 | 3753 | 3842  | 3931 | 4020  | 4109  |       |               |
| 48 80       | 4198            | 4287  | 4376 | 4465  | 4554 | 4643 | 4732  | 4821 | 4910  | 4999  |       |               |
| 81          | 5088            | 5177  | 5266 | 5355  | 5444 | 5533 | 5622  | 5711 | 5800  | 5889  |       |               |
| 82          | 5978            | 6067  | 6156 | 6245  | 6334 | 6423 | 6511  | 6600 | 6689  | 6778  |       |               |
| 83          | 6867            | 6956  | 7045 | 7134  | 7223 | 7312 | 7401  | 7490 | 7579  | 7668  | 1     | 80            |
| 84          | 7757            | 7845  | 7934 | 8023  | 8112 | 8201 | 8290  | 8379 | 8468  | 8557  | 2     | 178           |
| 85          | 8646            | 8735  | 8823 | 8912  | 9001 | 9090 | 9179  | 9268 | 9357  | 9446  | 3     | 267           |
| 86          | • <b>9535</b>   | 9624  | 9712 | 9801  | 9890 | 9979 | • 068 | 0157 | 0246  | 0335  | 4     | 356           |
| 87          | <b>689</b> 0423 | 0512  | 0601 | 0690  | 0779 | 0868 | 0957  | 1045 | 1134  | 1223  | 5     | 445           |
| 88          | 1312            | 1401  | 1490 | 1579  | 1667 | 1756 | 1845  | 1934 | 2023  | 2112  | 6     | 534           |
| 89          | 2200            | 2289  | 2378 | 2467  | 2556 | 2645 | 2733  | 2822 | 2911  | 3000  | 7     | 623           |
| 48 90       | 3089            | 3177  | 3266 | 3355  | 3444 | 3533 | 3621  | 3710 | 3799  | 3888  | 8     | 712           |
| 91          | 3977            | 4065  | 4154 | 4243  | 4332 | 4421 | 4509  | 4598 | 4687  | 4776  | 9     | 801           |
| 92          | 4864            | 4953  | 5042 | 5131  | 5220 | 5308 | 5397  | 5486 | 5575  | 5663  |       |               |
| 93          | 5752            | 5841  | 5930 | 6018  | 6107 | 6196 | 6285  | 6373 | 6462  | 6551  |       |               |
| 94          | 6640            | 6728  | 6817 | 6906  | 6995 | 7083 | 7172  | 7261 | 7350  | 7438  |       |               |
| 95          | 7527            | 7616  | 7704 | 7793  | 7882 | 7971 | 8059  | 8148 | 8237  | 8325  |       |               |
| 96          | 8414            | 8503  | 8591 | 8680  | 8769 | 8858 | 8946  | 9035 | 9124  | 9212  |       |               |
| 97          | • <b>9301</b>   | 9390  | 9478 | 9567  | 9656 | 9744 | 9833  | 9922 | • 010 | 0090  |       |               |
| 98          | <b>690</b> 0188 | 0276  | 0365 | 0454  | 0542 | 0631 | 0720  | 0808 | 0897  | 0986  |       |               |
| 99          | 1074            | 1163  | 1252 | 1340  | 1429 | 1518 | 1606  | 1695 | 1784  | 1872  |       |               |
| Num.        | 0               | 1     | 2    | 3     | 4    | 5    | 6     | 7    | 8     | 9     | Diff. | Diff. & Mult. |

| Num.        | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|-------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>490</b>  | <b>690</b> | 1961     | 2049     | 2138     | 2227     | 2315     | 2404     | 2493     | 2581     | 2670     | 2758         |                          |
| 01          |            | 2847     | 2936     | 3024     | 3113     | 3201     | 3290     | 3379     | 3467     | 3556     | 3644         | 1 89                     |
| 02          |            | 3733     | 3822     | 3910     | 3999     | 4087     | 4176     | 4265     | 4353     | 4442     | 4530         | 2 178                    |
| 03          |            | 4619     | 4708     | 4796     | 4885     | 4973     | 5062     | 5150     | 5239     | 5327     | 5416         | 3 267                    |
| 04          |            | 5505     | 5593     | 5682     | 5770     | 5859     | 5947     | 6036     | 6124     | 6213     | 6302         | 4 356                    |
| 05          |            | 6390     | 6479     | 6567     | 6656     | 6744     | 6833     | 6921     | 7010     | 7098     | 7187         | 5 445                    |
| 06          |            | 7275     | 7364     | 7452     | 7541     | 7630     | 7718     | 7807     | 7895     | 7984     | 8072         | 6 534                    |
| 07          |            | 8161     | 8249     | 8338     | 8426     | 8515     | 8603     | 8692     | 8780     | 8869     | 8957         | 7 623                    |
| 08          |            | 9046     | 9134     | 9223     | 9311     | 9399     | 9488     | 9576     | 9665     | 9753     | 9842         | 8 712                    |
| 09          | *          | 9930     | •019     | 0107     | 0196     | 0284     | 0373     | 0461     | 0550     | 0638     | 0726         | 9 801                    |
| <b>491</b>  | <b>691</b> | 0815     | 0903     | 0992     | 1080     | 1169     | 1257     | 1346     | 1434     | 1522     | 1611         |                          |
| 11          |            | 1699     | 1788     | 1876     | 1965     | 2053     | 2141     | 2230     | 2318     | 2407     | 2495         | 1 88                     |
| 12          |            | 2584     | 2672     | 2760     | 2849     | 2937     | 3026     | 3114     | 3202     | 3291     | 3379         | 2 176                    |
| 13          |            | 3468     | 3556     | 3644     | 3733     | 3821     | 3910     | 3998     | 4086     | 4175     | 4263         | 3 264                    |
| 14          |            | 4352     | 4440     | 4528     | 4617     | 4705     | 4793     | 4882     | 4970     | 5058     | 5147         | 4 352                    |
| 15          |            | 5235     | 5324     | 5412     | 5500     | 5589     | 5677     | 5765     | 5854     | 5942     | 6030         | 5 440                    |
| 16          |            | 6119     | 6207     | 6295     | 6384     | 6472     | 6560     | 6649     | 6737     | 6825     | 6914         | 6 528                    |
| 17          |            | 7002     | 7090     | 7179     | 7267     | 7355     | 7444     | 7532     | 7620     | 7709     | 7797         | 7 616                    |
| 18          |            | 7885     | 7974     | 8062     | 8150     | 8238     | 8327     | 8415     | 8503     | 8592     | 8680         | 8 704                    |
| 19          |            | 8768     | 8857     | 8945     | 9033     | 9121     | 9210     | 9298     | 9386     | 9474     | 9563         | 9 792                    |
| <b>492</b>  | *          | 9651     | 9739     | 9828     | 9916     | •004     | 0092     | 0181     | 0269     | 0357     | 0445         |                          |
| 21          | <b>692</b> | 0534     | 0622     | 0710     | 0798     | 0887     | 0975     | 1063     | 1151     | 1240     | 1328         | 1 88                     |
| 22          |            | 1416     | 1504     | 1593     | 1681     | 1769     | 1857     | 1945     | 2034     | 2122     | 2210         | 2 176                    |
| 23          |            | 2298     | 2387     | 2475     | 2563     | 2651     | 2739     | 2828     | 2916     | 3004     | 3092         | 3 264                    |
| 24          |            | 3180     | 3269     | 3357     | 3445     | 3533     | 3621     | 3710     | 3798     | 3886     | 3974         | 4 352                    |
| 25          |            | 4062     | 4151     | 4239     | 4327     | 4415     | 4503     | 4591     | 4680     | 4768     | 4856         | 5 440                    |
| 26          |            | 4944     | 5032     | 5120     | 5209     | 5297     | 5385     | 5473     | 5561     | 5649     | 5737         | 6 528                    |
| 27          |            | 5826     | 5914     | 6002     | 6090     | 6178     | 6266     | 6354     | 6443     | 6531     | 6619         | 7 616                    |
| 28          |            | 6707     | 6795     | 6883     | 6971     | 7059     | 7148     | 7236     | 7324     | 7412     | 7500         | 8 704                    |
| 29          |            | 7588     | 7676     | 7764     | 7853     | 7941     | 8029     | 8117     | 8205     | 8293     | 8381         | 9 792                    |
| <b>493</b>  | <b>693</b> | 8469     | 8557     | 8645     | 8733     | 8822     | 8910     | 8998     | 9086     | 9174     | 9262         |                          |
| 31          | *          | 9350     | 9438     | 9526     | 9614     | 9702     | 9790     | 9878     | 9967     | •0055    | 0143         | 1 88                     |
| 32          |            | 0231     | 0319     | 0407     | 0495     | 0583     | 0671     | 0759     | 0847     | 0935     | 1023         | 2 176                    |
| 33          |            | 1111     | 1199     | 1287     | 1375     | 1463     | 1551     | 1639     | 1727     | 1815     | 1903         | 3 264                    |
| 34          |            | 1991     | 2079     | 2167     | 2256     | 2344     | 2432     | 2520     | 2608     | 2696     | 2784         | 4 352                    |
| 35          |            | 2872     | 2960     | 3048     | 3136     | 3224     | 3312     | 3400     | 3488     | 3576     | 3664         | 5 440                    |
| 36          |            | 3752     | 3839     | 3927     | 4015     | 4103     | 4191     | 4279     | 4367     | 4455     | 4543         | 6 528                    |
| 37          |            | 4631     | 4719     | 4807     | 4895     | 4983     | 5071     | 5159     | 5247     | 5335     | 5423         | 7 616                    |
| 38          |            | 5511     | 5599     | 5687     | 5775     | 5863     | 5951     | 6039     | 6126     | 6214     | 6302         | 8 704                    |
| 39          |            | 6390     | 6478     | 6566     | 6654     | 6742     | 6830     | 6918     | 7006     | 7094     | 7182         | 9 792                    |
| <b>494</b>  | <b>694</b> | 7269     | 7357     | 7445     | 7533     | 7621     | 7709     | 7797     | 7885     | 7973     | 8061         |                          |
| 41          |            | 8149     | 8236     | 8324     | 8412     | 8500     | 8588     | 8676     | 8764     | 8852     | 8940         | 1 88                     |
| 42          |            | 9027     | 9115     | 9203     | 9291     | 9379     | 9467     | 9555     | 9643     | 9730     | 9818         | 2 176                    |
| 43          | *          | 9906     | 9994     | •0082    | 0170     | 0258     | 0345     | 0433     | 0521     | 0609     | 0697         | 3 264                    |
| 44          |            | 0785     | 0872     | 0960     | 1048     | 1136     | 1224     | 1312     | 1399     | 1487     | 1575         | 4 352                    |
| 45          |            | 1663     | 1751     | 1839     | 1926     | 2014     | 2102     | 2190     | 2278     | 2366     | 2453         | 5 440                    |
| 46          |            | 2541     | 2629     | 2717     | 2805     | 2892     | 2980     | 3068     | 3156     | 3244     | 3331         | 6 528                    |
| 47          |            | 3419     | 3507     | 3595     | 3682     | 3770     | 3858     | 3946     | 4034     | 4121     | 4209         | 7 616                    |
| 48          |            | 4297     | 4385     | 4472     | 4560     | 4648     | 4736     | 4824     | 4911     | 4999     | 5087         | 8 704                    |
| 49          |            | 5175     | 5262     | 5350     | 5438     | 5526     | 5613     | 5701     | 5789     | 5877     | 5964         | 9 792                    |
| <b>495</b>  | <b>695</b> | 6052     | 6140     | 6227     | 6315     | 6403     | 6491     | 6578     | 6666     | 6754     | 6842         |                          |
| 51          |            | 6929     | 7017     | 7105     | 7192     | 7280     | 7368     | 7456     | 7543     | 7631     | 7719         | 1 88                     |
| 52          |            | 7806     | 7894     | 7982     | 8069     | 8157     | 8245     | 8333     | 8420     | 8508     | 8596         | 2 176                    |
| 53          |            | 8683     | 8771     | 8859     | 8946     | 9034     | 9122     | 9209     | 9297     | 9385     | 9472         | 3 264                    |
| 54          | *          | 9560     | 9648     | 9735     | 9823     | 9911     | 9998     | •0086    | 0174     | 0261     | 0349         | 4 352                    |
| 55          |            | 0437     | 0524     | 0612     | 0700     | 0787     | 0875     | 0962     | 1050     | 1138     | 1225         | 5 440                    |
| 56          |            | 1313     | 1401     | 1488     | 1576     | 1663     | 1751     | 1839     | 1926     | 2014     | 2102         | 6 528                    |
| 57          |            | 2189     | 2277     | 2364     | 2452     | 2540     | 2627     | 2715     | 2802     | 2890     | 2978         | 7 616                    |
| 58          |            | 3065     | 3153     | 3240     | 3328     | 3416     | 3503     | 3591     | 3678     | 3766     | 3854         | 8 704                    |
| 59          |            | 3941     | 4029     | 4116     | 4204     | 4291     | 4379     | 4467     | 4554     | 4642     | 4729         | 9 792                    |
| <b>Num.</b> | <b>0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |

| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|--------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>4960</b>  | <b>695</b> | 4817 | 4904 | 4992 | 5079 | 5167 | 5255 | 5342 | 5430 | 5517 | 5605  |               |
| 61           | 5692       | 5780 | 5867 | 5955 | 6042 | 6130 | 6217 | 6305 | 6393 | 6480 |       |               |
| 62           | 6568       | 6655 | 6743 | 6830 | 6918 | 7005 | 7093 | 7180 | 7268 | 7355 |       |               |
| 63           | 7443       | 7530 | 7618 | 7705 | 7793 | 7880 | 7968 | 8055 | 8143 | 8230 |       |               |
| 64           | 8318       | 8405 | 8493 | 8580 | 8668 | 8755 | 8843 | 8930 | 9018 | 9105 |       |               |
| 65           | 9193       | 9280 | 9367 | 9455 | 9542 | 9630 | 9717 | 9805 | 9892 | 9980 |       |               |
| 66           | 696        | 0067 | 0155 | 0242 | 0330 | 0417 | 0504 | 0592 | 0679 | 0767 | 0854  |               |
| 67           | 0942       | 1029 | 1116 | 1204 | 1291 | 1379 | 1466 | 1554 | 1641 | 1728 |       |               |
| 68           | 1816       | 1903 | 1991 | 2078 | 2166 | 2253 | 2340 | 2428 | 2515 | 2603 |       |               |
| 69           | 2690       | 2777 | 2865 | 2952 | 3040 | 3127 | 3214 | 3302 | 3389 | 3477 |       |               |
| <b>49 70</b> | 3564       | 3651 | 3739 | 3826 | 3913 | 4001 | 4088 | 4176 | 4263 | 4350 |       |               |
| 71           | 4438       | 4525 | 4612 | 4700 | 4787 | 4874 | 4962 | 5049 | 5137 | 5224 |       |               |
| 72           | 5311       | 5399 | 5486 | 5573 | 5661 | 5748 | 5835 | 5923 | 6010 | 6097 |       |               |
| 73           | 6185       | 6272 | 6359 | 6447 | 6534 | 6621 | 6709 | 6796 | 6883 | 6970 |       |               |
| 74           | 7058       | 7145 | 7232 | 7320 | 7407 | 7494 | 7582 | 7669 | 7756 | 7844 |       |               |
| 75           | 7931       | 8018 | 8105 | 8193 | 8280 | 8367 | 8455 | 8542 | 8629 | 8716 |       |               |
| 76           | 8804       | 8891 | 8978 | 9066 | 9153 | 9240 | 9327 | 9415 | 9502 | 9589 |       |               |
| 77           | * 9676     | 9764 | 9851 | 9938 | *025 | 0113 | 0200 | 0287 | 0374 | 0462 |       |               |
| 78           | 697        | 0549 | 0636 | 0723 | 0811 | 0898 | 0985 | 1072 | 1160 | 1247 | 1334  |               |
| 79           | 1421       | 1508 | 1596 | 1683 | 1770 | 1857 | 1945 | 2032 | 2119 | 2206 |       |               |
| <b>49 80</b> | 2293       | 2381 | 2468 | 2555 | 2642 | 2729 | 2817 | 2904 | 2991 | 3078 |       |               |
| 81           | 3165       | 3253 | 3340 | 3427 | 3514 | 3601 | 3689 | 3776 | 3863 | 3950 |       |               |
| 82           | 4037       | 4124 | 4212 | 4299 | 4386 | 4473 | 4560 | 4647 | 4735 | 4822 |       |               |
| 83           | 4909       | 4996 | 5083 | 5170 | 5257 | 5345 | 5432 | 5519 | 5606 | 5693 |       |               |
| 84           | 5780       | 5867 | 5955 | 6042 | 6129 | 6216 | 6303 | 6390 | 6477 | 6565 |       |               |
| 85           | 6652       | 6739 | 6826 | 6913 | 7000 | 7087 | 7174 | 7261 | 7349 | 7436 |       |               |
| 86           | 7523       | 7610 | 7697 | 7784 | 7871 | 7958 | 8045 | 8132 | 8220 | 8307 |       |               |
| 87           | 8394       | 8481 | 8568 | 8655 | 8742 | 8829 | 8916 | 9003 | 9090 | 9177 |       |               |
| 88           | * 9264     | 9352 | 9439 | 9526 | 9613 | 9700 | 9787 | 9874 | 9961 | *028 |       |               |
| 89           | 698        | 0135 | 0222 | 0309 | 0396 | 0483 | 0570 | 0657 | 0744 | 0831 | 0918  |               |
| <b>49 90</b> | 1005       | 1092 | 1180 | 1267 | 1354 | 1441 | 1528 | 1615 | 1702 | 1789 |       |               |
| 91           | 1876       | 1963 | 2050 | 2137 | 2224 | 2311 | 2398 | 2485 | 2572 | 2659 |       |               |
| 92           | 2746       | 2833 | 2920 | 3007 | 3094 | 3181 | 3268 | 3355 | 3442 | 3529 |       |               |
| 93           | 3616       | 3703 | 3790 | 3877 | 3964 | 4051 | 4138 | 4224 | 4311 | 4398 |       |               |
| 94           | 4485       | 4572 | 4659 | 4746 | 4833 | 4920 | 5007 | 5094 | 5181 | 5268 |       |               |
| 95           | 5355       | 5442 | 5529 | 5616 | 5703 | 5790 | 5877 | 5964 | 6050 | 6137 |       |               |
| 96           | 6224       | 6311 | 6398 | 6485 | 6572 | 6659 | 6746 | 6833 | 6920 | 7007 |       |               |
| 97           | 7093       | 7180 | 7267 | 7354 | 7441 | 7528 | 7615 | 7702 | 7789 | 7876 |       |               |
| 98           | 7963       | 8049 | 8136 | 8223 | 8310 | 8397 | 8484 | 8571 | 8658 | 8744 |       |               |
| 99           | 8831       | 8918 | 9005 | 9092 | 9179 | 9266 | 9353 | 9439 | 9526 | 9613 |       |               |
| <b>50 00</b> | * 9700     | 9787 | 9874 | 9961 | *047 | 0134 | 0221 | 0308 | 0395 | 0482 |       |               |
| 01           | 699        | 0569 | 0655 | 0742 | 0829 | 0916 | 1003 | 1090 | 1176 | 1263 | 1350  |               |
| 02           | 1437       | 1524 | 1611 | 1697 | 1784 | 1871 | 1958 | 2045 | 2131 | 2218 |       |               |
| 03           | 2305       | 2392 | 2479 | 2565 | 2652 | 2739 | 2826 | 2913 | 2999 | 3086 |       |               |
| 04           | 3173       | 3260 | 3347 | 3433 | 3520 | 3607 | 3694 | 3780 | 3867 | 3954 |       |               |
| 05           | 4041       | 4128 | 4214 | 4301 | 4388 | 4475 | 4561 | 4648 | 4735 | 4822 |       |               |
| 06           | 4908       | 4995 | 5082 | 5169 | 5255 | 5342 | 5429 | 5516 | 5602 | 5689 |       |               |
| 07           | 5776       | 5863 | 5949 | 6036 | 6123 | 6210 | 6296 | 6383 | 6470 | 6556 |       |               |
| 08           | 6643       | 6730 | 6817 | 6903 | 6990 | 7077 | 7163 | 7250 | 7337 | 7424 |       |               |
| 09           | 7510       | 7597 | 7684 | 7770 | 7857 | 7944 | 8031 | 8117 | 8204 | 8291 |       |               |
| <b>50 10</b> | 8377       | 8464 | 8551 | 8637 | 8724 | 8811 | 8897 | 8984 | 9071 | 9157 |       |               |
| 11           | * 9244     | 9331 | 9417 | 9504 | 9591 | 9677 | 9764 | 9851 | 9937 | *024 |       |               |
| 12           | 700        | 0111 | 0197 | 0284 | 0371 | 0457 | 0544 | 0630 | 0717 | 0804 | 0890  |               |
| 13           | 0977       | 1064 | 1150 | 1237 | 1324 | 1410 | 1497 | 1583 | 1670 | 1757 |       |               |
| 14           | 1843       | 1930 | 2017 | 2103 | 2190 | 2276 | 2363 | 2450 | 2536 | 2623 |       |               |
| 15           | 2709       | 2796 | 2883 | 2969 | 3056 | 3142 | 3229 | 3316 | 3402 | 3489 |       |               |
| 16           | 3575       | 3662 | 3748 | 3835 | 3922 | 4008 | 4095 | 4181 | 4268 | 4354 |       |               |
| 17           | 4441       | 4528 | 4614 | 4701 | 4787 | 4874 | 4960 | 5047 | 5133 | 5220 |       |               |
| 18           | 5307       | 5393 | 5480 | 5566 | 5653 | 5739 | 5826 | 5912 | 5999 | 6085 |       |               |
| 19           | 6172       | 6258 | 6345 | 6432 | 6518 | 6605 | 6691 | 6778 | 6864 | 6951 |       |               |
| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

1 88  
2 176  
3 264  
4 352  
5 440  
6 528  
7 616  
8 704  
9 792

87

1 87  
2 174  
3 261  
4 348  
5 435  
6 522  
7 609  
8 696  
9 783

| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 5020 | 700 | 7037 | 7124 | 7210 | 7297 | 7383 | 7470 | 7556 | 7643 | 7729 | 7816  |               |
| 21   |     | 7902 | 7989 | 8075 | 8162 | 8248 | 8335 | 8421 | 8508 | 8594 | 8681  | 1 87          |
| 22   |     | 8767 | 8854 | 8940 | 9027 | 9113 | 9199 | 9286 | 9372 | 9459 | 9545  | 2 174         |
| 23   | *   | 9632 | 9718 | 9805 | 9891 | 9978 | +064 | 0151 | 0237 | 0323 | 0410  | 3 261         |
| 24   | 701 | 0496 | 0583 | 0669 | 0756 | 0842 | 0929 | 1015 | 1101 | 1188 | 1274  | 4 348         |
| 25   |     | 1361 | 1447 | 1534 | 1620 | 1706 | 1793 | 1879 | 1966 | 2052 | 2138  | 5 435         |
| 26   |     | 2225 | 2311 | 2398 | 2484 | 2570 | 2657 | 2743 | 2830 | 2916 | 3002  | 6 522         |
| 27   |     | 3089 | 3175 | 3262 | 3348 | 3434 | 3521 | 3607 | 3694 | 3780 | 3866  | 7 609         |
| 28   |     | 3953 | 4039 | 4125 | 4212 | 4298 | 4385 | 4471 | 4557 | 4644 | 4730  | 8 696         |
| 29   |     | 4816 | 4903 | 4989 | 5075 | 5162 | 5248 | 5334 | 5421 | 5507 | 5594  | 9 783         |
| 5030 |     | 5680 | 5766 | 5853 | 5939 | 6025 | 6112 | 6198 | 6284 | 6371 | 6457  |               |
| 31   |     | 6543 | 6629 | 6716 | 6802 | 6888 | 6975 | 7061 | 7147 | 7234 | 7320  |               |
| 32   |     | 7406 | 7493 | 7579 | 7665 | 7752 | 7838 | 7924 | 8010 | 8097 | 8183  |               |
| 33   |     | 8269 | 8356 | 8442 | 8528 | 8614 | 8701 | 8787 | 8873 | 8960 | 9046  |               |
| 34   |     | 9132 | 9218 | 9305 | 9391 | 9477 | 9563 | 9650 | 9736 | 9822 | 9908  |               |
| 35   | *   | 9995 | +081 | 0167 | 0254 | 0340 | 0426 | 0512 | 0598 | 0685 | 0771  |               |
| 36   | 702 | 0857 | 0943 | 1030 | 1116 | 1202 | 1288 | 1375 | 1461 | 1547 | 1633  |               |
| 37   |     | 1720 | 1806 | 1892 | 1978 | 2064 | 2151 | 2237 | 2323 | 2409 | 2495  |               |
| 38   |     | 2582 | 2668 | 2754 | 2840 | 2926 | 3013 | 3099 | 3185 | 3271 | 3357  |               |
| 39   |     | 3444 | 3530 | 3616 | 3702 | 3788 | 3874 | 3961 | 4047 | 4133 | 4219  |               |
| 5040 |     | 4305 | 4392 | 4478 | 4564 | 4650 | 4736 | 4822 | 4909 | 4995 | 5081  |               |
| 41   |     | 5167 | 5253 | 5339 | 5425 | 5512 | 5598 | 5684 | 5770 | 5856 | 5942  |               |
| 42   |     | 6028 | 6115 | 6201 | 6287 | 6373 | 6459 | 6545 | 6631 | 6717 | 6804  |               |
| 43   |     | 6890 | 6976 | 7062 | 7148 | 7234 | 7320 | 7406 | 7492 | 7579 | 7665  |               |
| 44   |     | 7751 | 7837 | 7923 | 8009 | 8095 | 8181 | 8267 | 8353 | 8440 | 8526  |               |
| 45   |     | 8612 | 8698 | 8784 | 8870 | 8956 | 9042 | 9128 | 9214 | 9300 | 9386  |               |
| 46   | *   | 9472 | 9559 | 9645 | 9731 | 9817 | 9903 | 9989 | +075 | 0161 | 0247  | 1 86          |
| 47   | 703 | 0333 | 0419 | 0505 | 0591 | 0677 | 0763 | 0849 | 0935 | 1021 | 1107  | 2 172         |
| 48   |     | 1193 | 1279 | 1366 | 1452 | 1538 | 1624 | 1710 | 1796 | 1882 | 1968  | 3 258         |
| 49   |     | 2054 | 2140 | 2226 | 2312 | 2398 | 2484 | 2570 | 2656 | 2742 | 2828  | 4 344         |
| 5050 |     | 2914 | 3000 | 3086 | 3172 | 3258 | 3344 | 3430 | 3516 | 3602 | 3688  | 5 430         |
| 51   |     | 3774 | 3860 | 3946 | 4032 | 4118 | 4204 | 4290 | 4376 | 4461 | 4547  | 6 516         |
| 52   |     | 4633 | 4719 | 4805 | 4891 | 4977 | 5063 | 5149 | 5235 | 5321 | 5407  | 7 602         |
| 53   |     | 5493 | 5579 | 5665 | 5751 | 5837 | 5923 | 6009 | 6095 | 6181 | 6266  | 8 688         |
| 54   |     | 6352 | 6438 | 6524 | 6610 | 6696 | 6782 | 6868 | 6954 | 7040 | 7126  | 9 774         |
| 55   |     | 7212 | 7298 | 7383 | 7469 | 7555 | 7641 | 7727 | 7813 | 7899 | 7985  |               |
| 56   |     | 8071 | 8157 | 8242 | 8328 | 8414 | 8500 | 8586 | 8672 | 8758 | 8844  |               |
| 57   |     | 8930 | 9015 | 9101 | 9187 | 9273 | 9359 | 9445 | 9531 | 9617 | 9702  |               |
| 58   | *   | 9788 | 9874 | 9960 | +046 | 0132 | 0218 | 0303 | 0389 | 0475 | 0561  |               |
| 59   | 704 | 0647 | 0733 | 0818 | 0904 | 0990 | 1076 | 1162 | 1248 | 1334 | 1419  |               |
| 5060 |     | 1505 | 1591 | 1677 | 1763 | 1848 | 1934 | 2020 | 2106 | 2192 | 2278  |               |
| 61   |     | 2363 | 2449 | 2535 | 2621 | 2707 | 2792 | 2878 | 2964 | 3050 | 3136  |               |
| 62   |     | 3221 | 3307 | 3393 | 3479 | 3565 | 3650 | 3736 | 3822 | 3908 | 3993  |               |
| 63   |     | 4079 | 4165 | 4251 | 4337 | 4422 | 4508 | 4594 | 4680 | 4765 | 4851  |               |
| 64   |     | 4937 | 5023 | 5108 | 5194 | 5280 | 5366 | 5452 | 5537 | 5623 | 5709  |               |
| 65   |     | 5794 | 5880 | 5966 | 6052 | 6137 | 6223 | 6309 | 6395 | 6480 | 6566  |               |
| 66   |     | 6652 | 6738 | 6823 | 6909 | 6995 | 7080 | 7166 | 7252 | 7338 | 7423  |               |
| 67   |     | 7509 | 7595 | 7680 | 7766 | 7852 | 7938 | 8023 | 8109 | 8195 | 8280  |               |
| 68   |     | 8366 | 8452 | 8537 | 8623 | 8709 | 8795 | 8880 | 8966 | 9052 | 9137  |               |
| 69   |     | 9223 | 9309 | 9394 | 9480 | 9566 | 9651 | 9737 | 9823 | 9908 | 9994  |               |
| 5070 |     | 705  | 0080 | 0165 | 0251 | 0337 | 0422 | 0508 | 0594 | 0679 | 0765  |               |
| 71   |     | 0936 | 1022 | 1107 | 1193 | 1279 | 1364 | 1450 | 1536 | 1621 | 1707  |               |
| 72   |     | 1792 | 1878 | 1964 | 2049 | 2135 | 2221 | 2306 | 2392 | 2477 | 2563  |               |
| 73   |     | 2649 | 2734 | 2820 | 2905 | 2991 | 3077 | 3162 | 3248 | 3333 | 3419  |               |
| 74   |     | 3505 | 3590 | 3676 | 3761 | 3847 | 3933 | 4018 | 4104 | 4189 | 4275  |               |
| 75   |     | 4360 | 4446 | 4532 | 4617 | 4703 | 4788 | 4874 | 4959 | 5045 | 5131  |               |
| 76   |     | 5216 | 5302 | 5387 | 5473 | 5558 | 5644 | 5729 | 5815 | 5901 | 5986  |               |
| 77   |     | 6072 | 6157 | 6243 | 6328 | 6414 | 6499 | 6585 | 6670 | 6756 | 6841  |               |
| 78   |     | 6927 | 7012 | 7098 | 7184 | 7269 | 7355 | 7440 | 7526 | 7611 | 7697  |               |
| 79   |     | 7782 | 7868 | 7953 | 8039 | 8124 | 8210 | 8295 | 8381 | 8466 | 8552  |               |
| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>5080</b> | <b>705</b> | 8637 | 8723 | 8808 | 8894 | 8979 | 9065 | 9150 | 9236 | 9321 | 9406  |               |
| 81          | * 9492     | 9577 | 9663 | 9748 | 9834 | 9919 | 0005 | 0090 | 0176 | 0261 |       |               |
| 82          | 706        | 0347 | 0432 | 0518 | 0603 | 0688 | 0774 | 0859 | 0945 | 1030 | 1116  |               |
| 83          |            | 1201 | 1287 | 1372 | 1457 | 1543 | 1628 | 1714 | 1799 | 1885 | 1970  |               |
| 84          |            | 2055 | 2141 | 2226 | 2312 | 2397 | 2483 | 2568 | 2653 | 2739 | 2824  |               |
| 85          |            | 2910 | 2995 | 3080 | 3166 | 3251 | 3337 | 3422 | 3507 | 3593 | 3678  |               |
| 86          |            | 3764 | 3849 | 3934 | 4020 | 4105 | 4190 | 4276 | 4361 | 4447 | 4532  |               |
| 87          |            | 4617 | 4703 | 4788 | 4873 | 4959 | 5044 | 5130 | 5215 | 5300 | 5386  |               |
| 88          |            | 5471 | 5556 | 5642 | 5727 | 5812 | 5898 | 5983 | 6068 | 6154 | 6239  |               |
| 89          |            | 6325 | 6410 | 6495 | 6581 | 6666 | 6751 | 6837 | 6922 | 7007 | 7092  |               |
| 50 90       |            | 7178 | 7263 | 7348 | 7434 | 7519 | 7604 | 7690 | 7775 | 7860 | 7946  | 1 86          |
| 91          |            | 8031 | 8116 | 8202 | 8287 | 8372 | 8457 | 8543 | 8628 | 8713 | 8799  | 2 172         |
| 92          |            | 8884 | 8969 | 9055 | 9140 | 9225 | 9310 | 9396 | 9481 | 9566 | 9651  | 3 258         |
| 93          | * 9737     | 9822 | 9907 | 9993 | 0078 | 0163 | 0248 | 0334 | 0419 | 0504 | 0589  | 4 344         |
| 94          | 707        | 0589 | 0675 | 0760 | 0845 | 0930 | 1016 | 1101 | 1186 | 1271 | 1357  | 5 430         |
| 95          |            | 1442 | 1527 | 1612 | 1698 | 1783 | 1868 | 1953 | 2039 | 2124 | 2209  | 6 516         |
| 96          |            | 2294 | 2379 | 2465 | 2550 | 2635 | 2720 | 2805 | 2891 | 2976 | 3061  | 7 602         |
| 97          |            | 3146 | 3232 | 3317 | 3402 | 3487 | 3572 | 3658 | 3743 | 3828 | 3913  | 8 688         |
| 98          |            | 3998 | 4083 | 4169 | 4254 | 4339 | 4424 | 4509 | 4595 | 4680 | 4765  | 9 774         |
| 99          |            | 4850 | 4935 | 5020 | 5106 | 5191 | 5276 | 5361 | 5446 | 5531 | 5617  |               |
| 51 00       |            | 5702 | 5787 | 5872 | 5957 | 6042 | 6128 | 6213 | 6298 | 6383 | 6468  |               |
| 01          |            | 6553 | 6638 | 6724 | 6809 | 6894 | 6979 | 7064 | 7149 | 7234 | 7319  |               |
| 02          |            | 7405 | 7490 | 7575 | 7660 | 7745 | 7830 | 7915 | 8000 | 8085 | 8171  |               |
| 03          |            | 8256 | 8341 | 8426 | 8511 | 8596 | 8681 | 8766 | 8851 | 8936 | 9022  |               |
| 04          |            | 9107 | 9192 | 9277 | 9362 | 9447 | 9532 | 9617 | 9702 | 9787 | 9872  |               |
| 05          | * 9957     | 0043 | 0128 | 0213 | 0298 | 0383 | 0468 | 0553 | 0638 | 0723 | 0808  |               |
| 06          | 708        | 0808 | 0893 | 0978 | 1063 | 1148 | 1233 | 1318 | 1403 | 1488 | 1574  |               |
| 07          |            | 1659 | 1744 | 1829 | 1914 | 1999 | 2084 | 2169 | 2254 | 2339 | 2424  |               |
| 08          |            | 2509 | 2594 | 2679 | 2764 | 2849 | 2934 | 3019 | 3104 | 3189 | 3274  |               |
| 09          |            | 3359 | 3444 | 3529 | 3614 | 3699 | 3784 | 3869 | 3954 | 4039 | 4124  |               |
| 51 10       |            | 4209 | 4294 | 4379 | 4464 | 4549 | 4634 | 4719 | 4804 | 4889 | 4974  |               |
| 11          |            | 5059 | 5144 | 5229 | 5314 | 5399 | 5484 | 5569 | 5654 | 5739 | 5824  |               |
| 12          |            | 5908 | 5993 | 6078 | 6163 | 6248 | 6333 | 6418 | 6503 | 6588 | 6673  |               |
| 13          |            | 6758 | 6843 | 6928 | 7013 | 7098 | 7183 | 7268 | 7353 | 7437 | 7522  |               |
| 14          |            | 7607 | 7692 | 7777 | 7862 | 7947 | 8032 | 8117 | 8202 | 8287 | 8371  |               |
| 15          |            | 8456 | 8541 | 8626 | 8711 | 8796 | 8881 | 8966 | 9051 | 9136 | 9220  |               |
| 16          | * 9305     | 9390 | 9475 | 9560 | 9645 | 9730 | 9815 | 9900 | 9984 | 0069 | 0154  |               |
| 17          | 709        | 0154 | 0239 | 0324 | 0409 | 0494 | 0579 | 0663 | 0748 | 0833 | 0918  |               |
| 18          |            | 1003 | 1088 | 1173 | 1257 | 1342 | 1427 | 1512 | 1597 | 1682 | 1766  |               |
| 19          |            | 1851 | 1936 | 2021 | 2106 | 2191 | 2275 | 2360 | 2445 | 2530 | 2615  |               |
| 51 20       |            | 2700 | 2784 | 2869 | 2954 | 3039 | 3124 | 3209 | 3293 | 3378 | 3463  |               |
| 21          |            | 3548 | 3633 | 3717 | 3802 | 3887 | 3972 | 4057 | 4141 | 4226 | 4311  |               |
| 22          |            | 4396 | 4481 | 4565 | 4650 | 4735 | 4820 | 4904 | 4989 | 5074 | 5159  |               |
| 23          |            | 5244 | 5328 | 5413 | 5498 | 5583 | 5667 | 5752 | 5837 | 5922 | 6006  |               |
| 24          |            | 6091 | 6176 | 6261 | 6345 | 6430 | 6515 | 6600 | 6684 | 6769 | 6854  |               |
| 25          |            | 6939 | 7023 | 7108 | 7193 | 7278 | 7362 | 7447 | 7532 | 7617 | 7701  |               |
| 26          |            | 7786 | 7871 | 7955 | 8040 | 8125 | 8210 | 8294 | 8379 | 8464 | 8548  |               |
| 27          |            | 8633 | 8718 | 8803 | 8887 | 8972 | 9057 | 9141 | 9226 | 9311 | 9395  |               |
| 28          | * 9480     | 9565 | 9650 | 9734 | 9819 | 9904 | 9988 | 0073 | 0158 | 0242 | 0327  |               |
| 29          | 710        | 0327 | 0412 | 0496 | 0581 | 0666 | 0750 | 0835 | 0920 | 1004 | 1089  |               |
| 51 30       |            | 1174 | 1258 | 1343 | 1428 | 1512 | 1597 | 1682 | 1766 | 1851 | 1936  |               |
| 31          |            | 2020 | 2105 | 2189 | 2274 | 2359 | 2443 | 2528 | 2613 | 2697 | 2782  |               |
| 32          |            | 2866 | 2951 | 3036 | 3120 | 3205 | 3290 | 3374 | 3459 | 3543 | 3628  |               |
| 33          |            | 3713 | 3797 | 3882 | 3966 | 4051 | 4136 | 4220 | 4305 | 4389 | 4474  |               |
| 34          |            | 4559 | 4643 | 4728 | 4812 | 4897 | 4982 | 5066 | 5151 | 5235 | 5320  |               |
| 35          |            | 5404 | 5489 | 5574 | 5658 | 5743 | 5827 | 5912 | 5996 | 6081 | 6166  |               |
| 36          |            | 6250 | 6335 | 6419 | 6504 | 6588 | 6673 | 6757 | 6842 | 6927 | 7011  |               |
| 37          |            | 7096 | 7180 | 7265 | 7349 | 7434 | 7518 | 7603 | 7687 | 7772 | 7856  |               |
| 38          |            | 7941 | 8026 | 8110 | 8195 | 8279 | 8364 | 8448 | 8533 | 8617 | 8702  |               |
| 39          |            | 8786 | 8871 | 8955 | 9040 | 9124 | 9209 | 9293 | 9378 | 9462 | 9547  |               |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

|   |     |
|---|-----|
| 1 | 86  |
| 2 | 172 |
| 3 | 258 |
| 4 | 344 |
| 5 | 430 |
| 6 | 516 |
| 7 | 602 |
| 8 | 688 |
| 9 | 774 |

85

|   |     |
|---|-----|
| 1 | 85  |
| 2 | 170 |
| 3 | 255 |
| 4 | 340 |
| 5 | 425 |
| 6 | 510 |
| 7 | 595 |
| 8 | 680 |
| 9 | 765 |



LOGARITHMS OF NUMBERS.

73

| Num.  | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|----------|------|------|------|------|------|------|------|------|------|-------|---------------|
| 5140  | * 9631   | 9716 | 9800 | 9885 | 9969 | +054 | 0138 | 0223 | 0307 | 0392 |       | 1 85          |
| 41    | 711 0476 | 0561 | 0645 | 0729 | 0814 | 0898 | 0983 | 1067 | 1152 | 1236 |       | 2 170         |
| 42    | 1321     | 1405 | 1490 | 1574 | 1659 | 1743 | 1827 | 1912 | 1996 | 2081 |       | 3 255         |
| 43    | 2165     | 2250 | 2334 | 2419 | 2503 | 2587 | 2672 | 2756 | 2841 | 2925 |       | 4 340         |
| 44    | 3010     | 3094 | 3178 | 3263 | 3347 | 3432 | 3516 | 3601 | 3685 | 3769 |       | 5 425         |
| 45    | 3854     | 3938 | 4023 | 4107 | 4191 | 4276 | 4360 | 4445 | 4529 | 4613 |       | 6 510         |
| 46    | 4698     | 4782 | 4867 | 4951 | 5035 | 5120 | 5204 | 5289 | 5373 | 5457 |       | 7 595         |
| 47    | 5542     | 5626 | 5710 | 5795 | 5879 | 5964 | 6048 | 6132 | 6217 | 6301 |       | 8 680         |
| 48    | 6385     | 6470 | 6554 | 6638 | 6723 | 6807 | 6892 | 6976 | 7060 | 7145 |       | 9 765         |
| 49    | 7229     | 7313 | 7398 | 7482 | 7566 | 7651 | 7735 | 7819 | 7904 | 7988 |       |               |
| 51 50 | 8072     | 8157 | 8241 | 8325 | 8410 | 8494 | 8578 | 8663 | 8747 | 8831 |       |               |
| 51    | 8915     | 9000 | 9084 | 9168 | 9253 | 9337 | 9421 | 9506 | 9590 | 9674 |       |               |
| 52    | * 9759   | 9843 | 9927 | +011 | 0096 | 0180 | 0264 | 0349 | 0433 | 0517 |       |               |
| 53    | 712 0601 | 0686 | 0770 | 0854 | 0939 | 1023 | 1107 | 1191 | 1276 | 1360 |       |               |
| 54    | 1444     | 1528 | 1613 | 1697 | 1781 | 1865 | 1950 | 2034 | 2118 | 2202 |       |               |
| 55    | 2287     | 2371 | 2455 | 2539 | 2624 | 2708 | 2792 | 2876 | 2961 | 3045 |       |               |
| 56    | 3129     | 3213 | 3298 | 3382 | 3466 | 3550 | 3634 | 3719 | 3803 | 3887 |       |               |
| 57    | 3971     | 4056 | 4140 | 4224 | 4308 | 4392 | 4477 | 4561 | 4645 | 4729 |       |               |
| 58    | 4813     | 4898 | 4982 | 5066 | 5150 | 5234 | 5319 | 5403 | 5487 | 5571 |       |               |
| 59    | 5655     | 5739 | 5824 | 5908 | 5992 | 6076 | 6160 | 6245 | 6329 | 6413 |       |               |
| 51 60 | 6497     | 6581 | 6665 | 6750 | 6834 | 6918 | 7002 | 7086 | 7170 | 7254 |       |               |
| 61    | 7339     | 7423 | 7507 | 7591 | 7675 | 7759 | 7843 | 7928 | 8012 | 8096 |       |               |
| 62    | 8180     | 8264 | 8348 | 8432 | 8517 | 8601 | 8685 | 8769 | 8853 | 8937 |       |               |
| 63    | 9021     | 9105 | 9189 | 9274 | 9358 | 9442 | 9526 | 9610 | 9694 | 9778 |       |               |
| 64    | * 9862   | 9946 | +031 | 0115 | 0199 | 0283 | 0367 | 0451 | 0535 | 0619 |       |               |
| 65    | 713 0703 | 0787 | 0871 | 0956 | 1040 | 1124 | 1208 | 1292 | 1376 | 1460 |       | 1 84          |
| 66    | 1544     | 1628 | 1712 | 1796 | 1880 | 1964 | 2048 | 2132 | 2217 | 2301 |       | 2 168         |
| 67    | 2385     | 2469 | 2553 | 2637 | 2721 | 2805 | 2889 | 2973 | 3057 | 3141 |       | 3 252         |
| 68    | 3225     | 3309 | 3393 | 3477 | 3561 | 3645 | 3729 | 3813 | 3897 | 3981 |       | 4 336         |
| 69    | 4065     | 4149 | 4233 | 4317 | 4401 | 4485 | 4569 | 4653 | 4737 | 4821 |       | 5 420         |
| 51 70 | 4905     | 4989 | 5073 | 5157 | 5241 | 5325 | 5409 | 5493 | 5577 | 5661 |       | 6 504         |
| 71    | 5745     | 5829 | 5913 | 5997 | 6081 | 6165 | 6249 | 6333 | 6417 | 6501 |       | 7 588         |
| 72    | 6585     | 6669 | 6753 | 6837 | 6921 | 7005 | 7089 | 7173 | 7257 | 7341 |       | 8 672         |
| 73    | 7425     | 7509 | 7593 | 7677 | 7761 | 7845 | 7928 | 8012 | 8096 | 8180 |       | 9 756         |
| 74    | 8264     | 8348 | 8432 | 8516 | 8600 | 8684 | 8768 | 8852 | 8936 | 9020 |       |               |
| 75    | 9104     | 9187 | 9271 | 9355 | 9439 | 9523 | 9607 | 9691 | 9775 | 9859 |       |               |
| 76    | * 9943   | +027 | 0110 | 0194 | 0278 | 0362 | 0446 | 0530 | 0614 | 0698 |       |               |
| 77    | 714 0782 | 0866 | 0949 | 1033 | 1117 | 1201 | 1285 | 1369 | 1453 | 1537 |       |               |
| 78    | 1620     | 1704 | 1788 | 1872 | 1956 | 2040 | 2124 | 2208 | 2291 | 2375 |       |               |
| 79    | 2459     | 2543 | 2627 | 2711 | 2795 | 2878 | 2962 | 3046 | 3130 | 3214 |       |               |
| 51 80 | 3298     | 3381 | 3465 | 3549 | 3633 | 3717 | 3801 | 3884 | 3968 | 4052 |       |               |
| 81    | 4136     | 4220 | 4304 | 4387 | 4471 | 4555 | 4639 | 4723 | 4806 | 4890 |       |               |
| 82    | 4974     | 5058 | 5142 | 5226 | 5309 | 5393 | 5477 | 5561 | 5645 | 5728 |       |               |
| 83    | 5812     | 5896 | 5980 | 6063 | 6147 | 6231 | 6315 | 6399 | 6482 | 6566 |       |               |
| 84    | 6650     | 6734 | 6817 | 6901 | 6985 | 7069 | 7153 | 7236 | 7320 | 7404 |       |               |
| 85    | 7488     | 7571 | 7655 | 7739 | 7823 | 7906 | 7990 | 8074 | 8158 | 8241 |       |               |
| 86    | 8325     | 8409 | 8493 | 8576 | 8660 | 8744 | 8828 | 8911 | 8995 | 9079 |       |               |
| 87    | 9162     | 9246 | 9330 | 9414 | 9497 | 9581 | 9665 | 9749 | 9832 | 9916 |       |               |
| 88    | 715 0000 | 0083 | 0167 | 0251 | 0335 | 0418 | 0502 | 0586 | 0669 | 0753 |       |               |
| 89    | 0837     | 0920 | 1004 | 1088 | 1171 | 1255 | 1339 | 1423 | 1506 | 1590 |       |               |
| 51 90 | 1674     | 1757 | 1841 | 1925 | 2008 | 2092 | 2176 | 2259 | 2343 | 2427 |       |               |
| 91    | 2510     | 2594 | 2678 | 2761 | 2845 | 2929 | 3012 | 3096 | 3180 | 3263 |       | 1 83          |
| 92    | 3347     | 3430 | 3514 | 3598 | 3681 | 3765 | 3849 | 3932 | 4016 | 4100 |       | 2 166         |
| 93    | 4183     | 4267 | 4350 | 4434 | 4518 | 4601 | 4685 | 4769 | 4852 | 4936 |       | 3 249         |
| 94    | 5019     | 5103 | 5187 | 5270 | 5354 | 5438 | 5521 | 5605 | 5688 | 5772 |       | 4 332         |
| 95    | 5856     | 5939 | 6023 | 6106 | 6190 | 6273 | 6357 | 6441 | 6524 | 6608 |       | 5 415         |
| 96    | .6691    | 6775 | 6859 | 6942 | 7026 | 7109 | 7193 | 7276 | 7360 | 7444 |       | 6 498         |
| 97    | 7527     | 7611 | 7694 | 7778 | 7861 | 7945 | 8029 | 8112 | 8196 | 8279 |       | 7 581         |
| 98    | 8363     | 8446 | 8530 | 8613 | 8697 | 8780 | 8864 | 8948 | 9031 | 9115 |       | 8 664         |
| 99    | 9198     | 9282 | 9365 | 9449 | 9532 | 9616 | 9699 | 9783 | 9866 | 9950 |       | 9 747         |
| Num.  | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1      | 2      | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|--------|--------|------|------|------|------|------|------|------|-------|---------------|
| <b>5200</b> | <b>716</b> | 0033   | 0117   | 0200 | 0284 | 0367 | 0451 | 0535 | 0618 | 0702 | 0785  |               |
| 01          |            | 0869   | 0952   | 1036 | 1119 | 1203 | 1286 | 1370 | 1453 | 1537 | 1620  |               |
| 02          |            | 1703   | 1787   | 1870 | 1954 | 2037 | 2121 | 2204 | 2288 | 2371 | 2455  |               |
| 03          |            | 2538   | 2622   | 2705 | 2789 | 2872 | 2956 | 3039 | 3123 | 3206 | 3289  |               |
| 04          |            | 3373   | 3456   | 3540 | 3623 | 3707 | 3790 | 3874 | 3957 | 4040 | 4124  |               |
| 05          |            | 4207   | 4291   | 4374 | 4458 | 4541 | 4625 | 4708 | 4791 | 4875 | 4958  |               |
| 06          |            | 5042   | 5125   | 5208 | 5292 | 5375 | 5459 | 5542 | 5626 | 5709 | 5792  |               |
| 07          |            | 5876   | 5959   | 6043 | 6126 | 6209 | 6293 | 6376 | 6460 | 6543 | 6626  |               |
| 08          |            | 6710   | 6793   | 6877 | 6960 | 7043 | 7127 | 7210 | 7293 | 7377 | 7460  |               |
| 09          |            | 7544   | 7627   | 7710 | 7794 | 7877 | 7960 | 8044 | 8127 | 8211 | 8294  |               |
| 52 10       |            | 8377   | 8461   | 8544 | 8627 | 8711 | 8794 | 8877 | 8961 | 9044 | 9127  | 1 84          |
| 11          |            | 9211   | 9294   | 9377 | 9461 | 9544 | 9627 | 9711 | 9794 | 9877 | 9961  | 2 168         |
| 12          | 717        | 0044   | 0127   | 0211 | 0294 | 0377 | 0461 | 0544 | 0627 | 0711 | 0794  | 3 252         |
| 13          |            | 0877   | 0961   | 1044 | 1127 | 1210 | 1294 | 1377 | 1460 | 1544 | 1627  | 4 336         |
| 14          |            | 1710   | 1794   | 1877 | 1960 | 2043 | 2127 | 2210 | 2293 | 2377 | 2460  | 5 420         |
| 15          |            | 2543   | 2626   | 2710 | 2793 | 2876 | 2959 | 3043 | 3126 | 3209 | 3293  | 6 504         |
| 16          |            | 3376   | 3459   | 3542 | 3626 | 3709 | 3792 | 3875 | 3959 | 4042 | 4125  | 7 588         |
| 17          |            | 4208   | 4292   | 4375 | 4458 | 4541 | 4625 | 4708 | 4791 | 4874 | 4958  | 8 672         |
| 18          |            | 5041   | 5124   | 5207 | 5290 | 5374 | 5457 | 5540 | 5623 | 5707 | 5790  | 9 756         |
| 19          |            | 5873   | 5956   | 6039 | 6123 | 6206 | 6289 | 6372 | 6455 | 6539 | 6622  |               |
| 52 20       |            | 6705   | 6788   | 6871 | 6955 | 7038 | 7121 | 7204 | 7287 | 7371 | 7454  |               |
| 21          |            | 7537   | 7620   | 7703 | 7786 | 7870 | 7953 | 8036 | 8119 | 8202 | 8286  |               |
| 22          |            | 8369   | 8452   | 8535 | 8618 | 8701 | 8784 | 8868 | 8951 | 9034 | 9117  |               |
| 23          |            | 9200   | 9283   | 9367 | 9450 | 9533 | 9616 | 9699 | 9782 | 9865 | 9949  |               |
| 24          | 718        | 0032   | 0115   | 0198 | 0281 | 0364 | 0447 | 0530 | 0614 | 0697 | 0780  |               |
| 25          |            | 0863   | 0946   | 1029 | 1112 | 1195 | 1279 | 1362 | 1445 | 1528 | 1611  |               |
| 26          |            | 1694   | 1777   | 1860 | 1943 | 2026 | 2110 | 2193 | 2276 | 2359 | 2442  |               |
| 27          |            | 2525   | 2608   | 2691 | 2774 | 2857 | 2940 | 3023 | 3107 | 3190 | 3273  |               |
| 28          |            | 3356   | 3439   | 3522 | 3605 | 3688 | 3771 | 3854 | 3937 | 4020 | 4103  |               |
| 29          |            | 4186   | 4269   | 4353 | 4436 | 4519 | 4602 | 4685 | 4768 | 4851 | 4934  |               |
| 52 30       |            | 5017   | 5100   | 5183 | 5266 | 5349 | 5432 | 5515 | 5598 | 5681 | 5764  |               |
| 31          |            | 5847   | 5930   | 6013 | 6096 | 6179 | 6262 | 6345 | 6428 | 6511 | 6594  |               |
| 32          |            | 6677   | 6760   | 6843 | 6926 | 7009 | 7092 | 7175 | 7258 | 7341 | 7424  |               |
| 33          |            | 7507   | 7590   | 7673 | 7756 | 7839 | 7922 | 8005 | 8088 | 8171 | 8254  |               |
| 34          |            | 8337   | 8420   | 8503 | 8586 | 8669 | 8752 | 8835 | 8918 | 9001 | 9084  |               |
| 35          |            | 9167   | 9250   | 9333 | 9416 | 9499 | 9582 | 9665 | 9748 | 9831 | 9913  |               |
| 36          |            | * 9996 | * 0079 | 0162 | 0245 | 0328 | 0411 | 0494 | 0577 | 0660 | 0743  |               |
| 37          | 719        | 0826   | 0909   | 0992 | 1075 | 1157 | 1240 | 1323 | 1406 | 1489 | 1572  |               |
| 38          |            | 1655   | 1738   | 1821 | 1904 | 1987 | 2069 | 2152 | 2235 | 2318 | 2401  |               |
| 39          |            | 2484   | 2567   | 2650 | 2733 | 2816 | 2898 | 2981 | 3064 | 3147 | 3230  |               |
| 52 40       |            | 3313   | 3396   | 3479 | 3562 | 3644 | 3727 | 3810 | 3893 | 3976 | 4059  |               |
| 41          |            | 4142   | 4224   | 4307 | 4390 | 4473 | 4556 | 4639 | 4722 | 4804 | 4887  |               |
| 42          |            | 4970   | 5053   | 5136 | 5219 | 5302 | 5384 | 5467 | 5550 | 5633 | 5716  |               |
| 43          |            | 5799   | 5881   | 5964 | 6047 | 6130 | 6213 | 6296 | 6378 | 6461 | 6544  |               |
| 44          |            | 6627   | 6710   | 6792 | 6875 | 6958 | 7041 | 7124 | 7207 | 7289 | 7372  | 1 83          |
| 45          |            | 7455   | 7538   | 7621 | 7703 | 7786 | 7869 | 7952 | 8034 | 8117 | 8200  | 2 166         |
| 46          |            | 8283   | 8366   | 8448 | 8531 | 8614 | 8697 | 8780 | 8862 | 8945 | 9028  | 3 249         |
| 47          |            | 9111   | 9193   | 9276 | 9359 | 9442 | 9524 | 9607 | 9690 | 9773 | 9856  | 4 332         |
| 48          |            | * 9938 | * 0021 | 0104 | 0187 | 0269 | 0352 | 0435 | 0518 | 0600 | 0683  | 5 415         |
| 49          | 720        | 0766   | 0848   | 0931 | 1014 | 1097 | 1179 | 1262 | 1345 | 1428 | 1510  | 6 498         |
| 52 50       |            | 1593   | 1676   | 1758 | 1841 | 1924 | 2007 | 2089 | 2172 | 2255 | 2337  | 7 581         |
| 51          |            | 2420   | 2503   | 2586 | 2668 | 2751 | 2834 | 2916 | 2999 | 3082 | 3164  | 8 664         |
| 52          |            | 3247   | 3330   | 3413 | 3495 | 3578 | 3661 | 3743 | 3826 | 3909 | 3991  | 9 747         |
| 53          |            | 4074   | 4157   | 4239 | 4322 | 4405 | 4487 | 4570 | 4653 | 4735 | 4818  |               |
| 54          |            | 4901   | 4983   | 5066 | 5149 | 5231 | 5314 | 5397 | 5479 | 5562 | 5645  |               |
| 55          |            | 5727   | 5810   | 5892 | 5975 | 6058 | 6140 | 6223 | 6306 | 6388 | 6471  |               |
| 56          |            | 6554   | 6636   | 6719 | 6801 | 6884 | 6967 | 7049 | 7132 | 7215 | 7297  |               |
| 57          |            | 7380   | 7462   | 7545 | 7628 | 7710 | 7793 | 7875 | 7958 | 8041 | 8123  |               |
| 58          |            | 8206   | 8288   | 8371 | 8454 | 8536 | 8619 | 8701 | 8784 | 8867 | 8949  |               |
| 59          |            | 9031   | 9114   | 9197 | 9279 | 9362 | 9445 | 9527 | 9610 | 9692 | 9775  |               |
| Num.        | 0          | 1      | 2      | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0        | 1    | 2    | 3    | 4    | 5     | 6    | 7     | 8    | 9     | Diff. | Diff. & Mult. |
|-------|----------|------|------|------|------|-------|------|-------|------|-------|-------|---------------|
| 5260  | • 9857   | 9940 | •023 | 0105 | 0188 | 0270  | 0353 | 0435  | 0518 | 0600  |       | 1   83        |
| 61    | 721 0683 | 0766 | 0848 | 0931 | 1013 | 1096  | 1178 | 1261  | 1343 | 1426  |       | 2   166       |
| 62    | 1508     | 1591 | 1674 | 1756 | 1839 | 1921  | 2004 | 2086  | 2169 | 2251  |       | 3   249       |
| 63    | 2334     | 2416 | 2499 | 2581 | 2664 | 2746  | 2829 | 2911  | 2994 | 3076  |       | 4   332       |
| 64    | 3159     | 3241 | 3324 | 3406 | 3489 | 3571  | 3654 | 3736  | 3819 | 3901  |       | 5   415       |
| 65    | 3984     | 4066 | 4149 | 4231 | 4314 | 4396  | 4479 | 4561  | 4644 | 4726  |       | 6   498       |
| 66    | 4809     | 4891 | 4973 | 5056 | 5138 | 5221  | 5303 | 5386  | 5468 | 5551  |       | 7   581       |
| 67    | 5633     | 5716 | 5798 | 5881 | 5963 | 6045  | 6128 | 6210  | 6293 | 6375  |       | 8   664       |
| 68    | 6458     | 6540 | 6623 | 6705 | 6787 | 6870  | 6952 | 7035  | 7117 | 7200  |       | 9   747       |
| 69    | 7282     | 7364 | 7447 | 7529 | 7612 | 7694  | 7777 | 7859  | 7941 | 8024  |       |               |
| 52 70 | 8106     | 8189 | 8271 | 8353 | 8436 | 8518  | 8601 | 8683  | 8765 | 8848  |       |               |
| 71    | 8930     | 9013 | 9095 | 9177 | 9260 | 9342  | 9424 | 9507  | 9589 | 9672  |       |               |
| 72    | • 9754   | 9836 | 9919 | •001 | 0084 | 0166  | 0248 | 0331  | 0413 | 0495  |       |               |
| 73    | 722 0578 | 0660 | 0742 | 0825 | 0907 | 0990  | 1072 | 1154  | 1237 | 1319  |       |               |
| 74    | 1401     | 1484 | 1566 | 1648 | 1731 | 1813  | 1895 | 1978  | 2060 | 2142  |       |               |
| 75    | 2225     | 2307 | 2389 | 2472 | 2554 | 2636  | 2719 | 2801  | 2883 | 2966  |       |               |
| 76    | 3048     | 3130 | 3212 | 3295 | 3377 | 3459  | 3542 | 3624  | 3706 | 3789  |       |               |
| 77    | 3871     | 3953 | 4036 | 4118 | 4200 | 4282  | 4365 | 4447  | 4529 | 4612  |       |               |
| 78    | 4694     | 4776 | 4858 | 4941 | 5023 | 5105  | 5188 | 5270  | 5352 | 5434  |       |               |
| 79    | 5517     | 5599 | 5681 | 5763 | 5846 | 5928  | 6010 | 6092  | 6175 | 6257  |       |               |
| 52 80 | 6339     | 6421 | 6504 | 6586 | 6668 | 6750  | 6833 | 6915  | 6997 | 7079  |       |               |
| 81    | 7162     | 7244 | 7326 | 7408 | 7491 | 7573  | 7655 | 7737  | 7820 | 7902  |       |               |
| 82    | 7984     | 8066 | 8148 | 8231 | 8313 | 8395  | 8477 | 8559  | 8642 | 8724  |       |               |
| 83    | 8806     | 8888 | 8971 | 9053 | 9135 | 9217  | 9299 | 9382  | 9464 | 9546  |       |               |
| 84    | • 9628   | 9710 | 9792 | 9875 | 9957 | •0039 | 0121 | 0203  | 0286 | 0368  |       |               |
| 85    | 723 0450 | 0532 | 0614 | 0696 | 0779 | 0861  | 0943 | 1025  | 1107 | 1189  |       | 1   82        |
| 86    | 1272     | 1354 | 1436 | 1518 | 1600 | 1682  | 1765 | 1847  | 1929 | 2011  |       | 2   164       |
| 87    | 2093     | 2175 | 2257 | 2340 | 2422 | 2504  | 2586 | 2668  | 2750 | 2832  |       | 3   246       |
| 88    | 2914     | 2997 | 3079 | 3161 | 3243 | 3325  | 3407 | 3489  | 3571 | 3654  |       | 4   328       |
| 89    | 3736     | 3818 | 3900 | 3982 | 4064 | 4146  | 4228 | 4310  | 4393 | 4475  |       | 5   410       |
| 52 90 | 4557     | 4639 | 4721 | 4803 | 4885 | 4967  | 5049 | 5131  | 5213 | 5296  |       | 6   492       |
| 91    | 5378     | 5460 | 5542 | 5624 | 5706 | 5788  | 5870 | 5952  | 6034 | 6116  |       | 7   574       |
| 92    | 6198     | 6280 | 6362 | 6444 | 6527 | 6609  | 6691 | 6773  | 6855 | 6937  |       | 8   656       |
| 93    | 7019     | 7101 | 7183 | 7265 | 7347 | 7429  | 7511 | 7593  | 7675 | 7757  |       | 9   738       |
| 94    | 7839     | 7921 | 8003 | 8086 | 8167 | 8250  | 8332 | 8414  | 8496 | 8578  |       |               |
| 95    | 8660     | 8742 | 8824 | 8906 | 8988 | 9070  | 9152 | 9234  | 9316 | 9398  |       |               |
| 96    | • 9480   | 9562 | 9644 | 9726 | 9808 | 9890  | 9972 | •0054 | 0136 | 0218  |       |               |
| 97    | 724 0300 | 0382 | 0464 | 0546 | 0628 | 0710  | 0792 | 0874  | 0956 | 1038  |       |               |
| 98    | 1120     | 1202 | 1283 | 1365 | 1447 | 1529  | 1611 | 1693  | 1775 | 1857  |       |               |
| 99    | 1939     | 2021 | 2103 | 2185 | 2267 | 2349  | 2431 | 2513  | 2595 | 2677  |       |               |
| 53 00 | 2759     | 2841 | 2923 | 3005 | 3086 | 3168  | 3250 | 3332  | 3414 | 3496  |       |               |
| 01    | 3578     | 3660 | 3742 | 3824 | 3906 | 3988  | 4070 | 4151  | 4233 | 4315  |       |               |
| 02    | 4397     | 4479 | 4561 | 4643 | 4725 | 4807  | 4889 | 4971  | 5052 | 5134  |       |               |
| 03    | 5216     | 5298 | 5380 | 5462 | 5544 | 5626  | 5708 | 5790  | 5871 | 5953  |       |               |
| 04    | 6035     | 6117 | 6199 | 6281 | 6363 | 6445  | 6526 | 6608  | 6690 | 6772  |       |               |
| 05    | 6854     | 6936 | 7018 | 7099 | 7181 | 7263  | 7345 | 7427  | 7509 | 7591  |       |               |
| 06    | 7672     | 7754 | 7836 | 7918 | 8000 | 8082  | 8164 | 8245  | 8327 | 8409  |       |               |
| 07    | 8491     | 8573 | 8655 | 8736 | 8818 | 8900  | 8982 | 9064  | 9146 | 9227  |       |               |
| 08    | • 9309   | 9391 | 9473 | 9555 | 9636 | 9718  | 9800 | 9882  | 9964 | •0045 |       |               |
| 09    | 725 0127 | 0209 | 0291 | 0373 | 0454 | 0536  | 0618 | 0700  | 0782 | 0863  |       |               |
| 53 10 | 0945     | 1027 | 1109 | 1191 | 1272 | 1354  | 1436 | 1518  | 1599 | 1681  |       |               |
| 11    | 1763     | 1845 | 1927 | 2008 | 2090 | 2172  | 2254 | 2335  | 2417 | 2499  |       |               |
| 12    | 2581     | 2662 | 2744 | 2826 | 2908 | 2989  | 3071 | 3153  | 3235 | 3316  |       |               |
| 13    | 3398     | 3480 | 3562 | 3643 | 3725 | 3807  | 3889 | 3971  | 4052 | 4134  |       |               |
| 14    | 4216     | 4297 | 4379 | 4461 | 4542 | 4624  | 4706 | 4788  | 4869 | 4951  |       |               |
| 15    | 5033     | 5114 | 5196 | 5278 | 5360 | 5441  | 5523 | 5605  | 5686 | 5768  |       |               |
| 16    | 5850     | 5931 | 6013 | 6095 | 6176 | 6258  | 6340 | 6422  | 6503 | 6585  |       |               |
| 17    | 6667     | 6748 | 6830 | 6912 | 6993 | 7075  | 7157 | 7238  | 7320 | 7402  |       |               |
| 18    | 7483     | 7565 | 7647 | 7728 | 7810 | 7892  | 7973 | 8055  | 8137 | 8218  |       |               |
| 19    | 8300     | 8382 | 8463 | 8545 | 8626 | 8708  | 8790 | 8871  | 8953 | 9035  |       |               |
| Num.  | 0        | 1    | 2    | 3    | 4    | 5     | 6    | 7     | 8    | 9     | Diff. | Diff. & Mult. |
|       |          |      |      |      |      |       |      |       |      |       |       | 1   81        |
|       |          |      |      |      |      |       |      |       |      |       |       | 2   162       |
|       |          |      |      |      |      |       |      |       |      |       |       | 3   243       |
|       |          |      |      |      |      |       |      |       |      |       |       | 4   324       |
|       |          |      |      |      |      |       |      |       |      |       |       | 5   405       |
|       |          |      |      |      |      |       |      |       |      |       |       | 6   486       |
|       |          |      |      |      |      |       |      |       |      |       |       | 7   567       |
|       |          |      |      |      |      |       |      |       |      |       |       | 8   648       |
|       |          |      |      |      |      |       |      |       |      |       |       | 9   729       |

82

| Num.        | 0          | 1    | 2    | 3    | 4     | 5    | 6    | 7    | 8     | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|-------|------|------|------|-------|------|-------|---------------|
| <b>5320</b> | <b>725</b> | 9116 | 9198 | 9280 | 9361  | 9443 | 9524 | 9606 | 9688  | 9769 | 9851  |               |
| 21          | * 9933     | •014 | 0096 | 0177 | 0259  |      | 0341 | 0422 | 0504  | 0585 | 0667  |               |
| 22          | 726        | 0749 | 0830 | 0912 | 0994  | 1075 | 1157 | 1238 | 1320  | 1401 | 1483  |               |
| 23          |            | 1565 | 1646 | 1728 | 1809  | 1891 | 1973 | 2054 | 2136  | 2217 | 2299  |               |
| 24          |            | 2380 | 2462 | 2544 | 2625  | 2707 | 2788 | 2870 | 2951  | 3033 | 3115  |               |
| 25          |            | 3196 | 3278 | 3359 | 3441  | 3522 | 3604 | 3685 | 3767  | 3849 | 3930  |               |
| 26          |            | 4012 | 4093 | 4175 | 4256  | 4338 | 4419 | 4501 | 4582  | 4664 | 4745  |               |
| 27          |            | 4827 | 4908 | 4990 | 5072  | 5153 | 5235 | 5316 | 5398  | 5479 | 5561  |               |
| 28          |            | 5642 | 5724 | 5805 | 5887  | 5968 | 6050 | 6131 | 6213  | 6294 | 6376  |               |
| 29          |            | 6457 | 6539 | 6620 | 6702  | 6783 | 6865 | 6946 | 7028  | 7109 | 7191  |               |
| 53 30       |            | 7272 | 7354 | 7435 | 7517  | 7598 | 7679 | 7761 | 7842  | 7924 | 8005  |               |
| 31          |            | 8087 | 8168 | 8250 | 8331  | 8413 | 8494 | 8576 | 8657  | 8739 | 8820  |               |
| 32          |            | 8901 | 8983 | 9064 | 9146  | 9227 | 9309 | 9390 | 9472  | 9553 | 9634  |               |
| 33          | * 9716     | 9797 | 9879 | 9960 | •0042 |      | 0123 | 0204 | 0286  | 0367 | 0449  |               |
| 34          | 727        | 0530 | 0612 | 0693 | 0774  | 0856 | 0937 | 1019 | 1100  | 1181 | 1263  |               |
| 35          |            | 1344 | 1426 | 1507 | 1588  | 1670 | 1751 | 1833 | 1914  | 1995 | 2077  |               |
| 36          |            | 2158 | 2240 | 2321 | 2402  | 2484 | 2565 | 2647 | 2728  | 2809 | 2891  |               |
| 37          |            | 2972 | 3053 | 3135 | 3216  | 3298 | 3379 | 3460 | 3542  | 3623 | 3704  |               |
| 38          |            | 3786 | 3867 | 3948 | 4030  | 4111 | 4192 | 4274 | 4355  | 4437 | 4518  |               |
| 39          |            | 4599 | 4681 | 4762 | 4843  | 4925 | 5006 | 5087 | 5169  | 5250 | 5331  |               |
| 53 40       |            | 5413 | 5494 | 5575 | 5657  | 5738 | 5819 | 5901 | 5982  | 6063 | 6144  |               |
| 41          |            | 6226 | 6307 | 6388 | 6470  | 6551 | 6632 | 6714 | 6795  | 6876 | 6958  |               |
| 42          |            | 7039 | 7120 | 7201 | 7283  | 7364 | 7445 | 7527 | 7608  | 7689 | 7770  |               |
| 43          |            | 7852 | 7933 | 8014 | 8096  | 8177 | 8258 | 8339 | 8421  | 8502 | 8583  |               |
| 44          |            | 8664 | 8746 | 8827 | 8908  | 8990 | 9071 | 9152 | 9233  | 9315 | 9396  |               |
| 45          | * 9477     | 9558 | 9640 | 9721 | 9802  |      | 9883 | 9965 | •0046 | 0127 | 0208  |               |
| 46          | 728        | 0290 | 0371 | 0452 | 0533  | 0614 | 0696 | 0777 | 0858  | 0939 | 1021  |               |
| 47          |            | 1102 | 1183 | 1264 | 1346  | 1427 | 1508 | 1589 | 1670  | 1752 | 1833  |               |
| 48          |            | 1914 | 1995 | 2076 | 2158  | 2239 | 2320 | 2401 | 2482  | 2564 | 2645  |               |
| 49          |            | 2726 | 2807 | 2888 | 2970  | 3051 | 3132 | 3213 | 3294  | 3375 | 3457  |               |
| 53 50       |            | 3538 | 3619 | 3700 | 3781  | 3863 | 3944 | 4025 | 4106  | 4187 | 4268  |               |
| 51          |            | 4350 | 4431 | 4512 | 4593  | 4674 | 4755 | 4836 | 4918  | 4999 | 5080  |               |
| 52          |            | 5161 | 5242 | 5323 | 5404  | 5486 | 5567 | 5648 | 5729  | 5810 | 5891  |               |
| 53          |            | 5972 | 6054 | 6135 | 6216  | 6297 | 6378 | 6459 | 6540  | 6621 | 6703  |               |
| 54          |            | 6784 | 6865 | 6946 | 7027  | 7108 | 7189 | 7270 | 7351  | 7433 | 7514  |               |
| 55          |            | 7595 | 7676 | 7757 | 7838  | 7919 | 8000 | 8081 | 8162  | 8244 | 8325  |               |
| 56          |            | 8406 | 8487 | 8568 | 8649  | 8730 | 8811 | 8892 | 8973  | 9054 | 9135  |               |
| 57          |            | 9216 | 9298 | 9379 | 9460  | 9541 | 9622 | 9703 | 9784  | 9865 | 9946  |               |
| 58          | 729        | 0027 | 0108 | 0189 | 0270  | 0351 | 0432 | 0513 | 0594  | 0675 | 0757  |               |
| 59          |            | 0838 | 0919 | 1000 | 1081  | 1162 | 1243 | 1324 | 1405  | 1486 | 1567  |               |
| 53 60       |            | 1648 | 1729 | 1810 | 1891  | 1972 | 2053 | 2134 | 2215  | 2296 | 2377  |               |
| 61          |            | 2458 | 2539 | 2620 | 2701  | 2782 | 2863 | 2944 | 3025  | 3106 | 3187  |               |
| 62          |            | 3268 | 3349 | 3430 | 3511  | 3592 | 3673 | 3754 | 3835  | 3916 | 3997  |               |
| 63          |            | 4078 | 4159 | 4240 | 4321  | 4402 | 4483 | 4564 | 4645  | 4726 | 4807  |               |
| 64          |            | 4888 | 4969 | 5050 | 5131  | 5212 | 5292 | 5373 | 5454  | 5535 | 5616  |               |
| 65          |            | 5697 | 5778 | 5859 | 5940  | 6021 | 6102 | 6183 | 6264  | 6345 | 6426  |               |
| 66          |            | 6507 | 6588 | 6669 | 6749  | 6830 | 6911 | 6992 | 7073  | 7154 | 7235  |               |
| 67          |            | 7316 | 7397 | 7478 | 7559  | 7640 | 7721 | 7801 | 7882  | 7963 | 8044  |               |
| 68          |            | 8125 | 8206 | 8287 | 8368  | 8449 | 8530 | 8610 | 8691  | 8772 | 8853  |               |
| 69          |            | 8934 | 9015 | 9096 | 9177  | 9258 | 9338 | 9419 | 9500  | 9581 | 9662  |               |
| 53 70       | * 9743     | 9824 | 9905 | 9985 | •0066 |      | 0147 | 0228 | 0309  | 0390 | 0471  |               |
| 71          | 730        | 0552 | 0632 | 0713 | 0794  | 0875 | 0956 | 1037 | 1118  | 1198 | 1279  |               |
| 72          |            | 1360 | 1441 | 1522 | 1603  | 1683 | 1764 | 1845 | 1926  | 2007 | 2088  |               |
| 73          |            | 2168 | 2249 | 2330 | 2411  | 2492 | 2573 | 2653 | 2734  | 2815 | 2896  |               |
| 74          |            | 2977 | 3057 | 3138 | 3219  | 3300 | 3381 | 3461 | 3542  | 3623 | 3704  |               |
| 75          |            | 3785 | 3865 | 3946 | 4027  | 4108 | 4189 | 4269 | 4350  | 4431 | 4512  |               |
| 76          |            | 4593 | 4673 | 4754 | 4835  | 4916 | 4997 | 5077 | 5158  | 5239 | 5320  |               |
| 77          |            | 5400 | 5481 | 5562 | 5643  | 5723 | 5804 | 5885 | 5966  | 6046 | 6127  |               |
| 78          |            | 6208 | 6289 | 6369 | 6450  | 6531 | 6612 | 6692 | 6773  | 6854 | 6935  |               |
| 79          |            | 7015 | 7096 | 7177 | 7258  | 7338 | 7419 | 7500 | 7581  | 7661 | 7742  |               |
| Num.        | 0          | 1    | 2    | 3    | 4     | 5    | 6    | 7    | 8     | 9    | Diff. | Diff. & Mult. |

|   |     |
|---|-----|
| 1 | 82  |
| 2 | 164 |
| 3 | 246 |
| 4 | 328 |
| 5 | 410 |
| 6 | 492 |
| 7 | 574 |
| 8 | 656 |
| 9 | 738 |

81

|   |     |
|---|-----|
| 1 | 81  |
| 2 | 162 |
| 3 | 243 |
| 4 | 324 |
| 5 | 405 |
| 6 | 486 |
| 7 | 567 |
| 8 | 648 |
| 9 | 729 |

LOGARITHMS OF NUMBERS.

| Num.  | 0   | 1    | 2     | 3     | 4    | 5    | 6    | 7     | 8    | 9    |      |
|-------|-----|------|-------|-------|------|------|------|-------|------|------|------|
| 5380  | 730 | 7823 | 7903  | 7984  | 8065 | 8146 | 8226 | 8307  | 8388 | 8468 | 8549 |
| 81    |     | 8630 | 8711  | 8791  | 8872 | 8953 | 9033 | 9114  | 9195 | 9276 | 9356 |
| 82    | *   | 9437 | 9518  | 9598  | 9679 | 9760 | 9840 | 9921  | •002 | 0082 | 0163 |
| 83    | 731 | 0244 | 0324  | 0405  | 0486 | 0567 | 0647 | 0728  | 0809 | 0889 | 0970 |
| 84    |     | 1051 | 1131  | 1212  | 1292 | 1373 | 1454 | 1534  | 1615 | 1696 | 1776 |
| 85    |     | 1857 | 1938  | 2018  | 2099 | 2180 | 2260 | 2341  | 2422 | 2502 | 2583 |
| 86    |     | 2663 | 2744  | 2825  | 2905 | 2986 | 3067 | 3147  | 3228 | 3309 | 3389 |
| 87    |     | 3470 | 3550  | 3631  | 3712 | 3792 | 3873 | 3953  | 4034 | 4115 | 4195 |
| 88    |     | 4276 | 4356  | 4437  | 4518 | 4598 | 4679 | 4759  | 4840 | 4921 | 5001 |
| 89    |     | 5082 | 5162  | 5243  | 5324 | 5404 | 5485 | 5565  | 5646 | 5727 | 5807 |
| 53 90 |     | 5888 | 5968  | 6049  | 6129 | 6210 | 6291 | 6371  | 6452 | 6532 | 6613 |
| 91    |     | 6693 | 6774  | 6854  | 6935 | 7016 | 7096 | 7177  | 7257 | 7338 | 7418 |
| 92    |     | 7499 | 7579  | 7660  | 7740 | 7821 | 7902 | 7982  | 8063 | 8143 | 8224 |
| 93    |     | 8304 | 8385  | 8465  | 8546 | 8626 | 8707 | 8787  | 8868 | 8948 | 9029 |
| 94    |     | 9109 | 9190  | 9270  | 9351 | 9431 | 9512 | 9592  | 9673 | 9753 | 9834 |
| 95    | *   | 9914 | 9995  | •0075 | 0156 | 0236 | 0317 | 0397  | 0478 | 0558 | 0639 |
| 96    | 732 | 0719 | 0800  | 0880  | 0961 | 1041 | 1122 | 1202  | 1283 | 1363 | 1444 |
| 97    |     | 1524 | 1605  | 1685  | 1766 | 1846 | 1927 | 2007  | 2087 | 2168 | 2248 |
| 98    |     | 2329 | 2409  | 2490  | 2570 | 2651 | 2731 | 2812  | 2892 | 2972 | 3053 |
| 99    |     | 3133 | 3214  | 3294  | 3375 | 3455 | 3535 | 3616  | 3696 | 3777 | 3857 |
| 54 00 |     | 3938 | 4018  | 4098  | 4179 | 4259 | 4340 | 4420  | 4501 | 4581 | 4661 |
| 01    |     | 4742 | 4822  | 4903  | 4983 | 5063 | 5144 | 5224  | 5305 | 5385 | 5465 |
| 02    |     | 5546 | 5626  | 5707  | 5787 | 5867 | 5948 | 6028  | 6109 | 6189 | 6269 |
| 03    |     | 6350 | 6430  | 6510  | 6591 | 6671 | 6752 | 6832  | 6912 | 6993 | 7073 |
| 04    |     | 7153 | 7234  | 7314  | 7394 | 7475 | 7555 | 7636  | 7716 | 7796 | 7877 |
| 05    |     | 7957 | 8037  | 8118  | 8198 | 8278 | 8359 | 8439  | 8519 | 8600 | 8680 |
| 06    |     | 8760 | 8841  | 8921  | 9001 | 9082 | 9162 | 9242  | 9323 | 9403 | 9483 |
| 07    | *   | 9564 | 9644  | 9724  | 9805 | 9885 | 9965 | •0046 | 0126 | 0206 | 0287 |
| 08    | 733 | 0367 | 0447  | 0527  | 0608 | 0688 | 0768 | 0849  | 0929 | 1009 | 1090 |
| 09    |     | 1170 | 1250  | 1330  | 1411 | 1491 | 1571 | 1652  | 1732 | 1812 | 1892 |
| 54 10 |     | 1973 | 2053  | 2133  | 2213 | 2294 | 2374 | 2454  | 2535 | 2615 | 2695 |
| 11    |     | 2775 | 2856  | 2936  | 3016 | 3096 | 3177 | 3257  | 3337 | 3417 | 3498 |
| 12    |     | 3578 | 3658  | 3738  | 3819 | 3899 | 3979 | 4059  | 4140 | 4220 | 4300 |
| 13    |     | 4380 | 4461  | 4541  | 4621 | 4701 | 4781 | 4862  | 4942 | 5022 | 5102 |
| 14    |     | 5183 | 5263  | 5343  | 5423 | 5503 | 5584 | 5664  | 5744 | 5824 | 5904 |
| 15    |     | 5985 | 6065  | 6145  | 6225 | 6305 | 6386 | 6466  | 6546 | 6626 | 6706 |
| 16    |     | 6787 | 6867  | 6947  | 7027 | 7107 | 7187 | 7268  | 7348 | 7428 | 7508 |
| 17    |     | 7588 | 7669  | 7749  | 7829 | 7909 | 7989 | 8069  | 8150 | 8230 | 8310 |
| 18    |     | 8390 | 8470  | 8550  | 8630 | 8711 | 8791 | 8871  | 8951 | 9031 | 9111 |
| 19    |     | 9192 | 9272  | 9352  | 9432 | 9512 | 9592 | 9672  | 9752 | 9833 | 9913 |
| 54 20 | *   | 9993 | •0073 | 0153  | 0233 | 0313 | 0393 | 0474  | 0554 | 0634 | 0714 |
| 21    | 734 | 0794 | 0874  | 0954  | 1034 | 1115 | 1195 | 1275  | 1355 | 1435 | 1515 |
| 22    |     | 1595 | 1675  | 1755  | 1835 | 1916 | 1996 | 2076  | 2156 | 2236 | 2316 |
| 23    |     | 2396 | 2476  | 2556  | 2636 | 2716 | 2796 | 2877  | 2957 | 3037 | 3117 |
| 24    |     | 3197 | 3277  | 3357  | 3437 | 3517 | 3597 | 3677  | 3757 | 3837 | 3917 |
| 25    |     | 3997 | 4077  | 4158  | 4238 | 4318 | 4398 | 4478  | 4558 | 4638 | 4718 |
| 26    |     | 4798 | 4878  | 4958  | 5038 | 5118 | 5198 | 5278  | 5358 | 5438 | 5518 |
| 27    |     | 5598 | 5678  | 5758  | 5838 | 5918 | 5998 | 6078  | 6158 | 6238 | 6318 |
| 28    |     | 6398 | 6478  | 6558  | 6638 | 6718 | 6798 | 6878  | 6958 | 7038 | 7118 |
| 29    |     | 7198 | 7278  | 7358  | 7438 | 7518 | 7598 | 7678  | 7758 | 7838 | 7918 |
| 54 30 |     | 7998 | 8078  | 8158  | 8238 | 8318 | 8398 | 8478  | 8558 | 8638 | 8718 |
| 31    |     | 8798 | 8878  | 8958  | 9038 | 9118 | 9198 | 9278  | 9358 | 9438 | 9518 |
| 32    | *   | 9598 | 9678  | 9758  | 9837 | 9917 | 9997 | •0077 | 0157 | 0237 | 0317 |
| 33    | 735 | 0397 | 0477  | 0557  | 0637 | 0717 | 0797 | 0877  | 0957 | 1036 | 1116 |
| 34    |     | 1196 | 1276  | 1356  | 1436 | 1516 | 1596 | 1676  | 1756 | 1836 | 1916 |
| 35    |     | 1995 | 2075  | 2155  | 2235 | 2315 | 2395 | 2475  | 2555 | 2635 | 2715 |
| 36    |     | 2794 | 2874  | 2954  | 3034 | 3114 | 3194 | 3274  | 3354 | 3434 | 3513 |
| 37    |     | 3593 | 3673  | 3753  | 3833 | 3913 | 3993 | 4073  | 4152 | 4232 | 4312 |
| 38    |     | 4392 | 4472  | 4552  | 4632 | 4711 | 4791 | 4871  | 4951 | 5031 | 5111 |
| 39    |     | 5191 | 5270  | 5350  | 5430 | 5510 | 5590 | 5670  | 5749 | 5829 | 5909 |

Diff. 80

| Diff. | Diff. & Mult. |
|-------|---------------|
| 1     | 81            |
| 2     | 162           |
| 3     | 243           |
| 4     | 324           |
| 5     | 405           |
| 6     | 486           |
| 7     | 567           |
| 8     | 648           |
| 9     | 729           |
| 1     | 80            |
| 2     | 160           |
| 3     | 240           |
| 4     | 320           |
| 5     | 400           |
| 6     | 480           |
| 7     | 560           |
| 8     | 640           |
| 9     | 720           |
| 1     | 79            |
| 2     | 158           |
| 3     | 237           |
| 4     | 316           |
| 5     | 395           |
| 6     | 474           |
| 7     | 553           |
| 8     | 632           |
| 9     | 711           |

| Num. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|------|---|---|---|---|---|---|---|---|---|---|
|------|---|---|---|---|---|---|---|---|---|---|

Diff. Diff. & Mult.

| Num.         | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|--------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>5440</b>  | <b>735</b> | 5989     | 6069     | 6149     | 6228     | 6308     | 6388     | 6468     | 6548     | 6628     | 6707         |                          |
| 41           |            | 6787     | 6867     | 6947     | 7027     | 7107     | 7186     | 7266     | 7346     | 7426     | 7506         |                          |
| 42           |            | 7585     | 7665     | 7745     | 7825     | 7905     | 7984     | 8064     | 8144     | 8224     | 8304         |                          |
| 43           |            | 8383     | 8463     | 8543     | 8623     | 8702     | 8782     | 8862     | 8942     | 9022     | 9101         |                          |
| 44           |            | 9181     | 9261     | 9341     | 9420     | 9500     | 9580     | 9660     | 9740     | 9819     | 9899         |                          |
| 45           | *          | 9979     | +059     | 0138     | 0218     | 0298     | 0378     | 0457     | 0537     | 0617     | 0697         |                          |
| 46           | 736        | 0776     | 0856     | 0936     | 1016     | 1095     | 1175     | 1255     | 1335     | 1414     | 1494         |                          |
| 47           |            | 1574     | 1653     | 1733     | 1813     | 1893     | 1972     | 2052     | 2132     | 2212     | 2291         |                          |
| 48           |            | 2371     | 2451     | 2530     | 2610     | 2690     | 2770     | 2849     | 2929     | 3009     | 3088         |                          |
| 49           |            | 3168     | 3248     | 3327     | 3407     | 3487     | 3567     | 3646     | 3726     | 3806     | 3885         |                          |
| <b>54 50</b> |            | 3965     | 4045     | 4124     | 4204     | 4284     | 4363     | 4443     | 4523     | 4602     | 4682         |                          |
| 51           |            | 4762     | 4841     | 4921     | 5001     | 5080     | 5160     | 5240     | 5319     | 5399     | 5479         |                          |
| 52           |            | 5558     | 5638     | 5718     | 5797     | 5877     | 5957     | 6036     | 6116     | 6196     | 6275         |                          |
| 53           |            | 6355     | 6435     | 6514     | 6594     | 6674     | 6753     | 6833     | 6912     | 6992     | 7072         |                          |
| 54           |            | 7151     | 7231     | 7311     | 7390     | 7470     | 7549     | 7629     | 7709     | 7788     | 7868         |                          |
| 55           |            | 7948     | 8027     | 8107     | 8186     | 8266     | 8346     | 8425     | 8505     | 8584     | 8664         |                          |
| 56           |            | 8744     | 8823     | 8903     | 8982     | 9062     | 9142     | 9221     | 9301     | 9380     | 9460         |                          |
| 57           | *          | 9540     | 9619     | 9699     | 9778     | 9858     | 9937     | +017     | 0097     | 0176     | 0256         |                          |
| 58           | 737        | 0335     | 0415     | 0494     | 0574     | 0654     | 0733     | 0813     | 0892     | 0972     | 1051         |                          |
| 59           |            | 1131     | 1210     | 1290     | 1370     | 1449     | 1529     | 1608     | 1688     | 1767     | 1847         |                          |
| <b>54 60</b> |            | 1926     | 2006     | 2086     | 2165     | 2245     | 2324     | 2404     | 2483     | 2563     | 2642         |                          |
| 61           |            | 2722     | 2801     | 2881     | 2960     | 3040     | 3119     | 3199     | 3278     | 3358     | 3437         |                          |
| 62           |            | 3517     | 3596     | 3676     | 3755     | 3835     | 3914     | 3994     | 4074     | 4153     | 4233         |                          |
| 63           |            | 4312     | 4392     | 4471     | 4550     | 4630     | 4709     | 4789     | 4868     | 4948     | 5027         |                          |
| 64           |            | 5107     | 5186     | 5266     | 5345     | 5425     | 5504     | 5584     | 5663     | 5743     | 5822         |                          |
| 65           |            | 5902     | 5981     | 6061     | 6140     | 6220     | 6299     | 6378     | 6458     | 6537     | 6617         |                          |
| 66           |            | 6696     | 6776     | 6855     | 6935     | 7014     | 7094     | 7173     | 7252     | 7332     | 7411         |                          |
| 67           |            | 7491     | 7570     | 7650     | 7729     | 7808     | 7888     | 7967     | 8047     | 8126     | 8206         |                          |
| 68           |            | 8285     | 8364     | 8444     | 8523     | 8603     | 8682     | 8762     | 8841     | 8920     | 9000         |                          |
| 69           |            | 9079     | 9159     | 9238     | 9317     | 9397     | 9476     | 9556     | 9635     | 9714     | 9794         |                          |
| <b>54 70</b> | *          | 9873     | 9953     | +032     | 0111     | 0191     | 0270     | 0350     | 0429     | 0508     | 0588         |                          |
| 71           | 738        | 0667     | 0747     | 0826     | 0905     | 0985     | 1064     | 1143     | 1223     | 1302     | 1382         |                          |
| 72           |            | 1461     | 1540     | 1620     | 1699     | 1778     | 1858     | 1937     | 2016     | 2096     | 2175         |                          |
| 73           |            | 2254     | 2334     | 2413     | 2493     | 2572     | 2651     | 2731     | 2810     | 2889     | 2969         |                          |
| 74           |            | 3048     | 3127     | 3207     | 3286     | 3365     | 3445     | 3524     | 3603     | 3683     | 3762         |                          |
| 75           |            | 3841     | 3921     | 4000     | 4079     | 4159     | 4238     | 4317     | 4396     | 4476     | 4555         |                          |
| 76           |            | 4634     | 4714     | 4793     | 4872     | 4952     | 5031     | 5110     | 5190     | 5269     | 5348         |                          |
| 77           |            | 5427     | 5507     | 5586     | 5665     | 5745     | 5824     | 5903     | 5982     | 6062     | 6141         |                          |
| 78           |            | 6220     | 6300     | 6379     | 6458     | 6537     | 6617     | 6696     | 6775     | 6854     | 6934         |                          |
| 79           |            | 7013     | 7092     | 7172     | 7251     | 7330     | 7409     | 7489     | 7568     | 7647     | 7726         |                          |
| <b>54 80</b> |            | 7806     | 7885     | 7964     | 8043     | 8123     | 8202     | 8281     | 8360     | 8440     | 8519         |                          |
| 81           |            | 8598     | 8677     | 8756     | 8836     | 8915     | 8994     | 9073     | 9153     | 9232     | 9311         |                          |
| 82           | *          | 9390     | 9470     | 9549     | 9628     | 9707     | 9786     | 9866     | 9945     | +024     | 0103         |                          |
| 83           | 739        | 0182     | 0262     | 0341     | 0420     | 0499     | 0578     | 0658     | 0737     | 0816     | 0895         |                          |
| 84           |            | 0974     | 1054     | 1133     | 1212     | 1291     | 1370     | 1450     | 1529     | 1608     | 1687         |                          |
| 85           |            | 1766     | 1845     | 1925     | 2004     | 2083     | 2162     | 2241     | 2321     | 2400     | 2479         |                          |
| 86           |            | 2558     | 2637     | 2716     | 2796     | 2875     | 2954     | 3033     | 3112     | 3191     | 3270         |                          |
| 87           |            | 3350     | 3429     | 3508     | 3587     | 3666     | 3745     | 3824     | 3904     | 3983     | 4062         |                          |
| 88           |            | 4141     | 4220     | 4299     | 4378     | 4458     | 4537     | 4616     | 4695     | 4774     | 4853         |                          |
| 89           |            | 4932     | 5011     | 5091     | 5170     | 5249     | 5328     | 5407     | 5486     | 5565     | 5644         |                          |
| <b>54 90</b> |            | 5723     | 5803     | 5882     | 5961     | 6040     | 6119     | 6198     | 6277     | 6356     | 6435         |                          |
| 91           |            | 6514     | 6594     | 6673     | 6752     | 6831     | 6910     | 6989     | 7068     | 7147     | 7226         |                          |
| 92           |            | 7305     | 7384     | 7463     | 7543     | 7622     | 7701     | 7780     | 7859     | 7938     | 8017         |                          |
| 93           |            | 8096     | 8175     | 8254     | 8333     | 8412     | 8491     | 8570     | 8649     | 8728     | 8808         |                          |
| 94           |            | 8887     | 8966     | 9045     | 9124     | 9203     | 9282     | 9361     | 9440     | 9519     | 9598         |                          |
| 95           | *          | 9677     | 9756     | 9835     | 9914     | 9993     | +079     | 0151     | 0230     | 0309     | 0388         |                          |
| 96           | 740        | 0467     | 0546     | 0625     | 0704     | 0783     | 0862     | 0941     | 1020     | 1099     | 1178         |                          |
| 97           |            | 1257     | 1336     | 1415     | 1494     | 1573     | 1652     | 1731     | 1810     | 1889     | 1968         |                          |
| 98           |            | 2047     | 2126     | 2205     | 2284     | 2363     | 2442     | 2521     | 2600     | 2679     | 2758         |                          |
| 99           |            | 2837     | 2916     | 2995     | 3074     | 3153     | 3232     | 3311     | 3390     | 3469     | 3548         |                          |
| <b>Num.</b>  | <b>0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |

1 80  
2 160  
3 240  
4 320  
5 400  
6 480  
7 560  
8 640  
9 720

1 79  
2 158  
3 237  
4 316  
5 395  
6 474  
7 553  
8 632  
9 711

79

LOGARITHMS OF NUMBERS.

| Num.         | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|--------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>5500</b>  | <b>740</b> | 3627     | 3706     | 3785     | 3864     | 3943     | 4022     | 4101     | 4180     | 4259     | 4338         |                          |
| 01           |            | 4416     | 4495     | 4574     | 4653     | 4732     | 4811     | 4890     | 4969     | 5048     | 5127         |                          |
| 02           |            | 5206     | 5285     | 5364     | 5443     | 5522     | 5601     | 5679     | 5758     | 5837     | 5916         |                          |
| 03           |            | 5995     | 6074     | 6153     | 6232     | 6311     | 6390     | 6469     | 6548     | 6626     | 6705         |                          |
| 04           |            | 6784     | 6863     | 6942     | 7021     | 7100     | 7179     | 7258     | 7337     | 7415     | 7494         |                          |
| 05           |            | 7573     | 7652     | 7731     | 7810     | 7889     | 7968     | 8047     | 8125     | 8204     | 8283         |                          |
| 06           |            | 8362     | 8441     | 8520     | 8599     | 8678     | 8756     | 8835     | 8914     | 8993     | 9072         |                          |
| 07           |            | 9151     | 9230     | 9308     | 9387     | 9466     | 9545     | 9624     | 9703     | 9782     | 9860         |                          |
| 08           |            | * 9939   | • 0018   | 0097     | 0176     | 0255     | 0334     | 0412     | 0491     | 0570     | 0649         |                          |
| 09           |            | 741      | 0728     | 0807     | 0885     | 0964     | 1043     | 1122     | 1201     | 1280     | 1358         | 1437                     |
| <b>55 10</b> |            | 1516     | 1595     | 1674     | 1752     | 1831     | 1910     | 1989     | 2068     | 2146     | 2225         |                          |
| 11           |            | 2304     | 2383     | 2462     | 2541     | 2619     | 2698     | 2777     | 2856     | 2935     | 3013         |                          |
| 12           |            | 3092     | 3171     | 3250     | 3328     | 3407     | 3486     | 3565     | 3644     | 3722     | 3801         |                          |
| 13           |            | 3880     | 3959     | 4037     | 4116     | 4195     | 4274     | 4353     | 4431     | 4510     | 4589         |                          |
| 14           |            | 4668     | 4746     | 4825     | 4904     | 4983     | 5061     | 5140     | 5219     | 5298     | 5376         |                          |
| 15           |            | 5455     | 5534     | 5613     | 5691     | 5770     | 5849     | 5928     | 6006     | 6085     | 6164         |                          |
| 16           |            | 6243     | 6321     | 6400     | 6479     | 6557     | 6636     | 6715     | 6794     | 6872     | 6951         |                          |
| 17           |            | 7030     | 7109     | 7187     | 7266     | 7345     | 7423     | 7502     | 7581     | 7660     | 7738         |                          |
| 18           |            | 7817     | 7896     | 7974     | 8053     | 8132     | 8210     | 8289     | 8368     | 8447     | 8525         |                          |
| 19           |            | 8604     | 8683     | 8761     | 8840     | 8919     | 8997     | 9076     | 9155     | 9233     | 9312         |                          |
| <b>55 20</b> |            | * 9391   | • 9469   | 9548     | 9627     | 9705     | 9784     | 9863     | 9941     | • 0020   | 0099         |                          |
| 21           |            | 742      | 0177     | 0256     | 0335     | 0413     | 0492     | 0571     | 0649     | 0728     | 0807         | 0885                     |
| 22           |            | 0964     | 1043     | 1121     | 1200     | 1279     | 1357     | 1436     | 1515     | 1593     | 1672         |                          |
| 23           |            | 1750     | 1829     | 1908     | 1986     | 2065     | 2144     | 2222     | 2301     | 2379     | 2458         |                          |
| 24           |            | 2537     | 2615     | 2694     | 2773     | 2851     | 2930     | 3008     | 3087     | 3166     | 3244         |                          |
| 25           |            | 3323     | 3401     | 3480     | 3559     | 3637     | 3716     | 3794     | 3873     | 3952     | 4030         |                          |
| 26           |            | 4109     | 4187     | 4266     | 4345     | 4423     | 4502     | 4580     | 4659     | 4737     | 4816         |                          |
| 27           |            | 4895     | 4973     | 5052     | 5130     | 5209     | 5288     | 5366     | 5445     | 5523     | 5602         |                          |
| 28           |            | 5680     | 5759     | 5837     | 5916     | 5995     | 6073     | 6152     | 6230     | 6309     | 6387         |                          |
| 29           |            | 6466     | 6544     | 6623     | 6702     | 6780     | 6859     | 6937     | 7016     | 7094     | 7173         |                          |
| <b>55 30</b> |            | 7251     | 7330     | 7408     | 7487     | 7565     | 7644     | 7722     | 7801     | 7880     | 7958         |                          |
| 31           |            | 8037     | 8115     | 8194     | 8272     | 8351     | 8429     | 8508     | 8586     | 8665     | 8743         |                          |
| 32           |            | 8822     | 8900     | 8979     | 9057     | 9136     | 9214     | 9293     | 9371     | 9450     | 9528         |                          |
| 33           |            | * 9607   | • 9685   | 9764     | 9842     | 9921     | 9999     | • 0078   | 0156     | 0235     | 0313         |                          |
| 34           |            | 743      | 0392     | 0470     | 0549     | 0627     | 0705     | 0784     | 0862     | 0941     | 1019         | 1098                     |
| 35           |            | 1176     | 1255     | 1333     | 1412     | 1490     | 1569     | 1647     | 1725     | 1804     | 1882         |                          |
| 36           |            | 1961     | 2039     | 2118     | 2196     | 2275     | 2353     | 2431     | 2510     | 2588     | 2667         |                          |
| 37           |            | 2745     | 2824     | 2902     | 2981     | 3059     | 3137     | 3216     | 3294     | 3373     | 3451         |                          |
| 38           |            | 3530     | 3608     | 3686     | 3765     | 3843     | 3922     | 4000     | 4078     | 4157     | 4235         |                          |
| 39           |            | 4314     | 4392     | 4470     | 4549     | 4627     | 4706     | 4784     | 4862     | 4941     | 5019         |                          |
| <b>55 40</b> |            | 5098     | 5176     | 5254     | 5333     | 5411     | 5490     | 5568     | 5646     | 5725     | 5803         |                          |
| 41           |            | 5882     | 5960     | 6038     | 6117     | 6195     | 6273     | 6352     | 6430     | 6508     | 6587         |                          |
| 42           |            | 6665     | 6744     | 6822     | 6900     | 6979     | 7057     | 7135     | 7214     | 7292     | 7370         |                          |
| 43           |            | 7449     | 7527     | 7605     | 7684     | 7762     | 7841     | 7919     | 7997     | 8076     | 8154         |                          |
| 44           |            | 8232     | 8311     | 8389     | 8467     | 8546     | 8624     | 8702     | 8781     | 8859     | 8937         |                          |
| 45           |            | 9016     | 9094     | 9172     | 9250     | 9329     | 9407     | 9485     | 9564     | 9642     | 9720         |                          |
| 46           |            | * 9799   | • 9877   | 9955     | • 0034   | 0112     | 0190     | 0268     | 0347     | 0425     | 0503         |                          |
| 47           |            | 744      | 0582     | 0660     | 0738     | 0817     | 0895     | 0973     | 1051     | 1130     | 1208         | 1286                     |
| 48           |            | 1365     | 1443     | 1521     | 1599     | 1678     | 1756     | 1834     | 1912     | 1991     | 2069         |                          |
| 49           |            | 2147     | 2226     | 2304     | 2382     | 2460     | 2539     | 2617     | 2695     | 2773     | 2852         |                          |
| <b>55 50</b> |            | 2930     | 3008     | 3086     | 3165     | 3243     | 3321     | 3399     | 3478     | 3556     | 3634         |                          |
| 51           |            | 3712     | 3791     | 3869     | 3947     | 4025     | 4103     | 4182     | 4260     | 4338     | 4416         |                          |
| 52           |            | 4495     | 4573     | 4651     | 4729     | 4807     | 4886     | 4964     | 5042     | 5120     | 5199         |                          |
| 53           |            | 5277     | 5355     | 5433     | 5511     | 5590     | 5668     | 5746     | 5824     | 5902     | 5981         |                          |
| 54           |            | 6059     | 6137     | 6215     | 6293     | 6372     | 6450     | 6528     | 6606     | 6684     | 6762         |                          |
| 55           |            | 6841     | 6919     | 6997     | 7075     | 7153     | 7231     | 7310     | 7388     | 7466     | 7544         |                          |
| 56           |            | 7622     | 7701     | 7779     | 7857     | 7935     | 8013     | 8091     | 8170     | 8248     | 8326         |                          |
| 57           |            | 8404     | 8482     | 8560     | 8638     | 8717     | 8795     | 8873     | 8951     | 9029     | 9107         |                          |
| 58           |            | 9185     | 9264     | 9342     | 9420     | 9498     | 9576     | 9654     | 9732     | 9810     | 9889         |                          |
| 59           |            | * 9967   | • 0045   | 0123     | 0201     | 0279     | 0357     | 0435     | 0514     | 0592     | 0670         |                          |
| <b>Num.</b>  | <b>0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |

|   |     |
|---|-----|
| 1 | 79  |
| 2 | 158 |
| 3 | 237 |
| 4 | 316 |
| 5 | 395 |
| 6 | 474 |
| 7 | 553 |
| 8 | 632 |
| 9 | 711 |

|   |     |
|---|-----|
| 1 | 78  |
| 2 | 156 |
| 3 | 234 |
| 4 | 312 |
| 5 | 390 |
| 6 | 468 |
| 7 | 546 |
| 8 | 624 |
| 9 | 702 |





LOGARITHMS OF NUMBERS.

81

| Num. | 0   | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|--------|------|------|------|------|------|------|------|------|-------|---------------|
| 5620 | 749 | 7363   | 7440 | 7518 | 7595 | 7672 | 7750 | 7827 | 7904 | 7981 | 8059  |               |
| 21   |     | 8136   | 8213 | 8290 | 8368 | 8445 | 8522 | 8599 | 8677 | 8754 | 8831  |               |
| 22   |     | 8908   | 8986 | 9063 | 9140 | 9217 | 9295 | 9372 | 9449 | 9526 | 9604  |               |
| 23   |     | • 9681 | 9758 | 9835 | 9913 | 9990 | +067 | 0144 | 0221 | 0299 | 0376  |               |
| 24   | 750 | 0453   | 0530 | 0608 | 0685 | 0762 | 0839 | 0916 | 0994 | 1071 | 1148  |               |
| 25   |     | 1225   | 1302 | 1380 | 1457 | 1534 | 1611 | 1688 | 1766 | 1843 | 1920  |               |
| 26   |     | 1997   | 2074 | 2152 | 2229 | 2306 | 2383 | 2460 | 2538 | 2615 | 2692  |               |
| 27   |     | 2769   | 2846 | 2924 | 3001 | 3078 | 3155 | 3232 | 3309 | 3387 | 3464  |               |
| 28   |     | 3541   | 3618 | 3695 | 3772 | 3850 | 3927 | 4004 | 4081 | 4158 | 4235  |               |
| 29   |     | 4312   | 4390 | 4467 | 4544 | 4621 | 4698 | 4775 | 4853 | 4930 | 5007  |               |
| 5630 |     | 5084   | 5161 | 5238 | 5315 | 5392 | 5470 | 5547 | 5624 | 5701 | 5778  |               |
| 31   |     | 5855   | 5932 | 6010 | 6087 | 6164 | 6241 | 6318 | 6395 | 6472 | 6549  |               |
| 32   |     | 6626   | 6704 | 6781 | 6858 | 6935 | 7012 | 7089 | 7166 | 7243 | 7320  |               |
| 33   |     | 7398   | 7475 | 7552 | 7629 | 7706 | 7783 | 7860 | 7937 | 8014 | 8091  |               |
| 34   |     | 8168   | 8246 | 8323 | 8400 | 8477 | 8554 | 8631 | 8708 | 8785 | 8862  |               |
| 35   |     | 8939   | 9016 | 9093 | 9170 | 9247 | 9325 | 9402 | 9479 | 9556 | 9633  |               |
| 36   |     | • 9710 | 9787 | 9864 | 9941 | +018 | 0095 | 0172 | 0249 | 0326 | 0403  |               |
| 37   | 751 | 0480   | 0557 | 0634 | 0711 | 0789 | 0866 | 0943 | 1020 | 1097 | 1174  |               |
| 38   |     | 1251   | 1328 | 1405 | 1482 | 1559 | 1636 | 1713 | 1790 | 1867 | 1944  |               |
| 39   |     | 2021   | 2098 | 2175 | 2252 | 2329 | 2406 | 2483 | 2560 | 2637 | 2714  |               |
| 5640 |     | 2791   | 2868 | 2945 | 3022 | 3099 | 3176 | 3253 | 3330 | 3407 | 3484  |               |
| 41   |     | 3561   | 3638 | 3715 | 3792 | 3869 | 3946 | 4023 | 4100 | 4177 | 4254  |               |
| 42   |     | 4331   | 4408 | 4485 | 4562 | 4639 | 4716 | 4793 | 4870 | 4947 | 5024  |               |
| 43   |     | 5101   | 5177 | 5254 | 5331 | 5408 | 5485 | 5562 | 5639 | 5716 | 5793  |               |
| 44   |     | 5870   | 5947 | 6024 | 6101 | 6178 | 6255 | 6332 | 6409 | 6486 | 6563  |               |
| 45   |     | 6639   | 6716 | 6793 | 6870 | 6947 | 7024 | 7101 | 7178 | 7255 | 7332  |               |
| 46   |     | 7409   | 7486 | 7563 | 7639 | 7716 | 7793 | 7870 | 7947 | 8024 | 8101  |               |
| 47   |     | 8178   | 8255 | 8332 | 8409 | 8485 | 8562 | 8639 | 8716 | 8793 | 8870  |               |
| 48   |     | 8947   | 9024 | 9101 | 9178 | 9254 | 9331 | 9408 | 9485 | 9562 | 9639  |               |
| 49   |     | • 9716 | 9793 | 9870 | 9946 | +023 | 0100 | 0177 | 0254 | 0331 | 0408  |               |
| 5650 | 752 | 0484   | 0561 | 0638 | 0715 | 0792 | 0869 | 0946 | 1023 | 1099 | 1176  |               |
| 51   |     | 1253   | 1330 | 1407 | 1484 | 1560 | 1637 | 1714 | 1791 | 1868 | 1945  |               |
| 52   |     | 2022   | 2098 | 2175 | 2252 | 2329 | 2406 | 2483 | 2559 | 2636 | 2713  |               |
| 53   |     | 2790   | 2867 | 2944 | 3020 | 3097 | 3174 | 3251 | 3328 | 3404 | 3481  |               |
| 54   |     | 3558   | 3635 | 3712 | 3788 | 3865 | 3942 | 4019 | 4096 | 4172 | 4249  |               |
| 55   |     | 4326   | 4403 | 4480 | 4556 | 4633 | 4710 | 4787 | 4864 | 4940 | 5017  |               |
| 56   |     | 5094   | 5171 | 5248 | 5324 | 5401 | 5478 | 5555 | 5631 | 5708 | 5785  |               |
| 57   |     | 5862   | 5939 | 6015 | 6092 | 6169 | 6246 | 6322 | 6399 | 6476 | 6553  |               |
| 58   |     | 6629   | 6706 | 6783 | 6860 | 6936 | 7013 | 7090 | 7167 | 7243 | 7320  |               |
| 59   |     | 7397   | 7474 | 7550 | 7627 | 7704 | 7781 | 7857 | 7934 | 8011 | 8088  |               |
| 5660 |     | 8164   | 8241 | 8318 | 8394 | 8471 | 8548 | 8625 | 8701 | 8778 | 8855  |               |
| 61   |     | 8932   | 9008 | 9085 | 9162 | 9238 | 9315 | 9392 | 9469 | 9545 | 9622  |               |
| 62   |     | • 9699 | 9775 | 9852 | 9929 | +005 | 0082 | 0159 | 0236 | 0312 | 0389  |               |
| 63   | 753 | 0466   | 0542 | 0619 | 0696 | 0772 | 0849 | 0926 | 1002 | 1079 | 1156  |               |
| 64   |     | 1232   | 1309 | 1386 | 1462 | 1539 | 1616 | 1692 | 1769 | 1846 | 1922  |               |
| 65   |     | 1999   | 2076 | 2152 | 2229 | 2306 | 2382 | 2459 | 2536 | 2612 | 2689  |               |
| 66   |     | 2766   | 2842 | 2919 | 2996 | 3072 | 3149 | 3226 | 3302 | 3379 | 3455  |               |
| 67   |     | 3532   | 3609 | 3685 | 3762 | 3839 | 3915 | 3992 | 4069 | 4145 | 4222  |               |
| 68   |     | 4298   | 4375 | 4452 | 4528 | 4605 | 4682 | 4758 | 4835 | 4911 | 4988  |               |
| 69   |     | 5065   | 5141 | 5218 | 5294 | 5371 | 5448 | 5524 | 5601 | 5677 | 5754  |               |
| 5670 |     | 5831   | 5907 | 5984 | 6060 | 6137 | 6214 | 6290 | 6367 | 6443 | 6520  |               |
| 71   |     | 6596   | 6673 | 6750 | 6826 | 6903 | 6979 | 7056 | 7133 | 7209 | 7286  |               |
| 72   |     | 7362   | 7439 | 7515 | 7592 | 7668 | 7745 | 7822 | 7898 | 7975 | 8051  |               |
| 73   |     | 8128   | 8204 | 8281 | 8357 | 8434 | 8511 | 8587 | 8664 | 8740 | 8817  |               |
| 74   |     | 8893   | 8970 | 9046 | 9123 | 9199 | 9276 | 9353 | 9429 | 9506 | 9582  |               |
| 75   |     | • 9659 | 9735 | 9812 | 9888 | 9965 | +041 | 0118 | 0194 | 0271 | 0347  |               |
| 76   | 754 | 0424   | 0500 | 0577 | 0653 | 0730 | 0806 | 0883 | 0959 | 1036 | 1112  |               |
| 77   |     | 1189   | 1265 | 1342 | 1418 | 1495 | 1571 | 1648 | 1724 | 1801 | 1877  |               |
| 78   |     | 1954   | 2030 | 2107 | 2183 | 2260 | 2336 | 2413 | 2489 | 2566 | 2642  |               |
| 79   |     | 2719   | 2795 | 2872 | 2948 | 3025 | 3101 | 3178 | 3254 | 3330 | 3407  |               |
| Num. | 0   | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

77

1 77  
2 154  
3 231  
4 308  
5 385  
6 462  
7 539  
8 616  
9 693

1 76  
2 152  
3 228  
4 304  
5 380  
6 456  
7 532  
8 608  
9 684

| Num.          | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|---------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>5680</b>   | <b>754</b> | 3483 | 3560 | 3636 | 3713 | 3789 | 3866 | 3942 | 4019 | 4095 | 4171  |               |
| 81            | 4248       | 4324 | 4401 | 4477 | 4554 | 4630 | 4707 | 4783 | 4859 | 4936 |       |               |
| 82            | 5012       | 5089 | 5165 | 5242 | 5318 | 5394 | 5471 | 5547 | 5624 | 5700 |       |               |
| 83            | 5777       | 5853 | 5929 | 6006 | 6082 | 6159 | 6235 | 6311 | 6388 | 6464 |       |               |
| 84            | 6541       | 6617 | 6694 | 6770 | 6846 | 6923 | 6999 | 7076 | 7152 | 7228 |       |               |
| 85            | 7305       | 7381 | 7457 | 7534 | 7610 | 7687 | 7763 | 7839 | 7916 | 7992 |       |               |
| 86            | 8069       | 8145 | 8221 | 8298 | 8374 | 8450 | 8527 | 8603 | 8680 | 8756 |       |               |
| 87            | 8832       | 8909 | 8985 | 9061 | 9138 | 9214 | 9290 | 9367 | 9443 | 9520 |       |               |
| 88            | * 9596     | 9672 | 9749 | 9825 | 9901 | 9978 | +054 | 0130 | 0207 | 0283 |       |               |
| 89            | 755        | 0359 | 0436 | 0512 | 0588 | 0665 | 0741 | 0817 | 0894 | 0970 | 1046  |               |
| 56 90         | 1123       | 1199 | 1275 | 1352 | 1428 | 1504 | 1581 | 1657 | 1733 | 1810 |       |               |
| 91            | 1886       | 1962 | 2038 | 2115 | 2191 | 2267 | 2344 | 2420 | 2496 | 2573 |       |               |
| 92            | 2649       | 2725 | 2802 | 2878 | 2954 | 3030 | 3107 | 3183 | 3259 | 3336 |       |               |
| 93            | 3412       | 3488 | 3564 | 3641 | 3717 | 3793 | 3870 | 3946 | 4022 | 4098 |       |               |
| 94            | 4175       | 4251 | 4327 | 4403 | 4480 | 4556 | 4632 | 4709 | 4785 | 4861 |       |               |
| 95            | 4937       | 5014 | 5090 | 5166 | 5242 | 5319 | 5395 | 5471 | 5547 | 5624 |       |               |
| 96            | 5700       | 5776 | 5852 | 5929 | 6005 | 6081 | 6157 | 6233 | 6310 | 6386 |       |               |
| 97            | 6462       | 6538 | 6615 | 6691 | 6767 | 6843 | 6920 | 6996 | 7072 | 7148 |       |               |
| 98            | 7224       | 7301 | 7377 | 7453 | 7529 | 7606 | 7682 | 7758 | 7834 | 7910 |       |               |
| 99            | 7987       | 8063 | 8139 | 8215 | 8291 | 8368 | 8444 | 8520 | 8596 | 8672 |       |               |
| 57 00         | 8749       | 8825 | 8901 | 8977 | 9053 | 9130 | 9206 | 9282 | 9358 | 9434 |       |               |
| 01            | * 9510     | 9587 | 9663 | 9739 | 9815 | 9891 | 9967 | +044 | 0120 | 0196 |       |               |
| 02            | 756        | 0272 | 0348 | 0424 | 0501 | 0577 | 0653 | 0729 | 0805 | 0881 | 0958  |               |
| 03            | 1034       | 1110 | 1186 | 1262 | 1338 | 1414 | 1490 | 1567 | 1643 | 1719 |       |               |
| 04            | 1795       | 1871 | 1947 | 2024 | 2100 | 2176 | 2252 | 2328 | 2404 | 2480 |       |               |
| 05            | 2556       | 2633 | 2709 | 2785 | 2861 | 2937 | 3013 | 3089 | 3165 | 3242 |       |               |
| 06            | 3318       | 3394 | 3470 | 3546 | 3622 | 3698 | 3774 | 3850 | 3927 | 4003 |       |               |
| 07            | 4079       | 4155 | 4231 | 4307 | 4383 | 4459 | 4535 | 4611 | 4687 | 4764 |       |               |
| 08            | 4840       | 4916 | 4992 | 5068 | 5144 | 5220 | 5296 | 5372 | 5448 | 5524 |       |               |
| 09            | 5600       | 5677 | 5753 | 5829 | 5905 | 5981 | 6057 | 6133 | 6209 | 6285 |       |               |
| 57 10         | 6361       | 6437 | 6513 | 6589 | 6665 | 6741 | 6817 | 6893 | 6970 | 7046 |       |               |
| 11            | 7122       | 7198 | 7274 | 7350 | 7426 | 7502 | 7578 | 7654 | 7730 | 7806 |       |               |
| 12            | 7882       | 7958 | 8034 | 8110 | 8186 | 8262 | 8338 | 8414 | 8490 | 8566 |       |               |
| 13            | 8642       | 8718 | 8794 | 8870 | 8946 | 9022 | 9098 | 9174 | 9250 | 9326 |       |               |
| 14            | * 9402     | 9478 | 9554 | 9630 | 9706 | 9782 | 9858 | 9934 | +010 | 0086 |       |               |
| 15            | 757        | 0162 | 0238 | 0314 | 0390 | 0466 | 0542 | 0618 | 0694 | 0770 | 0846  |               |
| 16            | 0922       | 0998 | 1074 | 1150 | 1226 | 1302 | 1378 | 1454 | 1530 | 1606 |       |               |
| 17            | 1682       | 1758 | 1834 | 1910 | 1986 | 2062 | 2138 | 2214 | 2290 | 2366 |       |               |
| 18            | 2442       | 2517 | 2593 | 2669 | 2745 | 2821 | 2897 | 2973 | 3049 | 3125 |       |               |
| 19            | 3201       | 3277 | 3353 | 3429 | 3505 | 3581 | 3657 | 3733 | 3809 | 3884 |       |               |
| 57 20         | 3960       | 4036 | 4112 | 4188 | 4264 | 4340 | 4416 | 4492 | 4568 | 4644 |       |               |
| 21            | 4719       | 4795 | 4871 | 4947 | 5023 | 5099 | 5175 | 5251 | 5327 | 5403 |       |               |
| 22            | 5479       | 5555 | 5630 | 5706 | 5782 | 5858 | 5934 | 6010 | 6086 | 6162 |       |               |
| 23            | 6237       | 6313 | 6389 | 6465 | 6541 | 6617 | 6693 | 6769 | 6845 | 6920 |       |               |
| 24            | 6996       | 7072 | 7148 | 7224 | 7300 | 7376 | 7451 | 7527 | 7603 | 7679 |       |               |
| 25            | 7755       | 7831 | 7907 | 7982 | 8058 | 8134 | 8210 | 8286 | 8362 | 8438 |       |               |
| 26            | 8513       | 8589 | 8665 | 8741 | 8817 | 8893 | 8968 | 9044 | 9120 | 9196 |       |               |
| 27            | 9272       | 9348 | 9423 | 9499 | 9575 | 9651 | 9727 | 9803 | 9878 | 9954 |       |               |
| 28            | 758        | 0030 | 0106 | 0182 | 0258 | 0333 | 0409 | 0485 | 0561 | 0637 | 0712  |               |
| 29            | 0788       | 0864 | 0940 | 1016 | 1091 | 1167 | 1243 | 1319 | 1395 | 1470 |       |               |
| 57 30         | 1546       | 1622 | 1698 | 1774 | 1849 | 1925 | 2001 | 2077 | 2153 | 2228 |       |               |
| 31            | 2304       | 2380 | 2456 | 2531 | 2607 | 2683 | 2759 | 2835 | 2910 | 2986 |       |               |
| 32            | 3062       | 3138 | 3213 | 3289 | 3365 | 3441 | 3516 | 3592 | 3668 | 3744 |       |               |
| 33            | 3819       | 3895 | 3971 | 4047 | 4122 | 4198 | 4274 | 4350 | 4425 | 4501 |       |               |
| 34            | 4577       | 4653 | 4728 | 4804 | 4880 | 4956 | 5031 | 5107 | 5183 | 5258 |       |               |
| 35            | 5334       | 5410 | 5486 | 5561 | 5637 | 5713 | 5789 | 5864 | 5940 | 6016 |       |               |
| 36            | 6091       | 6167 | 6243 | 6319 | 6394 | 6470 | 6546 | 6621 | 6697 | 6773 |       |               |
| 37            | 6848       | 6924 | 7000 | 7076 | 7151 | 7227 | 7303 | 7378 | 7454 | 7530 |       |               |
| 38            | 7605       | 7681 | 7757 | 7832 | 7908 | 7984 | 8060 | 8135 | 8211 | 8287 |       |               |
| 39            | 8362       | 8438 | 8514 | 8589 | 8665 | 8741 | 8816 | 8892 | 8968 | 9043 |       |               |
| Diff.         |            |      |      |      |      |      |      |      |      |      |       |               |
| Diff. & Mult. |            |      |      |      |      |      |      |      |      |      |       |               |

|   |     |
|---|-----|
| 1 | 77  |
| 2 | 154 |
| 3 | 231 |
| 4 | 308 |
| 5 | 385 |
| 6 | 462 |
| 7 | 539 |
| 8 | 616 |
| 9 | 693 |

76

|   |     |
|---|-----|
| 1 | 76  |
| 2 | 152 |
| 3 | 228 |
| 4 | 304 |
| 5 | 380 |
| 6 | 456 |
| 7 | 532 |
| 8 | 608 |
| 9 | 684 |

| Num.  | 0        | 1    | 2    | 3    | 4     | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|----------|------|------|------|-------|------|------|------|------|------|-------|---------------|
| 5740  | 758 9119 | 9195 | 9270 | 9346 | 9422  | 9497 | 9573 | 9649 | 9724 | 9800 |       | 1 76          |
| 41    | * 9875   | 9951 | +027 | 0102 | 0178  | 0254 | 0329 | 0405 | 0481 | 0556 |       | 2 152         |
| 42    | 759 0632 | 0708 | 0783 | 0859 | 0934  | 1010 | 1086 | 1161 | 1237 | 1313 |       | 3 228         |
| 43    | 1388     | 1464 | 1539 | 1615 | 1691  | 1766 | 1842 | 1917 | 1993 | 2069 |       | 4 304         |
| 44    | 2144     | 2220 | 2296 | 2371 | 2447  | 2522 | 2598 | 2674 | 2749 | 2825 |       | 5 380         |
| 45    | 2900     | 2976 | 3052 | 3127 | 3203  | 3278 | 3354 | 3429 | 3505 | 3581 |       | 6 456         |
| 46    | 3656     | 3732 | 3807 | 3883 | 3959  | 4034 | 4110 | 4185 | 4261 | 4336 |       | 7 532         |
| 47    | 4412     | 4488 | 4563 | 4639 | 4714  | 4790 | 4865 | 4941 | 5016 | 5092 |       | 8 608         |
| 48    | 5168     | 5243 | 5319 | 5394 | 5470  | 5545 | 5621 | 5696 | 5772 | 5848 |       | 9 684         |
| 49    | 5923     | 5999 | 6074 | 6150 | 6225  | 6301 | 6376 | 6452 | 6527 | 6603 |       |               |
| 57 50 | 6678     | 6754 | 6830 | 6905 | 6981  | 7056 | 7132 | 7207 | 7283 | 7358 |       |               |
| 51    | 7434     | 7509 | 7585 | 7660 | 7736  | 7811 | 7887 | 7962 | 8038 | 8113 |       |               |
| 52    | 8189     | 8264 | 8340 | 8415 | 8491  | 8566 | 8642 | 8717 | 8793 | 8868 |       |               |
| 53    | 8944     | 9019 | 9095 | 9170 | 9246  | 9321 | 9397 | 9472 | 9548 | 9623 |       |               |
| 54    | * 9699   | 9774 | 9850 | 9925 | +0000 | 0076 | 0151 | 0227 | 0302 | 0378 |       |               |
| 55    | 760 0453 | 0529 | 0604 | 0680 | 0755  | 0831 | 0906 | 0981 | 1057 | 1132 |       |               |
| 56    | 1208     | 1283 | 1359 | 1434 | 1510  | 1585 | 1661 | 1736 | 1811 | 1887 |       |               |
| 57    | 1962     | 2038 | 2113 | 2189 | 2264  | 2339 | 2415 | 2490 | 2566 | 2641 |       |               |
| 58    | 2717     | 2792 | 2867 | 2943 | 3018  | 3094 | 3169 | 3245 | 3320 | 3395 |       |               |
| 59    | 3471     | 3546 | 3622 | 3697 | 3772  | 3848 | 3923 | 3999 | 4074 | 4149 |       |               |
| 57 60 | 4225     | 4300 | 4376 | 4451 | 4526  | 4602 | 4677 | 4753 | 4828 | 4903 |       |               |
| 61    | 4979     | 5054 | 5130 | 5205 | 5280  | 5356 | 5431 | 5506 | 5582 | 5657 |       |               |
| 62    | 5733     | 5808 | 5883 | 5959 | 6034  | 6109 | 6185 | 6260 | 6335 | 6411 |       |               |
| 63    | 6486     | 6562 | 6637 | 6712 | 6788  | 6863 | 6938 | 7014 | 7089 | 7164 |       |               |
| 64    | 7240     | 7315 | 7390 | 7466 | 7541  | 7616 | 7692 | 7767 | 7842 | 7918 |       |               |
| 65    | 7993     | 8068 | 8144 | 8219 | 8294  | 8370 | 8445 | 8520 | 8596 | 8671 |       | 1 75          |
| 66    | 8746     | 8822 | 8897 | 8972 | 9048  | 9123 | 9198 | 9274 | 9349 | 9424 |       | 2 150         |
| 67    | * 9500   | 9575 | 9650 | 9725 | 9801  | 9876 | 9951 | +027 | 0102 | 0177 |       | 3 225         |
| 68    | 761 0253 | 0328 | 0403 | 0478 | 0554  | 0629 | 0704 | 0780 | 0855 | 0930 |       | 4 300         |
| 69    | 1005     | 1081 | 1156 | 1231 | 1307  | 1382 | 1457 | 1532 | 1608 | 1683 |       | 5 375         |
| 57 70 | 1758     | 1833 | 1909 | 1984 | 2059  | 2134 | 2210 | 2285 | 2360 | 2435 |       | 6 450         |
| 71    | 2511     | 2586 | 2661 | 2737 | 2812  | 2887 | 2962 | 3037 | 3113 | 3188 |       | 7 525         |
| 72    | 3263     | 3338 | 3414 | 3489 | 3564  | 3639 | 3715 | 3790 | 3865 | 3940 |       | 8 600         |
| 73    | 4016     | 4091 | 4166 | 4241 | 4316  | 4392 | 4467 | 4542 | 4617 | 4693 |       | 9 675         |
| 74    | 4768     | 4843 | 4918 | 4993 | 5069  | 5144 | 5219 | 5294 | 5369 | 5445 |       |               |
| 75    | 5520     | 5595 | 5670 | 5745 | 5821  | 5896 | 5971 | 6046 | 6121 | 6197 |       |               |
| 76    | 6272     | 6347 | 6422 | 6497 | 6573  | 6648 | 6723 | 6798 | 6873 | 6948 |       |               |
| 77    | 7024     | 7099 | 7174 | 7249 | 7324  | 7400 | 7475 | 7550 | 7625 | 7700 |       |               |
| 78    | 7775     | 7851 | 7926 | 8001 | 8076  | 8151 | 8226 | 8301 | 8377 | 8452 |       |               |
| 79    | 8527     | 8602 | 8677 | 8752 | 8828  | 8903 | 8978 | 9053 | 9128 | 9203 |       |               |
| 57 80 | 9278     | 9354 | 9429 | 9504 | 9579  | 9654 | 9729 | 9804 | 9879 | 9955 |       |               |
| 81    | 762 0030 | 0105 | 0180 | 0255 | 0330  | 0405 | 0480 | 0556 | 0631 | 0706 |       |               |
| 82    | 0781     | 0856 | 0931 | 1006 | 1081  | 1156 | 1232 | 1307 | 1382 | 1457 |       |               |
| 83    | 1532     | 1607 | 1682 | 1757 | 1832  | 1907 | 1982 | 2058 | 2133 | 2208 |       |               |
| 84    | 2283     | 2358 | 2433 | 2508 | 2583  | 2658 | 2733 | 2808 | 2883 | 2959 |       |               |
| 85    | 3034     | 3109 | 3184 | 3259 | 3334  | 3409 | 3484 | 3559 | 3634 | 3709 |       |               |
| 86    | 3784     | 3859 | 3934 | 4009 | 4085  | 4160 | 4235 | 4310 | 4385 | 4460 |       |               |
| 87    | 4535     | 4610 | 4685 | 4760 | 4835  | 4910 | 4985 | 5060 | 5135 | 5210 |       |               |
| 88    | 5285     | 5360 | 5435 | 5510 | 5585  | 5660 | 5735 | 5810 | 5885 | 5960 |       |               |
| 89    | 6035     | 6111 | 6186 | 6261 | 6336  | 6411 | 6486 | 6561 | 6636 | 6711 |       |               |
| 57 90 | 6786     | 6861 | 6936 | 7011 | 7086  | 7161 | 7236 | 7311 | 7386 | 7461 |       |               |
| 91    | 7536     | 7611 | 7686 | 7761 | 7836  | 7911 | 7986 | 8061 | 8136 | 8211 |       |               |
| 92    | 8286     | 8361 | 8435 | 8510 | 8585  | 8660 | 8735 | 8810 | 8885 | 8960 |       |               |
| 93    | 9035     | 9110 | 9185 | 9260 | 9335  | 9410 | 9485 | 9560 | 9635 | 9710 |       |               |
| 94    | * 9785   | 9860 | 9935 | +010 | 0085  | 0160 | 0235 | 0310 | 0385 | 0459 |       |               |
| 95    | 763 0534 | 0609 | 0684 | 0759 | 0834  | 0909 | 0984 | 1059 | 1134 | 1209 |       |               |
| 96    | 1284     | 1359 | 1434 | 1509 | 1583  | 1658 | 1733 | 1808 | 1883 | 1958 |       |               |
| 97    | 2033     | 2108 | 2183 | 2258 | 2333  | 2408 | 2483 | 2557 | 2632 | 2707 |       |               |
| 98    | 2782     | 2857 | 2932 | 3007 | 3082  | 3157 | 3232 | 3306 | 3381 | 3456 |       |               |
| 99    | 3531     | 3606 | 3681 | 3756 | 3831  | 3906 | 3980 | 4055 | 4130 | 4205 |       |               |
| Num.  | 0        | 1    | 2    | 3    | 4     | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mer. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|--------------|
| <b>5800</b> | <b>763</b> | 4280 | 4355 | 4430 | 4505 | 4579 | 4654 | 4729 | 4804 | 4879 | 4954  |              |
| 01          |            | 5029 | 5104 | 5178 | 5253 | 5328 | 5403 | 5478 | 5553 | 5628 | 5702  |              |
| 02          |            | 5777 | 5852 | 5927 | 6002 | 6077 | 6151 | 6226 | 6301 | 6376 | 6451  |              |
| 03          |            | 6526 | 6601 | 6675 | 6750 | 6825 | 6900 | 6975 | 7050 | 7124 | 7199  |              |
| 04          |            | 7274 | 7349 | 7424 | 7499 | 7573 | 7648 | 7723 | 7798 | 7873 | 7947  |              |
| 05          |            | 8022 | 8097 | 8172 | 8247 | 8321 | 8396 | 8471 | 8546 | 8621 | 8696  |              |
| 06          |            | 8770 | 8845 | 8920 | 8995 | 9070 | 9144 | 9219 | 9294 | 9369 | 9443  |              |
| 07          | *          | 9518 | 9593 | 9668 | 9743 | 9817 | 9892 | 9967 | +042 | 0117 | 0191  |              |
| 08          | 764        | 0266 | 0341 | 0416 | 0490 | 0565 | 0640 | 0715 | 0789 | 0864 | 0939  |              |
| 09          |            | 1014 | 1089 | 1163 | 1238 | 1313 | 1388 | 1462 | 1537 | 1612 | 1687  |              |
| 58 10       |            | 1761 | 1836 | 1911 | 1986 | 2060 | 2135 | 2210 | 2285 | 2359 | 2434  | 1 75         |
| 11          |            | 2509 | 2583 | 2658 | 2733 | 2808 | 2882 | 2957 | 3032 | 3107 | 3181  | 2 150        |
| 12          |            | 3250 | 3331 | 3406 | 3480 | 3555 | 3630 | 3704 | 3779 | 3854 | 3929  | 3 225        |
| 13          |            | 4003 | 4078 | 4153 | 4227 | 4302 | 4377 | 4451 | 4526 | 4601 | 4676  | 4 300        |
| 14          |            | 4750 | 4825 | 4900 | 4974 | 5049 | 5124 | 5198 | 5273 | 5348 | 5423  | 5 375        |
| 15          |            | 5497 | 5572 | 5647 | 5721 | 5796 | 5871 | 5945 | 6020 | 6095 | 6169  | 6 450        |
| 16          |            | 6244 | 6319 | 6393 | 6468 | 6543 | 6617 | 6692 | 6767 | 6841 | 6916  | 7 525        |
| 17          |            | 6991 | 7065 | 7140 | 7215 | 7289 | 7364 | 7439 | 7513 | 7588 | 7663  | 8 600        |
| 18          |            | 7737 | 7812 | 7886 | 7961 | 8036 | 8110 | 8185 | 8260 | 8334 | 8409  | 9 675        |
| 19          |            | 8484 | 8558 | 8633 | 8707 | 8782 | 8857 | 8931 | 9006 | 9081 | 9155  |              |
| 58 20       |            | 9230 | 9304 | 9379 | 9454 | 9528 | 9603 | 9678 | 9752 | 9827 | 9901  |              |
| 21          | *          | 9976 | +051 | 0125 | 0200 | 0274 | 0349 | 0424 | 0498 | 0573 | 0647  |              |
| 22          | 765        | 0722 | 0797 | 0871 | 0946 | 1020 | 1095 | 1170 | 1244 | 1319 | 1393  |              |
| 23          |            | 1468 | 1542 | 1617 | 1692 | 1766 | 1841 | 1915 | 1990 | 2065 | 2139  |              |
| 24          |            | 2214 | 2288 | 2363 | 2437 | 2512 | 2586 | 2661 | 2736 | 2810 | 2885  |              |
| 25          |            | 2959 | 3034 | 3108 | 3183 | 3258 | 3332 | 3407 | 3481 | 3556 | 3630  |              |
| 26          |            | 3705 | 3779 | 3854 | 3928 | 4003 | 4078 | 4152 | 4227 | 4301 | 4376  |              |
| 27          |            | 4450 | 4525 | 4599 | 4674 | 4748 | 4823 | 4897 | 4972 | 5046 | 5121  |              |
| 28          |            | 5195 | 5270 | 5344 | 5419 | 5493 | 5568 | 5643 | 5717 | 5792 | 5866  |              |
| 29          |            | 5941 | 6015 | 6090 | 6164 | 6239 | 6313 | 6388 | 6462 | 6537 | 6611  |              |
| 58 30       |            | 6686 | 6760 | 6835 | 6909 | 6984 | 7058 | 7132 | 7207 | 7281 | 7356  |              |
| 31          |            | 7430 | 7505 | 7579 | 7654 | 7728 | 7803 | 7877 | 7952 | 8026 | 8101  |              |
| 32          |            | 8175 | 8250 | 8324 | 8399 | 8473 | 8547 | 8622 | 8696 | 8771 | 8845  |              |
| 33          |            | 8920 | 8994 | 9069 | 9143 | 9218 | 9292 | 9366 | 9441 | 9515 | 9590  |              |
| 34          | *          | 9664 | 9739 | 9813 | 9888 | 9962 | +036 | 0111 | 0185 | 0260 | 0334  |              |
| 35          | 766        | 0409 | 0483 | 0557 | 0632 | 0706 | 0781 | 0855 | 0930 | 1004 | 1078  |              |
| 36          |            | 1153 | 1227 | 1302 | 1376 | 1450 | 1525 | 1599 | 1674 | 1748 | 1823  |              |
| 37          |            | 1897 | 1971 | 2046 | 2120 | 2195 | 2269 | 2343 | 2418 | 2492 | 2567  |              |
| 38          |            | 2641 | 2715 | 2790 | 2864 | 2938 | 3013 | 3087 | 3162 | 3236 | 3310  |              |
| 39          |            | 3385 | 3459 | 3534 | 3608 | 3682 | 3757 | 3831 | 3905 | 3980 | 4054  |              |
| 58 40       |            | 4128 | 4203 | 4277 | 4352 | 4426 | 4500 | 4575 | 4649 | 4723 | 4798  |              |
| 41          |            | 4872 | 4946 | 5021 | 5095 | 5169 | 5244 | 5318 | 5393 | 5467 | 5541  |              |
| 42          |            | 5616 | 5690 | 5764 | 5839 | 5913 | 5987 | 6062 | 6136 | 6210 | 6285  |              |
| 43          |            | 6359 | 6433 | 6508 | 6582 | 6656 | 6730 | 6805 | 6879 | 6953 | 7028  |              |
| 44          |            | 7102 | 7176 | 7251 | 7325 | 7399 | 7474 | 7548 | 7622 | 7697 | 7771  | 1 74         |
| 45          |            | 7845 | 7919 | 7994 | 8068 | 8142 | 8217 | 8291 | 8365 | 8440 | 8514  | 2 148        |
| 46          |            | 8588 | 8662 | 8737 | 8811 | 8885 | 8960 | 9034 | 9108 | 9182 | 9257  | 3 222        |
| 47          |            | 9331 | 9405 | 9479 | 9554 | 9628 | 9702 | 9777 | 9851 | 9925 | 9999  | 4 396        |
| 48          | 767        | 0074 | 0148 | 0222 | 0296 | 0371 | 0445 | 0519 | 0593 | 0668 | 0742  | 5 570        |
| 49          |            | 0816 | 0890 | 0965 | 1039 | 1113 | 1187 | 1262 | 1336 | 1410 | 1484  | 6 444        |
| 58 50       |            | 1559 | 1633 | 1707 | 1781 | 1856 | 1930 | 2004 | 2078 | 2153 | 2227  | 7 518        |
| 51          |            | 2301 | 2375 | 2449 | 2524 | 2598 | 2672 | 2746 | 2821 | 2895 | 2969  | 8 592        |
| 52          |            | 3043 | 3117 | 3192 | 3266 | 3340 | 3414 | 3488 | 3563 | 3637 | 3711  | 9 666        |
| 53          |            | 3785 | 3859 | 3934 | 4008 | 4082 | 4156 | 4230 | 4305 | 4379 | 4453  |              |
| 54          |            | 4527 | 4601 | 4676 | 4750 | 4824 | 4898 | 4972 | 5046 | 5121 | 5195  |              |
| 55          |            | 5269 | 5343 | 5417 | 5492 | 5566 | 5640 | 5714 | 5788 | 5862 | 5937  |              |
| 56          |            | 6011 | 6085 | 6159 | 6233 | 6307 | 6381 | 6456 | 6530 | 6604 | 6678  |              |
| 57          |            | 6752 | 6826 | 6900 | 6975 | 7049 | 7123 | 7197 | 7271 | 7345 | 7420  |              |
| 58          |            | 7494 | 7568 | 7642 | 7716 | 7790 | 7864 | 7938 | 8013 | 8087 | 8161  |              |
| 59          |            | 8235 | 8309 | 8383 | 8457 | 8531 | 8606 | 8680 | 8754 | 8828 | 8902  |              |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mer. |

LOGARITHMS OF NUMBERS.

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 58 80 | 767 | 8976 | 9050 | 9124 | 9198 | 9273 | 9347 | 9421 | 9495 | 9569 | 9643  |               |
| 61    | *   | 9717 | 9791 | 9865 | 9940 | +014 | 0088 | 0162 | 0236 | 0310 | 0384  |               |
| 62    | 768 | 0458 | 0532 | 0606 | 0680 | 0754 | 0829 | 0903 | 0977 | 1051 | 1125  |               |
| 63    |     | 1199 | 1273 | 1347 | 1421 | 1495 | 1569 | 1643 | 1717 | 1791 | 1866  |               |
| 64    |     | 1940 | 2014 | 2088 | 2162 | 2236 | 2310 | 2384 | 2458 | 2532 | 2606  |               |
| 65    |     | 2680 | 2754 | 2828 | 2902 | 2976 | 3050 | 3124 | 3198 | 3273 | 3347  |               |
| 66    |     | 3421 | 3495 | 3569 | 3643 | 3717 | 3791 | 3865 | 3939 | 4013 | 4087  |               |
| 67    |     | 4161 | 4235 | 4309 | 4383 | 4457 | 4531 | 4605 | 4679 | 4753 | 4827  |               |
| 68    |     | 4901 | 4975 | 5049 | 5123 | 5197 | 5271 | 5345 | 5419 | 5493 | 5567  |               |
| 69    |     | 5641 | 5715 | 5789 | 5863 | 5937 | 6011 | 6085 | 6159 | 6233 | 6307  | 74            |
| 70    |     | 6381 | 6455 | 6529 | 6603 | 6677 | 6751 | 6825 | 6899 | 6973 | 7047  | 1             |
| 71    |     | 7121 | 7195 | 7269 | 7343 | 7417 | 7491 | 7565 | 7639 | 7713 | 7787  | 2             |
| 72    |     | 7860 | 7934 | 8008 | 8082 | 8156 | 8230 | 8304 | 8378 | 8452 | 8526  | 3             |
| 73    |     | 8600 | 8674 | 8748 | 8822 | 8896 | 8970 | 9044 | 9118 | 9192 | 9266  | 4             |
| 74    | *   | 9339 | 9413 | 9487 | 9561 | 9635 | 9709 | 9783 | 9857 | 9931 | +005  | 5             |
| 75    | 769 | 0079 | 0153 | 0227 | 0300 | 0374 | 0448 | 0522 | 0596 | 0670 | 0744  | 6             |
| 76    |     | 0818 | 0892 | 0966 | 1040 | 1114 | 1187 | 1261 | 1335 | 1409 | 1483  | 7             |
| 77    |     | 1557 | 1631 | 1705 | 1779 | 1852 | 1926 | 2000 | 2074 | 2148 | 2222  | 8             |
| 78    |     | 2296 | 2370 | 2444 | 2517 | 2591 | 2665 | 2739 | 2813 | 2887 | 2961  | 9             |
| 79    |     | 3035 | 3108 | 3182 | 3256 | 3330 | 3404 | 3478 | 3552 | 3626 | 3699  |               |
| 80    |     | 3773 | 3847 | 3921 | 3995 | 4069 | 4143 | 4216 | 4290 | 4364 | 4438  |               |
| 81    |     | 4512 | 4586 | 4659 | 4733 | 4807 | 4881 | 4955 | 5029 | 5103 | 5176  |               |
| 82    |     | 5250 | 5324 | 5398 | 5472 | 5546 | 5619 | 5693 | 5767 | 5841 | 5915  |               |
| 83    |     | 5988 | 6062 | 6136 | 6210 | 6284 | 6358 | 6431 | 6505 | 6579 | 6653  |               |
| 84    |     | 6727 | 6800 | 6874 | 6948 | 7022 | 7096 | 7169 | 7243 | 7317 | 7391  |               |
| 85    |     | 7465 | 7538 | 7612 | 7686 | 7760 | 7834 | 7907 | 7981 | 8055 | 8129  |               |
| 86    |     | 8203 | 8276 | 8350 | 8424 | 8498 | 8571 | 8645 | 8719 | 8793 | 8867  |               |
| 87    |     | 8940 | 9014 | 9088 | 9162 | 9235 | 9309 | 9383 | 9457 | 9530 | 9604  |               |
| 88    | *   | 9678 | 9752 | 9826 | 9899 | 9973 | +047 | 0121 | 0194 | 0268 | 0342  |               |
| 89    | 770 | 0416 | 0489 | 0563 | 0637 | 0711 | 0784 | 0858 | 0932 | 1005 | 1079  |               |
| 90    |     | 1153 | 1227 | 1300 | 1374 | 1448 | 1522 | 1595 | 1669 | 1743 | 1817  |               |
| 91    |     | 1890 | 1964 | 2038 | 2111 | 2185 | 2259 | 2333 | 2406 | 2480 | 2554  |               |
| 92    |     | 2627 | 2701 | 2775 | 2849 | 2922 | 2996 | 3070 | 3143 | 3217 | 3291  |               |
| 93    |     | 3364 | 3438 | 3512 | 3585 | 3659 | 3733 | 3807 | 3880 | 3954 | 4028  |               |
| 94    |     | 4101 | 4175 | 4249 | 4322 | 4396 | 4470 | 4543 | 4617 | 4691 | 4764  |               |
| 95    |     | 4838 | 4912 | 4985 | 5059 | 5133 | 5206 | 5280 | 5354 | 5427 | 5501  |               |
| 96    |     | 5575 | 5648 | 5722 | 5796 | 5869 | 5943 | 6017 | 6090 | 6164 | 6238  |               |
| 97    |     | 6311 | 6385 | 6459 | 6532 | 6606 | 6679 | 6753 | 6827 | 6900 | 6974  |               |
| 98    |     | 7048 | 7121 | 7195 | 7269 | 7342 | 7416 | 7489 | 7563 | 7637 | 7710  |               |
| 99    |     | 7784 | 7858 | 7931 | 8005 | 8078 | 8152 | 8226 | 8299 | 8373 | 8447  |               |
| 59 00 |     | 8520 | 8594 | 8667 | 8741 | 8815 | 8888 | 8962 | 9035 | 9109 | 9183  |               |
| 01    |     | 9256 | 9330 | 9403 | 9477 | 9551 | 9624 | 9698 | 9771 | 9845 | 9918  |               |
| 02    | *   | 9992 | +066 | 0139 | 0213 | 0286 | 0360 | 0434 | 0507 | 0581 | 0654  |               |
| 03    | 771 | 0723 | 0801 | 0875 | 0949 | 1022 | 1096 | 1169 | 1243 | 1316 | 1390  | 1             |
| 04    |     | 1463 | 1537 | 1611 | 1684 | 1758 | 1831 | 1905 | 1978 | 2052 | 2125  | 2             |
| 05    |     | 2199 | 2273 | 2346 | 2420 | 2493 | 2567 | 2640 | 2714 | 2787 | 2861  | 3             |
| 06    |     | 2934 | 3008 | 3081 | 3155 | 3229 | 3302 | 3376 | 3449 | 3523 | 3596  | 4             |
| 07    |     | 3670 | 3743 | 3817 | 3890 | 3964 | 4037 | 4111 | 4184 | 4258 | 4331  | 5             |
| 08    |     | 4405 | 4478 | 4552 | 4625 | 4699 | 4772 | 4846 | 4919 | 4993 | 5066  | 6             |
| 09    |     | 5140 | 5213 | 5287 | 5360 | 5434 | 5507 | 5581 | 5654 | 5728 | 5801  | 7             |
| 59 10 |     | 5875 | 5948 | 6022 | 6095 | 6169 | 6242 | 6316 | 6389 | 6463 | 6536  | 8             |
| 11    |     | 6610 | 6683 | 6757 | 6830 | 6903 | 6977 | 7050 | 7124 | 7197 | 7271  | 9             |
| 12    |     | 7344 | 7418 | 7491 | 7565 | 7638 | 7712 | 7785 | 7858 | 7932 | 8005  |               |
| 13    |     | 8079 | 8152 | 8226 | 8299 | 8373 | 8446 | 8519 | 8593 | 8666 | 8740  |               |
| 14    |     | 8813 | 8887 | 8960 | 9034 | 9107 | 9180 | 9254 | 9327 | 9401 | 9474  |               |
| 15    | *   | 9547 | 9621 | 9694 | 9768 | 9841 | 9915 | 9988 | +061 | 0135 | 0208  |               |
| 16    | 772 | 0282 | 0355 | 0428 | 0502 | 0575 | 0649 | 0722 | 0795 | 0869 | 0942  |               |
| 17    |     | 1016 | 1089 | 1162 | 1236 | 1309 | 1383 | 1456 | 1529 | 1603 | 1676  |               |
| 18    |     | 1750 | 1823 | 1896 | 1970 | 2043 | 2117 | 2190 | 2263 | 2337 | 2410  |               |
| 19    |     | 2483 | 2557 | 2630 | 2704 | 2777 | 2850 | 2924 | 2997 | 3070 | 3144  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Meth. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 5920  | 772 | 3217 | 3290 | 3364 | 3437 | 3510 | 3584 | 3657 | 3731 | 3804 | 3877  |               |
| 21    |     | 3951 | 4024 | 4097 | 4171 | 4244 | 4317 | 4391 | 4464 | 4537 | 4611  |               |
| 22    |     | 4684 | 4757 | 4831 | 4904 | 4977 | 5051 | 5124 | 5197 | 5271 | 5344  |               |
| 23    |     | 5417 | 5491 | 5564 | 5637 | 5711 | 5784 | 5857 | 5931 | 6004 | 6077  |               |
| 24    |     | 6150 | 6224 | 6297 | 6370 | 6444 | 6517 | 6590 | 6664 | 6737 | 6810  |               |
| 25    |     | 6884 | 6957 | 7030 | 7103 | 7177 | 7250 | 7323 | 7397 | 7470 | 7543  |               |
| 26    |     | 7616 | 7690 | 7763 | 7836 | 7910 | 7983 | 8056 | 8129 | 8203 | 8276  |               |
| 27    |     | 8349 | 8423 | 8496 | 8569 | 8642 | 8716 | 8789 | 8862 | 8935 | 9009  |               |
| 28    |     | 9082 | 9155 | 9228 | 9302 | 9375 | 9448 | 9521 | 9595 | 9668 | 9741  |               |
| 29    | *   | 9815 | 9888 | 9961 | 1034 | 0107 | 0181 | 0254 | 0327 | 0400 | 0474  |               |
| 59 30 | 773 | 0547 | 0620 | 0693 | 0767 | 0840 | 0913 | 0986 | 1060 | 1133 | 1206  | 1   74        |
| 31    |     | 1279 | 1352 | 1426 | 1499 | 1572 | 1645 | 1719 | 1792 | 1865 | 1938  | 2   148       |
| 32    |     | 2011 | 2085 | 2158 | 2231 | 2304 | 2377 | 2451 | 2524 | 2597 | 2670  | 3   222       |
| 33    |     | 2743 | 2817 | 2890 | 2963 | 3036 | 3109 | 3183 | 3256 | 3329 | 3402  | 4   296       |
| 34    |     | 3475 | 3549 | 3622 | 3695 | 3768 | 3841 | 3915 | 3988 | 4061 | 4134  | 5   370       |
| 35    |     | 4207 | 4280 | 4354 | 4427 | 4500 | 4573 | 4646 | 4719 | 4793 | 4866  | 6   444       |
| 36    |     | 4939 | 5012 | 5085 | 5158 | 5232 | 5305 | 5378 | 5451 | 5524 | 5597  | 7   518       |
| 37    |     | 5670 | 5744 | 5817 | 5890 | 5963 | 6036 | 6109 | 6183 | 6256 | 6329  | 8   592       |
| 38    |     | 6402 | 6475 | 6548 | 6621 | 6694 | 6768 | 6841 | 6914 | 6987 | 7060  | 9   666       |
| 39    |     | 7133 | 7206 | 7280 | 7353 | 7426 | 7499 | 7572 | 7645 | 7718 | 7791  |               |
| 59 40 |     | 7864 | 7938 | 8011 | 8084 | 8157 | 8230 | 8303 | 8376 | 8449 | 8522  |               |
| 41    |     | 8596 | 8669 | 8742 | 8815 | 8888 | 8961 | 9034 | 9107 | 9180 | 9253  |               |
| 42    |     | 9326 | 9400 | 9473 | 9546 | 9619 | 9692 | 9765 | 9838 | 9911 | 9984  |               |
| 43    | 774 | 0057 | 0130 | 0203 | 0277 | 0350 | 0423 | 0496 | 0569 | 0642 | 0715  |               |
| 44    |     | 0788 | 0861 | 0934 | 1007 | 1080 | 1153 | 1226 | 1299 | 1372 | 1446  |               |
| 45    |     | 1519 | 1592 | 1665 | 1738 | 1811 | 1884 | 1957 | 2030 | 2103 | 2176  |               |
| 46    |     | 2249 | 2322 | 2395 | 2468 | 2541 | 2614 | 2687 | 2760 | 2833 | 2906  |               |
| 47    |     | 2979 | 3052 | 3125 | 3198 | 3271 | 3345 | 3418 | 3491 | 3564 | 3637  |               |
| 48    |     | 3710 | 3783 | 3856 | 3929 | 4002 | 4075 | 4148 | 4221 | 4294 | 4367  |               |
| 49    |     | 4440 | 4513 | 4586 | 4659 | 4732 | 4805 | 4878 | 4951 | 5024 | 5097  | 73            |
| 59 50 |     | 5170 | 5243 | 5316 | 5389 | 5462 | 5535 | 5608 | 5681 | 5754 | 5827  |               |
| 51    |     | 5900 | 5972 | 6045 | 6118 | 6191 | 6264 | 6337 | 6410 | 6483 | 6556  |               |
| 52    |     | 6629 | 6702 | 6775 | 6848 | 6921 | 6994 | 7067 | 7140 | 7213 | 7286  |               |
| 53    |     | 7359 | 7432 | 7505 | 7578 | 7651 | 7724 | 7797 | 7869 | 7942 | 8015  |               |
| 54    |     | 8088 | 8161 | 8234 | 8307 | 8380 | 8453 | 8526 | 8599 | 8672 | 8745  |               |
| 55    |     | 8818 | 8891 | 8964 | 9036 | 9109 | 9182 | 9255 | 9328 | 9401 | 9474  |               |
| 56    | *   | 9547 | 9620 | 9693 | 9766 | 9839 | 9911 | 9984 | 1057 | 0130 | 0203  |               |
| 57    | 775 | 0276 | 0349 | 0422 | 0495 | 0568 | 0641 | 0714 | 0787 | 0860 | 0932  |               |
| 58    |     | 1005 | 1078 | 1151 | 1224 | 1297 | 1369 | 1442 | 1515 | 1588 | 1661  |               |
| 59    |     | 1734 | 1807 | 1880 | 1952 | 2025 | 2098 | 2171 | 2244 | 2317 | 2390  |               |
| 59 60 |     | 2463 | 2535 | 2608 | 2681 | 2754 | 2827 | 2900 | 2973 | 3046 | 3118  |               |
| 61    |     | 3191 | 3264 | 3337 | 3410 | 3483 | 3555 | 3628 | 3701 | 3774 | 3847  | 1   73        |
| 62    |     | 3920 | 3993 | 4065 | 4138 | 4211 | 4284 | 4357 | 4430 | 4502 | 4575  | 2   146       |
| 63    |     | 4648 | 4721 | 4794 | 4867 | 4939 | 5012 | 5085 | 5158 | 5231 | 5304  | 3   219       |
| 64    |     | 5376 | 5449 | 5522 | 5595 | 5668 | 5740 | 5813 | 5886 | 5959 | 6032  | 4   292       |
| 65    |     | 6104 | 6177 | 6250 | 6323 | 6396 | 6469 | 6541 | 6614 | 6687 | 6760  | 5   365       |
| 66    |     | 6832 | 6905 | 6978 | 7051 | 7124 | 7196 | 7269 | 7342 | 7415 | 7488  | 6   438       |
| 67    |     | 7560 | 7633 | 7706 | 7779 | 7851 | 7924 | 7997 | 8070 | 8143 | 8215  | 7   511       |
| 68    |     | 8288 | 8361 | 8434 | 8506 | 8579 | 8652 | 8725 | 8798 | 8870 | 8943  | 8   584       |
| 69    |     | 9016 | 9089 | 9161 | 9234 | 9307 | 9380 | 9452 | 9525 | 9598 | 9671  | 9   657       |
| 59 70 | *   | 9743 | 9816 | 9889 | 9962 | 1034 | 0107 | 0180 | 0253 | 0325 | 0398  |               |
| 71    | 776 | 0471 | 0543 | 0616 | 0689 | 0762 | 0834 | 0907 | 0980 | 1053 | 1125  |               |
| 72    |     | 1198 | 1271 | 1343 | 1416 | 1489 | 1562 | 1634 | 1707 | 1780 | 1852  |               |
| 73    |     | 1925 | 1998 | 2071 | 2143 | 2216 | 2289 | 2361 | 2434 | 2507 | 2579  |               |
| 74    |     | 2652 | 2725 | 2798 | 2870 | 2943 | 3016 | 3088 | 3161 | 3234 | 3306  |               |
| 75    |     | 3379 | 3452 | 3524 | 3597 | 3670 | 3743 | 3815 | 3888 | 3961 | 4033  |               |
| 76    |     | 4106 | 4179 | 4251 | 4324 | 4397 | 4469 | 4542 | 4615 | 4687 | 4760  |               |
| 77    |     | 4833 | 4905 | 4978 | 5051 | 5123 | 5196 | 5269 | 5341 | 5414 | 5486  |               |
| 78    |     | 5559 | 5632 | 5704 | 5777 | 5850 | 5922 | 5995 | 6068 | 6140 | 6213  |               |
| 79    |     | 6286 | 6358 | 6431 | 6503 | 6576 | 6649 | 6721 | 6794 | 6867 | 6939  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Meth. |

LOGARITHMS OF NUMBERS.

| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 5980 | 776 | 7012 | 7084 | 7157 | 7230 | 7302 | 7375 | 7448 | 7520 | 7593 | 7665  | 1   73        |
| 81   |     | 7738 | 7811 | 7883 | 7956 | 8028 | 8101 | 8174 | 8246 | 8319 | 8391  | 2   146       |
| 82   |     | 8464 | 8537 | 8609 | 8682 | 8754 | 8827 | 8900 | 8972 | 9045 | 9117  | 3   219       |
| 83   |     | 9190 | 9263 | 9335 | 9408 | 9480 | 9553 | 9626 | 9698 | 9771 | 9843  | 4   292       |
| 84   | *   | 9916 | 9988 | +061 | 0134 | 0206 | 0279 | 0351 | 0424 | 0496 | 0569  | 5   365       |
| 85   |     | 777  | 0642 | 0714 | 0787 | 0859 | 0932 | 1004 | 1077 | 1149 | 1222  | 6   438       |
| 86   |     | 1367 | 1440 | 1512 | 1585 | 1657 | 1730 | 1802 | 1875 | 1947 | 2020  | 7   511       |
| 87   |     | 2093 | 2165 | 2238 | 2310 | 2383 | 2455 | 2528 | 2600 | 2673 | 2745  | 8   584       |
| 88   |     | 2818 | 2890 | 2963 | 3035 | 3108 | 3181 | 3253 | 3326 | 3398 | 3471  | 9   657       |
| 89   |     | 3543 | 3616 | 3688 | 3761 | 3833 | 3906 | 3978 | 4051 | 4123 | 4196  |               |
| 5990 |     | 4268 | 4341 | 4413 | 4486 | 4558 | 4631 | 4703 | 4776 | 4848 | 4921  |               |
| 91   |     | 4993 | 5066 | 5138 | 5211 | 5283 | 5356 | 5428 | 5501 | 5573 | 5646  |               |
| 92   |     | 5718 | 5791 | 5863 | 5935 | 6008 | 6080 | 6153 | 6225 | 6298 | 6370  |               |
| 93   |     | 6443 | 6515 | 6588 | 6660 | 6733 | 6805 | 6878 | 6950 | 7022 | 7095  |               |
| 94   |     | 7167 | 7240 | 7312 | 7385 | 7457 | 7530 | 7602 | 7675 | 7747 | 7819  |               |
| 95   |     | 7892 | 7964 | 8037 | 8109 | 8182 | 8254 | 8327 | 8399 | 8471 | 8544  |               |
| 96   |     | 8616 | 8689 | 8761 | 8834 | 8906 | 8978 | 9051 | 9123 | 9196 | 9268  |               |
| 97   |     | 9340 | 9413 | 9485 | 9558 | 9630 | 9703 | 9775 | 9847 | 9920 | 9992  |               |
| 98   | 778 | 0065 | 0137 | 0209 | 0282 | 0354 | 0427 | 0499 | 0571 | 0644 | 0716  |               |
| 99   |     | 0789 | 0861 | 0933 | 1006 | 1078 | 1151 | 1223 | 1295 | 1368 | 1440  |               |
| 6000 |     | 1513 | 1585 | 1657 | 1730 | 1802 | 1874 | 1947 | 2019 | 2092 | 2164  |               |
| 01   |     | 2236 | 2309 | 2381 | 2453 | 2526 | 2598 | 2670 | 2743 | 2815 | 2888  |               |
| 02   |     | 2960 | 3032 | 3105 | 3177 | 3249 | 3322 | 3394 | 3466 | 3539 | 3611  |               |
| 03   |     | 3683 | 3756 | 3828 | 3900 | 3973 | 4045 | 4117 | 4190 | 4262 | 4335  |               |
| 04   |     | 4407 | 4479 | 4552 | 4624 | 4696 | 4768 | 4841 | 4913 | 4985 | 5058  |               |
| 05   |     | 5130 | 5202 | 5275 | 5347 | 5419 | 5492 | 5564 | 5636 | 5709 | 5781  | 1   72        |
| 06   |     | 5853 | 5926 | 5998 | 6070 | 6143 | 6215 | 6287 | 6359 | 6432 | 6504  | 2   144       |
| 07   |     | 6576 | 6649 | 6721 | 6793 | 6866 | 6938 | 7010 | 7082 | 7155 | 7227  | 3   216       |
| 08   |     | 7299 | 7372 | 7444 | 7516 | 7588 | 7661 | 7733 | 7805 | 7877 | 7950  | 4   288       |
| 09   |     | 8022 | 8094 | 8167 | 8239 | 8311 | 8383 | 8456 | 8528 | 8600 | 8672  | 5   360       |
| 6010 |     | 8745 | 8817 | 8889 | 8962 | 9034 | 9106 | 9178 | 9251 | 9323 | 9395  | 6   432       |
| 11   | *   | 9467 | 9540 | 9612 | 9684 | 9756 | 9829 | 9901 | 9973 | +045 | 0117  | 7   504       |
| 12   | 779 | 0190 | 0262 | 0334 | 0406 | 0479 | 0551 | 0623 | 0695 | 0768 | 0840  | 8   576       |
| 13   |     | 0912 | 0984 | 1056 | 1129 | 1201 | 1273 | 1345 | 1418 | 1490 | 1562  | 9   648       |
| 14   |     | 1634 | 1706 | 1779 | 1851 | 1923 | 1995 | 2067 | 2140 | 2212 | 2284  |               |
| 15   |     | 2356 | 2429 | 2501 | 2573 | 2645 | 2717 | 2790 | 2862 | 2934 | 3006  |               |
| 16   |     | 3078 | 3150 | 3223 | 3295 | 3367 | 3439 | 3511 | 3584 | 3656 | 3728  |               |
| 17   |     | 3800 | 3872 | 3944 | 4017 | 4089 | 4161 | 4233 | 4305 | 4377 | 4450  |               |
| 18   |     | 4522 | 4594 | 4666 | 4738 | 4810 | 4883 | 4955 | 5027 | 5099 | 5171  |               |
| 19   |     | 5243 | 5316 | 5388 | 5460 | 5532 | 5604 | 5676 | 5748 | 5821 | 5893  |               |
| 6020 |     | 5965 | 6037 | 6109 | 6181 | 6253 | 6326 | 6398 | 6470 | 6542 | 6614  |               |
| 21   |     | 6686 | 6758 | 6831 | 6903 | 6975 | 7047 | 7119 | 7191 | 7263 | 7335  |               |
| 22   |     | 7408 | 7480 | 7552 | 7624 | 7696 | 7768 | 7840 | 7912 | 7984 | 8057  |               |
| 23   |     | 8129 | 8201 | 8273 | 8345 | 8417 | 8489 | 8561 | 8633 | 8705 | 8778  |               |
| 24   |     | 8850 | 8922 | 8994 | 9066 | 9138 | 9210 | 9282 | 9354 | 9426 | 9498  |               |
| 25   | *   | 9571 | 9643 | 9715 | 9787 | 9859 | 9931 | +003 | 0075 | 0147 | 0219  |               |
| 26   | 780 | 0291 | 0363 | 0435 | 0507 | 0580 | 0652 | 0724 | 0796 | 0868 | 0940  |               |
| 27   |     | 1012 | 1084 | 1156 | 1228 | 1300 | 1372 | 1444 | 1516 | 1588 | 1660  |               |
| 28   |     | 1732 | 1804 | 1877 | 1949 | 2021 | 2093 | 2165 | 2237 | 2309 | 2381  |               |
| 29   |     | 2453 | 2525 | 2597 | 2669 | 2741 | 2813 | 2885 | 2957 | 3029 | 3101  |               |
| 6030 |     | 3173 | 3245 | 3317 | 3389 | 3461 | 3533 | 3605 | 3677 | 3749 | 3821  |               |
| 31   |     | 3893 | 3965 | 4037 | 4109 | 4181 | 4253 | 4325 | 4397 | 4469 | 4541  |               |
| 32   |     | 4613 | 4685 | 4757 | 4829 | 4901 | 4973 | 5045 | 5117 | 5189 | 5261  |               |
| 33   |     | 5333 | 5405 | 5477 | 5549 | 5621 | 5693 | 5765 | 5837 | 5909 | 5981  |               |
| 34   |     | 6053 | 6125 | 6197 | 6269 | 6341 | 6413 | 6485 | 6557 | 6629 | 6701  |               |
| 35   |     | 6773 | 6845 | 6917 | 6989 | 7061 | 7133 | 7204 | 7276 | 7348 | 7420  |               |
| 36   |     | 7492 | 7564 | 7636 | 7708 | 7780 | 7852 | 7924 | 7996 | 8068 | 8140  |               |
| 37   |     | 8212 | 8284 | 8356 | 8428 | 8500 | 8571 | 8643 | 8715 | 8787 | 8859  |               |
| 38   |     | 8931 | 9003 | 9075 | 9147 | 9219 | 9291 | 9363 | 9435 | 9506 | 9578  |               |
| 39   | *   | 9650 | 9722 | 9794 | 9866 | 9938 | +010 | 0082 | 0154 | 0226 | 0297  |               |
| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|      |     |      |      |      |      |      |      |      |      |      | 72    | 1   71        |
|      |     |      |      |      |      |      |      |      |      |      |       | 2   142       |
|      |     |      |      |      |      |      |      |      |      |      |       | 3   213       |
|      |     |      |      |      |      |      |      |      |      |      |       | 4   284       |
|      |     |      |      |      |      |      |      |      |      |      |       | 5   355       |
|      |     |      |      |      |      |      |      |      |      |      |       | 6   426       |
|      |     |      |      |      |      |      |      |      |      |      |       | 7   497       |
|      |     |      |      |      |      |      |      |      |      |      |       | 8   568       |
|      |     |      |      |      |      |      |      |      |      |      |       | 9   639       |
| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 6040  | 781 | 0369 | 0441 | 0513 | 0585 | 0657 | 0729 | 0801 | 0873 | 0945 | 1016  |               |
| 41    |     | 1088 | 1160 | 1232 | 1304 | 1376 | 1448 | 1520 | 1592 | 1663 | 1735  |               |
| 42    |     | 1807 | 1879 | 1951 | 2023 | 2095 | 2167 | 2238 | 2310 | 2382 | 2454  |               |
| 43    |     | 2526 | 2598 | 2670 | 2742 | 2813 | 2885 | 2957 | 3029 | 3101 | 3173  |               |
| 44    |     | 3245 | 3316 | 3388 | 3460 | 3532 | 3604 | 3676 | 3748 | 3819 | 3891  |               |
| 45    |     | 3963 | 4035 | 4107 | 4179 | 4250 | 4322 | 4394 | 4466 | 4538 | 4610  |               |
| 46    |     | 4681 | 4753 | 4825 | 4897 | 4969 | 5041 | 5112 | 5184 | 5256 | 5328  |               |
| 47    |     | 5400 | 5472 | 5543 | 5615 | 5687 | 5759 | 5831 | 5902 | 5974 | 6046  |               |
| 48    |     | 6118 | 6190 | 6261 | 6333 | 6405 | 6477 | 6549 | 6620 | 6692 | 6764  |               |
| 49    |     | 6836 | 6908 | 6979 | 7051 | 7123 | 7195 | 7267 | 7338 | 7410 | 7482  |               |
| 60 50 |     | 7554 | 7626 | 7697 | 7769 | 7841 | 7913 | 7984 | 8056 | 8128 | 8200  | 1 72          |
| 51    |     | 8272 | 8343 | 8415 | 8487 | 8559 | 8630 | 8702 | 8774 | 8846 | 8917  | 2 144         |
| 52    |     | 8989 | 9061 | 9133 | 9204 | 9276 | 9348 | 9420 | 9491 | 9563 | 9635  | 3 216         |
| 53    | *   | 9707 | 9778 | 9850 | 9922 | 9994 | +065 | 0137 | 0209 | 0281 | 0352  | 4 288         |
| 54    | 782 | 0424 | 0496 | 0568 | 0639 | 0711 | 0783 | 0855 | 0926 | 0998 | 1070  | 5 360         |
| 55    |     | 1141 | 1213 | 1285 | 1357 | 1428 | 1500 | 1572 | 1644 | 1715 | 1787  | 6 432         |
| 56    |     | 1859 | 1930 | 2002 | 2074 | 2146 | 2217 | 2289 | 2361 | 2432 | 2504  | 7 504         |
| 57    |     | 2576 | 2647 | 2719 | 2791 | 2863 | 2934 | 3006 | 3078 | 3149 | 3221  | 8 576         |
| 58    |     | 3293 | 3364 | 3436 | 3508 | 3579 | 3651 | 3723 | 3794 | 3866 | 3938  | 9 648         |
| 59    |     | 4010 | 4081 | 4153 | 4225 | 4296 | 4368 | 4440 | 4511 | 4583 | 4655  |               |
| 60 60 |     | 4726 | 4798 | 4870 | 4941 | 5013 | 5085 | 5156 | 5228 | 5300 | 5371  |               |
| 61    |     | 5443 | 5514 | 5586 | 5658 | 5729 | 5801 | 5873 | 5944 | 6016 | 6088  |               |
| 62    |     | 6159 | 6231 | 6303 | 6374 | 6446 | 6518 | 6589 | 6661 | 6732 | 6804  |               |
| 63    |     | 6876 | 6947 | 7019 | 7091 | 7162 | 7234 | 7305 | 7377 | 7449 | 7520  |               |
| 64    |     | 7592 | 7664 | 7735 | 7807 | 7878 | 7950 | 8022 | 8093 | 8165 | 8236  |               |
| 65    |     | 8308 | 8380 | 8451 | 8523 | 8594 | 8666 | 8738 | 8809 | 8881 | 8952  |               |
| 66    |     | 9024 | 9096 | 9167 | 9239 | 9310 | 9382 | 9454 | 9525 | 9597 | 9668  |               |
| 67    | *   | 9740 | 9812 | 9883 | 9955 | +026 | 0098 | 0169 | 0241 | 0313 | 0384  |               |
| 68    | 783 | 0456 | 0527 | 0599 | 0670 | 0742 | 0814 | 0885 | 0957 | 1028 | 1100  |               |
| 69    |     | 1171 | 1243 | 1314 | 1386 | 1458 | 1529 | 1601 | 1672 | 1744 | 1815  |               |
| 60 70 |     | 1887 | 1958 | 2030 | 2102 | 2173 | 2245 | 2316 | 2388 | 2459 | 2531  |               |
| 71    |     | 2602 | 2674 | 2745 | 2817 | 2888 | 2960 | 3032 | 3103 | 3175 | 3246  |               |
| 72    |     | 3318 | 3389 | 3461 | 3532 | 3604 | 3675 | 3747 | 3818 | 3890 | 3961  |               |
| 73    |     | 4033 | 4104 | 4176 | 4247 | 4319 | 4390 | 4462 | 4533 | 4605 | 4676  |               |
| 74    |     | 4748 | 4819 | 4891 | 4962 | 5034 | 5105 | 5177 | 5248 | 5320 | 5391  |               |
| 75    |     | 5463 | 5534 | 5606 | 5677 | 5749 | 5820 | 5892 | 5963 | 6035 | 6106  |               |
| 76    |     | 6178 | 6249 | 6321 | 6392 | 6464 | 6535 | 6606 | 6678 | 6749 | 6821  |               |
| 77    |     | 6892 | 6964 | 7035 | 7107 | 7178 | 7250 | 7321 | 7393 | 7464 | 7536  |               |
| 78    |     | 7607 | 7678 | 7750 | 7821 | 7893 | 7964 | 8036 | 8107 | 8179 | 8250  |               |
| 79    |     | 8321 | 8393 | 8464 | 8536 | 8607 | 8679 | 8750 | 8821 | 8893 | 8964  |               |
| 60 80 |     | 9036 | 9107 | 9179 | 9250 | 9322 | 9393 | 9464 | 9536 | 9607 | 9679  |               |
| 81    | *   | 9750 | 9821 | 9893 | 9964 | +036 | 0107 | 0179 | 0250 | 0321 | 0393  | 1 71          |
| 82    | 784 | 0464 | 0536 | 0607 | 0678 | 0750 | 0821 | 0893 | 0964 | 1035 | 1107  | 2 142         |
| 83    |     | 1178 | 1250 | 1321 | 1392 | 1464 | 1535 | 1607 | 1678 | 1749 | 1821  | 3 213         |
| 84    |     | 1892 | 1963 | 2035 | 2106 | 2178 | 2249 | 2320 | 2392 | 2463 | 2534  | 4 284         |
| 85    |     | 2606 | 2677 | 2749 | 2820 | 2891 | 2963 | 3034 | 3105 | 3177 | 3248  | 5 355         |
| 86    |     | 3319 | 3391 | 3462 | 3534 | 3605 | 3676 | 3748 | 3819 | 3890 | 3962  | 6 426         |
| 87    |     | 4033 | 4104 | 4176 | 4247 | 4318 | 4390 | 4461 | 4532 | 4604 | 4675  | 7 497         |
| 88    |     | 4746 | 4818 | 4889 | 4960 | 5032 | 5103 | 5174 | 5246 | 5317 | 5388  | 8 568         |
| 89    |     | 5460 | 5531 | 5602 | 5674 | 5745 | 5816 | 5888 | 5959 | 6030 | 6102  | 9 639         |
| 60 90 |     | 6173 | 6244 | 6316 | 6387 | 6458 | 6529 | 6601 | 6672 | 6743 | 6815  |               |
| 91    |     | 6886 | 6957 | 7029 | 7100 | 7171 | 7242 | 7314 | 7385 | 7456 | 7528  |               |
| 92    |     | 7599 | 7670 | 7742 | 7813 | 7884 | 7955 | 8027 | 8098 | 8169 | 8241  |               |
| 93    |     | 8312 | 8383 | 8454 | 8526 | 8597 | 8668 | 8739 | 8811 | 8882 | 8953  |               |
| 94    |     | 9024 | 9096 | 9167 | 9238 | 9310 | 9381 | 9452 | 9523 | 9595 | 9666  |               |
| 95    | *   | 9737 | 9808 | 9880 | 9951 | +022 | 0093 | 0165 | 0236 | 0307 | 0378  |               |
| 96    | 785 | 0450 | 0521 | 0592 | 0663 | 0735 | 0806 | 0877 | 0948 | 1019 | 1091  |               |
| 97    |     | 1162 | 1233 | 1304 | 1376 | 1447 | 1518 | 1589 | 1661 | 1732 | 1803  |               |
| 98    |     | 1874 | 1945 | 2017 | 2088 | 2159 | 2230 | 2301 | 2373 | 2444 | 2515  |               |
| 99    |     | 2586 | 2658 | 2729 | 2800 | 2871 | 2942 | 3014 | 3085 | 3156 | 3227  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |



| Num. | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |     |
|------|--------|------|------|------|------|------|------|------|------|------|-------|---------------|-----|
| 6100 | 785    | 3298 | 3370 | 3441 | 3512 | 3583 | 3654 | 3726 | 3797 | 3868 | 3939  |               |     |
| 01   | 4010   | 4081 | 4153 | 4224 | 4295 | 4366 | 4437 | 4509 | 4580 | 4651 |       |               |     |
| 02   | 4722   | 4793 | 4864 | 4936 | 5007 | 5078 | 5149 | 5220 | 5291 | 5363 |       |               |     |
| 03   | 5434   | 5505 | 5576 | 5647 | 5718 | 5789 | 5861 | 5932 | 6003 | 6074 |       |               |     |
| 04   | 6145   | 6216 | 6288 | 6359 | 6430 | 6501 | 6572 | 6643 | 6714 | 6786 |       |               |     |
| 05   | 6857   | 6928 | 6999 | 7070 | 7141 | 7212 | 7283 | 7355 | 7426 | 7497 |       |               |     |
| 06   | 7568   | 7639 | 7710 | 7781 | 7852 | 7924 | 7995 | 8066 | 8137 | 8208 |       |               |     |
| 07   | 8279   | 8350 | 8421 | 8493 | 8564 | 8635 | 8706 | 8777 | 8848 | 8919 |       |               |     |
| 08   | 8990   | 9061 | 9132 | 9204 | 9275 | 9346 | 9417 | 9488 | 9559 | 9630 |       |               |     |
| 09   | * 9701 | 9772 | 9843 | 9915 | 9986 | +057 | 0128 | 0199 | 0270 | 0341 |       |               |     |
| 6110 | 786    | 0412 | 0483 | 0554 | 0625 | 0696 | 0767 | 0839 | 0910 | 0981 | 1052  | 1             | 71  |
| 11   | 1123   | 1194 | 1265 | 1336 | 1407 | 1478 | 1549 | 1620 | 1691 | 1762 |       | 2             | 142 |
| 12   | 1833   | 1905 | 1976 | 2047 | 2118 | 2189 | 2260 | 2331 | 2402 | 2473 |       | 3             | 213 |
| 13   | 2544   | 2615 | 2686 | 2757 | 2828 | 2899 | 2970 | 3041 | 3112 | 3183 |       | 4             | 284 |
| 14   | 3254   | 3325 | 3396 | 3467 | 3538 | 3609 | 3681 | 3752 | 3823 | 3894 |       | 5             | 355 |
| 15   | 3965   | 4036 | 4107 | 4178 | 4249 | 4320 | 4391 | 4462 | 4533 | 4604 |       | 6             | 426 |
| 16   | 4675   | 4746 | 4817 | 4888 | 4959 | 5030 | 5101 | 5172 | 5243 | 5314 |       | 7             | 497 |
| 17   | 5385   | 5456 | 5527 | 5598 | 5669 | 5740 | 5811 | 5882 | 5953 | 6024 |       | 8             | 568 |
| 18   | 6095   | 6166 | 6237 | 6308 | 6379 | 6450 | 6521 | 6592 | 6663 | 6734 |       | 9             | 639 |
| 19   | 6805   | 6876 | 6946 | 7017 | 7088 | 7159 | 7230 | 7301 | 7372 | 7443 |       |               |     |
| 6120 | 7514   | 7585 | 7656 | 7727 | 7798 | 7869 | 7940 | 8011 | 8082 | 8153 |       |               |     |
| 21   | 8224   | 8295 | 8366 | 8437 | 8508 | 8579 | 8649 | 8720 | 8791 | 8862 |       |               |     |
| 22   | 8933   | 9004 | 9075 | 9146 | 9217 | 9288 | 9359 | 9430 | 9501 | 9572 |       |               |     |
| 23   | * 9643 | 9714 | 9784 | 9855 | 9926 | 9997 | +068 | 0139 | 0210 | 0281 |       |               |     |
| 24   | 787    | 0352 | 0423 | 0494 | 0565 | 0636 | 0707 | 0777 | 0848 | 0919 | 0990  |               |     |
| 25   | 1061   | 1132 | 1203 | 1274 | 1345 | 1415 | 1486 | 1557 | 1628 | 1699 |       |               |     |
| 26   | 1770   | 1841 | 1912 | 1983 | 2053 | 2124 | 2195 | 2266 | 2337 | 2408 |       |               |     |
| 27   | 2479   | 2550 | 2621 | 2691 | 2762 | 2833 | 2904 | 2975 | 3046 | 3117 |       |               |     |
| 28   | 3188   | 3258 | 3329 | 3400 | 3471 | 3542 | 3613 | 3684 | 3754 | 3825 |       |               |     |
| 29   | 3896   | 3967 | 4038 | 4109 | 4180 | 4250 | 4321 | 4392 | 4463 | 4534 |       |               |     |
| 6130 | 4605   | 4676 | 4746 | 4817 | 4888 | 4959 | 5030 | 5101 | 5171 | 5242 |       |               |     |
| 31   | 5313   | 5384 | 5455 | 5526 | 5596 | 5667 | 5738 | 5809 | 5880 | 5951 |       |               |     |
| 32   | 6021   | 6092 | 6163 | 6234 | 6305 | 6376 | 6446 | 6517 | 6588 | 6659 |       |               |     |
| 33   | 6730   | 6800 | 6871 | 6942 | 7013 | 7084 | 7155 | 7225 | 7296 | 7367 |       |               |     |
| 34   | 7438   | 7509 | 7579 | 7650 | 7721 | 7792 | 7863 | 7933 | 8004 | 8075 |       |               |     |
| 35   | 8146   | 8216 | 8287 | 8358 | 8429 | 8500 | 8570 | 8641 | 8712 | 8783 |       |               |     |
| 36   | 8854   | 8924 | 8995 | 9066 | 9137 | 9207 | 9278 | 9349 | 9420 | 9490 |       |               |     |
| 37   | * 9561 | 9632 | 9703 | 9774 | 9844 | 9915 | 9986 | +057 | 0127 | 0198 |       |               |     |
| 38   | 788    | 0269 | 0340 | 0410 | 0481 | 0552 | 0623 | 0693 | 0764 | 0835 | 0906  |               |     |
| 39   | 0976   | 1047 | 1118 | 1189 | 1259 | 1330 | 1401 | 1472 | 1542 | 1613 |       |               |     |
| 6140 | 1684   | 1754 | 1825 | 1896 | 1967 | 2037 | 2108 | 2179 | 2250 | 2320 |       |               |     |
| 41   | 2391   | 2462 | 2532 | 2603 | 2674 | 2745 | 2815 | 2886 | 2957 | 3027 |       | 1             | 70  |
| 42   | 3098   | 3169 | 3240 | 3310 | 3381 | 3452 | 3522 | 3593 | 3664 | 3734 |       | 2             | 140 |
| 43   | 3805   | 3876 | 3947 | 4017 | 4088 | 4159 | 4229 | 4300 | 4371 | 4441 |       | 3             | 210 |
| 44   | 4512   | 4583 | 4653 | 4724 | 4795 | 4865 | 4936 | 5007 | 5078 | 5148 |       | 4             | 280 |
| 45   | 5219   | 5290 | 5360 | 5431 | 5502 | 5572 | 5643 | 5714 | 5784 | 5855 |       | 5             | 350 |
| 46   | 5926   | 5996 | 6067 | 6138 | 6208 | 6279 | 6350 | 6420 | 6491 | 6561 |       | 6             | 420 |
| 47   | 6632   | 6703 | 6773 | 6844 | 6915 | 6985 | 7056 | 7127 | 7197 | 7268 |       | 7             | 490 |
| 48   | 7339   | 7409 | 7480 | 7551 | 7621 | 7692 | 7762 | 7833 | 7904 | 7974 |       | 8             | 560 |
| 49   | 8045   | 8116 | 8186 | 8257 | 8327 | 8398 | 8469 | 8539 | 8610 | 8681 |       | 9             | 630 |
| 6150 | 8751   | 8822 | 8892 | 8963 | 9034 | 9104 | 9175 | 9245 | 9316 | 9387 |       |               |     |
| 51   | * 9457 | 9528 | 9598 | 9669 | 9740 | 9810 | 9881 | 9951 | +022 | 0093 |       |               |     |
| 52   | 789    | 0163 | 0234 | 0304 | 0375 | 0446 | 0516 | 0587 | 0657 | 0728 | 0799  |               |     |
| 53   | 0869   | 0940 | 1010 | 1081 | 1151 | 1222 | 1293 | 1363 | 1434 | 1504 |       |               |     |
| 54   | 1575   | 1645 | 1716 | 1787 | 1857 | 1928 | 1998 | 2069 | 2139 | 2210 |       |               |     |
| 55   | 2281   | 2351 | 2422 | 2492 | 2563 | 2633 | 2704 | 2774 | 2845 | 2916 |       |               |     |
| 56   | 2986   | 3057 | 3127 | 3198 | 3268 | 3339 | 3409 | 3480 | 3550 | 3621 |       |               |     |
| 57   | 3692   | 3762 | 3833 | 3903 | 3974 | 4044 | 4115 | 4185 | 4256 | 4326 |       |               |     |
| 58   | 4397   | 4467 | 4538 | 4608 | 4679 | 4749 | 4820 | 4890 | 4961 | 5032 |       |               |     |
| 59   | 5102   | 5173 | 5243 | 5314 | 5384 | 5455 | 5525 | 5596 | 5666 | 5737 |       |               |     |
| Num. | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |     |

| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|--------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>61 60</b> | <b>789</b> | 5807 | 5878 | 5948 | 6019 | 6089 | 6160 | 6230 | 6301 | 6371 | 6442  |               |
| 61           |            | 6512 | 6583 | 6653 | 6724 | 6794 | 6865 | 6935 | 7005 | 7076 | 7146  |               |
| 62           |            | 7217 | 7287 | 7358 | 7428 | 7499 | 7569 | 7640 | 7710 | 7781 | 7851  |               |
| 63           |            | 7922 | 7992 | 8063 | 8133 | 8204 | 8274 | 8344 | 8415 | 8485 | 8556  |               |
| 64           |            | 8626 | 8697 | 8767 | 8838 | 8908 | 8979 | 9049 | 9119 | 9190 | 9260  |               |
| 65           |            | 9331 | 9401 | 9472 | 9542 | 9613 | 9683 | 9753 | 9824 | 9894 | 9965  |               |
| 66           | 790        | 0035 | 0106 | 0176 | 0247 | 0317 | 0387 | 0458 | 0528 | 0599 | 0669  |               |
| 67           |            | 0739 | 0810 | 0880 | 0951 | 1021 | 1092 | 1162 | 1232 | 1303 | 1373  |               |
| 68           |            | 1444 | 1514 | 1584 | 1655 | 1725 | 1796 | 1866 | 1936 | 2007 | 2077  |               |
| 69           |            | 2148 | 2218 | 2288 | 2359 | 2429 | 2500 | 2570 | 2640 | 2711 | 2781  |               |
| <b>61 70</b> |            | 2852 | 2922 | 2992 | 3063 | 3133 | 3204 | 3274 | 3344 | 3415 | 3485  | 1   71        |
| 71           |            | 3555 | 3626 | 3696 | 3767 | 3837 | 3907 | 3978 | 4048 | 4118 | 4189  | 2   142       |
| 72           |            | 4259 | 4330 | 4400 | 4470 | 4541 | 4611 | 4681 | 4752 | 4822 | 4892  | 3   213       |
| 73           |            | 4963 | 5033 | 5103 | 5174 | 5244 | 5315 | 5385 | 5455 | 5526 | 5596  | 4   284       |
| 74           |            | 5666 | 5737 | 5807 | 5877 | 5948 | 6018 | 6088 | 6159 | 6229 | 6299  | 5   355       |
| 75           |            | 6370 | 6440 | 6510 | 6581 | 6651 | 6721 | 6792 | 6862 | 6932 | 7003  | 6   426       |
| 76           |            | 7073 | 7143 | 7214 | 7284 | 7354 | 7424 | 7495 | 7565 | 7635 | 7706  | 7   497       |
| 77           |            | 7776 | 7846 | 7917 | 7987 | 8057 | 8128 | 8198 | 8268 | 8338 | 8409  | 8   568       |
| 78           |            | 8479 | 8549 | 8620 | 8690 | 8760 | 8831 | 8901 | 8971 | 9041 | 9112  | 9   639       |
| 79           |            | 9182 | 9252 | 9322 | 9393 | 9463 | 9533 | 9604 | 9674 | 9744 | 9814  |               |
| <b>61 80</b> | *          | 9885 | 9955 | •025 | 0096 | 0166 | 0236 | 0306 | 0377 | 0447 | 0517  |               |
| 81           | 791        | 0587 | 0658 | 0728 | 0798 | 0868 | 0939 | 1009 | 1079 | 1150 | 1220  |               |
| 82           |            | 1290 | 1360 | 1431 | 1501 | 1571 | 1641 | 1711 | 1782 | 1852 | 1922  |               |
| 83           |            | 1992 | 2063 | 2133 | 2203 | 2273 | 2344 | 2414 | 2484 | 2554 | 2625  |               |
| 84           |            | 2695 | 2765 | 2835 | 2905 | 2976 | 3046 | 3116 | 3186 | 3257 | 3327  |               |
| 85           |            | 3397 | 3467 | 3537 | 3608 | 3678 | 3748 | 3818 | 3889 | 3959 | 4029  |               |
| 86           |            | 4099 | 4169 | 4240 | 4310 | 4380 | 4450 | 4520 | 4591 | 4661 | 4731  |               |
| 87           |            | 4801 | 4871 | 4942 | 5012 | 5082 | 5152 | 5222 | 5292 | 5363 | 5433  |               |
| 88           |            | 5503 | 5573 | 5643 | 5714 | 5784 | 5854 | 5924 | 5994 | 6064 | 6135  |               |
| 89           |            | 6205 | 6275 | 6345 | 6415 | 6486 | 6556 | 6626 | 6696 | 6766 | 6836  |               |
| <b>61 90</b> |            | 6906 | 6977 | 7047 | 7117 | 7187 | 7257 | 7327 | 7398 | 7468 | 7538  |               |
| 91           |            | 7608 | 7678 | 7748 | 7818 | 7889 | 7959 | 8029 | 8099 | 8169 | 8239  |               |
| 92           |            | 8309 | 8380 | 8450 | 8520 | 8590 | 8660 | 8730 | 8800 | 8871 | 8941  |               |
| 93           |            | 9011 | 9081 | 9151 | 9221 | 9291 | 9361 | 9432 | 9502 | 9572 | 9642  |               |
| 94           | *          | 9712 | 9782 | 9852 | 9922 | 9992 | +063 | 0133 | 0203 | 0273 | 0343  |               |
| 95           | 792        | 0413 | 0483 | 0553 | 0623 | 0694 | 0764 | 0834 | 0904 | 0974 | 1044  |               |
| 96           |            | 1114 | 1184 | 1254 | 1324 | 1394 | 1465 | 1535 | 1605 | 1675 | 1745  |               |
| 97           |            | 1815 | 1885 | 1955 | 2025 | 2095 | 2165 | 2235 | 2306 | 2376 | 2446  |               |
| 98           |            | 2516 | 2586 | 2656 | 2726 | 2796 | 2866 | 2936 | 3006 | 3076 | 3146  |               |
| 99           |            | 3216 | 3286 | 3356 | 3427 | 3497 | 3567 | 3637 | 3707 | 3777 | 3847  |               |
| <b>62 00</b> |            | 3917 | 3987 | 4057 | 4127 | 4197 | 4267 | 4337 | 4407 | 4477 | 4547  |               |
| 01           |            | 4617 | 4687 | 4757 | 4827 | 4897 | 4967 | 5038 | 5108 | 5178 | 5248  | 1   70        |
| 02           |            | 5318 | 5388 | 5458 | 5528 | 5598 | 5668 | 5738 | 5808 | 5878 | 5948  | 2   140       |
| 03           |            | 6018 | 6088 | 6158 | 6228 | 6298 | 6368 | 6438 | 6508 | 6578 | 6648  | 3   210       |
| 04           |            | 6718 | 6788 | 6858 | 6928 | 6998 | 7068 | 7138 | 7208 | 7278 | 7348  | 4   280       |
| 05           |            | 7418 | 7488 | 7558 | 7628 | 7698 | 7768 | 7838 | 7908 | 7978 | 8048  | 5   350       |
| 06           |            | 8118 | 8188 | 8258 | 8328 | 8398 | 8468 | 8538 | 8608 | 8678 | 8747  | 6   420       |
| 07           |            | 8817 | 8887 | 8957 | 9027 | 9097 | 9167 | 9237 | 9307 | 9377 | 9447  | 7   490       |
| 08           | *          | 9517 | 9587 | 9657 | 9727 | 9797 | 9867 | 9937 | +007 | 0077 | 0147  | 8   560       |
| 09           | 793        | 0217 | 0287 | 0356 | 0426 | 0496 | 0566 | 0636 | 0706 | 0776 | 0846  | 9   630       |
| <b>62 10</b> |            | 0916 | 0986 | 1056 | 1126 | 1196 | 1266 | 1336 | 1406 | 1475 | 1545  |               |
| 11           |            | 1615 | 1685 | 1755 | 1825 | 1895 | 1965 | 2035 | 2105 | 2175 | 2245  |               |
| 12           |            | 2314 | 2384 | 2454 | 2524 | 2594 | 2664 | 2734 | 2804 | 2874 | 2944  |               |
| 13           |            | 3014 | 3083 | 3153 | 3223 | 3293 | 3363 | 3433 | 3503 | 3573 | 3643  |               |
| 14           |            | 3712 | 3782 | 3852 | 3922 | 3992 | 4062 | 4132 | 4202 | 4272 | 4341  |               |
| 15           |            | 4411 | 4481 | 4551 | 4621 | 4691 | 4761 | 4831 | 4900 | 4970 | 5040  |               |
| 16           |            | 5110 | 5180 | 5250 | 5320 | 5390 | 5459 | 5529 | 5599 | 5669 | 5739  |               |
| 17           |            | 5809 | 5879 | 5948 | 6018 | 6088 | 6158 | 6228 | 6298 | 6367 | 6437  |               |
| 18           |            | 6507 | 6577 | 6647 | 6717 | 6787 | 6856 | 6926 | 6996 | 7066 | 7136  |               |
| 19           |            | 7206 | 7275 | 7345 | 7415 | 7485 | 7555 | 7625 | 7694 | 7764 | 7834  |               |
| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1      | 2      | 3      | 4    | 5      | 6    | 7    | 8    | 9      | Diff. | Diff. & Mult. |
|-------------|------------|--------|--------|--------|------|--------|------|------|------|--------|-------|---------------|
| <b>6220</b> | <b>793</b> | 7904   | 7974   | 8043   | 8113 | 8183   | 8253 | 8323 | 8393 | 8462   | 8532  |               |
| 21          |            | 8602   | 8672   | 8742   | 8811 | 8881   | 8951 | 9021 | 9091 | 9160   | 9230  |               |
| 22          |            | 9300   | 9370   | 9440   | 9509 | 9579   | 9649 | 9719 | 9789 | 9858   | 9928  |               |
| 23          |            | • 9998 | • 0068 | 0138   | 0207 | 0277   | 0347 | 0417 | 0487 | 0556   | 0626  |               |
| 24          | <b>794</b> | 0696   | 0766   | 0835   | 0905 | 0975   | 1045 | 1114 | 1184 | 1254   | 1324  |               |
| 25          |            | 1394   | 1463   | 1533   | 1603 | 1673   | 1742 | 1812 | 1882 | 1952   | 2021  |               |
| 26          |            | 2091   | 2161   | 2231   | 2300 | 2370   | 2440 | 2510 | 2579 | 2649   | 2719  |               |
| 27          |            | 2789   | 2858   | 2928   | 2998 | 3068   | 3137 | 3207 | 3277 | 3347   | 3416  |               |
| 28          |            | 3486   | 3556   | 3626   | 3695 | 3765   | 3835 | 3904 | 3974 | 4044   | 4114  |               |
| 29          |            | 4183   | 4253   | 4323   | 4392 | 4462   | 4532 | 4602 | 4671 | 4741   | 4811  |               |
| <b>6230</b> |            | 4880   | 4950   | 5020   | 5090 | 5159   | 5229 | 5299 | 5368 | 5438   | 5508  |               |
| 31          |            | 5578   | 5647   | 5717   | 5787 | 5856   | 5926 | 5996 | 6065 | 6135   | 6205  |               |
| 32          |            | 6274   | 6344   | 6414   | 6484 | 6553   | 6623 | 6693 | 6762 | 6832   | 6902  |               |
| 33          |            | 6971   | 7041   | 7111   | 7180 | 7250   | 7320 | 7389 | 7459 | 7529   | 7598  |               |
| 34          |            | 7668   | 7738   | 7807   | 7877 | 7947   | 8016 | 8086 | 8156 | 8225   | 8295  |               |
| 35          |            | 8365   | 8434   | 8504   | 8574 | 8643   | 8713 | 8782 | 8852 | 8922   | 8991  |               |
| 36          |            | 9061   | 9131   | 9200   | 9270 | 9340   | 9409 | 9479 | 9549 | 9618   | 9688  |               |
| 37          |            | • 9757 | 9827   | 9897   | 9966 | • 0036 | 0106 | 0175 | 0245 | 0314   | 0384  |               |
| 38          | <b>795</b> | 0454   | 0523   | 0593   | 0663 | 0732   | 0802 | 0871 | 0941 | 1011   | 1080  |               |
| 39          |            | 1150   | 1219   | 1289   | 1359 | 1428   | 1498 | 1567 | 1637 | 1707   | 1776  |               |
| <b>6240</b> |            | 1846   | 1915   | 1985   | 2055 | 2124   | 2194 | 2263 | 2333 | 2403   | 2472  |               |
| 41          |            | 2542   | 2611   | 2681   | 2751 | 2820   | 2890 | 2959 | 3029 | 3098   | 3168  |               |
| 42          |            | 3238   | 3307   | 3377   | 3446 | 3516   | 3586 | 3655 | 3725 | 3794   | 3864  |               |
| 43          |            | 3933   | 4003   | 4072   | 4142 | 4212   | 4281 | 4351 | 4420 | 4490   | 4559  |               |
| 44          |            | 4629   | 4698   | 4768   | 4838 | 4907   | 4977 | 5046 | 5116 | 5185   | 5255  |               |
| 45          |            | 5324   | 5394   | 5464   | 5533 | 5603   | 5672 | 5742 | 5811 | 5881   | 5950  |               |
| 46          |            | 6020   | 6089   | 6159   | 6228 | 6298   | 6367 | 6437 | 6506 | 6576   | 6646  |               |
| 47          |            | 6715   | 6785   | 6854   | 6924 | 6993   | 7063 | 7132 | 7202 | 7271   | 7341  |               |
| 48          |            | 7410   | 7480   | 7549   | 7619 | 7688   | 7758 | 7827 | 7897 | 7966   | 8036  |               |
| 49          |            | 8105   | 8175   | 8244   | 8314 | 8383   | 8453 | 8522 | 8592 | 8661   | 8731  |               |
| <b>6250</b> |            | 8800   | 8870   | 8939   | 9009 | 9078   | 9148 | 9217 | 9287 | 9356   | 9426  |               |
| 51          |            | • 9495 | 9564   | 9634   | 9703 | 9773   | 9842 | 9912 | 9981 | • 0051 | 0120  |               |
| 52          | <b>796</b> | 0190   | 0259   | 0329   | 0398 | 0468   | 0537 | 0606 | 0676 | 0745   | 0815  |               |
| 53          |            | 0884   | 0954   | 1023   | 1093 | 1162   | 1232 | 1301 | 1370 | 1440   | 1509  |               |
| 54          |            | 1579   | 1648   | 1718   | 1787 | 1857   | 1926 | 1995 | 2065 | 2134   | 2204  |               |
| 55          |            | 2273   | 2343   | 2412   | 2481 | 2551   | 2620 | 2690 | 2759 | 2829   | 2898  |               |
| 56          |            | 2967   | 3037   | 3106   | 3176 | 3245   | 3314 | 3384 | 3453 | 3523   | 3592  |               |
| 57          |            | 3662   | 3731   | 3800   | 3870 | 3939   | 4009 | 4078 | 4147 | 4217   | 4286  |               |
| 58          |            | 4356   | 4425   | 4494   | 4564 | 4633   | 4703 | 4772 | 4841 | 4911   | 4980  |               |
| 59          |            | 5050   | 5119   | 5188   | 5258 | 5327   | 5396 | 5466 | 5535 | 5605   | 5674  |               |
| <b>6260</b> |            | 5743   | 5813   | 5882   | 5951 | 6021   | 6090 | 6160 | 6229 | 6298   | 6368  |               |
| 61          |            | 6437   | 6506   | 6576   | 6645 | 6714   | 6784 | 6853 | 6923 | 6992   | 7061  |               |
| 62          |            | 7131   | 7200   | 7269   | 7339 | 7408   | 7477 | 7547 | 7616 | 7685   | 7755  |               |
| 63          |            | 7824   | 7893   | 7963   | 8032 | 8101   | 8171 | 8240 | 8309 | 8379   | 8448  |               |
| 64          |            | 8517   | 8587   | 8656   | 8725 | 8795   | 8864 | 8933 | 9003 | 9072   | 9141  |               |
| 65          |            | 9211   | 9280   | 9349   | 9419 | 9488   | 9557 | 9627 | 9696 | 9765   | 9835  |               |
| 66          |            | • 9904 | 9973   | • 0043 | 0112 | 0181   | 0250 | 0320 | 0389 | 0458   | 0528  |               |
| 67          | <b>797</b> | 0597   | 0666   | 0736   | 0805 | 0874   | 0943 | 1013 | 1082 | 1151   | 1221  |               |
| 68          |            | 1290   | 1359   | 1428   | 1498 | 1567   | 1636 | 1706 | 1775 | 1844   | 1913  |               |
| 69          |            | 1983   | 2052   | 2121   | 2191 | 2260   | 2329 | 2398 | 2468 | 2537   | 2606  |               |
| <b>6270</b> |            | 2675   | 2745   | 2814   | 2883 | 2952   | 3022 | 3091 | 3160 | 3229   | 3299  |               |
| 71          |            | 3368   | 3437   | 3507   | 3576 | 3645   | 3714 | 3784 | 3853 | 3922   | 3991  |               |
| 72          |            | 4060   | 4130   | 4199   | 4268 | 4337   | 4407 | 4476 | 4545 | 4614   | 4684  |               |
| 73          |            | 4753   | 4822   | 4891   | 4961 | 5030   | 5099 | 5168 | 5237 | 5307   | 5376  |               |
| 74          |            | 5445   | 5514   | 5584   | 5653 | 5722   | 5791 | 5860 | 5930 | 5999   | 6068  |               |
| 75          |            | 6137   | 6207   | 6276   | 6345 | 6414   | 6483 | 6553 | 6622 | 6691   | 6760  |               |
| 76          |            | 6829   | 6899   | 6968   | 7037 | 7106   | 7175 | 7245 | 7314 | 7383   | 7452  |               |
| 77          |            | 7521   | 7590   | 7660   | 7729 | 7798   | 7867 | 7936 | 8006 | 8075   | 8144  |               |
| 78          |            | 8213   | 8282   | 8351   | 8421 | 8490   | 8559 | 8628 | 8697 | 8766   | 8836  |               |
| 79          |            | 8905   | 8974   | 9043   | 9112 | 9181   | 9251 | 9320 | 9389 | 9458   | 9527  |               |
| Num.        | 0          | 1      | 2      | 3      | 4    | 5      | 6    | 7    | 8    | 9      | Diff. | Diff. & Mult. |

|   |     |
|---|-----|
| 1 | 70  |
| 2 | 140 |
| 3 | 210 |
| 4 | 280 |
| 5 | 350 |
| 6 | 420 |
| 7 | 490 |
| 8 | 560 |
| 9 | 630 |

|   |     |
|---|-----|
| 1 | 69  |
| 2 | 138 |
| 3 | 207 |
| 4 | 276 |
| 5 | 345 |
| 6 | 414 |
| 7 | 483 |
| 8 | 552 |
| 9 | 621 |

| Num.        | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mark. |
|-------------|----------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>6290</b> | • 9596   | 9666 | 9735 | 9804 | 9873 | 9942 | +011 | 0080 | 0150 | 0219 |       |               |
| 81          | 798 0288 | 0357 | 0426 | 0495 | 0565 | 0634 | 0703 | 0772 | 0841 | 0910 |       |               |
| 82          | 0979     | 1048 | 1118 | 1187 | 1256 | 1325 | 1394 | 1463 | 1532 | 1601 |       |               |
| 83          | 1671     | 1740 | 1809 | 1878 | 1947 | 2016 | 2085 | 2154 | 2224 | 2293 |       |               |
| 84          | 2362     | 2431 | 2500 | 2569 | 2638 | 2707 | 2776 | 2845 | 2915 | 2984 |       |               |
| 85          | 3053     | 3122 | 3191 | 3260 | 3329 | 3398 | 3467 | 3536 | 3606 | 3675 |       |               |
| 86          | 3744     | 3813 | 3882 | 3951 | 4020 | 4089 | 4158 | 4227 | 4296 | 4366 |       |               |
| 87          | 4435     | 4504 | 4573 | 4642 | 4711 | 4780 | 4849 | 4918 | 4987 | 5056 |       |               |
| 88          | 5125     | 5194 | 5263 | 5333 | 5402 | 5471 | 5540 | 5609 | 5678 | 5747 |       |               |
| 89          | 5816     | 5885 | 5954 | 6023 | 6092 | 6161 | 6230 | 6299 | 6368 | 6437 |       |               |
| 62 90       | 6506     | 6575 | 6645 | 6714 | 6783 | 6852 | 6921 | 6990 | 7059 | 7128 |       | 1 70          |
| 91          | 7197     | 7266 | 7335 | 7404 | 7473 | 7542 | 7611 | 7680 | 7749 | 7818 |       | 2 140         |
| 92          | 7887     | 7956 | 8025 | 8094 | 8163 | 8232 | 8301 | 8370 | 8439 | 8508 |       | 3 210         |
| 93          | 8577     | 8646 | 8715 | 8784 | 8853 | 8922 | 8991 | 9060 | 9129 | 9198 |       | 4 280         |
| 94          | 9267     | 9336 | 9405 | 9474 | 9543 | 9612 | 9681 | 9750 | 9819 | 9888 | 69    | 5 350         |
| 95          | • 9957   | +026 | 0095 | 0164 | 0233 | 0302 | 0371 | 0440 | 0509 | 0578 |       | 6 420         |
| 96          | 799 0647 | 0716 | 0785 | 0854 | 0923 | 0992 | 1061 | 1130 | 1199 | 1268 |       | 7 490         |
| 97          | 1337     | 1406 | 1475 | 1544 | 1613 | 1682 | 1751 | 1820 | 1889 | 1958 |       | 8 560         |
| 98          | 2027     | 2096 | 2164 | 2233 | 2302 | 2371 | 2440 | 2509 | 2578 | 2647 |       | 9 630         |
| 99          | 2716     | 2785 | 2854 | 2923 | 2992 | 3061 | 3130 | 3199 | 3268 | 3337 |       |               |
| 63 00       | 3405     | 3474 | 3543 | 3612 | 3681 | 3750 | 3819 | 3888 | 3957 | 4026 |       |               |
| 01          | 4095     | 4164 | 4233 | 4302 | 4370 | 4439 | 4508 | 4577 | 4646 | 4715 |       |               |
| 02          | 4784     | 4853 | 4922 | 4991 | 5060 | 5129 | 5197 | 5266 | 5335 | 5404 |       |               |
| 03          | 5473     | 5542 | 5611 | 5680 | 5749 | 5818 | 5886 | 5955 | 6024 | 6093 |       |               |
| 04          | 6162     | 6231 | 6300 | 6369 | 6438 | 6506 | 6575 | 6644 | 6713 | 6782 |       |               |
| 05          | 6851     | 6920 | 6989 | 7058 | 7126 | 7195 | 7264 | 7333 | 7402 | 7471 |       |               |
| 06          | 7540     | 7609 | 7677 | 7746 | 7815 | 7884 | 7953 | 8022 | 8091 | 8159 |       |               |
| 07          | 8228     | 8297 | 8366 | 8435 | 8504 | 8573 | 8641 | 8710 | 8779 | 8848 |       |               |
| 08          | 8917     | 8986 | 9055 | 9123 | 9192 | 9261 | 9330 | 9399 | 9468 | 9536 |       |               |
| 09          | • 9605   | 9674 | 9743 | 9812 | 9881 | 9949 | +018 | 0087 | 0156 | 0225 |       |               |
| 63 10       | 800 0294 | 0362 | 0431 | 0500 | 0569 | 0638 | 0707 | 0775 | 0844 | 0913 |       |               |
| 11          | 0982     | 1051 | 1119 | 1188 | 1257 | 1326 | 1395 | 1463 | 1532 | 1601 |       |               |
| 12          | 1670     | 1739 | 1808 | 1876 | 1945 | 2014 | 2083 | 2152 | 2220 | 2289 |       |               |
| 13          | 2358     | 2427 | 2495 | 2564 | 2633 | 2702 | 2771 | 2839 | 2908 | 2977 |       |               |
| 14          | 3046     | 3115 | 3183 | 3252 | 3321 | 3390 | 3458 | 3527 | 3596 | 3665 |       |               |
| 15          | 3734     | 3802 | 3871 | 3940 | 4009 | 4077 | 4146 | 4215 | 4284 | 4352 |       |               |
| 16          | 4421     | 4490 | 4559 | 4627 | 4696 | 4765 | 4834 | 4903 | 4971 | 5040 |       |               |
| 17          | 5109     | 5178 | 5246 | 5315 | 5384 | 5453 | 5521 | 5590 | 5659 | 5727 |       |               |
| 18          | 5796     | 5865 | 5934 | 6002 | 6071 | 6140 | 6209 | 6277 | 6346 | 6415 |       |               |
| 19          | 6484     | 6552 | 6621 | 6690 | 6758 | 6827 | 6896 | 6965 | 7033 | 7102 |       |               |
| 63 20       | 7171     | 7239 | 7308 | 7377 | 7446 | 7514 | 7583 | 7652 | 7720 | 7789 |       |               |
| 21          | 7858     | 7927 | 7995 | 8064 | 8133 | 8201 | 8270 | 8339 | 8408 | 8476 |       | 1 69          |
| 22          | 8545     | 8614 | 8682 | 8751 | 8820 | 8888 | 8957 | 9026 | 9094 | 9163 |       | 2 138         |
| 23          | 9232     | 9301 | 9369 | 9438 | 9507 | 9575 | 9644 | 9713 | 9781 | 9850 |       | 3 207         |
| 24          | • 9919   | 9987 | +056 | 0125 | 0193 | 0262 | 0331 | 0399 | 0468 | 0537 |       | 4 276         |
| 25          | 801 0605 | 0674 | 0743 | 0811 | 0880 | 0949 | 1017 | 1086 | 1155 | 1223 |       | 5 345         |
| 26          | 1292     | 1361 | 1429 | 1498 | 1566 | 1635 | 1704 | 1772 | 1841 | 1910 |       | 6 414         |
| 27          | 1978     | 2047 | 2116 | 2184 | 2253 | 2322 | 2390 | 2459 | 2527 | 2596 |       | 7 483         |
| 28          | 2665     | 2733 | 2802 | 2871 | 2939 | 3008 | 3076 | 3145 | 3214 | 3282 |       | 8 552         |
| 29          | 3351     | 3420 | 3488 | 3557 | 3625 | 3694 | 3763 | 3831 | 3900 | 3968 |       | 9 621         |
| 63 30       | 4037     | 4106 | 4174 | 4243 | 4312 | 4380 | 4449 | 4517 | 4586 | 4655 |       |               |
| 31          | 4723     | 4792 | 4860 | 4929 | 4998 | 5066 | 5135 | 5203 | 5272 | 5340 |       |               |
| 32          | 5409     | 5478 | 5546 | 5615 | 5683 | 5752 | 5821 | 5889 | 5958 | 6026 |       |               |
| 33          | 6095     | 6163 | 6232 | 6301 | 6369 | 6438 | 6506 | 6575 | 6643 | 6712 |       |               |
| 34          | 6781     | 6849 | 6918 | 6986 | 7055 | 7123 | 7192 | 7261 | 7329 | 7398 |       |               |
| 35          | 7466     | 7535 | 7603 | 7672 | 7740 | 7809 | 7878 | 7946 | 8015 | 8083 |       |               |
| 36          | 8152     | 8220 | 8289 | 8357 | 8426 | 8494 | 8563 | 8631 | 8700 | 8769 |       |               |
| 37          | 8837     | 8906 | 8974 | 9043 | 9111 | 9180 | 9248 | 9317 | 9385 | 9454 |       |               |
| 38          | • 9522   | 9591 | 9659 | 9728 | 9796 | 9865 | 9933 | +002 | 0070 | 0139 |       |               |
| 39          | 802 0208 | 0276 | 0345 | 0413 | 0482 | 0550 | 0619 | 0687 | 0756 | 0824 |       |               |
| Num.        | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mark. |

| Num.  | 0   | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |     |
|-------|-----|--------|------|------|------|------|------|------|------|------|-------|---------------|-----|
| 6340  | 802 | 0893   | 0661 | 1030 | 1098 | 1167 | 1235 | 1304 | 1372 | 1441 | 1509  |               |     |
| 41    |     | 1578   | 1646 | 1715 | 1783 | 1851 | 1920 | 1988 | 2057 | 2125 | 2194  | 1             | 69  |
| 42    |     | 2262   | 2331 | 2399 | 2468 | 2536 | 2605 | 2673 | 2742 | 2810 | 2879  | 2             | 138 |
| 43    |     | 2947   | 3016 | 3084 | 3153 | 3221 | 3289 | 3358 | 3426 | 3495 | 3563  | 3             | 207 |
| 44    |     | 3632   | 3700 | 3769 | 3837 | 3906 | 3974 | 4042 | 4111 | 4179 | 4248  | 4             | 276 |
| 45    |     | 4316   | 4385 | 4453 | 4522 | 4590 | 4658 | 4727 | 4795 | 4864 | 4932  | 5             | 345 |
| 46    |     | 5001   | 5069 | 5138 | 5206 | 5274 | 5343 | 5411 | 5480 | 5548 | 5617  | 6             | 414 |
| 47    |     | 5685   | 5753 | 5822 | 5890 | 5959 | 6027 | 6096 | 6164 | 6232 | 6301  | 7             | 483 |
| 48    |     | 6369   | 6438 | 6506 | 6574 | 6643 | 6711 | 6780 | 6848 | 6916 | 6985  | 8             | 552 |
| 49    |     | 7053   | 7122 | 7190 | 7258 | 7327 | 7395 | 7464 | 7532 | 7600 | 7669  | 9             | 621 |
| 63 50 |     | 7737   | 7806 | 7874 | 7942 | 8011 | 8079 | 8148 | 8216 | 8284 | 8353  |               |     |
| 51    |     | 8421   | 8490 | 8558 | 8626 | 8695 | 8763 | 8831 | 8900 | 8968 | 9037  |               |     |
| 52    |     | 9105   | 9173 | 9242 | 9310 | 9378 | 9447 | 9515 | 9583 | 9652 | 9720  |               |     |
| 53    |     | * 9789 | 9857 | 9925 | 9994 | 0062 | 0130 | 0199 | 0267 | 0335 | 0404  |               |     |
| 54    | 803 | 0472   | 0540 | 0609 | 0677 | 0745 | 0814 | 0882 | 0951 | 1019 | 1087  |               |     |
| 55    |     | 1156   | 1224 | 1292 | 1361 | 1429 | 1497 | 1566 | 1634 | 1702 | 1771  |               |     |
| 56    |     | 1839   | 1907 | 1976 | 2044 | 2112 | 2181 | 2249 | 2317 | 2385 | 2454  |               |     |
| 57    |     | 2522   | 2590 | 2659 | 2727 | 2795 | 2864 | 2932 | 3000 | 3069 | 3137  |               |     |
| 58    |     | 3205   | 3274 | 3342 | 3410 | 3478 | 3547 | 3615 | 3683 | 3752 | 3820  |               |     |
| 59    |     | 3888   | 3957 | 4025 | 4093 | 4161 | 4230 | 4298 | 4366 | 4435 | 4503  |               |     |
| 63 60 |     | 4571   | 4639 | 4708 | 4776 | 4844 | 4913 | 4981 | 5049 | 5117 | 5186  |               |     |
| 61    |     | 5254   | 5322 | 5391 | 5459 | 5527 | 5595 | 5664 | 5732 | 5800 | 5868  |               |     |
| 62    |     | 5937   | 6005 | 6073 | 6141 | 6210 | 6278 | 6346 | 6414 | 6483 | 6551  |               |     |
| 63    |     | 6619   | 6687 | 6756 | 6824 | 6892 | 6960 | 7029 | 7097 | 7165 | 7233  |               |     |
| 64    |     | 7302   | 7370 | 7438 | 7506 | 7575 | 7643 | 7711 | 7779 | 7848 | 7916  |               |     |
| 65    |     | 7984   | 8052 | 8121 | 8189 | 8257 | 8325 | 8393 | 8462 | 8530 | 8598  |               |     |
| 66    |     | 8666   | 8735 | 8803 | 8871 | 8939 | 9007 | 9076 | 9144 | 9212 | 9280  | 1             | 68  |
| 67    |     | 9348   | 9417 | 9485 | 9553 | 9621 | 9690 | 9758 | 9826 | 9894 | 9962  | 2             | 136 |
| 68    | 804 | 0031   | 0099 | 0167 | 0235 | 0303 | 0372 | 0440 | 0508 | 0576 | 0644  | 3             | 204 |
| 69    |     | 0712   | 0781 | 0849 | 0917 | 0985 | 1053 | 1122 | 1190 | 1258 | 1326  | 4             | 272 |
| 70    |     | 1394   | 1463 | 1531 | 1599 | 1667 | 1735 | 1803 | 1872 | 1940 | 2008  | 5             | 340 |
| 71    |     | 2076   | 2144 | 2212 | 2281 | 2349 | 2417 | 2485 | 2553 | 2621 | 2690  | 6             | 408 |
| 72    |     | 2758   | 2826 | 2894 | 2962 | 3030 | 3098 | 3167 | 3235 | 3303 | 3371  | 7             | 476 |
| 73    |     | 3439   | 3507 | 3575 | 3644 | 3712 | 3780 | 3848 | 3916 | 3984 | 4052  | 8             | 544 |
| 74    |     | 4121   | 4189 | 4257 | 4325 | 4393 | 4461 | 4529 | 4598 | 4666 | 4734  | 9             | 612 |
| 75    |     | 4802   | 4870 | 4938 | 5006 | 5074 | 5143 | 5211 | 5279 | 5347 | 5415  |               |     |
| 76    |     | 5483   | 5551 | 5619 | 5687 | 5756 | 5824 | 5892 | 5960 | 6028 | 6096  |               |     |
| 77    |     | 6164   | 6232 | 6300 | 6368 | 6437 | 6505 | 6573 | 6641 | 6709 | 6777  |               |     |
| 78    |     | 6845   | 6913 | 6981 | 7049 | 7118 | 7186 | 7254 | 7322 | 7390 | 7458  |               |     |
| 79    |     | 7526   | 7594 | 7662 | 7730 | 7798 | 7866 | 7934 | 8003 | 8071 | 8139  |               |     |
| 63 80 |     | 8207   | 8275 | 8343 | 8411 | 8479 | 8547 | 8615 | 8683 | 8751 | 8819  |               |     |
| 81    |     | 8887   | 8956 | 9024 | 9092 | 9160 | 9228 | 9296 | 9364 | 9432 | 9500  |               |     |
| 82    |     | * 9568 | 9636 | 9704 | 9772 | 9840 | 9908 | 9976 | 0044 | 0112 | 0180  |               |     |
| 83    | 805 | 0248   | 0316 | 0385 | 0453 | 0521 | 0589 | 0657 | 0725 | 0793 | 0861  |               |     |
| 84    |     | 0929   | 0997 | 1065 | 1133 | 1201 | 1269 | 1337 | 1405 | 1473 | 1541  |               |     |
| 85    |     | 1609   | 1677 | 1745 | 1813 | 1881 | 1949 | 2017 | 2085 | 2153 | 2221  |               |     |
| 86    |     | 2289   | 2357 | 2425 | 2493 | 2561 | 2629 | 2697 | 2765 | 2833 | 2901  |               |     |
| 87    |     | 2969   | 3037 | 3105 | 3173 | 3241 | 3309 | 3377 | 3445 | 3513 | 3581  |               |     |
| 88    |     | 3649   | 3717 | 3785 | 3853 | 3921 | 3989 | 4057 | 4125 | 4193 | 4261  |               |     |
| 89    |     | 4329   | 4397 | 4465 | 4533 | 4601 | 4669 | 4737 | 4805 | 4873 | 4941  |               |     |
| 63 90 |     | 5009   | 5077 | 5145 | 5212 | 5280 | 5348 | 5416 | 5484 | 5552 | 5620  |               |     |
| 91    |     | 5688   | 5756 | 5824 | 5892 | 5960 | 6028 | 6096 | 6164 | 6232 | 6300  |               |     |
| 92    |     | 6368   | 6436 | 6504 | 6571 | 6639 | 6707 | 6775 | 6843 | 6911 | 6979  |               |     |
| 93    |     | 7047   | 7115 | 7183 | 7251 | 7319 | 7387 | 7455 | 7523 | 7590 | 7658  |               |     |
| 94    |     | 7726   | 7794 | 7862 | 7930 | 7998 | 8066 | 8134 | 8202 | 8270 | 8338  |               |     |
| 95    |     | 8405   | 8473 | 8541 | 8609 | 8677 | 8745 | 8813 | 8881 | 8949 | 9017  |               |     |
| 96    |     | 9085   | 9152 | 9220 | 9288 | 9356 | 9424 | 9492 | 9560 | 9628 | 9696  |               |     |
| 97    |     | * 9764 | 9831 | 9899 | 9967 | 0035 | 0103 | 0171 | 0239 | 0307 | 0374  |               |     |
| 98    | 806 | 0442   | 0510 | 0578 | 0646 | 0714 | 0782 | 0850 | 0917 | 0985 | 1053  |               |     |
| 99    |     | 1121   | 1189 | 1257 | 1325 | 1393 | 1460 | 1528 | 1596 | 1664 | 1732  |               |     |
| Num.  | 0   | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |     |

| Num.         | 0               | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|--------------|-----------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>6400</b>  | <b>806</b> 1800 | 1868 | 1935 | 2003 | 2071 | 2139 | 2207 | 2275 | 2343 | 2410 |       |               |
| 01           | 2478            | 2546 | 2614 | 2682 | 2750 | 2817 | 2885 | 2953 | 3021 | 3089 |       |               |
| 02           | 3157            | 3225 | 3292 | 3360 | 3428 | 3496 | 3564 | 3632 | 3699 | 3767 |       |               |
| 03           | 3835            | 3903 | 3971 | 4038 | 4106 | 4174 | 4242 | 4310 | 4378 | 4445 |       |               |
| 04           | 4513            | 4581 | 4649 | 4717 | 4784 | 4852 | 4920 | 4988 | 5056 | 5124 |       |               |
| 05           | 5191            | 5259 | 5327 | 5395 | 5463 | 5530 | 5598 | 5666 | 5734 | 5802 |       |               |
| 06           | 5869            | 5937 | 6005 | 6073 | 6141 | 6208 | 6276 | 6344 | 6412 | 6479 |       |               |
| 07           | 6547            | 6615 | 6683 | 6751 | 6818 | 6886 | 6954 | 7022 | 7089 | 7157 |       |               |
| 08           | 7225            | 7293 | 7361 | 7428 | 7496 | 7564 | 7632 | 7699 | 7767 | 7835 |       |               |
| 09           | 7903            | 7970 | 8038 | 8106 | 8174 | 8242 | 8309 | 8377 | 8445 | 8513 |       |               |
| <b>64 10</b> | <b>8580</b>     | 8648 | 8716 | 8784 | 8851 | 8919 | 8987 | 9055 | 9122 | 9190 |       | 1 68          |
| 11           | 9258            | 9326 | 9393 | 9461 | 9529 | 9596 | 9664 | 9732 | 9800 | 9867 |       | 2 136         |
| 12           | * 9935          | +003 | 0071 | 0138 | 0206 | 0274 | 0342 | 0409 | 0477 | 0545 |       | 3 204         |
| 13           | 807 0612        | 0680 | 0748 | 0816 | 0883 | 0951 | 1019 | 1086 | 1154 | 1222 |       | 4 272         |
| 14           | 1290            | 1357 | 1425 | 1493 | 1560 | 1628 | 1696 | 1764 | 1831 | 1899 |       | 5 340         |
| 15           | 1967            | 2034 | 2102 | 2170 | 2237 | 2305 | 2373 | 2440 | 2508 | 2576 |       | 6 408         |
| 16           | 2644            | 2711 | 2779 | 2847 | 2914 | 2982 | 3050 | 3117 | 3185 | 3253 |       | 7 476         |
| 17           | 3320            | 3388 | 3456 | 3523 | 3591 | 3659 | 3726 | 3794 | 3862 | 3929 |       | 8 544         |
| 18           | 3997            | 4065 | 4132 | 4200 | 4268 | 4335 | 4403 | 4471 | 4538 | 4606 |       | 9 612         |
| 19           | 4674            | 4741 | 4809 | 4877 | 4944 | 5012 | 5080 | 5147 | 5215 | 5283 |       |               |
| <b>64 20</b> | <b>5350</b>     | 5418 | 5486 | 5553 | 5621 | 5689 | 5756 | 5824 | 5891 | 5959 |       |               |
| 21           | 6027            | 6094 | 6162 | 6230 | 6297 | 6365 | 6432 | 6500 | 6568 | 6635 |       |               |
| 22           | 6703            | 6771 | 6838 | 6906 | 6974 | 7041 | 7109 | 7176 | 7244 | 7312 |       |               |
| 23           | 7379            | 7447 | 7514 | 7582 | 7650 | 7717 | 7785 | 7853 | 7920 | 7988 |       |               |
| 24           | 8055            | 8123 | 8191 | 8258 | 8326 | 8393 | 8461 | 8529 | 8596 | 8664 |       |               |
| 25           | 8731            | 8799 | 8867 | 8934 | 9002 | 9069 | 9137 | 9204 | 9272 | 9340 |       |               |
| 26           | * 9407          | 9475 | 9542 | 9610 | 9678 | 9745 | 9813 | 9880 | 9948 | +015 |       |               |
| 27           | 808 0083        | 0151 | 0218 | 0286 | 0353 | 0421 | 0488 | 0556 | 0624 | 0691 |       |               |
| 28           | 0759            | 0826 | 0894 | 0961 | 1029 | 1096 | 1164 | 1232 | 1299 | 1367 |       |               |
| 29           | 1434            | 1502 | 1569 | 1637 | 1704 | 1772 | 1840 | 1907 | 1975 | 2042 |       |               |
| <b>64 30</b> | <b>2110</b>     | 2177 | 2245 | 2312 | 2380 | 2447 | 2515 | 2582 | 2650 | 2718 |       |               |
| 31           | 2785            | 2853 | 2920 | 2988 | 3055 | 3123 | 3190 | 3258 | 3325 | 3393 |       |               |
| 32           | 3460            | 3528 | 3595 | 3663 | 3730 | 3798 | 3865 | 3933 | 4000 | 4068 |       |               |
| 33           | 4136            | 4203 | 4271 | 4338 | 4406 | 4473 | 4541 | 4608 | 4676 | 4743 |       |               |
| 34           | 4811            | 4878 | 4946 | 5013 | 5081 | 5148 | 5216 | 5283 | 5351 | 5418 |       |               |
| 35           | 5486            | 5553 | 5620 | 5688 | 5755 | 5823 | 5890 | 5958 | 6025 | 6093 |       |               |
| 36           | 6160            | 6228 | 6295 | 6363 | 6430 | 6498 | 6565 | 6633 | 6700 | 6768 |       |               |
| 37           | 6835            | 6903 | 6970 | 7037 | 7105 | 7172 | 7240 | 7307 | 7375 | 7442 |       |               |
| 38           | 7510            | 7577 | 7645 | 7712 | 7780 | 7847 | 7914 | 7982 | 8049 | 8117 |       |               |
| 39           | 8184            | 8252 | 8319 | 8387 | 8454 | 8521 | 8589 | 8656 | 8724 | 8791 |       |               |
| <b>64 40</b> | <b>8859</b>     | 8926 | 8994 | 9061 | 9128 | 9196 | 9263 | 9331 | 9398 | 9466 |       |               |
| 41           | * 9533          | 9600 | 9668 | 9735 | 9803 | 9870 | 9938 | +005 | 0072 | 0140 |       | 1 67          |
| 42           | 809 0207        | 0275 | 0342 | 0409 | 0477 | 0544 | 0612 | 0679 | 0747 | 0814 |       | 2 134         |
| 43           | 0881            | 0949 | 1016 | 1084 | 1151 | 1218 | 1286 | 1353 | 1421 | 1488 |       | 3 201         |
| 44           | 1555            | 1623 | 1690 | 1757 | 1825 | 1892 | 1960 | 2027 | 2094 | 2162 |       | 4 268         |
| 45           | 2229            | 2297 | 2364 | 2431 | 2499 | 2566 | 2634 | 2701 | 2768 | 2836 |       | 5 335         |
| 46           | 2903            | 2970 | 3038 | 3105 | 3173 | 3240 | 3307 | 3375 | 3442 | 3509 |       | 6 402         |
| 47           | 3577            | 3644 | 3711 | 3779 | 3846 | 3914 | 3981 | 4048 | 4116 | 4183 |       | 7 469         |
| 48           | 4250            | 4318 | 4385 | 4452 | 4520 | 4587 | 4654 | 4722 | 4789 | 4856 |       | 8 536         |
| 49           | 4924            | 4991 | 5058 | 5126 | 5193 | 5260 | 5328 | 5395 | 5462 | 5530 |       | 9 603         |
| <b>64 50</b> | <b>5597</b>     | 5664 | 5732 | 5799 | 5866 | 5934 | 6001 | 6068 | 6136 | 6203 |       |               |
| 51           | 6270            | 6338 | 6405 | 6472 | 6540 | 6607 | 6674 | 6742 | 6809 | 6876 |       |               |
| 52           | 6944            | 7011 | 7078 | 7146 | 7213 | 7280 | 7347 | 7415 | 7482 | 7549 |       |               |
| 53           | 7617            | 7684 | 7751 | 7819 | 7886 | 7953 | 8020 | 8088 | 8155 | 8222 |       |               |
| 54           | 8290            | 8357 | 8424 | 8491 | 8559 | 8626 | 8693 | 8761 | 8828 | 8895 |       |               |
| 55           | 8962            | 9030 | 9097 | 9164 | 9232 | 9299 | 9366 | 9433 | 9501 | 9568 |       |               |
| 56           | * 9635          | 9702 | 9770 | 9837 | 9904 | 9972 | +039 | 0106 | 0173 | 0241 |       |               |
| 57           | 810 0308        | 0375 | 0442 | 0510 | 0577 | 0644 | 0711 | 0779 | 0846 | 0913 |       |               |
| 58           | 0980            | 1048 | 1115 | 1182 | 1249 | 1317 | 1384 | 1451 | 1518 | 1586 |       |               |
| 59           | 1653            | 1720 | 1787 | 1855 | 1922 | 1989 | 2056 | 2123 | 2191 | 2258 |       |               |
| Num.         | 0               | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

LOGARITHMS OF NUMBERS.

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult.       |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------------|
| <b>6460</b> | <b>810</b> | 2325 | 2392 | 2460 | 2527 | 2594 | 2661 | 2729 | 2796 | 2863 | 2930  |                     |
| 61          |            | 2997 | 3065 | 3132 | 3199 | 3266 | 3333 | 3401 | 3468 | 3535 | 3602  |                     |
| 62          |            | 3670 | 3737 | 3804 | 3871 | 3938 | 4006 | 4073 | 4140 | 4207 | 4274  |                     |
| 63          |            | 4342 | 4409 | 4476 | 4543 | 4610 | 4678 | 4745 | 4812 | 4879 | 4946  |                     |
| 64          |            | 5013 | 5081 | 5148 | 5215 | 5282 | 5349 | 5417 | 5484 | 5551 | 5618  |                     |
| 65          |            | 5685 | 5752 | 5820 | 5887 | 5954 | 6021 | 6088 | 6156 | 6223 | 6290  |                     |
| 66          |            | 6357 | 6424 | 6491 | 6558 | 6626 | 6693 | 6760 | 6827 | 6894 | 6961  |                     |
| 67          |            | 7029 | 7096 | 7163 | 7230 | 7297 | 7364 | 7432 | 7499 | 7566 | 7633  |                     |
| 68          |            | 7700 | 7767 | 7834 | 7902 | 7969 | 8036 | 8103 | 8170 | 8237 | 8304  |                     |
| 69          |            | 8372 | 8439 | 8506 | 8573 | 8640 | 8707 | 8774 | 8841 | 8909 | 8976  |                     |
| 64 70       |            | 9043 | 9110 | 9177 | 9244 | 9311 | 9378 | 9446 | 9513 | 9580 | 9647  | 1 67                |
| 71          |            | 9714 | 9781 | 9848 | 9915 | 9982 | 0050 | 0117 | 0184 | 0251 | 0318  | 2 134               |
| 72          | <b>811</b> | 0385 | 0452 | 0519 | 0586 | 0653 | 0721 | 0788 | 0855 | 0922 | 0989  | 3 201               |
| 73          |            | 1056 | 1123 | 1190 | 1257 | 1324 | 1392 | 1459 | 1526 | 1593 | 1660  | 4 268               |
| 74          |            | 1727 | 1794 | 1861 | 1928 | 1995 | 2062 | 2129 | 2197 | 2264 | 2331  | 5 335               |
| 75          |            | 2398 | 2465 | 2532 | 2599 | 2666 | 2733 | 2800 | 2867 | 2934 | 3001  | 6 402               |
| 76          |            | 3068 | 3135 | 3203 | 3270 | 3337 | 3404 | 3471 | 3538 | 3605 | 3672  | 7 469               |
| 77          |            | 3739 | 3806 | 3873 | 3940 | 4007 | 4074 | 4141 | 4208 | 4275 | 4342  | 8 536               |
| 78          |            | 4409 | 4476 | 4544 | 4611 | 4678 | 4745 | 4812 | 4879 | 4946 | 5013  | 9 603               |
| 79          |            | 5080 | 5147 | 5214 | 5281 | 5348 | 5415 | 5482 | 5549 | 5616 | 5683  |                     |
| 64 80       |            | 5750 | 5817 | 5884 | 5951 | 6018 | 6085 | 6152 | 6219 | 6286 | 6353  | 67                  |
| 81          |            | 6420 | 6487 | 6554 | 6621 | 6688 | 6755 | 6822 | 6889 | 6956 | 7023  |                     |
| 82          |            | 7090 | 7157 | 7224 | 7291 | 7358 | 7425 | 7492 | 7559 | 7626 | 7693  |                     |
| 83          |            | 7760 | 7827 | 7894 | 7961 | 8028 | 8095 | 8162 | 8229 | 8296 | 8363  |                     |
| 84          |            | 8430 | 8497 | 8564 | 8631 | 8698 | 8765 | 8832 | 8899 | 8966 | 9033  |                     |
| 85          |            | 9100 | 9167 | 9234 | 9301 | 9368 | 9435 | 9502 | 9569 | 9636 | 9702  |                     |
| 86          |            | 9709 | 9836 | 9903 | 9970 | 0037 | 0104 | 0171 | 0238 | 0305 | 0372  |                     |
| 87          | <b>812</b> | 0439 | 0506 | 0573 | 0640 | 0707 | 0774 | 0841 | 0908 | 0975 | 1041  |                     |
| 88          |            | 1108 | 1175 | 1242 | 1309 | 1376 | 1443 | 1510 | 1577 | 1644 | 1711  |                     |
| 89          |            | 1778 | 1845 | 1912 | 1979 | 2045 | 2112 | 2179 | 2246 | 2313 | 2380  |                     |
| 64 90       |            | 2447 | 2514 | 2581 | 2648 | 2715 | 2782 | 2848 | 2915 | 2982 | 3049  |                     |
| 91          |            | 3116 | 3183 | 3250 | 3317 | 3384 | 3451 | 3518 | 3584 | 3651 | 3718  |                     |
| 92          |            | 3785 | 3852 | 3919 | 3986 | 4053 | 4120 | 4186 | 4253 | 4320 | 4387  |                     |
| 93          |            | 4454 | 4521 | 4588 | 4655 | 4722 | 4788 | 4855 | 4922 | 4989 | 5056  |                     |
| 94          |            | 5123 | 5190 | 5257 | 5323 | 5390 | 5457 | 5524 | 5591 | 5658 | 5725  |                     |
| 95          |            | 5792 | 5858 | 5925 | 5992 | 6059 | 6126 | 6193 | 6260 | 6326 | 6393  |                     |
| 96          |            | 6460 | 6527 | 6594 | 6661 | 6728 | 6794 | 6861 | 6928 | 6995 | 7062  |                     |
| 97          |            | 7129 | 7196 | 7262 | 7329 | 7396 | 7463 | 7530 | 7597 | 7663 | 7730  |                     |
| 98          |            | 7797 | 7864 | 7931 | 7998 | 8064 | 8131 | 8198 | 8265 | 8332 | 8399  |                     |
| 99          |            | 8465 | 8532 | 8599 | 8666 | 8733 | 8799 | 8866 | 8933 | 9000 | 9067  |                     |
| 65 00       |            | 9134 | 9200 | 9267 | 9334 | 9401 | 9468 | 9534 | 9601 | 9668 | 9735  |                     |
| 01          |            | 9802 | 9868 | 9935 | 0002 | 0069 | 0136 | 0202 | 0269 | 0336 | 0403  | 1 66                |
| 02          | <b>813</b> | 0470 | 0536 | 0603 | 0670 | 0737 | 0804 | 0870 | 0937 | 1004 | 1071  | 2 132               |
| 03          |            | 1138 | 1204 | 1271 | 1338 | 1405 | 1471 | 1538 | 1605 | 1672 | 1739  | 3 198               |
| 04          |            | 1805 | 1872 | 1939 | 2006 | 2072 | 2139 | 2206 | 2273 | 2339 | 2406  | 4 264               |
| 05          |            | 2473 | 2540 | 2607 | 2673 | 2740 | 2807 | 2874 | 2940 | 3007 | 3074  | 5 330               |
| 06          |            | 3141 | 3207 | 3274 | 3341 | 3408 | 3474 | 3541 | 3608 | 3675 | 3741  | 6 396               |
| 07          |            | 3808 | 3875 | 3942 | 4008 | 4075 | 4142 | 4209 | 4275 | 4342 | 4409  | 7 462               |
| 08          |            | 4475 | 4542 | 4609 | 4676 | 4742 | 4809 | 4876 | 4943 | 5009 | 5076  | 8 528               |
| 09          |            | 5143 | 5209 | 5276 | 5343 | 5410 | 5476 | 5543 | 5610 | 5676 | 5743  | 9 594               |
| 65 10       |            | 5810 | 5877 | 5943 | 6010 | 6077 | 6143 | 6210 | 6277 | 6344 | 6410  |                     |
| 11          |            | 6477 | 6544 | 6610 | 6677 | 6744 | 6810 | 6877 | 6944 | 7011 | 7077  |                     |
| 12          |            | 7144 | 7211 | 7277 | 7344 | 7411 | 7477 | 7544 | 7611 | 7677 | 7744  |                     |
| 13          |            | 7811 | 7877 | 7944 | 8011 | 8077 | 8144 | 8211 | 8278 | 8344 | 8411  |                     |
| 14          |            | 8478 | 8544 | 8611 | 8678 | 8744 | 8811 | 8878 | 8944 | 9011 | 9078  |                     |
| 15          |            | 9144 | 9211 | 9278 | 9344 | 9411 | 9477 | 9544 | 9611 | 9677 | 9744  |                     |
| 16          |            | 9811 | 9877 | 9944 | 0011 | 0077 | 0144 | 0211 | 0277 | 0344 | 0411  |                     |
| 17          | <b>814</b> | 0477 | 0544 | 0610 | 0677 | 0744 | 0810 | 0877 | 0944 | 1010 | 1077  |                     |
| 18          |            | 1144 | 1210 | 1277 | 1343 | 1410 | 1477 | 1543 | 1610 | 1677 | 1743  |                     |
| 19          |            | 1810 | 1876 | 1943 | 2010 | 2076 | 2143 | 2210 | 2276 | 2343 | 2409  |                     |
| Num.        |            | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | Diff. Diff. & Mult. |

| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 6520 | 814 | 2476 | 2543 | 2609 | 2676 | 2742 | 2809 | 2876 | 2942 | 3009 | 3075  |               |
| 21   |     | 3142 | 3209 | 3275 | 3342 | 3408 | 3475 | 3542 | 3608 | 3675 | 3741  |               |
| 22   |     | 3808 | 3875 | 3941 | 4008 | 4074 | 4141 | 4207 | 4274 | 4341 | 4407  |               |
| 23   |     | 4474 | 4540 | 4607 | 4674 | 4740 | 4807 | 4873 | 4940 | 5006 | 5073  |               |
| 24   |     | 5140 | 5206 | 5273 | 5339 | 5406 | 5472 | 5539 | 5605 | 5672 | 5739  |               |
| 25   |     | 5805 | 5872 | 5938 | 6005 | 6071 | 6138 | 6204 | 6271 | 6338 | 6404  |               |
| 26   |     | 6471 | 6537 | 6604 | 6670 | 6737 | 6803 | 6870 | 6937 | 7003 | 7070  |               |
| 27   |     | 7136 | 7203 | 7269 | 7336 | 7402 | 7469 | 7535 | 7602 | 7668 | 7735  |               |
| 28   |     | 7801 | 7868 | 7935 | 8001 | 8068 | 8134 | 8201 | 8267 | 8334 | 8400  |               |
| 29   |     | 8467 | 8533 | 8600 | 8666 | 8733 | 8799 | 8866 | 8932 | 8999 | 9065  |               |
| 6530 |     | 9132 | 9198 | 9265 | 9331 | 9398 | 9464 | 9531 | 9597 | 9664 | 9730  | 1   67        |
| 31   | *   | 9797 | 9863 | 9930 | 9996 | 0063 | 0129 | 0196 | 0262 | 0329 | 0395  | 2   134       |
| 32   | 815 | 0462 | 0528 | 0595 | 0661 | 0728 | 0794 | 0861 | 0927 | 0994 | 1060  | 3   201       |
| 33   |     | 1127 | 1193 | 1260 | 1326 | 1392 | 1459 | 1525 | 1592 | 1658 | 1725  | 4   268       |
| 34   |     | 1791 | 1858 | 1924 | 1991 | 2057 | 2124 | 2190 | 2257 | 2323 | 2389  | 5   335       |
| 35   |     | 2456 | 2522 | 2589 | 2655 | 2722 | 2788 | 2855 | 2921 | 2988 | 3054  | 6   402       |
| 36   |     | 3120 | 3187 | 3253 | 3320 | 3386 | 3453 | 3519 | 3586 | 3652 | 3718  | 7   469       |
| 37   |     | 3785 | 3851 | 3918 | 3984 | 4051 | 4117 | 4183 | 4250 | 4316 | 4383  | 8   536       |
| 38   |     | 4449 | 4516 | 4582 | 4648 | 4715 | 4781 | 4848 | 4914 | 4981 | 5047  | 9   603       |
| 39   |     | 5113 | 5180 | 5246 | 5313 | 5379 | 5445 | 5512 | 5578 | 5645 | 5711  |               |
| 6540 |     | 5777 | 5844 | 5910 | 5977 | 6043 | 6109 | 6176 | 6242 | 6309 | 6375  |               |
| 41   |     | 6441 | 6508 | 6574 | 6641 | 6707 | 6773 | 6840 | 6906 | 6973 | 7039  |               |
| 42   |     | 7105 | 7172 | 7238 | 7305 | 7371 | 7437 | 7504 | 7570 | 7636 | 7703  |               |
| 43   |     | 7769 | 7836 | 7902 | 7968 | 8035 | 8101 | 8167 | 8234 | 8300 | 8367  |               |
| 44   |     | 8433 | 8499 | 8566 | 8632 | 8698 | 8765 | 8831 | 8897 | 8964 | 9030  |               |
| 45   |     | 9097 | 9163 | 9229 | 9296 | 9362 | 9428 | 9495 | 9561 | 9627 | 9694  |               |
| 46   | *   | 9760 | 9826 | 9893 | 9959 | 0025 | 0092 | 0158 | 0224 | 0291 | 0357  |               |
| 47   | 816 | 0423 | 0490 | 0556 | 0622 | 0689 | 0755 | 0821 | 0888 | 0954 | 1020  |               |
| 48   |     | 1087 | 1153 | 1219 | 1286 | 1352 | 1418 | 1485 | 1551 | 1617 | 1684  |               |
| 49   |     | 1750 | 1816 | 1883 | 1949 | 2015 | 2081 | 2148 | 2214 | 2280 | 2347  |               |
| 6550 |     | 2413 | 2479 | 2546 | 2612 | 2678 | 2745 | 2811 | 2877 | 2943 | 3010  |               |
| 51   |     | 3076 | 3142 | 3209 | 3275 | 3341 | 3407 | 3474 | 3540 | 3606 | 3673  |               |
| 52   |     | 3739 | 3805 | 3871 | 3938 | 4004 | 4070 | 4137 | 4203 | 4269 | 4335  |               |
| 53   |     | 4402 | 4468 | 4534 | 4600 | 4667 | 4733 | 4799 | 4866 | 4932 | 4998  |               |
| 54   |     | 5064 | 5131 | 5197 | 5263 | 5329 | 5396 | 5462 | 5528 | 5594 | 5661  |               |
| 55   |     | 5727 | 5793 | 5859 | 5926 | 5992 | 6058 | 6124 | 6191 | 6257 | 6323  |               |
| 56   |     | 6389 | 6456 | 6522 | 6588 | 6654 | 6721 | 6787 | 6853 | 6919 | 6986  |               |
| 57   |     | 7052 | 7118 | 7184 | 7251 | 7317 | 7383 | 7449 | 7515 | 7582 | 7648  |               |
| 58   |     | 7714 | 7780 | 7847 | 7913 | 7979 | 8045 | 8111 | 8178 | 8244 | 8310  |               |
| 59   |     | 8376 | 8443 | 8509 | 8575 | 8641 | 8707 | 8774 | 8840 | 8906 | 8972  |               |
| 6560 |     | 9038 | 9105 | 9171 | 9237 | 9303 | 9369 | 9436 | 9502 | 9568 | 9634  |               |
| 61   | *   | 9700 | 9767 | 9833 | 9899 | 9965 | 0031 | 0098 | 0164 | 0230 | 0296  | 1   66        |
| 62   | 817 | 0362 | 0428 | 0495 | 0561 | 0627 | 0693 | 0759 | 0826 | 0892 | 0958  | 2   132       |
| 63   |     | 1024 | 1090 | 1156 | 1223 | 1289 | 1355 | 1421 | 1487 | 1553 | 1620  | 3   198       |
| 64   |     | 1686 | 1752 | 1818 | 1884 | 1950 | 2017 | 2083 | 2149 | 2215 | 2281  | 4   264       |
| 65   |     | 2347 | 2413 | 2480 | 2546 | 2612 | 2678 | 2744 | 2810 | 2876 | 2943  | 5   330       |
| 66   |     | 3009 | 3075 | 3141 | 3207 | 3273 | 3339 | 3406 | 3472 | 3538 | 3604  | 6   396       |
| 67   |     | 3670 | 3736 | 3802 | 3869 | 3935 | 4001 | 4067 | 4133 | 4199 | 4265  | 7   462       |
| 68   |     | 4331 | 4398 | 4464 | 4530 | 4596 | 4662 | 4728 | 4794 | 4860 | 4927  | 8   528       |
| 69   |     | 4993 | 5059 | 5125 | 5191 | 5257 | 5323 | 5389 | 5455 | 5521 | 5588  | 9   594       |
| 6570 |     | 5654 | 5720 | 5786 | 5852 | 5918 | 5984 | 6050 | 6116 | 6182 | 6249  |               |
| 71   |     | 6315 | 6381 | 6447 | 6513 | 6579 | 6645 | 6711 | 6777 | 6843 | 6909  |               |
| 72   |     | 6976 | 7042 | 7108 | 7174 | 7240 | 7306 | 7372 | 7438 | 7504 | 7570  |               |
| 73   |     | 7636 | 7702 | 7768 | 7835 | 7901 | 7967 | 8033 | 8099 | 8165 | 8231  |               |
| 74   |     | 8297 | 8363 | 8429 | 8495 | 8561 | 8627 | 8693 | 8759 | 8825 | 8892  |               |
| 75   |     | 8958 | 9024 | 9090 | 9156 | 9222 | 9288 | 9354 | 9420 | 9486 | 9552  |               |
| 76   | *   | 9618 | 9684 | 9750 | 9816 | 9882 | 9948 | 0014 | 0080 | 0146 | 0212  |               |
| 77   | 818 | 0278 | 0344 | 0410 | 0477 | 0543 | 0609 | 0675 | 0741 | 0807 | 0873  |               |
| 78   |     | 0939 | 1005 | 1071 | 1137 | 1203 | 1269 | 1335 | 1401 | 1467 | 1533  |               |
| 79   |     | 1599 | 1665 | 1731 | 1797 | 1863 | 1929 | 1995 | 2061 | 2127 | 2193  |               |
| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |



LOGARITHMS OF NUMBERS.

97

| Num.  | 0        | 1    | 2      | 3    | 4    | 5      | 6    | 7    | 8      | 9    | Diff. | Diff. & Mult. |
|-------|----------|------|--------|------|------|--------|------|------|--------|------|-------|---------------|
| 6580  | 818      | 2259 | 2325   | 2391 | 2457 | 2523   | 2589 | 2655 | 2721   | 2787 | 2853  | 66            |
| 81    | 2919     | 2985 | 3051   | 3117 | 3183 | 3249   | 3315 | 3381 | 3447   | 3513 |       |               |
| 82    | 3579     | 3645 | 3711   | 3777 | 3843 | 3909   | 3975 | 4041 | 4107   | 4173 |       |               |
| 83    | 4239     | 4305 | 4370   | 4436 | 4502 | 4568   | 4634 | 4700 | 4766   | 4832 |       |               |
| 84    | 4898     | 4964 | 5030   | 5096 | 5162 | 5228   | 5294 | 5360 | 5426   | 5492 |       |               |
| 85    | 5558     | 5624 | 5690   | 5756 | 5822 | 5888   | 5953 | 6019 | 6085   | 6151 |       |               |
| 86    | 6217     | 6283 | 6349   | 6415 | 6481 | 6547   | 6613 | 6679 | 6745   | 6811 |       |               |
| 87    | 6877     | 6943 | 7008   | 7074 | 7140 | 7206   | 7272 | 7338 | 7404   | 7470 |       |               |
| 88    | 7536     | 7602 | 7668   | 7734 | 7800 | 7866   | 7931 | 7997 | 8063   | 8129 |       |               |
| 89    | 8195     | 8261 | 8327   | 8393 | 8459 | 8525   | 8591 | 8656 | 8722   | 8788 |       |               |
| 65 90 | 8854     | 8920 | 8986   | 9052 | 9118 | 9184   | 9250 | 9315 | 9381   | 9447 | 1     | 66            |
| 91    | • 9513   | 9579 | 9645   | 9711 | 9777 | 9843   | 9908 | 9974 | • 0040 | 0106 | 2     | 132           |
| 92    | 819 0172 | 0238 | 0304   | 0370 | 0436 | 0501   | 0567 | 0633 | 0699   | 0765 | 3     | 198           |
| 93    | 0831     | 0897 | 0962   | 1028 | 1094 | 1160   | 1226 | 1292 | 1358   | 1424 | 4     | 264           |
| 94    | 1489     | 1555 | 1621   | 1687 | 1753 | 1819   | 1885 | 1950 | 2016   | 2082 | 5     | 330           |
| 95    | 2148     | 2214 | 2280   | 2346 | 2411 | 2477   | 2543 | 2609 | 2675   | 2741 | 6     | 396           |
| 96    | 2806     | 2872 | 2938   | 3004 | 3070 | 3136   | 3202 | 3267 | 3333   | 3399 | 7     | 462           |
| 97    | 3465     | 3531 | 3597   | 3662 | 3728 | 3794   | 3860 | 3926 | 3991   | 4057 | 8     | 528           |
| 98    | 4123     | 4189 | 4255   | 4321 | 4386 | 4452   | 4518 | 4584 | 4650   | 4715 | 9     | 594           |
| 99    | 4781     | 4847 | 4913   | 4979 | 5045 | 5110   | 5176 | 5242 | 5308   | 5374 |       |               |
| 66 00 | 5439     | 5505 | 5571   | 5637 | 5703 | 5768   | 5834 | 5900 | 5966   | 6032 |       |               |
| 01    | 6097     | 6163 | 6229   | 6295 | 6360 | 6426   | 6492 | 6558 | 6624   | 6689 |       |               |
| 02    | 6755     | 6821 | 6887   | 6953 | 7018 | 7084   | 7150 | 7216 | 7281   | 7347 |       |               |
| 03    | 7413     | 7479 | 7545   | 7610 | 7676 | 7742   | 7808 | 7873 | 7939   | 8005 |       |               |
| 04    | 8071     | 8136 | 8202   | 8268 | 8334 | 8399   | 8465 | 8531 | 8597   | 8662 |       |               |
| 05    | 8728     | 8794 | 8860   | 8925 | 8991 | 9057   | 9123 | 9188 | 9254   | 9320 |       |               |
| 06    | 9386     | 9451 | 9517   | 9583 | 9649 | 9714   | 9780 | 9846 | 9912   | 9977 |       |               |
| 07    | 820 0043 | 0109 | 0175   | 0240 | 0306 | 0372   | 0437 | 0503 | 0569   | 0635 |       |               |
| 08    | 0700     | 0766 | 0832   | 0898 | 0963 | 1029   | 1095 | 1160 | 1226   | 1292 |       |               |
| 09    | 1358     | 1423 | 1489   | 1555 | 1620 | 1686   | 1752 | 1817 | 1883   | 1949 |       |               |
| 66 10 | 2015     | 2080 | 2146   | 2212 | 2277 | 2343   | 2409 | 2474 | 2540   | 2606 |       |               |
| 11    | 2672     | 2737 | 2803   | 2869 | 2934 | 3000   | 3066 | 3131 | 3197   | 3263 |       |               |
| 12    | 3328     | 3394 | 3460   | 3525 | 3591 | 3657   | 3723 | 3788 | 3854   | 3920 |       |               |
| 13    | 3985     | 4051 | 4117   | 4182 | 4248 | 4314   | 4379 | 4445 | 4511   | 4576 |       |               |
| 14    | 4642     | 4708 | 4773   | 4839 | 4905 | 4970   | 5036 | 5102 | 5167   | 5233 |       |               |
| 15    | 5298     | 5364 | 5430   | 5495 | 5561 | 5627   | 5692 | 5758 | 5824   | 5889 |       |               |
| 16    | 5955     | 6021 | 6086   | 6152 | 6218 | 6283   | 6349 | 6414 | 6480   | 6546 |       |               |
| 17    | 6611     | 6677 | 6743   | 6808 | 6874 | 6939   | 7005 | 7071 | 7136   | 7202 |       |               |
| 18    | 7268     | 7333 | 7399   | 7464 | 7530 | 7596   | 7661 | 7727 | 7793   | 7858 |       |               |
| 19    | 7924     | 7989 | 8055   | 8121 | 8186 | 8252   | 8317 | 8383 | 8449   | 8514 |       |               |
| 66 20 | 8580     | 8645 | 8711   | 8777 | 8842 | 8908   | 8973 | 9039 | 9105   | 9170 |       |               |
| 21    | 9236     | 9301 | 9367   | 9433 | 9498 | 9564   | 9629 | 9695 | 9761   | 9826 | 1     | 65            |
| 22    | • 9892   | 9957 | • 0023 | 0089 | 0154 | 0220   | 0285 | 0351 | 0416   | 0482 | 2     | 130           |
| 23    | 821 0548 | 0613 | 0679   | 0744 | 0810 | 0875   | 0941 | 1007 | 1072   | 1138 | 3     | 195           |
| 24    | 1203     | 1269 | 1334   | 1400 | 1465 | 1531   | 1597 | 1662 | 1728   | 1793 | 4     | 260           |
| 25    | 1859     | 1924 | 1990   | 2055 | 2121 | 2187   | 2252 | 2318 | 2383   | 2449 | 5     | 325           |
| 26    | 2514     | 2580 | 2645   | 2711 | 2776 | 2842   | 2908 | 2973 | 3039   | 3104 | 6     | 390           |
| 27    | 3170     | 3235 | 3301   | 3366 | 3432 | 3497   | 3563 | 3628 | 3694   | 3759 | 7     | 455           |
| 28    | 3825     | 3891 | 3956   | 4022 | 4087 | 4153   | 4218 | 4284 | 4349   | 4415 | 8     | 520           |
| 29    | 4480     | 4546 | 4611   | 4677 | 4742 | 4808   | 4873 | 4939 | 5004   | 5070 | 9     | 585           |
| 66 30 | 5135     | 5201 | 5266   | 5332 | 5397 | 5463   | 5528 | 5594 | 5659   | 5725 |       |               |
| 31    | 5790     | 5856 | 5921   | 5987 | 6052 | 6118   | 6183 | 6249 | 6314   | 6380 |       |               |
| 32    | 6445     | 6511 | 6576   | 6642 | 6707 | 6773   | 6838 | 6904 | 6969   | 7034 |       |               |
| 33    | 7100     | 7165 | 7231   | 7296 | 7362 | 7427   | 7493 | 7558 | 7624   | 7689 |       |               |
| 34    | 7755     | 7820 | 7886   | 7951 | 8017 | 8082   | 8147 | 8213 | 8278   | 8344 |       |               |
| 35    | 8409     | 8475 | 8540   | 8606 | 8671 | 8737   | 8802 | 8867 | 8933   | 8998 |       |               |
| 36    | 9064     | 9129 | 9195   | 9260 | 9326 | 9391   | 9456 | 9522 | 9587   | 9653 |       |               |
| 37    | • 9718   | 9784 | 9849   | 9914 | 9980 | • 0045 | 0111 | 0176 | 0242   | 0307 |       |               |
| 38    | 822 0372 | 0438 | 0503   | 0569 | 0634 | 0700   | 0765 | 0830 | 0896   | 0961 |       |               |
| 39    | 1027     | 1092 | 1158   | 1223 | 1288 | 1354   | 1419 | 1485 | 1550   | 1615 |       |               |
| Num.  | 0        | 1    | 2      | 3    | 4    | 5      | 6    | 7    | 8      | 9    | Diff. | Diff. & Mult. |

| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|--------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>6640</b>  | <b>822</b> | 1681 | 1746 | 1812 | 1877 | 1942 | 2008 | 2073 | 2139 | 2204 | 2269  |               |
| 41           |            | 2335 | 2400 | 2466 | 2531 | 2596 | 2662 | 2727 | 2793 | 2858 | 2923  |               |
| 42           |            | 2989 | 3054 | 3119 | 3185 | 3250 | 3316 | 3381 | 3446 | 3512 | 3577  |               |
| 43           |            | 3643 | 3708 | 3773 | 3839 | 3904 | 3969 | 4035 | 4100 | 4166 | 4231  |               |
| 44           |            | 4296 | 4362 | 4427 | 4492 | 4558 | 4623 | 4688 | 4754 | 4819 | 4884  |               |
| 45           |            | 4950 | 5015 | 5081 | 5146 | 5211 | 5277 | 5342 | 5407 | 5473 | 5538  |               |
| 46           |            | 5603 | 5669 | 5734 | 5799 | 5865 | 5930 | 5995 | 6061 | 6126 | 6191  |               |
| 47           |            | 6257 | 6322 | 6387 | 6453 | 6518 | 6583 | 6649 | 6714 | 6779 | 6845  |               |
| 48           |            | 6910 | 6975 | 7041 | 7106 | 7171 | 7237 | 7302 | 7367 | 7433 | 7498  |               |
| 49           |            | 7563 | 7629 | 7694 | 7759 | 7825 | 7890 | 7955 | 8021 | 8086 | 8151  |               |
| <b>66 50</b> |            | 8216 | 8282 | 8347 | 8412 | 8478 | 8543 | 8608 | 8674 | 8739 | 8804  | 1 66          |
| 51           |            | 8869 | 8935 | 9000 | 9065 | 9131 | 9196 | 9261 | 9327 | 9392 | 9457  | 2 132         |
| 52           | •          | 9522 | 9588 | 9653 | 9718 | 9784 | 9849 | 9914 | 9979 | •045 | 0110  | 3 198         |
| 53           | 823        | 0175 | 0241 | 0306 | 0371 | 0436 | 0502 | 0567 | 0632 | 0697 | 0763  | 4 264         |
| 54           |            | 0828 | 0893 | 0958 | 1024 | 1089 | 1154 | 1220 | 1285 | 1350 | 1415  | 5 330         |
| 55           |            | 1481 | 1546 | 1611 | 1676 | 1742 | 1807 | 1872 | 1937 | 2003 | 2068  | 6 396         |
| 56           |            | 2133 | 2198 | 2264 | 2329 | 2394 | 2459 | 2525 | 2590 | 2655 | 2720  | 7 462         |
| 57           |            | 2786 | 2851 | 2916 | 2981 | 3047 | 3112 | 3177 | 3242 | 3307 | 3373  | 8 528         |
| 58           |            | 3438 | 3503 | 3568 | 3634 | 3699 | 3764 | 3829 | 3894 | 3960 | 4025  | 9 594         |
| 59           |            | 4090 | 4155 | 4221 | 4286 | 4351 | 4416 | 4481 | 4547 | 4612 | 4677  |               |
| <b>66 60</b> |            | 4742 | 4808 | 4873 | 4938 | 5003 | 5068 | 5134 | 5199 | 5264 | 5329  |               |
| 61           |            | 5394 | 5460 | 5525 | 5590 | 5655 | 5720 | 5786 | 5851 | 5916 | 5981  |               |
| 62           |            | 6046 | 6111 | 6177 | 6242 | 6307 | 6372 | 6437 | 6503 | 6568 | 6633  |               |
| 63           |            | 6698 | 6763 | 6828 | 6894 | 6959 | 7024 | 7089 | 7154 | 7220 | 7285  |               |
| 64           |            | 7350 | 7415 | 7480 | 7545 | 7611 | 7676 | 7741 | 7806 | 7871 | 7936  |               |
| 65           |            | 8002 | 8067 | 8132 | 8197 | 8262 | 8327 | 8392 | 8458 | 8523 | 8588  |               |
| 66           |            | 8653 | 8718 | 8783 | 8849 | 8914 | 8979 | 9044 | 9109 | 9174 | 9239  |               |
| 67           |            | 9305 | 9370 | 9435 | 9500 | 9565 | 9630 | 9695 | 9761 | 9826 | 9891  |               |
| 68           | •          | 9956 | •021 | 0086 | 0151 | 0216 | 0282 | 0347 | 0412 | 0477 | 0542  |               |
| 69           | 824        | 0607 | 0672 | 0737 | 0803 | 0868 | 0933 | 0998 | 1063 | 1128 | 1193  |               |
| <b>66 70</b> |            | 1258 | 1323 | 1389 | 1454 | 1519 | 1584 | 1649 | 1714 | 1779 | 1844  |               |
| 71           |            | 1909 | 1975 | 2040 | 2105 | 2170 | 2235 | 2300 | 2365 | 2430 | 2495  |               |
| 72           |            | 2560 | 2625 | 2691 | 2756 | 2821 | 2886 | 2951 | 3016 | 3081 | 3146  |               |
| 73           |            | 3211 | 3276 | 3341 | 3406 | 3472 | 3537 | 3602 | 3667 | 3732 | 3797  |               |
| 74           |            | 3862 | 3927 | 3992 | 4057 | 4122 | 4187 | 4252 | 4318 | 4383 | 4448  |               |
| 75           |            | 4513 | 4578 | 4643 | 4708 | 4773 | 4838 | 4903 | 4968 | 5033 | 5098  |               |
| 76           |            | 5163 | 5228 | 5293 | 5358 | 5423 | 5488 | 5553 | 5619 | 5684 | 5749  |               |
| 77           |            | 5814 | 5879 | 5944 | 6009 | 6074 | 6139 | 6204 | 6269 | 6334 | 6399  |               |
| 78           |            | 6464 | 6529 | 6594 | 6659 | 6724 | 6789 | 6854 | 6919 | 6984 | 7049  |               |
| 79           |            | 7114 | 7179 | 7244 | 7310 | 7375 | 7440 | 7505 | 7570 | 7635 | 7700  |               |
| <b>66 80</b> |            | 7765 | 7830 | 7895 | 7960 | 8025 | 8090 | 8155 | 8220 | 8285 | 8350  |               |
| 81           |            | 8415 | 8480 | 8545 | 8610 | 8675 | 8740 | 8805 | 8870 | 8935 | 9000  | 65            |
| 82           |            | 9065 | 9130 | 9195 | 9260 | 9325 | 9390 | 9455 | 9520 | 9585 | 9650  | 1 65          |
| 83           | •          | 9715 | 9780 | 9845 | 9910 | 9975 | •040 | 0105 | 0169 | 0234 | 0299  | 2 130         |
| 84           | 825        | 0364 | 0429 | 0494 | 0559 | 0624 | 0689 | 0754 | 0819 | 0884 | 0949  | 3 195         |
| 85           |            | 1014 | 1079 | 1144 | 1209 | 1274 | 1339 | 1404 | 1469 | 1534 | 1599  | 4 260         |
| 86           |            | 1664 | 1729 | 1794 | 1859 | 1924 | 1988 | 2053 | 2118 | 2183 | 2248  | 5 325         |
| 87           |            | 2313 | 2378 | 2443 | 2508 | 2573 | 2638 | 2703 | 2768 | 2833 | 2898  | 6 390         |
| 88           |            | 2963 | 3028 | 3093 | 3157 | 3222 | 3287 | 3352 | 3417 | 3482 | 3547  | 7 455         |
| 89           |            | 3612 | 3677 | 3742 | 3807 | 3872 | 3937 | 4002 | 4066 | 4131 | 4196  | 8 520         |
| <b>66 90</b> |            | 4261 | 4326 | 4391 | 4456 | 4521 | 4586 | 4651 | 4716 | 4780 | 4845  | 9 585         |
| 91           |            | 4910 | 4975 | 5040 | 5105 | 5170 | 5235 | 5300 | 5365 | 5430 | 5494  |               |
| 92           |            | 5559 | 5624 | 5689 | 5754 | 5819 | 5884 | 5949 | 6014 | 6078 | 6143  |               |
| 93           |            | 6208 | 6273 | 6338 | 6403 | 6468 | 6533 | 6598 | 6662 | 6727 | 6792  |               |
| 94           |            | 6857 | 6922 | 6987 | 7052 | 7117 | 7181 | 7246 | 7311 | 7376 | 7441  |               |
| 95           |            | 7506 | 7571 | 7636 | 7700 | 7765 | 7830 | 7895 | 7960 | 8025 | 8090  |               |
| 96           |            | 8154 | 8219 | 8284 | 8349 | 8414 | 8479 | 8544 | 8608 | 8673 | 8738  |               |
| 97           |            | 8803 | 8868 | 8933 | 8998 | 9062 | 9127 | 9192 | 9257 | 9322 | 9387  |               |
| 98           | •          | 9451 | 9516 | 9581 | 9646 | 9711 | 9776 | 9840 | 9905 | 9970 | •035  |               |
| 99           | 826        | 0100 | 0165 | 0229 | 0294 | 0359 | 0424 | 0489 | 0554 | 0618 | 0683  |               |
| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 6700  | 828 | 0748 | 0813 | 0878 | 0942 | 1007 | 1072 | 1137 | 1202 | 1267 | 1331  |               |
| 01    |     | 1395 | 1461 | 1526 | 1591 | 1655 | 1720 | 1785 | 1850 | 1915 | 1979  |               |
| 02    |     | 2044 | 2109 | 2174 | 2239 | 2303 | 2368 | 2433 | 2498 | 2563 | 2627  |               |
| 03    |     | 2692 | 2757 | 2822 | 2887 | 2951 | 3016 | 3081 | 3146 | 3210 | 3275  |               |
| 04    |     | 3340 | 3405 | 3470 | 3534 | 3599 | 3664 | 3729 | 3794 | 3858 | 3923  |               |
| 05    |     | 3988 | 4053 | 4117 | 4182 | 4247 | 4312 | 4376 | 4441 | 4506 | 4571  |               |
| 06    |     | 4635 | 4700 | 4765 | 4830 | 4895 | 4959 | 5024 | 5089 | 5154 | 5218  |               |
| 07    |     | 5283 | 5348 | 5413 | 5477 | 5542 | 5607 | 5672 | 5736 | 5801 | 5866  |               |
| 08    |     | 5931 | 5995 | 6060 | 6125 | 6190 | 6254 | 6319 | 6384 | 6448 | 6513  |               |
| 09    |     | 6578 | 6643 | 6707 | 6772 | 6837 | 6902 | 6966 | 7031 | 7096 | 7160  |               |
| 67 10 |     | 7225 | 7290 | 7355 | 7419 | 7484 | 7549 | 7614 | 7678 | 7743 | 7808  | 1 65          |
| 11    |     | 7872 | 7937 | 8002 | 8067 | 8131 | 8196 | 8261 | 8325 | 8390 | 8455  | 2 130         |
| 12    |     | 8519 | 8584 | 8649 | 8714 | 8778 | 8843 | 8908 | 8972 | 9037 | 9102  | 3 195         |
| 13    |     | 9166 | 9231 | 9296 | 9361 | 9425 | 9490 | 9555 | 9619 | 9684 | 9749  | 4 260         |
| 14    | *   | 9813 | 9878 | 9943 | +007 | 0072 | 0137 | 0201 | 0266 | 0331 | 0395  | 5 325         |
| 15    |     | 827  | 0460 | 0525 | 0590 | 0654 | 0719 | 0784 | 0848 | 0913 | 0978  | 6 390         |
| 16    |     | 1107 | 1172 | 1236 | 1301 | 1366 | 1430 | 1495 | 1560 | 1624 | 1689  | 7 455         |
| 17    |     | 1753 | 1818 | 1883 | 1947 | 2012 | 2077 | 2141 | 2206 | 2271 | 2335  | 8 520         |
| 18    |     | 2400 | 2465 | 2529 | 2594 | 2659 | 2723 | 2788 | 2852 | 2917 | 2982  | 9 585         |
| 19    |     | 3046 | 3111 | 3176 | 3240 | 3305 | 3370 | 3434 | 3499 | 3563 | 3628  |               |
| 67 20 |     | 3693 | 3757 | 3822 | 3887 | 3951 | 4016 | 4080 | 4145 | 4210 | 4274  |               |
| 21    |     | 4339 | 4404 | 4468 | 4533 | 4597 | 4662 | 4727 | 4791 | 4856 | 4920  |               |
| 22    |     | 4985 | 5050 | 5114 | 5179 | 5244 | 5308 | 5373 | 5437 | 5502 | 5567  |               |
| 23    |     | 5631 | 5696 | 5760 | 5825 | 5889 | 5954 | 6019 | 6083 | 6148 | 6212  |               |
| 24    |     | 6277 | 6342 | 6406 | 6471 | 6535 | 6600 | 6665 | 6729 | 6794 | 6858  |               |
| 25    |     | 6923 | 6987 | 7052 | 7117 | 7181 | 7246 | 7310 | 7375 | 7439 | 7504  |               |
| 26    |     | 7569 | 7633 | 7698 | 7762 | 7827 | 7891 | 7956 | 8021 | 8085 | 8150  |               |
| 27    |     | 8214 | 8279 | 8343 | 8408 | 8473 | 8537 | 8602 | 8666 | 8731 | 8795  |               |
| 28    |     | 8860 | 8924 | 8989 | 9053 | 9118 | 9183 | 9247 | 9312 | 9376 | 9441  |               |
| 29    | *   | 9505 | 9570 | 9634 | 9699 | 9763 | 9828 | 9893 | 9957 | +022 | 0086  |               |
| 67 30 | 828 | 0151 | 0215 | 0280 | 0344 | 0409 | 0473 | 0538 | 0602 | 0667 | 0731  |               |
| 31    |     | 0796 | 0860 | 0925 | 0989 | 1054 | 1119 | 1183 | 1248 | 1312 | 1377  |               |
| 32    |     | 1441 | 1506 | 1570 | 1635 | 1699 | 1764 | 1828 | 1893 | 1957 | 2022  |               |
| 33    |     | 2086 | 2151 | 2215 | 2280 | 2344 | 2409 | 2473 | 2538 | 2602 | 2667  |               |
| 34    |     | 2731 | 2796 | 2860 | 2925 | 2989 | 3054 | 3118 | 3183 | 3247 | 3312  |               |
| 35    |     | 3376 | 3440 | 3505 | 3569 | 3634 | 3698 | 3763 | 3827 | 3892 | 3956  |               |
| 36    |     | 4021 | 4085 | 4150 | 4214 | 4279 | 4343 | 4408 | 4472 | 4537 | 4601  |               |
| 37    |     | 4665 | 4730 | 4794 | 4859 | 4923 | 4988 | 5052 | 5117 | 5181 | 5246  |               |
| 38    |     | 5310 | 5375 | 5439 | 5503 | 5568 | 5632 | 5697 | 5761 | 5826 | 5890  |               |
| 39    |     | 5955 | 6019 | 6083 | 6148 | 6212 | 6277 | 6341 | 6406 | 6470 | 6535  |               |
| 67 40 |     | 6599 | 6663 | 6728 | 6792 | 6857 | 6921 | 6986 | 7050 | 7114 | 7179  |               |
| 41    |     | 7243 | 7308 | 7372 | 7437 | 7501 | 7565 | 7630 | 7694 | 7759 | 7823  | 1 64          |
| 42    |     | 7887 | 7952 | 8016 | 8081 | 8145 | 8210 | 8274 | 8338 | 8403 | 8467  | 2 128         |
| 43    |     | 8532 | 8596 | 8660 | 8725 | 8789 | 8854 | 8918 | 8982 | 9047 | 9111  | 3 192         |
| 44    |     | 9176 | 9240 | 9304 | 9369 | 9433 | 9498 | 9562 | 9626 | 9691 | 9755  | 4 256         |
| 45    | *   | 9820 | 9884 | 9948 | +013 | 0077 | 0141 | 0206 | 0270 | 0335 | 0399  | 5 320         |
| 46    | 829 | 0463 | 0528 | 0592 | 0656 | 0721 | 0785 | 0850 | 0914 | 0978 | 1043  | 6 384         |
| 47    |     | 1107 | 1171 | 1236 | 1300 | 1365 | 1429 | 1493 | 1558 | 1622 | 1686  | 7 448         |
| 48    |     | 1751 | 1815 | 1879 | 1944 | 2008 | 2073 | 2137 | 2201 | 2266 | 2330  | 8 512         |
| 49    |     | 2394 | 2459 | 2523 | 2587 | 2652 | 2716 | 2780 | 2845 | 2909 | 2973  | 9 576         |
| 67 50 |     | 3038 | 3102 | 3166 | 3231 | 3295 | 3359 | 3424 | 3488 | 3552 | 3617  |               |
| 51    |     | 3681 | 3745 | 3810 | 3874 | 3938 | 4003 | 4067 | 4131 | 4196 | 4260  |               |
| 52    |     | 4324 | 4389 | 4453 | 4517 | 4582 | 4646 | 4710 | 4775 | 4839 | 4903  |               |
| 53    |     | 4967 | 5032 | 5096 | 5160 | 5225 | 5289 | 5353 | 5418 | 5482 | 5546  |               |
| 54    |     | 5611 | 5675 | 5739 | 5803 | 5868 | 5932 | 5996 | 6061 | 6125 | 6189  |               |
| 55    |     | 6254 | 6318 | 6382 | 6446 | 6511 | 6575 | 6639 | 6704 | 6768 | 6832  |               |
| 56    |     | 6896 | 6961 | 7025 | 7089 | 7154 | 7218 | 7282 | 7346 | 7411 | 7475  |               |
| 57    |     | 7539 | 7603 | 7668 | 7732 | 7796 | 7861 | 7925 | 7989 | 8053 | 8118  |               |
| 58    |     | 8182 | 8246 | 8310 | 8375 | 8439 | 8503 | 8567 | 8632 | 8696 | 8760  |               |
| 59    |     | 8824 | 8889 | 8953 | 9017 | 9081 | 9146 | 9210 | 9274 | 9338 | 9403  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7     | 8    | 9    | Diff. | Diff. & Mult. |
|-------|----------|------|------|------|------|------|------|-------|------|------|-------|---------------|
| 6760  | • 9467   | 9531 | 9595 | 9660 | 9724 | 9788 | 9852 | 9917  | 9981 | •045 |       |               |
| 61    | 830 0109 | 0174 | 0238 | 0302 | 0366 | 0431 | 0495 | 0559  | 0623 | 0687 |       |               |
| 62    | 0752     | 0816 | 0880 | 0944 | 1009 | 1073 | 1137 | 1201  | 1265 | 1330 |       |               |
| 63    | 1394     | 1458 | 1522 | 1587 | 1651 | 1715 | 1779 | 1843  | 1908 | 1972 |       |               |
| 64    | 2036     | 2100 | 2164 | 2229 | 2293 | 2357 | 2421 | 2485  | 2550 | 2614 |       |               |
| 65    | 2678     | 2742 | 2806 | 2871 | 2935 | 2999 | 3063 | 3127  | 3192 | 3256 |       |               |
| 66    | 3320     | 3384 | 3448 | 3512 | 3577 | 3641 | 3705 | 3769  | 3833 | 3898 |       |               |
| 67    | 3962     | 4026 | 4090 | 4154 | 4218 | 4283 | 4347 | 4411  | 4475 | 4539 |       |               |
| 68    | 4604     | 4668 | 4732 | 4796 | 4860 | 4924 | 4988 | 5053  | 5117 | 5181 |       |               |
| 69    | 5245     | 5309 | 5373 | 5438 | 5502 | 5566 | 5630 | 5694  | 5758 | 5823 |       |               |
| 67 70 | 5887     | 5951 | 6015 | 6079 | 6143 | 6207 | 6272 | 6336  | 6400 | 6464 |       | 1   65        |
| 71    | 6528     | 6592 | 6656 | 6721 | 6785 | 6849 | 6913 | 6977  | 7041 | 7105 |       | 2   130       |
| 72    | 7169     | 7234 | 7298 | 7362 | 7426 | 7490 | 7554 | 7618  | 7683 | 7747 |       | 3   195       |
| 73    | 7811     | 7875 | 7939 | 8003 | 8067 | 8131 | 8195 | 8260  | 8324 | 8388 |       | 4   260       |
| 74    | 8452     | 8516 | 8580 | 8644 | 8708 | 8772 | 8837 | 8901  | 8965 | 9029 |       | 5   325       |
| 75    | 9093     | 9157 | 9221 | 9285 | 9349 | 9413 | 9478 | 9542  | 9606 | 9670 |       | 6   390       |
| 76    | • 9734   | 9798 | 9862 | 9926 | 9990 | •054 | 0119 | 0183  | 0247 | 0311 |       | 7   455       |
| 77    | 831 0375 | 0439 | 0503 | 0567 | 0631 | 0695 | 0759 | 0823  | 0887 | 0952 |       | 8   520       |
| 78    | 1016     | 1080 | 1144 | 1208 | 1272 | 1336 | 1400 | 1464  | 1528 | 1592 |       | 9   585       |
| 79    | 1656     | 1720 | 1784 | 1849 | 1913 | 1977 | 2041 | 2105  | 2169 | 2233 |       |               |
| 67 80 | 2297     | 2361 | 2425 | 2489 | 2553 | 2617 | 2681 | 2745  | 2809 | 2873 |       |               |
| 81    | 2937     | 3001 | 3066 | 3130 | 3194 | 3258 | 3322 | 3386  | 3450 | 3514 |       |               |
| 82    | 3578     | 3642 | 3706 | 3770 | 3834 | 3898 | 3962 | 4026  | 4090 | 4154 |       |               |
| 83    | 4218     | 4282 | 4346 | 4410 | 4474 | 4538 | 4602 | 4666  | 4730 | 4794 |       |               |
| 84    | 4858     | 4922 | 4986 | 5050 | 5114 | 5178 | 5242 | 5306  | 5371 | 5435 |       |               |
| 85    | 5499     | 5563 | 5627 | 5691 | 5755 | 5819 | 5883 | 5947  | 6011 | 6075 |       |               |
| 86    | 6139     | 6203 | 6267 | 6331 | 6395 | 6459 | 6523 | 6587  | 6651 | 6715 |       |               |
| 87    | 6778     | 6842 | 6906 | 6970 | 7034 | 7098 | 7162 | 7226  | 7290 | 7354 |       |               |
| 88    | 7418     | 7482 | 7546 | 7610 | 7674 | 7738 | 7802 | 7866  | 7930 | 7994 |       |               |
| 89    | 8058     | 8122 | 8186 | 8250 | 8314 | 8378 | 8442 | 8506  | 8570 | 8634 |       |               |
| 67 90 | 8698     | 8762 | 8826 | 8890 | 8954 | 9018 | 9082 | 9145  | 9209 | 9273 |       |               |
| 91    | 9337     | 9401 | 9465 | 9529 | 9593 | 9657 | 9721 | 9785  | 9849 | 9913 |       |               |
| 92    | • 9777   | •041 | 0105 | 0169 | 0233 | 0296 | 0360 | 0424  | 0488 | 0552 |       |               |
| 93    | 832 0616 | 0680 | 0744 | 0808 | 0872 | 0936 | 1000 | 1064  | 1128 | 1192 |       |               |
| 94    | 1255     | 1319 | 1383 | 1447 | 1511 | 1575 | 1639 | 1703  | 1767 | 1831 |       |               |
| 95    | 1895     | 1959 | 2022 | 2086 | 2150 | 2214 | 2278 | 2342  | 2406 | 2470 |       |               |
| 96    | 2534     | 2598 | 2662 | 2725 | 2789 | 2853 | 2917 | 2981  | 3045 | 3109 |       |               |
| 97    | 3173     | 3237 | 3300 | 3364 | 3428 | 3492 | 3556 | 3620  | 3684 | 3748 |       |               |
| 98    | 3812     | 3875 | 3939 | 4003 | 4067 | 4131 | 4195 | 4259  | 4323 | 4387 |       |               |
| 99    | 4450     | 4514 | 4578 | 4642 | 4706 | 4770 | 4834 | 4898  | 4961 | 5025 |       |               |
| 68 00 | 5089     | 5153 | 5217 | 5281 | 5345 | 5408 | 5472 | 5536  | 5600 | 5664 |       |               |
| 01    | 5728     | 5792 | 5855 | 5919 | 5983 | 6047 | 6111 | 6175  | 6239 | 6302 |       | 1   64        |
| 02    | 6366     | 6430 | 6494 | 6558 | 6622 | 6686 | 6749 | 6813  | 6877 | 6941 |       | 2   128       |
| 03    | 7005     | 7069 | 7132 | 7196 | 7260 | 7324 | 7388 | 7452  | 7515 | 7579 |       | 3   192       |
| 04    | 7643     | 7707 | 7771 | 7835 | 7898 | 7962 | 8026 | 8090  | 8154 | 8217 |       | 4   256       |
| 05    | 8281     | 8345 | 8409 | 8473 | 8537 | 8600 | 8664 | 8728  | 8792 | 8856 |       | 5   320       |
| 06    | 8919     | 8983 | 9047 | 9111 | 9175 | 9238 | 9302 | 9366  | 9430 | 9494 |       | 6   384       |
| 07    | • 9558   | 9621 | 9685 | 9749 | 9813 | 9877 | 9940 | •0004 | 0068 | 0132 |       | 7   448       |
| 08    | 833 0195 | 0259 | 0323 | 0387 | 0451 | 0514 | 0578 | 0642  | 0706 | 0770 |       | 8   512       |
| 09    | 0833     | 0897 | 0961 | 1025 | 1088 | 1152 | 1216 | 1280  | 1344 | 1407 |       | 9   576       |
| 68 10 | 1471     | 1535 | 1599 | 1662 | 1726 | 1790 | 1854 | 1918  | 1981 | 2045 |       |               |
| 11    | 2109     | 2173 | 2236 | 2300 | 2364 | 2428 | 2491 | 2555  | 2619 | 2683 |       |               |
| 12    | 2746     | 2810 | 2874 | 2938 | 3001 | 3065 | 3129 | 3193  | 3256 | 3320 |       |               |
| 13    | 3384     | 3448 | 3511 | 3575 | 3639 | 3703 | 3766 | 3830  | 3894 | 3958 |       |               |
| 14    | 4021     | 4085 | 4149 | 4212 | 4276 | 4340 | 4404 | 4467  | 4531 | 4595 |       |               |
| 15    | 4659     | 4722 | 4786 | 4850 | 4913 | 4977 | 5041 | 5105  | 5168 | 5232 |       |               |
| 16    | 5296     | 5360 | 5423 | 5487 | 5551 | 5614 | 5678 | 5742  | 5806 | 5869 |       |               |
| 17    | 5933     | 5997 | 6060 | 6124 | 6188 | 6251 | 6315 | 6379  | 6443 | 6506 |       |               |
| 18    | 6570     | 6634 | 6697 | 6761 | 6825 | 6888 | 6952 | 7016  | 7080 | 7143 |       |               |
| 19    | 7207     | 7271 | 7334 | 7398 | 7462 | 7525 | 7589 | 7653  | 7716 | 7780 |       |               |
| Num.  | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7     | 8    | 9    | Diff. | Diff. & Mult. |

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| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 6820 | 833 | 7844 | 7907 | 7971 | 8035 | 8098 | 8162 | 8226 | 8289 | 8353 | 8417  |               |
| 21   |     | 8480 | 8544 | 8608 | 8672 | 8735 | 8799 | 8862 | 8926 | 8990 | 9053  |               |
| 22   |     | 9117 | 9181 | 9244 | 9308 | 9372 | 9435 | 9499 | 9563 | 9626 | 9690  |               |
| 23   | *   | 9754 | 9817 | 9881 | 9945 | 0008 | 0072 | 0136 | 0199 | 0263 | 0327  |               |
| 24   | 834 | 0390 | 0454 | 0517 | 0581 | 0645 | 0708 | 0772 | 0836 | 0899 | 0963  |               |
| 25   |     | 1027 | 1090 | 1154 | 1217 | 1281 | 1345 | 1408 | 1472 | 1536 | 1599  |               |
| 26   |     | 1663 | 1726 | 1790 | 1854 | 1917 | 1981 | 2045 | 2108 | 2172 | 2235  |               |
| 27   |     | 2309 | 2363 | 2426 | 2490 | 2553 | 2617 | 2681 | 2744 | 2808 | 2872  |               |
| 28   |     | 2935 | 2999 | 3062 | 3126 | 3190 | 3253 | 3317 | 3380 | 3444 | 3508  |               |
| 29   |     | 3571 | 3635 | 3698 | 3762 | 3826 | 3889 | 3953 | 4016 | 4080 | 4143  |               |
| 6830 |     | 4207 | 4271 | 4334 | 4398 | 4461 | 4525 | 4589 | 4652 | 4716 | 4779  | 1 64          |
| 31   |     | 4843 | 4906 | 4970 | 5034 | 5097 | 5161 | 5224 | 5288 | 5351 | 5415  | 2 128         |
| 32   |     | 5479 | 5542 | 5606 | 5669 | 5733 | 5796 | 5860 | 5924 | 5987 | 6051  | 3 192         |
| 33   |     | 6114 | 6178 | 6241 | 6305 | 6368 | 6432 | 6496 | 6559 | 6623 | 6686  | 4 256         |
| 34   |     | 6750 | 6813 | 6877 | 6940 | 7004 | 7067 | 7131 | 7195 | 7258 | 7322  | 5 320         |
| 35   |     | 7385 | 7449 | 7512 | 7576 | 7639 | 7703 | 7766 | 7830 | 7893 | 7957  | 6 384         |
| 36   |     | 8021 | 8084 | 8148 | 8211 | 8275 | 8338 | 8402 | 8465 | 8529 | 8592  | 7 448         |
| 37   |     | 8656 | 8719 | 8783 | 8846 | 8910 | 8973 | 9037 | 9100 | 9164 | 9227  | 8 512         |
| 38   |     | 9291 | 9354 | 9418 | 9481 | 9545 | 9609 | 9672 | 9736 | 9799 | 9863  | 9 576         |
| 39   | *   | 9926 | 9990 | 0053 | 0117 | 0180 | 0244 | 0307 | 0371 | 0434 | 0498  |               |
| 6840 | 835 | 0561 | 0625 | 0688 | 0751 | 0815 | 0878 | 0942 | 1005 | 1069 | 1132  |               |
| 41   |     | 1196 | 1259 | 1323 | 1386 | 1450 | 1513 | 1577 | 1640 | 1704 | 1767  |               |
| 42   |     | 1831 | 1894 | 1958 | 2021 | 2085 | 2148 | 2212 | 2275 | 2338 | 2402  |               |
| 43   |     | 2465 | 2529 | 2592 | 2656 | 2719 | 2783 | 2846 | 2910 | 2973 | 3037  |               |
| 44   |     | 3100 | 3163 | 3227 | 3290 | 3354 | 3417 | 3481 | 3544 | 3608 | 3671  |               |
| 45   |     | 3735 | 3798 | 3861 | 3925 | 3988 | 4052 | 4115 | 4179 | 4242 | 4306  |               |
| 46   |     | 4369 | 4432 | 4496 | 4559 | 4623 | 4686 | 4750 | 4813 | 4876 | 4940  |               |
| 47   |     | 5003 | 5067 | 5130 | 5194 | 5257 | 5320 | 5384 | 5447 | 5511 | 5574  |               |
| 48   |     | 5638 | 5701 | 5764 | 5828 | 5891 | 5955 | 6018 | 6081 | 6145 | 6208  |               |
| 49   |     | 6272 | 6335 | 6398 | 6462 | 6525 | 6589 | 6652 | 6716 | 6779 | 6842  |               |
| 6850 |     | 6906 | 6969 | 7033 | 7096 | 7159 | 7223 | 7286 | 7349 | 7413 | 7476  |               |
| 51   |     | 7540 | 7603 | 7666 | 7730 | 7793 | 7857 | 7920 | 7983 | 8047 | 8110  |               |
| 52   |     | 8174 | 8237 | 8300 | 8364 | 8427 | 8490 | 8554 | 8617 | 8681 | 8744  |               |
| 53   |     | 8807 | 8871 | 8934 | 8997 | 9061 | 9124 | 9188 | 9251 | 9314 | 9378  |               |
| 54   | *   | 9441 | 9504 | 9568 | 9631 | 9694 | 9758 | 9821 | 9885 | 9948 | 0011  |               |
| 55   | 836 | 0075 | 0138 | 0201 | 0265 | 0328 | 0391 | 0455 | 0518 | 0581 | 0645  |               |
| 56   |     | 0708 | 0771 | 0835 | 0898 | 0961 | 1025 | 1088 | 1151 | 1215 | 1278  |               |
| 57   |     | 1341 | 1405 | 1468 | 1531 | 1595 | 1658 | 1721 | 1785 | 1848 | 1911  |               |
| 58   |     | 1975 | 2038 | 2101 | 2165 | 2228 | 2291 | 2355 | 2418 | 2481 | 2545  |               |
| 59   |     | 2608 | 2671 | 2735 | 2798 | 2861 | 2925 | 2988 | 3051 | 3115 | 3178  |               |
| 6860 |     | 3241 | 3304 | 3368 | 3431 | 3494 | 3558 | 3621 | 3684 | 3748 | 3811  |               |
| 61   |     | 3874 | 3937 | 4001 | 4064 | 4127 | 4191 | 4254 | 4317 | 4381 | 4444  | 1 63          |
| 62   |     | 4507 | 4570 | 4634 | 4697 | 4760 | 4824 | 4887 | 4950 | 5013 | 5077  | 2 126         |
| 63   |     | 5140 | 5203 | 5267 | 5330 | 5393 | 5456 | 5520 | 5583 | 5646 | 5709  | 3 189         |
| 64   |     | 5773 | 5836 | 5899 | 5963 | 6026 | 6089 | 6152 | 6216 | 6279 | 6342  | 4 252         |
| 65   |     | 6405 | 6469 | 6532 | 6595 | 6658 | 6722 | 6785 | 6848 | 6911 | 6975  | 5 315         |
| 66   |     | 7038 | 7101 | 7164 | 7228 | 7291 | 7354 | 7417 | 7481 | 7544 | 7607  | 6 378         |
| 67   |     | 7670 | 7734 | 7797 | 7860 | 7923 | 7987 | 8050 | 8113 | 8176 | 8240  | 7 441         |
| 68   |     | 8303 | 8366 | 8429 | 8493 | 8556 | 8619 | 8682 | 8745 | 8809 | 8872  | 8 504         |
| 69   |     | 8935 | 8998 | 9062 | 9125 | 9188 | 9251 | 9314 | 9378 | 9441 | 9504  | 9 567         |
| 6870 | *   | 9567 | 9631 | 9694 | 9757 | 9820 | 9883 | 9947 | 0010 | 0073 | 0136  |               |
| 71   | 837 | 0199 | 0263 | 0326 | 0389 | 0452 | 0516 | 0579 | 0642 | 0705 | 0768  |               |
| 72   |     | 0832 | 0895 | 0958 | 1021 | 1084 | 1147 | 1211 | 1274 | 1337 | 1400  |               |
| 73   |     | 1463 | 1527 | 1590 | 1653 | 1716 | 1779 | 1843 | 1906 | 1969 | 2032  |               |
| 74   |     | 2095 | 2158 | 2222 | 2285 | 2348 | 2411 | 2474 | 2538 | 2601 | 2664  |               |
| 75   |     | 2727 | 2790 | 2853 | 2917 | 2980 | 3043 | 3106 | 3169 | 3232 | 3296  |               |
| 76   |     | 3359 | 3422 | 3485 | 3548 | 3611 | 3674 | 3738 | 3801 | 3864 | 3927  |               |
| 77   |     | 3990 | 4053 | 4117 | 4180 | 4243 | 4306 | 4369 | 4432 | 4495 | 4559  |               |
| 78   |     | 4622 | 4685 | 4748 | 4811 | 4874 | 4937 | 5000 | 5064 | 5127 | 5190  |               |
| 79   |     | 5253 | 5316 | 5379 | 5442 | 5506 | 5569 | 5632 | 5695 | 5758 | 5821  |               |
| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>6880</b> | <b>837</b> | 5884 | 5948 | 6011 | 6074 | 6137 | 6200 | 6263 | 6326 | 6389 | 6452  |               |
| 81          |            | 6516 | 6579 | 6642 | 6705 | 6768 | 6831 | 6894 | 6957 | 7020 | 7084  |               |
| 82          |            | 7147 | 7210 | 7273 | 7336 | 7399 | 7462 | 7525 | 7588 | 7652 | 7715  |               |
| 83          |            | 7778 | 7841 | 7904 | 7967 | 8030 | 8093 | 8156 | 8219 | 8282 | 8346  |               |
| 84          |            | 8409 | 8472 | 8535 | 8598 | 8661 | 8724 | 8787 | 8850 | 8913 | 8976  |               |
| 85          |            | 9039 | 9103 | 9166 | 9229 | 9292 | 9355 | 9418 | 9481 | 9544 | 9607  |               |
| 86          | *          | 9670 | 9733 | 9796 | 9859 | 9922 | 9986 | +040 | 0112 | 0175 | 0238  |               |
| 87          | 838        | 0301 | 0364 | 0427 | 0490 | 0553 | 0616 | 0679 | 0742 | 0805 | 0868  |               |
| 88          |            | 0931 | 0994 | 1057 | 1121 | 1184 | 1247 | 1310 | 1373 | 1436 | 1499  |               |
| 89          |            | 1562 | 1625 | 1688 | 1751 | 1814 | 1877 | 1940 | 2003 | 2066 | 2129  |               |
| <b>6890</b> |            | 2192 | 2255 | 2318 | 2381 | 2444 | 2507 | 2570 | 2633 | 2696 | 2759  |               |
| 91          |            | 2822 | 2886 | 2949 | 3012 | 3075 | 3138 | 3201 | 3264 | 3327 | 3390  |               |
| 92          |            | 3453 | 3516 | 3579 | 3642 | 3705 | 3768 | 3831 | 3894 | 3957 | 4020  |               |
| 93          |            | 4083 | 4146 | 4209 | 4272 | 4335 | 4398 | 4461 | 4524 | 4587 | 4650  |               |
| 94          |            | 4713 | 4776 | 4839 | 4902 | 4965 | 5028 | 5091 | 5154 | 5217 | 5280  |               |
| 95          |            | 5343 | 5406 | 5469 | 5532 | 5595 | 5658 | 5721 | 5784 | 5847 | 5910  |               |
| 96          |            | 5973 | 6036 | 6099 | 6161 | 6224 | 6287 | 6350 | 6413 | 6476 | 6539  |               |
| 97          |            | 6602 | 6665 | 6728 | 6791 | 6854 | 6917 | 6980 | 7043 | 7106 | 7169  |               |
| 98          |            | 7232 | 7295 | 7358 | 7421 | 7484 | 7547 | 7610 | 7673 | 7736 | 7798  |               |
| 99          |            | 7861 | 7924 | 7987 | 8050 | 8113 | 8176 | 8239 | 8302 | 8365 | 8428  |               |
| <b>6900</b> |            | 8491 | 8554 | 8617 | 8680 | 8743 | 8806 | 8869 | 8931 | 8994 | 9057  |               |
| 01          |            | 9120 | 9183 | 9246 | 9309 | 9372 | 9435 | 9498 | 9561 | 9624 | 9687  |               |
| 02          | *          | 9750 | 9812 | 9875 | 9938 | +001 | 0064 | 0127 | 0190 | 0253 | 0316  |               |
| 03          | 839        | 0379 | 0442 | 0505 | 0567 | 0630 | 0693 | 0756 | 0819 | 0882 | 0945  |               |
| 04          |            | 1008 | 1071 | 1134 | 1197 | 1259 | 1322 | 1385 | 1448 | 1511 | 1574  |               |
| 05          |            | 1637 | 1700 | 1763 | 1826 | 1888 | 1951 | 2014 | 2077 | 2140 | 2203  |               |
| 06          |            | 2266 | 2329 | 2392 | 2454 | 2517 | 2580 | 2643 | 2706 | 2769 | 2832  |               |
| 07          |            | 2895 | 2957 | 3020 | 3083 | 3146 | 3209 | 3272 | 3335 | 3398 | 3460  |               |
| 08          |            | 3523 | 3586 | 3649 | 3712 | 3775 | 3838 | 3900 | 3963 | 4026 | 4089  |               |
| 09          |            | 4152 | 4215 | 4278 | 4341 | 4403 | 4466 | 4529 | 4592 | 4655 | 4718  |               |
| <b>6910</b> |            | 4780 | 4843 | 4906 | 4969 | 5032 | 5095 | 5158 | 5220 | 5283 | 5346  |               |
| 11          |            | 5409 | 5472 | 5535 | 5597 | 5660 | 5723 | 5786 | 5849 | 5912 | 5974  |               |
| 12          |            | 6037 | 6100 | 6163 | 6226 | 6289 | 6351 | 6414 | 6477 | 6540 | 6603  |               |
| 13          |            | 6666 | 6728 | 6791 | 6854 | 6917 | 6980 | 7042 | 7105 | 7168 | 7231  |               |
| 14          |            | 7294 | 7357 | 7419 | 7482 | 7545 | 7608 | 7671 | 7733 | 7796 | 7859  |               |
| 15          |            | 7922 | 7985 | 8047 | 8110 | 8173 | 8236 | 8299 | 8361 | 8424 | 8487  |               |
| 16          |            | 8550 | 8613 | 8675 | 8738 | 8801 | 8864 | 8927 | 8989 | 9052 | 9115  |               |
| 17          |            | 9178 | 9241 | 9303 | 9366 | 9429 | 9492 | 9554 | 9617 | 9680 | 9743  |               |
| 18          | *          | 9806 | 9868 | 9931 | 9994 | +057 | 0119 | 0182 | 0245 | 0308 | 0371  |               |
| 19          | 840        | 0433 | 0496 | 0559 | 0622 | 0684 | 0747 | 0810 | 0873 | 0935 | 0998  |               |
| <b>6920</b> |            | 1061 | 1124 | 1186 | 1249 | 1312 | 1375 | 1437 | 1500 | 1563 | 1626  |               |
| 21          |            | 1688 | 1751 | 1814 | 1877 | 1939 | 2002 | 2065 | 2128 | 2190 | 2253  |               |
| 22          |            | 2316 | 2379 | 2441 | 2504 | 2567 | 2630 | 2692 | 2755 | 2818 | 2881  |               |
| 23          |            | 2943 | 3006 | 3069 | 3132 | 3194 | 3257 | 3320 | 3382 | 3445 | 3508  |               |
| 24          |            | 3571 | 3633 | 3696 | 3759 | 3821 | 3884 | 3947 | 4010 | 4072 | 4135  |               |
| 25          |            | 4198 | 4260 | 4323 | 4386 | 4449 | 4511 | 4574 | 4637 | 4699 | 4762  |               |
| 26          |            | 4825 | 4888 | 4950 | 5013 | 5076 | 5138 | 5201 | 5264 | 5326 | 5389  |               |
| 27          |            | 5452 | 5515 | 5577 | 5640 | 5703 | 5765 | 5828 | 5891 | 5953 | 6016  |               |
| 28          |            | 6079 | 6141 | 6204 | 6267 | 6330 | 6392 | 6455 | 6518 | 6580 | 6643  |               |
| 29          |            | 6708 | 6768 | 6831 | 6894 | 6956 | 7019 | 7082 | 7144 | 7207 | 7270  |               |
| <b>6930</b> |            | 7332 | 7395 | 7458 | 7520 | 7583 | 7646 | 7708 | 7771 | 7834 | 7896  |               |
| 31          |            | 7959 | 8022 | 8084 | 8147 | 8210 | 8272 | 8335 | 8398 | 8460 | 8523  |               |
| 32          |            | 8586 | 8648 | 8711 | 8773 | 8836 | 8899 | 8961 | 9024 | 9087 | 9149  |               |
| 33          |            | 9212 | 9275 | 9337 | 9400 | 9463 | 9525 | 9588 | 9650 | 9713 | 9776  |               |
| 34          | *          | 9838 | 9901 | 9964 | +026 | 0089 | 0152 | 0214 | 0277 | 0339 | 0402  |               |
| 35          | 841        | 0465 | 0527 | 0590 | 0653 | 0715 | 0778 | 0840 | 0903 | 0966 | 1028  |               |
| 36          |            | 1091 | 1153 | 1216 | 1279 | 1341 | 1404 | 1467 | 1529 | 1592 | 1654  |               |
| 37          |            | 1717 | 1780 | 1842 | 1905 | 1967 | 2030 | 2093 | 2155 | 2218 | 2280  |               |
| 38          |            | 2343 | 2406 | 2468 | 2531 | 2593 | 2656 | 2719 | 2781 | 2844 | 2906  |               |
| 39          |            | 2969 | 3031 | 3094 | 3157 | 3219 | 3282 | 3344 | 3407 | 3470 | 3532  |               |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

63

|   |     |
|---|-----|
| 1 | 64  |
| 2 | 126 |
| 3 | 192 |
| 4 | 256 |
| 5 | 320 |
| 6 | 384 |
| 7 | 448 |
| 8 | 512 |
| 9 | 576 |

|   |     |
|---|-----|
| 1 | 63  |
| 2 | 126 |
| 3 | 189 |
| 4 | 252 |
| 5 | 315 |
| 6 | 378 |
| 7 | 441 |
| 8 | 504 |
| 9 | 567 |

| Num.        | 0          | 1      | 2    | 3    | 4    | - 5  | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|--------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>6040</b> | <b>841</b> | 3595   | 3657 | 3720 | 3782 | 3845 | 3908 | 3970 | 4033 | 4095 | 4158  |               |
| 41          |            | 4220   | 4283 | 4346 | 4408 | 4471 | 4533 | 4596 | 4658 | 4721 | 4784  |               |
| 42          |            | 4846   | 4909 | 4971 | 5034 | 5096 | 5159 | 5221 | 5284 | 5347 | 5409  |               |
| 43          |            | 5472   | 5534 | 5597 | 5659 | 5722 | 5784 | 5847 | 5909 | 5972 | 6035  |               |
| 44          |            | 6097   | 6160 | 6222 | 6285 | 6347 | 6410 | 6472 | 6535 | 6597 | 6660  |               |
| 45          |            | 6723   | 6785 | 6848 | 6910 | 6973 | 7035 | 7098 | 7160 | 7223 | 7285  |               |
| 46          |            | 7348   | 7410 | 7473 | 7535 | 7598 | 7660 | 7723 | 7785 | 7848 | 7910  |               |
| 47          |            | 7973   | 8036 | 8098 | 8161 | 8223 | 8286 | 8348 | 8411 | 8473 | 8536  |               |
| 48          |            | 8598   | 8661 | 8723 | 8786 | 8848 | 8911 | 8973 | 9036 | 9098 | 9161  |               |
| 49          |            | 9223   | 9286 | 9348 | 9411 | 9473 | 9536 | 9598 | 9661 | 9723 | 9786  |               |
| 69 50       |            | * 9848 | 9911 | 9973 | +036 | 0098 | 0160 | 0223 | 0285 | 0348 | 0410  | 1             |
| 51          | 842        | 0473   | 0535 | 0598 | 0660 | 0723 | 0785 | 0848 | 0910 | 0973 | 1035  | 2             |
| 52          |            | 1098   | 1160 | 1223 | 1285 | 1348 | 1410 | 1472 | 1535 | 1597 | 1660  | 3             |
| 53          |            | 1722   | 1785 | 1847 | 1910 | 1972 | 2035 | 2097 | 2160 | 2222 | 2284  | 4             |
| 54          |            | 2347   | 2409 | 2472 | 2534 | 2597 | 2659 | 2722 | 2784 | 2846 | 2909  | 5             |
| 55          |            | 2971   | 3034 | 3096 | 3159 | 3221 | 3284 | 3346 | 3408 | 3471 | 3533  | 6             |
| 56          |            | 3596   | 3658 | 3721 | 3783 | 3845 | 3908 | 3970 | 4033 | 4095 | 4158  | 7             |
| 57          |            | 4220   | 4282 | 4345 | 4407 | 4470 | 4532 | 4595 | 4657 | 4719 | 4782  | 8             |
| 58          |            | 4844   | 4907 | 4969 | 5031 | 5094 | 5156 | 5219 | 5281 | 5344 | 5406  | 9             |
| 59          |            | 5468   | 5531 | 5593 | 5656 | 5718 | 5780 | 5843 | 5905 | 5968 | 6030  |               |
| 69 60       |            | 6092   | 6155 | 6217 | 6280 | 6342 | 6404 | 6467 | 6529 | 6592 | 6654  |               |
| 61          |            | 6716   | 6779 | 6841 | 6904 | 6966 | 7028 | 7091 | 7153 | 7215 | 7278  |               |
| 62          |            | 7340   | 7403 | 7465 | 7527 | 7590 | 7652 | 7714 | 7777 | 7839 | 7902  |               |
| 63          |            | 7964   | 8026 | 8089 | 8151 | 8213 | 8276 | 8338 | 8401 | 8463 | 8525  |               |
| 64          |            | 8588   | 8650 | 8712 | 8775 | 8837 | 8899 | 8962 | 9024 | 9086 | 9149  |               |
| 65          |            | 9211   | 9274 | 9336 | 9398 | 9461 | 9523 | 9585 | 9648 | 9710 | 9772  |               |
| 66          |            | * 9835 | 9897 | 9959 | +022 | 0084 | 0146 | 0209 | 0271 | 0333 | 0396  |               |
| 67          | 843        | 0458   | 0520 | 0583 | 0645 | 0707 | 0770 | 0832 | 0894 | 0957 | 1019  |               |
| 68          |            | 1081   | 1144 | 1206 | 1268 | 1331 | 1393 | 1455 | 1518 | 1580 | 1642  |               |
| 69          |            | 1705   | 1767 | 1829 | 1892 | 1954 | 2016 | 2079 | 2141 | 2203 | 2265  |               |
| 69 70       |            | 2328   | 2390 | 2452 | 2515 | 2577 | 2639 | 2702 | 2764 | 2826 | 2889  |               |
| 71          |            | 2951   | 3013 | 3075 | 3138 | 3200 | 3262 | 3325 | 3387 | 3449 | 3511  |               |
| 72          |            | 3574   | 3636 | 3698 | 3761 | 3823 | 3885 | 3948 | 4010 | 4072 | 4134  |               |
| 73          |            | 4197   | 4259 | 4321 | 4383 | 4446 | 4508 | 4570 | 4633 | 4695 | 4757  |               |
| 74          |            | 4819   | 4882 | 4944 | 5006 | 5069 | 5131 | 5193 | 5255 | 5318 | 5380  |               |
| 75          |            | 5442   | 5504 | 5567 | 5629 | 5691 | 5753 | 5816 | 5878 | 5940 | 6002  |               |
| 76          |            | 6065   | 6127 | 6189 | 6251 | 6314 | 6376 | 6438 | 6500 | 6563 | 6625  |               |
| 77          |            | 6687   | 6749 | 6812 | 6874 | 6936 | 6998 | 7061 | 7123 | 7185 | 7247  |               |
| 78          |            | 7310   | 7372 | 7434 | 7496 | 7559 | 7621 | 7683 | 7745 | 7808 | 7870  |               |
| 79          |            | 7932   | 7994 | 8056 | 8119 | 8181 | 8243 | 8305 | 8368 | 8430 | 8492  |               |
| 69 80       |            | 8554   | 8616 | 8679 | 8741 | 8803 | 8865 | 8928 | 8990 | 9052 | 9114  |               |
| 81          |            | 9176   | 9239 | 9301 | 9363 | 9425 | 9487 | 9550 | 9612 | 9674 | 9736  |               |
| 82          |            | * 9798 | 9861 | 9923 | 9985 | +047 | 0109 | 0172 | 0234 | 0296 | 0358  | 1             |
| 83          | 844        | 0420   | 0483 | 0545 | 0607 | 0669 | 0731 | 0794 | 0856 | 0918 | 0980  | 2             |
| 84          |            | 1042   | 1104 | 1167 | 1229 | 1291 | 1353 | 1415 | 1478 | 1540 | 1602  | 3             |
| 85          |            | 1664   | 1726 | 1788 | 1851 | 1913 | 1975 | 2037 | 2099 | 2161 | 2224  | 4             |
| 86          |            | 2286   | 2348 | 2410 | 2472 | 2534 | 2597 | 2659 | 2721 | 2783 | 2845  | 5             |
| 87          |            | 2907   | 2970 | 3032 | 3094 | 3156 | 3218 | 3280 | 3343 | 3405 | 3467  | 6             |
| 88          |            | 3529   | 3591 | 3653 | 3715 | 3778 | 3840 | 3902 | 3964 | 4026 | 4088  | 7             |
| 89          |            | 4150   | 4213 | 4275 | 4337 | 4399 | 4461 | 4523 | 4585 | 4647 | 4710  | 8             |
| 69 90       |            | 4772   | 4834 | 4896 | 4958 | 5020 | 5082 | 5145 | 5207 | 5269 | 5331  | 9             |
| 91          |            | 5393   | 5455 | 5517 | 5579 | 5642 | 5704 | 5766 | 5828 | 5890 | 5952  |               |
| 92          |            | 6014   | 6076 | 6138 | 6201 | 6263 | 6325 | 6387 | 6449 | 6511 | 6573  |               |
| 93          |            | 6635   | 6697 | 6759 | 6822 | 6884 | 6946 | 7008 | 7070 | 7132 | 7194  |               |
| 94          |            | 7256   | 7318 | 7380 | 7443 | 7505 | 7567 | 7629 | 7691 | 7753 | 7815  |               |
| 95          |            | 7877   | 7939 | 8001 | 8063 | 8126 | 8188 | 8250 | 8312 | 8374 | 8436  |               |
| 96          |            | 8498   | 8560 | 8622 | 8684 | 8746 | 8808 | 8870 | 8933 | 8995 | 9057  |               |
| 97          |            | 9119   | 9181 | 9243 | 9305 | 9367 | 9429 | 9491 | 9553 | 9615 | 9677  |               |
| 98          |            | * 9739 | 9801 | 9863 | 9925 | 9988 | +050 | 0112 | 0174 | 0236 | 0298  |               |
| 99          | 845        | 0360   | 0422 | 0484 | 0546 | 0608 | 0670 | 0732 | 0794 | 0856 | 0918  |               |
| Num.        | 0          | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |     |     |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|-----|-----|
| 7000  | 845 | 0980 | 1042 | 1104 | 1167 | 1229 | 1291 | 1353 | 1415 | 1477 | 1539  | 62            |     |     |
| 01    |     | 1601 | 1663 | 1725 | 1787 | 1849 | 1911 | 1973 | 2035 | 2097 | 2159  |               |     |     |
| 02    |     | 2221 | 2283 | 2345 | 2407 | 2469 | 2531 | 2593 | 2655 | 2717 | 2779  |               |     |     |
| 03    |     | 2841 | 2903 | 2965 | 3027 | 3089 | 3151 | 3213 | 3275 | 3337 | 3399  |               |     |     |
| 04    |     | 3461 | 3523 | 3585 | 3647 | 3709 | 3771 | 3833 | 3895 | 3957 | 4019  |               |     |     |
| 05    |     | 4081 | 4143 | 4205 | 4267 | 4329 | 4391 | 4453 | 4515 | 4577 | 4639  |               |     |     |
| 06    |     | 4701 | 4763 | 4825 | 4887 | 4949 | 5011 | 5073 | 5135 | 5197 | 5259  |               |     |     |
| 07    |     | 5321 | 5383 | 5445 | 5507 | 5569 | 5631 | 5693 | 5755 | 5817 | 5879  |               |     |     |
| 08    |     | 5941 | 6003 | 6065 | 6127 | 6189 | 6251 | 6313 | 6375 | 6437 | 6499  |               |     |     |
| 09    |     | 6561 | 6623 | 6685 | 6747 | 6808 | 6870 | 6932 | 6994 | 7056 | 7118  |               |     |     |
| 70 10 |     | 7180 | 7242 | 7304 | 7366 | 7428 | 7490 | 7552 | 7614 | 7676 | 7738  |               | 1   | 63  |
| 11    |     | 7800 | 7862 | 7924 | 7986 | 8047 | 8109 | 8171 | 8233 | 8295 | 8357  |               | 2   | 126 |
| 12    |     | 8419 | 8481 | 8543 | 8605 | 8667 | 8729 | 8791 | 8853 | 8915 | 8977  |               | 3   | 189 |
| 13    |     | 9038 | 9100 | 9162 | 9224 | 9286 | 9348 | 9410 | 9472 | 9534 | 9596  |               | 4   | 252 |
| 14    | *   | 9658 | 9720 | 9781 | 9843 | 9905 | 9967 | 0029 | 0091 | 0153 | 0215  | 5             | 315 |     |
| 15    | 846 | 0277 | 0339 | 0401 | 0462 | 0524 | 0586 | 0648 | 0710 | 0772 | 0834  | 6             | 378 |     |
| 16    |     | 0896 | 0958 | 1020 | 1082 | 1143 | 1205 | 1267 | 1329 | 1391 | 1453  | 7             | 441 |     |
| 17    |     | 1515 | 1577 | 1639 | 1700 | 1762 | 1824 | 1886 | 1948 | 2010 | 2072  | 8             | 504 |     |
| 18    |     | 2134 | 2196 | 2257 | 2319 | 2381 | 2443 | 2505 | 2567 | 2629 | 2691  | 9             | 567 |     |
| 19    |     | 2752 | 2814 | 2876 | 2938 | 3000 | 3062 | 3124 | 3186 | 3247 | 3309  |               |     |     |
| 70 20 |     | 3371 | 3433 | 3495 | 3557 | 3619 | 3680 | 3742 | 3804 | 3866 | 3928  |               |     |     |
| 21    |     | 3990 | 4052 | 4113 | 4175 | 4237 | 4299 | 4361 | 4423 | 4485 | 4546  |               |     |     |
| 22    |     | 4608 | 4670 | 4732 | 4794 | 4856 | 4917 | 4979 | 5041 | 5103 | 5165  |               |     |     |
| 23    |     | 5227 | 5289 | 5350 | 5412 | 5474 | 5536 | 5598 | 5660 | 5721 | 5783  |               |     |     |
| 24    |     | 5845 | 5907 | 5969 | 6031 | 6092 | 6154 | 6216 | 6278 | 6340 | 6401  |               |     |     |
| 25    |     | 6463 | 6525 | 6587 | 6649 | 6711 | 6772 | 6834 | 6896 | 6958 | 7020  |               |     |     |
| 26    |     | 7081 | 7143 | 7205 | 7267 | 7329 | 7391 | 7452 | 7514 | 7576 | 7638  |               |     |     |
| 27    |     | 7700 | 7761 | 7823 | 7885 | 7947 | 8009 | 8070 | 8132 | 8194 | 8256  |               |     |     |
| 28    |     | 8318 | 8379 | 8441 | 8503 | 8565 | 8626 | 8688 | 8750 | 8812 | 8874  |               |     |     |
| 29    |     | 8935 | 8997 | 9059 | 9121 | 9183 | 9244 | 9306 | 9368 | 9430 | 9491  |               |     |     |
| 70 30 | *   | 9553 | 9615 | 9677 | 9739 | 9800 | 9862 | 9924 | 9986 | 0047 | 0109  |               |     |     |
| 31    | 847 | 0171 | 0233 | 0295 | 0356 | 0418 | 0480 | 0542 | 0603 | 0665 | 0727  |               |     |     |
| 32    |     | 0789 | 0850 | 0912 | 0974 | 1036 | 1097 | 1159 | 1221 | 1283 | 1344  |               |     |     |
| 33    |     | 1406 | 1468 | 1530 | 1591 | 1653 | 1715 | 1777 | 1838 | 1900 | 1962  |               |     |     |
| 34    |     | 2024 | 2085 | 2147 | 2209 | 2271 | 2332 | 2394 | 2456 | 2518 | 2579  |               |     |     |
| 35    |     | 2641 | 2703 | 2764 | 2826 | 2888 | 2950 | 3011 | 3073 | 3135 | 3197  |               |     |     |
| 36    |     | 3258 | 3320 | 3382 | 3443 | 3505 | 3567 | 3629 | 3690 | 3752 | 3814  |               |     |     |
| 37    |     | 3876 | 3937 | 3999 | 4061 | 4122 | 4184 | 4246 | 4307 | 4369 | 4431  |               |     |     |
| 38    |     | 4493 | 4554 | 4616 | 4678 | 4739 | 4801 | 4863 | 4925 | 4986 | 5048  |               |     |     |
| 39    |     | 5110 | 5171 | 5233 | 5295 | 5356 | 5418 | 5480 | 5542 | 5603 | 5665  |               |     |     |
| 70 40 |     | 5727 | 5788 | 5850 | 5912 | 5973 | 6035 | 6097 | 6158 | 6220 | 6282  |               |     |     |
| 41    |     | 6343 | 6405 | 6467 | 6528 | 6590 | 6652 | 6714 | 6775 | 6837 | 6899  |               |     |     |
| 42    |     | 6960 | 7022 | 7084 | 7145 | 7207 | 7269 | 7330 | 7392 | 7454 | 7515  | 1             | 62  |     |
| 43    |     | 7577 | 7639 | 7700 | 7762 | 7824 | 7885 | 7947 | 8009 | 8070 | 8132  | 2             | 124 |     |
| 44    |     | 8193 | 8255 | 8317 | 8378 | 8440 | 8502 | 8563 | 8625 | 8687 | 8748  | 3             | 186 |     |
| 45    |     | 8810 | 8872 | 8933 | 8995 | 9057 | 9118 | 9180 | 9241 | 9303 | 9365  | 4             | 248 |     |
| 46    |     | 9426 | 9488 | 9550 | 9611 | 9673 | 9735 | 9796 | 9858 | 9919 | 9981  | 5             | 310 |     |
| 47    | 848 | 0043 | 0104 | 0166 | 0228 | 0289 | 0351 | 0412 | 0474 | 0536 | 0597  | 6             | 372 |     |
| 48    |     | 0659 | 0721 | 0782 | 0844 | 0905 | 0967 | 1029 | 1090 | 1152 | 1213  | 7             | 434 |     |
| 49    |     | 1275 | 1337 | 1398 | 1460 | 1522 | 1583 | 1645 | 1706 | 1768 | 1830  | 8             | 496 |     |
| 70 50 |     | 1891 | 1953 | 2014 | 2076 | 2138 | 2199 | 2261 | 2322 | 2384 | 2446  | 9             | 558 |     |
| 51    |     | 2507 | 2569 | 2630 | 2692 | 2754 | 2815 | 2877 | 2938 | 3000 | 3061  |               |     |     |
| 52    |     | 3123 | 3185 | 3246 | 3308 | 3369 | 3431 | 3493 | 3554 | 3616 | 3677  |               |     |     |
| 53    |     | 3739 | 3800 | 3862 | 3924 | 3985 | 4047 | 4108 | 4170 | 4231 | 4293  |               |     |     |
| 54    |     | 4355 | 4416 | 4478 | 4539 | 4601 | 4662 | 4724 | 4786 | 4847 | 4909  |               |     |     |
| 55    |     | 4970 | 5032 | 5093 | 5155 | 5216 | 5278 | 5340 | 5401 | 5463 | 5524  |               |     |     |
| 56    |     | 5586 | 5647 | 5709 | 5770 | 5832 | 5893 | 5955 | 6017 | 6078 | 6140  |               |     |     |
| 57    |     | 6201 | 6263 | 6324 | 6386 | 6447 | 6509 | 6570 | 6632 | 6693 | 6755  |               |     |     |
| 58    |     | 6817 | 6878 | 6940 | 7001 | 7063 | 7124 | 7186 | 7247 | 7309 | 7370  |               |     |     |
| 59    |     | 7432 | 7493 | 7555 | 7616 | 7678 | 7739 | 7801 | 7862 | 7924 | 7985  |               |     |     |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |     |     |



LOGARITHMS OF NUMBERS.

105

| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 7060 | 848 | 8047 | 8109 | 8170 | 8232 | 8293 | 8355 | 8416 | 8478 | 8539 | 8601  |               |
| 61   |     | 8662 | 8724 | 8785 | 8847 | 8908 | 8970 | 9031 | 9093 | 9154 | 9216  |               |
| 62   |     | 9277 | 9339 | 9400 | 9462 | 9523 | 9585 | 9646 | 9708 | 9769 | 9831  |               |
| 63   | *   | 9892 | 9954 | +015 | 0077 | 0138 | 0199 | 0261 | 0322 | 0384 | 0445  |               |
| 64   | 849 | 0507 | 0568 | 0630 | 0691 | 0753 | 0814 | 0876 | 0937 | 0999 | 1060  |               |
| 65   |     | 1122 | 1183 | 1245 | 1306 | 1368 | 1429 | 1490 | 1552 | 1613 | 1675  |               |
| 66   |     | 1736 | 1798 | 1859 | 1921 | 1982 | 2044 | 2105 | 2167 | 2228 | 2289  |               |
| 67   |     | 2351 | 2412 | 2474 | 2535 | 2597 | 2658 | 2720 | 2781 | 2843 | 2904  |               |
| 68   |     | 2965 | 3027 | 3088 | 3150 | 3211 | 3273 | 3334 | 3396 | 3457 | 3518  |               |
| 69   |     | 3580 | 3641 | 3703 | 3764 | 3826 | 3887 | 3948 | 4010 | 4071 | 4133  |               |
| 70   | 70  | 4194 | 4256 | 4317 | 4378 | 4440 | 4501 | 4563 | 4624 | 4686 | 4747  |               |
| 71   |     | 4808 | 4870 | 4931 | 4993 | 5054 | 5115 | 5177 | 5238 | 5300 | 5361  | 1             |
| 72   |     | 5423 | 5484 | 5545 | 5607 | 5668 | 5730 | 5791 | 5852 | 5914 | 5975  | 2             |
| 73   |     | 6037 | 6098 | 6159 | 6221 | 6282 | 6344 | 6405 | 6466 | 6528 | 6589  | 3             |
| 74   |     | 6651 | 6712 | 6773 | 6835 | 6896 | 6958 | 7019 | 7080 | 7142 | 7203  | 4             |
| 75   |     | 7264 | 7326 | 7387 | 7449 | 7510 | 7571 | 7633 | 7694 | 7755 | 7817  | 5             |
| 76   |     | 7878 | 7940 | 8001 | 8062 | 8124 | 8185 | 8246 | 8308 | 8369 | 8431  | 6             |
| 77   |     | 8492 | 8553 | 8615 | 8676 | 8737 | 8799 | 8860 | 8922 | 8983 | 9044  | 7             |
| 78   |     | 9106 | 9167 | 9228 | 9290 | 9351 | 9412 | 9474 | 9535 | 9596 | 9658  | 8             |
| 79   | *   | 9719 | 9780 | 9842 | 9903 | 9965 | +020 | 0087 | 0149 | 0210 | 0271  | 9             |
| 80   | 850 | 0333 | 0394 | 0455 | 0517 | 0578 | 0639 | 0701 | 0762 | 0823 | 0885  |               |
| 81   |     | 0946 | 1007 | 1069 | 1130 | 1191 | 1253 | 1314 | 1375 | 1437 | 1498  |               |
| 82   |     | 1559 | 1621 | 1682 | 1743 | 1805 | 1866 | 1927 | 1988 | 2050 | 2111  |               |
| 83   |     | 2172 | 2234 | 2295 | 2356 | 2418 | 2479 | 2540 | 2602 | 2663 | 2724  |               |
| 84   |     | 2786 | 2847 | 2908 | 2969 | 3031 | 3092 | 3153 | 3215 | 3276 | 3337  |               |
| 85   |     | 3399 | 3460 | 3521 | 3582 | 3644 | 3705 | 3766 | 3828 | 3889 | 3950  |               |
| 86   |     | 4011 | 4073 | 4134 | 4195 | 4257 | 4318 | 4379 | 4440 | 4502 | 4563  |               |
| 87   |     | 4624 | 4686 | 4747 | 4808 | 4869 | 4931 | 4992 | 5053 | 5115 | 5176  |               |
| 88   |     | 5237 | 5298 | 5360 | 5421 | 5482 | 5543 | 5605 | 5666 | 5727 | 5788  |               |
| 89   |     | 5850 | 5911 | 5972 | 6034 | 6095 | 6156 | 6217 | 6279 | 6340 | 6401  |               |
| 90   | 90  | 6462 | 6524 | 6585 | 6646 | 6707 | 6769 | 6830 | 6891 | 6952 | 7014  |               |
| 91   |     | 7075 | 7136 | 7197 | 7259 | 7320 | 7381 | 7442 | 7504 | 7565 | 7626  |               |
| 92   |     | 7687 | 7749 | 7810 | 7871 | 7932 | 7993 | 8055 | 8116 | 8177 | 8238  |               |
| 93   |     | 8300 | 8361 | 8422 | 8483 | 8545 | 8606 | 8667 | 8728 | 8789 | 8851  |               |
| 94   |     | 8912 | 8973 | 9034 | 9095 | 9157 | 9218 | 9279 | 9340 | 9402 | 9463  |               |
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| 97   |     | 0748 | 0809 | 0870 | 0932 | 0993 | 1054 | 1115 | 1176 | 1238 | 1299  |               |
| 98   |     | 1360 | 1421 | 1482 | 1544 | 1605 | 1666 | 1727 | 1788 | 1849 | 1911  |               |
| 99   |     | 1972 | 2033 | 2094 | 2155 | 2216 | 2278 | 2339 | 2400 | 2461 | 2522  |               |
| 71   | 00  | 2583 | 2645 | 2706 | 2767 | 2828 | 2889 | 2950 | 3012 | 3073 | 3134  |               |
| 01   |     | 3195 | 3256 | 3317 | 3379 | 3440 | 3501 | 3562 | 3623 | 3684 | 3746  |               |
| 02   |     | 3807 | 3868 | 3929 | 3990 | 4051 | 4112 | 4174 | 4235 | 4296 | 4357  | 1             |
| 03   |     | 4418 | 4479 | 4540 | 4602 | 4663 | 4724 | 4785 | 4846 | 4907 | 4968  | 2             |
| 04   |     | 5030 | 5091 | 5152 | 5213 | 5274 | 5335 | 5396 | 5457 | 5519 | 5580  | 3             |
| 05   |     | 5641 | 5702 | 5763 | 5824 | 5885 | 5946 | 6008 | 6069 | 6130 | 6191  | 4             |
| 06   |     | 6252 | 6313 | 6374 | 6435 | 6496 | 6558 | 6619 | 6680 | 6741 | 6802  | 5             |
| 07   |     | 6863 | 6924 | 6985 | 7046 | 7108 | 7169 | 7230 | 7291 | 7352 | 7413  | 6             |
| 08   |     | 7474 | 7535 | 7596 | 7657 | 7719 | 7780 | 7841 | 7902 | 7963 | 8024  | 7             |
| 09   |     | 8085 | 8146 | 8207 | 8268 | 8329 | 8391 | 8452 | 8513 | 8574 | 8635  | 8             |
| 71   | 10  | 8696 | 8757 | 8818 | 8879 | 8940 | 9001 | 9062 | 9124 | 9185 | 9246  |               |
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| 14   |     | 1139 | 1200 | 1261 | 1322 | 1383 | 1444 | 1505 | 1566 | 1627 | 1688  |               |
| 15   |     | 1749 | 1810 | 1871 | 1932 | 1993 | 2054 | 2115 | 2176 | 2237 | 2298  |               |
| 16   |     | 2359 | 2420 | 2481 | 2542 | 2604 | 2665 | 2726 | 2787 | 2848 | 2909  |               |
| 17   |     | 2970 | 3031 | 3092 | 3153 | 3214 | 3275 | 3336 | 3397 | 3458 | 3519  |               |
| 18   |     | 3580 | 3641 | 3702 | 3763 | 3824 | 3885 | 3946 | 4007 | 4068 | 4129  |               |
| 19   |     | 4190 | 4251 | 4312 | 4373 | 4434 | 4495 | 4556 | 4617 | 4678 | 4739  |               |
| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |               |
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| 7120  | 852 | 4800 | 4861 | 4922 | 4983 | 5044 | 5105 | 5166 | 5227 | 5288 | 5349  |               |               |
| 21    |     | 5410 | 5471 | 5532 | 5593 | 5654 | 5715 | 5776 | 5837 | 5898 | 5959  |               |               |
| 22    |     | 6020 | 6081 | 6142 | 6203 | 6264 | 6325 | 6386 | 6447 | 6508 | 6568  |               |               |
| 23    |     | 6629 | 6690 | 6751 | 6812 | 6873 | 6934 | 6995 | 7056 | 7117 | 7178  |               |               |
| 24    |     | 7239 | 7300 | 7361 | 7422 | 7483 | 7544 | 7605 | 7666 | 7727 | 7788  |               |               |
| 25    |     | 7849 | 7910 | 7971 | 8032 | 8092 | 8153 | 8214 | 8275 | 8336 | 8397  |               |               |
| 26    |     | 8458 | 8519 | 8580 | 8641 | 8702 | 8763 | 8824 | 8885 | 8946 | 9007  |               |               |
| 27    |     | 9068 | 9129 | 9190 | 9250 | 9311 | 9372 | 9433 | 9494 | 9555 | 9616  |               |               |
| 28    | *   | 9677 | 9738 | 9799 | 9860 | 9921 | 9982 | 0042 | 0103 | 0164 | 0225  |               |               |
| 29    | 853 | 0286 | 0347 | 0408 | 0469 | 0530 | 0591 | 0652 | 0713 | 0773 | 0834  |               |               |
| 71 30 |     | 0895 | 0956 | 1017 | 1078 | 1139 | 1200 | 1261 | 1322 | 1383 | 1443  | 1             | 61            |
| 31    |     | 1504 | 1565 | 1626 | 1687 | 1748 | 1809 | 1870 | 1931 | 1992 | 2052  | 2             | 122           |
| 32    |     | 2113 | 2174 | 2235 | 2296 | 2357 | 2418 | 2479 | 2540 | 2600 | 2661  | 3             | 183           |
| 33    |     | 2722 | 2783 | 2844 | 2905 | 2966 | 3027 | 3088 | 3148 | 3209 | 3270  | 4             | 244           |
| 34    |     | 3331 | 3392 | 3453 | 3514 | 3575 | 3635 | 3696 | 3757 | 3818 | 3879  | 5             | 305           |
| 35    |     | 3940 | 4001 | 4062 | 4122 | 4183 | 4244 | 4305 | 4366 | 4427 | 4488  | 6             | 366           |
| 36    |     | 4548 | 4609 | 4670 | 4731 | 4792 | 4853 | 4914 | 4974 | 5035 | 5096  | 7             | 427           |
| 37    |     | 5157 | 5218 | 5279 | 5340 | 5400 | 5461 | 5522 | 5583 | 5644 | 5705  | 8             | 488           |
| 38    |     | 5765 | 5826 | 5887 | 5948 | 6009 | 6070 | 6130 | 6191 | 6252 | 6313  | 9             | 549           |
| 39    |     | 6374 | 6435 | 6495 | 6556 | 6617 | 6678 | 6739 | 6800 | 6860 | 6921  |               |               |
| 71 40 |     | 6982 | 7043 | 7104 | 7165 | 7225 | 7286 | 7347 | 7408 | 7469 | 7530  |               |               |
| 41    |     | 7590 | 7651 | 7712 | 7773 | 7834 | 7894 | 7955 | 8016 | 8077 | 8138  |               |               |
| 42    |     | 8198 | 8259 | 8320 | 8381 | 8442 | 8502 | 8563 | 8624 | 8685 | 8746  |               |               |
| 43    |     | 8807 | 8868 | 8928 | 8989 | 9050 | 9110 | 9171 | 9232 | 9293 | 9354  |               |               |
| 44    |     | 9414 | 9475 | 9536 | 9597 | 9658 | 9718 | 9779 | 9840 | 9901 | 9962  |               |               |
| 45    | 854 | 0022 | 0083 | 0144 | 0205 | 0265 | 0326 | 0387 | 0448 | 0509 | 0569  |               |               |
| 46    |     | 0630 | 0691 | 0752 | 0812 | 0873 | 0934 | 0995 | 1056 | 1116 | 1177  |               |               |
| 47    |     | 1238 | 1299 | 1359 | 1420 | 1481 | 1542 | 1602 | 1663 | 1724 | 1785  |               |               |
| 48    |     | 1845 | 1906 | 1967 | 2028 | 2088 | 2149 | 2210 | 2271 | 2331 | 2392  |               |               |
| 49    |     | 2453 | 2514 | 2574 | 2635 | 2696 | 2757 | 2817 | 2878 | 2939 | 3000  |               |               |
| 71 50 |     | 3060 | 3121 | 3182 | 3243 | 3303 | 3364 | 3425 | 3486 | 3546 | 3607  |               |               |
| 51    |     | 3668 | 3729 | 3789 | 3850 | 3911 | 3971 | 4032 | 4093 | 4154 | 4214  |               |               |
| 52    |     | 4275 | 4336 | 4397 | 4457 | 4518 | 4579 | 4639 | 4700 | 4761 | 4822  |               |               |
| 53    |     | 4882 | 4943 | 5004 | 5064 | 5125 | 5186 | 5247 | 5307 | 5368 | 5429  |               |               |
| 54    |     | 5489 | 5550 | 5611 | 5671 | 5732 | 5793 | 5854 | 5914 | 5975 | 6036  |               |               |
| 55    |     | 6096 | 6157 | 6218 | 6278 | 6339 | 6400 | 6461 | 6521 | 6582 | 6643  |               |               |
| 56    |     | 6703 | 6764 | 6825 | 6885 | 6946 | 7007 | 7067 | 7128 | 7189 | 7249  |               |               |
| 57    |     | 7310 | 7371 | 7432 | 7492 | 7553 | 7614 | 7674 | 7735 | 7796 | 7856  |               |               |
| 58    |     | 7917 | 7978 | 8038 | 8099 | 8160 | 8220 | 8281 | 8342 | 8402 | 8463  |               |               |
| 59    |     | 8524 | 8584 | 8645 | 8706 | 8766 | 8827 | 8888 | 8948 | 9009 | 9070  |               |               |
| 71 60 |     | 9130 | 9191 | 9252 | 9312 | 9373 | 9433 | 9494 | 9555 | 9615 | 9676  |               |               |
| 61    | *   | 9737 | 9797 | 9858 | 9919 | 9979 | 0040 | 0101 | 0161 | 0222 | 0283  | 1             | 60            |
| 62    | 855 | 0343 | 0404 | 0464 | 0525 | 0586 | 0646 | 0707 | 0768 | 0828 | 0889  | 2             | 120           |
| 63    |     | 0950 | 1010 | 1071 | 1131 | 1192 | 1253 | 1313 | 1374 | 1435 | 1495  | 3             | 180           |
| 64    |     | 1556 | 1616 | 1677 | 1738 | 1798 | 1859 | 1919 | 1980 | 2041 | 2101  | 4             | 240           |
| 65    |     | 2162 | 2223 | 2283 | 2344 | 2404 | 2465 | 2526 | 2586 | 2647 | 2707  | 5             | 300           |
| 66    |     | 2768 | 2829 | 2889 | 2950 | 3010 | 3071 | 3132 | 3192 | 3253 | 3313  | 6             | 360           |
| 67    |     | 3374 | 3435 | 3495 | 3556 | 3616 | 3677 | 3738 | 3798 | 3859 | 3919  | 7             | 420           |
| 68    |     | 3980 | 4041 | 4101 | 4162 | 4222 | 4283 | 4343 | 4404 | 4465 | 4525  | 8             | 480           |
| 69    |     | 4586 | 4646 | 4707 | 4768 | 4828 | 4889 | 4949 | 5010 | 5070 | 5131  | 9             | 540           |
| 71 70 |     | 5192 | 5252 | 5313 | 5373 | 5434 | 5494 | 5555 | 5616 | 5676 | 5737  |               |               |
| 71    |     | 5797 | 5858 | 5918 | 5979 | 6039 | 6100 | 6161 | 6221 | 6282 | 6342  |               |               |
| 72    |     | 6403 | 6463 | 6524 | 6584 | 6645 | 6706 | 6766 | 6827 | 6887 | 6948  |               |               |
| 73    |     | 7008 | 7069 | 7129 | 7190 | 7250 | 7311 | 7372 | 7432 | 7493 | 7553  |               |               |
| 74    |     | 7614 | 7674 | 7735 | 7795 | 7856 | 7916 | 7977 | 8037 | 8098 | 8159  |               |               |
| 75    |     | 8219 | 8280 | 8340 | 8401 | 8461 | 8522 | 8582 | 8643 | 8703 | 8764  |               |               |
| 76    |     | 8824 | 8885 | 8945 | 9006 | 9066 | 9127 | 9187 | 9248 | 9308 | 9369  |               |               |
| 77    |     | 9429 | 9490 | 9550 | 9611 | 9672 | 9732 | 9793 | 9853 | 9914 | 9974  |               |               |
| 78    | 856 | 0035 | 0095 | 0156 | 0216 | 0277 | 0337 | 0398 | 0458 | 0519 | 0579  |               |               |
| 79    |     | 0640 | 0700 | 0761 | 0821 | 0882 | 0942 | 1002 | 1063 | 1123 | 1184  |               |               |
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LOGARITHMS OF NUMBERS.

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| 81    |     | 1849 | 1910 | 1970 | 2031 | 2091 | 2152 | 2212 | 2273 | 2333 | 2394  |               |
| 82    |     | 2454 | 2514 | 2575 | 2635 | 2696 | 2756 | 2817 | 2877 | 2938 | 2998  |               |
| 83    |     | 3059 | 3119 | 3180 | 3240 | 3301 | 3361 | 3421 | 3482 | 3542 | 3603  |               |
| 84    |     | 3663 | 3724 | 3784 | 3845 | 3905 | 3965 | 4026 | 4086 | 4147 | 4207  |               |
| 85    |     | 4268 | 4328 | 4389 | 4449 | 4509 | 4570 | 4630 | 4691 | 4751 | 4812  |               |
| 86    |     | 4872 | 4933 | 4993 | 5053 | 5114 | 5174 | 5235 | 5295 | 5356 | 5416  |               |
| 87    |     | 5476 | 5537 | 5597 | 5658 | 5718 | 5779 | 5839 | 5899 | 5960 | 6020  |               |
| 88    |     | 6081 | 6141 | 6202 | 6262 | 6322 | 6383 | 6443 | 6504 | 6564 | 6624  |               |
| 89    |     | 6685 | 6745 | 6806 | 6866 | 6926 | 6987 | 7047 | 7108 | 7168 | 7229  |               |
| 71 90 |     | 7289 | 7349 | 7410 | 7470 | 7531 | 7591 | 7651 | 7712 | 7772 | 7832  | 1 61          |
| 91    |     | 7893 | 7953 | 8014 | 8074 | 8134 | 8195 | 8255 | 8316 | 8376 | 8436  | 2 122         |
| 92    |     | 8497 | 8557 | 8618 | 8678 | 8738 | 8799 | 8859 | 8919 | 8980 | 9040  | 3 183         |
| 93    |     | 9101 | 9161 | 9221 | 9282 | 9342 | 9402 | 9463 | 9523 | 9584 | 9644  | 4 244         |
| 94    | *   | 9704 | 9765 | 9825 | 9885 | 9946 | +006 | 0067 | 0127 | 0187 | 0248  | 5 305         |
| 95    | 857 | 0308 | 0368 | 0429 | 0489 | 0549 | 0610 | 0670 | 0730 | 0791 | 0851  | 6 366         |
| 96    |     | 0912 | 0972 | 1032 | 1093 | 1153 | 1213 | 1274 | 1334 | 1394 | 1455  | 7 427         |
| 97    |     | 1515 | 1575 | 1636 | 1696 | 1756 | 1817 | 1877 | 1937 | 1998 | 2058  | 8 488         |
| 98    |     | 2118 | 2179 | 2239 | 2299 | 2360 | 2420 | 2480 | 2541 | 2601 | 2661  | 9 549         |
| 99    |     | 2722 | 2782 | 2842 | 2903 | 2963 | 3023 | 3084 | 3144 | 3204 | 3265  |               |
| 72 00 |     | 3325 | 3385 | 3446 | 3506 | 3566 | 3627 | 3687 | 3747 | 3807 | 3868  |               |
| 01    |     | 3928 | 3988 | 4049 | 4109 | 4169 | 4230 | 4290 | 4350 | 4411 | 4471  |               |
| 02    |     | 4531 | 4591 | 4652 | 4712 | 4772 | 4833 | 4893 | 4953 | 5014 | 5074  |               |
| 03    |     | 5134 | 5194 | 5255 | 5315 | 5375 | 5436 | 5496 | 5556 | 5616 | 5677  |               |
| 04    |     | 5737 | 5797 | 5858 | 5918 | 5978 | 6038 | 6099 | 6159 | 6219 | 6280  |               |
| 05    |     | 6340 | 6400 | 6460 | 6521 | 6581 | 6641 | 6701 | 6762 | 6822 | 6882  |               |
| 06    |     | 6943 | 7003 | 7063 | 7123 | 7184 | 7244 | 7304 | 7364 | 7425 | 7485  |               |
| 07    |     | 7545 | 7605 | 7666 | 7726 | 7786 | 7847 | 7907 | 7967 | 8027 | 8088  |               |
| 08    |     | 8148 | 8208 | 8268 | 8329 | 8389 | 8449 | 8509 | 8570 | 8630 | 8690  |               |
| 09    |     | 8750 | 8810 | 8871 | 8931 | 8991 | 9051 | 9112 | 9172 | 9232 | 9292  |               |
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| 12    | 858 | 0557 | 0617 | 0678 | 0738 | 0798 | 0858 | 0918 | 0979 | 1039 | 1099  |               |
| 13    |     | 1159 | 1220 | 1280 | 1340 | 1400 | 1460 | 1521 | 1581 | 1641 | 1701  |               |
| 14    |     | 1761 | 1822 | 1882 | 1942 | 2002 | 2062 | 2123 | 2183 | 2243 | 2303  |               |
| 15    |     | 2363 | 2424 | 2484 | 2544 | 2604 | 2664 | 2724 | 2785 | 2845 | 2905  |               |
| 16    |     | 2965 | 3025 | 3086 | 3146 | 3206 | 3266 | 3326 | 3387 | 3447 | 3507  |               |
| 17    |     | 3567 | 3627 | 3687 | 3748 | 3808 | 3868 | 3928 | 3988 | 4048 | 4109  |               |
| 18    |     | 4169 | 4229 | 4289 | 4349 | 4409 | 4470 | 4530 | 4590 | 4650 | 4710  |               |
| 19    |     | 4770 | 4831 | 4891 | 4951 | 5011 | 5071 | 5131 | 5192 | 5252 | 5312  |               |
| 72 20 |     | 5372 | 5432 | 5492 | 5552 | 5613 | 5673 | 5733 | 5793 | 5853 | 5913  |               |
| 21    |     | 5973 | 6034 | 6094 | 6154 | 6214 | 6274 | 6334 | 6394 | 6455 | 6515  |               |
| 22    |     | 6575 | 6635 | 6695 | 6755 | 6815 | 6876 | 6936 | 6996 | 7056 | 7116  |               |
| 23    |     | 7176 | 7236 | 7296 | 7357 | 7417 | 7477 | 7537 | 7597 | 7657 | 7717  |               |
| 24    |     | 7777 | 7837 | 7898 | 7958 | 8018 | 8078 | 8138 | 8198 | 8258 | 8318  |               |
| 25    |     | 8379 | 8439 | 8499 | 8559 | 8619 | 8679 | 8739 | 8799 | 8859 | 8919  |               |
| 26    |     | 8980 | 9040 | 9100 | 9160 | 9220 | 9280 | 9340 | 9400 | 9460 | 9520  |               |
| 27    | *   | 9581 | 9641 | 9701 | 9761 | 9821 | 9881 | 9941 | +001 | 0061 | 0121  |               |
| 28    | 859 | 0181 | 0242 | 0302 | 0362 | 0422 | 0482 | 0542 | 0602 | 0662 | 0722  |               |
| 29    |     | 0782 | 0842 | 0902 | 0962 | 1022 | 1083 | 1143 | 1203 | 1263 | 1323  |               |
| 72 30 |     | 1383 | 1443 | 1503 | 1563 | 1623 | 1683 | 1743 | 1803 | 1863 | 1924  |               |
| 31    |     | 1984 | 2044 | 2104 | 2164 | 2224 | 2284 | 2344 | 2404 | 2464 | 2524  |               |
| 32    |     | 2584 | 2644 | 2704 | 2764 | 2824 | 2884 | 2944 | 3005 | 3065 | 3125  |               |
| 33    |     | 3185 | 3245 | 3305 | 3365 | 3425 | 3485 | 3545 | 3605 | 3665 | 3725  |               |
| 34    |     | 3785 | 3845 | 3905 | 3965 | 4025 | 4085 | 4145 | 4205 | 4265 | 4325  |               |
| 35    |     | 4385 | 4445 | 4505 | 4565 | 4625 | 4685 | 4746 | 4806 | 4866 | 4926  |               |
| 36    |     | 4986 | 5046 | 5106 | 5166 | 5226 | 5286 | 5346 | 5406 | 5466 | 5526  |               |
| 37    |     | 5586 | 5646 | 5706 | 5766 | 5826 | 5886 | 5946 | 6006 | 6066 | 6126  |               |
| 38    |     | 6186 | 6246 | 6306 | 6366 | 6426 | 6486 | 6546 | 6606 | 6666 | 6726  |               |
| 39    |     | 6786 | 6846 | 6906 | 6966 | 7026 | 7086 | 7146 | 7206 | 7266 | 7326  |               |
| 60    |     |      |      |      |      |      |      |      |      |      |       |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

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|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>7240</b> | <b>859</b> | 7386 | 7446 | 7506 | 7566 | 7626 | 7686 | 7746 | 7806 | 7866 | 7925  |               |
| 41          |            | 7985 | 8045 | 8105 | 8165 | 8225 | 8285 | 8345 | 8405 | 8465 | 8525  |               |
| 42          |            | 8585 | 8645 | 8705 | 8765 | 8825 | 8885 | 8945 | 9005 | 9065 | 9125  |               |
| 43          |            | 9185 | 9245 | 9305 | 9365 | 9425 | 9485 | 9545 | 9605 | 9665 | 9724  |               |
| 44          | *          | 9784 | 9844 | 9904 | 9964 | +024 | 0084 | 0144 | 0204 | 0264 | 0324  |               |
| 45          | 860        | 0384 | 0444 | 0504 | 0564 | 0624 | 0684 | 0744 | 0803 | 0863 | 0923  |               |
| 46          |            | 0983 | 1043 | 1103 | 1163 | 1223 | 1283 | 1343 | 1403 | 1463 | 1523  |               |
| 47          |            | 1583 | 1643 | 1702 | 1762 | 1822 | 1882 | 1942 | 2002 | 2062 | 2122  |               |
| 48          |            | 2182 | 2242 | 2302 | 2362 | 2422 | 2481 | 2541 | 2601 | 2661 | 2721  |               |
| 49          |            | 2781 | 2841 | 2901 | 2961 | 3021 | 3081 | 3140 | 3200 | 3260 | 3320  |               |
| 72 50       |            | 3380 | 3440 | 3500 | 3560 | 3620 | 3680 | 3739 | 3799 | 3859 | 3919  |               |
| 51          |            | 3979 | 4039 | 4099 | 4159 | 4219 | 4279 | 4338 | 4398 | 4458 | 4518  | 1 60          |
| 52          |            | 4578 | 4638 | 4698 | 4758 | 4817 | 4877 | 4937 | 4997 | 5057 | 5117  | 2 120         |
| 53          |            | 5177 | 5237 | 5297 | 5356 | 5416 | 5476 | 5536 | 5596 | 5656 | 5716  | 3 180         |
| 54          |            | 5776 | 5835 | 5895 | 5955 | 6015 | 6075 | 6135 | 6195 | 6254 | 6314  | 4 240         |
| 55          |            | 6374 | 6434 | 6494 | 6554 | 6614 | 6673 | 6733 | 6793 | 6853 | 6913  | 5 300         |
| 56          |            | 6973 | 7033 | 7092 | 7152 | 7212 | 7272 | 7332 | 7392 | 7452 | 7511  | 6 360         |
| 57          |            | 7571 | 7631 | 7691 | 7751 | 7811 | 7870 | 7930 | 7990 | 8050 | 8110  | 7 420         |
| 58          |            | 8170 | 8229 | 8289 | 8349 | 8409 | 8469 | 8529 | 8588 | 8648 | 8708  | 8 480         |
| 59          |            | 8768 | 8828 | 8888 | 8947 | 9007 | 9067 | 9127 | 9187 | 9247 | 9306  | 9 540         |
| 72 60       |            | 9366 | 9426 | 9486 | 9546 | 9605 | 9665 | 9725 | 9785 | 9845 | 9905  |               |
| 61          | *          | 9964 | +024 | 0084 | 0144 | 0204 | 0263 | 0323 | 0383 | 0443 | 0503  |               |
| 62          | 861        | 0562 | 0622 | 0682 | 0742 | 0802 | 0861 | 0921 | 0981 | 1041 | 1101  |               |
| 63          |            | 1160 | 1220 | 1280 | 1340 | 1400 | 1459 | 1519 | 1579 | 1639 | 1699  |               |
| 64          |            | 1758 | 1818 | 1878 | 1938 | 1997 | 2057 | 2117 | 2177 | 2237 | 2296  |               |
| 65          |            | 2356 | 2416 | 2476 | 2536 | 2595 | 2655 | 2715 | 2775 | 2834 | 2894  |               |
| 66          |            | 2954 | 3014 | 3073 | 3133 | 3193 | 3253 | 3313 | 3372 | 3432 | 3492  |               |
| 67          |            | 3552 | 3611 | 3671 | 3731 | 3791 | 3850 | 3910 | 3970 | 4030 | 4089  |               |
| 68          |            | 4149 | 4209 | 4269 | 4328 | 4388 | 4448 | 4508 | 4567 | 4627 | 4687  |               |
| 69          |            | 4747 | 4806 | 4866 | 4926 | 4986 | 5045 | 5105 | 5165 | 5225 | 5284  |               |
| 72 70       |            | 5344 | 5404 | 5464 | 5523 | 5583 | 5643 | 5703 | 5762 | 5822 | 5882  |               |
| 71          |            | 5941 | 6001 | 6061 | 6121 | 6180 | 6240 | 6300 | 6360 | 6419 | 6479  |               |
| 72          |            | 6539 | 6598 | 6658 | 6718 | 6778 | 6837 | 6897 | 6957 | 7016 | 7076  |               |
| 73          |            | 7136 | 7196 | 7255 | 7315 | 7375 | 7434 | 7494 | 7554 | 7614 | 7673  |               |
| 74          |            | 7733 | 7793 | 7852 | 7912 | 7972 | 8031 | 8091 | 8151 | 8211 | 8270  |               |
| 75          |            | 8330 | 8390 | 8449 | 8509 | 8569 | 8628 | 8688 | 8748 | 8808 | 8867  |               |
| 76          |            | 8927 | 8987 | 9046 | 9106 | 9166 | 9225 | 9285 | 9345 | 9404 | 9464  |               |
| 77          | *          | 9524 | 9583 | 9643 | 9703 | 9762 | 9822 | 9882 | 9941 | +001 | 0061  |               |
| 78          | 862        | 0121 | 0180 | 0240 | 0300 | 0359 | 0419 | 0479 | 0538 | 0598 | 0658  |               |
| 79          |            | 0717 | 0777 | 0837 | 0896 | 0956 | 1016 | 1075 | 1135 | 1194 | 1254  |               |
| 72 80       |            | 1314 | 1373 | 1433 | 1493 | 1552 | 1612 | 1672 | 1731 | 1791 | 1851  |               |
| 81          |            | 1910 | 1970 | 2030 | 2089 | 2149 | 2209 | 2268 | 2328 | 2387 | 2447  | 1 50          |
| 82          |            | 2507 | 2566 | 2626 | 2686 | 2745 | 2805 | 2865 | 2924 | 2984 | 3043  | 2 118         |
| 83          |            | 3103 | 3163 | 3222 | 3282 | 3342 | 3401 | 3461 | 3520 | 3580 | 3640  | 3 177         |
| 84          |            | 3699 | 3759 | 3819 | 3878 | 3938 | 3997 | 4057 | 4117 | 4176 | 4236  | 4 236         |
| 85          |            | 4296 | 4355 | 4415 | 4474 | 4534 | 4594 | 4653 | 4713 | 4772 | 4832  | 5 295         |
| 86          |            | 4892 | 4951 | 5011 | 5070 | 5130 | 5190 | 5249 | 5309 | 5368 | 5428  | 6 354         |
| 87          |            | 5488 | 5547 | 5607 | 5666 | 5726 | 5786 | 5845 | 5905 | 5964 | 6024  | 7 413         |
| 88          |            | 6084 | 6143 | 6203 | 6262 | 6322 | 6382 | 6441 | 6501 | 6560 | 6620  | 8 472         |
| 89          |            | 6680 | 6739 | 6799 | 6858 | 6918 | 6977 | 7037 | 7097 | 7156 | 7216  | 9 531         |
| 72 90       |            | 7275 | 7335 | 7394 | 7454 | 7514 | 7573 | 7633 | 7692 | 7752 | 7811  |               |
| 91          |            | 7871 | 7931 | 7990 | 8050 | 8109 | 8169 | 8228 | 8288 | 8347 | 8407  |               |
| 92          |            | 8467 | 8526 | 8586 | 8645 | 8705 | 8764 | 8824 | 8883 | 8943 | 9003  |               |
| 93          |            | 9062 | 9122 | 9181 | 9241 | 9300 | 9360 | 9419 | 9479 | 9539 | 9598  |               |
| 94          | *          | 9658 | 9717 | 9777 | 9836 | 9896 | 9955 | +015 | 0074 | 0134 | 0193  |               |
| 95          | 863        | 0253 | 0312 | 0372 | 0432 | 0491 | 0551 | 0610 | 0670 | 0729 | 0789  |               |
| 96          |            | 0848 | 0908 | 0967 | 1027 | 1086 | 1146 | 1205 | 1265 | 1324 | 1384  |               |
| 97          |            | 1443 | 1503 | 1562 | 1622 | 1682 | 1741 | 1801 | 1860 | 1920 | 1979  |               |
| 98          |            | 2039 | 2098 | 2158 | 2217 | 2277 | 2336 | 2396 | 2455 | 2515 | 2574  |               |
| 99          |            | 2634 | 2693 | 2753 | 2812 | 2872 | 2931 | 2991 | 3050 | 3110 | 3169  |               |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

LOGARITHMS OF NUMBERS.

| Num.        | 0               | 1    | 2     | 3     | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|-----------------|------|-------|-------|------|------|------|------|------|------|-------|---------------|
| <b>7300</b> | <b>863</b> 3229 | 3288 | 3348  | 3407  | 3467 | 3526 | 3586 | 3645 | 3705 | 3764 |       |               |
| 01          | 3823            | 3883 | 3942  | 4002  | 4061 | 4121 | 4180 | 4240 | 4299 | 4359 |       |               |
| 02          | 4418            | 4478 | 4537  | 4597  | 4656 | 4716 | 4775 | 4835 | 4894 | 4954 |       |               |
| 03          | 5013            | 5072 | 5132  | 5191  | 5251 | 5310 | 5370 | 5429 | 5489 | 5548 |       |               |
| 04          | 5608            | 5667 | 5727  | 5786  | 5845 | 5905 | 5964 | 6024 | 6083 | 6143 |       |               |
| 05          | 6202            | 6262 | 6321  | 6381  | 6440 | 6499 | 6559 | 6618 | 6678 | 6737 |       |               |
| 06          | 6797            | 6856 | 6916  | 6975  | 7034 | 7094 | 7153 | 7213 | 7272 | 7332 |       |               |
| 07          | 7391            | 7451 | 7510  | 7569  | 7629 | 7688 | 7748 | 7807 | 7867 | 7926 |       |               |
| 08          | 7985            | 8045 | 8104  | 8164  | 8223 | 8283 | 8342 | 8401 | 8461 | 8520 |       |               |
| 09          | 8580            | 8639 | 8698  | 8758  | 8817 | 8877 | 8936 | 8995 | 9055 | 9114 |       |               |
| <b>7310</b> | 9174            | 9233 | 9293  | 9352  | 9411 | 9471 | 9530 | 9590 | 9649 | 9708 |       | 1   60        |
| 11          | * 9768          | 9827 | 9887  | 9946  | +005 | 0065 | 0124 | 0184 | 0243 | 0302 |       | 2   120       |
| 12          | 864 0362        | 0421 | 0481  | 0540  | 0599 | 0659 | 0718 | 0778 | 0837 | 0896 |       | 3   180       |
| 13          | 0956            | 1015 | 1075  | 1134  | 1193 | 1253 | 1312 | 1371 | 1431 | 1490 |       | 4   240       |
| 14          | 1550            | 1609 | 1668  | 1728  | 1787 | 1846 | 1906 | 1965 | 2025 | 2084 |       | 5   300       |
| 15          | 2143            | 2203 | 2262  | 2321  | 2381 | 2440 | 2500 | 2559 | 2618 | 2678 |       | 6   360       |
| 16          | 2737            | 2796 | 2856  | 2915  | 2974 | 3034 | 3093 | 3152 | 3212 | 3271 |       | 7   420       |
| 17          | 3331            | 3390 | 3449  | 3509  | 3568 | 3627 | 3687 | 3746 | 3805 | 3865 |       | 8   480       |
| 18          | 3924            | 3983 | 4043  | 4102  | 4161 | 4221 | 4280 | 4339 | 4399 | 4458 |       | 9   540       |
| 19          | 4517            | 4577 | 4636  | 4695  | 4755 | 4814 | 4873 | 4933 | 4992 | 5051 |       |               |
| <b>7320</b> | 5111            | 5170 | 5229  | 5289  | 5348 | 5407 | 5467 | 5526 | 5585 | 5645 |       |               |
| 21          | 5704            | 5763 | 5823  | 5882  | 5941 | 6001 | 6060 | 6119 | 6179 | 6238 |       |               |
| 22          | 6297            | 6357 | 6416  | 6475  | 6534 | 6594 | 6653 | 6712 | 6772 | 6831 |       |               |
| 23          | 6890            | 6950 | 7009  | 7068  | 7128 | 7187 | 7246 | 7305 | 7365 | 7424 |       |               |
| 24          | 7483            | 7543 | 7602  | 7661  | 7721 | 7780 | 7839 | 7898 | 7958 | 8017 |       |               |
| 25          | 8076            | 8136 | 8195  | 8254  | 8313 | 8373 | 8432 | 8491 | 8551 | 8610 |       |               |
| 26          | 8669            | 8728 | 8788  | 8847  | 8906 | 8966 | 9025 | 9084 | 9143 | 9203 |       |               |
| 27          | 9262            | 9321 | 9380  | 9440  | 9499 | 9558 | 9618 | 9677 | 9736 | 9795 |       |               |
| 28          | * 9855          | 9914 | 9973  | +0032 | 0092 | 0151 | 0210 | 0269 | 0329 | 0388 |       |               |
| 29          | 865 0447        | 0506 | 0566  | 0625  | 0684 | 0743 | 0803 | 0862 | 0921 | 0980 |       |               |
| <b>7330</b> | 1040            | 1099 | 1158  | 1217  | 1277 | 1336 | 1395 | 1454 | 1514 | 1573 |       |               |
| 31          | 1632            | 1691 | 1751  | 1810  | 1869 | 1928 | 1988 | 2047 | 2106 | 2165 |       |               |
| 32          | 2225            | 2284 | 2343  | 2402  | 2461 | 2521 | 2580 | 2639 | 2698 | 2758 |       |               |
| 33          | 2817            | 2876 | 2935  | 2995  | 3054 | 3113 | 3172 | 3231 | 3291 | 3350 |       |               |
| 34          | 3409            | 3468 | 3527  | 3587  | 3646 | 3705 | 3764 | 3824 | 3883 | 3942 |       |               |
| 35          | 4001            | 4060 | 4120  | 4179  | 4238 | 4297 | 4356 | 4416 | 4475 | 4534 |       |               |
| 36          | 4593            | 4652 | 4712  | 4771  | 4830 | 4889 | 4948 | 5008 | 5067 | 5126 |       |               |
| 37          | 5185            | 5244 | 5304  | 5363  | 5422 | 5481 | 5540 | 5600 | 5659 | 5718 |       |               |
| 38          | 5777            | 5836 | 5895  | 5955  | 6014 | 6073 | 6132 | 6191 | 6251 | 6310 |       |               |
| 39          | 6369            | 6428 | 6487  | 6546  | 6606 | 6665 | 6724 | 6783 | 6842 | 6901 |       |               |
| <b>7340</b> | 6961            | 7020 | 7079  | 7138  | 7197 | 7256 | 7316 | 7375 | 7434 | 7493 |       |               |
| 41          | 7552            | 7611 | 7671  | 7730  | 7789 | 7848 | 7907 | 7966 | 8025 | 8085 |       |               |
| 42          | 8144            | 8203 | 8262  | 8321  | 8380 | 8440 | 8499 | 8558 | 8617 | 8676 |       | 1   59        |
| 43          | 8735            | 8794 | 8854  | 8913  | 8972 | 9031 | 9090 | 9149 | 9208 | 9268 |       | 2   118       |
| 44          | 9327            | 9386 | 9445  | 9504  | 9563 | 9622 | 9681 | 9741 | 9800 | 9859 |       | 3   177       |
| 45          | * 9918          | 9977 | +0036 | 0095  | 0155 | 0214 | 0273 | 0332 | 0391 | 0450 |       | 4   236       |
| 46          | 866 0509        | 0568 | 0627  | 0687  | 0746 | 0805 | 0864 | 0923 | 0982 | 1041 |       | 5   295       |
| 47          | 1100            | 1160 | 1219  | 1278  | 1337 | 1396 | 1455 | 1514 | 1573 | 1632 |       | 6   354       |
| 48          | 1691            | 1751 | 1810  | 1869  | 1928 | 1987 | 2046 | 2105 | 2164 | 2223 |       | 7   413       |
| 49          | 2282            | 2342 | 2401  | 2460  | 2519 | 2578 | 2637 | 2696 | 2755 | 2814 |       | 8   472       |
| <b>7350</b> | 2873            | 2932 | 2992  | 3051  | 3110 | 3169 | 3228 | 3287 | 3346 | 3405 |       | 9   531       |
| 51          | 3464            | 3523 | 3582  | 3641  | 3701 | 3760 | 3819 | 3878 | 3937 | 3996 |       |               |
| 52          | 4055            | 4114 | 4173  | 4232  | 4291 | 4350 | 4409 | 4468 | 4528 | 4587 |       |               |
| 53          | 4648            | 4707 | 4766  | 4825  | 4884 | 4943 | 5002 | 5061 | 5120 | 5179 |       |               |
| 54          | 5236            | 5295 | 5354  | 5413  | 5472 | 5532 | 5591 | 5650 | 5709 | 5768 |       |               |
| 55          | 5827            | 5886 | 5945  | 6004  | 6063 | 6122 | 6181 | 6240 | 6299 | 6358 |       |               |
| 56          | 6417            | 6476 | 6535  | 6594  | 6653 | 6712 | 6771 | 6830 | 6889 | 6948 |       |               |
| 57          | 7008            | 7067 | 7126  | 7185  | 7244 | 7303 | 7362 | 7421 | 7480 | 7539 |       |               |
| 58          | 7598            | 7657 | 7716  | 7775  | 7834 | 7893 | 7952 | 8011 | 8070 | 8129 |       |               |
| 59          | 8188            | 8247 | 8306  | 8365  | 8424 | 8483 | 8542 | 8601 | 8660 | 8719 |       |               |

| Num. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Diff. | Diff. & Mult. |
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|------|---|---|---|---|---|---|---|---|---|---|-------|---------------|

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>7360</b> | <b>868</b> | 8778 | 8837 | 8896 | 8955 | 9014 | 9073 | 9132 | 9191 | 9250 | 9309  | 59            |
| 61          | 9368       | 9427 | 9486 | 9545 | 9604 | 9663 | 9722 | 9781 | 9840 | 9899 |       |               |
| 62          | * 9958     | +017 | 0076 | 0135 | 0194 | 0253 | 0312 | 0371 | 0430 | 0489 |       |               |
| 63          | 867        | 0548 | 0607 | 0666 | 0725 | 0784 | 0843 | 0902 | 0961 | 1020 | 1079  |               |
| 64          | 1138       | 1197 | 1256 | 1315 | 1374 | 1433 | 1492 | 1551 | 1610 | 1669 |       |               |
| 65          | 1728       | 1786 | 1845 | 1904 | 1963 | 2022 | 2081 | 2140 | 2199 | 2258 |       |               |
| 66          | 2317       | 2376 | 2435 | 2494 | 2553 | 2612 | 2671 | 2730 | 2789 | 2848 |       |               |
| 67          | 2907       | 2966 | 3025 | 3084 | 3142 | 3201 | 3260 | 3319 | 3378 | 3437 |       |               |
| 68          | 3496       | 3555 | 3614 | 3673 | 3732 | 3791 | 3850 | 3909 | 3968 | 4027 |       |               |
| 69          | 4066       | 4145 | 4203 | 4262 | 4321 | 4380 | 4439 | 4498 | 4557 | 4616 |       |               |
| 73 70       | 4675       | 4734 | 4793 | 4852 | 4911 | 4970 | 5028 | 5087 | 5146 | 5205 |       |               |
| 71          | 5264       | 5323 | 5382 | 5441 | 5500 | 5559 | 5618 | 5677 | 5735 | 5794 |       |               |
| 72          | 5853       | 5912 | 5971 | 6030 | 6089 | 6148 | 6207 | 6266 | 6325 | 6383 |       |               |
| 73          | 6442       | 6501 | 6560 | 6619 | 6678 | 6737 | 6796 | 6855 | 6914 | 6972 |       |               |
| 74          | 7031       | 7090 | 7149 | 7208 | 7267 | 7326 | 7385 | 7444 | 7502 | 7561 |       |               |
| 75          | 7620       | 7679 | 7738 | 7797 | 7856 | 7915 | 7974 | 8033 | 8091 | 8150 |       |               |
| 76          | 8209       | 8268 | 8327 | 8386 | 8445 | 8503 | 8562 | 8621 | 8680 | 8739 |       |               |
| 77          | 8798       | 8857 | 8916 | 8974 | 9033 | 9092 | 9151 | 9210 | 9269 | 9328 |       |               |
| 78          | 9387       | 9445 | 9504 | 9563 | 9622 | 9681 | 9740 | 9799 | 9857 | 9916 |       |               |
| 79          | * 9975     | +034 | 0093 | 0152 | 0211 | 0269 | 0328 | 0387 | 0446 | 0505 |       |               |
| 73 80       | 868        | 0564 | 0622 | 0681 | 0740 | 0799 | 0858 | 0917 | 0976 | 1034 | 1093  |               |
| 81          | 1152       | 1211 | 1270 | 1329 | 1387 | 1446 | 1505 | 1564 | 1623 | 1682 |       |               |
| 82          | 1740       | 1799 | 1858 | 1917 | 1976 | 2035 | 2093 | 2152 | 2211 | 2270 |       |               |
| 83          | 2329       | 2388 | 2446 | 2505 | 2564 | 2623 | 2682 | 2740 | 2799 | 2858 |       |               |
| 84          | 2917       | 2976 | 3035 | 3093 | 3152 | 3211 | 3270 | 3329 | 3387 | 3446 |       |               |
| 85          | 3505       | 3564 | 3623 | 3681 | 3740 | 3799 | 3858 | 3917 | 3975 | 4034 |       |               |
| 86          | 4093       | 4152 | 4211 | 4269 | 4328 | 4387 | 4446 | 4505 | 4563 | 4622 |       |               |
| 87          | 4681       | 4740 | 4799 | 4857 | 4916 | 4975 | 5034 | 5093 | 5151 | 5210 |       |               |
| 88          | 5269       | 5328 | 5386 | 5445 | 5504 | 5563 | 5622 | 5680 | 5739 | 5798 |       |               |
| 89          | 5857       | 5915 | 5974 | 6033 | 6092 | 6151 | 6209 | 6268 | 6327 | 6386 |       |               |
| 73 90       | 6444       | 6503 | 6562 | 6621 | 6679 | 6738 | 6797 | 6856 | 6915 | 6973 |       |               |
| 91          | 7032       | 7091 | 7150 | 7208 | 7267 | 7326 | 7385 | 7443 | 7502 | 7561 |       |               |
| 92          | 7620       | 7678 | 7737 | 7796 | 7855 | 7913 | 7972 | 8031 | 8090 | 8148 |       |               |
| 93          | 8207       | 8266 | 8325 | 8383 | 8442 | 8501 | 8560 | 8618 | 8677 | 8736 |       |               |
| 94          | 8794       | 8853 | 8912 | 8971 | 9029 | 9088 | 9147 | 9206 | 9264 | 9323 |       |               |
| 95          | 9382       | 9441 | 9499 | 9558 | 9617 | 9675 | 9734 | 9793 | 9852 | 9910 |       |               |
| 96          | * 9969     | +028 | 0086 | 0145 | 0204 | 0263 | 0321 | 0380 | 0439 | 0497 |       |               |
| 97          | 869        | 0556 | 0615 | 0674 | 0732 | 0791 | 0850 | 0908 | 0967 | 1026 | 1085  |               |
| 98          | 1143       | 1202 | 1261 | 1319 | 1378 | 1437 | 1495 | 1554 | 1613 | 1672 |       |               |
| 99          | 1730       | 1789 | 1848 | 1906 | 1965 | 2024 | 2082 | 2141 | 2200 | 2259 |       |               |
| 74 00       | 2317       | 2376 | 2435 | 2493 | 2552 | 2611 | 2669 | 2728 | 2787 | 2845 |       |               |
| 01          | 2904       | 2963 | 3021 | 3080 | 3139 | 3197 | 3256 | 3315 | 3373 | 3432 |       |               |
| 02          | 3491       | 3549 | 3608 | 3667 | 3725 | 3784 | 3843 | 3901 | 3960 | 4019 |       |               |
| 03          | 4077       | 4136 | 4195 | 4253 | 4312 | 4371 | 4429 | 4488 | 4547 | 4605 |       |               |
| 04          | 4664       | 4723 | 4781 | 4840 | 4899 | 4957 | 5016 | 5075 | 5133 | 5192 |       |               |
| 05          | 5251       | 5309 | 5368 | 5427 | 5485 | 5544 | 5603 | 5661 | 5720 | 5778 |       |               |
| 06          | 5837       | 5896 | 5954 | 6013 | 6072 | 6130 | 6189 | 6248 | 6306 | 6365 |       |               |
| 07          | 6423       | 6482 | 6541 | 6599 | 6658 | 6717 | 6775 | 6834 | 6892 | 6951 |       |               |
| 08          | 7010       | 7068 | 7127 | 7186 | 7244 | 7303 | 7361 | 7420 | 7479 | 7537 |       |               |
| 09          | 7596       | 7655 | 7713 | 7772 | 7830 | 7889 | 7948 | 8006 | 8065 | 8123 |       |               |
| 74 10       | 8182       | 8241 | 8299 | 8358 | 8417 | 8475 | 8534 | 8592 | 8651 | 8710 |       |               |
| 11          | 8768       | 8827 | 8885 | 8944 | 9003 | 9061 | 9120 | 9178 | 9237 | 9296 |       |               |
| 12          | 9354       | 9413 | 9471 | 9530 | 9588 | 9647 | 9706 | 9764 | 9823 | 9881 |       |               |
| 13          | * 9940     | 9999 | +057 | 0116 | 0174 | 0233 | 0292 | 0350 | 0409 | 0467 |       |               |
| 14          | 870        | 0526 | 0584 | 0643 | 0702 | 0760 | 0819 | 0877 | 0936 | 0994 | 1053  |               |
| 15          | 1112       | 1170 | 1229 | 1287 | 1346 | 1404 | 1463 | 1522 | 1580 | 1639 |       |               |
| 16          | 1697       | 1756 | 1814 | 1873 | 1931 | 1990 | 2049 | 2107 | 2166 | 2224 |       |               |
| 17          | 2283       | 2341 | 2400 | 2458 | 2517 | 2576 | 2634 | 2693 | 2751 | 2810 |       |               |
| 18          | 2868       | 2927 | 2985 | 3044 | 3102 | 3161 | 3220 | 3278 | 3337 | 3395 |       |               |
| 19          | 3454       | 3512 | 3571 | 3629 | 3688 | 3746 | 3805 | 3863 | 3922 | 3981 |       |               |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

|   |     |
|---|-----|
| 1 | 59  |
| 2 | 118 |
| 3 | 177 |
| 4 | 236 |
| 5 | 295 |
| 6 | 354 |
| 7 | 413 |
| 8 | 472 |
| 9 | 531 |

|   |     |
|---|-----|
| 1 | 58  |
| 2 | 116 |
| 3 | 174 |
| 4 | 232 |
| 5 | 290 |
| 6 | 348 |
| 7 | 406 |
| 8 | 464 |
| 9 | 522 |

| Num. | 0   | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|--------|------|------|------|------|------|------|------|------|-------|---------------|
| 7420 | 870 | 4039   | 4098 | 4156 | 4215 | 4273 | 4332 | 4390 | 4449 | 4507 | 4566  |               |
| 21   |     | 4624   | 4683 | 4741 | 4800 | 4858 | 4917 | 4975 | 5034 | 5092 | 5151  |               |
| 22   |     | 5210   | 5268 | 5327 | 5385 | 5444 | 5502 | 5561 | 5619 | 5678 | 5736  |               |
| 23   |     | 5795   | 5853 | 5912 | 5970 | 6029 | 6087 | 6146 | 6204 | 6263 | 6321  |               |
| 24   |     | 6380   | 6438 | 6497 | 6555 | 6614 | 6672 | 6731 | 6789 | 6848 | 6906  |               |
| 25   |     | 6965   | 7023 | 7082 | 7140 | 7199 | 7257 | 7316 | 7374 | 7432 | 7491  |               |
| 26   |     | 7549   | 7608 | 7666 | 7725 | 7783 | 7842 | 7900 | 7959 | 8017 | 8076  |               |
| 27   |     | 8134   | 8193 | 8251 | 8310 | 8368 | 8427 | 8485 | 8544 | 8602 | 8660  |               |
| 28   |     | 8719   | 8777 | 8836 | 8894 | 8953 | 9011 | 9070 | 9128 | 9187 | 9245  |               |
| 29   |     | 9304   | 9362 | 9421 | 9479 | 9537 | 9596 | 9654 | 9713 | 9771 | 9830  |               |
| 7430 |     | * 9888 | 9947 | +005 | 0063 | 0122 | 0180 | 0239 | 0297 | 0356 | 0414  |               |
| 31   | 871 | 0473   | 0531 | 0589 | 0648 | 0706 | 0765 | 0823 | 0882 | 0940 | 0999  | 1 59          |
| 32   |     | 1057   | 1115 | 1174 | 1232 | 1291 | 1349 | 1408 | 1466 | 1524 | 1583  | 2 118         |
| 33   |     | 1641   | 1700 | 1758 | 1817 | 1875 | 1933 | 1992 | 2050 | 2109 | 2167  | 3 177         |
| 34   |     | 2226   | 2284 | 2342 | 2401 | 2459 | 2518 | 2576 | 2634 | 2693 | 2751  | 4 236         |
| 35   |     | 2810   | 2868 | 2927 | 2985 | 3043 | 3102 | 3160 | 3219 | 3277 | 3335  | 5 295         |
| 36   |     | 3394   | 3452 | 3511 | 3569 | 3627 | 3686 | 3744 | 3803 | 3861 | 3919  | 6 354         |
| 37   |     | 3978   | 4036 | 4095 | 4153 | 4211 | 4270 | 4328 | 4387 | 4445 | 4503  | 7 413         |
| 38   |     | 4562   | 4620 | 4679 | 4737 | 4795 | 4854 | 4912 | 4970 | 5029 | 5087  | 8 472         |
| 39   |     | 5146   | 5204 | 5262 | 5321 | 5379 | 5437 | 5496 | 5554 | 5613 | 5671  | 9 531         |
| 7440 |     | 5729   | 5788 | 5846 | 5904 | 5963 | 6021 | 6080 | 6138 | 6196 | 6255  |               |
| 41   |     | 6313   | 6371 | 6430 | 6488 | 6546 | 6605 | 6663 | 6722 | 6780 | 6838  |               |
| 42   |     | 6897   | 6955 | 7013 | 7072 | 7130 | 7188 | 7247 | 7305 | 7363 | 7422  |               |
| 43   |     | 7480   | 7539 | 7597 | 7655 | 7714 | 7772 | 7830 | 7889 | 7947 | 8005  |               |
| 44   |     | 8064   | 8122 | 8180 | 8239 | 8297 | 8355 | 8414 | 8472 | 8530 | 8589  |               |
| 45   |     | 8647   | 8705 | 8764 | 8822 | 8880 | 8939 | 8997 | 9055 | 9114 | 9172  |               |
| 46   |     | 9230   | 9289 | 9347 | 9405 | 9464 | 9522 | 9580 | 9639 | 9697 | 9755  |               |
| 47   |     | * 9814 | 9872 | 9930 | 9988 | +047 | 0105 | 0163 | 0222 | 0280 | 0338  |               |
| 48   | 872 | 0397   | 0455 | 0513 | 0572 | 0630 | 0688 | 0747 | 0805 | 0863 | 0921  |               |
| 49   |     | 0980   | 1038 | 1096 | 1155 | 1213 | 1271 | 1330 | 1388 | 1446 | 1504  |               |
| 7450 |     | 1563   | 1621 | 1679 | 1738 | 1796 | 1854 | 1912 | 1971 | 2029 | 2087  |               |
| 51   |     | 2146   | 2204 | 2262 | 2320 | 2379 | 2437 | 2495 | 2554 | 2612 | 2670  |               |
| 52   |     | 2728   | 2787 | 2845 | 2903 | 2962 | 3020 | 3078 | 3136 | 3195 | 3253  |               |
| 53   |     | 3311   | 3369 | 3428 | 3486 | 3544 | 3603 | 3661 | 3719 | 3777 | 3836  |               |
| 54   |     | 3894   | 3952 | 4010 | 4069 | 4127 | 4185 | 4243 | 4302 | 4360 | 4418  |               |
| 55   |     | 4476   | 4535 | 4593 | 4651 | 4709 | 4768 | 4826 | 4884 | 4942 | 5001  |               |
| 56   |     | 5059   | 5117 | 5175 | 5234 | 5292 | 5350 | 5408 | 5467 | 5525 | 5583  |               |
| 57   |     | 5641   | 5700 | 5758 | 5816 | 5874 | 5933 | 5991 | 6049 | 6107 | 6166  |               |
| 58   |     | 6224   | 6282 | 6340 | 6398 | 6457 | 6515 | 6573 | 6631 | 6690 | 6748  |               |
| 59   |     | 6806   | 6864 | 6923 | 6981 | 7039 | 7097 | 7155 | 7214 | 7272 | 7330  |               |
| 7460 |     | 7388   | 7446 | 7505 | 7563 | 7621 | 7679 | 7738 | 7796 | 7854 | 7912  |               |
| 61   |     | 7970   | 8029 | 8087 | 8145 | 8203 | 8261 | 8320 | 8378 | 8436 | 8494  |               |
| 62   |     | 8552   | 8611 | 8669 | 8727 | 8785 | 8843 | 8902 | 8960 | 9018 | 9076  |               |
| 63   |     | 9134   | 9193 | 9251 | 9309 | 9367 | 9425 | 9484 | 9542 | 9600 | 9658  |               |
| 64   |     | * 9716 | 9774 | 9833 | 9891 | 9949 | +007 | 0065 | 0124 | 0182 | 0240  |               |
| 65   | 873 | 0298   | 0356 | 0414 | 0473 | 0531 | 0589 | 0647 | 0705 | 0764 | 0822  | 1 58          |
| 66   |     | 0880   | 0938 | 0996 | 1054 | 1113 | 1171 | 1229 | 1287 | 1345 | 1403  | 2 116         |
| 67   |     | 1462   | 1520 | 1578 | 1636 | 1694 | 1752 | 1810 | 1869 | 1927 | 1985  | 3 174         |
| 68   |     | 2043   | 2101 | 2159 | 2218 | 2276 | 2334 | 2392 | 2450 | 2508 | 2566  | 4 232         |
| 69   |     | 2625   | 2683 | 2741 | 2799 | 2857 | 2915 | 2973 | 3032 | 3090 | 3148  | 5 290         |
| 7470 |     | 3206   | 3264 | 3322 | 3380 | 3439 | 3497 | 3555 | 3613 | 3671 | 3729  | 6 348         |
| 71   |     | 3787   | 3845 | 3904 | 3962 | 4020 | 4078 | 4136 | 4194 | 4252 | 4311  | 7 406         |
| 72   |     | 4369   | 4427 | 4485 | 4543 | 4601 | 4659 | 4717 | 4775 | 4834 | 4892  | 8 464         |
| 73   |     | 4950   | 5008 | 5066 | 5124 | 5182 | 5240 | 5298 | 5357 | 5415 | 5473  | 9 522         |
| 74   |     | 5531   | 5589 | 5647 | 5705 | 5763 | 5821 | 5880 | 5938 | 5996 | 6054  |               |
| 75   |     | 6112   | 6170 | 6228 | 6286 | 6344 | 6402 | 6461 | 6519 | 6577 | 6635  |               |
| 76   |     | 6693   | 6751 | 6809 | 6867 | 6925 | 6983 | 7041 | 7100 | 7158 | 7216  |               |
| 77   |     | 7274   | 7332 | 7390 | 7448 | 7506 | 7564 | 7622 | 7680 | 7738 | 7797  |               |
| 78   |     | 7855   | 7913 | 7971 | 8029 | 8087 | 8145 | 8203 | 8261 | 8319 | 8377  |               |
| 79   |     | 8435   | 8493 | 8551 | 8610 | 8668 | 8726 | 8784 | 8842 | 8900 | 8958  |               |
| Num. | 0   | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0      | 1    | 2    | 3    | 4      | 5    | 6    | 7      | 8      | 9    | Diff. | Diff. & Mult. |
|-------|--------|------|------|------|--------|------|------|--------|--------|------|-------|---------------|
| 7480  | 873    | 9016 | 9074 | 9132 | 9190   | 9248 | 9306 | 9364   | 9422   | 9480 | 9538  |               |
| 81    | • 9597 | 9655 | 9713 | 9771 | 9829   |      | 9887 | 9945   | • 0003 | 0061 | 0119  |               |
| 82    | 874    | 0177 | 0235 | 0293 | 0351   | 0409 | 0467 | 0525   | 0583   | 0641 | 0699  |               |
| 83    |        | 0757 | 0815 | 0874 | 0932   | 0990 | 1048 | 1106   | 1164   | 1222 | 1280  |               |
| 84    |        | 1338 | 1396 | 1454 | 1512   | 1570 | 1628 | 1686   | 1744   | 1802 | 1860  |               |
| 85    |        | 1918 | 1976 | 2034 | 2092   | 2150 | 2208 | 2266   | 2324   | 2382 | 2440  |               |
| 86    |        | 2498 | 2556 | 2614 | 2672   | 2730 | 2788 | 2846   | 2904   | 2962 | 3020  |               |
| 87    |        | 3078 | 3136 | 3194 | 3252   | 3310 | 3368 | 3426   | 3484   | 3542 | 3600  |               |
| 88    |        | 3658 | 3716 | 3774 | 3832   | 3890 | 3948 | 4006   | 4064   | 4122 | 4180  |               |
| 89    |        | 4238 | 4296 | 4354 | 4412   | 4470 | 4528 | 4586   | 4644   | 4702 | 4760  |               |
| 7490  |        | 4818 | 4876 | 4934 | 4992   | 5050 | 5108 | 5166   | 5224   | 5282 | 5340  | 1   59        |
| 91    |        | 5398 | 5456 | 5514 | 5572   | 5630 | 5688 | 5746   | 5804   | 5862 | 5920  | 2   116       |
| 92    |        | 5978 | 6036 | 6094 | 6152   | 6210 | 6268 | 6325   | 6383   | 6441 | 6499  | 3   177       |
| 93    |        | 6557 | 6615 | 6673 | 6731   | 6789 | 6847 | 6905   | 6963   | 7021 | 7079  | 4   236       |
| 94    |        | 7137 | 7195 | 7253 | 7311   | 7369 | 7427 | 7485   | 7543   | 7600 | 7658  | 5   295       |
| 95    |        | 7716 | 7774 | 7832 | 7890   | 7948 | 8006 | 8064   | 8122   | 8180 | 8238  | 6   354       |
| 96    |        | 8296 | 8354 | 8412 | 8470   | 8528 | 8585 | 8643   | 8701   | 8759 | 8817  | 7   413       |
| 97    |        | 8875 | 8933 | 8991 | 9049   | 9107 | 9165 | 9223   | 9281   | 9339 | 9396  | 8   472       |
| 98    |        | 9454 | 9512 | 9570 | 9628   | 9686 | 9744 | 9802   | 9860   | 9918 | 9976  | 9   531       |
| 99    | 875    | 0034 | 0091 | 0149 | 0207   | 0265 | 0323 | 0381   | 0439   | 0497 | 0555  |               |
| 75 00 |        | 0613 | 0671 | 0728 | 0786   | 0844 | 0902 | 0960   | 1018   | 1076 | 1134  |               |
| 01    |        | 1192 | 1250 | 1307 | 1365   | 1423 | 1481 | 1539   | 1597   | 1655 | 1713  |               |
| 02    |        | 1771 | 1828 | 1886 | 1944   | 2002 | 2060 | 2118   | 2176   | 2234 | 2292  |               |
| 03    |        | 2349 | 2407 | 2465 | 2523   | 2581 | 2639 | 2697   | 2755   | 2813 | 2870  |               |
| 04    |        | 2928 | 2986 | 3044 | 3102   | 3160 | 3218 | 3275   | 3333   | 3391 | 3449  |               |
| 05    |        | 3507 | 3565 | 3623 | 3681   | 3738 | 3796 | 3854   | 3912   | 3970 | 4028  |               |
| 06    |        | 4086 | 4143 | 4201 | 4259   | 4317 | 4375 | 4433   | 4491   | 4548 | 4606  |               |
| 07    |        | 4664 | 4722 | 4780 | 4838   | 4896 | 4953 | 5011   | 5069   | 5127 | 5185  |               |
| 08    |        | 5243 | 5300 | 5358 | 5416   | 5474 | 5532 | 5590   | 5648   | 5705 | 5763  |               |
| 09    |        | 5821 | 5879 | 5937 | 5995   | 6052 | 6110 | 6168   | 6226   | 6284 | 6342  |               |
| 75 10 |        | 6399 | 6457 | 6515 | 6573   | 6631 | 6689 | 6746   | 6804   | 6862 | 6920  |               |
| 11    |        | 6978 | 7035 | 7093 | 7151   | 7209 | 7267 | 7325   | 7382   | 7440 | 7498  |               |
| 12    |        | 7556 | 7614 | 7671 | 7729   | 7787 | 7845 | 7903   | 7960   | 8018 | 8076  |               |
| 13    |        | 8134 | 8192 | 8249 | 8307   | 8365 | 8423 | 8481   | 8539   | 8596 | 8654  |               |
| 14    |        | 8712 | 8770 | 8828 | 8885   | 8943 | 9001 | 9059   | 9116   | 9174 | 9232  |               |
| 15    |        | 9290 | 9348 | 9405 | 9463   | 9521 | 9579 | 9637   | 9694   | 9752 | 9810  |               |
| 16    | •      | 9868 | 9925 | 9983 | • 0041 | 0099 | 0157 | 0214   | 0272   | 0330 | 0388  |               |
| 17    | 876    | 0446 | 0503 | 0561 | 0619   | 0677 | 0734 | 0792   | 0850   | 0908 | 0965  |               |
| 18    |        | 1023 | 1081 | 1139 | 1197   | 1254 | 1312 | 1370   | 1428   | 1485 | 1543  |               |
| 19    |        | 1601 | 1659 | 1716 | 1774   | 1832 | 1890 | 1947   | 2005   | 2063 | 2121  |               |
| 75 20 |        | 2178 | 2236 | 2294 | 2352   | 2409 | 2467 | 2525   | 2583   | 2640 | 2698  |               |
| 21    |        | 2756 | 2814 | 2871 | 2929   | 2987 | 3045 | 3102   | 3160   | 3218 | 3276  | 1   58        |
| 22    |        | 3333 | 3391 | 3449 | 3506   | 3564 | 3622 | 3680   | 3737   | 3795 | 3853  | 2   116       |
| 23    |        | 3911 | 3968 | 4026 | 4084   | 4142 | 4199 | 4257   | 4315   | 4372 | 4430  | 3   174       |
| 24    |        | 4488 | 4546 | 4603 | 4661   | 4719 | 4776 | 4834   | 4892   | 4950 | 5007  | 4   232       |
| 25    |        | 5065 | 5123 | 5180 | 5238   | 5296 | 5354 | 5411   | 5469   | 5527 | 5584  | 5   290       |
| 26    |        | 5642 | 5700 | 5758 | 5815   | 5873 | 5931 | 5988   | 6046   | 6104 | 6161  | 6   348       |
| 27    |        | 6219 | 6277 | 6335 | 6392   | 6450 | 6508 | 6565   | 6623   | 6681 | 6738  | 7   406       |
| 28    |        | 6796 | 6854 | 6911 | 6969   | 7027 | 7085 | 7142   | 7200   | 7258 | 7315  | 8   464       |
| 29    |        | 7373 | 7431 | 7488 | 7546   | 7604 | 7661 | 7719   | 7777   | 7834 | 7892  | 9   522       |
| 75 30 |        | 7950 | 8007 | 8065 | 8123   | 8180 | 8238 | 8296   | 8353   | 8411 | 8469  |               |
| 31    |        | 8526 | 8584 | 8642 | 8699   | 8757 | 8815 | 8872   | 8930   | 8988 | 9045  |               |
| 32    |        | 9103 | 9161 | 9218 | 9276   | 9334 | 9391 | 9449   | 9507   | 9564 | 9622  |               |
| 33    | •      | 9680 | 9737 | 9795 | 9853   | 9910 | 9968 | • 0026 | 0083   | 0141 | 0199  |               |
| 34    | 877    | 0256 | 0314 | 0371 | 0429   | 0487 | 0544 | 0602   | 0660   | 0717 | 0775  |               |
| 35    |        | 0833 | 0890 | 0948 | 1005   | 1063 | 1121 | 1178   | 1236   | 1294 | 1351  |               |
| 36    |        | 1409 | 1467 | 1524 | 1582   | 1639 | 1697 | 1755   | 1812   | 1870 | 1928  |               |
| 37    |        | 1985 | 2043 | 2100 | 2158   | 2216 | 2273 | 2331   | 2388   | 2446 | 2504  |               |
| 38    |        | 2561 | 2619 | 2677 | 2734   | 2792 | 2849 | 2907   | 2965   | 3022 | 3080  |               |
| 39    |        | 3137 | 3195 | 3253 | 3310   | 3368 | 3425 | 3483   | 3541   | 3598 | 3656  |               |
| Num.  | 0      | 1    | 2    | 3    | 4      | 5    | 6    | 7      | 8      | 9    | Diff. | Diff. & Mult. |



LOGARITHMS OF NUMBERS.

113

| Num.  | 0   | 1    | 2    | 3    | 4    | 5     | 6    | 7    | 8    | 9     | Diff. | Diff. & Mult. |
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| 41    |     | 4289 | 4347 | 4405 | 4462 | 4520  | 4577 | 4635 | 4693 | 4750  | 4808  |               |
| 42    |     | 4865 | 4923 | 4980 | 5038 | 5096  | 5153 | 5211 | 5268 | 5326  | 5384  |               |
| 43    |     | 5441 | 5499 | 5556 | 5614 | 5671  | 5729 | 5787 | 5844 | 5902  | 5959  |               |
| 44    |     | 6017 | 6074 | 6132 | 6189 | 6247  | 6305 | 6362 | 6420 | 6477  | 6535  |               |
| 45    |     | 6592 | 6650 | 6708 | 6765 | 6823  | 6880 | 6938 | 6995 | 7053  | 7110  |               |
| 46    |     | 7168 | 7226 | 7283 | 7341 | 7398  | 7456 | 7513 | 7571 | 7628  | 7686  |               |
| 47    |     | 7743 | 7801 | 7859 | 7916 | 7974  | 8031 | 8089 | 8146 | 8204  | 8261  |               |
| 48    |     | 8319 | 8376 | 8434 | 8492 | 8549  | 8607 | 8664 | 8722 | 8779  | 8837  |               |
| 49    |     | 8894 | 8952 | 9009 | 9067 | 9124  | 9182 | 9239 | 9297 | 9354  | 9412  |               |
| 75 50 |     | 9470 | 9527 | 9585 | 9642 | 9700  | 9757 | 9815 | 9872 | 9930  | 9987  |               |
| 51    | 878 | 0045 | 0102 | 0160 | 0217 | 0275  | 0332 | 0390 | 0447 | 0505  | 0562  | 1 58          |
| 52    |     | 0620 | 0677 | 0735 | 0792 | 0850  | 0907 | 0965 | 1022 | 1080  | 1137  | 2 116         |
| 53    |     | 1195 | 1252 | 1310 | 1367 | 1425  | 1482 | 1540 | 1597 | 1655  | 1712  | 3 174         |
| 54    |     | 1770 | 1827 | 1885 | 1942 | 2000  | 2057 | 2115 | 2172 | 2230  | 2287  | 4 232         |
| 55    |     | 2345 | 2402 | 2460 | 2517 | 2575  | 2632 | 2690 | 2747 | 2805  | 2862  | 5 290         |
| 56    |     | 2919 | 2977 | 3034 | 3092 | 3149  | 3207 | 3264 | 3322 | 3379  | 3437  | 6 348         |
| 57    |     | 3494 | 3552 | 3609 | 3667 | 3724  | 3782 | 3839 | 3896 | 3954  | 4011  | 7 406         |
| 58    |     | 4069 | 4126 | 4184 | 4241 | 4299  | 4356 | 4414 | 4471 | 4529  | 4586  | 8 464         |
| 59    |     | 4643 | 4701 | 4758 | 4816 | 4873  | 4931 | 4988 | 5046 | 5103  | 5161  | 9 522         |
| 75 60 |     | 5218 | 5275 | 5333 | 5390 | 5448  | 5505 | 5563 | 5620 | 5678  | 5735  |               |
| 61    |     | 5792 | 5850 | 5907 | 5965 | 6022  | 6080 | 6137 | 6194 | 6252  | 6309  |               |
| 62    |     | 6367 | 6424 | 6482 | 6539 | 6596  | 6654 | 6711 | 6769 | 6826  | 6884  |               |
| 63    |     | 6941 | 6998 | 7056 | 7113 | 7171  | 7228 | 7286 | 7343 | 7400  | 7458  |               |
| 64    |     | 7515 | 7573 | 7630 | 7687 | 7745  | 7802 | 7860 | 7917 | 7975  | 8032  |               |
| 65    |     | 8089 | 8147 | 8204 | 8262 | 8319  | 8376 | 8434 | 8491 | 8549  | 8606  |               |
| 66    |     | 8663 | 8721 | 8778 | 8836 | 8893  | 8950 | 9008 | 9065 | 9123  | 9180  |               |
| 67    |     | 9237 | 9295 | 9352 | 9410 | 9467  | 9524 | 9582 | 9639 | 9696  | 9754  |               |
| 68    |     | 9811 | 9869 | 9926 | 9983 | 10041 | 0098 | 0156 | 0213 | 0270  | 0328  |               |
| 69    | 879 | 0385 | 0442 | 0500 | 0557 | 0615  | 0672 | 0729 | 0787 | 0844  | 0901  |               |
| 75 70 |     | 0959 | 1016 | 1074 | 1131 | 1188  | 1246 | 1303 | 1360 | 1418  | 1475  |               |
| 71    |     | 1532 | 1590 | 1647 | 1705 | 1762  | 1819 | 1877 | 1934 | 1991  | 2049  |               |
| 72    |     | 2106 | 2163 | 2221 | 2278 | 2335  | 2393 | 2450 | 2508 | 2565  | 2622  |               |
| 73    |     | 2680 | 2737 | 2794 | 2852 | 2909  | 2966 | 3024 | 3081 | 3138  | 3196  |               |
| 74    |     | 3253 | 3310 | 3368 | 3425 | 3482  | 3540 | 3597 | 3654 | 3712  | 3769  |               |
| 75    |     | 3826 | 3884 | 3941 | 3998 | 4056  | 4113 | 4170 | 4228 | 4285  | 4342  |               |
| 76    |     | 4400 | 4457 | 4514 | 4572 | 4629  | 4686 | 4744 | 4801 | 4858  | 4916  |               |
| 77    |     | 4973 | 5030 | 5088 | 5145 | 5202  | 5259 | 5317 | 5374 | 5431  | 5489  |               |
| 78    |     | 5546 | 5603 | 5661 | 5718 | 5775  | 5833 | 5890 | 5947 | 6004  | 6062  |               |
| 79    |     | 6119 | 6176 | 6234 | 6291 | 6348  | 6406 | 6463 | 6520 | 6577  | 6635  |               |
| 75 80 |     | 6692 | 6749 | 6807 | 6864 | 6921  | 6979 | 7036 | 7093 | 7150  | 7208  |               |
| 81    |     | 7265 | 7322 | 7380 | 7437 | 7494  | 7551 | 7609 | 7666 | 7723  | 7781  |               |
| 82    |     | 7838 | 7895 | 7952 | 8010 | 8067  | 8124 | 8181 | 8239 | 8296  | 8353  |               |
| 83    |     | 8411 | 8468 | 8525 | 8582 | 8640  | 8697 | 8754 | 8811 | 8869  | 8926  |               |
| 84    |     | 8983 | 9041 | 9098 | 9155 | 9212  | 9270 | 9327 | 9384 | 9441  | 9499  |               |
| 85    |     | 9556 | 9613 | 9670 | 9728 | 9785  | 9842 | 9899 | 9957 | 10014 | 0071  | 1 57          |
| 86    | 880 | 0128 | 0186 | 0243 | 0300 | 0357  | 0415 | 0472 | 0529 | 0586  | 0644  | 2 114         |
| 87    |     | 0701 | 0758 | 0815 | 0873 | 0930  | 0987 | 1044 | 1102 | 1159  | 1216  | 3 171         |
| 88    |     | 1273 | 1330 | 1388 | 1445 | 1502  | 1559 | 1617 | 1674 | 1731  | 1788  | 4 228         |
| 89    |     | 1846 | 1903 | 1960 | 2017 | 2074  | 2132 | 2189 | 2246 | 2303  | 2361  | 5 285         |
| 75 90 |     | 2418 | 2475 | 2532 | 2589 | 2647  | 2704 | 2761 | 2818 | 2875  | 2933  | 6 342         |
| 91    |     | 2990 | 3047 | 3104 | 3162 | 3219  | 3276 | 3333 | 3390 | 3448  | 3505  | 7 399         |
| 92    |     | 3562 | 3619 | 3676 | 3734 | 3791  | 3848 | 3905 | 3962 | 4020  | 4077  | 8 456         |
| 93    |     | 4134 | 4191 | 4248 | 4306 | 4363  | 4420 | 4477 | 4534 | 4592  | 4649  | 9 513         |
| 94    |     | 4706 | 4763 | 4820 | 4877 | 4935  | 4992 | 5049 | 5106 | 5163  | 5221  |               |
| 95    |     | 5278 | 5335 | 5392 | 5449 | 5507  | 5564 | 5621 | 5678 | 5735  | 5792  |               |
| 96    |     | 5850 | 5907 | 5964 | 6021 | 6078  | 6135 | 6193 | 6250 | 6307  | 6364  |               |
| 97    |     | 6421 | 6478 | 6536 | 6593 | 6650  | 6707 | 6764 | 6821 | 6879  | 6936  |               |
| 98    |     | 6993 | 7050 | 7107 | 7164 | 7222  | 7279 | 7336 | 7393 | 7450  | 7507  |               |
| 99    |     | 7564 | 7622 | 7679 | 7736 | 7793  | 7850 | 7907 | 7964 | 8022  | 8079  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5     | 6    | 7    | 8    | 9     | Diff. | Diff. & Mult. |

| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|--------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>7600</b>  | <b>880</b> | 8136 | 8193 | 8250 | 8307 | 8364 | 8422 | 8479 | 8536 | 8593 | 8650  |               |
| 01           |            | 8707 | 8764 | 8822 | 8879 | 8936 | 8993 | 9050 | 9107 | 9164 | 9222  |               |
| 02           |            | 9279 | 9336 | 9393 | 9450 | 9507 | 9564 | 9621 | 9679 | 9736 | 9793  |               |
| 03           | •          | 9850 | 9907 | 9964 | +021 | 0078 | 0136 | 0193 | 0250 | 0307 | 0364  |               |
| 04           | <b>881</b> | 0421 | 0478 | 0535 | 0592 | 0650 | 0707 | 0764 | 0821 | 0878 | 0935  |               |
| 05           |            | 0992 | 1049 | 1106 | 1163 | 1221 | 1278 | 1335 | 1392 | 1449 | 1506  |               |
| 06           |            | 1563 | 1620 | 1677 | 1735 | 1792 | 1849 | 1906 | 1963 | 2020 | 2077  |               |
| 07           |            | 2134 | 2191 | 2248 | 2305 | 2363 | 2420 | 2477 | 2534 | 2591 | 2648  |               |
| 08           |            | 2705 | 2762 | 2819 | 2876 | 2933 | 2990 | 3048 | 3105 | 3162 | 3219  |               |
| 09           |            | 3276 | 3333 | 3390 | 3447 | 3504 | 3561 | 3618 | 3675 | 3732 | 3789  |               |
| <b>76 10</b> |            | 3847 | 3904 | 3961 | 4018 | 4075 | 4132 | 4189 | 4246 | 4303 | 4360  |               |
| 11           |            | 4417 | 4474 | 4531 | 4588 | 4645 | 4703 | 4760 | 4817 | 4874 | 4931  | 1             |
| 12           |            | 4988 | 5045 | 5102 | 5159 | 5216 | 5273 | 5330 | 5387 | 5444 | 5501  | 2             |
| 13           |            | 5558 | 5615 | 5672 | 5729 | 5786 | 5844 | 5901 | 5958 | 6015 | 6072  | 3             |
| 14           |            | 6129 | 6186 | 6243 | 6300 | 6357 | 6414 | 6471 | 6528 | 6585 | 6642  | 4             |
| 15           |            | 6699 | 6756 | 6813 | 6870 | 6927 | 6984 | 7041 | 7098 | 7155 | 7212  | 5             |
| 16           |            | 7269 | 7326 | 7383 | 7440 | 7497 | 7554 | 7611 | 7669 | 7726 | 7783  | 6             |
| 17           |            | 7840 | 7897 | 7954 | 8011 | 8068 | 8125 | 8182 | 8239 | 8296 | 8353  | 7             |
| 18           |            | 8410 | 8467 | 8524 | 8581 | 8638 | 8695 | 8752 | 8809 | 8866 | 8923  | 8             |
| 19           |            | 8980 | 9037 | 9094 | 9151 | 9208 | 9265 | 9322 | 9379 | 9436 | 9493  | 9             |
| <b>76 20</b> | •          | 9550 | 9607 | 9664 | 9721 | 9778 | 9835 | 9892 | 9949 | +006 | 0063  | 57            |
| 21           | <b>882</b> | 0120 | 0177 | 0234 | 0291 | 0348 | 0405 | 0462 | 0519 | 0575 | 0632  |               |
| 22           |            | 0689 | 0746 | 0803 | 0860 | 0917 | 0974 | 1031 | 1088 | 1145 | 1202  |               |
| 23           |            | 1259 | 1316 | 1373 | 1430 | 1487 | 1544 | 1601 | 1658 | 1715 | 1772  |               |
| 24           |            | 1829 | 1886 | 1943 | 2000 | 2057 | 2114 | 2171 | 2228 | 2285 | 2342  |               |
| 25           |            | 2398 | 2455 | 2512 | 2569 | 2626 | 2683 | 2740 | 2797 | 2854 | 2911  |               |
| 26           |            | 2968 | 3025 | 3082 | 3139 | 3196 | 3253 | 3310 | 3367 | 3424 | 3481  |               |
| 27           |            | 3537 | 3594 | 3651 | 3708 | 3765 | 3822 | 3879 | 3936 | 3993 | 4050  |               |
| 28           |            | 4107 | 4164 | 4221 | 4278 | 4335 | 4392 | 4448 | 4505 | 4562 | 4619  |               |
| 29           |            | 4676 | 4733 | 4790 | 4847 | 4904 | 4961 | 5018 | 5075 | 5132 | 5188  |               |
| <b>76 30</b> |            | 5245 | 5302 | 5359 | 5416 | 5473 | 5530 | 5587 | 5644 | 5701 | 5758  |               |
| 31           |            | 5815 | 5871 | 5928 | 5985 | 6042 | 6099 | 6156 | 6213 | 6270 | 6327  |               |
| 32           |            | 6384 | 6441 | 6497 | 6554 | 6611 | 6668 | 6725 | 6782 | 6839 | 6896  |               |
| 33           |            | 6953 | 7010 | 7066 | 7123 | 7180 | 7237 | 7294 | 7351 | 7408 | 7465  |               |
| 34           |            | 7522 | 7578 | 7635 | 7692 | 7749 | 7806 | 7863 | 7920 | 7977 | 8034  |               |
| 35           |            | 8090 | 8147 | 8204 | 8261 | 8318 | 8375 | 8432 | 8489 | 8545 | 8602  |               |
| 36           |            | 8659 | 8716 | 8773 | 8830 | 8887 | 8944 | 9000 | 9057 | 9114 | 9171  |               |
| 37           |            | 9228 | 9285 | 9342 | 9399 | 9455 | 9512 | 9569 | 9626 | 9683 | 9740  |               |
| 38           | •          | 9777 | 9853 | 9910 | 9967 | +024 | 0081 | 0138 | 0195 | 0251 | 0308  |               |
| 39           | <b>883</b> | 0365 | 0422 | 0479 | 0536 | 0593 | 0649 | 0706 | 0763 | 0820 | 0877  |               |
| <b>76 40</b> |            | 0934 | 0990 | 1047 | 1104 | 1161 | 1218 | 1275 | 1331 | 1388 | 1445  |               |
| 41           |            | 1502 | 1559 | 1616 | 1673 | 1729 | 1786 | 1843 | 1900 | 1957 | 2014  | 1             |
| 42           |            | 2070 | 2127 | 2184 | 2241 | 2298 | 2354 | 2411 | 2468 | 2525 | 2582  | 2             |
| 43           |            | 2639 | 2695 | 2752 | 2809 | 2866 | 2923 | 2980 | 3036 | 3093 | 3150  | 3             |
| 44           |            | 3207 | 3264 | 3320 | 3377 | 3434 | 3491 | 3548 | 3604 | 3661 | 3718  | 4             |
| 45           |            | 3775 | 3832 | 3889 | 3945 | 4002 | 4059 | 4116 | 4173 | 4229 | 4286  | 5             |
| 46           |            | 4343 | 4400 | 4457 | 4513 | 4570 | 4627 | 4684 | 4741 | 4797 | 4854  | 6             |
| 47           |            | 4911 | 4968 | 5024 | 5081 | 5138 | 5195 | 5252 | 5308 | 5365 | 5422  | 7             |
| 48           |            | 5479 | 5536 | 5592 | 5649 | 5706 | 5763 | 5819 | 5876 | 5933 | 5990  | 8             |
| 49           |            | 6047 | 6103 | 6160 | 6217 | 6274 | 6330 | 6387 | 6444 | 6501 | 6558  | 9             |
| <b>76 50</b> |            | 6614 | 6671 | 6728 | 6785 | 6841 | 6898 | 6955 | 7012 | 7068 | 7125  |               |
| 51           |            | 7182 | 7239 | 7296 | 7352 | 7409 | 7466 | 7523 | 7579 | 7636 | 7693  |               |
| 52           |            | 7750 | 7806 | 7863 | 7920 | 7977 | 8033 | 8090 | 8147 | 8204 | 8260  |               |
| 53           |            | 8317 | 8374 | 8431 | 8487 | 8544 | 8601 | 8658 | 8714 | 8771 | 8828  |               |
| 54           |            | 8885 | 8941 | 8998 | 9055 | 9112 | 9168 | 9225 | 9282 | 9338 | 9395  |               |
| 55           |            | 9452 | 9509 | 9565 | 9622 | 9679 | 9736 | 9792 | 9849 | 9906 | 9963  |               |
| 56           | <b>884</b> | 0019 | 0076 | 0133 | 0189 | 0246 | 0303 | 0360 | 0416 | 0473 | 0530  |               |
| 57           |            | 0586 | 0643 | 0700 | 0757 | 0813 | 0870 | 0927 | 0983 | 1040 | 1097  |               |
| 58           |            | 1154 | 1210 | 1267 | 1324 | 1380 | 1437 | 1494 | 1551 | 1607 | 1664  |               |
| 59           |            | 1721 | 1777 | 1834 | 1891 | 1948 | 2004 | 2061 | 2118 | 2174 | 2231  |               |
| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0   | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|--------|------|------|------|------|------|------|------|------|-------|---------------|
| 7660  | 884 | 2288   | 2344 | 2401 | 2458 | 2514 | 2571 | 2628 | 2685 | 2741 | 2798  |               |
| 61    |     | 2855   | 2911 | 2968 | 3025 | 3081 | 3138 | 3195 | 3251 | 3308 | 3365  |               |
| 62    |     | 3421   | 3478 | 3535 | 3592 | 3648 | 3705 | 3762 | 3818 | 3875 | 3932  |               |
| 63    |     | 3988   | 4045 | 4102 | 4158 | 4215 | 4272 | 4328 | 4385 | 4442 | 4498  |               |
| 64    |     | 4555   | 4612 | 4668 | 4725 | 4782 | 4838 | 4895 | 4952 | 5008 | 5065  |               |
| 65    |     | 5122   | 5178 | 5235 | 5292 | 5348 | 5405 | 5462 | 5518 | 5575 | 5631  |               |
| 66    |     | 5688   | 5745 | 5801 | 5858 | 5915 | 5971 | 6028 | 6085 | 6141 | 6198  |               |
| 67    |     | 6255   | 6311 | 6368 | 6425 | 6481 | 6538 | 6594 | 6651 | 6708 | 6764  |               |
| 68    |     | 6821   | 6878 | 6934 | 6991 | 7048 | 7104 | 7161 | 7217 | 7274 | 7331  |               |
| 69    |     | 7387   | 7444 | 7501 | 7557 | 7614 | 7671 | 7727 | 7784 | 7840 | 7897  |               |
| 76 70 |     | 7954   | 8010 | 8067 | 8124 | 8180 | 8237 | 8293 | 8350 | 8407 | 8463  | 1   57        |
| 71    |     | 8520   | 8576 | 8633 | 8690 | 8746 | 8803 | 8860 | 8916 | 8973 | 9029  | 2   114       |
| 72    |     | 9086   | 9143 | 9199 | 9256 | 9312 | 9369 | 9426 | 9482 | 9539 | 9595  | 3   171       |
| 73    |     | * 9652 | 9709 | 9765 | 9822 | 9878 | 9935 | 9992 | +048 | 0105 | 0161  | 4   228       |
| 74    | 885 | 0218   | 0275 | 0331 | 0388 | 0444 | 0501 | 0557 | 0614 | 0671 | 0727  | 5   285       |
| 75    |     | 0784   | 0840 | 0897 | 0954 | 1010 | 1067 | 1123 | 1180 | 1237 | 1293  | 6   342       |
| 76    |     | 1350   | 1406 | 1463 | 1519 | 1576 | 1633 | 1689 | 1746 | 1802 | 1859  | 7   399       |
| 77    |     | 1915   | 1972 | 2029 | 2085 | 2142 | 2198 | 2255 | 2311 | 2368 | 2425  | 8   456       |
| 78    |     | 2481   | 2538 | 2594 | 2651 | 2707 | 2764 | 2820 | 2877 | 2934 | 2990  | 9   513       |
| 79    |     | 3047   | 3103 | 3160 | 3216 | 3273 | 3329 | 3386 | 3443 | 3499 | 3556  |               |
| 76 80 |     | 3612   | 3669 | 3725 | 3782 | 3838 | 3895 | 3951 | 4008 | 4065 | 4121  |               |
| 81    |     | 4178   | 4234 | 4291 | 4347 | 4404 | 4460 | 4517 | 4573 | 4630 | 4686  |               |
| 82    |     | 4743   | 4800 | 4856 | 4913 | 4969 | 5026 | 5082 | 5139 | 5195 | 5252  |               |
| 83    |     | 5308   | 5365 | 5421 | 5478 | 5534 | 5591 | 5647 | 5704 | 5761 | 5817  |               |
| 84    |     | 5874   | 5930 | 5987 | 6043 | 6100 | 6156 | 6213 | 6269 | 6326 | 6382  |               |
| 85    |     | 6439   | 6495 | 6552 | 6608 | 6665 | 6721 | 6778 | 6834 | 6891 | 6947  |               |
| 86    |     | 7004   | 7060 | 7117 | 7173 | 7230 | 7286 | 7343 | 7399 | 7456 | 7512  |               |
| 87    |     | 7569   | 7625 | 7682 | 7738 | 7795 | 7851 | 7908 | 7964 | 8021 | 8077  |               |
| 88    |     | 8134   | 8190 | 8247 | 8303 | 8360 | 8416 | 8473 | 8529 | 8586 | 8642  |               |
| 89    |     | 8699   | 8755 | 8812 | 8868 | 8925 | 8981 | 9037 | 9094 | 9150 | 9207  |               |
| 76 90 |     | 9263   | 9320 | 9376 | 9433 | 9489 | 9546 | 9602 | 9659 | 9715 | 9772  |               |
| 91    |     | * 9828 | 9885 | 9941 | 9998 | +054 | 0110 | 0167 | 0223 | 0280 | 0336  |               |
| 92    | 886 | 0393   | 0449 | 0506 | 0562 | 0619 | 0675 | 0732 | 0788 | 0844 | 0901  |               |
| 93    |     | 0957   | 1014 | 1070 | 1127 | 1183 | 1240 | 1296 | 1352 | 1409 | 1465  |               |
| 94    |     | 1522   | 1578 | 1635 | 1691 | 1748 | 1804 | 1860 | 1917 | 1973 | 2030  |               |
| 95    |     | 2086   | 2143 | 2199 | 2256 | 2312 | 2368 | 2425 | 2481 | 2538 | 2594  |               |
| 96    |     | 2651   | 2707 | 2763 | 2820 | 2876 | 2933 | 2989 | 3046 | 3102 | 3158  |               |
| 97    |     | 3215   | 3271 | 3328 | 3384 | 3441 | 3497 | 3553 | 3610 | 3666 | 3723  |               |
| 98    |     | 3779   | 3835 | 3892 | 3948 | 4005 | 4061 | 4118 | 4174 | 4230 | 4287  |               |
| 99    |     | 4343   | 4400 | 4456 | 4512 | 4569 | 4625 | 4682 | 4738 | 4794 | 4851  |               |
| 77 00 |     | 4907   | 4964 | 5020 | 5076 | 5133 | 5189 | 5246 | 5302 | 5358 | 5415  |               |
| 01    |     | 5471   | 5528 | 5584 | 5640 | 5697 | 5753 | 5810 | 5866 | 5922 | 5979  |               |
| 02    |     | 6035   | 6092 | 6148 | 6204 | 6261 | 6317 | 6373 | 6430 | 6486 | 6543  |               |
| 03    |     | 6599   | 6655 | 6712 | 6768 | 6824 | 6881 | 6937 | 6994 | 7050 | 7106  |               |
| 04    |     | 7163   | 7219 | 7275 | 7332 | 7388 | 7445 | 7501 | 7557 | 7614 | 7670  |               |
| 05    |     | 7726   | 7783 | 7839 | 7896 | 7952 | 8008 | 8065 | 8121 | 8177 | 8234  |               |
| 06    |     | 8290   | 8346 | 8403 | 8459 | 8515 | 8572 | 8628 | 8685 | 8741 | 8797  |               |
| 07    |     | 8854   | 8910 | 8966 | 9023 | 9079 | 9135 | 9192 | 9248 | 9304 | 9361  |               |
| 08    |     | 9417   | 9473 | 9530 | 9586 | 9642 | 9699 | 9755 | 9811 | 9868 | 9924  |               |
| 09    |     | * 9980 | +037 | 0093 | 0149 | 0206 | 0262 | 0318 | 0375 | 0431 | 0487  |               |
| 77 10 | 887 | 0544   | 0600 | 0656 | 0713 | 0769 | 0825 | 0882 | 0938 | 0994 | 1051  |               |
| 11    |     | 1107   | 1163 | 1220 | 1276 | 1332 | 1389 | 1445 | 1501 | 1558 | 1614  |               |
| 12    |     | 1670   | 1727 | 1783 | 1839 | 1895 | 1952 | 2008 | 2064 | 2121 | 2177  |               |
| 13    |     | 2233   | 2290 | 2346 | 2402 | 2459 | 2515 | 2571 | 2627 | 2684 | 2740  |               |
| 14    |     | 2796   | 2853 | 2909 | 2965 | 3022 | 3078 | 3134 | 3190 | 3247 | 3303  |               |
| 15    |     | 3359   | 3416 | 3472 | 3528 | 3584 | 3641 | 3697 | 3753 | 3810 | 3866  |               |
| 16    |     | 3922   | 3978 | 4035 | 4091 | 4147 | 4204 | 4260 | 4316 | 4372 | 4429  |               |
| 17    |     | 4485   | 4541 | 4598 | 4654 | 4710 | 4766 | 4823 | 4879 | 4935 | 4991  |               |
| 18    |     | 5048   | 5104 | 5160 | 5217 | 5273 | 5329 | 5385 | 5442 | 5498 | 5554  |               |
| 19    |     | 5610   | 5667 | 5723 | 5779 | 5835 | 5892 | 5948 | 6004 | 6060 | 6117  |               |
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| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>7720</b> | <b>887</b> | 6173 | 6229 | 6286 | 6342 | 6398 | 6454 | 6511 | 6567 | 6623 | 6679  |               |
| 21          |            | 6736 | 6792 | 6848 | 6904 | 6961 | 7017 | 7073 | 7129 | 7185 | 7242  |               |
| 22          |            | 7298 | 7354 | 7410 | 7467 | 7523 | 7579 | 7635 | 7692 | 7748 | 7804  |               |
| 23          |            | 7860 | 7917 | 7973 | 8029 | 8085 | 8142 | 8198 | 8254 | 8310 | 8366  |               |
| 24          |            | 8423 | 8479 | 8535 | 8591 | 8648 | 8704 | 8760 | 8816 | 8872 | 8929  |               |
| 25          |            | 8985 | 9041 | 9097 | 9154 | 9210 | 9266 | 9322 | 9378 | 9435 | 9491  |               |
| 26          | *          | 9547 | 9603 | 9659 | 9716 | 9772 | 9828 | 9884 | 9941 | 9997 | +053  |               |
| 27          | 888        | 0109 | 0165 | 0222 | 0278 | 0334 | 0390 | 0446 | 0503 | 0559 | 0615  |               |
| 28          |            | 0671 | 0727 | 0784 | 0840 | 0896 | 0952 | 1008 | 1064 | 1121 | 1177  |               |
| 29          |            | 1233 | 1289 | 1345 | 1402 | 1458 | 1514 | 1570 | 1626 | 1683 | 1739  |               |
| <b>7730</b> |            | 1795 | 1851 | 1907 | 1963 | 2020 | 2076 | 2132 | 2188 | 2244 | 2301  |               |
| 31          |            | 2357 | 2413 | 2469 | 2525 | 2581 | 2638 | 2694 | 2750 | 2806 | 2862  |               |
| 32          |            | 2918 | 2975 | 3031 | 3087 | 3143 | 3199 | 3255 | 3312 | 3368 | 3424  |               |
| 33          |            | 3480 | 3536 | 3592 | 3649 | 3705 | 3761 | 3817 | 3873 | 3929 | 3986  |               |
| 34          |            | 4042 | 4098 | 4154 | 4210 | 4266 | 4322 | 4379 | 4435 | 4491 | 4547  |               |
| 35          |            | 4603 | 4659 | 4715 | 4772 | 4828 | 4884 | 4940 | 4996 | 5052 | 5108  |               |
| 36          |            | 5165 | 5221 | 5277 | 5333 | 5389 | 5445 | 5501 | 5558 | 5614 | 5670  |               |
| 37          |            | 5726 | 5782 | 5838 | 5894 | 5950 | 6007 | 6063 | 6119 | 6175 | 6231  |               |
| 38          |            | 6287 | 6343 | 6400 | 6456 | 6512 | 6568 | 6624 | 6680 | 6736 | 6792  |               |
| 39          |            | 6848 | 6905 | 6961 | 7017 | 7073 | 7129 | 7185 | 7241 | 7297 | 7353  |               |
| <b>7740</b> |            | 7410 | 7466 | 7522 | 7578 | 7634 | 7690 | 7746 | 7802 | 7858 | 7915  |               |
| 41          |            | 7971 | 8027 | 8083 | 8139 | 8195 | 8251 | 8307 | 8363 | 8419 | 8476  |               |
| 42          |            | 8532 | 8588 | 8644 | 8700 | 8756 | 8812 | 8868 | 8924 | 8980 | 9037  |               |
| 43          |            | 9093 | 9149 | 9205 | 9261 | 9317 | 9373 | 9429 | 9485 | 9541 | 9597  |               |
| 44          | *          | 9653 | 9710 | 9766 | 9822 | 9878 | 9934 | 9990 | +046 | 0102 | 0158  |               |
| 45          | 889        | 0214 | 0270 | 0326 | 0382 | 0439 | 0495 | 0551 | 0607 | 0663 | 0719  |               |
| 46          |            | 0775 | 0831 | 0887 | 0943 | 0999 | 1055 | 1111 | 1167 | 1223 | 1279  |               |
| 47          |            | 1336 | 1392 | 1448 | 1504 | 1560 | 1616 | 1672 | 1728 | 1784 | 1840  |               |
| 48          |            | 1896 | 1952 | 2008 | 2064 | 2120 | 2176 | 2232 | 2288 | 2345 | 2401  |               |
| 49          |            | 2457 | 2513 | 2569 | 2625 | 2681 | 2737 | 2793 | 2849 | 2905 | 2961  |               |
| <b>7750</b> |            | 3017 | 3073 | 3129 | 3185 | 3241 | 3297 | 3353 | 3409 | 3465 | 3521  |               |
| 51          |            | 3577 | 3633 | 3689 | 3745 | 3801 | 3858 | 3914 | 3970 | 4026 | 4082  |               |
| 52          |            | 4138 | 4194 | 4250 | 4306 | 4362 | 4418 | 4474 | 4530 | 4586 | 4642  |               |
| 53          |            | 4698 | 4754 | 4810 | 4866 | 4922 | 4978 | 5034 | 5090 | 5146 | 5202  |               |
| 54          |            | 5258 | 5314 | 5370 | 5426 | 5482 | 5538 | 5594 | 5650 | 5706 | 5762  |               |
| 55          |            | 5818 | 5874 | 5930 | 5986 | 6042 | 6098 | 6154 | 6210 | 6266 | 6322  |               |
| 56          |            | 6378 | 6434 | 6490 | 6546 | 6602 | 6658 | 6714 | 6770 | 6826 | 6882  |               |
| 57          |            | 6938 | 6994 | 7050 | 7106 | 7162 | 7218 | 7274 | 7330 | 7386 | 7442  |               |
| 58          |            | 7498 | 7554 | 7610 | 7666 | 7722 | 7778 | 7834 | 7890 | 7946 | 8002  |               |
| 59          |            | 8058 | 8113 | 8169 | 8225 | 8281 | 8337 | 8393 | 8449 | 8505 | 8561  |               |
| <b>7760</b> |            | 8617 | 8673 | 8729 | 8785 | 8841 | 8897 | 8953 | 9009 | 9065 | 9121  |               |
| 61          |            | 9177 | 9233 | 9289 | 9345 | 9401 | 9457 | 9513 | 9569 | 9624 | 9680  |               |
| 62          | *          | 9736 | 9792 | 9848 | 9904 | 9960 | +016 | 0072 | 0128 | 0184 | 0240  |               |
| 63          | 890        | 0296 | 0352 | 0408 | 0464 | 0520 | 0576 | 0632 | 0687 | 0743 | 0799  |               |
| 64          |            | 0855 | 0911 | 0967 | 1023 | 1079 | 1135 | 1191 | 1247 | 1303 | 1359  |               |
| 65          |            | 1415 | 1471 | 1526 | 1582 | 1638 | 1694 | 1750 | 1806 | 1862 | 1918  |               |
| 66          |            | 1974 | 2030 | 2086 | 2142 | 2198 | 2253 | 2309 | 2365 | 2421 | 2477  |               |
| 67          |            | 2533 | 2589 | 2645 | 2701 | 2757 | 2813 | 2869 | 2924 | 2980 | 3036  |               |
| 68          |            | 3092 | 3148 | 3204 | 3260 | 3316 | 3372 | 3428 | 3484 | 3539 | 3595  |               |
| 69          |            | 3651 | 3707 | 3763 | 3819 | 3875 | 3931 | 3987 | 4043 | 4098 | 4154  |               |
| <b>7770</b> |            | 4210 | 4266 | 4322 | 4378 | 4434 | 4490 | 4546 | 4601 | 4657 | 4713  |               |
| 71          |            | 4769 | 4825 | 4881 | 4937 | 4993 | 5049 | 5104 | 5160 | 5216 | 5272  |               |
| 72          |            | 5328 | 5384 | 5440 | 5496 | 5551 | 5607 | 5663 | 5719 | 5775 | 5831  |               |
| 73          |            | 5887 | 5943 | 5998 | 6054 | 6110 | 6166 | 6222 | 6278 | 6334 | 6389  |               |
| 74          |            | 6445 | 6501 | 6557 | 6613 | 6669 | 6725 | 6781 | 6836 | 6892 | 6948  |               |
| 75          |            | 7004 | 7060 | 7116 | 7172 | 7227 | 7283 | 7339 | 7395 | 7451 | 7507  |               |
| 76          |            | 7563 | 7618 | 7674 | 7730 | 7786 | 7842 | 7898 | 7953 | 8009 | 8065  |               |
| 77          |            | 8121 | 8177 | 8233 | 8289 | 8344 | 8400 | 8456 | 8512 | 8568 | 8624  |               |
| 78          |            | 8679 | 8735 | 8791 | 8847 | 8903 | 8959 | 9014 | 9070 | 9126 | 9182  |               |
| 79          |            | 9238 | 9294 | 9349 | 9405 | 9461 | 9517 | 9573 | 9629 | 9684 | 9740  |               |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

|   |     |
|---|-----|
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| 2 | 114 |
| 3 | 171 |
| 4 | 228 |
| 5 | 285 |
| 6 | 342 |
| 7 | 399 |
| 8 | 456 |
| 9 | 513 |

56

|   |     |
|---|-----|
| 1 | 56  |
| 2 | 112 |
| 3 | 168 |
| 4 | 224 |
| 5 | 280 |
| 6 | 336 |
| 7 | 392 |
| 8 | 448 |
| 9 | 504 |



| Num.          | 0               | 1           | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mark. |
|---------------|-----------------|-------------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>7840</b>   | <b>894</b> 3161 | 3216        | 3271 | 3327 | 3382 | 3438 | 3493 | 3548 | 3604 | 3659 |       |               |
| 41            | 3715            | 3770        | 3825 | 3881 | 3936 | 3991 | 4047 | 4102 | 4158 | 4213 |       |               |
| 42            | 4268            | 4324        | 4379 | 4435 | 4490 | 4545 | 4601 | 4656 | 4711 | 4767 |       |               |
| 43            | 4822            | 4878        | 4933 | 4988 | 5044 | 5099 | 5154 | 5210 | 5265 | 5320 |       |               |
| 44            | 5376            | 5431        | 5487 | 5542 | 5597 | 5653 | 5708 | 5763 | 5819 | 5874 |       |               |
| 45            | 5929            | 5985        | 6040 | 6096 | 6151 | 6206 | 6262 | 6317 | 6372 | 6428 |       |               |
| 46            | 6483            | 6538        | 6594 | 6649 | 6704 | 6760 | 6815 | 6870 | 6926 | 6981 |       |               |
| 47            | 7037            | 7092        | 7147 | 7203 | 7258 | 7313 | 7369 | 7424 | 7479 | 7535 |       |               |
| 48            | 7590            | 7645        | 7701 | 7756 | 7811 | 7867 | 7922 | 7977 | 8033 | 8088 |       |               |
| 49            | 8143            | 8199        | 8254 | 8309 | 8365 | 8420 | 8475 | 8531 | 8586 | 8641 |       |               |
| <b>78 50</b>  | <b>8697</b>     | 8752        | 8807 | 8863 | 8918 | 8973 | 9028 | 9084 | 9139 | 9194 |       | 1   56        |
| 51            | 9250            | 9305        | 9360 | 9416 | 9471 | 9526 | 9582 | 9637 | 9692 | 9748 |       | 2   112       |
| 52            | * 9803          | 9858        | 9914 | 9969 | *024 | 0079 | 0135 | 0190 | 0245 | 0301 |       | 3   168       |
| 53            | <b>895</b> 0356 | 0411        | 0467 | 0522 | 0577 | 0632 | 0688 | 0743 | 0798 | 0854 |       | 4   224       |
| 54            | 0909            | 0964        | 1020 | 1075 | 1130 | 1185 | 1241 | 1296 | 1351 | 1407 |       | 5   280       |
| 55            | 1462            | 1517        | 1572 | 1628 | 1683 | 1738 | 1794 | 1849 | 1904 | 1959 |       | 6   336       |
| 56            | 2015            | 2070        | 2125 | 2181 | 2236 | 2291 | 2346 | 2402 | 2457 | 2512 |       | 7   392       |
| 57            | 2568            | 2623        | 2678 | 2733 | 2789 | 2844 | 2899 | 2954 | 3010 | 3065 |       | 8   448       |
| 58            | 3120            | 3176        | 3231 | 3286 | 3341 | 3397 | 3452 | 3507 | 3562 | 3618 |       | 9   504       |
| 59            | 3673            | 3728        | 3783 | 3839 | 3894 | 3949 | 4004 | 4060 | 4115 | 4170 |       |               |
| <b>78 60</b>  | <b>4225</b>     | 4281        | 4336 | 4391 | 4446 | 4502 | 4557 | 4612 | 4667 | 4723 |       |               |
| 61            | 4778            | 4833        | 4888 | 4944 | 4999 | 5054 | 5109 | 5165 | 5220 | 5275 |       |               |
| 62            | 5330            | 5386        | 5441 | 5496 | 5551 | 5607 | 5662 | 5717 | 5772 | 5828 |       |               |
| 63            | 5883            | 5938        | 5993 | 6048 | 6104 | 6159 | 6214 | 6269 | 6325 | 6380 |       |               |
| 64            | 6435            | 6490        | 6545 | 6601 | 6656 | 6711 | 6766 | 6822 | 6877 | 6932 |       |               |
| 65            | 6987            | 7042        | 7098 | 7153 | 7208 | 7263 | 7319 | 7374 | 7429 | 7484 |       |               |
| 66            | 7539            | 7595        | 7650 | 7705 | 7760 | 7815 | 7871 | 7926 | 7981 | 8036 |       |               |
| 67            | 8092            | 8147        | 8202 | 8257 | 8312 | 8368 | 8423 | 8478 | 8533 | 8588 |       |               |
| 68            | <b>8644</b>     | <b>8699</b> | 8754 | 8809 | 8864 | 8919 | 8975 | 9030 | 9085 | 9140 |       |               |
| 69            | 9195            | 9251        | 9306 | 9361 | 9416 | 9471 | 9527 | 9582 | 9637 | 9692 |       |               |
| <b>78 70</b>  | <b>* 9747</b>   | 9803        | 9858 | 9913 | 9968 | *023 | 0078 | 0134 | 0189 | 0244 |       |               |
| 71            | <b>896</b> 0299 | 0354        | 0409 | 0465 | 0520 | 0575 | 0630 | 0685 | 0741 | 0796 |       |               |
| 72            | 0851            | 0906        | 0961 | 1016 | 1072 | 1127 | 1182 | 1237 | 1292 | 1347 |       |               |
| 73            | 1403            | 1458        | 1513 | 1568 | 1623 | 1678 | 1733 | 1789 | 1844 | 1899 |       |               |
| 74            | 1954            | 2009        | 2064 | 2120 | 2175 | 2230 | 2285 | 2340 | 2395 | 2450 |       |               |
| 75            | 2506            | 2561        | 2616 | 2671 | 2726 | 2781 | 2837 | 2892 | 2947 | 3002 |       |               |
| 76            | 3057            | 3112        | 3167 | 3222 | 3278 | 3333 | 3388 | 3443 | 3498 | 3553 |       |               |
| 77            | 3608            | 3664        | 3719 | 3774 | 3829 | 3884 | 3939 | 3994 | 4050 | 4105 |       |               |
| 78            | 4160            | 4215        | 4270 | 4325 | 4380 | 4435 | 4491 | 4546 | 4601 | 4656 |       |               |
| 79            | 4711            | 4766        | 4821 | 4876 | 4931 | 4987 | 5042 | 5097 | 5152 | 5207 |       |               |
| <b>78 80</b>  | <b>5262</b>     | 5317        | 5372 | 5428 | 5483 | 5538 | 5593 | 5648 | 5703 | 5758 |       |               |
| 81            | 5813            | 5868        | 5923 | 5979 | 6034 | 6089 | 6144 | 6199 | 6254 | 6309 |       |               |
| 82            | 6364            | 6419        | 6475 | 6530 | 6585 | 6640 | 6695 | 6750 | 6805 | 6860 |       | 1   55        |
| 83            | 6915            | 6970        | 7025 | 7081 | 7136 | 7191 | 7246 | 7301 | 7356 | 7411 |       | 2   110       |
| 84            | 7466            | 7521        | 7576 | 7631 | 7686 | 7742 | 7797 | 7852 | 7907 | 7962 |       | 3   165       |
| 85            | 8017            | 8072        | 8127 | 8182 | 8237 | 8292 | 8347 | 8403 | 8458 | 8513 |       | 4   220       |
| 86            | 8568            | 8623        | 8678 | 8733 | 8788 | 8843 | 8898 | 8953 | 9008 | 9063 |       | 5   275       |
| 87            | 9118            | 9173        | 9229 | 9284 | 9339 | 9394 | 9449 | 9504 | 9559 | 9614 |       | 6   330       |
| 88            | * 9669          | 9724        | 9779 | 9834 | 9889 | 9944 | 9999 | *054 | 0109 | 0165 |       | 7   385       |
| 89            | <b>897</b> 0220 | 0275        | 0330 | 0385 | 0440 | 0495 | 0550 | 0605 | 0660 | 0715 |       | 8   440       |
| <b>78 90</b>  | <b>0770</b>     | 0825        | 0880 | 0935 | 0990 | 1045 | 1100 | 1155 | 1210 | 1265 |       | 9   495       |
| 91            | 1320            | 1375        | 1431 | 1486 | 1541 | 1596 | 1651 | 1706 | 1761 | 1816 |       |               |
| 92            | 1871            | 1926        | 1981 | 2036 | 2091 | 2146 | 2201 | 2256 | 2311 | 2366 |       |               |
| 93            | 2421            | 2476        | 2531 | 2586 | 2641 | 2696 | 2751 | 2806 | 2861 | 2916 |       |               |
| 94            | 2971            | 3026        | 3081 | 3136 | 3191 | 3246 | 3301 | 3356 | 3411 | 3466 |       |               |
| 95            | 3521            | 3576        | 3631 | 3686 | 3741 | 3796 | 3851 | 3906 | 3961 | 4016 |       |               |
| 96            | 4071            | 4126        | 4181 | 4236 | 4291 | 4346 | 4401 | 4456 | 4511 | 4566 |       |               |
| 97            | 4621            | 4676        | 4731 | 4786 | 4841 | 4896 | 4951 | 5006 | 5061 | 5116 |       |               |
| 98            | 5171            | 5226        | 5281 | 5336 | 5391 | 5446 | 5501 | 5556 | 5611 | 5666 |       |               |
| 99            | 5721            | 5776        | 5831 | 5886 | 5941 | 5996 | 6051 | 6106 | 6161 | 6216 |       |               |
| Diff.         |                 |             |      |      |      |      |      |      |      |      | 55    |               |
| Diff. & Mark. |                 |             |      |      |      |      |      |      |      |      |       |               |
| Num.          | 0               | 1           | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mark. |

| Num.        | 0               | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|-------------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>7900</b> | <b>897</b> 6271 | 6326     | 6381     | 6436     | 6491     | 6546     | 6601     | 6656     | 6711     | 6766     |              |                          |
| 01          | 6821            | 6876     | 6931     | 6986     | 7040     | 7095     | 7150     | 7205     | 7260     | 7315     |              |                          |
| 02          | 7370            | 7425     | 7480     | 7535     | 7590     | 7645     | 7700     | 7755     | 7810     | 7865     |              |                          |
| 03          | 7920            | 7975     | 8030     | 8085     | 8140     | 8195     | 8250     | 8304     | 8359     | 8414     |              |                          |
| 04          | 8469            | 8524     | 8579     | 8634     | 8689     | 8744     | 8799     | 8854     | 8909     | 8964     |              |                          |
| 05          | 9019            | 9074     | 9129     | 9184     | 9238     | 9293     | 9348     | 9403     | 9458     | 9513     |              |                          |
| 06          | * 9568          | 9623     | 9678     | 9733     | 9788     | 9843     | 9898     | 9953     | 10008    | 10062    |              |                          |
| 07          | 898 0117        | 0172     | 0227     | 0282     | 0337     | 0392     | 0447     | 0502     | 0557     | 0612     |              |                          |
| 08          | 0667            | 0722     | 0776     | 0831     | 0886     | 0941     | 0996     | 1051     | 1106     | 1161     |              |                          |
| 09          | 1216            | 1271     | 1326     | 1380     | 1435     | 1490     | 1545     | 1600     | 1655     | 1710     |              |                          |
| <b>7910</b> | 1765            | 1820     | 1875     | 1930     | 1984     | 2039     | 2094     | 2149     | 2204     | 2259     | 1            | 55                       |
| 11          | 2314            | 2369     | 2424     | 2479     | 2533     | 2588     | 2643     | 2698     | 2753     | 2808     | 2            | 110                      |
| 12          | 2863            | 2918     | 2973     | 3027     | 3082     | 3137     | 3192     | 3247     | 3302     | 3357     | 3            | 165                      |
| 13          | 3412            | 3467     | 3521     | 3576     | 3631     | 3686     | 3741     | 3796     | 3851     | 3906     | 4            | 220                      |
| 14          | 3960            | 4015     | 4070     | 4125     | 4180     | 4235     | 4290     | 4345     | 4399     | 4454     | 5            | 275                      |
| 15          | 4509            | 4564     | 4619     | 4674     | 4729     | 4784     | 4838     | 4893     | 4948     | 5003     | 6            | 330                      |
| 16          | 5058            | 5113     | 5168     | 5222     | 5277     | 5332     | 5387     | 5442     | 5497     | 5552     | 7            | 385                      |
| 17          | 5606            | 5661     | 5716     | 5771     | 5826     | 5881     | 5936     | 5990     | 6045     | 6100     | 8            | 440                      |
| 18          | 6155            | 6210     | 6265     | 6320     | 6374     | 6429     | 6484     | 6539     | 6594     | 6649     | 9            | 495                      |
| 19          | 6703            | 6758     | 6813     | 6868     | 6923     | 6978     | 7032     | 7087     | 7142     | 7197     |              |                          |
| <b>7920</b> | 7252            | 7307     | 7361     | 7416     | 7471     | 7526     | 7581     | 7636     | 7690     | 7745     |              |                          |
| 21          | 7800            | 7855     | 7910     | 7965     | 8019     | 8074     | 8129     | 8184     | 8239     | 8294     |              |                          |
| 22          | 8348            | 8403     | 8458     | 8513     | 8568     | 8622     | 8677     | 8732     | 8787     | 8842     |              |                          |
| 23          | 8897            | 8951     | 9006     | 9061     | 9116     | 9171     | 9225     | 9280     | 9335     | 9390     |              |                          |
| 24          | 9445            | 9499     | 9554     | 9609     | 9664     | 9719     | 9774     | 9828     | 9883     | 9938     |              |                          |
| 25          | * 9993          | 0048     | 0102     | 0157     | 0212     | 0267     | 0321     | 0376     | 0431     | 0486     |              |                          |
| 26          | 899 0541        | 0595     | 0650     | 0705     | 0760     | 0815     | 0869     | 0924     | 0979     | 1034     |              |                          |
| 27          | 1089            | 1143     | 1198     | 1253     | 1308     | 1363     | 1417     | 1472     | 1527     | 1582     |              |                          |
| 28          | 1636            | 1691     | 1746     | 1801     | 1856     | 1910     | 1965     | 2020     | 2075     | 2129     |              |                          |
| 29          | 2184            | 2239     | 2294     | 2348     | 2403     | 2458     | 2513     | 2568     | 2622     | 2677     |              |                          |
| <b>7930</b> | 2732            | 2787     | 2841     | 2896     | 2951     | 3006     | 3060     | 3115     | 3170     | 3225     |              |                          |
| 31          | 3279            | 3334     | 3389     | 3444     | 3499     | 3553     | 3608     | 3663     | 3718     | 3772     |              |                          |
| 32          | 3827            | 3882     | 3937     | 3991     | 4046     | 4101     | 4156     | 4211     | 4265     | 4320     |              |                          |
| 33          | 4375            | 4429     | 4484     | 4539     | 4594     | 4648     | 4703     | 4758     | 4812     | 4867     |              |                          |
| 34          | 4922            | 4977     | 5031     | 5086     | 5141     | 5196     | 5250     | 5305     | 5360     | 5415     |              |                          |
| 35          | 5469            | 5524     | 5579     | 5634     | 5688     | 5743     | 5798     | 5852     | 5907     | 5962     |              |                          |
| 36          | 6017            | 6071     | 6126     | 6181     | 6235     | 6290     | 6345     | 6400     | 6454     | 6509     |              |                          |
| 37          | 6564            | 6619     | 6673     | 6728     | 6783     | 6837     | 6892     | 6947     | 7002     | 7056     |              |                          |
| 38          | 7111            | 7166     | 7220     | 7275     | 7330     | 7384     | 7439     | 7494     | 7549     | 7603     |              |                          |
| 39          | 7658            | 7713     | 7767     | 7822     | 7877     | 7932     | 7986     | 8041     | 8096     | 8150     |              |                          |
| <b>7940</b> | 8205            | 8260     | 8314     | 8369     | 8424     | 8479     | 8533     | 8588     | 8643     | 8697     |              |                          |
| 41          | 8752            | 8807     | 8861     | 8916     | 8971     | 9025     | 9080     | 9135     | 9189     | 9244     |              |                          |
| 42          | 9299            | 9354     | 9408     | 9463     | 9518     | 9572     | 9627     | 9682     | 9736     | 9791     | 1            | 54                       |
| 43          | * 9846          | 9900     | 9955     | 10010    | 10064    | 0119     | 0174     | 0228     | 0283     | 0338     | 2            | 108                      |
| 44          | 900 0392        | 0447     | 0502     | 0556     | 0611     | 0666     | 0720     | 0775     | 0830     | 0884     | 3            | 162                      |
| 45          | 0939            | 0994     | 1048     | 1103     | 1158     | 1212     | 1267     | 1322     | 1376     | 1431     | 4            | 216                      |
| 46          | 1486            | 1540     | 1595     | 1650     | 1704     | 1759     | 1814     | 1868     | 1923     | 1977     | 5            | 270                      |
| 47          | 2032            | 2087     | 2141     | 2196     | 2251     | 2305     | 2360     | 2415     | 2469     | 2524     | 6            | 324                      |
| 48          | 2579            | 2633     | 2688     | 2743     | 2797     | 2852     | 2906     | 2961     | 3016     | 3070     | 7            | 378                      |
| 49          | 3125            | 3180     | 3234     | 3289     | 3344     | 3398     | 3453     | 3507     | 3562     | 3617     | 8            | 432                      |
| <b>7950</b> | 3671            | 3726     | 3781     | 3835     | 3890     | 3944     | 3999     | 4054     | 4108     | 4163     | 9            | 486                      |
| 51          | 4218            | 4272     | 4327     | 4381     | 4436     | 4491     | 4545     | 4600     | 4654     | 4709     |              |                          |
| 52          | 4764            | 4818     | 4873     | 4928     | 4982     | 5037     | 5091     | 5146     | 5201     | 5255     |              |                          |
| 53          | 5310            | 5364     | 5419     | 5474     | 5528     | 5583     | 5637     | 5692     | 5747     | 5801     |              |                          |
| 54          | 5856            | 5910     | 5965     | 6020     | 6074     | 6129     | 6183     | 6238     | 6293     | 6347     |              |                          |
| 55          | 6402            | 6456     | 6511     | 6566     | 6620     | 6675     | 6729     | 6784     | 6839     | 6893     |              |                          |
| 56          | 6948            | 7002     | 7057     | 7112     | 7166     | 7221     | 7275     | 7330     | 7384     | 7439     |              |                          |
| 57          | 7494            | 7548     | 7603     | 7657     | 7712     | 7766     | 7821     | 7876     | 7930     | 7985     |              |                          |
| 58          | 8039            | 8094     | 8148     | 8203     | 8258     | 8312     | 8367     | 8421     | 8476     | 8530     |              |                          |
| 59          | 8585            | 8640     | 8694     | 8749     | 8803     | 8858     | 8912     | 8967     | 9021     | 9076     |              |                          |
| <b>Num.</b> | <b>0</b>        | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |

| Num.         | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|--------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>7960</b>  | <b>900</b> | 9131     | 9185     | 9240     | 9294     | 9349     | 9403     | 9458     | 9513     | 9567     | 9622         |                          |
| 61           | *          | 9676     | 9731     | 9785     | 9840     | 9894     | 9949     | 10004    | 10058    | 10113    | 10167        |                          |
| 62           | 901        | 0222     | 0276     | 0331     | 0385     | 0440     | 0494     | 0549     | 0604     | 0658     | 0713         |                          |
| 63           |            | 0767     | 0822     | 0876     | 0931     | 0985     | 1040     | 1094     | 1149     | 1203     | 1258         |                          |
| 64           |            | 1313     | 1367     | 1422     | 1476     | 1531     | 1585     | 1640     | 1694     | 1749     | 1803         |                          |
| 65           |            | 1858     | 1912     | 1967     | 2021     | 2076     | 2130     | 2185     | 2239     | 2294     | 2349         |                          |
| 66           |            | 2403     | 2458     | 2512     | 2567     | 2621     | 2676     | 2730     | 2785     | 2839     | 2894         |                          |
| 67           |            | 2948     | 3003     | 3057     | 3112     | 3166     | 3221     | 3275     | 3330     | 3384     | 3439         |                          |
| 68           |            | 3493     | 3548     | 3602     | 3657     | 3711     | 3766     | 3820     | 3875     | 3929     | 3984         |                          |
| 69           |            | 4038     | 4093     | 4147     | 4202     | 4256     | 4311     | 4365     | 4420     | 4474     | 4529         |                          |
| <b>7970</b>  |            | 4583     | 4638     | 4692     | 4747     | 4801     | 4856     | 4910     | 4965     | 5019     | 5074         |                          |
| 71           |            | 5128     | 5183     | 5237     | 5292     | 5346     | 5401     | 5455     | 5509     | 5564     | 5618         |                          |
| 72           |            | 5673     | 5727     | 5782     | 5836     | 5891     | 5945     | 6000     | 6054     | 6109     | 6163         |                          |
| 73           |            | 6218     | 6272     | 6327     | 6381     | 6436     | 6490     | 6544     | 6599     | 6653     | 6708         |                          |
| 74           |            | 6762     | 6817     | 6871     | 6926     | 6980     | 7035     | 7089     | 7144     | 7198     | 7252         |                          |
| 75           |            | 7307     | 7361     | 7416     | 7470     | 7525     | 7579     | 7634     | 7688     | 7743     | 7797         |                          |
| 76           |            | 7851     | 7906     | 7960     | 8015     | 8069     | 8124     | 8178     | 8233     | 8287     | 8341         |                          |
| 77           |            | 8396     | 8450     | 8505     | 8559     | 8614     | 8668     | 8723     | 8777     | 8831     | 8886         |                          |
| 78           |            | 8940     | 8995     | 9049     | 9104     | 9158     | 9212     | 9267     | 9321     | 9376     | 9430         |                          |
| 79           |            | 9485     | 9539     | 9594     | 9648     | 9702     | 9757     | 9811     | 9866     | 9920     | 9974         |                          |
| <b>7980</b>  | <b>902</b> | 0029     | 0083     | 0138     | 0192     | 0247     | 0301     | 0355     | 0410     | 0464     | 0519         |                          |
| 81           |            | 0573     | 0628     | 0682     | 0736     | 0791     | 0845     | 0900     | 0954     | 1008     | 1063         |                          |
| 82           |            | 1117     | 1172     | 1226     | 1280     | 1335     | 1389     | 1444     | 1498     | 1552     | 1607         |                          |
| 83           |            | 1661     | 1716     | 1770     | 1824     | 1879     | 1933     | 1988     | 2042     | 2096     | 2151         |                          |
| 84           |            | 2205     | 2260     | 2314     | 2368     | 2423     | 2477     | 2532     | 2586     | 2640     | 2695         |                          |
| 85           |            | 2749     | 2804     | 2858     | 2912     | 2967     | 3021     | 3076     | 3130     | 3184     | 3239         |                          |
| 86           |            | 3293     | 3347     | 3402     | 3456     | 3511     | 3565     | 3619     | 3674     | 3728     | 3782         |                          |
| 87           |            | 3837     | 3891     | 3946     | 4000     | 4054     | 4109     | 4163     | 4217     | 4272     | 4326         |                          |
| 88           |            | 4381     | 4435     | 4489     | 4544     | 4598     | 4652     | 4707     | 4761     | 4815     | 4870         |                          |
| 89           |            | 4924     | 4979     | 5033     | 5087     | 5142     | 5196     | 5250     | 5305     | 5359     | 5413         |                          |
| <b>7990</b>  |            | 5468     | 5522     | 5577     | 5631     | 5685     | 5740     | 5794     | 5848     | 5903     | 5957         |                          |
| 91           |            | 6011     | 6066     | 6120     | 6174     | 6229     | 6283     | 6337     | 6392     | 6446     | 6500         |                          |
| 92           |            | 6555     | 6609     | 6663     | 6718     | 6772     | 6826     | 6881     | 6935     | 6989     | 7044         |                          |
| 93           |            | 7098     | 7152     | 7207     | 7261     | 7315     | 7370     | 7424     | 7478     | 7533     | 7587         |                          |
| 94           |            | 7641     | 7696     | 7750     | 7804     | 7859     | 7913     | 7967     | 8022     | 8076     | 8130         |                          |
| 95           |            | 8185     | 8239     | 8293     | 8348     | 8402     | 8456     | 8511     | 8565     | 8619     | 8674         |                          |
| 96           |            | 8728     | 8782     | 8836     | 8891     | 8945     | 8999     | 9054     | 9108     | 9162     | 9217         |                          |
| 97           |            | 9271     | 9325     | 9380     | 9434     | 9488     | 9542     | 9597     | 9651     | 9705     | 9760         |                          |
| 98           | *          | 9814     | 9868     | 9923     | 9977     | 10031    | 0085     | 0140     | 0194     | 0248     | 0303         |                          |
| 99           | 903        | 0357     | 0411     | 0466     | 0520     | 0574     | 0628     | 0683     | 0737     | 0791     | 0846         |                          |
| <b>80 00</b> |            | 0900     | 0954     | 1008     | 1063     | 1117     | 1171     | 1226     | 1280     | 1334     | 1388         |                          |
| 01           |            | 1443     | 1497     | 1551     | 1606     | 1660     | 1714     | 1768     | 1823     | 1877     | 1931         |                          |
| 02           |            | 1985     | 2040     | 2094     | 2148     | 2203     | 2257     | 2311     | 2365     | 2420     | 2474         |                          |
| 03           |            | 2528     | 2582     | 2637     | 2691     | 2745     | 2799     | 2854     | 2908     | 2962     | 3017         |                          |
| 04           |            | 3071     | 3125     | 3179     | 3234     | 3288     | 3342     | 3396     | 3451     | 3505     | 3559         |                          |
| 05           |            | 3613     | 3668     | 3722     | 3776     | 3830     | 3885     | 3939     | 3993     | 4047     | 4102         |                          |
| 06           |            | 4156     | 4210     | 4264     | 4319     | 4373     | 4427     | 4481     | 4536     | 4590     | 4644         |                          |
| 07           |            | 4698     | 4753     | 4807     | 4861     | 4915     | 4969     | 5024     | 5078     | 5132     | 5186         |                          |
| 08           |            | 5241     | 5295     | 5349     | 5403     | 5458     | 5512     | 5566     | 5620     | 5674     | 5729         |                          |
| 09           |            | 5783     | 5837     | 5891     | 5946     | 6000     | 6054     | 6108     | 6163     | 6217     | 6271         |                          |
| <b>80 10</b> |            | 6325     | 6379     | 6434     | 6488     | 6542     | 6596     | 6650     | 6705     | 6759     | 6813         |                          |
| 11           |            | 6867     | 6922     | 6976     | 7030     | 7084     | 7138     | 7193     | 7247     | 7301     | 7355         |                          |
| 12           |            | 7409     | 7464     | 7518     | 7572     | 7626     | 7680     | 7735     | 7789     | 7843     | 7897         |                          |
| 13           |            | 7951     | 8006     | 8060     | 8114     | 8168     | 8222     | 8277     | 8331     | 8385     | 8439         |                          |
| 14           |            | 8493     | 8548     | 8602     | 8656     | 8710     | 8764     | 8819     | 8873     | 8927     | 8981         |                          |
| 15           |            | 9035     | 9089     | 9144     | 9198     | 9252     | 9306     | 9360     | 9415     | 9469     | 9523         |                          |
| 16           | *          | 9577     | 9631     | 9685     | 9740     | 9794     | 9848     | 9902     | 9956     | 10010    | 10065        |                          |
| 17           | 904        | 0119     | 0173     | 0227     | 0281     | 0336     | 0390     | 0444     | 0498     | 0552     | 0606         |                          |
| 18           |            | 0661     | 0715     | 0769     | 0823     | 0877     | 0931     | 0985     | 1040     | 1094     | 1148         |                          |
| 19           |            | 1202     | 1256     | 1310     | 1365     | 1419     | 1473     | 1527     | 1581     | 1635     | 1690         |                          |
| <b>Num.</b>  | <b>0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |

|   |     |
|---|-----|
| 1 | 55  |
| 2 | 110 |
| 3 | 165 |
| 4 | 220 |
| 5 | 275 |
| 6 | 330 |
| 7 | 385 |
| 8 | 440 |
| 9 | 495 |

|   |     |
|---|-----|
| 1 | 54  |
| 2 | 108 |
| 3 | 162 |
| 4 | 216 |
| 5 | 270 |
| 6 | 324 |
| 7 | 378 |
| 8 | 432 |
| 9 | 486 |



LOGARITHMS OF NUMBERS.

121

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 8020  | 904 | 1744 | 1798 | 1852 | 1906 | 1960 | 2014 | 2069 | 2123 | 2177 | 2231  |               |
| 21    |     | 2285 | 2339 | 2393 | 2448 | 2502 | 2556 | 2610 | 2664 | 2718 | 2772  |               |
| 22    |     | 2827 | 2881 | 2935 | 2989 | 3043 | 3097 | 3151 | 3206 | 3260 | 3314  |               |
| 23    |     | 3368 | 3422 | 3476 | 3530 | 3584 | 3639 | 3693 | 3747 | 3801 | 3855  |               |
| 24    |     | 3909 | 3963 | 4017 | 4072 | 4126 | 4180 | 4234 | 4288 | 4342 | 4396  |               |
| 25    |     | 4450 | 4505 | 4559 | 4613 | 4667 | 4721 | 4775 | 4829 | 4883 | 4937  |               |
| 26    |     | 4992 | 5046 | 5100 | 5154 | 5208 | 5262 | 5316 | 5370 | 5424 | 5479  |               |
| 27    |     | 5533 | 5587 | 5641 | 5695 | 5749 | 5803 | 5857 | 5911 | 5965 | 6020  |               |
| 28    |     | 6074 | 6128 | 6182 | 6236 | 6290 | 6344 | 6398 | 6452 | 6506 | 6560  |               |
| 29    |     | 6615 | 6669 | 6723 | 6777 | 6831 | 6885 | 6939 | 6993 | 7047 | 7101  |               |
| 80 30 |     | 7155 | 7210 | 7264 | 7318 | 7372 | 7426 | 7480 | 7534 | 7588 | 7642  |               |
| 31    |     | 7696 | 7750 | 7804 | 7858 | 7912 | 7967 | 8021 | 8075 | 8129 | 8183  |               |
| 32    |     | 8237 | 8291 | 8345 | 8399 | 8453 | 8507 | 8561 | 8615 | 8670 | 8724  |               |
| 33    |     | 8778 | 8832 | 8886 | 8940 | 8994 | 9048 | 9102 | 9156 | 9210 | 9264  |               |
| 34    |     | 9318 | 9372 | 9426 | 9480 | 9534 | 9589 | 9643 | 9697 | 9751 | 9805  |               |
| 35    | *   | 9859 | 9913 | 9967 | 0021 | 0075 | 0129 | 0183 | 0237 | 0291 | 0345  |               |
| 36    | 905 | 0399 | 0453 | 0507 | 0561 | 0615 | 0669 | 0724 | 0778 | 0832 | 0886  |               |
| 37    |     | 0940 | 0994 | 1048 | 1102 | 1156 | 1210 | 1264 | 1318 | 1372 | 1426  |               |
| 38    |     | 1480 | 1534 | 1588 | 1642 | 1696 | 1750 | 1804 | 1858 | 1912 | 1966  |               |
| 39    |     | 2020 | 2074 | 2128 | 2182 | 2236 | 2290 | 2344 | 2398 | 2452 | 2506  |               |
| 80 40 |     | 2560 | 2615 | 2669 | 2723 | 2777 | 2831 | 2885 | 2939 | 2993 | 3047  |               |
| 41    |     | 3101 | 3155 | 3209 | 3263 | 3317 | 3371 | 3425 | 3479 | 3533 | 3587  |               |
| 42    |     | 3641 | 3695 | 3749 | 3803 | 3857 | 3911 | 3965 | 4019 | 4073 | 4127  |               |
| 43    |     | 4181 | 4235 | 4289 | 4343 | 4397 | 4451 | 4505 | 4559 | 4613 | 4667  |               |
| 44    |     | 4721 | 4775 | 4829 | 4883 | 4937 | 4991 | 5045 | 5099 | 5153 | 5207  |               |
| 45    |     | 5260 | 5314 | 5368 | 5422 | 5476 | 5530 | 5584 | 5638 | 5692 | 5746  |               |
| 46    |     | 5800 | 5854 | 5908 | 5962 | 6016 | 6070 | 6124 | 6178 | 6232 | 6286  |               |
| 47    |     | 6340 | 6394 | 6448 | 6502 | 6556 | 6610 | 6664 | 6718 | 6772 | 6826  |               |
| 48    |     | 6880 | 6934 | 6988 | 7042 | 7096 | 7149 | 7203 | 7257 | 7311 | 7365  |               |
| 49    |     | 7419 | 7473 | 7527 | 7581 | 7635 | 7689 | 7743 | 7797 | 7851 | 7905  |               |
| 80 50 |     | 7959 | 8013 | 8067 | 8121 | 8175 | 8229 | 8283 | 8336 | 8390 | 8444  |               |
| 51    |     | 8498 | 8552 | 8606 | 8660 | 8714 | 8768 | 8822 | 8876 | 8930 | 8984  |               |
| 52    |     | 9038 | 9092 | 9146 | 9199 | 9253 | 9307 | 9361 | 9415 | 9469 | 9523  |               |
| 53    | *   | 9577 | 9631 | 9685 | 9739 | 9793 | 9847 | 9901 | 9954 | 0008 | 0062  |               |
| 54    | 906 | 0116 | 0170 | 0224 | 0278 | 0332 | 0386 | 0440 | 0494 | 0548 | 0602  |               |
| 55    |     | 0655 | 0709 | 0763 | 0817 | 0871 | 0925 | 0979 | 1033 | 1087 | 1141  |               |
| 56    |     | 1195 | 1248 | 1302 | 1356 | 1410 | 1464 | 1518 | 1572 | 1626 | 1680  |               |
| 57    |     | 1734 | 1788 | 1841 | 1895 | 1949 | 2003 | 2057 | 2111 | 2165 | 2219  |               |
| 58    |     | 2273 | 2327 | 2380 | 2434 | 2488 | 2542 | 2596 | 2650 | 2704 | 2758  |               |
| 59    |     | 2812 | 2865 | 2919 | 2973 | 3027 | 3081 | 3135 | 3189 | 3243 | 3297  |               |
| 80 60 |     | 3350 | 3404 | 3458 | 3512 | 3566 | 3620 | 3674 | 3728 | 3781 | 3835  |               |
| 61    |     | 3889 | 3943 | 3997 | 4051 | 4105 | 4159 | 4212 | 4266 | 4320 | 4374  |               |
| 62    |     | 4428 | 4482 | 4536 | 4590 | 4644 | 4697 | 4751 | 4805 | 4859 | 4913  |               |
| 63    |     | 4967 | 5020 | 5074 | 5128 | 5182 | 5236 | 5290 | 5344 | 5397 | 5451  |               |
| 64    |     | 5505 | 5559 | 5613 | 5667 | 5721 | 5774 | 5828 | 5882 | 5936 | 5990  |               |
| 65    |     | 6044 | 6098 | 6151 | 6205 | 6259 | 6313 | 6367 | 6421 | 6474 | 6528  |               |
| 66    |     | 6582 | 6636 | 6690 | 6744 | 6798 | 6851 | 6905 | 6959 | 7013 | 7067  |               |
| 67    |     | 7121 | 7174 | 7228 | 7282 | 7336 | 7390 | 7444 | 7497 | 7551 | 7605  |               |
| 68    |     | 7659 | 7713 | 7767 | 7820 | 7874 | 7928 | 7982 | 8036 | 8090 | 8143  |               |
| 69    |     | 8197 | 8251 | 8305 | 8359 | 8412 | 8466 | 8520 | 8574 | 8628 | 8682  |               |
| 80 70 |     | 8735 | 8789 | 8843 | 8897 | 8951 | 9004 | 9058 | 9112 | 9166 | 9220  |               |
| 71    |     | 9273 | 9327 | 9381 | 9435 | 9489 | 9543 | 9596 | 9650 | 9704 | 9758  |               |
| 72    | *   | 9812 | 9865 | 9919 | 9973 | 0027 | 0081 | 0134 | 0188 | 0242 | 0296  |               |
| 73    | 907 | 0350 | 0403 | 0457 | 0511 | 0565 | 0618 | 0672 | 0726 | 0780 | 0834  |               |
| 74    |     | 0887 | 0941 | 0995 | 1049 | 1103 | 1156 | 1210 | 1264 | 1318 | 1372  |               |
| 75    |     | 1425 | 1479 | 1533 | 1587 | 1640 | 1694 | 1748 | 1802 | 1856 | 1909  |               |
| 76    |     | 1963 | 2017 | 2071 | 2124 | 2178 | 2232 | 2286 | 2340 | 2393 | 2447  |               |
| 77    |     | 2501 | 2555 | 2608 | 2662 | 2716 | 2770 | 2823 | 2877 | 2931 | 2985  |               |
| 78    |     | 3038 | 3092 | 3146 | 3200 | 3254 | 3307 | 3361 | 3415 | 3469 | 3522  |               |
| 79    |     | 3576 | 3630 | 3684 | 3737 | 3791 | 3845 | 3899 | 3952 | 4006 | 4060  |               |

|   |     |
|---|-----|
| 1 | 54  |
| 2 | 108 |
| 3 | 162 |
| 4 | 216 |
| 5 | 270 |
| 6 | 324 |
| 7 | 378 |
| 8 | 432 |
| 9 | 486 |

54

|   |     |
|---|-----|
| 1 | 53  |
| 2 | 106 |
| 3 | 159 |
| 4 | 212 |
| 5 | 265 |
| 6 | 318 |
| 7 | 371 |
| 8 | 424 |
| 9 | 477 |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Meth. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>8080</b> | <b>907</b> | 4114 | 4167 | 4221 | 4275 | 4329 | 4382 | 4436 | 4490 | 4544 | 4597  |               |
| 81          |            | 4651 | 4705 | 4759 | 4812 | 4866 | 4920 | 4974 | 5027 | 5081 | 5135  |               |
| 82          |            | 5188 | 5242 | 5296 | 5350 | 5403 | 5457 | 5511 | 5565 | 5618 | 5672  |               |
| 83          |            | 5726 | 5780 | 5833 | 5887 | 5941 | 5994 | 6048 | 6102 | 6156 | 6209  |               |
| 84          |            | 6263 | 6317 | 6370 | 6424 | 6478 | 6532 | 6585 | 6639 | 6693 | 6747  |               |
| 85          |            | 6800 | 6854 | 6908 | 6961 | 7015 | 7069 | 7123 | 7176 | 7230 | 7284  |               |
| 86          |            | 7337 | 7391 | 7445 | 7498 | 7552 | 7606 | 7660 | 7713 | 7767 | 7821  |               |
| 87          |            | 7874 | 7928 | 7982 | 8036 | 8089 | 8143 | 8197 | 8250 | 8304 | 8358  |               |
| 88          |            | 8411 | 8465 | 8519 | 8573 | 8626 | 8680 | 8734 | 8787 | 8841 | 8895  |               |
| 89          |            | 8948 | 9002 | 9056 | 9109 | 9163 | 9217 | 9270 | 9324 | 9378 | 9432  |               |
| 80 90       |            | 9485 | 9539 | 9593 | 9646 | 9700 | 9754 | 9807 | 9861 | 9915 | 9968  | 1   54        |
| 91          | 908        | 0022 | 0076 | 0129 | 0183 | 0237 | 0290 | 0344 | 0398 | 0451 | 0505  | 2   108       |
| 92          |            | 0559 | 0612 | 0666 | 0720 | 0773 | 0827 | 0881 | 0934 | 0988 | 1042  | 3   162       |
| 93          |            | 1095 | 1149 | 1203 | 1256 | 1310 | 1364 | 1417 | 1471 | 1525 | 1578  | 4   216       |
| 94          |            | 1632 | 1686 | 1739 | 1793 | 1847 | 1900 | 1954 | 2008 | 2061 | 2115  | 5   270       |
| 95          |            | 2169 | 2222 | 2276 | 2329 | 2383 | 2437 | 2490 | 2544 | 2598 | 2651  | 6   324       |
| 96          |            | 2705 | 2759 | 2812 | 2866 | 2920 | 2973 | 3027 | 3080 | 3134 | 3188  | 7   378       |
| 97          |            | 3241 | 3295 | 3349 | 3402 | 3456 | 3510 | 3563 | 3617 | 3670 | 3724  | 8   432       |
| 98          |            | 3778 | 3831 | 3885 | 3939 | 3992 | 4046 | 4099 | 4153 | 4207 | 4260  | 9   486       |
| 99          |            | 4314 | 4368 | 4421 | 4475 | 4528 | 4582 | 4636 | 4689 | 4743 | 4797  |               |
| 81 00       |            | 4850 | 4904 | 4957 | 5011 | 5065 | 5118 | 5172 | 5225 | 5279 | 5333  |               |
| 01          |            | 5386 | 5440 | 5494 | 5547 | 5601 | 5654 | 5708 | 5762 | 5815 | 5869  |               |
| 02          |            | 5922 | 5976 | 6030 | 6083 | 6137 | 6190 | 6244 | 6298 | 6351 | 6405  |               |
| 03          |            | 6458 | 6512 | 6566 | 6619 | 6673 | 6726 | 6780 | 6834 | 6887 | 6941  |               |
| 04          |            | 6994 | 7048 | 7102 | 7155 | 7209 | 7262 | 7316 | 7369 | 7423 | 7477  |               |
| 05          |            | 7530 | 7584 | 7637 | 7691 | 7745 | 7798 | 7852 | 7905 | 7959 | 8012  |               |
| 06          |            | 8066 | 8120 | 8173 | 8227 | 8280 | 8334 | 8387 | 8441 | 8495 | 8548  |               |
| 07          |            | 8602 | 8655 | 8709 | 8762 | 8816 | 8870 | 8923 | 8977 | 9030 | 9084  |               |
| 08          |            | 9137 | 9191 | 9245 | 9298 | 9352 | 9405 | 9459 | 9512 | 9566 | 9619  |               |
| 09          | *          | 9673 | 9727 | 9780 | 9834 | 9887 | 9941 | 9994 | +048 | 0101 | 0155  |               |
| 81 10       | 909        | 0209 | 0262 | 0316 | 0369 | 0423 | 0476 | 0530 | 0583 | 0637 | 0690  |               |
| 11          |            | 0744 | 0798 | 0851 | 0905 | 0958 | 1012 | 1065 | 1119 | 1172 | 1226  |               |
| 12          |            | 1279 | 1333 | 1386 | 1440 | 1494 | 1547 | 1601 | 1654 | 1708 | 1761  |               |
| 13          |            | 1815 | 1868 | 1922 | 1975 | 2029 | 2082 | 2136 | 2189 | 2243 | 2297  |               |
| 14          |            | 2350 | 2404 | 2457 | 2511 | 2564 | 2618 | 2671 | 2725 | 2778 | 2832  |               |
| 15          |            | 2885 | 2939 | 2992 | 3046 | 3099 | 3153 | 3206 | 3260 | 3313 | 3367  |               |
| 16          |            | 3420 | 3474 | 3527 | 3581 | 3634 | 3688 | 3741 | 3795 | 3848 | 3902  |               |
| 17          |            | 3955 | 4009 | 4062 | 4116 | 4169 | 4223 | 4276 | 4330 | 4383 | 4437  |               |
| 18          |            | 4490 | 4544 | 4597 | 4651 | 4704 | 4758 | 4811 | 4865 | 4918 | 4972  |               |
| 19          |            | 5025 | 5079 | 5132 | 5186 | 5239 | 5293 | 5346 | 5400 | 5453 | 5507  |               |
| 81 20       |            | 5560 | 5614 | 5667 | 5721 | 5774 | 5828 | 5881 | 5935 | 5988 | 6042  |               |
| 21          |            | 6095 | 6149 | 6202 | 6256 | 6309 | 6362 | 6416 | 6469 | 6523 | 6576  |               |
| 22          |            | 6630 | 6683 | 6737 | 6790 | 6844 | 6897 | 6951 | 7004 | 7058 | 7111  | 1   53        |
| 23          |            | 7165 | 7218 | 7271 | 7325 | 7378 | 7431 | 7485 | 7539 | 7592 | 7646  | 2   106       |
| 24          |            | 7699 | 7753 | 7806 | 7860 | 7913 | 7966 | 8020 | 8073 | 8127 | 8180  | 3   159       |
| 25          |            | 8234 | 8287 | 8341 | 8394 | 8447 | 8501 | 8554 | 8608 | 8661 | 8715  | 4   212       |
| 26          |            | 8768 | 8822 | 8875 | 8929 | 8982 | 9035 | 9089 | 9142 | 9196 | 9249  | 5   265       |
| 27          |            | 9303 | 9356 | 9409 | 9463 | 9516 | 9570 | 9623 | 9677 | 9730 | 9784  | 6   318       |
| 28          | *          | 9837 | 9890 | 9944 | 9997 | +051 | 0104 | 0158 | 0211 | 0264 | 0318  | 7   371       |
| 29          | 910        | 0371 | 0425 | 0478 | 0532 | 0585 | 0638 | 0692 | 0745 | 0799 | 0852  | 8   424       |
| 81 30       |            | 0905 | 0959 | 1012 | 1066 | 1119 | 1173 | 1226 | 1279 | 1333 | 1386  | 9   477       |
| 31          |            | 1440 | 1493 | 1546 | 1600 | 1653 | 1707 | 1760 | 1813 | 1867 | 1920  |               |
| 32          |            | 1974 | 2027 | 2081 | 2134 | 2187 | 2241 | 2294 | 2348 | 2401 | 2454  |               |
| 33          |            | 2508 | 2561 | 2615 | 2668 | 2721 | 2775 | 2828 | 2882 | 2935 | 2988  |               |
| 34          |            | 3042 | 3095 | 3148 | 3202 | 3255 | 3309 | 3362 | 3415 | 3469 | 3522  |               |
| 35          |            | 3576 | 3629 | 3682 | 3736 | 3789 | 3842 | 3896 | 3949 | 4003 | 4056  |               |
| 36          |            | 4109 | 4163 | 4216 | 4270 | 4323 | 4376 | 4430 | 4483 | 4536 | 4590  |               |
| 37          |            | 4643 | 4697 | 4750 | 4803 | 4857 | 4910 | 4963 | 5017 | 5070 | 5123  |               |
| 38          |            | 5177 | 5230 | 5284 | 5337 | 5390 | 5444 | 5497 | 5550 | 5604 | 5657  |               |
| 39          |            | 5710 | 5764 | 5817 | 5871 | 5924 | 5977 | 6031 | 6084 | 6137 | 6191  |               |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Meth. |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 8140  | 910 | 6244 | 6297 | 6351 | 6404 | 6457 | 6511 | 6564 | 6618 | 6671 | 6724  |               |
| 41    |     | 6778 | 6831 | 6884 | 6938 | 6991 | 7044 | 7098 | 7151 | 7204 | 7258  |               |
| 42    |     | 7311 | 7364 | 7418 | 7471 | 7524 | 7578 | 7631 | 7684 | 7738 | 7791  |               |
| 43    |     | 7844 | 7898 | 7951 | 8004 | 8058 | 8111 | 8164 | 8218 | 8271 | 8324  |               |
| 44    |     | 8378 | 8431 | 8484 | 8538 | 8591 | 8644 | 8698 | 8751 | 8804 | 8858  |               |
| 45    |     | 8911 | 8964 | 9018 | 9071 | 9124 | 9177 | 9231 | 9284 | 9337 | 9391  |               |
| 46    |     | 9444 | 9497 | 9551 | 9604 | 9657 | 9711 | 9764 | 9817 | 9871 | 9924  |               |
| 47    | *   | 9977 | 0030 | 0084 | 0137 | 0190 | 0244 | 0297 | 0350 | 0404 | 0457  |               |
| 48    | 911 | 0510 | 0564 | 0617 | 0670 | 0723 | 0777 | 0830 | 0883 | 0937 | 0990  |               |
| 49    |     | 1043 | 1096 | 1150 | 1203 | 1256 | 1310 | 1363 | 1416 | 1470 | 1523  |               |
| 81 50 |     | 1576 | 1629 | 1683 | 1736 | 1789 | 1843 | 1896 | 1949 | 2002 | 2056  | 1 53          |
| 51    |     | 2109 | 2162 | 2215 | 2269 | 2322 | 2375 | 2429 | 2482 | 2535 | 2588  | 2 106         |
| 52    |     | 2642 | 2695 | 2748 | 2802 | 2855 | 2908 | 2961 | 3015 | 3068 | 3121  | 3 159         |
| 53    |     | 3174 | 3228 | 3281 | 3334 | 3387 | 3441 | 3494 | 3547 | 3601 | 3654  | 4 212         |
| 54    |     | 3707 | 3760 | 3814 | 3867 | 3920 | 3973 | 4027 | 4080 | 4133 | 4186  | 5 265         |
| 55    |     | 4240 | 4293 | 4346 | 4399 | 4453 | 4506 | 4559 | 4612 | 4666 | 4719  | 6 318         |
| 56    |     | 4772 | 4825 | 4879 | 4932 | 4985 | 5038 | 5092 | 5145 | 5198 | 5251  | 7 371         |
| 57    |     | 5305 | 5358 | 5411 | 5464 | 5518 | 5571 | 5624 | 5677 | 5731 | 5784  | 8 424         |
| 58    |     | 5837 | 5890 | 5943 | 5997 | 6050 | 6103 | 6156 | 6210 | 6263 | 6316  | 9 477         |
| 59    |     | 6369 | 6423 | 6476 | 6529 | 6582 | 6635 | 6689 | 6742 | 6795 | 6848  |               |
| 81 60 |     | 6902 | 6955 | 7008 | 7061 | 7114 | 7168 | 7221 | 7274 | 7327 | 7381  |               |
| 61    |     | 7434 | 7487 | 7540 | 7593 | 7647 | 7700 | 7753 | 7806 | 7859 | 7913  |               |
| 62    |     | 7966 | 8019 | 8072 | 8126 | 8179 | 8232 | 8285 | 8338 | 8392 | 8445  |               |
| 63    |     | 8498 | 8551 | 8604 | 8658 | 8711 | 8764 | 8817 | 8870 | 8924 | 8977  |               |
| 64    |     | 9030 | 9083 | 9136 | 9190 | 9243 | 9296 | 9349 | 9402 | 9456 | 9509  |               |
| 65    | *   | 9562 | 9615 | 9668 | 9721 | 9775 | 9828 | 9881 | 9934 | 9987 | 0041  |               |
| 66    | 912 | 0094 | 0147 | 0200 | 0253 | 0306 | 0360 | 0413 | 0466 | 0519 | 0572  |               |
| 67    |     | 0626 | 0679 | 0732 | 0785 | 0838 | 0891 | 0945 | 0998 | 1051 | 1104  |               |
| 68    |     | 1157 | 1210 | 1264 | 1317 | 1370 | 1423 | 1476 | 1529 | 1583 | 1636  |               |
| 69    |     | 1689 | 1742 | 1795 | 1848 | 1902 | 1955 | 2008 | 2061 | 2114 | 2167  |               |
| 81 70 |     | 2221 | 2274 | 2327 | 2380 | 2433 | 2486 | 2539 | 2593 | 2646 | 2699  |               |
| 71    |     | 2752 | 2805 | 2858 | 2912 | 2965 | 3018 | 3071 | 3124 | 3177 | 3230  |               |
| 72    |     | 3284 | 3337 | 3390 | 3443 | 3496 | 3549 | 3602 | 3656 | 3709 | 3762  |               |
| 73    |     | 3815 | 3868 | 3921 | 3974 | 4028 | 4081 | 4134 | 4187 | 4240 | 4293  |               |
| 74    |     | 4346 | 4399 | 4453 | 4506 | 4559 | 4612 | 4665 | 4718 | 4771 | 4824  |               |
| 75    |     | 4878 | 4931 | 4984 | 5037 | 5090 | 5143 | 5196 | 5249 | 5303 | 5356  |               |
| 76    |     | 5409 | 5462 | 5515 | 5568 | 5621 | 5674 | 5728 | 5781 | 5834 | 5887  |               |
| 77    |     | 5940 | 5993 | 6046 | 6099 | 6152 | 6205 | 6259 | 6312 | 6365 | 6418  |               |
| 78    |     | 6471 | 6524 | 6577 | 6630 | 6683 | 6737 | 6790 | 6843 | 6896 | 6949  |               |
| 79    |     | 7002 | 7055 | 7108 | 7161 | 7214 | 7268 | 7321 | 7374 | 7427 | 7480  |               |
| 81 80 |     | 7533 | 7586 | 7639 | 7692 | 7745 | 7798 | 7852 | 7905 | 7958 | 8011  |               |
| 81    |     | 8064 | 8117 | 8170 | 8223 | 8276 | 8329 | 8382 | 8436 | 8489 | 8542  |               |
| 82    |     | 8595 | 8648 | 8701 | 8754 | 8807 | 8860 | 8913 | 8966 | 9019 | 9072  | 1 52          |
| 83    |     | 9126 | 9179 | 9232 | 9285 | 9338 | 9391 | 9444 | 9497 | 9550 | 9603  | 2 104         |
| 84    | *   | 9656 | 9709 | 9762 | 9815 | 9868 | 9922 | 9975 | 0028 | 0081 | 0134  | 3 156         |
| 85    | 913 | 0187 | 0240 | 0293 | 0346 | 0399 | 0452 | 0505 | 0558 | 0611 | 0664  | 4 208         |
| 86    |     | 0717 | 0770 | 0824 | 0877 | 0930 | 0983 | 1036 | 1089 | 1142 | 1195  | 5 260         |
| 87    |     | 1248 | 1301 | 1354 | 1407 | 1460 | 1513 | 1566 | 1619 | 1672 | 1725  | 6 312         |
| 88    |     | 1778 | 1831 | 1884 | 1937 | 1990 | 2044 | 2097 | 2150 | 2203 | 2256  | 7 364         |
| 89    |     | 2309 | 2362 | 2415 | 2468 | 2521 | 2574 | 2627 | 2680 | 2733 | 2786  | 8 416         |
| 81 90 |     | 2839 | 2892 | 2945 | 2998 | 3051 | 3104 | 3157 | 3210 | 3263 | 3316  | 9 468         |
| 91    |     | 3369 | 3422 | 3475 | 3528 | 3581 | 3634 | 3687 | 3740 | 3793 | 3846  |               |
| 92    |     | 3899 | 3952 | 4005 | 4058 | 4111 | 4165 | 4218 | 4271 | 4324 | 4377  |               |
| 93    |     | 4430 | 4483 | 4536 | 4589 | 4642 | 4695 | 4748 | 4801 | 4854 | 4907  |               |
| 94    |     | 4960 | 5013 | 5066 | 5119 | 5172 | 5225 | 5278 | 5331 | 5384 | 5437  |               |
| 95    |     | 5490 | 5543 | 5596 | 5649 | 5702 | 5755 | 5808 | 5861 | 5914 | 5967  |               |
| 96    |     | 6019 | 6072 | 6125 | 6178 | 6231 | 6284 | 6337 | 6390 | 6443 | 6496  |               |
| 97    |     | 6549 | 6602 | 6655 | 6708 | 6761 | 6814 | 6867 | 6920 | 6973 | 7026  |               |
| 98    |     | 7079 | 7132 | 7185 | 7238 | 7291 | 7344 | 7397 | 7450 | 7503 | 7556  |               |
| 99    |     | 7609 | 7662 | 7715 | 7768 | 7821 | 7874 | 7927 | 7980 | 8033 | 8086  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.         | 0          | 1           | 2           | 3           | 4           | 5           | 6           | 7           | 8           | 9           | Dir.        | Dir. & Mult. |
|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| <b>8200</b>  | <b>913</b> | <b>8139</b> | <b>8191</b> | <b>8244</b> | <b>8297</b> | <b>8350</b> | <b>8403</b> | <b>8456</b> | <b>8509</b> | <b>8562</b> | <b>8615</b> |              |
| 01           |            | 8668        | 8721        | 8774        | 8827        | 8880        | 8933        | 8986        | 9039        | 9092        | 9145        |              |
| 02           |            | 9198        | 9251        | 9304        | 9356        | 9409        | 9462        | 9515        | 9568        | 9621        | 9674        |              |
| 03           | *          | 9727        | 9780        | 9833        | 9886        | 9939        | 9992        | +045        | 0098        | 0151        | 0204        |              |
| 04           | 914        | 0257        | 0309        | 0362        | 0415        | 0468        | 0521        | 0574        | 0627        | 0680        | 0733        |              |
| 05           |            | 0786        | 0839        | 0892        | 0945        | 0998        | 1050        | 1103        | 1156        | 1209        | 1262        |              |
| 06           |            | 1315        | 1368        | 1421        | 1474        | 1527        | 1580        | 1633        | 1686        | 1738        | 1791        |              |
| 07           |            | 1844        | 1897        | 1950        | 2003        | 2056        | 2109        | 2162        | 2215        | 2268        | 2321        |              |
| 08           |            | 2373        | 2426        | 2479        | 2532        | 2585        | 2638        | 2691        | 2744        | 2797        | 2850        |              |
| 09           |            | 2903        | 2955        | 3008        | 3061        | 3114        | 3167        | 3220        | 3273        | 3326        | 3379        |              |
| <b>82 10</b> |            | <b>3432</b> | <b>3484</b> | <b>3537</b> | <b>3590</b> | <b>3643</b> | <b>3696</b> | <b>3749</b> | <b>3802</b> | <b>3855</b> | <b>3908</b> |              |
| 11           |            | 3961        | 4013        | 4066        | 4119        | 4172        | 4225        | 4278        | 4331        | 4384        | 4437        | 1   53       |
| 12           |            | 4489        | 4542        | 4595        | 4648        | 4701        | 4754        | 4807        | 4860        | 4912        | 4965        | 2   106      |
| 13           |            | 5018        | 5071        | 5124        | 5177        | 5230        | 5283        | 5335        | 5388        | 5441        | 5494        | 3   159      |
| 14           |            | 5547        | 5600        | 5653        | 5706        | 5758        | 5811        | 5864        | 5917        | 5970        | 6023        | 4   212      |
| 15           |            | 6076        | 6129        | 6181        | 6234        | 6287        | 6340        | 6393        | 6446        | 6499        | 6551        | 5   265      |
| 16           |            | 6604        | 6657        | 6710        | 6763        | 6816        | 6869        | 6921        | 6974        | 7027        | 7080        | 6   318      |
| 17           |            | 7133        | 7186        | 7239        | 7291        | 7344        | 7397        | 7450        | 7503        | 7556        | 7609        | 7   371      |
| 18           |            | 7661        | 7714        | 7767        | 7820        | 7873        | 7926        | 7978        | 8031        | 8084        | 8137        | 8   424      |
| 19           |            | 8190        | 8243        | 8295        | 8348        | 8401        | 8454        | 8507        | 8560        | 8613        | 8665        | 9   477      |
| <b>82 20</b> |            | <b>8718</b> | <b>8771</b> | <b>8824</b> | <b>8877</b> | <b>8930</b> | <b>8982</b> | <b>9035</b> | <b>9088</b> | <b>9141</b> | <b>9194</b> |              |
| 21           |            | 9246        | 9299        | 9352        | 9405        | 9458        | 9511        | 9563        | 9616        | 9669        | 9722        |              |
| 22           | *          | 9775        | 9828        | 9880        | 9933        | 9986        | +039        | 0092        | 0144        | 0197        | 0250        |              |
| 23           | 915        | 0303        | 0356        | 0409        | 0461        | 0514        | 0567        | 0620        | 0673        | 0725        | 0778        |              |
| 24           |            | 0831        | 0884        | 0937        | 0989        | 1042        | 1095        | 1148        | 1201        | 1253        | 1306        |              |
| 25           |            | 1359        | 1412        | 1465        | 1517        | 1570        | 1623        | 1676        | 1729        | 1781        | 1834        |              |
| 26           |            | 1887        | 1940        | 1993        | 2045        | 2098        | 2151        | 2204        | 2257        | 2309        | 2362        |              |
| 27           |            | 2415        | 2468        | 2521        | 2573        | 2626        | 2679        | 2732        | 2784        | 2837        | 2890        |              |
| 28           |            | 2943        | 2996        | 3048        | 3101        | 3154        | 3207        | 3260        | 3312        | 3365        | 3418        |              |
| 29           |            | 3471        | 3523        | 3576        | 3629        | 3682        | 3734        | 3787        | 3840        | 3893        | 3946        |              |
| <b>82 30</b> |            | <b>3998</b> | <b>4051</b> | <b>4104</b> | <b>4157</b> | <b>4209</b> | <b>4262</b> | <b>4315</b> | <b>4368</b> | <b>4420</b> | <b>4473</b> |              |
| 31           |            | 4526        | 4579        | 4632        | 4684        | 4737        | 4790        | 4843        | 4895        | 4948        | 5001        |              |
| 32           |            | 5054        | 5106        | 5159        | 5212        | 5265        | 5317        | 5370        | 5423        | 5476        | 5528        |              |
| 33           |            | 5581        | 5634        | 5687        | 5739        | 5792        | 5845        | 5898        | 5950        | 6003        | 6056        |              |
| 34           |            | 6109        | 6161        | 6214        | 6267        | 6320        | 6372        | 6425        | 6478        | 6531        | 6583        |              |
| 35           |            | 6636        | 6689        | 6742        | 6794        | 6847        | 6900        | 6952        | 7005        | 7058        | 7111        |              |
| 36           |            | 7163        | 7216        | 7269        | 7322        | 7374        | 7427        | 7480        | 7532        | 7585        | 7638        |              |
| 37           |            | 7691        | 7743        | 7796        | 7849        | 7902        | 7954        | 8007        | 8060        | 8112        | 8165        |              |
| 38           |            | 8218        | 8271        | 8323        | 8376        | 8429        | 8481        | 8534        | 8587        | 8640        | 8692        |              |
| 39           |            | 8745        | 8798        | 8850        | 8903        | 8956        | 9009        | 9061        | 9114        | 9167        | 9219        |              |
| <b>82 40</b> |            | <b>9272</b> | <b>9325</b> | <b>9378</b> | <b>9430</b> | <b>9483</b> | <b>9536</b> | <b>9588</b> | <b>9641</b> | <b>9694</b> | <b>9746</b> |              |
| 41           | *          | 9799        | 9852        | 9905        | 9957        | +010        | 0063        | 0115        | 0168        | 0221        | 0273        |              |
| 42           | 916        | 0326        | 0379        | 0431        | 0484        | 0537        | 0590        | 0642        | 0695        | 0748        | 0800        | 1   52       |
| 43           |            | 0853        | 0906        | 0958        | 1011        | 1064        | 1116        | 1169        | 1222        | 1274        | 1327        | 2   104      |
| 44           |            | 1380        | 1433        | 1485        | 1538        | 1591        | 1643        | 1696        | 1749        | 1801        | 1854        | 3   156      |
| 45           |            | 1907        | 1959        | 2012        | 2065        | 2117        | 2170        | 2223        | 2275        | 2328        | 2381        | 4   208      |
| 46           |            | 2433        | 2486        | 2539        | 2591        | 2644        | 2697        | 2749        | 2802        | 2855        | 2907        | 5   260      |
| 47           |            | 2960        | 3013        | 3065        | 3118        | 3171        | 3223        | 3276        | 3329        | 3381        | 3434        | 6   312      |
| 48           |            | 3487        | 3539        | 3592        | 3644        | 3697        | 3750        | 3802        | 3855        | 3908        | 3960        | 7   364      |
| 49           |            | 4013        | 4066        | 4118        | 4171        | 4224        | 4276        | 4329        | 4382        | 4434        | 4487        | 8   416      |
| <b>82 50</b> |            | <b>4539</b> | <b>4592</b> | <b>4645</b> | <b>4697</b> | <b>4750</b> | <b>4803</b> | <b>4855</b> | <b>4908</b> | <b>4961</b> | <b>5013</b> |              |
| 51           |            | 5066        | 5119        | 5171        | 5224        | 5276        | 5329        | 5382        | 5434        | 5487        | 5540        |              |
| 52           |            | 5592        | 5645        | 5697        | 5750        | 5803        | 5855        | 5908        | 5961        | 6013        | 6066        |              |
| 53           |            | 6118        | 6171        | 6224        | 6276        | 6329        | 6382        | 6434        | 6487        | 6539        | 6592        |              |
| 54           |            | 6645        | 6697        | 6750        | 6802        | 6855        | 6908        | 6960        | 7013        | 7066        | 7118        |              |
| 55           |            | 7171        | 7223        | 7276        | 7329        | 7381        | 7434        | 7486        | 7539        | 7592        | 7644        |              |
| 56           |            | 7697        | 7749        | 7802        | 7855        | 7907        | 7960        | 8012        | 8065        | 8118        | 8170        |              |
| 57           |            | 8223        | 8275        | 8328        | 8381        | 8433        | 8486        | 8538        | 8591        | 8644        | 8696        |              |
| 58           |            | 8749        | 8801        | 8854        | 8907        | 8959        | 9012        | 9064        | 9117        | 9169        | 9222        |              |
| 59           |            | 9275        | 9327        | 9380        | 9432        | 9485        | 9538        | 9590        | 9643        | 9695        | 9748        |              |
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LOGARITHMS OF NUMBERS.

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| 62    |        | 0852 | 0904 | 0957 | 1010 | 1062 | 1115 | 1167 | 1220 | 1272 |       |               |
| 63    |        | 1378 | 1430 | 1483 | 1535 | 1588 | 1640 | 1693 | 1745 | 1798 |       |               |
| 64    |        | 1903 | 1956 | 2008 | 2061 | 2113 | 2166 | 2218 | 2271 | 2323 |       |               |
| 65    |        | 2429 | 2481 | 2534 | 2586 | 2639 | 2691 | 2744 | 2796 | 2849 |       |               |
| 66    |        | 2954 | 3007 | 3059 | 3112 | 3164 | 3217 | 3269 | 3322 | 3374 |       |               |
| 67    |        | 3479 | 3532 | 3584 | 3637 | 3690 | 3742 | 3795 | 3847 | 3900 |       |               |
| 68    |        | 4005 | 4057 | 4110 | 4162 | 4215 | 4267 | 4320 | 4372 | 4425 |       |               |
| 69    |        | 4530 | 4582 | 4635 | 4687 | 4740 | 4793 | 4845 | 4898 | 4950 |       |               |
| 82 70 |        | 5055 | 5108 | 5160 | 5213 | 5265 | 5318 | 5370 | 5423 | 5475 |       |               |
| 71    |        | 5580 | 5633 | 5685 | 5738 | 5790 | 5843 | 5895 | 5948 | 6000 |       | 1 53          |
| 72    |        | 6105 | 6158 | 6210 | 6263 | 6315 | 6368 | 6420 | 6473 | 6525 |       | 2 106         |
| 73    |        | 6630 | 6683 | 6735 | 6788 | 6840 | 6893 | 6945 | 6998 | 7050 |       | 3 159         |
| 74    |        | 7155 | 7208 | 7260 | 7313 | 7365 | 7418 | 7470 | 7523 | 7575 |       | 4 212         |
| 75    |        | 7680 | 7733 | 7785 | 7837 | 7890 | 7942 | 7995 | 8047 | 8100 |       | 5 265         |
| 76    |        | 8205 | 8257 | 8310 | 8362 | 8415 | 8467 | 8520 | 8572 | 8625 |       | 6 318         |
| 77    |        | 8730 | 8782 | 8834 | 8887 | 8939 | 8992 | 9044 | 9097 | 9149 |       | 7 371         |
| 78    |        | 9254 | 9307 | 9359 | 9412 | 9464 | 9517 | 9569 | 9622 | 9674 |       | 8 424         |
| 79    | * 9779 | 9831 | 9884 | 9936 | 9989 | +041 | 0094 | 0146 | 0198 | 0251 |       | 9 477         |
| 82 80 | 918    | 0303 | 0356 | 0408 | 0461 | 0513 | 0566 | 0618 | 0671 | 0723 |       |               |
| 81    |        | 0828 | 0880 | 0933 | 0985 | 1038 | 1090 | 1143 | 1195 | 1247 |       |               |
| 82    |        | 1352 | 1405 | 1457 | 1510 | 1562 | 1614 | 1667 | 1719 | 1772 |       |               |
| 83    |        | 1877 | 1929 | 1981 | 2034 | 2086 | 2139 | 2191 | 2244 | 2296 |       |               |
| 84    |        | 2401 | 2453 | 2506 | 2558 | 2611 | 2663 | 2715 | 2768 | 2820 |       |               |
| 85    |        | 2925 | 2978 | 3030 | 3082 | 3135 | 3187 | 3240 | 3292 | 3344 |       |               |
| 86    |        | 3449 | 3502 | 3554 | 3607 | 3659 | 3711 | 3764 | 3816 | 3869 |       |               |
| 87    |        | 3973 | 4026 | 4078 | 4131 | 4183 | 4235 | 4288 | 4340 | 4393 |       |               |
| 88    |        | 4497 | 4550 | 4602 | 4655 | 4707 | 4759 | 4812 | 4864 | 4917 |       |               |
| 89    |        | 5021 | 5074 | 5126 | 5179 | 5231 | 5283 | 5336 | 5388 | 5441 |       |               |
| 82 90 |        | 5545 | 5598 | 5650 | 5702 | 5755 | 5807 | 5860 | 5912 | 5964 |       |               |
| 91    |        | 6069 | 6122 | 6174 | 6226 | 6279 | 6331 | 6383 | 6436 | 6488 |       |               |
| 92    |        | 6593 | 6645 | 6698 | 6750 | 6802 | 6855 | 6907 | 6960 | 7012 |       |               |
| 93    |        | 7117 | 7169 | 7221 | 7274 | 7326 | 7378 | 7431 | 7483 | 7536 |       |               |
| 94    |        | 7640 | 7693 | 7745 | 7797 | 7850 | 7902 | 7954 | 8007 | 8059 |       |               |
| 95    |        | 8164 | 8216 | 8269 | 8321 | 8373 | 8426 | 8478 | 8530 | 8583 |       |               |
| 96    |        | 8687 | 8740 | 8792 | 8844 | 8897 | 8949 | 9002 | 9054 | 9106 |       |               |
| 97    |        | 9211 | 9263 | 9316 | 9368 | 9420 | 9473 | 9525 | 9577 | 9630 |       |               |
| 98    | * 9734 | 9787 | 9839 | 9891 | 9944 |      | 9996 | +048 | 0101 | 0153 |       |               |
| 99    | 919    | 0258 | 0310 | 0362 | 0415 | 0467 | 0519 | 0572 | 0624 | 0676 |       |               |
| 83 00 |        | 0781 | 0833 | 0886 | 0938 | 0990 | 1043 | 1095 | 1147 | 1200 |       |               |
| 01    |        | 1304 | 1356 | 1409 | 1461 | 1513 | 1566 | 1618 | 1670 | 1723 |       |               |
| 02    |        | 1827 | 1880 | 1932 | 1984 | 2037 | 2089 | 2141 | 2193 | 2246 |       | 1 52          |
| 03    |        | 2350 | 2403 | 2455 | 2507 | 2560 | 2612 | 2664 | 2717 | 2769 |       | 2 104         |
| 04    |        | 2873 | 2926 | 2978 | 3030 | 3083 | 3135 | 3187 | 3239 | 3292 |       | 3 156         |
| 05    |        | 3396 | 3449 | 3501 | 3553 | 3606 | 3658 | 3710 | 3762 | 3815 |       | 4 208         |
| 06    |        | 3919 | 3972 | 4024 | 4076 | 4128 | 4181 | 4233 | 4285 | 4338 |       | 5 260         |
| 07    |        | 4442 | 4494 | 4547 | 4599 | 4651 | 4703 | 4756 | 4808 | 4860 |       | 6 312         |
| 08    |        | 4965 | 5017 | 5069 | 5122 | 5174 | 5226 | 5279 | 5331 | 5383 |       | 7 364         |
| 09    |        | 5488 | 5540 | 5592 | 5644 | 5697 | 5749 | 5801 | 5853 | 5906 |       | 8 416         |
| 83 10 |        | 6010 | 6062 | 6115 | 6167 | 6219 | 6272 | 6324 | 6376 | 6428 |       | 9 468         |
| 11    |        | 6533 | 6585 | 6637 | 6690 | 6742 | 6794 | 6846 | 6899 | 6951 |       |               |
| 12    |        | 7055 | 7108 | 7160 | 7212 | 7264 | 7317 | 7369 | 7421 | 7473 |       |               |
| 13    |        | 7578 | 7630 | 7682 | 7735 | 7787 | 7839 | 7891 | 7943 | 7996 |       |               |
| 14    |        | 8100 | 8152 | 8205 | 8257 | 8309 | 8361 | 8414 | 8466 | 8518 |       |               |
| 15    |        | 8623 | 8675 | 8727 | 8779 | 8831 | 8884 | 8936 | 8988 | 9040 |       |               |
| 16    |        | 9145 | 9197 | 9249 | 9301 | 9354 | 9406 | 9458 | 9510 | 9563 |       |               |
| 17    | * 9677 | 9719 | 9771 | 9824 | 9876 |      | 9928 | 9980 | +033 | 0085 |       |               |
| 18    | 920    | 0189 | 0241 | 0294 | 0346 | 0398 | 0450 | 0502 | 0555 | 0607 |       |               |
| 19    |        | 0711 | 0763 | 0816 | 0868 | 0920 | 0972 | 1024 | 1077 | 1129 |       |               |
| Num.  | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|-------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>8320</b> | <b>920</b> | 1233     | 1285     | 1338     | 1390     | 1442     | 1494     | 1546     | 1599     | 1651     | 1703         |                          |
| 21          |            | 1755     | 1807     | 1860     | 1912     | 1964     | 2016     | 2068     | 2121     | 2173     | 2225         |                          |
| 22          |            | 2277     | 2329     | 2381     | 2434     | 2486     | 2538     | 2590     | 2642     | 2695     | 2747         |                          |
| 23          |            | 2799     | 2851     | 2903     | 2955     | 3008     | 3060     | 3112     | 3164     | 3216     | 3269         |                          |
| 24          |            | 3321     | 3373     | 3425     | 3477     | 3529     | 3582     | 3634     | 3686     | 3738     | 3790         |                          |
| 25          |            | 3842     | 3895     | 3947     | 3999     | 4051     | 4103     | 4155     | 4208     | 4260     | 4312         |                          |
| 26          |            | 4364     | 4416     | 4468     | 4521     | 4573     | 4625     | 4677     | 4729     | 4781     | 4833         |                          |
| 27          |            | 4886     | 4938     | 4990     | 5042     | 5094     | 5146     | 5199     | 5251     | 5303     | 5355         |                          |
| 28          |            | 5407     | 5459     | 5511     | 5564     | 5616     | 5668     | 5720     | 5772     | 5824     | 5876         |                          |
| 29          |            | 5929     | 5981     | 6033     | 6085     | 6137     | 6189     | 6241     | 6294     | 6346     | 6398         |                          |
| <b>8330</b> |            | 6450     | 6502     | 6554     | 6606     | 6659     | 6711     | 6763     | 6815     | 6867     | 6919         | 1                        |
| 31          |            | 6971     | 7023     | 7075     | 7128     | 7180     | 7232     | 7284     | 7336     | 7388     | 7440         | 2                        |
| 32          |            | 7493     | 7545     | 7597     | 7649     | 7701     | 7753     | 7805     | 7857     | 7910     | 7962         | 3                        |
| 33          |            | 8014     | 8066     | 8118     | 8170     | 8222     | 8274     | 8327     | 8379     | 8431     | 8483         | 4                        |
| 34          |            | 8535     | 8587     | 8639     | 8691     | 8743     | 8796     | 8848     | 8900     | 8952     | 9004         | 5                        |
| 35          |            | 9056     | 9108     | 9160     | 9212     | 9264     | 9317     | 9369     | 9421     | 9473     | 9525         | 6                        |
| 36          | *          | 9577     | 9629     | 9681     | 9733     | 9785     | 9838     | 9890     | 9942     | 9994     | 10046        | 7                        |
| 37          | 921        | 0098     | 0150     | 0202     | 0254     | 0306     | 0358     | 0411     | 0463     | 0515     | 0567         | 8                        |
| 38          |            | 0619     | 0671     | 0723     | 0775     | 0827     | 0879     | 0931     | 0983     | 1036     | 1088         | 9                        |
| 39          |            | 1140     | 1192     | 1244     | 1296     | 1348     | 1400     | 1452     | 1504     | 1556     | 1608         |                          |
| <b>8340</b> |            | 1661     | 1713     | 1765     | 1817     | 1869     | 1921     | 1973     | 2025     | 2077     | 2129         |                          |
| 41          |            | 2181     | 2233     | 2285     | 2337     | 2389     | 2442     | 2494     | 2546     | 2598     | 2650         |                          |
| 42          |            | 2702     | 2754     | 2806     | 2858     | 2910     | 2962     | 3014     | 3066     | 3118     | 3170         |                          |
| 43          |            | 3222     | 3274     | 3327     | 3379     | 3431     | 3483     | 3535     | 3587     | 3639     | 3691         |                          |
| 44          |            | 3743     | 3795     | 3847     | 3899     | 3951     | 4003     | 4055     | 4107     | 4159     | 4211         |                          |
| 45          |            | 4263     | 4315     | 4367     | 4420     | 4472     | 4524     | 4576     | 4628     | 4680     | 4732         |                          |
| 46          |            | 4784     | 4836     | 4888     | 4940     | 4992     | 5044     | 5096     | 5148     | 5200     | 5252         |                          |
| 47          |            | 5304     | 5356     | 5408     | 5460     | 5512     | 5564     | 5616     | 5668     | 5720     | 5772         |                          |
| 48          |            | 5824     | 5876     | 5928     | 5980     | 6032     | 6084     | 6137     | 6189     | 6241     | 6293         |                          |
| 49          |            | 6345     | 6397     | 6449     | 6501     | 6553     | 6605     | 6657     | 6709     | 6761     | 6813         |                          |
| <b>8350</b> |            | 6865     | 6917     | 6969     | 7021     | 7073     | 7125     | 7177     | 7229     | 7281     | 7333         |                          |
| 51          |            | 7385     | 7437     | 7489     | 7541     | 7593     | 7645     | 7697     | 7749     | 7801     | 7853         |                          |
| 52          |            | 7905     | 7957     | 8009     | 8061     | 8113     | 8165     | 8217     | 8269     | 8321     | 8373         |                          |
| 53          |            | 8425     | 8477     | 8529     | 8581     | 8633     | 8685     | 8737     | 8789     | 8841     | 8893         |                          |
| 54          |            | 8945     | 8997     | 9049     | 9101     | 9153     | 9205     | 9257     | 9309     | 9361     | 9413         |                          |
| 55          |            | 9465     | 9517     | 9569     | 9621     | 9672     | 9724     | 9776     | 9828     | 9880     | 9932         |                          |
| 56          | *          | 9984     | 0036     | 0088     | 0140     | 0192     | 0244     | 0296     | 0348     | 0400     | 0452         |                          |
| 57          | 922        | 0504     | 0556     | 0608     | 0660     | 0712     | 0764     | 0816     | 0868     | 0920     | 0972         |                          |
| 58          |            | 1024     | 1076     | 1128     | 1180     | 1232     | 1283     | 1335     | 1387     | 1439     | 1491         |                          |
| 59          |            | 1543     | 1595     | 1647     | 1699     | 1751     | 1803     | 1855     | 1907     | 1959     | 2011         |                          |
| <b>8360</b> |            | 2063     | 2115     | 2167     | 2219     | 2271     | 2323     | 2374     | 2426     | 2478     | 2530         |                          |
| 61          |            | 2582     | 2634     | 2686     | 2738     | 2790     | 2842     | 2894     | 2946     | 2998     | 3050         |                          |
| 62          |            | 3102     | 3154     | 3206     | 3257     | 3309     | 3361     | 3413     | 3465     | 3517     | 3569         |                          |
| 63          |            | 3621     | 3673     | 3725     | 3777     | 3829     | 3881     | 3933     | 3984     | 4036     | 4088         |                          |
| 64          |            | 4140     | 4192     | 4244     | 4296     | 4348     | 4400     | 4452     | 4504     | 4556     | 4608         |                          |
| 65          |            | 4659     | 4711     | 4763     | 4815     | 4867     | 4919     | 4971     | 5023     | 5075     | 5127         |                          |
| 66          |            | 5179     | 5231     | 5282     | 5334     | 5386     | 5438     | 5490     | 5542     | 5594     | 5646         |                          |
| 67          |            | 5698     | 5750     | 5801     | 5853     | 5905     | 5957     | 6009     | 6061     | 6113     | 6165         |                          |
| 68          |            | 6217     | 6269     | 6321     | 6372     | 6424     | 6476     | 6528     | 6580     | 6632     | 6684         |                          |
| 69          |            | 6736     | 6788     | 6839     | 6891     | 6943     | 6995     | 7047     | 7099     | 7151     | 7203         |                          |
| <b>8370</b> |            | 7255     | 7306     | 7358     | 7410     | 7462     | 7514     | 7566     | 7618     | 7670     | 7722         |                          |
| 71          |            | 7773     | 7825     | 7877     | 7929     | 7981     | 8033     | 8085     | 8137     | 8188     | 8240         |                          |
| 72          |            | 8292     | 8344     | 8396     | 8448     | 8500     | 8552     | 8603     | 8655     | 8707     | 8759         |                          |
| 73          |            | 8811     | 8863     | 8915     | 8967     | 9018     | 9070     | 9122     | 9174     | 9226     | 9278         |                          |
| 74          |            | 9330     | 9381     | 9433     | 9485     | 9537     | 9589     | 9641     | 9693     | 9744     | 9796         |                          |
| 75          | *          | 9848     | 9900     | 9952     | 1004     | 1056     | 0107     | 0159     | 0211     | 0263     | 0315         |                          |
| 76          | 923        | 0367     | 0419     | 0470     | 0522     | 0574     | 0626     | 0678     | 0730     | 0781     | 0833         |                          |
| 77          |            | 0885     | 0937     | 0989     | 1041     | 1093     | 1144     | 1196     | 1248     | 1300     | 1352         |                          |
| 78          |            | 1404     | 1455     | 1507     | 1559     | 1611     | 1663     | 1715     | 1766     | 1818     | 1870         |                          |
| 79          |            | 1922     | 1974     | 2026     | 2077     | 2129     | 2181     | 2233     | 2285     | 2337     | 2388         |                          |
| <b>Num.</b> | <b>0</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |

|   |     |
|---|-----|
| 1 | 53  |
| 2 | 106 |
| 3 | 159 |
| 4 | 212 |
| 5 | 265 |
| 6 | 318 |
| 7 | 371 |
| 8 | 424 |
| 9 | 477 |

52

|   |     |
|---|-----|
| 1 | 52  |
| 2 | 104 |
| 3 | 156 |
| 4 | 208 |
| 5 | 260 |
| 6 | 312 |
| 7 | 364 |
| 8 | 416 |
| 9 | 468 |

| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 8300 | 923 | 2440 | 2492 | 2544 | 2596 | 2647 | 2699 | 2751 | 2803 | 2855 | 2907  |               |
| 81   |     | 2958 | 3010 | 3062 | 3114 | 3166 | 3217 | 3269 | 3321 | 3373 | 3425  |               |
| 82   |     | 3477 | 3528 | 3580 | 3631 | 3684 | 3736 | 3787 | 3839 | 3891 | 3943  |               |
| 83   |     | 3995 | 4046 | 4098 | 4150 | 4202 | 4254 | 4305 | 4357 | 4409 | 4461  |               |
| 84   |     | 4513 | 4564 | 4616 | 4668 | 4720 | 4772 | 4823 | 4875 | 4927 | 4979  |               |
| 85   |     | 5031 | 5082 | 5134 | 5186 | 5238 | 5290 | 5341 | 5393 | 5445 | 5497  |               |
| 86   |     | 5549 | 5600 | 5652 | 5704 | 5756 | 5808 | 5859 | 5911 | 5963 | 6015  |               |
| 87   |     | 6066 | 6118 | 6170 | 6222 | 6274 | 6325 | 6377 | 6429 | 6481 | 6532  |               |
| 88   |     | 6584 | 6636 | 6688 | 6740 | 6791 | 6843 | 6895 | 6947 | 6998 | 7050  |               |
| 89   |     | 7102 | 7154 | 7205 | 7257 | 7309 | 7361 | 7413 | 7464 | 7516 | 7568  |               |
| 8390 |     | 7620 | 7671 | 7723 | 7775 | 7827 | 7878 | 7930 | 7982 | 8034 | 8085  | 1             |
| 91   |     | 8137 | 8189 | 8241 | 8292 | 8344 | 8396 | 8448 | 8499 | 8551 | 8603  | 2             |
| 92   |     | 8655 | 8707 | 8758 | 8810 | 8862 | 8913 | 8965 | 9017 | 9069 | 9120  | 3             |
| 93   |     | 9172 | 9224 | 9276 | 9327 | 9379 | 9431 | 9483 | 9534 | 9586 | 9638  | 4             |
| 94   | *   | 9690 | 9741 | 9793 | 9845 | 9897 | 9948 | 0000 | 0052 | 0104 | 0155  | 5             |
| 95   | 924 | 0207 | 0259 | 0310 | 0362 | 0414 | 0466 | 0517 | 0569 | 0621 | 0673  | 6             |
| 96   |     | 0724 | 0776 | 0828 | 0879 | 0931 | 0983 | 1035 | 1086 | 1138 | 1190  | 7             |
| 97   |     | 1242 | 1293 | 1345 | 1397 | 1448 | 1500 | 1552 | 1604 | 1655 | 1707  | 8             |
| 98   |     | 1759 | 1810 | 1862 | 1914 | 1966 | 2017 | 2069 | 2121 | 2172 | 2224  | 9             |
| 99   |     | 2276 | 2328 | 2379 | 2431 | 2483 | 2534 | 2586 | 2638 | 2689 | 2741  |               |
| 8400 |     | 2793 | 2845 | 2896 | 2948 | 3000 | 3051 | 3103 | 3155 | 3206 | 3258  |               |
| 01   |     | 3310 | 3362 | 3413 | 3465 | 3517 | 3568 | 3620 | 3672 | 3723 | 3775  |               |
| 02   |     | 3827 | 3878 | 3930 | 3982 | 4034 | 4085 | 4137 | 4189 | 4240 | 4292  |               |
| 03   |     | 4344 | 4395 | 4447 | 4499 | 4550 | 4602 | 4654 | 4705 | 4757 | 4809  |               |
| 04   |     | 4860 | 4912 | 4964 | 5015 | 5067 | 5119 | 5170 | 5222 | 5274 | 5326  |               |
| 05   |     | 5377 | 5429 | 5481 | 5532 | 5584 | 5636 | 5687 | 5739 | 5791 | 5842  |               |
| 06   |     | 5894 | 5946 | 5997 | 6049 | 6101 | 6152 | 6204 | 6255 | 6307 | 6359  |               |
| 07   |     | 6410 | 6462 | 6514 | 6565 | 6617 | 6669 | 6720 | 6772 | 6824 | 6875  |               |
| 08   |     | 6927 | 6979 | 7030 | 7082 | 7134 | 7185 | 7237 | 7289 | 7340 | 7392  |               |
| 09   |     | 7444 | 7495 | 7547 | 7598 | 7650 | 7702 | 7753 | 7805 | 7857 | 7908  |               |
| 8410 |     | 7960 | 8012 | 8063 | 8115 | 8167 | 8218 | 8270 | 8321 | 8373 | 8425  |               |
| 11   |     | 8476 | 8528 | 8580 | 8631 | 8683 | 8734 | 8786 | 8838 | 8889 | 8941  |               |
| 12   |     | 8993 | 9044 | 9096 | 9148 | 9199 | 9251 | 9302 | 9354 | 9406 | 9457  |               |
| 13   |     | 9509 | 9561 | 9612 | 9664 | 9715 | 9767 | 9819 | 9870 | 9922 | 9973  |               |
| 14   | 925 | 0025 | 0077 | 0128 | 0180 | 0232 | 0283 | 0335 | 0386 | 0438 | 0490  |               |
| 15   |     | 0541 | 0593 | 0644 | 0696 | 0748 | 0799 | 0851 | 0902 | 0954 | 1006  |               |
| 16   |     | 1057 | 1109 | 1160 | 1212 | 1264 | 1315 | 1367 | 1418 | 1470 | 1522  |               |
| 17   |     | 1573 | 1625 | 1676 | 1728 | 1780 | 1831 | 1883 | 1934 | 1986 | 2038  |               |
| 18   |     | 2089 | 2141 | 2192 | 2244 | 2296 | 2347 | 2399 | 2450 | 2502 | 2554  |               |
| 19   |     | 2605 | 2657 | 2708 | 2760 | 2811 | 2863 | 2915 | 2966 | 3018 | 3069  |               |
| 8420 |     | 3121 | 3172 | 3224 | 3276 | 3327 | 3379 | 3430 | 3482 | 3534 | 3585  |               |
| 21   |     | 3637 | 3688 | 3740 | 3791 | 3843 | 3895 | 3946 | 3998 | 4049 | 4101  |               |
| 22   |     | 4152 | 4204 | 4256 | 4307 | 4359 | 4410 | 4462 | 4513 | 4565 | 4616  | 1             |
| 23   |     | 4668 | 4720 | 4771 | 4823 | 4874 | 4926 | 4977 | 5029 | 5080 | 5132  | 2             |
| 24   |     | 5184 | 5235 | 5287 | 5338 | 5390 | 5441 | 5493 | 5544 | 5596 | 5648  | 3             |
| 25   |     | 5699 | 5751 | 5802 | 5854 | 5905 | 5957 | 6008 | 6060 | 6111 | 6163  | 4             |
| 26   |     | 6215 | 6266 | 6318 | 6369 | 6421 | 6472 | 6524 | 6575 | 6627 | 6678  | 5             |
| 27   |     | 6730 | 6781 | 6833 | 6885 | 6936 | 6988 | 7039 | 7091 | 7142 | 7194  | 6             |
| 28   |     | 7245 | 7297 | 7348 | 7400 | 7451 | 7503 | 7554 | 7606 | 7657 | 7709  | 7             |
| 29   |     | 7761 | 7812 | 7864 | 7915 | 7967 | 8018 | 8070 | 8121 | 8173 | 8224  | 8             |
| 8430 |     | 8276 | 8327 | 8379 | 8430 | 8482 | 8533 | 8585 | 8636 | 8688 | 8739  | 9             |
| 31   |     | 8791 | 8842 | 8894 | 8945 | 8997 | 9048 | 9100 | 9151 | 9203 | 9254  |               |
| 32   |     | 9306 | 9357 | 9409 | 9460 | 9512 | 9563 | 9615 | 9667 | 9718 | 9770  |               |
| 33   | *   | 9821 | 9873 | 9924 | 9975 | 0027 | 0078 | 0130 | 0181 | 0233 | 0284  |               |
| 34   | 926 | 0336 | 0387 | 0439 | 0490 | 0542 | 0593 | 0645 | 0696 | 0748 | 0799  |               |
| 35   |     | 0851 | 0902 | 0954 | 1005 | 1057 | 1108 | 1160 | 1211 | 1263 | 1314  |               |
| 36   |     | 1366 | 1417 | 1469 | 1520 | 1572 | 1623 | 1675 | 1726 | 1778 | 1829  |               |
| 37   |     | 1880 | 1932 | 1983 | 2035 | 2086 | 2138 | 2189 | 2241 | 2292 | 2344  |               |
| 38   |     | 2395 | 2447 | 2498 | 2550 | 2601 | 2653 | 2704 | 2755 | 2807 | 2858  |               |
| 39   |     | 2910 | 2961 | 3013 | 3064 | 3116 | 3167 | 3219 | 3270 | 3322 | 3373  |               |
| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.         | 0               | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.        | Diff. & Mult.            |
|--------------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------------------|
| <b>8440</b>  | <b>926</b> 3424 | 3476     | 3527     | 3579     | 3630     | 3682     | 3733     | 3785     | 3836     | 3888     |              |                          |
| 41           | 3939            | 3990     | 4042     | 4093     | 4145     | 4196     | 4248     | 4299     | 4351     | 4402     |              |                          |
| 42           | 4453            | 4505     | 4556     | 4608     | 4659     | 4711     | 4762     | 4814     | 4865     | 4916     |              |                          |
| 43           | 4968            | 5019     | 5071     | 5122     | 5174     | 5225     | 5277     | 5328     | 5379     | 5431     |              |                          |
| 44           | 5482            | 5534     | 5585     | 5637     | 5688     | 5739     | 5791     | 5842     | 5894     | 5945     |              |                          |
| 45           | 5997            | 6048     | 6099     | 6151     | 6202     | 6254     | 6305     | 6357     | 6408     | 6459     |              |                          |
| 46           | 6511            | 6562     | 6614     | 6665     | 6716     | 6768     | 6819     | 6871     | 6922     | 6974     |              |                          |
| 47           | 7025            | 7076     | 7128     | 7179     | 7231     | 7282     | 7333     | 7385     | 7436     | 7488     |              |                          |
| 48           | 7539            | 7590     | 7642     | 7693     | 7745     | 7796     | 7847     | 7899     | 7950     | 8002     |              |                          |
| 49           | 8053            | 8105     | 8156     | 8207     | 8259     | 8310     | 8362     | 8413     | 8464     | 8516     |              |                          |
| <b>84 50</b> | 8567            | 8618     | 8670     | 8721     | 8773     | 8824     | 8875     | 8927     | 8978     | 9030     |              |                          |
| 51           | 9081            | 9132     | 9184     | 9235     | 9287     | 9338     | 9389     | 9441     | 9492     | 9543     |              | 1 52                     |
| 52           | * 9595          | 9646     | 9698     | 9749     | 9800     | 9852     | 9903     | 9955     | 10006    | 0057     |              | 2 104                    |
| 53           | 927 0109        | 0160     | 0211     | 0263     | 0314     | 0366     | 0417     | 0468     | 0520     | 0571     |              | 3 156                    |
| 54           | 0622            | 0674     | 0725     | 0777     | 0828     | 0879     | 0931     | 0982     | 1033     | 1085     |              | 4 208                    |
| 55           | 1136            | 1187     | 1239     | 1290     | 1342     | 1393     | 1444     | 1496     | 1547     | 1598     |              | 5 260                    |
| 56           | 1650            | 1701     | 1752     | 1804     | 1855     | 1907     | 1958     | 2009     | 2061     | 2112     |              | 6 312                    |
| 57           | 2163            | 2215     | 2266     | 2317     | 2369     | 2420     | 2471     | 2523     | 2574     | 2625     |              | 7 364                    |
| 58           | 2677            | 2728     | 2780     | 2831     | 2882     | 2934     | 2985     | 3036     | 3088     | 3139     |              | 8 416                    |
| 59           | 3190            | 3242     | 3293     | 3344     | 3396     | 3447     | 3498     | 3550     | 3601     | 3652     |              | 9 468                    |
| <b>84 60</b> | 3704            | 3755     | 3806     | 3858     | 3909     | 3960     | 4012     | 4063     | 4114     | 4166     |              |                          |
| 61           | 4217            | 4268     | 4320     | 4371     | 4422     | 4474     | 4525     | 4576     | 4628     | 4679     |              |                          |
| 62           | 4730            | 4782     | 4833     | 4884     | 4935     | 4987     | 5038     | 5089     | 5141     | 5192     |              |                          |
| 63           | 5243            | 5295     | 5346     | 5397     | 5449     | 5500     | 5551     | 5603     | 5654     | 5705     |              |                          |
| 64           | 5757            | 5808     | 5859     | 5910     | 5962     | 6013     | 6064     | 6116     | 6167     | 6218     |              |                          |
| 65           | 6270            | 6321     | 6372     | 6424     | 6475     | 6526     | 6577     | 6629     | 6680     | 6731     |              |                          |
| 66           | 6783            | 6834     | 6885     | 6937     | 6988     | 7039     | 7090     | 7142     | 7193     | 7244     |              |                          |
| 67           | 7296            | 7347     | 7398     | 7449     | 7501     | 7552     | 7603     | 7655     | 7706     | 7757     |              |                          |
| 68           | 7808            | 7860     | 7911     | 7962     | 8014     | 8065     | 8116     | 8167     | 8219     | 8270     |              |                          |
| 69           | 8321            | 8373     | 8424     | 8475     | 8526     | 8578     | 8629     | 8680     | 8732     | 8783     |              |                          |
| <b>84 70</b> | 8834            | 8885     | 8937     | 8988     | 9039     | 9090     | 9142     | 9193     | 9244     | 9296     |              |                          |
| 71           | 9347            | 9398     | 9449     | 9501     | 9552     | 9603     | 9654     | 9706     | 9757     | 9808     |              |                          |
| 72           | * 9859          | 9911     | 9962     | 10013    | 0065     | 0116     | 0167     | 0218     | 0270     | 0321     |              |                          |
| 73           | 928 0372        | 0423     | 0475     | 0526     | 0577     | 0628     | 0680     | 0731     | 0782     | 0833     |              |                          |
| 74           | 0885            | 0936     | 0987     | 1038     | 1090     | 1141     | 1192     | 1243     | 1295     | 1346     |              |                          |
| 75           | 1397            | 1448     | 1500     | 1551     | 1602     | 1653     | 1705     | 1756     | 1807     | 1858     |              |                          |
| 76           | 1909            | 1961     | 2012     | 2063     | 2114     | 2166     | 2217     | 2268     | 2319     | 2371     |              |                          |
| 77           | 2422            | 2473     | 2524     | 2576     | 2627     | 2678     | 2729     | 2780     | 2832     | 2883     |              |                          |
| 78           | 2934            | 2985     | 3037     | 3088     | 3139     | 3190     | 3241     | 3293     | 3344     | 3395     |              |                          |
| 79           | 3446            | 3498     | 3549     | 3600     | 3651     | 3702     | 3754     | 3805     | 3856     | 3907     |              |                          |
| <b>84 80</b> | 3959            | 4010     | 4061     | 4112     | 4163     | 4215     | 4266     | 4317     | 4368     | 4419     |              |                          |
| 81           | 4471            | 4522     | 4573     | 4624     | 4675     | 4727     | 4778     | 4829     | 4880     | 4931     |              |                          |
| 82           | 4983            | 5034     | 5085     | 5136     | 5187     | 5239     | 5290     | 5341     | 5392     | 5443     |              |                          |
| 83           | 5495            | 5546     | 5597     | 5648     | 5699     | 5751     | 5802     | 5853     | 5904     | 5955     |              | 1 51                     |
| 84           | 6007            | 6058     | 6109     | 6160     | 6211     | 6263     | 6314     | 6365     | 6416     | 6467     |              | 2 102                    |
| 85           | 6518            | 6570     | 6621     | 6672     | 6723     | 6774     | 6826     | 6877     | 6928     | 6979     |              | 3 153                    |
| 86           | 7030            | 7081     | 7133     | 7184     | 7235     | 7286     | 7337     | 7389     | 7440     | 7491     |              | 4 204                    |
| 87           | 7542            | 7593     | 7644     | 7695     | 7747     | 7798     | 7849     | 7900     | 7951     | 8003     |              | 5 255                    |
| 88           | 8054            | 8105     | 8156     | 8207     | 8258     | 8310     | 8361     | 8412     | 8463     | 8514     |              | 6 306                    |
| 89           | 8565            | 8616     | 8668     | 8719     | 8770     | 8821     | 8872     | 8923     | 8975     | 9026     |              | 7 357                    |
| <b>84 90</b> | 9077            | 9128     | 9179     | 9230     | 9282     | 9333     | 9384     | 9435     | 9486     | 9537     |              | 8 408                    |
| 91           | * 9588          | 9640     | 9691     | 9742     | 9793     | 9844     | 9895     | 9946     | 9998     | 0049     |              | 9 459                    |
| 92           | 929 0100        | 0151     | 0202     | 0253     | 0304     | 0356     | 0407     | 0458     | 0509     | 0560     |              |                          |
| 93           | 0611            | 0662     | 0714     | 0765     | 0816     | 0867     | 0918     | 0969     | 1020     | 1071     |              |                          |
| 94           | 1123            | 1174     | 1225     | 1276     | 1327     | 1378     | 1429     | 1480     | 1532     | 1583     |              |                          |
| 95           | 1634            | 1685     | 1736     | 1787     | 1838     | 1889     | 1941     | 1992     | 2043     | 2094     |              |                          |
| 96           | 2145            | 2196     | 2247     | 2298     | 2350     | 2401     | 2452     | 2503     | 2554     | 2605     |              |                          |
| 97           | 2656            | 2707     | 2758     | 2810     | 2861     | 2912     | 2963     | 3014     | 3065     | 3116     |              |                          |
| 98           | 3167            | 3218     | 3269     | 3321     | 3372     | 3423     | 3474     | 3525     | 3576     | 3627     |              |                          |
| 99           | 3678            | 3729     | 3780     | 3832     | 3883     | 3934     | 3985     | 4036     | 4087     | 4138     |              |                          |
| <b>Num.</b>  | <b>0</b>        | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b> | <b>Diff. &amp; Mult.</b> |



LOGARITHMS OF NUMBERS.

129

| Num. | 0   | 1    | 2    | 3    | 4    | 5     | 6     | 7     | 8     | 9     | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|-------|-------|-------|-------|-------|-------|---------------|
| 8500 | 929 | 4189 | 4240 | 4291 | 4343 | 4394  | 4445  | 4496  | 4547  | 4598  | 4649  |               |
| 01   |     | 4700 | 4751 | 4802 | 4853 | 4905  | 4956  | 5007  | 5058  | 5109  | 5160  |               |
| 02   |     | 5211 | 5262 | 5313 | 5364 | 5415  | 5466  | 5517  | 5569  | 5620  | 5671  |               |
| 03   |     | 5722 | 5773 | 5824 | 5875 | 5926  | 5977  | 6028  | 6079  | 6130  | 6181  |               |
| 04   |     | 6233 | 6284 | 6335 | 6386 | 6437  | 6488  | 6539  | 6590  | 6641  | 6692  |               |
| 05   |     | 6743 | 6794 | 6845 | 6896 | 6947  | 6998  | 7050  | 7101  | 7152  | 7203  |               |
| 06   |     | 7254 | 7305 | 7356 | 7407 | 7458  | 7509  | 7560  | 7611  | 7662  | 7713  |               |
| 07   |     | 7764 | 7815 | 7866 | 7917 | 7969  | 8020  | 8071  | 8122  | 8173  | 8224  |               |
| 08   |     | 8275 | 8326 | 8377 | 8428 | 8479  | 8530  | 8581  | 8632  | 8683  | 8734  |               |
| 09   |     | 8785 | 8836 | 8887 | 8938 | 8989  | 9040  | 9091  | 9142  | 9194  | 9245  |               |
| 8510 |     | 9296 | 9347 | 9398 | 9449 | 9500  | 9551  | 9602  | 9653  | 9704  | 9755  |               |
| 11   | *   | 9806 | 9857 | 9908 | 9959 | 10010 | 10061 | 10112 | 10163 | 10214 | 10265 | 1 51          |
| 12   | 930 | 0316 | 0367 | 0418 | 0469 | 0520  | 0571  | 0622  | 0673  | 0724  | 0775  | 2 102         |
| 13   |     | 0826 | 0877 | 0928 | 0979 | 1030  | 1081  | 1132  | 1183  | 1234  | 1285  | 3 153         |
| 14   |     | 1336 | 1387 | 1438 | 1489 | 1540  | 1591  | 1643  | 1694  | 1745  | 1796  | 4 204         |
| 15   |     | 1847 | 1898 | 1949 | 2000 | 2051  | 2102  | 2153  | 2204  | 2255  | 2306  | 5 255         |
| 16   |     | 2357 | 2408 | 2459 | 2510 | 2561  | 2612  | 2663  | 2713  | 2764  | 2815  | 6 306         |
| 17   |     | 2866 | 2917 | 2968 | 3019 | 3070  | 3121  | 3172  | 3223  | 3274  | 3325  | 7 357         |
| 18   |     | 3376 | 3427 | 3478 | 3529 | 3580  | 3631  | 3682  | 3733  | 3784  | 3835  | 8 408         |
| 19   |     | 3886 | 3937 | 3988 | 4039 | 4090  | 4141  | 4192  | 4243  | 4294  | 4345  | 9 459         |
| 8520 |     | 4396 | 4447 | 4498 | 4549 | 4600  | 4651  | 4702  | 4753  | 4804  | 4855  |               |
| 21   |     | 4906 | 4957 | 5008 | 5059 | 5110  | 5160  | 5211  | 5262  | 5313  | 5364  |               |
| 22   |     | 5415 | 5466 | 5517 | 5568 | 5619  | 5670  | 5721  | 5772  | 5823  | 5874  |               |
| 23   |     | 5925 | 5976 | 6027 | 6078 | 6129  | 6180  | 6231  | 6282  | 6333  | 6383  |               |
| 24   |     | 6434 | 6485 | 6536 | 6587 | 6638  | 6689  | 6740  | 6791  | 6842  | 6893  |               |
| 25   |     | 6944 | 6995 | 7046 | 7097 | 7148  | 7199  | 7250  | 7300  | 7351  | 7402  |               |
| 26   |     | 7453 | 7504 | 7555 | 7606 | 7657  | 7708  | 7759  | 7810  | 7861  | 7912  |               |
| 27   |     | 7963 | 8014 | 8064 | 8115 | 8166  | 8217  | 8268  | 8319  | 8370  | 8421  |               |
| 28   |     | 8472 | 8523 | 8574 | 8625 | 8676  | 8727  | 8777  | 8828  | 8879  | 8930  |               |
| 29   |     | 8981 | 9032 | 9083 | 9134 | 9185  | 9236  | 9287  | 9338  | 9388  | 9439  |               |
| 8530 |     | 9490 | 9541 | 9592 | 9643 | 9694  | 9745  | 9796  | 9847  | 9898  | 9949  |               |
| 31   | *   | 9999 | 0050 | 0101 | 0152 | 0203  | 0254  | 0305  | 0356  | 0407  | 0458  |               |
| 32   | 931 | 0508 | 0559 | 0610 | 0661 | 0712  | 0763  | 0814  | 0865  | 0916  | 0967  |               |
| 33   |     | 1017 | 1068 | 1119 | 1170 | 1221  | 1272  | 1323  | 1374  | 1425  | 1475  |               |
| 34   |     | 1526 | 1577 | 1628 | 1679 | 1730  | 1781  | 1832  | 1883  | 1933  | 1984  |               |
| 35   |     | 2035 | 2086 | 2137 | 2188 | 2239  | 2290  | 2341  | 2391  | 2442  | 2493  |               |
| 36   |     | 2544 | 2595 | 2646 | 2697 | 2748  | 2798  | 2849  | 2900  | 2951  | 3002  |               |
| 37   |     | 3053 | 3104 | 3155 | 3205 | 3256  | 3307  | 3358  | 3409  | 3460  | 3511  |               |
| 38   |     | 3562 | 3612 | 3663 | 3714 | 3765  | 3816  | 3867  | 3918  | 3968  | 4019  |               |
| 39   |     | 4070 | 4121 | 4172 | 4223 | 4274  | 4324  | 4375  | 4426  | 4477  | 4528  |               |
| 8540 |     | 4579 | 4630 | 4680 | 4731 | 4782  | 4833  | 4884  | 4935  | 4986  | 5036  |               |
| 41   |     | 5087 | 5138 | 5189 | 5240 | 5291  | 5341  | 5392  | 5443  | 5494  | 5545  | 1 50          |
| 42   |     | 5596 | 5647 | 5697 | 5748 | 5799  | 5850  | 5901  | 5952  | 6002  | 6053  | 2 100         |
| 43   |     | 6104 | 6155 | 6206 | 6257 | 6307  | 6358  | 6409  | 6460  | 6511  | 6562  | 3 150         |
| 44   |     | 6612 | 6663 | 6714 | 6765 | 6816  | 6867  | 6917  | 6968  | 7019  | 7070  | 4 200         |
| 45   |     | 7121 | 7171 | 7222 | 7273 | 7324  | 7375  | 7426  | 7476  | 7527  | 7578  | 5 250         |
| 46   |     | 7629 | 7680 | 7731 | 7781 | 7832  | 7883  | 7934  | 7985  | 8035  | 8086  | 6 300         |
| 47   |     | 8137 | 8188 | 8239 | 8289 | 8340  | 8391  | 8442  | 8493  | 8544  | 8594  | 7 350         |
| 48   |     | 8645 | 8696 | 8747 | 8798 | 8848  | 8899  | 8950  | 9001  | 9052  | 9102  | 8 400         |
| 49   |     | 9153 | 9204 | 9255 | 9306 | 9356  | 9407  | 9458  | 9509  | 9560  | 9610  | 9 450         |
| 8550 | *   | 9661 | 9712 | 9763 | 9814 | 9864  | 9915  | 9966  | 10017 | 10067 | 10118 |               |
| 51   | 932 | 0169 | 0220 | 0271 | 0321 | 0372  | 0423  | 0474  | 0525  | 0575  | 0626  |               |
| 52   |     | 0677 | 0728 | 0778 | 0829 | 0880  | 0931  | 0982  | 1032  | 1083  | 1134  |               |
| 53   |     | 1185 | 1235 | 1286 | 1337 | 1388  | 1439  | 1489  | 1540  | 1591  | 1642  |               |
| 54   |     | 1692 | 1743 | 1794 | 1845 | 1896  | 1946  | 1997  | 2048  | 2099  | 2149  |               |
| 55   |     | 2200 | 2251 | 2302 | 2352 | 2403  | 2454  | 2505  | 2555  | 2606  | 2657  |               |
| 56   |     | 2708 | 2759 | 2809 | 2860 | 2911  | 2962  | 3012  | 3063  | 3114  | 3165  |               |
| 57   |     | 3215 | 3266 | 3317 | 3368 | 3418  | 3469  | 3520  | 3571  | 3621  | 3672  |               |
| 58   |     | 3723 | 3774 | 3824 | 3875 | 3926  | 3977  | 4027  | 4078  | 4129  | 4180  |               |
| 59   |     | 4230 | 4281 | 4332 | 4382 | 4433  | 4484  | 4535  | 4585  | 4636  | 4687  |               |
| Num. | 0   | 1    | 2    | 3    | 4    | 5     | 6     | 7     | 8     | 9     | Diff. | Diff. & Mult. |

| Num.         | 0               | 1    | 2     | 3     | 4     | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|--------------|-----------------|------|-------|-------|-------|------|------|------|------|------|-------|---------------|
| <b>8560</b>  | <b>923</b> 4738 | 4788 | 4839  | 4890  | 4941  | 4991 | 5042 | 5093 | 5144 | 5194 |       |               |
| 61           | 5245            | 5296 | 5346  | 5397  | 5448  | 5499 | 5549 | 5600 | 5651 | 5702 |       |               |
| 62           | 5752            | 5803 | 5854  | 5904  | 5955  | 6006 | 6057 | 6107 | 6158 | 6209 |       |               |
| 63           | 6259            | 6310 | 6361  | 6412  | 6462  | 6513 | 6564 | 6614 | 6665 | 6716 |       |               |
| 64           | 6767            | 6817 | 6868  | 6919  | 6969  | 7020 | 7071 | 7122 | 7172 | 7223 |       |               |
| 65           | 7274            | 7324 | 7375  | 7426  | 7476  | 7527 | 7578 | 7629 | 7679 | 7730 |       |               |
| 66           | 7781            | 7831 | 7882  | 7933  | 7983  | 8034 | 8085 | 8136 | 8186 | 8237 |       |               |
| 67           | 8288            | 8338 | 8389  | 8440  | 8490  | 8541 | 8592 | 8643 | 8693 | 8744 |       |               |
| 68           | 8795            | 8845 | 8896  | 8947  | 8997  | 9048 | 9099 | 9149 | 9200 | 9251 |       |               |
| 69           | 9301            | 9352 | 9403  | 9453  | 9504  | 9555 | 9606 | 9656 | 9707 | 9758 |       |               |
| <b>85 70</b> | <b>*</b> 9808   | 9859 | 9910  | 9960  | 10011 | 0062 | 0112 | 0163 | 0214 | 0264 |       | 1   51        |
| 71           | 933             | 0315 | 0366  | 0416  | 0467  | 0518 | 0568 | 0619 | 0670 | 0720 |       | 2   102       |
| 72           | 0822            | 0872 | 0923  | 0974  | 1024  | 1075 | 1126 | 1176 | 1227 | 1278 |       | 3   153       |
| 73           | 1328            | 1379 | 1430  | 1480  | 1531  | 1582 | 1632 | 1683 | 1733 | 1784 |       | 4   204       |
| 74           | 1835            | 1885 | 1936  | 1987  | 2037  | 2088 | 2139 | 2189 | 2240 | 2291 |       | 5   255       |
| 75           | 2341            | 2392 | 2443  | 2493  | 2544  | 2595 | 2645 | 2696 | 2746 | 2797 |       | 6   306       |
| 76           | 2848            | 2898 | 2949  | 3000  | 3050  | 3101 | 3152 | 3202 | 3253 | 3303 |       | 7   357       |
| 77           | 3354            | 3405 | 3455  | 3506  | 3557  | 3607 | 3658 | 3709 | 3759 | 3810 |       | 8   408       |
| 78           | 3860            | 3911 | 3962  | 4012  | 4063  | 4114 | 4164 | 4215 | 4265 | 4316 |       | 9   459       |
| 79           | 4367            | 4417 | 4468  | 4519  | 4569  | 4620 | 4670 | 4721 | 4772 | 4822 |       |               |
| <b>85 80</b> | <b>*</b> 4873   | 4923 | 4974  | 5025  | 5075  | 5126 | 5177 | 5227 | 5278 | 5328 |       |               |
| 81           | 5379            | 5430 | 5480  | 5531  | 5581  | 5632 | 5683 | 5733 | 5784 | 5834 |       |               |
| 82           | 5885            | 5936 | 5986  | 6037  | 6088  | 6138 | 6189 | 6239 | 6290 | 6341 |       |               |
| 83           | 6391            | 6442 | 6492  | 6543  | 6594  | 6644 | 6695 | 6745 | 6796 | 6846 |       |               |
| 84           | 6897            | 6948 | 6998  | 7049  | 7099  | 7150 | 7201 | 7251 | 7302 | 7352 |       |               |
| 85           | 7403            | 7454 | 7504  | 7555  | 7605  | 7656 | 7707 | 7757 | 7808 | 7858 |       |               |
| 86           | 7909            | 7959 | 8010  | 8061  | 8111  | 8162 | 8212 | 8263 | 8313 | 8364 |       |               |
| 87           | 8415            | 8465 | 8516  | 8566  | 8617  | 8668 | 8718 | 8769 | 8819 | 8870 |       |               |
| 88           | 8920            | 8971 | 9021  | 9072  | 9123  | 9173 | 9224 | 9274 | 9325 | 9375 |       |               |
| 89           | 9426            | 9477 | 9527  | 9578  | 9628  | 9679 | 9729 | 9780 | 9831 | 9881 |       |               |
| <b>85 90</b> | <b>*</b> 9932   | 9982 | 10033 | 10083 | 10134 | 0184 | 0235 | 0286 | 0336 | 0387 |       |               |
| 91           | 934             | 0437 | 0488  | 0538  | 0589  | 0690 | 0740 | 0791 | 0842 | 0892 |       |               |
| 92           | 0943            | 0993 | 1044  | 1094  | 1145  | 1195 | 1246 | 1296 | 1347 | 1398 |       |               |
| 93           | 1448            | 1499 | 1549  | 1600  | 1650  | 1701 | 1751 | 1802 | 1852 | 1903 |       |               |
| 94           | 1953            | 2004 | 2055  | 2105  | 2156  | 2206 | 2257 | 2307 | 2358 | 2408 |       |               |
| 95           | 2459            | 2509 | 2560  | 2610  | 2661  | 2711 | 2762 | 2812 | 2863 | 2914 |       |               |
| 96           | 2964            | 3015 | 3065  | 3116  | 3166  | 3217 | 3267 | 3318 | 3368 | 3419 |       |               |
| 97           | 3469            | 3520 | 3570  | 3621  | 3671  | 3722 | 3772 | 3823 | 3873 | 3924 |       |               |
| 98           | 3974            | 4025 | 4075  | 4126  | 4176  | 4227 | 4277 | 4328 | 4378 | 4429 |       |               |
| 99           | 4479            | 4530 | 4580  | 4631  | 4682  | 4732 | 4783 | 4833 | 4884 | 4934 |       |               |
| <b>86 00</b> | <b>*</b> 4985   | 5035 | 5086  | 5136  | 5187  | 5237 | 5287 | 5338 | 5388 | 5439 |       |               |
| 01           | 5489            | 5540 | 5590  | 5641  | 5691  | 5742 | 5792 | 5843 | 5893 | 5944 |       |               |
| 02           | 5994            | 6045 | 6095  | 6146  | 6196  | 6247 | 6297 | 6348 | 6398 | 6449 |       | 1   50        |
| 03           | 6499            | 6550 | 6600  | 6651  | 6701  | 6752 | 6802 | 6853 | 6903 | 6954 |       | 2   100       |
| 04           | 7004            | 7054 | 7105  | 7155  | 7206  | 7256 | 7307 | 7357 | 7408 | 7458 |       | 3   150       |
| 05           | 7509            | 7559 | 7610  | 7660  | 7711  | 7761 | 7812 | 7862 | 7912 | 7963 |       | 4   200       |
| 06           | 8013            | 8064 | 8114  | 8165  | 8215  | 8266 | 8316 | 8367 | 8417 | 8468 |       | 5   250       |
| 07           | 8518            | 8568 | 8619  | 8669  | 8720  | 8770 | 8821 | 8871 | 8922 | 8972 |       | 6   300       |
| 08           | 9023            | 9073 | 9123  | 9174  | 9224  | 9275 | 9325 | 9376 | 9426 | 9477 |       | 7   350       |
| 09           | 9527            | 9578 | 9628  | 9678  | 9729  | 9779 | 9830 | 9880 | 9931 | 9981 |       | 8   400       |
| <b>86 10</b> | <b>935</b> 0032 | 0082 | 0132  | 0183  | 0233  | 0284 | 0334 | 0385 | 0435 | 0485 |       |               |
| 11           | 0536            | 0586 | 0637  | 0687  | 0738  | 0788 | 0838 | 0889 | 0939 | 0990 |       |               |
| 12           | 1040            | 1091 | 1141  | 1191  | 1242  | 1292 | 1343 | 1393 | 1444 | 1494 |       |               |
| 13           | 1544            | 1595 | 1645  | 1696  | 1746  | 1797 | 1847 | 1897 | 1948 | 1998 |       |               |
| 14           | 2049            | 2099 | 2150  | 2200  | 2250  | 2301 | 2351 | 2402 | 2452 | 2502 |       |               |
| 15           | 2553            | 2603 | 2654  | 2704  | 2754  | 2805 | 2855 | 2906 | 2956 | 3006 |       |               |
| 16           | 3057            | 3107 | 3158  | 3208  | 3259  | 3309 | 3359 | 3410 | 3460 | 3511 |       |               |
| 17           | 3561            | 3611 | 3662  | 3712  | 3763  | 3813 | 3863 | 3914 | 3964 | 4015 |       |               |
| 18           | 4065            | 4115 | 4166  | 4216  | 4266  | 4317 | 4367 | 4418 | 4468 | 4518 |       |               |
| 19           | 4569            | 4619 | 4670  | 4720  | 4770  | 4821 | 4871 | 4922 | 4972 | 5022 |       |               |
| Num.         | 0               | 1    | 2     | 3     | 4     | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | Diff.    | Diff. & Mult. |                          |
|-------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------------|--------------------------|
| <b>8620</b> | <b>935</b> | 5073     | 5123     | 5173     | 5224     | 5274     | 5325     | 5375     | 5425     | 5476     | 5526     |               |                          |
| 21          |            | 5576     | 5627     | 5677     | 5728     | 5778     | 5828     | 5879     | 5929     | 5979     | 6030     |               |                          |
| 22          |            | 6080     | 6131     | 6181     | 6231     | 6282     | 6332     | 6382     | 6433     | 6483     | 6533     |               |                          |
| 23          |            | 6584     | 6634     | 6685     | 6735     | 6785     | 6836     | 6886     | 6936     | 6987     | 7037     |               |                          |
| 24          |            | 7087     | 7138     | 7188     | 7239     | 7289     | 7339     | 7390     | 7440     | 7490     | 7541     |               |                          |
| 25          |            | 7591     | 7641     | 7692     | 7742     | 7792     | 7843     | 7893     | 7943     | 7994     | 8044     |               |                          |
| 26          |            | 8095     | 8145     | 8195     | 8246     | 8296     | 8346     | 8397     | 8447     | 8497     | 8548     |               |                          |
| 27          |            | 8598     | 8648     | 8699     | 8749     | 8799     | 8850     | 8900     | 8950     | 9001     | 9051     |               |                          |
| 28          |            | 9101     | 9152     | 9202     | 9252     | 9303     | 9353     | 9403     | 9454     | 9504     | 9554     |               |                          |
| 29          |            | • 9605   | 9655     | 9705     | 9756     | 9806     | 9856     | 9907     | 9957     | • 0007   | 0058     |               |                          |
| <b>8630</b> | <b>936</b> | 0108     | 0158     | 0209     | 0259     | 0309     | 0360     | 0410     | 0460     | 0511     | 0561     |               |                          |
| 31          |            | 0611     | 0661     | 0712     | 0762     | 0812     | 0863     | 0913     | 0963     | 1014     | 1064     | 1             |                          |
| 32          |            | 1114     | 1165     | 1215     | 1265     | 1316     | 1366     | 1416     | 1466     | 1517     | 1567     | 2             |                          |
| 33          |            | 1617     | 1668     | 1718     | 1768     | 1819     | 1869     | 1919     | 1970     | 2020     | 2070     | 3             |                          |
| 34          |            | 2120     | 2171     | 2221     | 2271     | 2322     | 2372     | 2422     | 2473     | 2523     | 2573     | 4             |                          |
| 35          |            | 2623     | 2674     | 2724     | 2774     | 2825     | 2875     | 2925     | 2975     | 3026     | 3076     | 5             |                          |
| 36          |            | 3126     | 3177     | 3227     | 3277     | 3327     | 3378     | 3428     | 3478     | 3529     | 3579     | 6             |                          |
| 37          |            | 3629     | 3679     | 3730     | 3780     | 3830     | 3881     | 3931     | 3981     | 4031     | 4082     | 7             |                          |
| 38          |            | 4132     | 4182     | 4233     | 4283     | 4333     | 4383     | 4434     | 4484     | 4534     | 4584     | 8             |                          |
| 39          |            | 4635     | 4685     | 4735     | 4786     | 4836     | 4886     | 4936     | 4987     | 5037     | 5087     | 9             |                          |
| <b>8640</b> |            | 5137     | 5188     | 5238     | 5288     | 5338     | 5389     | 5439     | 5489     | 5540     | 5590     |               |                          |
| 41          |            | 5640     | 5690     | 5741     | 5791     | 5841     | 5891     | 5942     | 5992     | 6042     | 6092     |               |                          |
| 42          |            | 6143     | 6193     | 6243     | 6293     | 6344     | 6394     | 6444     | 6494     | 6545     | 6595     |               |                          |
| 43          |            | 6645     | 6695     | 6746     | 6796     | 6846     | 6896     | 6947     | 6997     | 7047     | 7097     |               |                          |
| 44          |            | 7148     | 7198     | 7248     | 7298     | 7349     | 7399     | 7449     | 7499     | 7550     | 7600     |               |                          |
| 45          |            | 7650     | 7700     | 7750     | 7801     | 7851     | 7901     | 7951     | 8002     | 8052     | 8102     |               |                          |
| 46          |            | 8152     | 8203     | 8253     | 8303     | 8353     | 8403     | 8454     | 8504     | 8554     | 8604     |               |                          |
| 47          |            | 8655     | 8705     | 8755     | 8805     | 8855     | 8906     | 8956     | 9006     | 9056     | 9107     |               |                          |
| 48          |            | 9157     | 9207     | 9257     | 9307     | 9358     | 9408     | 9458     | 9508     | 9559     | 9609     |               |                          |
| 49          |            | • 9659   | 9709     | 9759     | 9810     | 9860     | 9910     | 9960     | • 0010   | 0061     | 0111     |               |                          |
| <b>8650</b> | <b>937</b> | 0161     | 0211     | 0261     | 0312     | 0362     | 0412     | 0462     | 0513     | 0563     | 0613     |               |                          |
| 51          |            | 0663     | 0713     | 0764     | 0814     | 0864     | 0914     | 0964     | 1015     | 1065     | 1115     |               |                          |
| 52          |            | 1165     | 1215     | 1265     | 1316     | 1366     | 1416     | 1466     | 1516     | 1567     | 1617     |               |                          |
| 53          |            | 1667     | 1717     | 1767     | 1818     | 1868     | 1918     | 1968     | 2018     | 2069     | 2119     |               |                          |
| 54          |            | 2169     | 2219     | 2269     | 2319     | 2370     | 2420     | 2470     | 2520     | 2570     | 2621     |               |                          |
| 55          |            | 2671     | 2721     | 2771     | 2821     | 2871     | 2922     | 2972     | 3022     | 3072     | 3122     |               |                          |
| 56          |            | 3172     | 3223     | 3273     | 3323     | 3373     | 3423     | 3474     | 3524     | 3574     | 3624     |               |                          |
| 57          |            | 3674     | 3724     | 3775     | 3825     | 3875     | 3925     | 3975     | 4025     | 4075     | 4126     |               |                          |
| 58          |            | 4176     | 4226     | 4276     | 4326     | 4376     | 4427     | 4477     | 4527     | 4577     | 4627     |               |                          |
| 59          |            | 4677     | 4728     | 4778     | 4828     | 4878     | 4928     | 4978     | 5028     | 5079     | 5129     |               |                          |
| <b>8660</b> |            | 5179     | 5229     | 5279     | 5329     | 5380     | 5430     | 5480     | 5530     | 5580     | 5630     |               |                          |
| 61          |            | 5680     | 5731     | 5781     | 5831     | 5881     | 5931     | 5981     | 6031     | 6082     | 6132     | 1             |                          |
| 62          |            | 6182     | 6232     | 6282     | 6332     | 6382     | 6432     | 6483     | 6533     | 6583     | 6633     | 2             |                          |
| 63          |            | 6683     | 6733     | 6783     | 6834     | 6884     | 6934     | 6984     | 7034     | 7084     | 7134     | 3             |                          |
| 64          |            | 7184     | 7235     | 7285     | 7335     | 7385     | 7435     | 7485     | 7535     | 7585     | 7636     | 4             |                          |
| 65          |            | 7686     | 7736     | 7786     | 7836     | 7886     | 7936     | 7986     | 8037     | 8087     | 8137     | 5             |                          |
| 66          |            | 8187     | 8237     | 8287     | 8337     | 8387     | 8437     | 8488     | 8538     | 8588     | 8638     | 6             |                          |
| 67          |            | 8688     | 8738     | 8788     | 8838     | 8888     | 8939     | 8989     | 9039     | 9089     | 9139     | 7             |                          |
| 68          |            | 9189     | 9239     | 9289     | 9339     | 9389     | 9440     | 9490     | 9540     | 9590     | 9640     | 8             |                          |
| 69          |            | • 9690   | 9740     | 9790     | 9840     | 9890     | 9941     | 9991     | • 0041   | 0091     | 0141     | 9             |                          |
| <b>8670</b> | <b>938</b> | 0191     | 0241     | 0291     | 0341     | 0391     | 0441     | 0492     | 0542     | 0592     | 0642     |               |                          |
| 71          |            | 0692     | 0742     | 0792     | 0842     | 0892     | 0942     | 0992     | 1042     | 1093     | 1143     |               |                          |
| 72          |            | 1193     | 1243     | 1293     | 1343     | 1393     | 1443     | 1493     | 1543     | 1593     | 1643     |               |                          |
| 73          |            | 1693     | 1744     | 1794     | 1844     | 1894     | 1944     | 1994     | 2044     | 2094     | 2144     |               |                          |
| 74          |            | 2194     | 2244     | 2294     | 2344     | 2394     | 2445     | 2495     | 2545     | 2595     | 2645     |               |                          |
| 75          |            | 2695     | 2745     | 2795     | 2845     | 2895     | 2945     | 2995     | 3045     | 3095     | 3145     |               |                          |
| 76          |            | 3195     | 3245     | 3296     | 3346     | 3396     | 3446     | 3496     | 3546     | 3596     | 3646     |               |                          |
| 77          |            | 3696     | 3746     | 3796     | 3846     | 3896     | 3946     | 3996     | 4046     | 4096     | 4146     |               |                          |
| 78          |            | 4196     | 4247     | 4297     | 4347     | 4397     | 4447     | 4497     | 4547     | 4597     | 4647     |               |                          |
| 79          |            | 4697     | 4747     | 4797     | 4847     | 4897     | 4947     | 4997     | 5047     | 5097     | 5147     |               |                          |
| <b>Num.</b> |            | <b>0</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>Diff.</b>  | <b>Diff. &amp; Mult.</b> |

| Num.         | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |               |
|--------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|---------------|
| <b>880</b>   | <b>938</b> | 5197 | 5247 | 5297 | 5347 | 5397 | 5447 | 5497 | 5547 | 5598 | 5648  |               |               |
| 81           |            | 5698 | 5748 | 5798 | 5848 | 5898 | 5948 | 5998 | 6048 | 6098 | 6148  |               |               |
| 82           |            | 6198 | 6248 | 6298 | 6348 | 6398 | 6448 | 6498 | 6548 | 6598 | 6648  |               |               |
| 83           |            | 6698 | 6748 | 6798 | 6848 | 6898 | 6948 | 6998 | 7048 | 7098 | 7148  |               |               |
| 84           |            | 7198 | 7248 | 7298 | 7348 | 7398 | 7448 | 7498 | 7548 | 7598 | 7648  |               |               |
| 85           |            | 7698 | 7748 | 7798 | 7848 | 7898 | 7948 | 7998 | 8048 | 8098 | 8148  |               |               |
| 86           |            | 8198 | 8248 | 8298 | 8348 | 8398 | 8448 | 8498 | 8548 | 8598 | 8648  |               |               |
| 87           |            | 8698 | 8748 | 8798 | 8848 | 8898 | 8948 | 8998 | 9048 | 9098 | 9148  |               |               |
| 88           |            | 9198 | 9248 | 9298 | 9348 | 9398 | 9448 | 9498 | 9548 | 9598 | 9648  |               |               |
| 89           | *          | 9698 | 9748 | 9798 | 9848 | 9898 | 9948 | 9998 | +048 | 0098 | 0148  |               |               |
| <b>86 90</b> | <b>939</b> | 0198 | 0248 | 0298 | 0348 | 0398 | 0448 | 0498 | 0548 | 0598 | 0648  |               |               |
| 91           |            | 0697 | 0747 | 0797 | 0847 | 0897 | 0947 | 0997 | 1047 | 1097 | 1147  |               |               |
| 92           |            | 1197 | 1247 | 1297 | 1347 | 1397 | 1447 | 1497 | 1547 | 1597 | 1647  |               |               |
| 93           |            | 1697 | 1747 | 1797 | 1847 | 1897 | 1947 | 1997 | 2046 | 2096 | 2146  |               |               |
| 94           |            | 2196 | 2246 | 2296 | 2346 | 2396 | 2446 | 2496 | 2546 | 2596 | 2646  |               |               |
| 95           |            | 2696 | 2746 | 2796 | 2846 | 2896 | 2946 | 2996 | 3045 | 3095 | 3145  |               |               |
| 96           |            | 3195 | 3245 | 3295 | 3345 | 3395 | 3445 | 3495 | 3545 | 3595 | 3645  |               |               |
| 97           |            | 3695 | 3745 | 3795 | 3845 | 3894 | 3944 | 3994 | 4044 | 4094 | 4144  |               |               |
| 98           |            | 4194 | 4244 | 4294 | 4344 | 4394 | 4444 | 4494 | 4544 | 4593 | 4643  |               |               |
| 99           |            | 4693 | 4743 | 4793 | 4843 | 4893 | 4943 | 4993 | 5043 | 5093 | 5143  |               |               |
| <b>87 00</b> |            | 5193 | 5242 | 5292 | 5342 | 5392 | 5442 | 5492 | 5542 | 5592 | 5642  |               |               |
| 01           |            | 5692 | 5742 | 5792 | 5841 | 5891 | 5941 | 5991 | 6041 | 6091 | 6141  |               |               |
| 02           |            | 6191 | 6241 | 6291 | 6341 | 6390 | 6440 | 6490 | 6540 | 6590 | 6640  |               |               |
| 03           |            | 6690 | 6740 | 6790 | 6840 | 6889 | 6939 | 6989 | 7039 | 7089 | 7139  |               |               |
| 04           |            | 7189 | 7239 | 7289 | 7339 | 7388 | 7438 | 7488 | 7538 | 7588 | 7638  |               |               |
| 05           |            | 7688 | 7738 | 7788 | 7837 | 7887 | 7937 | 7987 | 8037 | 8087 | 8137  |               |               |
| 06           |            | 8187 | 8237 | 8286 | 8336 | 8386 | 8436 | 8486 | 8536 | 8586 | 8636  |               |               |
| 07           |            | 8685 | 8735 | 8785 | 8835 | 8885 | 8935 | 8985 | 9035 | 9084 | 9134  |               |               |
| 08           |            | 9184 | 9234 | 9284 | 9334 | 9384 | 9434 | 9483 | 9533 | 9583 | 9633  |               |               |
| 09           | *          | 9683 | 9733 | 9783 | 9833 | 9882 | 9932 | 9982 | +032 | 0082 | 0132  |               |               |
| <b>87 10</b> | <b>940</b> | 0182 | 0231 | 0281 | 0331 | 0381 | 0431 | 0481 | 0531 | 0580 | 0630  |               |               |
| 11           |            | 0680 | 0730 | 0780 | 0830 | 0880 | 0929 | 0979 | 1029 | 1079 | 1129  |               |               |
| 12           |            | 1179 | 1229 | 1278 | 1328 | 1378 | 1428 | 1478 | 1528 | 1577 | 1627  |               |               |
| 13           |            | 1677 | 1727 | 1777 | 1827 | 1877 | 1926 | 1976 | 2026 | 2076 | 2126  |               |               |
| 14           |            | 2176 | 2225 | 2275 | 2325 | 2375 | 2425 | 2475 | 2524 | 2574 | 2624  |               |               |
| 15           |            | 2674 | 2724 | 2774 | 2823 | 2873 | 2923 | 2973 | 3023 | 3073 | 3122  |               |               |
| 16           |            | 3172 | 3222 | 3272 | 3322 | 3372 | 3421 | 3471 | 3521 | 3571 | 3621  |               |               |
| 17           |            | 3670 | 3720 | 3770 | 3820 | 3870 | 3920 | 3969 | 4019 | 4069 | 4119  |               |               |
| 18           |            | 4169 | 4218 | 4268 | 4318 | 4368 | 4418 | 4468 | 4517 | 4567 | 4617  |               |               |
| 19           |            | 4667 | 4717 | 4766 | 4816 | 4866 | 4916 | 4966 | 5015 | 5065 | 5115  |               |               |
| <b>87 20</b> |            | 5165 | 5215 | 5264 | 5314 | 5364 | 5414 | 5464 | 5513 | 5563 | 5613  |               |               |
| 21           |            | 5663 | 5713 | 5762 | 5812 | 5862 | 5912 | 5962 | 6011 | 6061 | 6111  |               |               |
| 22           |            | 6161 | 6211 | 6260 | 6310 | 6360 | 6410 | 6460 | 6509 | 6559 | 6609  |               |               |
| 23           |            | 6659 | 6709 | 6758 | 6808 | 6858 | 6908 | 6957 | 7007 | 7057 | 7107  |               |               |
| 24           |            | 7157 | 7206 | 7256 | 7306 | 7356 | 7405 | 7455 | 7505 | 7555 | 7605  |               |               |
| 25           |            | 7654 | 7704 | 7754 | 7804 | 7853 | 7903 | 7953 | 8003 | 8053 | 8102  |               |               |
| 26           |            | 8152 | 8202 | 8252 | 8301 | 8351 | 8401 | 8451 | 8500 | 8550 | 8600  |               |               |
| 27           |            | 8650 | 8700 | 8749 | 8799 | 8849 | 8899 | 8948 | 8998 | 9048 | 9098  |               |               |
| 28           |            | 9147 | 9197 | 9247 | 9297 | 9346 | 9396 | 9446 | 9496 | 9545 | 9595  |               |               |
| 29           | *          | 9645 | 9695 | 9744 | 9794 | 9844 | 9894 | 9943 | 9993 | +043 | 0093  |               |               |
| <b>87 30</b> | <b>941</b> | 0142 | 0192 | 0242 | 0292 | 0341 | 0391 | 0441 | 0491 | 0540 | 0590  |               |               |
| 31           |            | 0640 | 0690 | 0739 | 0789 | 0839 | 0889 | 0938 | 0988 | 1038 | 1088  |               |               |
| 32           |            | 1137 | 1187 | 1237 | 1286 | 1336 | 1386 | 1436 | 1485 | 1535 | 1585  |               |               |
| 33           |            | 1635 | 1684 | 1734 | 1784 | 1834 | 1883 | 1933 | 1983 | 2032 | 2082  |               |               |
| 34           |            | 2132 | 2182 | 2231 | 2281 | 2331 | 2380 | 2430 | 2480 | 2530 | 2579  |               |               |
| 35           |            | 2629 | 2679 | 2729 | 2778 | 2828 | 2878 | 2927 | 2977 | 3027 | 3077  |               |               |
| 36           |            | 3126 | 3176 | 3226 | 3275 | 3325 | 3375 | 3425 | 3474 | 3524 | 3574  |               |               |
| 37           |            | 3623 | 3673 | 3723 | 3772 | 3822 | 3872 | 3922 | 3971 | 4021 | 4071  |               |               |
| 38           |            | 4120 | 4170 | 4220 | 4270 | 4319 | 4369 | 4419 | 4468 | 4518 | 4568  |               |               |
| 39           |            | 4617 | 4667 | 4717 | 4766 | 4816 | 4866 | 4916 | 4965 | 5015 | 5065  |               |               |
| Num.         |            | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | Diff.         | Diff. & Mult. |

50

1 51  
2 102  
3 153  
4 204  
5 255  
6 306  
7 357  
8 408  
9 459

1 50  
2 100  
3 150  
4 200  
5 250  
6 300  
7 350  
8 400  
-9 450

| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 8740 | 941 | 5114 | 5164 | 5214 | 5263 | 5313 | 5363 | 5412 | 5462 | 5512 | 5562  |               |
| 41   |     | 5611 | 5661 | 5711 | 5760 | 5810 | 5860 | 5909 | 5959 | 6009 | 6058  |               |
| 42   |     | 6108 | 6158 | 6207 | 6257 | 6307 | 6356 | 6406 | 6456 | 6505 | 6555  |               |
| 43   |     | 6605 | 6654 | 6704 | 6754 | 6803 | 6853 | 6903 | 6952 | 7002 | 7052  |               |
| 44   |     | 7101 | 7151 | 7201 | 7250 | 7300 | 7350 | 7399 | 7449 | 7499 | 7548  |               |
| 45   |     | 7598 | 7648 | 7697 | 7747 | 7797 | 7846 | 7896 | 7946 | 7995 | 8045  |               |
| 46   |     | 8095 | 8144 | 8194 | 8244 | 8293 | 8343 | 8393 | 8442 | 8492 | 8542  |               |
| 47   |     | 8591 | 8641 | 8691 | 8740 | 8790 | 8840 | 8889 | 8939 | 8988 | 9038  |               |
| 48   |     | 9088 | 9137 | 9187 | 9237 | 9286 | 9336 | 9386 | 9435 | 9485 | 9535  |               |
| 49   | *   | 9584 | 9634 | 9683 | 9733 | 9783 | 9832 | 9882 | 9932 | 9981 | +031  |               |
| 8750 | 942 | 0081 | 0130 | 0180 | 0229 | 0279 | 0329 | 0378 | 0428 | 0478 | 0527  | 1 50          |
| 51   |     | 0577 | 0626 | 0676 | 0726 | 0775 | 0825 | 0875 | 0924 | 0974 | 1023  | 2 100         |
| 52   |     | 1073 | 1123 | 1172 | 1222 | 1272 | 1321 | 1371 | 1420 | 1470 | 1520  | 3 150         |
| 53   |     | 1569 | 1619 | 1669 | 1718 | 1768 | 1817 | 1867 | 1917 | 1966 | 2016  | 4 200         |
| 54   |     | 2065 | 2115 | 2165 | 2214 | 2264 | 2313 | 2363 | 2413 | 2462 | 2512  | 5 250         |
| 55   |     | 2562 | 2611 | 2661 | 2710 | 2760 | 2810 | 2859 | 2909 | 2958 | 3008  | 6 300         |
| 56   |     | 3058 | 3107 | 3157 | 3206 | 3256 | 3306 | 3355 | 3405 | 3454 | 3504  | 7 350         |
| 57   |     | 3553 | 3603 | 3653 | 3702 | 3752 | 3801 | 3851 | 3901 | 3950 | 4000  | 8 400         |
| 58   |     | 4049 | 4099 | 4149 | 4198 | 4248 | 4297 | 4347 | 4397 | 4446 | 4496  | 9 450         |
| 59   |     | 4545 | 4595 | 4644 | 4694 | 4744 | 4793 | 4843 | 4892 | 4942 | 4991  |               |
| 8760 |     | 5041 | 5091 | 5140 | 5190 | 5239 | 5289 | 5339 | 5388 | 5438 | 5487  |               |
| 61   |     | 5537 | 5586 | 5636 | 5686 | 5735 | 5785 | 5834 | 5884 | 5933 | 5983  |               |
| 62   |     | 6032 | 6082 | 6132 | 6181 | 6231 | 6280 | 6330 | 6379 | 6429 | 6479  |               |
| 63   |     | 6528 | 6578 | 6627 | 6677 | 6726 | 6776 | 6825 | 6875 | 6925 | 6974  |               |
| 64   |     | 7024 | 7073 | 7123 | 7172 | 7222 | 7271 | 7321 | 7371 | 7420 | 7470  |               |
| 65   |     | 7519 | 7569 | 7618 | 7668 | 7717 | 7767 | 7816 | 7866 | 7916 | 7965  |               |
| 66   |     | 8015 | 8064 | 8114 | 8163 | 8213 | 8262 | 8312 | 8361 | 8411 | 8461  |               |
| 67   |     | 8510 | 8560 | 8609 | 8659 | 8708 | 8758 | 8807 | 8857 | 8906 | 8956  |               |
| 68   |     | 9005 | 9055 | 9104 | 9154 | 9204 | 9253 | 9303 | 9352 | 9402 | 9451  |               |
| 69   |     | 9501 | 9550 | 9600 | 9649 | 9699 | 9748 | 9798 | 9847 | 9897 | 9946  |               |
| 8770 | *   | 9996 | +045 | 0095 | 0144 | 0194 | 0244 | 0293 | 0343 | 0392 | 0442  |               |
| 71   | 943 | 0491 | 0541 | 0590 | 0640 | 0689 | 0739 | 0788 | 0838 | 0887 | 0937  |               |
| 72   |     | 0986 | 1036 | 1085 | 1135 | 1184 | 1234 | 1283 | 1333 | 1382 | 1432  |               |
| 73   |     | 1481 | 1531 | 1580 | 1630 | 1679 | 1729 | 1778 | 1828 | 1877 | 1927  |               |
| 74   |     | 1976 | 2026 | 2075 | 2125 | 2174 | 2224 | 2273 | 2323 | 2372 | 2422  |               |
| 75   |     | 2471 | 2521 | 2570 | 2620 | 2669 | 2719 | 2768 | 2818 | 2867 | 2917  |               |
| 76   |     | 2966 | 3016 | 3065 | 3115 | 3164 | 3214 | 3263 | 3313 | 3362 | 3412  |               |
| 77   |     | 3461 | 3510 | 3560 | 3609 | 3659 | 3708 | 3758 | 3807 | 3857 | 3906  |               |
| 78   |     | 3956 | 4005 | 4055 | 4104 | 4154 | 4203 | 4253 | 4302 | 4352 | 4401  |               |
| 79   |     | 4450 | 4500 | 4549 | 4599 | 4648 | 4698 | 4747 | 4797 | 4846 | 4896  |               |
| 8780 |     | 4945 | 4995 | 5044 | 5094 | 5143 | 5192 | 5242 | 5291 | 5341 | 5390  |               |
| 81   |     | 5440 | 5489 | 5539 | 5588 | 5638 | 5687 | 5737 | 5786 | 5835 | 5885  | 1 49          |
| 82   |     | 5934 | 5984 | 6033 | 6083 | 6132 | 6182 | 6231 | 6280 | 6330 | 6379  | 2 98          |
| 83   |     | 6429 | 6478 | 6528 | 6577 | 6627 | 6676 | 6726 | 6775 | 6824 | 6874  | 3 147         |
| 84   |     | 6923 | 6973 | 7022 | 7072 | 7121 | 7170 | 7220 | 7269 | 7319 | 7368  | 4 196         |
| 85   |     | 7418 | 7467 | 7517 | 7566 | 7615 | 7665 | 7714 | 7764 | 7813 | 7863  | 5 245         |
| 86   |     | 7912 | 7961 | 8011 | 8060 | 8110 | 8159 | 8209 | 8258 | 8307 | 8357  | 6 294         |
| 87   |     | 8406 | 8456 | 8505 | 8555 | 8604 | 8653 | 8703 | 8752 | 8802 | 8851  | 7 343         |
| 88   |     | 8900 | 8950 | 8999 | 9049 | 9098 | 9148 | 9197 | 9246 | 9296 | 9345  | 8 392         |
| 89   |     | 9395 | 9444 | 9493 | 9543 | 9592 | 9642 | 9691 | 9741 | 9790 | 9839  | 9 441         |
| 8790 | *   | 9889 | 9938 | 9988 | +037 | 0086 | 0136 | 0185 | 0235 | 0284 | 0333  |               |
| 91   | 944 | 0383 | 0432 | 0482 | 0531 | 0580 | 0630 | 0679 | 0729 | 0778 | 0827  |               |
| 92   |     | 0877 | 0926 | 0976 | 1025 | 1074 | 1124 | 1173 | 1223 | 1272 | 1321  |               |
| 93   |     | 1371 | 1420 | 1470 | 1519 | 1568 | 1618 | 1667 | 1716 | 1766 | 1815  |               |
| 94   |     | 1865 | 1914 | 1963 | 2013 | 2062 | 2112 | 2161 | 2210 | 2260 | 2309  |               |
| 95   |     | 2358 | 2408 | 2457 | 2507 | 2556 | 2605 | 2655 | 2704 | 2753 | 2803  |               |
| 96   |     | 2852 | 2902 | 2951 | 3000 | 3050 | 3099 | 3148 | 3198 | 3247 | 3297  |               |
| 97   |     | 3346 | 3395 | 3445 | 3494 | 3543 | 3593 | 3642 | 3691 | 3741 | 3790  |               |
| 98   |     | 3840 | 3889 | 3938 | 3988 | 4037 | 4086 | 4136 | 4185 | 4234 | 4284  |               |
| 99   |     | 4333 | 4383 | 4432 | 4481 | 4531 | 4580 | 4629 | 4679 | 4728 | 4777  |               |
| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.  | 0   | 1    | 2    | 3     | 4     | 5     | 6     | 7     | 8     | 9     | Diff. | Diff. & Mult. |
|-------|-----|------|------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|
| 8800  | 944 | 4827 | 4876 | 4925  | 4975  | 5024  | 5073  | 5123  | 5172  | 5222  | 5271  |               |
| 01    |     | 5320 | 5370 | 5419  | 5468  | 5518  | 5567  | 5616  | 5666  | 5715  | 5764  |               |
| 02    |     | 5814 | 5863 | 5912  | 5962  | 6011  | 6060  | 6110  | 6159  | 6208  | 6258  |               |
| 03    |     | 6307 | 6356 | 6406  | 6455  | 6504  | 6554  | 6603  | 6652  | 6702  | 6751  |               |
| 04    |     | 6800 | 6850 | 6899  | 6948  | 6998  | 7047  | 7096  | 7146  | 7195  | 7244  |               |
| 05    |     | 7294 | 7343 | 7392  | 7442  | 7491  | 7540  | 7590  | 7639  | 7688  | 7737  |               |
| 06    |     | 7787 | 7836 | 7885  | 7935  | 7984  | 8033  | 8083  | 8132  | 8181  | 8231  |               |
| 07    |     | 8280 | 8329 | 8379  | 8428  | 8477  | 8527  | 8576  | 8625  | 8674  | 8724  |               |
| 08    |     | 8773 | 8822 | 8872  | 8921  | 8970  | 9020  | 9069  | 9118  | 9167  | 9217  |               |
| 09    |     | 9266 | 9315 | 9365  | 9414  | 9463  | 9513  | 9562  | 9611  | 9660  | 9710  |               |
| 88 10 | *   | 9759 | 9808 | 9858  | 9907  | 9956  | 10006 | 10055 | 10104 | 10153 | 10203 |               |
| 11    | 945 | 0252 | 0301 | 0351  | 0400  | 0449  | 0498  | 0548  | 0597  | 0646  | 0696  | 1             |
| 12    |     | 0745 | 0794 | 0843  | 0893  | 0942  | 0991  | 1041  | 1090  | 1139  | 1188  | 2             |
| 13    |     | 1238 | 1287 | 1336  | 1386  | 1435  | 1484  | 1533  | 1583  | 1632  | 1681  | 3             |
| 14    |     | 1730 | 1780 | 1829  | 1878  | 1928  | 1977  | 2026  | 2075  | 2125  | 2174  | 4             |
| 15    |     | 2223 | 2272 | 2322  | 2371  | 2420  | 2469  | 2519  | 2568  | 2617  | 2667  | 5             |
| 16    |     | 2716 | 2765 | 2814  | 2864  | 2913  | 2962  | 3011  | 3061  | 3110  | 3159  | 6             |
| 17    |     | 3208 | 3258 | 3307  | 3356  | 3405  | 3455  | 3504  | 3553  | 3602  | 3652  | 7             |
| 18    |     | 3701 | 3750 | 3799  | 3849  | 3898  | 3947  | 3996  | 4046  | 4095  | 4144  | 8             |
| 19    |     | 4193 | 4243 | 4292  | 4341  | 4390  | 4440  | 4489  | 4538  | 4587  | 4637  | 9             |
| 88 20 |     | 4686 | 4735 | 4784  | 4834  | 4883  | 4932  | 4981  | 5031  | 5080  | 5129  |               |
| 21    |     | 5178 | 5227 | 5277  | 5326  | 5375  | 5424  | 5474  | 5523  | 5572  | 5621  |               |
| 22    |     | 5671 | 5720 | 5769  | 5818  | 5867  | 5917  | 5966  | 6015  | 6064  | 6114  |               |
| 23    |     | 6163 | 6212 | 6261  | 6310  | 6360  | 6409  | 6458  | 6507  | 6557  | 6606  |               |
| 24    |     | 6655 | 6704 | 6753  | 6803  | 6852  | 6901  | 6950  | 7000  | 7049  | 7098  |               |
| 25    |     | 7147 | 7196 | 7246  | 7295  | 7344  | 7393  | 7442  | 7492  | 7541  | 7590  |               |
| 26    |     | 7639 | 7688 | 7738  | 7787  | 7836  | 7885  | 7934  | 7984  | 8033  | 8082  |               |
| 27    |     | 8131 | 8180 | 8230  | 8279  | 8328  | 8377  | 8426  | 8476  | 8525  | 8574  |               |
| 28    |     | 8623 | 8672 | 8722  | 8771  | 8820  | 8869  | 8918  | 8968  | 9017  | 9066  |               |
| 29    |     | 9115 | 9164 | 9214  | 9263  | 9312  | 9361  | 9410  | 9459  | 9509  | 9558  |               |
| 88 30 | *   | 9607 | 9656 | 9705  | 9755  | 9804  | 9853  | 9902  | 9951  | 10000 | 10050 |               |
| 31    | 946 | 0099 | 0148 | 0197  | 0246  | 0296  | 0345  | 0394  | 0443  | 0492  | 0541  |               |
| 32    |     | 0591 | 0640 | 0689  | 0738  | 0787  | 0836  | 0886  | 0935  | 0984  | 1033  |               |
| 33    |     | 1082 | 1131 | 1181  | 1230  | 1279  | 1328  | 1377  | 1426  | 1476  | 1525  |               |
| 34    |     | 1574 | 1623 | 1672  | 1721  | 1771  | 1820  | 1869  | 1918  | 1967  | 2016  |               |
| 35    |     | 2066 | 2115 | 2164  | 2213  | 2262  | 2311  | 2360  | 2410  | 2459  | 2508  |               |
| 36    |     | 2557 | 2606 | 2655  | 2705  | 2754  | 2803  | 2852  | 2901  | 2950  | 2999  |               |
| 37    |     | 3049 | 3098 | 3147  | 3196  | 3245  | 3294  | 3343  | 3393  | 3442  | 3491  |               |
| 38    |     | 3540 | 3589 | 3638  | 3687  | 3737  | 3786  | 3835  | 3884  | 3933  | 3982  |               |
| 39    |     | 4031 | 4080 | 4130  | 4179  | 4228  | 4277  | 4326  | 4375  | 4424  | 4474  |               |
| 88 40 |     | 4523 | 4572 | 4621  | 4670  | 4719  | 4768  | 4817  | 4867  | 4916  | 4965  |               |
| 41    |     | 5014 | 5063 | 5112  | 5161  | 5210  | 5260  | 5309  | 5358  | 5407  | 5456  |               |
| 42    |     | 5505 | 5554 | 5603  | 5652  | 5702  | 5751  | 5800  | 5849  | 5898  | 5947  |               |
| 43    |     | 5996 | 6045 | 6094  | 6144  | 6193  | 6242  | 6291  | 6340  | 6389  | 6438  |               |
| 44    |     | 6487 | 6536 | 6586  | 6635  | 6684  | 6733  | 6782  | 6831  | 6880  | 6929  |               |
| 45    |     | 6978 | 7027 | 7077  | 7126  | 7175  | 7224  | 7273  | 7322  | 7371  | 7420  |               |
| 46    |     | 7469 | 7518 | 7568  | 7617  | 7666  | 7715  | 7764  | 7813  | 7862  | 7911  |               |
| 47    |     | 7960 | 8009 | 8058  | 8108  | 8157  | 8206  | 8255  | 8304  | 8353  | 8402  |               |
| 48    |     | 8451 | 8500 | 8549  | 8598  | 8647  | 8697  | 8746  | 8795  | 8844  | 8893  |               |
| 49    |     | 8942 | 8991 | 9040  | 9089  | 9138  | 9187  | 9236  | 9285  | 9335  | 9384  |               |
| 88 50 |     | 9433 | 9482 | 9531  | 9580  | 9629  | 9678  | 9727  | 9776  | 9825  | 9874  |               |
| 51    | *   | 9923 | 9972 | 10021 | 10071 | 10120 | 0169  | 0218  | 0267  | 0316  | 0365  |               |
| 52    | 947 | 0414 | 0463 | 0512  | 0561  | 0610  | 0659  | 0708  | 0757  | 0807  | 0856  |               |
| 53    |     | 0905 | 0954 | 1003  | 1052  | 1101  | 1150  | 1199  | 1248  | 1297  | 1346  |               |
| 54    |     | 1395 | 1444 | 1493  | 1542  | 1591  | 1640  | 1689  | 1739  | 1788  | 1837  |               |
| 55    |     | 1886 | 1935 | 1984  | 2033  | 2082  | 2131  | 2180  | 2229  | 2278  | 2327  |               |
| 56    |     | 2376 | 2425 | 2474  | 2523  | 2572  | 2621  | 2670  | 2719  | 2768  | 2817  |               |
| 57    |     | 2866 | 2915 | 2965  | 3014  | 3063  | 3112  | 3161  | 3210  | 3259  | 3308  |               |
| 58    |     | 3357 | 3406 | 3455  | 3504  | 3553  | 3602  | 3651  | 3700  | 3749  | 3798  |               |
| 59    |     | 3847 | 3896 | 3945  | 3994  | 4043  | 4092  | 4141  | 4190  | 4239  | 4288  |               |
| Num.  | 0   | 1    | 2    | 3     | 4     | 5     | 6     | 7     | 8     | 9     | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>8980</b> | <b>947</b> | 4337 | 4386 | 4435 | 4484 | 4533 | 4582 | 4631 | 4680 | 4729 | 4778  |               |
| 61          |            | 4827 | 4876 | 4925 | 4974 | 5023 | 5072 | 5121 | 5170 | 5219 | 5268  |               |
| 62          |            | 5317 | 5366 | 5415 | 5464 | 5513 | 5562 | 5611 | 5660 | 5709 | 5758  |               |
| 63          |            | 5807 | 5856 | 5905 | 5954 | 6003 | 6052 | 6101 | 6150 | 6199 | 6248  |               |
| 64          |            | 6297 | 6346 | 6395 | 6444 | 6493 | 6542 | 6591 | 6640 | 6689 | 6738  |               |
| 65          |            | 6787 | 6836 | 6885 | 6934 | 6983 | 7032 | 7081 | 7130 | 7179 | 7228  |               |
| 66          |            | 7277 | 7326 | 7375 | 7424 | 7473 | 7522 | 7571 | 7620 | 7669 | 7718  |               |
| 67          |            | 7767 | 7816 | 7865 | 7914 | 7963 | 8012 | 8061 | 8110 | 8159 | 8208  |               |
| 68          |            | 8257 | 8306 | 8355 | 8404 | 8453 | 8502 | 8551 | 8600 | 8649 | 8698  |               |
| 69          |            | 8747 | 8796 | 8844 | 8893 | 8942 | 8991 | 9040 | 9089 | 9138 | 9187  |               |
| <b>8990</b> |            | 9236 | 9285 | 9334 | 9383 | 9432 | 9481 | 9530 | 9579 | 9628 | 9677  |               |
| 70          | *          | 9726 | 9775 | 9824 | 9873 | 9922 | 9971 | 0020 | 0068 | 0117 | 0166  |               |
| 71          |            | 948  | 0215 | 0264 | 0313 | 0362 | 0411 | 0460 | 0509 | 0558 | 0607  |               |
| 72          |            | 0705 | 0754 | 0803 | 0852 | 0901 | 0950 | 0998 | 1047 | 1096 | 1145  |               |
| 73          |            | 1194 | 1243 | 1292 | 1341 | 1390 | 1439 | 1488 | 1537 | 1586 | 1635  |               |
| 74          |            | 1684 | 1733 | 1781 | 1830 | 1879 | 1928 | 1977 | 2026 | 2075 | 2124  |               |
| 75          |            | 2173 | 2222 | 2271 | 2320 | 2369 | 2418 | 2467 | 2515 | 2564 | 2613  |               |
| 76          |            | 2662 | 2711 | 2760 | 2809 | 2858 | 2907 | 2956 | 3005 | 3054 | 3102  |               |
| 77          |            | 3151 | 3200 | 3249 | 3298 | 3347 | 3396 | 3445 | 3494 | 3543 | 3592  |               |
| 78          |            | 3641 | 3689 | 3738 | 3787 | 3836 | 3885 | 3934 | 3983 | 4032 | 4081  |               |
| 79          |            | 4130 | 4179 | 4227 | 4276 | 4325 | 4374 | 4423 | 4472 | 4521 | 4570  |               |
| <b>8900</b> |            | 4619 | 4668 | 4717 | 4765 | 4814 | 4863 | 4912 | 4961 | 5010 | 5059  |               |
| 81          |            | 5108 | 5157 | 5205 | 5254 | 5303 | 5352 | 5401 | 5450 | 5499 | 5548  |               |
| 82          |            | 5597 | 5646 | 5694 | 5743 | 5792 | 5841 | 5890 | 5939 | 5988 | 6037  |               |
| 83          |            | 6085 | 6134 | 6183 | 6232 | 6281 | 6330 | 6379 | 6428 | 6477 | 6525  |               |
| 84          |            | 6574 | 6623 | 6672 | 6721 | 6770 | 6819 | 6868 | 6916 | 6965 | 7014  |               |
| 85          |            | 7063 | 7112 | 7161 | 7210 | 7259 | 7307 | 7356 | 7405 | 7454 | 7503  |               |
| 86          |            | 7552 | 7601 | 7650 | 7698 | 7747 | 7796 | 7845 | 7894 | 7943 | 7992  |               |
| 87          |            | 8040 | 8089 | 8138 | 8187 | 8236 | 8285 | 8334 | 8382 | 8431 | 8480  |               |
| 88          |            | 8529 | 8578 | 8627 | 8676 | 8724 | 8773 | 8822 | 8871 | 8920 | 8969  |               |
| 89          |            | 9018 | 9066 | 9115 | 9164 | 9213 | 9262 | 9311 | 9360 | 9408 | 9457  |               |
| <b>8910</b> |            | 9506 | 9555 | 9604 | 9653 | 9701 | 9750 | 9799 | 9848 | 9897 | 9946  |               |
| 91          | *          | 9995 | 0043 | 0092 | 0141 | 0190 | 0239 | 0288 | 0336 | 0385 | 0434  |               |
| 92          |            | 949  | 0483 | 0532 | 0581 | 0629 | 0678 | 0727 | 0776 | 0825 | 0874  |               |
| 93          |            | 0971 | 1020 | 1069 | 1118 | 1167 | 1215 | 1264 | 1313 | 1362 | 1411  |               |
| 94          |            | 1460 | 1508 | 1557 | 1606 | 1655 | 1704 | 1752 | 1801 | 1850 | 1899  |               |
| 95          |            | 1948 | 1997 | 2045 | 2094 | 2143 | 2192 | 2241 | 2289 | 2338 | 2387  |               |
| 96          |            | 2436 | 2485 | 2534 | 2582 | 2631 | 2680 | 2729 | 2777 | 2826 | 2875  |               |
| 97          |            | 2924 | 2973 | 3022 | 3070 | 3119 | 3168 | 3217 | 3266 | 3314 | 3363  |               |
| 98          |            | 3412 | 3461 | 3510 | 3558 | 3607 | 3656 | 3705 | 3754 | 3802 | 3851  |               |
| 99          |            | 3900 | 3949 | 3998 | 4046 | 4095 | 4144 | 4193 | 4242 | 4290 | 4339  |               |
| <b>8920</b> |            | 4388 | 4437 | 4486 | 4534 | 4583 | 4632 | 4681 | 4730 | 4778 | 4827  |               |
| 01          |            | 4876 | 4925 | 4973 | 5022 | 5071 | 5120 | 5169 | 5217 | 5266 | 5315  |               |
| 02          |            | 5364 | 5413 | 5461 | 5510 | 5559 | 5608 | 5656 | 5705 | 5754 | 5803  |               |
| 03          |            | 5852 | 5900 | 5949 | 5998 | 6047 | 6095 | 6144 | 6193 | 6242 | 6290  |               |
| 04          |            | 6339 | 6388 | 6437 | 6486 | 6534 | 6583 | 6632 | 6681 | 6729 | 6778  |               |
| 05          |            | 6827 | 6876 | 6924 | 6973 | 7022 | 7071 | 7119 | 7168 | 7217 | 7266  |               |
| 06          |            | 7315 | 7363 | 7412 | 7461 | 7510 | 7558 | 7607 | 7656 | 7705 | 7753  |               |
| 07          |            | 7802 | 7851 | 7900 | 7948 | 7997 | 8046 | 8095 | 8143 | 8192 | 8241  |               |
| 08          |            | 8290 | 8338 | 8387 | 8436 | 8485 | 8533 | 8582 | 8631 | 8680 | 8728  |               |
| 09          |            | 8777 | 8826 | 8875 | 8923 | 8972 | 9021 | 9069 | 9118 | 9167 | 9216  |               |
| <b>8930</b> |            | 9264 | 9313 | 9362 | 9411 | 9459 | 9508 | 9557 | 9606 | 9654 | 9703  |               |
| 11          | *          | 9752 | 9801 | 9849 | 9898 | 9947 | 9995 | 0044 | 0093 | 0142 | 0190  |               |
| 12          |            | 950  | 0239 | 0288 | 0337 | 0385 | 0434 | 0483 | 0531 | 0580 | 0629  |               |
| 13          |            | 0726 | 0775 | 0824 | 0872 | 0921 | 0970 | 1019 | 1067 | 1116 | 1165  |               |
| 14          |            | 1213 | 1262 | 1311 | 1360 | 1408 | 1457 | 1506 | 1554 | 1603 | 1652  |               |
| 15          |            | 1701 | 1749 | 1798 | 1847 | 1895 | 1944 | 1993 | 2042 | 2090 | 2139  |               |
| 16          |            | 2188 | 2236 | 2285 | 2334 | 2382 | 2431 | 2480 | 2529 | 2577 | 2626  |               |
| 17          |            | 2675 | 2723 | 2772 | 2821 | 2869 | 2918 | 2967 | 3016 | 3064 | 3113  |               |
| 18          |            | 3162 | 3210 | 3259 | 3308 | 3356 | 3405 | 3454 | 3502 | 3551 | 3600  |               |
| 19          |            |      |      |      |      |      |      |      |      |      |       |               |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

49

|   |     |
|---|-----|
| 1 | 49  |
| 2 | 98  |
| 3 | 147 |
| 4 | 196 |
| 5 | 245 |
| 6 | 294 |
| 7 | 343 |
| 8 | 392 |
| 9 | 441 |

|   |     |
|---|-----|
| 1 | 48  |
| 2 | 96  |
| 3 | 144 |
| 4 | 192 |
| 5 | 240 |
| 6 | 288 |
| 7 | 336 |
| 8 | 384 |
| 9 | 432 |

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 8920  | 950 | 3649 | 3697 | 3746 | 3795 | 3843 | 3892 | 3941 | 3989 | 4038 | 4087  |               |
| 21    |     | 4135 | 4184 | 4233 | 4281 | 4330 | 4379 | 4427 | 4476 | 4525 | 4574  |               |
| 22    |     | 4622 | 4671 | 4720 | 4768 | 4817 | 4866 | 4914 | 4963 | 5012 | 5060  |               |
| 23    |     | 5109 | 5158 | 5206 | 5255 | 5304 | 5352 | 5401 | 5450 | 5498 | 5547  |               |
| 24    |     | 5596 | 5644 | 5693 | 5742 | 5790 | 5839 | 5888 | 5936 | 5985 | 6034  |               |
| 25    |     | 6082 | 6131 | 6180 | 6228 | 6277 | 6326 | 6374 | 6423 | 6472 | 6520  |               |
| 26    |     | 6569 | 6617 | 6666 | 6715 | 6763 | 6812 | 6861 | 6909 | 6958 | 7007  |               |
| 27    |     | 7055 | 7104 | 7153 | 7201 | 7250 | 7299 | 7347 | 7396 | 7445 | 7493  |               |
| 28    |     | 7542 | 7590 | 7639 | 7688 | 7736 | 7785 | 7834 | 7882 | 7931 | 7980  |               |
| 29    |     | 8028 | 8077 | 8126 | 8174 | 8223 | 8271 | 8320 | 8369 | 8417 | 8466  |               |
| 89 30 |     | 8515 | 8563 | 8612 | 8660 | 8709 | 8758 | 8806 | 8855 | 8904 | 8952  | 1 49          |
| 31    |     | 9001 | 9050 | 9098 | 9147 | 9195 | 9244 | 9293 | 9341 | 9390 | 9439  | 2 96          |
| 32    |     | 9487 | 9536 | 9584 | 9633 | 9682 | 9730 | 9779 | 9827 | 9876 | 9925  | 3 147         |
| 33    | *   | 9973 | +022 | 0071 | 0119 | 0168 | 0216 | 0265 | 0314 | 0362 | 0411  | 4 196         |
| 34    | 951 | 0459 | 0508 | 0557 | 0605 | 0654 | 0703 | 0751 | 0800 | 0848 | 0897  | 5 245         |
| 35    |     | 0946 | 0994 | 1043 | 1091 | 1140 | 1189 | 1237 | 1286 | 1334 | 1383  | 6 294         |
| 36    |     | 1432 | 1480 | 1529 | 1577 | 1626 | 1675 | 1723 | 1772 | 1820 | 1869  | 7 343         |
| 37    |     | 1918 | 1966 | 2015 | 2063 | 2112 | 2161 | 2209 | 2258 | 2306 | 2355  | 8 392         |
| 38    |     | 2404 | 2452 | 2501 | 2549 | 2598 | 2646 | 2695 | 2744 | 2792 | 2841  | 9 441         |
| 39    |     | 2889 | 2938 | 2987 | 3035 | 3084 | 3132 | 3181 | 3229 | 3278 | 3327  |               |
| 89 40 |     | 3375 | 3424 | 3472 | 3521 | 3569 | 3618 | 3667 | 3715 | 3764 | 3812  |               |
| 41    |     | 3861 | 3910 | 3958 | 4007 | 4055 | 4104 | 4152 | 4201 | 4250 | 4298  |               |
| 42    |     | 4347 | 4395 | 4444 | 4492 | 4541 | 4589 | 4638 | 4687 | 4735 | 4784  |               |
| 43    |     | 4832 | 4881 | 4929 | 4978 | 5027 | 5075 | 5124 | 5172 | 5221 | 5269  |               |
| 44    |     | 5318 | 5366 | 5415 | 5464 | 5512 | 5561 | 5609 | 5658 | 5706 | 5755  |               |
| 45    |     | 5803 | 5852 | 5901 | 5949 | 5998 | 6046 | 6095 | 6143 | 6192 | 6240  |               |
| 46    |     | 6289 | 6337 | 6386 | 6435 | 6483 | 6532 | 6580 | 6629 | 6677 | 6726  |               |
| 47    |     | 6774 | 6823 | 6871 | 6920 | 6969 | 7017 | 7066 | 7114 | 7163 | 7211  |               |
| 48    |     | 7260 | 7308 | 7357 | 7405 | 7454 | 7502 | 7551 | 7599 | 7648 | 7697  |               |
| 49    |     | 7745 | 7794 | 7842 | 7891 | 7939 | 7988 | 8036 | 8085 | 8133 | 8182  |               |
| 89 50 |     | 8230 | 8279 | 8327 | 8376 | 8424 | 8473 | 8521 | 8570 | 8619 | 8667  |               |
| 51    |     | 8716 | 8764 | 8813 | 8861 | 8910 | 8958 | 9007 | 9055 | 9104 | 9152  |               |
| 52    |     | 9201 | 9249 | 9298 | 9346 | 9395 | 9443 | 9492 | 9540 | 9589 | 9637  |               |
| 53    | *   | 9686 | 9734 | 9783 | 9831 | 9880 | 9928 | 9977 | +025 | 0074 | 0122  |               |
| 54    | 952 | 0171 | 0219 | 0268 | 0316 | 0365 | 0413 | 0462 | 0510 | 0559 | 0607  |               |
| 55    |     | 0656 | 0704 | 0753 | 0801 | 0850 | 0898 | 0947 | 0995 | 1044 | 1092  |               |
| 56    | *   | 1141 | 1189 | 1238 | 1286 | 1335 | 1383 | 1432 | 1480 | 1529 | 1577  |               |
| 57    |     | 1626 | 1674 | 1723 | 1771 | 1820 | 1868 | 1917 | 1965 | 2014 | 2062  |               |
| 58    |     | 2111 | 2159 | 2208 | 2256 | 2305 | 2353 | 2401 | 2450 | 2498 | 2547  |               |
| 59    |     | 2595 | 2644 | 2692 | 2741 | 2789 | 2838 | 2886 | 2935 | 2983 | 3032  |               |
| 89 60 |     | 3080 | 3129 | 3177 | 3226 | 3274 | 3322 | 3371 | 3419 | 3468 | 3516  |               |
| 61    |     | 3565 | 3613 | 3662 | 3710 | 3759 | 3807 | 3856 | 3904 | 3952 | 4001  |               |
| 62    |     | 4049 | 4098 | 4146 | 4195 | 4243 | 4292 | 4340 | 4389 | 4437 | 4486  | 1 48          |
| 63    |     | 4534 | 4582 | 4631 | 4679 | 4728 | 4776 | 4825 | 4873 | 4922 | 4970  | 2 96          |
| 64    |     | 5018 | 5067 | 5115 | 5164 | 5212 | 5261 | 5309 | 5358 | 5406 | 5454  | 3 144         |
| 65    |     | 5503 | 5551 | 5600 | 5648 | 5697 | 5745 | 5794 | 5842 | 5890 | 5939  | 4 192         |
| 66    |     | 5987 | 6036 | 6084 | 6133 | 6181 | 6230 | 6278 | 6326 | 6375 | 6423  | 5 240         |
| 67    |     | 6472 | 6520 | 6569 | 6617 | 6665 | 6714 | 6762 | 6811 | 6859 | 6908  | 6 288         |
| 68    |     | 6956 | 7004 | 7053 | 7101 | 7150 | 7198 | 7247 | 7295 | 7343 | 7392  | 7 336         |
| 69    |     | 7440 | 7489 | 7537 | 7586 | 7634 | 7682 | 7731 | 7779 | 7828 | 7876  | 8 384         |
| 89 70 |     | 7924 | 7973 | 8021 | 8070 | 8118 | 8167 | 8215 | 8263 | 8312 | 8360  |               |
| 71    |     | 8409 | 8457 | 8505 | 8554 | 8602 | 8651 | 8699 | 8747 | 8796 | 8844  |               |
| 72    |     | 8893 | 8941 | 8989 | 9038 | 9086 | 9135 | 9183 | 9231 | 9280 | 9328  |               |
| 73    |     | 9377 | 9425 | 9473 | 9522 | 9570 | 9619 | 9667 | 9715 | 9764 | 9812  |               |
| 74    | *   | 9861 | 9909 | 9957 | +006 | 0054 | 0103 | 0151 | 0199 | 0248 | 0296  |               |
| 75    | 953 | 0345 | 0393 | 0441 | 0490 | 0538 | 0587 | 0635 | 0683 | 0732 | 0780  |               |
| 76    |     | 0828 | 0877 | 0925 | 0974 | 1022 | 1070 | 1119 | 1167 | 1215 | 1264  |               |
| 77    |     | 1312 | 1361 | 1409 | 1457 | 1506 | 1554 | 1603 | 1651 | 1699 | 1748  |               |
| 78    |     | 1796 | 1844 | 1893 | 1941 | 1989 | 2038 | 2086 | 2135 | 2183 | 2231  |               |
| 79    |     | 2280 | 2328 | 2376 | 2425 | 2473 | 2522 | 2570 | 2618 | 2667 | 2715  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |



| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6     | 7    | 8    | 9     | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|-------|------|------|-------|-------|---------------|
| 8800  | 953 | 2763 | 2812 | 2860 | 2908 | 2957 | 3005  | 3054 | 3102 | 3150  | 3199  |               |
| 81    |     | 3247 | 3295 | 3344 | 3392 | 3440 | 3489  | 3537 | 3585 | 3634  | 3682  |               |
| 82    |     | 3731 | 3779 | 3827 | 3876 | 3924 | 3972  | 4021 | 4069 | 4117  | 4166  |               |
| 83    |     | 4214 | 4262 | 4311 | 4359 | 4407 | 4456  | 4504 | 4552 | 4601  | 4649  |               |
| 84    |     | 4697 | 4746 | 4794 | 4842 | 4891 | 4939  | 4987 | 5036 | 5084  | 5132  |               |
| 85    |     | 5181 | 5229 | 5277 | 5326 | 5374 | 5422  | 5471 | 5519 | 5567  | 5616  |               |
| 86    |     | 5664 | 5712 | 5761 | 5809 | 5857 | 5906  | 5954 | 6002 | 6051  | 6099  |               |
| 87    |     | 6147 | 6196 | 6244 | 6292 | 6341 | 6389  | 6437 | 6486 | 6534  | 6582  |               |
| 88    |     | 6631 | 6679 | 6727 | 6776 | 6824 | 6872  | 6921 | 6969 | 7017  | 7065  |               |
| 89    |     | 7114 | 7162 | 7210 | 7259 | 7307 | 7355  | 7404 | 7452 | 7500  | 7549  |               |
| 89 90 |     | 7597 | 7645 | 7694 | 7742 | 7790 | 7838  | 7887 | 7935 | 7983  | 8032  |               |
| 91    |     | 8080 | 8128 | 8177 | 8225 | 8273 | 8321  | 8370 | 8418 | 8466  | 8515  | 1             |
| 92    |     | 8563 | 8611 | 8660 | 8708 | 8756 | 8804  | 8853 | 8901 | 8949  | 8998  | 2             |
| 93    |     | 9046 | 9094 | 9143 | 9191 | 9239 | 9287  | 9336 | 9384 | 9432  | 9481  | 3             |
| 94    |     | 9529 | 9577 | 9625 | 9674 | 9722 | 9770  | 9819 | 9867 | 9915  | 9963  | 4             |
| 95    | 954 | 0012 | 0060 | 0108 | 0157 | 0205 | 0253  | 0301 | 0350 | 0398  | 0446  | 5             |
| 96    |     | 0494 | 0543 | 0591 | 0639 | 0688 | 0736  | 0784 | 0832 | 0881  | 0929  | 6             |
| 97    |     | 0977 | 1025 | 1074 | 1122 | 1170 | 1219  | 1267 | 1315 | 1363  | 1412  | 7             |
| 98    |     | 1460 | 1508 | 1556 | 1605 | 1653 | 1701  | 1749 | 1798 | 1846  | 1894  | 8             |
| 99    |     | 1943 | 1991 | 2039 | 2087 | 2136 | 2184  | 2232 | 2280 | 2329  | 2377  | 9             |
| 90 00 |     | 2425 | 2473 | 2522 | 2570 | 2618 | 2666  | 2715 | 2763 | 2811  | 2859  |               |
| 01    |     | 2908 | 2956 | 3004 | 3052 | 3101 | 3149  | 3197 | 3245 | 3294  | 3342  |               |
| 02    |     | 3390 | 3438 | 3487 | 3535 | 3583 | 3631  | 3680 | 3728 | 3776  | 3824  |               |
| 03    |     | 3873 | 3921 | 3969 | 4017 | 4065 | 4114  | 4162 | 4210 | 4258  | 4307  |               |
| 04    |     | 4355 | 4403 | 4451 | 4500 | 4548 | 4596  | 4644 | 4692 | 4741  | 4789  |               |
| 05    |     | 4837 | 4885 | 4934 | 4982 | 5030 | 5078  | 5127 | 5175 | 5223  | 5271  |               |
| 06    |     | 5319 | 5368 | 5416 | 5464 | 5512 | 5561  | 5609 | 5657 | 5705  | 5753  |               |
| 07    |     | 5802 | 5850 | 5898 | 5946 | 5994 | 6043  | 6091 | 6139 | 6187  | 6236  |               |
| 08    |     | 6284 | 6332 | 6380 | 6428 | 6477 | 6525  | 6573 | 6621 | 6669  | 6718  |               |
| 09    |     | 6766 | 6814 | 6862 | 6910 | 6959 | 7007  | 7055 | 7103 | 7152  | 7200  |               |
| 90 10 |     | 7248 | 7296 | 7344 | 7393 | 7441 | 7489  | 7537 | 7585 | 7634  | 7682  |               |
| 11    |     | 7730 | 7778 | 7826 | 7874 | 7923 | 7971  | 8019 | 8067 | 8115  | 8164  |               |
| 12    |     | 8212 | 8260 | 8308 | 8356 | 8405 | 8453  | 8501 | 8549 | 8597  | 8646  |               |
| 13    |     | 8694 | 8742 | 8790 | 8838 | 8886 | 8935  | 8983 | 9031 | 9079  | 9127  |               |
| 14    |     | 9176 | 9224 | 9272 | 9320 | 9368 | 9416  | 9465 | 9513 | 9561  | 9609  |               |
| 15    | *   | 9657 | 9705 | 9754 | 9802 | 9850 | 9898  | 9946 | 9995 | +0.43 | 0091  |               |
| 16    | 955 | 0139 | 0187 | 0235 | 0284 | 0332 | 0380  | 0428 | 0476 | 0524  | 0573  |               |
| 17    |     | 0621 | 0669 | 0717 | 0765 | 0813 | 0862  | 0910 | 0958 | 1006  | 1054  |               |
| 18    |     | 1102 | 1150 | 1199 | 1247 | 1295 | 1343  | 1391 | 1439 | 1488  | 1536  |               |
| 19    |     | 1584 | 1632 | 1680 | 1728 | 1776 | 1825  | 1873 | 1921 | 1969  | 2017  |               |
| 90 20 |     | 2065 | 2114 | 2162 | 2210 | 2258 | 2306  | 2354 | 2402 | 2451  | 2499  |               |
| 21    |     | 2547 | 2595 | 2643 | 2691 | 2739 | 2788  | 2836 | 2884 | 2932  | 2980  |               |
| 22    |     | 3028 | 3076 | 3125 | 3173 | 3221 | 3269  | 3317 | 3365 | 3413  | 3461  |               |
| 23    |     | 3510 | 3558 | 3606 | 3654 | 3702 | 3750  | 3798 | 3846 | 3895  | 3943  |               |
| 24    |     | 3991 | 4039 | 4087 | 4135 | 4183 | 4231  | 4280 | 4328 | 4376  | 4424  |               |
| 25    |     | 4472 | 4520 | 4568 | 4616 | 4665 | 4713  | 4761 | 4809 | 4857  | 4905  |               |
| 26    |     | 4953 | 5001 | 5050 | 5098 | 5146 | 5194  | 5242 | 5290 | 5338  | 5386  |               |
| 27    |     | 5434 | 5483 | 5531 | 5579 | 5627 | 5675  | 5723 | 5771 | 5819  | 5867  |               |
| 28    |     | 5916 | 5964 | 6012 | 6060 | 6108 | 6156  | 6204 | 6252 | 6300  | 6348  |               |
| 29    |     | 6397 | 6445 | 6493 | 6541 | 6589 | 6637  | 6685 | 6733 | 6781  | 6829  |               |
| 90 30 |     | 6878 | 6926 | 6974 | 7022 | 7070 | 7118  | 7166 | 7214 | 7262  | 7310  |               |
| 31    |     | 7358 | 7407 | 7455 | 7503 | 7551 | 7599  | 7647 | 7695 | 7743  | 7791  |               |
| 32    |     | 7839 | 7887 | 7935 | 7984 | 8032 | 8080  | 8128 | 8176 | 8224  | 8272  |               |
| 33    |     | 8320 | 8368 | 8416 | 8464 | 8512 | 8560  | 8609 | 8657 | 8705  | 8753  |               |
| 34    |     | 8801 | 8849 | 8897 | 8945 | 8993 | 9041  | 9089 | 9137 | 9185  | 9234  |               |
| 35    |     | 9282 | 9330 | 9378 | 9426 | 9474 | 9522  | 9570 | 9618 | 9666  | 9714  |               |
| 36    | *   | 9762 | 9810 | 9858 | 9906 | 9954 | +0.03 | 0051 | 0099 | 0147  | 0195  |               |
| 37    | 956 | 0243 | 0291 | 0339 | 0387 | 0435 | 0483  | 0531 | 0579 | 0627  | 0675  |               |
| 38    |     | 0723 | 0771 | 0819 | 0868 | 0916 | 0964  | 1012 | 1060 | 1108  | 1156  |               |
| 39    |     | 1204 | 1252 | 1300 | 1348 | 1396 | 1444  | 1492 | 1540 | 1588  | 1636  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6     | 7    | 8    | 9     | Diff. | Diff. & Mult. |

|   |     |
|---|-----|
| 1 | 49  |
| 2 | 96  |
| 3 | 147 |
| 4 | 196 |
| 5 | 245 |
| 6 | 294 |
| 7 | 343 |
| 8 | 392 |
| 9 | 441 |

|   |     |
|---|-----|
| 1 | 48  |
| 2 | 96  |
| 3 | 144 |
| 4 | 192 |
| 5 | 240 |
| 6 | 288 |
| 7 | 336 |
| 8 | 384 |
| 9 | 432 |

| Num. | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|--------|------|------|------|------|------|------|------|------|------|-------|---------------|
| 9040 | 958    | 1684 | 1732 | 1780 | 1828 | 1876 | 1925 | 1973 | 2021 | 2069 | 2117  |               |
| 41   | 2165   | 2213 | 2261 | 2309 | 2357 | 2405 | 2453 | 2501 | 2549 | 2597 |       |               |
| 42   | 2645   | 2693 | 2741 | 2789 | 2837 | 2885 | 2933 | 2981 | 3029 | 3077 |       |               |
| 43   | 3125   | 3173 | 3221 | 3269 | 3317 | 3365 | 3413 | 3461 | 3509 | 3558 |       |               |
| 44   | 3606   | 3654 | 3702 | 3750 | 3798 | 3846 | 3894 | 3942 | 3990 | 4038 |       |               |
| 45   | 4086   | 4134 | 4182 | 4230 | 4278 | 4326 | 4374 | 4422 | 4470 | 4518 |       |               |
| 46   | 4566   | 4614 | 4662 | 4710 | 4758 | 4806 | 4854 | 4902 | 4950 | 4998 |       |               |
| 47   | 5046   | 5094 | 5142 | 5190 | 5238 | 5286 | 5334 | 5382 | 5430 | 5478 |       |               |
| 48   | 5526   | 5574 | 5622 | 5670 | 5718 | 5766 | 5814 | 5862 | 5910 | 5958 | 88    |               |
| 49   | 6006   | 6054 | 6102 | 6150 | 6198 | 6246 | 6294 | 6342 | 6390 | 6438 |       |               |
| 9050 | 6486   | 6534 | 6582 | 6630 | 6678 | 6726 | 6774 | 6822 | 6870 | 6918 |       |               |
| 51   | 6966   | 7014 | 7062 | 7110 | 7158 | 7206 | 7254 | 7302 | 7349 | 7397 |       | 1             |
| 52   | 7445   | 7493 | 7541 | 7589 | 7637 | 7685 | 7733 | 7781 | 7829 | 7877 |       | 2             |
| 53   | 7925   | 7973 | 8021 | 8069 | 8117 | 8165 | 8213 | 8261 | 8309 | 8357 |       | 3             |
| 54   | 8405   | 8453 | 8501 | 8549 | 8597 | 8645 | 8693 | 8741 | 8789 | 8837 |       | 4             |
| 55   | 8885   | 8933 | 8980 | 9028 | 9076 | 9124 | 9172 | 9220 | 9268 | 9316 |       | 5             |
| 56   | 9364   | 9412 | 9460 | 9508 | 9556 | 9604 | 9652 | 9700 | 9748 | 9796 |       | 6             |
| 57   | * 9844 | 9892 | 9940 | 9988 | +035 | 0083 | 0131 | 0179 | 0227 | 0275 |       | 7             |
| 58   | 957    | 0323 | 0371 | 0419 | 0467 | 0515 | 0563 | 0611 | 0659 | 0707 |       | 8             |
| 59   | 0803   | 0851 | 0898 | 0946 | 0994 | 1042 | 1090 | 1138 | 1186 | 1234 |       | 9             |
| 9060 | 1282   | 1330 | 1378 | 1426 | 1474 | 1522 | 1570 | 1618 | 1665 | 1713 |       |               |
| 61   | 1761   | 1809 | 1857 | 1905 | 1953 | 2001 | 2049 | 2097 | 2145 | 2193 |       |               |
| 62   | 2241   | 2289 | 2336 | 2384 | 2432 | 2480 | 2528 | 2576 | 2624 | 2672 |       |               |
| 63   | 2720   | 2768 | 2816 | 2864 | 2912 | 2959 | 3007 | 3055 | 3103 | 3151 |       |               |
| 64   | 3199   | 3247 | 3295 | 3343 | 3391 | 3439 | 3486 | 3534 | 3582 | 3630 |       |               |
| 65   | 3678   | 3726 | 3774 | 3822 | 3870 | 3918 | 3966 | 4013 | 4061 | 4109 |       |               |
| 66   | 4157   | 4205 | 4253 | 4301 | 4349 | 4397 | 4445 | 4492 | 4540 | 4588 |       |               |
| 67   | 4636   | 4684 | 4732 | 4780 | 4828 | 4876 | 4924 | 4971 | 5019 | 5067 |       |               |
| 68   | 5115   | 5163 | 5211 | 5259 | 5307 | 5355 | 5402 | 5450 | 5498 | 5546 |       |               |
| 69   | 5594   | 5642 | 5690 | 5738 | 5786 | 5833 | 5881 | 5929 | 5977 | 6025 |       |               |
| 9070 | 6073   | 6121 | 6169 | 6217 | 6264 | 6312 | 6360 | 6408 | 6456 | 6504 |       |               |
| 71   | 6552   | 6600 | 6647 | 6695 | 6743 | 6791 | 6839 | 6887 | 6935 | 6983 |       |               |
| 72   | 7030   | 7078 | 7126 | 7174 | 7222 | 7270 | 7318 | 7366 | 7413 | 7461 |       |               |
| 73   | 7509   | 7557 | 7605 | 7653 | 7701 | 7748 | 7796 | 7844 | 7892 | 7940 |       |               |
| 74   | 7988   | 8036 | 8083 | 8131 | 8179 | 8227 | 8275 | 8323 | 8371 | 8418 |       |               |
| 75   | 8466   | 8514 | 8562 | 8610 | 8658 | 8706 | 8753 | 8801 | 8849 | 8897 |       |               |
| 76   | 8945   | 8993 | 9041 | 9088 | 9136 | 9184 | 9232 | 9280 | 9328 | 9376 |       |               |
| 77   | 9423   | 9471 | 9519 | 9567 | 9615 | 9663 | 9710 | 9758 | 9806 | 9854 |       |               |
| 78   | * 9902 | 9950 | 9997 | +045 | 0093 | 0141 | 0189 | 0237 | 0284 | 0332 |       |               |
| 79   | 958    | 0380 | 0428 | 0476 | 0524 | 0571 | 0619 | 0667 | 0715 | 0763 |       |               |
| 9080 | 0858   | 0906 | 0954 | 1002 | 1050 | 1098 | 1145 | 1193 | 1241 | 1289 |       |               |
| 81   | 1337   | 1385 | 1432 | 1480 | 1528 | 1576 | 1624 | 1672 | 1719 | 1767 |       | 1             |
| 82   | 1815   | 1863 | 1911 | 1958 | 2006 | 2054 | 2102 | 2150 | 2198 | 2245 |       | 2             |
| 83   | 2293   | 2341 | 2389 | 2437 | 2484 | 2532 | 2580 | 2628 | 2676 | 2723 |       | 3             |
| 84   | 2771   | 2819 | 2867 | 2915 | 2962 | 3010 | 3058 | 3106 | 3154 | 3202 |       | 4             |
| 85   | 3249   | 3297 | 3345 | 3393 | 3441 | 3488 | 3536 | 3584 | 3632 | 3680 |       | 5             |
| 86   | 3727   | 3775 | 3823 | 3871 | 3919 | 3966 | 4014 | 4062 | 4110 | 4157 |       | 6             |
| 87   | 4205   | 4253 | 4301 | 4349 | 4396 | 4444 | 4492 | 4540 | 4588 | 4635 |       | 7             |
| 88   | 4683   | 4731 | 4779 | 4827 | 4874 | 4922 | 4970 | 5018 | 5065 | 5113 |       | 8             |
| 89   | 5161   | 5209 | 5257 | 5304 | 5352 | 5400 | 5448 | 5495 | 5543 | 5591 |       | 9             |
| 9090 | 5639   | 5687 | 5734 | 5782 | 5830 | 5878 | 5925 | 5973 | 6021 | 6069 |       |               |
| 91   | 6117   | 6164 | 6212 | 6260 | 6308 | 6355 | 6403 | 6451 | 6499 | 6547 |       |               |
| 92   | 6594   | 6642 | 6690 | 6738 | 6785 | 6833 | 6881 | 6929 | 6976 | 7024 |       |               |
| 93   | 7072   | 7120 | 7167 | 7215 | 7263 | 7311 | 7358 | 7406 | 7454 | 7502 |       |               |
| 94   | 7549   | 7597 | 7645 | 7693 | 7741 | 7788 | 7836 | 7884 | 7932 | 7979 |       |               |
| 95   | 8027   | 8075 | 8123 | 8170 | 8218 | 8266 | 8314 | 8361 | 8409 | 8457 |       |               |
| 96   | 8505   | 8552 | 8600 | 8648 | 8695 | 8743 | 8791 | 8839 | 8886 | 8934 |       |               |
| 97   | 8982   | 9030 | 9077 | 9125 | 9173 | 9221 | 9268 | 9316 | 9364 | 9412 |       |               |
| 98   | 9459   | 9507 | 9555 | 9603 | 9650 | 9698 | 9746 | 9793 | 9841 | 9889 |       |               |
| 99   | * 9937 | 9984 | +032 | 0080 | 0128 | 0175 | 0223 | 0271 | 0318 | 0366 |       |               |
| Num. | 0      | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num. | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|----------|------|------|------|------|------|------|------|------|------|-------|---------------|
| 9100 | 959 0414 | 0462 | 0509 | 0557 | 0605 | 0653 | 0700 | 0748 | 0796 | 0843 |       |               |
| 01   | 0891     | 0939 | 0987 | 1034 | 1082 | 1130 | 1177 | 1225 | 1273 | 1321 |       |               |
| 02   | 1368     | 1416 | 1464 | 1511 | 1559 | 1607 | 1655 | 1702 | 1750 | 1798 |       |               |
| 03   | 1845     | 1893 | 1941 | 1989 | 2036 | 2084 | 2132 | 2179 | 2227 | 2275 |       |               |
| 04   | 2322     | 2370 | 2418 | 2466 | 2513 | 2561 | 2609 | 2656 | 2704 | 2752 |       |               |
| 05   | 2800     | 2847 | 2895 | 2943 | 2990 | 3038 | 3086 | 3133 | 3181 | 3229 |       |               |
| 06   | 3276     | 3324 | 3372 | 3420 | 3467 | 3515 | 3563 | 3610 | 3658 | 3706 |       |               |
| 07   | 3753     | 3801 | 3849 | 3896 | 3944 | 3992 | 4039 | 4087 | 4135 | 4183 |       |               |
| 08   | 4230     | 4278 | 4326 | 4373 | 4421 | 4469 | 4516 | 4564 | 4612 | 4659 |       |               |
| 09   | 4707     | 4755 | 4802 | 4850 | 4898 | 4945 | 4993 | 5041 | 5088 | 5136 |       |               |
| 9110 | 5184     | 5231 | 5279 | 5327 | 5374 | 5422 | 5470 | 5517 | 5565 | 5613 |       |               |
| 11   | 5660     | 5708 | 5756 | 5803 | 5851 | 5899 | 5946 | 5994 | 6042 | 6089 | 1     | 48            |
| 12   | 6137     | 6185 | 6232 | 6280 | 6328 | 6375 | 6423 | 6471 | 6518 | 6566 | 2     | 96            |
| 13   | 6614     | 6661 | 6709 | 6757 | 6804 | 6852 | 6900 | 6947 | 6995 | 7043 | 3     | 144           |
| 14   | 7090     | 7138 | 7186 | 7233 | 7281 | 7328 | 7376 | 7424 | 7471 | 7519 | 4     | 192           |
| 15   | 7567     | 7614 | 7662 | 7710 | 7757 | 7805 | 7853 | 7900 | 7948 | 7996 | 5     | 240           |
| 16   | 8043     | 8091 | 8138 | 8186 | 8234 | 8281 | 8329 | 8377 | 8424 | 8472 | 6     | 288           |
| 17   | 8520     | 8567 | 8615 | 8662 | 8710 | 8758 | 8805 | 8853 | 8901 | 8948 | 7     | 336           |
| 18   | 8996     | 9044 | 9091 | 9139 | 9186 | 9234 | 9282 | 9329 | 9377 | 9425 | 8     | 384           |
| 19   | 9472     | 9520 | 9567 | 9615 | 9663 | 9710 | 9758 | 9806 | 9853 | 9901 | 9     | 432           |
| 9120 | * 9948   | 9996 | +044 | 0091 | 0139 | 0186 | 0234 | 0282 | 0329 | 0377 |       |               |
| 21   | 960 0425 | 0472 | 0520 | 0567 | 0615 | 0663 | 0710 | 0758 | 0805 | 0853 |       |               |
| 22   | 0901     | 0948 | 0996 | 1044 | 1091 | 1139 | 1186 | 1234 | 1282 | 1329 |       |               |
| 23   | 1377     | 1424 | 1472 | 1520 | 1567 | 1615 | 1662 | 1710 | 1758 | 1805 |       |               |
| 24   | 1853     | 1900 | 1948 | 1996 | 2043 | 2091 | 2138 | 2186 | 2234 | 2281 |       |               |
| 25   | 2329     | 2376 | 2424 | 2472 | 2519 | 2567 | 2614 | 2662 | 2709 | 2757 |       |               |
| 26   | 2805     | 2852 | 2900 | 2947 | 2995 | 3043 | 3090 | 3138 | 3185 | 3233 |       |               |
| 27   | 3281     | 3328 | 3376 | 3423 | 3471 | 3518 | 3566 | 3614 | 3661 | 3709 |       |               |
| 28   | 3756     | 3804 | 3851 | 3899 | 3947 | 3994 | 4042 | 4089 | 4137 | 4184 |       |               |
| 29   | 4232     | 4280 | 4327 | 4375 | 4422 | 4470 | 4517 | 4565 | 4613 | 4660 |       |               |
| 9130 | 4708     | 4755 | 4803 | 4850 | 4898 | 4946 | 4993 | 5041 | 5088 | 5136 |       |               |
| 31   | 5183     | 5231 | 5279 | 5326 | 5374 | 5421 | 5469 | 5516 | 5564 | 5611 |       |               |
| 32   | 5659     | 5707 | 5754 | 5802 | 5849 | 5897 | 5944 | 5992 | 6039 | 6087 |       |               |
| 33   | 6135     | 6182 | 6230 | 6277 | 6325 | 6372 | 6420 | 6467 | 6515 | 6563 |       |               |
| 34   | 6610     | 6658 | 6705 | 6753 | 6800 | 6848 | 6895 | 6943 | 6990 | 7038 |       |               |
| 35   | 7086     | 7133 | 7181 | 7228 | 7276 | 7323 | 7371 | 7418 | 7466 | 7513 |       |               |
| 36   | 7561     | 7608 | 7656 | 7704 | 7751 | 7799 | 7846 | 7894 | 7941 | 7989 |       |               |
| 37   | 8036     | 8084 | 8131 | 8179 | 8226 | 8274 | 8321 | 8369 | 8416 | 8464 |       |               |
| 38   | 8512     | 8559 | 8607 | 8654 | 8702 | 8749 | 8797 | 8844 | 8892 | 8939 |       |               |
| 39   | 8987     | 9034 | 9082 | 9129 | 9177 | 9224 | 9272 | 9319 | 9367 | 9414 |       |               |
| 9140 | 9462     | 9509 | 9557 | 9605 | 9652 | 9700 | 9747 | 9795 | 9842 | 9890 |       |               |
| 41   | * 9937   | 9985 | +032 | 0080 | 0127 | 0175 | 0222 | 0270 | 0317 | 0365 |       |               |
| 42   | 961 0412 | 0460 | 0507 | 0555 | 0602 | 0650 | 0697 | 0745 | 0792 | 0840 | 1     | 47            |
| 43   | 0887     | 0935 | 0982 | 1030 | 1077 | 1125 | 1172 | 1220 | 1267 | 1315 | 2     | 94            |
| 44   | 1362     | 1410 | 1457 | 1505 | 1552 | 1600 | 1647 | 1695 | 1742 | 1790 | 3     | 141           |
| 45   | 1837     | 1885 | 1932 | 1980 | 2027 | 2075 | 2122 | 2170 | 2217 | 2264 | 4     | 188           |
| 46   | 2312     | 2359 | 2407 | 2454 | 2502 | 2549 | 2597 | 2644 | 2692 | 2739 | 5     | 235           |
| 47   | 2787     | 2834 | 2882 | 2929 | 2977 | 3024 | 3072 | 3119 | 3167 | 3214 | 6     | 282           |
| 48   | 3262     | 3309 | 3357 | 3404 | 3451 | 3499 | 3546 | 3594 | 3641 | 3689 | 7     | 329           |
| 49   | 3736     | 3784 | 3831 | 3879 | 3926 | 3974 | 4021 | 4069 | 4116 | 4163 | 8     | 376           |
| 9150 | 4211     | 4258 | 4306 | 4353 | 4401 | 4448 | 4496 | 4543 | 4591 | 4638 | 9     | 423           |
| 51   | 4686     | 4733 | 4780 | 4828 | 4875 | 4923 | 4970 | 5018 | 5065 | 5113 |       |               |
| 52   | 5160     | 5208 | 5255 | 5302 | 5350 | 5397 | 5445 | 5492 | 5540 | 5587 |       |               |
| 53   | 5635     | 5682 | 5730 | 5777 | 5824 | 5872 | 5919 | 5967 | 6014 | 6062 |       |               |
| 54   | 6109     | 6157 | 6204 | 6251 | 6299 | 6346 | 6394 | 6441 | 6489 | 6536 |       |               |
| 55   | 6583     | 6631 | 6678 | 6726 | 6773 | 6821 | 6868 | 6916 | 6963 | 7010 |       |               |
| 56   | 7058     | 7105 | 7153 | 7200 | 7248 | 7295 | 7342 | 7390 | 7437 | 7485 |       |               |
| 57   | 7532     | 7580 | 7627 | 7674 | 7722 | 7769 | 7817 | 7864 | 7912 | 7959 |       |               |
| 58   | 8006     | 8054 | 8101 | 8149 | 8196 | 8243 | 8291 | 8338 | 8386 | 8433 |       |               |
| 59   | 8481     | 8528 | 8575 | 8623 | 8670 | 8718 | 8765 | 8812 | 8860 | 8907 |       |               |
| Num. | 0        | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1      | 2      | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |               |
|-------------|------------|--------|--------|------|------|------|------|------|------|------|-------|---------------|---------------|
| <b>9160</b> | <b>961</b> | 8955   | 9002   | 9050 | 9097 | 9144 | 9192 | 9239 | 9287 | 9334 | 9381  |               |               |
| 61          |            | 9429   | 9476   | 9524 | 9571 | 9618 | 9666 | 9713 | 9761 | 9808 | 9855  |               |               |
| 62          |            | * 9903 | 9950   | 9998 | +045 | 0092 | 0140 | 0187 | 0235 | 0282 | 0329  |               |               |
| 63          |            | 962    | 0377   | 0424 | 0472 | 0519 | 0566 | 0614 | 0661 | 0709 | 0756  |               |               |
| 64          |            |        | 0851   | 0898 | 0946 | 0993 | 1040 | 1088 | 1135 | 1183 | 1230  | 1277          |               |
| 65          |            |        | 1325   | 1372 | 1419 | 1467 | 1514 | 1562 | 1609 | 1656 | 1704  | 1751          |               |
| 66          |            |        | 1799   | 1846 | 1893 | 1941 | 1988 | 2035 | 2083 | 2130 | 2178  | 2225          |               |
| 67          |            |        | 2272   | 2320 | 2367 | 2414 | 2462 | 2509 | 2557 | 2604 | 2651  | 2699          |               |
| 68          |            |        | 2746   | 2793 | 2841 | 2888 | 2936 | 2983 | 3030 | 3078 | 3125  | 3172          |               |
| 69          |            |        | 3220   | 3267 | 3314 | 3362 | 3409 | 3457 | 3504 | 3551 | 3599  | 3646          |               |
| 91 70       |            |        | 3693   | 3741 | 3788 | 3835 | 3883 | 3930 | 3978 | 4025 | 4072  | 4120          |               |
| 71          |            |        | 4167   | 4214 | 4262 | 4309 | 4356 | 4404 | 4451 | 4498 | 4546  | 4593          |               |
| 72          |            |        | 4640   | 4688 | 4735 | 4783 | 4830 | 4877 | 4925 | 4972 | 5019  | 5067          |               |
| 73          |            |        | 5114   | 5161 | 5209 | 5256 | 5303 | 5351 | 5398 | 5445 | 5493  | 5540          |               |
| 74          |            |        | 5587   | 5635 | 5682 | 5729 | 5777 | 5824 | 5871 | 5919 | 5966  | 6013          |               |
| 75          |            |        | 6061   | 6108 | 6155 | 6203 | 6250 | 6297 | 6345 | 6392 | 6439  | 6487          |               |
| 76          |            |        | 6534   | 6581 | 6629 | 6676 | 6723 | 6771 | 6818 | 6865 | 6913  | 6960          |               |
| 77          |            |        | 7007   | 7055 | 7102 | 7149 | 7197 | 7244 | 7291 | 7339 | 7386  | 7433          |               |
| 78          |            |        | 7481   | 7528 | 7575 | 7622 | 7670 | 7717 | 7764 | 7812 | 7859  | 7906          |               |
| 79          |            |        | 7954   | 8001 | 8048 | 8096 | 8143 | 8190 | 8238 | 8285 | 8332  | 8380          |               |
| 91 80       |            |        | 8427   | 8474 | 8521 | 8569 | 8616 | 8663 | 8711 | 8758 | 8805  | 8853          |               |
| 81          |            |        | 8900   | 8947 | 8994 | 9042 | 9089 | 9136 | 9184 | 9231 | 9278  | 9326          |               |
| 82          |            |        | 9373   | 9420 | 9467 | 9515 | 9562 | 9609 | 9657 | 9704 | 9751  | 9799          |               |
| 83          |            |        | * 9846 | 9893 | 9940 | 9988 | +035 | 0082 | 0130 | 0177 | 0224  | 0271          |               |
| 84          |            | 963    | 0319   | 0366 | 0413 | 0461 | 0508 | 0555 | 0602 | 0650 | 0697  | 0744          |               |
| 85          |            |        | 0792   | 0839 | 0886 | 0933 | 0981 | 1028 | 1075 | 1123 | 1170  | 1217          |               |
| 86          |            |        | 1264   | 1312 | 1359 | 1406 | 1454 | 1501 | 1548 | 1595 | 1643  | 1690          |               |
| 87          |            |        | 1737   | 1784 | 1832 | 1879 | 1926 | 1974 | 2021 | 2068 | 2115  | 2163          |               |
| 88          |            |        | 2210   | 2257 | 2304 | 2352 | 2399 | 2446 | 2493 | 2541 | 2588  | 2635          |               |
| 89          |            |        | 2683   | 2730 | 2777 | 2824 | 2872 | 2919 | 2966 | 3013 | 3061  | 3108          |               |
| 91 90       |            |        | 3155   | 3202 | 3250 | 3297 | 3344 | 3391 | 3439 | 3486 | 3533  | 3580          |               |
| 91          |            |        | 3628   | 3675 | 3722 | 3769 | 3817 | 3864 | 3911 | 3958 | 4006  | 4053          |               |
| 92          |            |        | 4100   | 4147 | 4195 | 4242 | 4289 | 4336 | 4384 | 4431 | 4478  | 4525          |               |
| 93          |            |        | 4573   | 4620 | 4667 | 4714 | 4762 | 4809 | 4856 | 4903 | 4951  | 4998          |               |
| 94          |            |        | 5045   | 5092 | 5139 | 5187 | 5234 | 5281 | 5328 | 5376 | 5423  | 5470          |               |
| 95          |            |        | 5517   | 5565 | 5612 | 5659 | 5706 | 5753 | 5801 | 5848 | 5895  | 5942          |               |
| 96          |            |        | 5990   | 6037 | 6084 | 6131 | 6179 | 6226 | 6273 | 6320 | 6367  | 6415          |               |
| 97          |            |        | 6462   | 6509 | 6556 | 6604 | 6651 | 6698 | 6745 | 6792 | 6840  | 6887          |               |
| 98          |            |        | 6934   | 6981 | 7028 | 7076 | 7123 | 7170 | 7217 | 7265 | 7312  | 7359          |               |
| 99          |            |        | 7406   | 7453 | 7501 | 7548 | 7595 | 7642 | 7689 | 7737 | 7784  | 7831          |               |
| 92 00       |            |        | 7878   | 7925 | 7973 | 8020 | 8067 | 8114 | 8161 | 8209 | 8256  | 8303          |               |
| 01          |            |        | 8350   | 8398 | 8445 | 8492 | 8539 | 8586 | 8634 | 8681 | 8728  | 8775          |               |
| 02          |            |        | 8822   | 8869 | 8917 | 8964 | 9011 | 9058 | 9105 | 9153 | 9200  | 9247          |               |
| 03          |            |        | 9294   | 9341 | 9389 | 9436 | 9483 | 9530 | 9577 | 9625 | 9672  | 9719          |               |
| 04          |            |        | * 9766 | 9813 | 9860 | 9908 | 9955 | +002 | 0049 | 0096 | 0144  | 0191          |               |
| 05          |            | 964    | 0238   | 0285 | 0332 | 0379 | 0427 | 0474 | 0521 | 0568 | 0615  | 0663          |               |
| 06          |            |        | 0710   | 0757 | 0804 | 0851 | 0898 | 0946 | 0993 | 1040 | 1087  | 1134          |               |
| 07          |            |        | 1181   | 1229 | 1276 | 1323 | 1370 | 1417 | 1464 | 1512 | 1559  | 1606          |               |
| 08          |            |        | 1653   | 1700 | 1747 | 1795 | 1842 | 1889 | 1936 | 1983 | 2030  | 2078          |               |
| 09          |            |        | 2125   | 2172 | 2219 | 2266 | 2313 | 2361 | 2408 | 2455 | 2502  | 2549          |               |
| 92 10       |            |        | 2596   | 2643 | 2691 | 2738 | 2785 | 2832 | 2879 | 2926 | 2974  | 3021          |               |
| 11          |            |        | 3068   | 3115 | 3162 | 3209 | 3256 | 3304 | 3351 | 3398 | 3445  | 3492          |               |
| 12          |            |        | 3539   | 3586 | 3634 | 3681 | 3728 | 3775 | 3822 | 3869 | 3916  | 3964          |               |
| 13          |            |        | 4011   | 4058 | 4105 | 4152 | 4199 | 4246 | 4294 | 4341 | 4388  | 4435          |               |
| 14          |            |        | 4482   | 4529 | 4576 | 4623 | 4671 | 4718 | 4765 | 4812 | 4859  | 4906          |               |
| 15          |            |        | 4953   | 5001 | 5048 | 5095 | 5142 | 5189 | 5236 | 5283 | 5330  | 5378          |               |
| 16          |            |        | 5425   | 5472 | 5519 | 5566 | 5613 | 5660 | 5707 | 5755 | 5802  | 5849          |               |
| 17          |            |        | 5896   | 5943 | 5990 | 6037 | 6084 | 6131 | 6179 | 6226 | 6273  | 6320          |               |
| 18          |            |        | 6367   | 6414 | 6461 | 6508 | 6555 | 6603 | 6650 | 6697 | 6744  | 6791          |               |
| 19          |            |        | 6838   | 6885 | 6932 | 6979 | 7027 | 7074 | 7121 | 7168 | 7215  | 7262          |               |
| Num.        |            | 0      | 1      | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | Diff.         | Diff. & Mult. |

|   |     |
|---|-----|
| 1 | 48  |
| 2 | 96  |
| 3 | 144 |
| 4 | 192 |
| 5 | 240 |
| 6 | 288 |
| 7 | 336 |
| 8 | 384 |
| 9 | 432 |

|   |     |
|---|-----|
| 1 | 47  |
| 2 | 94  |
| 3 | 141 |
| 4 | 188 |
| 5 | 235 |
| 6 | 282 |
| 7 | 329 |
| 8 | 376 |
| 9 | 423 |

| Num.          | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|---------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>9220</b>   | <b>964</b> | 7309 | 7356 | 7403 | 7451 | 7498 | 7545 | 7592 | 7639 | 7686 | 7733  |               |
| 21            |            | 7780 | 7827 | 7874 | 7922 | 7969 | 8016 | 8063 | 8110 | 8157 | 8204  |               |
| 22            |            | 8251 | 8298 | 8345 | 8392 | 8440 | 8487 | 8534 | 8581 | 8628 | 8675  |               |
| 23            |            | 8722 | 8769 | 8816 | 8863 | 8910 | 8958 | 9005 | 9052 | 9099 | 9146  |               |
| 24            |            | 9193 | 9240 | 9287 | 9334 | 9381 | 9428 | 9475 | 9523 | 9570 | 9617  |               |
| 25            | *          | 9664 | 9711 | 9758 | 9805 | 9852 | 9899 | 9946 | 9993 | +040 | 0087  |               |
| 26            | 965        | 0135 | 0182 | 0229 | 0276 | 0323 | 0370 | 0417 | 0464 | 0511 | 0558  |               |
| 27            |            | 0605 | 0652 | 0699 | 0746 | 0793 | 0841 | 0888 | 0935 | 0982 | 1029  |               |
| 28            |            | 1076 | 1123 | 1170 | 1217 | 1264 | 1311 | 1358 | 1405 | 1452 | 1499  |               |
| 29            |            | 1546 | 1594 | 1641 | 1688 | 1735 | 1782 | 1829 | 1876 | 1923 | 1970  |               |
| 30            |            | 2017 | 2064 | 2111 | 2158 | 2205 | 2252 | 2299 | 2346 | 2393 | 2440  |               |
| 31            |            | 2488 | 2535 | 2582 | 2629 | 2676 | 2723 | 2770 | 2817 | 2864 | 2911  |               |
| 32            |            | 2958 | 3005 | 3052 | 3099 | 3146 | 3193 | 3240 | 3287 | 3334 | 3381  |               |
| 33            |            | 3428 | 3475 | 3522 | 3569 | 3617 | 3664 | 3711 | 3758 | 3805 | 3852  |               |
| 34            |            | 3899 | 3946 | 3993 | 4040 | 4087 | 4134 | 4181 | 4228 | 4275 | 4322  |               |
| 35            |            | 4369 | 4416 | 4463 | 4510 | 4557 | 4604 | 4651 | 4698 | 4745 | 4792  |               |
| 36            |            | 4839 | 4886 | 4933 | 4980 | 5027 | 5074 | 5121 | 5168 | 5215 | 5262  |               |
| 37            |            | 5309 | 5356 | 5403 | 5450 | 5497 | 5545 | 5592 | 5639 | 5686 | 5733  |               |
| 38            |            | 5780 | 5827 | 5874 | 5921 | 5968 | 6015 | 6062 | 6109 | 6156 | 6203  |               |
| 39            |            | 6250 | 6297 | 6344 | 6391 | 6438 | 6485 | 6532 | 6579 | 6626 | 6673  |               |
| 40            |            | 6720 | 6767 | 6814 | 6861 | 6908 | 6955 | 7002 | 7049 | 7096 | 7143  |               |
| 41            |            | 7190 | 7237 | 7284 | 7331 | 7378 | 7425 | 7472 | 7519 | 7566 | 7613  |               |
| 42            |            | 7660 | 7707 | 7754 | 7801 | 7848 | 7895 | 7942 | 7989 | 8036 | 8083  |               |
| 43            |            | 8130 | 8177 | 8224 | 8270 | 8317 | 8364 | 8411 | 8458 | 8505 | 8552  |               |
| 44            |            | 8599 | 8646 | 8693 | 8740 | 8787 | 8834 | 8881 | 8928 | 8975 | 9022  |               |
| 45            |            | 9069 | 9116 | 9163 | 9210 | 9257 | 9304 | 9351 | 9398 | 9445 | 9492  |               |
| 46            |            | 9539 | 9586 | 9633 | 9680 | 9727 | 9774 | 9821 | 9868 | 9915 | 9962  |               |
| 47            | 966        | 0009 | 0056 | 0103 | 0149 | 0196 | 0243 | 0290 | 0337 | 0384 | 0431  |               |
| 48            |            | 0478 | 0525 | 0572 | 0619 | 0666 | 0713 | 0760 | 0807 | 0854 | 0901  |               |
| 49            |            | 0948 | 0995 | 1042 | 1089 | 1136 | 1183 | 1230 | 1276 | 1323 | 1370  |               |
| 50            |            | 1417 | 1464 | 1511 | 1558 | 1605 | 1652 | 1699 | 1746 | 1793 | 1840  |               |
| 51            |            | 1887 | 1934 | 1981 | 2028 | 2075 | 2122 | 2168 | 2215 | 2262 | 2309  |               |
| 52            |            | 2356 | 2403 | 2450 | 2497 | 2544 | 2591 | 2638 | 2685 | 2732 | 2779  |               |
| 53            |            | 2826 | 2873 | 2919 | 2966 | 3013 | 3060 | 3107 | 3154 | 3201 | 3248  |               |
| 54            |            | 3295 | 3342 | 3389 | 3436 | 3483 | 3530 | 3577 | 3623 | 3670 | 3717  |               |
| 55            |            | 3764 | 3811 | 3858 | 3905 | 3952 | 3999 | 4046 | 4093 | 4140 | 4187  |               |
| 56            |            | 4233 | 4280 | 4327 | 4374 | 4421 | 4468 | 4515 | 4562 | 4609 | 4656  |               |
| 57            |            | 4703 | 4750 | 4796 | 4843 | 4890 | 4937 | 4984 | 5031 | 5078 | 5125  |               |
| 58            |            | 5172 | 5219 | 5266 | 5312 | 5359 | 5406 | 5453 | 5500 | 5547 | 5594  |               |
| 59            |            | 5641 | 5688 | 5735 | 5782 | 5828 | 5875 | 5922 | 5969 | 6016 | 6063  |               |
| 60            |            | 6110 | 6157 | 6204 | 6251 | 6297 | 6344 | 6391 | 6438 | 6485 | 6532  |               |
| 61            |            | 6579 | 6626 | 6673 | 6720 | 6766 | 6813 | 6860 | 6907 | 6954 | 7001  |               |
| 62            |            | 7048 | 7095 | 7142 | 7188 | 7235 | 7282 | 7329 | 7376 | 7423 | 7470  |               |
| 63            |            | 7517 | 7564 | 7610 | 7657 | 7704 | 7751 | 7798 | 7845 | 7892 | 7939  |               |
| 64            |            | 7985 | 8032 | 8079 | 8126 | 8173 | 8220 | 8267 | 8314 | 8360 | 8407  |               |
| 65            |            | 8454 | 8501 | 8548 | 8595 | 8642 | 8689 | 8735 | 8782 | 8829 | 8876  |               |
| 66            |            | 8923 | 8970 | 9017 | 9064 | 9110 | 9157 | 9204 | 9251 | 9298 | 9345  |               |
| 67            |            | 9392 | 9438 | 9485 | 9532 | 9579 | 9626 | 9673 | 9720 | 9767 | 9813  |               |
| 68            | *          | 9860 | 9907 | 9954 | +001 | 0048 | 0095 | 0141 | 0188 | 0235 | 0282  |               |
| 69            | 967        | 0329 | 0376 | 0423 | 0469 | 0516 | 0563 | 0610 | 0657 | 0704 | 0750  |               |
| 70            |            | 0797 | 0844 | 0891 | 0938 | 0985 | 1032 | 1078 | 1125 | 1172 | 1219  |               |
| 71            |            | 1266 | 1313 | 1359 | 1406 | 1453 | 1500 | 1547 | 1594 | 1641 | 1687  |               |
| 72            |            | 1734 | 1781 | 1828 | 1875 | 1922 | 1968 | 2015 | 2062 | 2109 | 2156  |               |
| 73            |            | 2203 | 2249 | 2296 | 2343 | 2390 | 2437 | 2484 | 2530 | 2577 | 2624  |               |
| 74            |            | 2671 | 2718 | 2765 | 2811 | 2858 | 2905 | 2952 | 2999 | 3046 | 3092  |               |
| 75            |            | 3139 | 3186 | 3233 | 3280 | 3326 | 3373 | 3420 | 3467 | 3514 | 3561  |               |
| 76            |            | 3607 | 3654 | 3701 | 3748 | 3795 | 3841 | 3888 | 3935 | 3982 | 4029  |               |
| 77            |            | 4076 | 4122 | 4169 | 4216 | 4263 | 4310 | 4356 | 4403 | 4450 | 4497  |               |
| 78            |            | 4544 | 4590 | 4637 | 4684 | 4731 | 4778 | 4825 | 4871 | 4918 | 4965  |               |
| 79            |            | 5012 | 5059 | 5105 | 5152 | 5199 | 5246 | 5293 | 5339 | 5386 | 5433  |               |
| Diff.         |            |      |      |      |      |      |      |      |      |      |       |               |
| Diff. & Mult. |            |      |      |      |      |      |      |      |      |      |       |               |

|   |     |
|---|-----|
| 1 | 47  |
| 2 | 94  |
| 3 | 141 |
| 4 | 188 |
| 5 | 235 |
| 6 | 282 |
| 7 | 329 |
| 8 | 376 |
| 9 | 423 |

47

|   |     |
|---|-----|
| 1 | 46  |
| 2 | 92  |
| 3 | 138 |
| 4 | 184 |
| 5 | 230 |
| 6 | 276 |
| 7 | 322 |
| 8 | 368 |
| 9 | 414 |

| Num.        | 0               | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|-----------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>9280</b> | <b>967</b> 5480 | 5527 | 5573 | 5620 | 5667 | 5714 | 5761 | 5807 | 5854 | 5901 |       |               |
| 81          | 5948            | 5995 | 6041 | 6088 | 6135 | 6182 | 6228 | 6275 | 6322 | 6369 |       |               |
| 82          | 6416            | 6462 | 6509 | 6556 | 6603 | 6650 | 6696 | 6743 | 6790 | 6837 |       |               |
| 83          | 6884            | 6930 | 6977 | 7024 | 7071 | 7117 | 7164 | 7211 | 7258 | 7305 |       |               |
| 84          | 7351            | 7398 | 7445 | 7492 | 7538 | 7585 | 7632 | 7679 | 7726 | 7772 |       |               |
| 85          | 7819            | 7866 | 7913 | 7959 | 8006 | 8053 | 8100 | 8146 | 8193 | 8240 |       |               |
| 86          | 8287            | 8334 | 8380 | 8427 | 8474 | 8521 | 8567 | 8614 | 8661 | 8708 |       |               |
| 87          | 8754            | 8801 | 8848 | 8895 | 8942 | 8988 | 9035 | 9082 | 9129 | 9175 |       |               |
| 88          | 9222            | 9269 | 9316 | 9362 | 9409 | 9456 | 9503 | 9549 | 9596 | 9643 |       |               |
| 89          | * 9690          | 9736 | 9783 | 9830 | 9877 | 9923 | 9970 | +017 | 0064 | 0110 |       |               |
| 92 90       | 968 0157        | 0204 | 0251 | 0297 | 0344 | 0391 | 0438 | 0484 | 0531 | 0578 |       | 1   47        |
| 91          | 0625            | 0671 | 0718 | 0765 | 0812 | 0858 | 0905 | 0952 | 0999 | 1045 |       | 2   94        |
| 92          | 1092            | 1139 | 1185 | 1232 | 1279 | 1326 | 1372 | 1419 | 1466 | 1513 |       | 3   141       |
| 93          | 1559            | 1606 | 1653 | 1700 | 1746 | 1793 | 1840 | 1886 | 1933 | 1980 |       | 4   188       |
| 94          | 2027            | 2073 | 2120 | 2167 | 2214 | 2260 | 2307 | 2354 | 2400 | 2447 |       | 5   235       |
| 95          | 2494            | 2541 | 2587 | 2634 | 2681 | 2728 | 2774 | 2821 | 2868 | 2914 |       | 6   282       |
| 96          | 2961            | 3008 | 3055 | 3101 | 3148 | 3195 | 3241 | 3288 | 3335 | 3382 |       | 7   329       |
| 97          | 3428            | 3475 | 3522 | 3568 | 3615 | 3662 | 3709 | 3755 | 3802 | 3849 |       | 8   376       |
| 98          | 3895            | 3942 | 3988 | 4036 | 4082 | 4129 | 4176 | 4222 | 4269 | 4316 |       | 9   423       |
| 99          | 4362            | 4409 | 4456 | 4503 | 4549 | 4596 | 4643 | 4689 | 4736 | 4783 |       |               |
| 93 00       | 4829            | 4876 | 4923 | 4970 | 5016 | 5063 | 5110 | 5156 | 5203 | 5250 |       |               |
| 01          | 5296            | 5343 | 5390 | 5437 | 5483 | 5530 | 5577 | 5623 | 5670 | 5717 |       |               |
| 02          | 5763            | 5810 | 5857 | 5903 | 5950 | 5997 | 6043 | 6090 | 6137 | 6184 |       |               |
| 03          | 6230            | 6277 | 6324 | 6370 | 6417 | 6464 | 6510 | 6557 | 6604 | 6651 |       |               |
| 04          | 6697            | 6744 | 6790 | 6837 | 6884 | 6930 | 6977 | 7024 | 7070 | 7117 |       |               |
| 05          | 7164            | 7210 | 7257 | 7304 | 7350 | 7397 | 7444 | 7490 | 7537 | 7584 |       |               |
| 06          | 7630            | 7677 | 7724 | 7770 | 7817 | 7864 | 7910 | 7957 | 8004 | 8050 |       |               |
| 07          | 8097            | 8144 | 8190 | 8237 | 8284 | 8330 | 8377 | 8424 | 8470 | 8517 |       |               |
| 08          | 8564            | 8610 | 8657 | 8704 | 8750 | 8797 | 8844 | 8890 | 8937 | 8984 |       |               |
| 09          | 9030            | 9077 | 9124 | 9170 | 9217 | 9264 | 9310 | 9357 | 9404 | 9450 |       |               |
| 93 10       | 9497            | 9543 | 9590 | 9637 | 9683 | 9730 | 9777 | 9823 | 9870 | 9917 |       |               |
| 11          | * 9963          | +010 | 0057 | 0103 | 0150 | 0196 | 0243 | 0290 | 0336 | 0383 |       |               |
| 12          | 969 0430        | 0476 | 0523 | 0570 | 0616 | 0663 | 0709 | 0756 | 0803 | 0849 |       |               |
| 13          | 0896            | 0943 | 0989 | 1036 | 1083 | 1129 | 1176 | 1222 | 1269 | 1316 |       |               |
| 14          | 1362            | 1409 | 1456 | 1502 | 1549 | 1595 | 1642 | 1689 | 1735 | 1782 |       |               |
| 15          | 1829            | 1875 | 1922 | 1968 | 2015 | 2062 | 2108 | 2155 | 2202 | 2248 |       |               |
| 16          | 2295            | 2341 | 2388 | 2435 | 2481 | 2528 | 2574 | 2621 | 2668 | 2714 |       |               |
| 17          | 2761            | 2808 | 2854 | 2901 | 2947 | 2994 | 3041 | 3087 | 3134 | 3180 |       |               |
| 18          | 3227            | 3274 | 3320 | 3367 | 3413 | 3460 | 3507 | 3553 | 3600 | 3647 |       |               |
| 19          | 3693            | 3740 | 3786 | 3833 | 3880 | 3926 | 3973 | 4019 | 4066 | 4113 |       |               |
| 93 20       | 4159            | 4206 | 4252 | 4299 | 4346 | 4392 | 4439 | 4485 | 4532 | 4578 |       |               |
| 21          | 4625            | 4672 | 4718 | 4765 | 4811 | 4858 | 4905 | 4951 | 4998 | 5044 |       | 1   46        |
| 22          | 5091            | 5138 | 5184 | 5231 | 5277 | 5324 | 5371 | 5417 | 5464 | 5510 |       | 2   92        |
| 23          | 5557            | 5603 | 5650 | 5697 | 5743 | 5790 | 5836 | 5883 | 5929 | 5976 |       | 3   138       |
| 24          | 6023            | 6069 | 6116 | 6162 | 6209 | 6256 | 6302 | 6349 | 6395 | 6442 |       | 4   184       |
| 25          | 6488            | 6535 | 6582 | 6628 | 6675 | 6721 | 6768 | 6814 | 6861 | 6908 |       | 5   230       |
| 26          | 6954            | 7001 | 7047 | 7094 | 7140 | 7187 | 7234 | 7280 | 7327 | 7373 |       | 6   276       |
| 27          | 7420            | 7466 | 7513 | 7559 | 7606 | 7653 | 7699 | 7746 | 7792 | 7839 |       | 7   322       |
| 28          | 7885            | 7932 | 7978 | 8025 | 8072 | 8118 | 8165 | 8211 | 8258 | 8304 |       | 8   368       |
| 29          | 8351            | 8397 | 8444 | 8491 | 8537 | 8584 | 8630 | 8677 | 8723 | 8770 |       | 9   414       |
| 93 30       | 8816            | 8863 | 8910 | 8956 | 9003 | 9049 | 9096 | 9142 | 9189 | 9235 |       |               |
| 31          | 9282            | 9328 | 9375 | 9422 | 9468 | 9515 | 9561 | 9608 | 9654 | 9701 |       |               |
| 32          | * 9747          | 9794 | 9840 | 9887 | 9933 | 9980 | +027 | 0073 | 0120 | 0166 |       |               |
| 33          | 970 0213        | 0259 | 0306 | 0352 | 0399 | 0445 | 0492 | 0538 | 0585 | 0631 |       |               |
| 34          | 0678            | 0724 | 0771 | 0818 | 0864 | 0911 | 0957 | 1004 | 1050 | 1097 |       |               |
| 35          | 1143            | 1190 | 1236 | 1283 | 1329 | 1376 | 1422 | 1469 | 1515 | 1562 |       |               |
| 36          | 1608            | 1655 | 1701 | 1748 | 1794 | 1841 | 1888 | 1934 | 1981 | 2027 |       |               |
| 37          | 2074            | 2120 | 2167 | 2213 | 2260 | 2306 | 2353 | 2399 | 2446 | 2492 |       |               |
| 38          | 2539            | 2585 | 2632 | 2678 | 2725 | 2771 | 2818 | 2864 | 2911 | 2957 |       |               |
| 39          | 3004            | 3050 | 3097 | 3143 | 3190 | 3236 | 3283 | 3329 | 3376 | 3422 |       |               |
| Num.        | 0               | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

LOGARITHMS OF NUMBERS.

| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 9340  | 970 | 3469 | 3515 | 3562 | 3608 | 3655 | 3701 | 3748 | 3794 | 3841 | 3887  |               |
| 41    |     | 3934 | 3980 | 4027 | 4073 | 4120 | 4166 | 4213 | 4259 | 4306 | 4352  |               |
| 42    |     | 4399 | 4445 | 4492 | 4538 | 4585 | 4631 | 4678 | 4724 | 4771 | 4817  |               |
| 43    |     | 4863 | 4910 | 4956 | 5003 | 5049 | 5096 | 5142 | 5189 | 5235 | 5282  |               |
| 44    |     | 5328 | 5375 | 5421 | 5468 | 5514 | 5561 | 5607 | 5654 | 5700 | 5747  |               |
| 45    |     | 5793 | 5840 | 5886 | 5932 | 5979 | 6025 | 6072 | 6118 | 6165 | 6211  |               |
| 46    |     | 6258 | 6304 | 6351 | 6397 | 6444 | 6490 | 6537 | 6583 | 6629 | 6676  |               |
| 47    |     | 6722 | 6769 | 6815 | 6862 | 6908 | 6955 | 7001 | 7048 | 7094 | 7141  |               |
| 48    |     | 7187 | 7233 | 7280 | 7326 | 7373 | 7419 | 7466 | 7512 | 7559 | 7605  |               |
| 49    |     | 7652 | 7698 | 7745 | 7791 | 7837 | 7884 | 7930 | 7977 | 8023 | 8070  |               |
| 93 50 |     | 8116 | 8163 | 8209 | 8255 | 8302 | 8348 | 8395 | 8441 | 8488 | 8534  | 1 47          |
| 51    |     | 8581 | 8627 | 8673 | 8720 | 8766 | 8813 | 8859 | 8906 | 8952 | 8999  | 2 94          |
| 52    |     | 9045 | 9091 | 9138 | 9184 | 9231 | 9277 | 9324 | 9370 | 9416 | 9463  | 3 141         |
| 53    |     | 9509 | 9556 | 9602 | 9649 | 9695 | 9742 | 9788 | 9834 | 9881 | 9927  | 4 188         |
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| 55    |     | 971  | 0438 | 0484 | 0531 | 0577 | 0624 | 0670 | 0716 | 0763 | 0809  | 6 282         |
| 56    |     | 0902 | 0949 | 0995 | 1041 | 1088 | 1134 | 1181 | 1227 | 1273 | 1320  | 7 329         |
| 57    |     | 1366 | 1413 | 1459 | 1506 | 1552 | 1598 | 1645 | 1691 | 1738 | 1784  | 8 376         |
| 58    |     | 1830 | 1877 | 1923 | 1970 | 2016 | 2062 | 2109 | 2155 | 2202 | 2248  | 9 423         |
| 59    |     | 2294 | 2341 | 2387 | 2434 | 2480 | 2526 | 2573 | 2619 | 2666 | 2712  |               |
| 93 60 |     | 2758 | 2805 | 2851 | 2898 | 2944 | 2990 | 3037 | 3083 | 3130 | 3176  |               |
| 61    |     | 3222 | 3269 | 3315 | 3362 | 3408 | 3454 | 3501 | 3547 | 3594 | 3640  |               |
| 62    |     | 3686 | 3733 | 3779 | 3826 | 3872 | 3918 | 3965 | 4011 | 4057 | 4104  |               |
| 63    |     | 4150 | 4197 | 4243 | 4289 | 4336 | 4382 | 4429 | 4475 | 4521 | 4568  |               |
| 64    |     | 4614 | 4660 | 4707 | 4753 | 4800 | 4846 | 4892 | 4939 | 4985 | 5031  |               |
| 65    |     | 5078 | 5124 | 5171 | 5217 | 5263 | 5310 | 5356 | 5402 | 5449 | 5495  |               |
| 66    |     | 5542 | 5588 | 5634 | 5681 | 5727 | 5773 | 5820 | 5866 | 5912 | 5959  |               |
| 67    |     | 6005 | 6052 | 6098 | 6144 | 6191 | 6237 | 6283 | 6330 | 6376 | 6422  |               |
| 68    |     | 6469 | 6515 | 6562 | 6608 | 6654 | 6701 | 6747 | 6793 | 6840 | 6886  |               |
| 69    | *   | 6932 | 6979 | 7025 | 7071 | 7118 | 7164 | 7211 | 7257 | 7303 | 7350  |               |
| 93 70 |     | 7396 | 7442 | 7489 | 7535 | 7581 | 7628 | 7674 | 7720 | 7767 | 7813  |               |
| 71    |     | 7859 | 7906 | 7952 | 7998 | 8045 | 8091 | 8137 | 8184 | 8230 | 8276  |               |
| 72    |     | 8323 | 8369 | 8415 | 8462 | 8508 | 8554 | 8601 | 8647 | 8694 | 8740  |               |
| 73    |     | 8786 | 8833 | 8879 | 8925 | 8972 | 9018 | 9064 | 9111 | 9157 | 9203  |               |
| 74    |     | 9249 | 9296 | 9342 | 9388 | 9435 | 9481 | 9527 | 9574 | 9620 | 9666  |               |
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| 77    |     | 0639 | 0685 | 0732 | 0778 | 0824 | 0871 | 0917 | 0963 | 1010 | 1056  |               |
| 78    |     | 1102 | 1149 | 1195 | 1241 | 1288 | 1334 | 1380 | 1426 | 1473 | 1519  |               |
| 79    |     | 1565 | 1612 | 1658 | 1704 | 1751 | 1797 | 1843 | 1889 | 1936 | 1982  |               |
| 93 80 |     | 2028 | 2075 | 2121 | 2167 | 2214 | 2260 | 2306 | 2352 | 2399 | 2445  |               |
| 81    |     | 2491 | 2538 | 2584 | 2630 | 2677 | 2723 | 2769 | 2815 | 2862 | 2908  | 1 46          |
| 82    |     | 2954 | 3001 | 3047 | 3093 | 3139 | 3186 | 3232 | 3278 | 3325 | 3371  | 2 92          |
| 83    |     | 3417 | 3463 | 3510 | 3556 | 3602 | 3649 | 3695 | 3741 | 3787 | 3834  | 3 138         |
| 84    |     | 3880 | 3926 | 3973 | 4019 | 4065 | 4111 | 4158 | 4204 | 4250 | 4296  | 4 184         |
| 85    |     | 4343 | 4389 | 4435 | 4482 | 4528 | 4574 | 4620 | 4667 | 4713 | 4759  | 5 230         |
| 86    |     | 4805 | 4852 | 4898 | 4944 | 4991 | 5037 | 5083 | 5129 | 5176 | 5222  | 6 276         |
| 87    |     | 5268 | 5314 | 5361 | 5407 | 5453 | 5500 | 5546 | 5592 | 5638 | 5685  | 7 322         |
| 88    |     | 5731 | 5777 | 5823 | 5870 | 5916 | 5962 | 6008 | 6055 | 6101 | 6147  | 8 368         |
| 89    |     | 6193 | 6240 | 6286 | 6332 | 6378 | 6425 | 6471 | 6517 | 6563 | 6610  | 9 414         |
| 93 90 |     | 6656 | 6702 | 6748 | 6795 | 6841 | 6887 | 6933 | 6980 | 7026 | 7072  |               |
| 91    |     | 7118 | 7165 | 7211 | 7257 | 7303 | 7350 | 7396 | 7442 | 7488 | 7535  |               |
| 92    |     | 7581 | 7627 | 7673 | 7720 | 7766 | 7812 | 7858 | 7905 | 7951 | 7997  |               |
| 93    |     | 8043 | 8089 | 8136 | 8182 | 8228 | 8274 | 8321 | 8367 | 8413 | 8459  |               |
| 94    |     | 8506 | 8552 | 8598 | 8644 | 8690 | 8737 | 8783 | 8829 | 8875 | 8922  |               |
| 95    |     | 8968 | 9014 | 9060 | 9107 | 9153 | 9199 | 9245 | 9291 | 9338 | 9384  |               |
| 96    |     | 9430 | 9476 | 9523 | 9569 | 9615 | 9661 | 9707 | 9754 | 9800 | 9846  |               |
| 97    | *   | 9829 | 9938 | 9985 | +031 | 0077 | 0123 | 0170 | 0216 | 0262 | 0308  |               |
| 98    | 973 | 0354 | 0401 | 0447 | 0493 | 0539 | 0585 | 0632 | 0678 | 0724 | 0770  |               |
| 99    |     | 0816 | 0863 | 0909 | 0955 | 1001 | 1048 | 1094 | 1140 | 1186 | 1232  |               |
| Num.  | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8     | 9     | Diff. | Diff. & Mult.       |
|-------------|------------|------|------|------|------|------|------|------|-------|-------|-------|---------------------|
| <b>9400</b> | <b>973</b> | 1279 | 1325 | 1371 | 1417 | 1463 | 1510 | 1556 | 1602  | 1648  | 1694  |                     |
| 01          |            | 1741 | 1787 | 1833 | 1879 | 1925 | 1972 | 2018 | 2064  | 2110  | 2156  |                     |
| 02          |            | 2202 | 2249 | 2295 | 2341 | 2387 | 2433 | 2480 | 2526  | 2572  | 2618  |                     |
| 03          |            | 2664 | 2711 | 2757 | 2803 | 2849 | 2895 | 2941 | 2988  | 3034  | 3080  |                     |
| 04          |            | 3126 | 3172 | 3219 | 3265 | 3311 | 3357 | 3403 | 3449  | 3496  | 3542  |                     |
| 05          |            | 3588 | 3634 | 3680 | 3727 | 3773 | 3819 | 3865 | 3911  | 3957  | 4004  |                     |
| 06          |            | 4050 | 4096 | 4142 | 4188 | 4234 | 4281 | 4327 | 4373  | 4419  | 4465  |                     |
| 07          |            | 4511 | 4558 | 4604 | 4650 | 4696 | 4742 | 4788 | 4835  | 4881  | 4927  |                     |
| 08          |            | 4973 | 5019 | 5065 | 5112 | 5158 | 5204 | 5250 | 5296  | 5342  | 5389  |                     |
| 09          |            | 5435 | 5481 | 5527 | 5573 | 5619 | 5665 | 5712 | 5758  | 5804  | 5850  |                     |
| 10          |            | 5896 | 5942 | 5989 | 6035 | 6081 | 6127 | 6173 | 6219  | 6265  | 6312  | 1 47                |
| 11          |            | 6358 | 6404 | 6450 | 6496 | 6542 | 6588 | 6635 | 6681  | 6727  | 6773  | 2 94                |
| 12          |            | 6819 | 6865 | 6911 | 6958 | 7004 | 7050 | 7096 | 7142  | 7188  | 7234  | 3 141               |
| 13          |            | 7281 | 7327 | 7373 | 7419 | 7465 | 7511 | 7557 | 7604  | 7650  | 7696  | 4 188               |
| 14          |            | 7742 | 7788 | 7834 | 7880 | 7926 | 7973 | 8019 | 8065  | 8111  | 8157  | 5 235               |
| 15          |            | 8203 | 8249 | 8295 | 8342 | 8388 | 8434 | 8480 | 8526  | 8572  | 8618  | 6 282               |
| 16          |            | 8664 | 8711 | 8757 | 8803 | 8849 | 8895 | 8941 | 8987  | 9033  | 9080  | 7 329               |
| 17          |            | 9126 | 9172 | 9218 | 9264 | 9310 | 9356 | 9402 | 9449  | 9495  | 9541  | 8 376               |
| 18          | *          | 9587 | 9633 | 9679 | 9725 | 9771 | 9817 | 9864 | 9910  | 9956  | 10002 | 9 423               |
| 19          | 974        | 0048 | 0094 | 0140 | 0186 | 0232 | 0279 | 0325 | 0371  | 0417  | 0463  |                     |
| 20          |            | 0509 | 0555 | 0601 | 0647 | 0693 | 0740 | 0786 | 0832  | 0878  | 0924  |                     |
| 21          |            | 0970 | 1016 | 1062 | 1108 | 1154 | 1201 | 1247 | 1293  | 1339  | 1385  |                     |
| 22          |            | 1431 | 1477 | 1523 | 1569 | 1615 | 1661 | 1708 | 1754  | 1800  | 1846  |                     |
| 23          |            | 1892 | 1938 | 1984 | 2030 | 2076 | 2122 | 2168 | 2215  | 2261  | 2307  |                     |
| 24          |            | 2353 | 2399 | 2445 | 2491 | 2537 | 2583 | 2629 | 2675  | 2721  | 2768  |                     |
| 25          |            | 2814 | 2860 | 2906 | 2952 | 2998 | 3044 | 3090 | 3136  | 3182  | 3228  |                     |
| 26          |            | 3274 | 3320 | 3367 | 3413 | 3459 | 3505 | 3551 | 3597  | 3643  | 3689  |                     |
| 27          |            | 3735 | 3781 | 3827 | 3873 | 3919 | 3965 | 4011 | 4058  | 4104  | 4150  |                     |
| 28          |            | 4196 | 4242 | 4288 | 4334 | 4380 | 4426 | 4472 | 4518  | 4564  | 4610  |                     |
| 29          |            | 4656 | 4702 | 4748 | 4795 | 4841 | 4887 | 4933 | 4979  | 5025  | 5071  |                     |
| 30          |            | 5117 | 5163 | 5209 | 5255 | 5301 | 5347 | 5393 | 5439  | 5485  | 5531  |                     |
| 31          |            | 5577 | 5623 | 5670 | 5716 | 5762 | 5808 | 5854 | 5900  | 5946  | 5992  |                     |
| 32          |            | 6038 | 6084 | 6130 | 6176 | 6222 | 6268 | 6314 | 6360  | 6406  | 6452  |                     |
| 33          |            | 6498 | 6544 | 6590 | 6636 | 6683 | 6729 | 6775 | 6821  | 6867  | 6913  |                     |
| 34          |            | 6959 | 7005 | 7051 | 7097 | 7143 | 7189 | 7235 | 7281  | 7327  | 7373  |                     |
| 35          |            | 7419 | 7465 | 7511 | 7557 | 7603 | 7649 | 7695 | 7741  | 7787  | 7833  |                     |
| 36          |            | 7879 | 7925 | 7971 | 8017 | 8063 | 8109 | 8155 | 8201  | 8248  | 8294  |                     |
| 37          |            | 8340 | 8386 | 8432 | 8478 | 8524 | 8570 | 8616 | 8662  | 8708  | 8754  |                     |
| 38          |            | 8800 | 8846 | 8892 | 8938 | 8984 | 9030 | 9076 | 9122  | 9168  | 9214  |                     |
| 39          |            | 9260 | 9306 | 9352 | 9398 | 9444 | 9490 | 9536 | 9582  | 9628  | 9674  |                     |
| 40          | *          | 9720 | 9766 | 9812 | 9858 | 9904 | 9950 | 9996 | 10042 | 10088 | 10134 |                     |
| 41          | 975        | 0180 | 0226 | 0272 | 0318 | 0364 | 0410 | 0456 | 0502  | 0548  | 0594  | 46                  |
| 42          |            | 0640 | 0686 | 0732 | 0778 | 0824 | 0870 | 0916 | 0962  | 1008  | 1054  | 1 46                |
| 43          |            | 1100 | 1146 | 1192 | 1238 | 1284 | 1330 | 1376 | 1422  | 1468  | 1514  | 2 92                |
| 44          |            | 1560 | 1606 | 1652 | 1698 | 1744 | 1790 | 1836 | 1882  | 1928  | 1974  | 3 138               |
| 45          |            | 2020 | 2066 | 2112 | 2158 | 2204 | 2250 | 2296 | 2342  | 2387  | 2433  | 4 184               |
| 46          |            | 2479 | 2525 | 2571 | 2617 | 2663 | 2709 | 2755 | 2801  | 2847  | 2893  | 5 230               |
| 47          |            | 2939 | 2985 | 3031 | 3077 | 3123 | 3169 | 3215 | 3261  | 3307  | 3353  | 6 276               |
| 48          |            | 3399 | 3445 | 3491 | 3537 | 3583 | 3629 | 3675 | 3721  | 3767  | 3813  | 7 322               |
| 49          |            | 3858 | 3904 | 3950 | 3996 | 4042 | 4088 | 4134 | 4180  | 4226  | 4272  | 8 368               |
| 50          |            | 4318 | 4364 | 4410 | 4456 | 4502 | 4548 | 4594 | 4640  | 4686  | 4732  | 9 414               |
| 51          |            | 4778 | 4824 | 4870 | 4915 | 4961 | 5007 | 5053 | 5099  | 5145  | 5191  |                     |
| 52          |            | 5237 | 5283 | 5329 | 5375 | 5421 | 5467 | 5513 | 5559  | 5605  | 5651  |                     |
| 53          |            | 5697 | 5743 | 5788 | 5834 | 5880 | 5926 | 5972 | 6018  | 6064  | 6110  |                     |
| 54          |            | 6156 | 6202 | 6248 | 6294 | 6340 | 6386 | 6432 | 6478  | 6523  | 6569  |                     |
| 55          |            | 6615 | 6661 | 6707 | 6753 | 6799 | 6845 | 6891 | 6937  | 6983  | 7029  |                     |
| 56          |            | 7075 | 7121 | 7166 | 7212 | 7258 | 7304 | 7350 | 7396  | 7442  | 7488  |                     |
| 57          |            | 7534 | 7580 | 7626 | 7672 | 7718 | 7763 | 7809 | 7855  | 7901  | 7947  |                     |
| 58          |            | 7993 | 8039 | 8085 | 8131 | 8177 | 8223 | 8269 | 8315  | 8360  | 8406  |                     |
| 59          |            | 8452 | 8498 | 8544 | 8590 | 8636 | 8682 | 8728 | 8774  | 8820  | 8865  |                     |
| Num.        |            | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7     | 8     | 9     | Diff. Diff. & Mult. |



LOGARITHMS OF NUMBERS.

145

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| 64   |     | 0747 | 0793  | 0839  | 0885 | 0931 | 0977 | 1023 | 1069 | 1114 | 1160  |               |
| 65   |     | 1206 | 1252  | 1298  | 1344 | 1390 | 1436 | 1481 | 1527 | 1573 | 1619  |               |
| 66   |     | 1665 | 1711  | 1757  | 1803 | 1849 | 1894 | 1940 | 1986 | 2032 | 2078  |               |
| 67   |     | 2124 | 2170  | 2216  | 2261 | 2307 | 2353 | 2399 | 2445 | 2491 | 2537  |               |
| 68   |     | 2582 | 2628  | 2674  | 2720 | 2766 | 2812 | 2858 | 2904 | 2949 | 2995  |               |
| 69   |     | 3041 | 3087  | 3133  | 3179 | 3225 | 3270 | 3316 | 3362 | 3408 | 3454  |               |
| 9470 |     | 3500 | 3546  | 3592  | 3637 | 3683 | 3729 | 3775 | 3821 | 3867 | 3913  | 1             |
| 71   |     | 3958 | 4004  | 4050  | 4096 | 4142 | 4188 | 4233 | 4279 | 4325 | 4371  | 2             |
| 72   |     | 4417 | 4463  | 4509  | 4554 | 4600 | 4646 | 4692 | 4738 | 4784 | 4830  | 3             |
| 73   |     | 4875 | 4921  | 4967  | 5013 | 5059 | 5105 | 5150 | 5196 | 5242 | 5288  | 4             |
| 74   |     | 5334 | 5380  | 5425  | 5471 | 5517 | 5563 | 5609 | 5655 | 5701 | 5746  | 5             |
| 75   |     | 5792 | 5838  | 5884  | 5930 | 5976 | 6021 | 6067 | 6113 | 6159 | 6205  | 6             |
| 76   |     | 6251 | 6297  | 6343  | 6388 | 6434 | 6480 | 6525 | 6571 | 6617 | 6663  | 7             |
| 77   |     | 6709 | 6755  | 6800  | 6846 | 6892 | 6938 | 6984 | 7030 | 7075 | 7121  | 8             |
| 78   |     | 7167 | 7213  | 7259  | 7305 | 7350 | 7396 | 7442 | 7488 | 7534 | 7579  | 9             |
| 79   |     | 7625 | 7671  | 7717  | 7763 | 7808 | 7854 | 7900 | 7946 | 7992 | 8038  |               |
| 9480 |     | 8083 | 8129  | 8175  | 8221 | 8267 | 8312 | 8358 | 8404 | 8450 | 8496  |               |
| 81   |     | 8541 | 8587  | 8633  | 8679 | 8725 | 8770 | 8816 | 8862 | 8908 | 8954  |               |
| 82   |     | 9000 | 9045  | 9091  | 9137 | 9183 | 9229 | 9274 | 9320 | 9366 | 9412  |               |
| 83   |     | 9458 | 9503  | 9549  | 9595 | 9641 | 9686 | 9732 | 9778 | 9824 | 9870  |               |
| 84   | *   | 9915 | 9961  | •0007 | 0053 | 0099 | 0144 | 0190 | 0236 | 0282 | 0328  |               |
| 85   | 977 | 0373 | 0419  | 0465  | 0511 | 0556 | 0602 | 0648 | 0694 | 0740 | 0785  |               |
| 86   |     | 0831 | 0877  | 0923  | 0969 | 1014 | 1060 | 1106 | 1152 | 1197 | 1243  |               |
| 87   |     | 1289 | 1335  | 1381  | 1426 | 1472 | 1518 | 1564 | 1609 | 1655 | 1701  |               |
| 88   |     | 1747 | 1793  | 1838  | 1884 | 1930 | 1976 | 2021 | 2067 | 2113 | 2159  |               |
| 89   |     | 2204 | 2250  | 2295  | 2342 | 2388 | 2433 | 2479 | 2525 | 2571 | 2616  |               |
| 9490 |     | 2662 | 2708  | 2754  | 2799 | 2845 | 2891 | 2937 | 2982 | 3028 | 3074  |               |
| 91   |     | 3120 | 3165  | 3211  | 3257 | 3303 | 3349 | 3394 | 3440 | 3486 | 3532  |               |
| 92   |     | 3577 | 3623  | 3669  | 3715 | 3760 | 3806 | 3852 | 3898 | 3943 | 3989  |               |
| 93   |     | 4035 | 4081  | 4126  | 4172 | 4218 | 4264 | 4309 | 4355 | 4401 | 4447  |               |
| 94   |     | 4492 | 4538  | 4584  | 4630 | 4675 | 4721 | 4767 | 4812 | 4858 | 4904  |               |
| 95   |     | 4950 | 4995  | 5041  | 5087 | 5133 | 5178 | 5224 | 5270 | 5316 | 5361  |               |
| 96   |     | 5407 | 5453  | 5499  | 5544 | 5590 | 5636 | 5681 | 5727 | 5773 | 5819  |               |
| 97   |     | 5864 | 5910  | 5956  | 6002 | 6047 | 6093 | 6139 | 6184 | 6230 | 6276  |               |
| 98   |     | 6322 | 6367  | 6413  | 6459 | 6505 | 6550 | 6596 | 6642 | 6687 | 6733  |               |
| 99   |     | 6779 | 6825  | 6870  | 6916 | 6962 | 7007 | 7053 | 7099 | 7145 | 7190  |               |
| 9500 |     | 7236 | 7282  | 7327  | 7373 | 7419 | 7465 | 7510 | 7556 | 7602 | 7647  | 1             |
| 01   |     | 7693 | 7739  | 7785  | 7830 | 7876 | 7922 | 7967 | 8013 | 8059 | 8105  | 2             |
| 02   |     | 8150 | 8196  | 8242  | 8287 | 8333 | 8379 | 8424 | 8470 | 8516 | 8562  | 3             |
| 03   |     | 8607 | 8653  | 8699  | 8744 | 8790 | 8836 | 8881 | 8927 | 8973 | 9019  | 4             |
| 04   |     | 9064 | 9110  | 9156  | 9201 | 9247 | 9293 | 9338 | 9384 | 9430 | 9476  | 5             |
| 05   |     | 9521 | 9567  | 9613  | 9658 | 9704 | 9750 | 9795 | 9841 | 9887 | 9932  | 6             |
| 06   | *   | 9978 | •0024 | 0069  | 0115 | 0161 | 0207 | 0252 | 0298 | 0344 | 0389  | 7             |
| 07   | 978 | 0435 | 0481  | 0526  | 0572 | 0618 | 0663 | 0709 | 0755 | 0800 | 0846  | 8             |
| 08   |     | 0892 | 0937  | 0983  | 1029 | 1074 | 1120 | 1166 | 1211 | 1257 | 1303  | 9             |
| 09   |     | 1348 | 1394  | 1440  | 1485 | 1531 | 1577 | 1622 | 1668 | 1714 | 1760  |               |
| 9510 |     | 1805 | 1851  | 1897  | 1942 | 1988 | 2033 | 2079 | 2125 | 2170 | 2216  |               |
| 11   |     | 2262 | 2307  | 2353  | 2399 | 2444 | 2490 | 2536 | 2581 | 2627 | 2673  |               |
| 12   |     | 2718 | 2764  | 2810  | 2855 | 2901 | 2947 | 2992 | 3038 | 3084 | 3129  |               |
| 13   |     | 3175 | 3221  | 3266  | 3312 | 3358 | 3403 | 3449 | 3495 | 3540 | 3586  |               |
| 14   |     | 3631 | 3677  | 3723  | 3768 | 3814 | 3860 | 3905 | 3951 | 3997 | 4042  |               |
| 15   |     | 4088 | 4134  | 4179  | 4225 | 4270 | 4316 | 4362 | 4407 | 4453 | 4499  |               |
| 16   |     | 4544 | 4590  | 4636  | 4681 | 4727 | 4773 | 4818 | 4864 | 4909 | 4955  |               |
| 17   |     | 5001 | 5046  | 5092  | 5138 | 5183 | 5229 | 5274 | 5320 | 5366 | 5411  |               |
| 18   |     | 5457 | 5503  | 5548  | 5594 | 5640 | 5685 | 5731 | 5776 | 5822 | 5868  |               |
| 19   |     | 5913 | 5959  | 6005  | 6050 | 6096 | 6141 | 6187 | 6233 | 6278 | 6324  |               |
| Num. | 0   | 1    | 2     | 3     | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

|   |     |
|---|-----|
| 1 | 46  |
| 2 | 92  |
| 3 | 138 |
| 4 | 184 |
| 5 | 230 |
| 6 | 276 |
| 7 | 322 |
| 8 | 368 |
| 9 | 414 |

|   |     |
|---|-----|
| 1 | 45  |
| 2 | 90  |
| 3 | 135 |
| 4 | 180 |
| 5 | 225 |
| 6 | 270 |
| 7 | 315 |
| 8 | 360 |
| 9 | 405 |

| Num.        | 0               | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|-----------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>9520</b> | <b>978</b> 6369 | 6415 | 6461 | 6506 | 6552 | 6598 | 6643 | 6689 | 6734 | 6780 |       |               |
| 21          | 6826            | 6871 | 6917 | 6962 | 7008 | 7054 | 7099 | 7145 | 7191 | 7236 |       |               |
| 22          | 7282            | 7327 | 7373 | 7419 | 7464 | 7510 | 7555 | 7601 | 7647 | 7692 |       |               |
| 23          | 7738            | 7783 | 7829 | 7875 | 7920 | 7966 | 8011 | 8057 | 8103 | 8148 |       |               |
| 24          | 8194            | 8239 | 8285 | 8331 | 8376 | 8422 | 8467 | 8513 | 8559 | 8604 |       |               |
| 25          | 8650            | 8695 | 8741 | 8787 | 8832 | 8878 | 8923 | 8969 | 9015 | 9060 |       |               |
| 26          | 9106            | 9151 | 9197 | 9243 | 9288 | 9334 | 9379 | 9425 | 9470 | 9516 |       |               |
| 27          | 9562            | 9607 | 9653 | 9698 | 9744 | 9790 | 9835 | 9881 | 9926 | 9972 |       |               |
| 28          | 999             | 0017 | 0063 | 0109 | 0154 | 0200 | 0245 | 0291 | 0337 | 0382 | 0428  |               |
| 29          | 0473            | 0519 | 0564 | 0610 | 0656 | 0701 | 0747 | 0792 | 0838 | 0883 |       |               |
| <b>9530</b> | 0929            | 0975 | 1020 | 1066 | 1111 | 1157 | 1202 | 1248 | 1294 | 1339 |       | 1 45          |
| 31          | 1385            | 1430 | 1476 | 1521 | 1567 | 1613 | 1658 | 1704 | 1749 | 1795 |       | 2 92          |
| 32          | 1840            | 1886 | 1931 | 1977 | 2023 | 2068 | 2114 | 2159 | 2205 | 2250 |       | 3 138         |
| 33          | 2296            | 2341 | 2387 | 2433 | 2478 | 2524 | 2569 | 2615 | 2660 | 2706 |       | 4 184         |
| 34          | 2751            | 2797 | 2843 | 2888 | 2934 | 2979 | 3025 | 3070 | 3116 | 3161 |       | 5 230         |
| 35          | 3207            | 3253 | 3298 | 3344 | 3389 | 3435 | 3480 | 3526 | 3571 | 3617 |       | 6 276         |
| 36          | 3662            | 3708 | 3754 | 3799 | 3845 | 3890 | 3936 | 3981 | 4027 | 4072 |       | 7 322         |
| 37          | 4118            | 4163 | 4209 | 4254 | 4300 | 4346 | 4391 | 4437 | 4482 | 4528 |       | 8 368         |
| 38          | 4573            | 4619 | 4664 | 4710 | 4755 | 4801 | 4846 | 4892 | 4937 | 4983 |       | 9 414         |
| 39          | 5028            | 5074 | 5120 | 5165 | 5211 | 5256 | 5302 | 5347 | 5393 | 5438 |       |               |
| <b>9540</b> | 5484            | 5529 | 5575 | 5620 | 5666 | 5711 | 5757 | 5802 | 5848 | 5893 |       |               |
| 41          | 5939            | 5984 | 6030 | 6076 | 6121 | 6167 | 6212 | 6258 | 6303 | 6349 |       |               |
| 42          | 6394            | 6440 | 6485 | 6531 | 6576 | 6622 | 6667 | 6713 | 6758 | 6804 |       |               |
| 43          | 6849            | 6895 | 6940 | 6986 | 7031 | 7077 | 7122 | 7168 | 7213 | 7259 |       |               |
| 44          | 7304            | 7350 | 7395 | 7441 | 7486 | 7532 | 7577 | 7623 | 7668 | 7714 |       |               |
| 45          | 7759            | 7805 | 7850 | 7896 | 7941 | 7987 | 8032 | 8078 | 8123 | 8169 |       |               |
| 46          | 8214            | 8260 | 8305 | 8351 | 8396 | 8442 | 8487 | 8533 | 8578 | 8624 |       |               |
| 47          | 8669            | 8715 | 8760 | 8806 | 8851 | 8897 | 8942 | 8988 | 9033 | 9079 |       |               |
| 48          | 9124            | 9170 | 9215 | 9261 | 9306 | 9352 | 9397 | 9442 | 9488 | 9533 |       |               |
| 49          | 9579            | 9624 | 9670 | 9715 | 9761 | 9806 | 9852 | 9897 | 9943 | 9988 |       |               |
| <b>9550</b> | 9900            | 0034 | 0079 | 0125 | 0170 | 0216 | 0261 | 0307 | 0352 | 0398 | 0443  |               |
| 51          | 0488            | 0534 | 0579 | 0625 | 0670 | 0716 | 0761 | 0807 | 0852 | 0898 |       |               |
| 52          | 0943            | 0989 | 1034 | 1080 | 1125 | 1170 | 1216 | 1261 | 1307 | 1352 |       |               |
| 53          | 1398            | 1443 | 1489 | 1534 | 1580 | 1625 | 1671 | 1716 | 1761 | 1807 |       |               |
| 54          | 1852            | 1898 | 1943 | 1989 | 2034 | 2080 | 2125 | 2171 | 2216 | 2261 |       |               |
| 55          | 2307            | 2352 | 2398 | 2443 | 2489 | 2534 | 2580 | 2625 | 2671 | 2716 |       |               |
| 56          | 2761            | 2807 | 2852 | 2898 | 2943 | 2989 | 3034 | 3080 | 3125 | 3170 |       |               |
| 57          | 3216            | 3261 | 3307 | 3352 | 3398 | 3443 | 3489 | 3534 | 3579 | 3625 |       |               |
| 58          | 3670            | 3716 | 3761 | 3807 | 3852 | 3897 | 3943 | 3988 | 4034 | 4079 |       |               |
| 59          | 4125            | 4170 | 4215 | 4261 | 4306 | 4352 | 4397 | 4443 | 4488 | 4533 |       |               |
| <b>9560</b> | 4579            | 4624 | 4670 | 4715 | 4761 | 4806 | 4851 | 4897 | 4942 | 4988 |       |               |
| 61          | 5033            | 5079 | 5124 | 5169 | 5215 | 5260 | 5306 | 5351 | 5397 | 5442 |       | 1 45          |
| 62          | 5487            | 5533 | 5578 | 5624 | 5669 | 5714 | 5760 | 5805 | 5851 | 5896 |       | 2 90          |
| 63          | 5942            | 5987 | 6033 | 6078 | 6123 | 6169 | 6214 | 6259 | 6305 | 6350 |       | 3 135         |
| 64          | 6396            | 6441 | 6486 | 6532 | 6577 | 6623 | 6668 | 6714 | 6759 | 6804 |       | 4 180         |
| 65          | 6850            | 6895 | 6941 | 6986 | 7031 | 7077 | 7122 | 7168 | 7213 | 7258 |       | 5 225         |
| 66          | 7304            | 7349 | 7395 | 7440 | 7485 | 7531 | 7576 | 7622 | 7667 | 7712 |       | 6 270         |
| 67          | 7758            | 7803 | 7849 | 7894 | 7939 | 7985 | 8030 | 8075 | 8121 | 8166 |       | 7 315         |
| 68          | 8212            | 8257 | 8302 | 8348 | 8393 | 8439 | 8484 | 8529 | 8575 | 8620 |       | 8 360         |
| 69          | 8666            | 8711 | 8756 | 8802 | 8847 | 8892 | 8938 | 8983 | 9029 | 9074 |       | 9 405         |
| <b>9570</b> | 9119            | 9165 | 9210 | 9256 | 9301 | 9346 | 9392 | 9437 | 9482 | 9528 |       |               |
| 71          | 9573            | 9619 | 9664 | 9709 | 9755 | 9800 | 9845 | 9891 | 9936 | 9982 |       |               |
| 72          | 9981            | 0027 | 0072 | 0118 | 0163 | 0208 | 0254 | 0299 | 0344 | 0390 | 0435  |               |
| 73          | 0481            | 0526 | 0571 | 0617 | 0662 | 0707 | 0753 | 0798 | 0844 | 0889 |       |               |
| 74          | 0934            | 0980 | 1025 | 1070 | 1116 | 1161 | 1206 | 1252 | 1297 | 1342 |       |               |
| 75          | 1388            | 1433 | 1479 | 1524 | 1569 | 1615 | 1660 | 1705 | 1751 | 1796 |       |               |
| 76          | 1841            | 1887 | 1932 | 1977 | 2023 | 2068 | 2113 | 2159 | 2204 | 2250 |       |               |
| 77          | 2295            | 2340 | 2386 | 2431 | 2476 | 2522 | 2567 | 2612 | 2658 | 2703 |       |               |
| 78          | 2748            | 2794 | 2839 | 2884 | 2930 | 2975 | 3020 | 3066 | 3111 | 3156 |       |               |
| 79          | 3202            | 3247 | 3292 | 3338 | 3383 | 3428 | 3474 | 3519 | 3564 | 3610 |       |               |
| Num.        | 0               | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|
| <b>9580</b> | <b>981</b> | 3655 | 3700 | 3746 | 3791 | 3836 | 3882 | 3927 | 3972 | 4018 | 4063  |               |
| 81          |            | 4108 | 4154 | 4199 | 4244 | 4290 | 4335 | 4380 | 4426 | 4471 | 4516  |               |
| 82          |            | 4562 | 4607 | 4652 | 4698 | 4743 | 4788 | 4834 | 4879 | 4924 | 4970  |               |
| 83          |            | 5015 | 5060 | 5106 | 5151 | 5196 | 5241 | 5287 | 5332 | 5377 | 5423  |               |
| 84          |            | 5468 | 5513 | 5559 | 5604 | 5649 | 5695 | 5740 | 5785 | 5831 | 5876  |               |
| 85          |            | 5921 | 5966 | 6012 | 6057 | 6102 | 6148 | 6193 | 6238 | 6284 | 6329  |               |
| 86          |            | 6374 | 6420 | 6465 | 6510 | 6555 | 6601 | 6646 | 6691 | 6737 | 6782  |               |
| 87          |            | 6827 | 6873 | 6918 | 6963 | 7008 | 7054 | 7099 | 7144 | 7190 | 7235  |               |
| 88          |            | 7280 | 7326 | 7371 | 7416 | 7461 | 7507 | 7552 | 7597 | 7643 | 7688  |               |
| 89          |            | 7733 | 7778 | 7824 | 7869 | 7914 | 7960 | 8005 | 8050 | 8095 | 8141  |               |
| <b>9590</b> |            | 8186 | 8231 | 8277 | 8322 | 8367 | 8412 | 8458 | 8503 | 8548 | 8594  |               |
| 91          |            | 8639 | 8684 | 8729 | 8775 | 8820 | 8865 | 8911 | 8956 | 9001 | 9046  |               |
| 92          |            | 9092 | 9137 | 9182 | 9228 | 9273 | 9318 | 9363 | 9409 | 9454 | 9499  |               |
| 93          |            | 9544 | 9589 | 9635 | 9680 | 9726 | 9771 | 9816 | 9861 | 9907 | 9952  |               |
| 94          | *          | 9997 | +042 | 0088 | 0133 | 0178 | 0223 | 0269 | 0314 | 0359 | 0405  |               |
| 95          | <b>982</b> | 0450 | 0495 | 0540 | 0586 | 0631 | 0676 | 0721 | 0767 | 0812 | 0857  |               |
| 96          |            | 0902 | 0948 | 0993 | 1038 | 1083 | 1129 | 1174 | 1219 | 1264 | 1310  |               |
| 97          |            | 1355 | 1400 | 1445 | 1491 | 1536 | 1581 | 1626 | 1672 | 1717 | 1762  |               |
| 98          |            | 1807 | 1853 | 1898 | 1943 | 1988 | 2034 | 2079 | 2124 | 2169 | 2215  |               |
| 99          |            | 2260 | 2305 | 2350 | 2396 | 2441 | 2486 | 2531 | 2577 | 2622 | 2667  |               |
| <b>9600</b> |            | 2712 | 2758 | 2803 | 2848 | 2893 | 2939 | 2984 | 3029 | 3074 | 3119  |               |
| 01          |            | 3165 | 3210 | 3255 | 3300 | 3346 | 3391 | 3436 | 3481 | 3527 | 3572  |               |
| 02          |            | 3617 | 3662 | 3707 | 3753 | 3798 | 3843 | 3888 | 3934 | 3979 | 4024  |               |
| 03          |            | 4069 | 4115 | 4160 | 4205 | 4250 | 4295 | 4341 | 4386 | 4431 | 4476  |               |
| 04          |            | 4522 | 4567 | 4612 | 4657 | 4702 | 4748 | 4793 | 4838 | 4883 | 4928  |               |
| 05          |            | 4974 | 5019 | 5064 | 5109 | 5155 | 5200 | 5245 | 5290 | 5335 | 5381  |               |
| 06          |            | 5426 | 5471 | 5516 | 5561 | 5607 | 5652 | 5697 | 5742 | 5787 | 5833  |               |
| 07          |            | 5878 | 5923 | 5968 | 6014 | 6059 | 6104 | 6149 | 6194 | 6240 | 6285  |               |
| 08          |            | 6330 | 6375 | 6420 | 6466 | 6511 | 6556 | 6601 | 6646 | 6692 | 6737  |               |
| 09          |            | 6782 | 6827 | 6872 | 6918 | 6963 | 7008 | 7053 | 7098 | 7143 | 7189  |               |
| <b>9610</b> |            | 7234 | 7279 | 7324 | 7369 | 7415 | 7460 | 7505 | 7550 | 7595 | 7641  |               |
| 11          |            | 7686 | 7731 | 7776 | 7821 | 7867 | 7912 | 7957 | 8002 | 8047 | 8092  |               |
| 12          |            | 8138 | 8183 | 8228 | 8273 | 8318 | 8364 | 8409 | 8454 | 8499 | 8544  |               |
| 13          |            | 8589 | 8635 | 8680 | 8725 | 8770 | 8815 | 8860 | 8906 | 8951 | 8996  |               |
| 14          |            | 9041 | 9086 | 9132 | 9177 | 9222 | 9267 | 9312 | 9357 | 9403 | 9448  |               |
| 15          |            | 9493 | 9538 | 9583 | 9628 | 9674 | 9719 | 9764 | 9809 | 9854 | 9899  |               |
| 16          | *          | 9945 | 9990 | +035 | 0080 | 0125 | 0170 | 0216 | 0261 | 0306 | 0351  |               |
| 17          | <b>983</b> | 0397 | 0441 | 0486 | 0532 | 0577 | 0622 | 0667 | 0712 | 0757 | 0803  |               |
| 18          |            | 0848 | 0893 | 0938 | 0983 | 1028 | 1073 | 1119 | 1164 | 1209 | 1254  |               |
| 19          |            | 1299 | 1344 | 1390 | 1435 | 1480 | 1525 | 1570 | 1615 | 1660 | 1706  |               |
| <b>9620</b> |            | 1751 | 1796 | 1841 | 1886 | 1931 | 1976 | 2022 | 2067 | 2112 | 2157  |               |
| 21          |            | 2202 | 2247 | 2292 | 2338 | 2383 | 2428 | 2473 | 2518 | 2563 | 2608  |               |
| 22          |            | 2654 | 2699 | 2744 | 2789 | 2834 | 2879 | 2924 | 2969 | 3015 | 3060  |               |
| 23          |            | 3105 | 3150 | 3195 | 3240 | 3285 | 3331 | 3376 | 3421 | 3466 | 3511  |               |
| 24          |            | 3556 | 3601 | 3646 | 3692 | 3737 | 3782 | 3827 | 3872 | 3917 | 3962  |               |
| 25          |            | 4007 | 4053 | 4098 | 4143 | 4188 | 4233 | 4278 | 4323 | 4368 | 4413  |               |
| 26          |            | 4459 | 4504 | 4549 | 4594 | 4639 | 4684 | 4729 | 4774 | 4819 | 4865  |               |
| 27          |            | 4910 | 4955 | 5000 | 5045 | 5090 | 5135 | 5180 | 5225 | 5271 | 5316  |               |
| 28          |            | 5361 | 5406 | 5451 | 5496 | 5541 | 5586 | 5631 | 5677 | 5722 | 5767  |               |
| 29          |            | 5812 | 5857 | 5902 | 5947 | 5992 | 6037 | 6082 | 6128 | 6173 | 6218  |               |
| <b>9630</b> |            | 6263 | 6308 | 6353 | 6398 | 6443 | 6488 | 6533 | 6579 | 6624 | 6669  |               |
| 31          |            | 6714 | 6759 | 6804 | 6849 | 6894 | 6939 | 6984 | 7029 | 7075 | 7120  |               |
| 32          |            | 7165 | 7210 | 7255 | 7300 | 7345 | 7390 | 7435 | 7480 | 7525 | 7571  |               |
| 33          |            | 7616 | 7661 | 7706 | 7751 | 7796 | 7841 | 7886 | 7931 | 7976 | 8021  |               |
| 34          |            | 8066 | 8111 | 8157 | 8202 | 8247 | 8292 | 8337 | 8382 | 8427 | 8472  |               |
| 35          |            | 8517 | 8562 | 8607 | 8652 | 8697 | 8743 | 8788 | 8833 | 8878 | 8923  |               |
| 35          |            | 8963 | 9013 | 9058 | 9103 | 9148 | 9193 | 9238 | 9283 | 9328 | 9374  |               |
| 37          |            | 9419 | 9464 | 9509 | 9554 | 9599 | 9644 | 9689 | 9734 | 9779 | 9824  |               |
| 38          | *          | 9869 | 9914 | 9959 | +004 | 0049 | 0095 | 0140 | 0185 | 0230 | 0275  |               |
| 39          | <b>984</b> | 0320 | 0365 | 0410 | 0455 | 0500 | 0545 | 0590 | 0635 | 0680 | 0725  |               |
| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

|   |     |
|---|-----|
| 1 | 46  |
| 2 | 92  |
| 3 | 138 |
| 4 | 184 |
| 5 | 230 |
| 6 | 276 |
| 7 | 322 |
| 8 | 368 |
| 9 | 414 |

|   |     |
|---|-----|
| 1 | 45  |
| 2 | 90  |
| 3 | 135 |
| 4 | 180 |
| 5 | 225 |
| 6 | 270 |
| 7 | 315 |
| 8 | 360 |
| 9 | 405 |

| Num.        | 0          | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |               |
|-------------|------------|------|------|------|------|------|------|------|------|------|-------|---------------|---------------|
| <b>9640</b> | <b>984</b> | 0770 | 0815 | 0860 | 0905 | 0951 | 0996 | 1041 | 1086 | 1131 | 1176  |               |               |
| 41          |            | 1221 | 1266 | 1311 | 1356 | 1401 | 1446 | 1491 | 1536 | 1581 | 1626  |               |               |
| 42          |            | 1671 | 1716 | 1761 | 1806 | 1851 | 1896 | 1942 | 1987 | 2032 | 2077  |               |               |
| 43          |            | 2122 | 2167 | 2212 | 2257 | 2302 | 2347 | 2392 | 2437 | 2482 | 2527  |               |               |
| 44          |            | 2572 | 2617 | 2662 | 2707 | 2752 | 2797 | 2842 | 2887 | 2932 | 2977  |               |               |
| 45          |            | 3022 | 3067 | 3112 | 3157 | 3202 | 3247 | 3292 | 3338 | 3383 | 3428  |               |               |
| 46          |            | 3473 | 3518 | 3563 | 3608 | 3653 | 3698 | 3743 | 3788 | 3833 | 3878  |               |               |
| 47          |            | 3923 | 3968 | 4013 | 4058 | 4103 | 4148 | 4193 | 4238 | 4283 | 4328  |               |               |
| 48          |            | 4373 | 4418 | 4463 | 4508 | 4553 | 4598 | 4643 | 4688 | 4733 | 4778  |               |               |
| 49          |            | 4823 | 4868 | 4913 | 4958 | 5003 | 5048 | 5093 | 5138 | 5183 | 5228  |               |               |
| <b>9650</b> |            | 5273 | 5318 | 5363 | 5408 | 5453 | 5498 | 5543 | 5588 | 5633 | 5678  |               |               |
| 51          |            | 5723 | 5768 | 5813 | 5858 | 5903 | 5948 | 5993 | 6038 | 6083 | 6128  |               |               |
| 52          |            | 6173 | 6218 | 6263 | 6308 | 6353 | 6398 | 6443 | 6488 | 6533 | 6578  |               |               |
| 53          |            | 6623 | 6668 | 6713 | 6758 | 6803 | 6848 | 6893 | 6938 | 6983 | 7028  |               |               |
| 54          |            | 7073 | 7118 | 7163 | 7208 | 7253 | 7298 | 7343 | 7388 | 7433 | 7478  |               |               |
| 55          |            | 7523 | 7568 | 7613 | 7658 | 7703 | 7748 | 7793 | 7838 | 7883 | 7928  |               |               |
| 56          |            | 7973 | 8018 | 8063 | 8108 | 8152 | 8197 | 8242 | 8287 | 8332 | 8377  |               |               |
| 57          |            | 8422 | 8467 | 8512 | 8557 | 8602 | 8647 | 8692 | 8737 | 8782 | 8827  |               |               |
| 58          |            | 8872 | 8917 | 8962 | 9007 | 9052 | 9097 | 9142 | 9187 | 9232 | 9277  |               |               |
| 59          |            | 9322 | 9367 | 9412 | 9457 | 9502 | 9546 | 9591 | 9636 | 9681 | 9726  |               |               |
| <b>9660</b> | *          | 9771 | 9816 | 9861 | 9906 | 9951 | 9996 | +041 | 0086 | 0131 | 0176  |               |               |
| 61          | <b>985</b> | 0221 | 0266 | 0311 | 0356 | 0401 | 0446 | 0491 | 0535 | 0580 | 0625  |               |               |
| 62          |            | 0670 | 0715 | 0760 | 0805 | 0850 | 0895 | 0940 | 0985 | 1030 | 1075  |               |               |
| 63          |            | 1120 | 1165 | 1210 | 1255 | 1300 | 1345 | 1390 | 1434 | 1479 | 1524  |               |               |
| 64          |            | 1569 | 1614 | 1659 | 1704 | 1749 | 1794 | 1839 | 1884 | 1929 | 1974  |               |               |
| 65          |            | 2019 | 2064 | 2108 | 2153 | 2198 | 2243 | 2288 | 2333 | 2378 | 2423  |               |               |
| 66          |            | 2468 | 2513 | 2558 | 2603 | 2648 | 2693 | 2737 | 2782 | 2827 | 2872  |               |               |
| 67          |            | 2917 | 2962 | 3007 | 3052 | 3097 | 3142 | 3187 | 3232 | 3277 | 3321  |               |               |
| 68          |            | 3366 | 3411 | 3456 | 3501 | 3546 | 3591 | 3636 | 3681 | 3726 | 3771  |               |               |
| 69          |            | 3816 | 3861 | 3905 | 3950 | 3995 | 4040 | 4085 | 4130 | 4175 | 4220  |               |               |
| <b>9670</b> |            | 4265 | 4310 | 4355 | 4399 | 4444 | 4489 | 4534 | 4579 | 4624 | 4669  |               |               |
| 71          |            | 4714 | 4759 | 4804 | 4849 | 4893 | 4938 | 4983 | 5028 | 5073 | 5118  |               |               |
| 72          |            | 5163 | 5208 | 5253 | 5298 | 5342 | 5387 | 5432 | 5477 | 5522 | 5567  |               |               |
| 73          |            | 5612 | 5657 | 5702 | 5747 | 5791 | 5836 | 5881 | 5926 | 5971 | 6016  |               |               |
| 74          |            | 6061 | 6106 | 6151 | 6196 | 6240 | 6285 | 6330 | 6375 | 6420 | 6465  |               |               |
| 75          |            | 6510 | 6555 | 6600 | 6644 | 6689 | 6734 | 6779 | 6824 | 6869 | 6914  |               |               |
| 76          |            | 6959 | 7003 | 7048 | 7093 | 7138 | 7183 | 7228 | 7273 | 7318 | 7363  |               |               |
| 77          |            | 7407 | 7452 | 7497 | 7542 | 7587 | 7632 | 7677 | 7722 | 7766 | 7811  |               |               |
| 78          |            | 7856 | 7901 | 7946 | 7991 | 8036 | 8081 | 8125 | 8170 | 8215 | 8260  |               |               |
| 79          |            | 8305 | 8350 | 8395 | 8440 | 8484 | 8529 | 8574 | 8619 | 8664 | 8709  |               |               |
| <b>9680</b> |            | 8754 | 8798 | 8843 | 8888 | 8933 | 8978 | 9023 | 9068 | 9112 | 9157  |               |               |
| 81          |            | 9202 | 9247 | 9292 | 9337 | 9382 | 9426 | 9471 | 9516 | 9561 | 9606  |               |               |
| 82          | *          | 9651 | 9696 | 9740 | 9785 | 9830 | 9875 | 9920 | 9965 | +010 | 0054  |               |               |
| 83          | <b>986</b> | 0099 | 0144 | 0189 | 0234 | 0279 | 0324 | 0368 | 0413 | 0458 | 0503  |               |               |
| 84          |            | 0548 | 0593 | 0637 | 0682 | 0727 | 0772 | 0817 | 0862 | 0907 | 0951  |               |               |
| 85          |            | 0996 | 1041 | 1086 | 1131 | 1176 | 1220 | 1265 | 1310 | 1355 | 1400  |               |               |
| 86          |            | 1445 | 1489 | 1534 | 1579 | 1624 | 1669 | 1714 | 1758 | 1803 | 1848  |               |               |
| 87          |            | 1893 | 1938 | 1983 | 2027 | 2072 | 2117 | 2162 | 2207 | 2252 | 2296  |               |               |
| 88          |            | 2341 | 2386 | 2431 | 2476 | 2521 | 2565 | 2610 | 2655 | 2700 | 2745  |               |               |
| 89          |            | 2790 | 2834 | 2879 | 2924 | 2969 | 3014 | 3058 | 3103 | 3148 | 3193  |               |               |
| <b>9690</b> |            | 3238 | 3283 | 3327 | 3372 | 3417 | 3462 | 3507 | 3551 | 3596 | 3641  |               |               |
| 91          |            | 3686 | 3731 | 3776 | 3820 | 3865 | 3910 | 3955 | 4000 | 4044 | 4089  |               |               |
| 92          |            | 4134 | 4179 | 4224 | 4268 | 4313 | 4358 | 4403 | 4448 | 4493 | 4537  |               |               |
| 93          |            | 4582 | 4627 | 4672 | 4717 | 4761 | 4806 | 4851 | 4896 | 4941 | 4985  |               |               |
| 94          |            | 5030 | 5075 | 5120 | 5165 | 5209 | 5254 | 5299 | 5344 | 5389 | 5433  |               |               |
| 95          |            | 5478 | 5523 | 5568 | 5613 | 5657 | 5702 | 5747 | 5792 | 5836 | 5881  |               |               |
| 96          |            | 5926 | 5971 | 6016 | 6060 | 6105 | 6150 | 6195 | 6240 | 6284 | 6329  |               |               |
| 97          |            | 6374 | 6419 | 6464 | 6508 | 6553 | 6598 | 6643 | 6687 | 6732 | 6777  |               |               |
| 98          |            | 6822 | 6867 | 6911 | 6956 | 7001 | 7046 | 7090 | 7135 | 7180 | 7225  |               |               |
| 99          |            | 7270 | 7314 | 7359 | 7404 | 7449 | 7493 | 7538 | 7583 | 7628 | 7673  |               |               |
| Num.        |            | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | Diff.         | Diff. & Mult. |

|    |   |     |
|----|---|-----|
| 45 | 1 | 46  |
|    | 2 | 92  |
|    | 3 | 138 |
|    | 4 | 184 |
|    | 5 | 230 |
|    | 6 | 276 |
|    | 7 | 322 |
|    | 8 | 368 |
|    | 9 | 414 |

|  |   |     |
|--|---|-----|
|  | 1 | 45  |
|  | 2 | 90  |
|  | 3 | 135 |
|  | 4 | 180 |
|  | 5 | 225 |
|  | 6 | 270 |
|  | 7 | 315 |
|  | 8 | 360 |
|  | 9 | 405 |

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| 01   |     | 8165 | 8210 | 8255 | 8299 | 8344 | 8389 | 8434 | 8478 | 8523 | 8568 |                   |
| 02   |     | 8613 | 8657 | 8702 | 8747 | 8792 | 8837 | 8881 | 8926 | 8971 | 9016 |                   |
| 03   |     | 9060 | 9105 | 9150 | 9195 | 9239 | 9284 | 9329 | 9374 | 9418 | 9463 |                   |
| 04   |     | 9508 | 9553 | 9597 | 9642 | 9687 | 9732 | 9776 | 9821 | 9866 | 9911 |                   |
| 05   | •   | 9955 | •000 | 0045 | 0090 | 0134 | 0179 | 0224 | 0269 | 0313 | 0358 |                   |
| 06   | 987 | 0403 | 0448 | 0492 | 0537 | 0582 | 0627 | 0671 | 0716 | 0761 | 0806 |                   |
| 07   |     | 0850 | 0895 | 0940 | 0985 | 1029 | 1074 | 1119 | 1163 | 1208 | 1253 |                   |
| 08   |     | 1298 | 1342 | 1387 | 1432 | 1477 | 1521 | 1566 | 1611 | 1656 | 1700 |                   |
| 09   |     | 1745 | 1790 | 1834 | 1879 | 1924 | 1969 | 2013 | 2058 | 2103 | 2148 |                   |
| 9710 |     | 2192 | 2237 | 2282 | 2326 | 2371 | 2416 | 2461 | 2505 | 2550 | 2595 | 1   45            |
| 11   |     | 2640 | 2684 | 2729 | 2774 | 2818 | 2863 | 2908 | 2953 | 2997 | 3042 | 2   90            |
| 12   |     | 3087 | 3131 | 3176 | 3221 | 3266 | 3310 | 3355 | 3400 | 3444 | 3489 | 3   135           |
| 13   |     | 3534 | 3579 | 3623 | 3668 | 3713 | 3757 | 3802 | 3847 | 3892 | 3936 | 4   180           |
| 14   |     | 3981 | 4026 | 4070 | 4115 | 4160 | 4205 | 4249 | 4294 | 4339 | 4383 | 5   225           |
| 15   |     | 4428 | 4473 | 4517 | 4562 | 4607 | 4652 | 4696 | 4741 | 4786 | 4830 | 6   270           |
| 16   |     | 4875 | 4920 | 4964 | 5009 | 5054 | 5099 | 5143 | 5188 | 5233 | 5277 | 7   315           |
| 17   |     | 5322 | 5367 | 5411 | 5456 | 5501 | 5545 | 5590 | 5635 | 5680 | 5724 | 8   360           |
| 18   |     | 5769 | 5814 | 5858 | 5903 | 5948 | 5992 | 6037 | 6082 | 6126 | 6171 | 9   405           |
| 19   |     | 6216 | 6261 | 6305 | 6350 | 6395 | 6439 | 6484 | 6529 | 6573 | 6618 |                   |
| 9720 |     | 6663 | 6707 | 6752 | 6797 | 6841 | 6886 | 6931 | 6975 | 7020 | 7065 |                   |
| 21   |     | 7109 | 7154 | 7199 | 7243 | 7288 | 7333 | 7377 | 7422 | 7467 | 7511 |                   |
| 22   |     | 7556 | 7601 | 7646 | 7690 | 7735 | 7780 | 7824 | 7869 | 7914 | 7958 |                   |
| 23   |     | 8003 | 8048 | 8092 | 8137 | 8182 | 8226 | 8271 | 8316 | 8360 | 8405 |                   |
| 24   |     | 8450 | 8494 | 8539 | 8583 | 8628 | 8673 | 8717 | 8762 | 8807 | 8851 |                   |
| 25   |     | 8896 | 8941 | 8985 | 9030 | 9075 | 9119 | 9164 | 9209 | 9253 | 9298 |                   |
| 26   |     | 9343 | 9387 | 9432 | 9477 | 9521 | 9566 | 9611 | 9655 | 9700 | 9745 |                   |
| 27   | •   | 9789 | 9834 | 9878 | 9923 | 9968 | •012 | 0057 | 0102 | 0146 | 0191 |                   |
| 28   | 988 | 0236 | 0280 | 0325 | 0370 | 0414 | 0459 | 0503 | 0548 | 0593 | 0637 |                   |
| 29   |     | 0682 | 0727 | 0771 | 0816 | 0861 | 0905 | 0950 | 0994 | 1039 | 1084 |                   |
| 9730 |     | 1128 | 1173 | 1218 | 1262 | 1307 | 1352 | 1396 | 1441 | 1485 | 1530 |                   |
| 31   |     | 1575 | 1619 | 1664 | 1709 | 1753 | 1798 | 1842 | 1887 | 1932 | 1976 |                   |
| 32   |     | 2021 | 2066 | 2110 | 2155 | 2200 | 2244 | 2289 | 2333 | 2378 | 2423 |                   |
| 33   |     | 2467 | 2512 | 2556 | 2601 | 2646 | 2690 | 2735 | 2780 | 2824 | 2869 |                   |
| 34   |     | 2913 | 2958 | 3003 | 3047 | 3092 | 3136 | 3181 | 3226 | 3270 | 3315 |                   |
| 35   |     | 3360 | 3404 | 3449 | 3493 | 3538 | 3583 | 3627 | 3672 | 3716 | 3761 |                   |
| 36   |     | 3806 | 3850 | 3895 | 3939 | 3984 | 4029 | 4073 | 4118 | 4162 | 4207 |                   |
| 37   |     | 4252 | 4296 | 4341 | 4386 | 4430 | 4475 | 4519 | 4564 | 4609 | 4653 |                   |
| 38   |     | 4698 | 4742 | 4787 | 4831 | 4876 | 4921 | 4965 | 5010 | 5054 | 5099 |                   |
| 39   |     | 5144 | 5188 | 5233 | 5277 | 5322 | 5367 | 5411 | 5456 | 5500 | 5545 |                   |
| 9740 |     | 5590 | 5634 | 5679 | 5723 | 5768 | 5813 | 5857 | 5902 | 5946 | 5991 |                   |
| 41   |     | 6035 | 6080 | 6125 | 6169 | 6214 | 6258 | 6303 | 6348 | 6392 | 6437 | 1   44            |
| 42   |     | 6481 | 6526 | 6570 | 6615 | 6660 | 6704 | 6749 | 6793 | 6838 | 6882 | 2   88            |
| 43   |     | 6927 | 6972 | 7016 | 7061 | 7105 | 7150 | 7194 | 7239 | 7284 | 7328 | 3   132           |
| 44   |     | 7373 | 7417 | 7462 | 7506 | 7551 | 7596 | 7640 | 7685 | 7729 | 7774 | 4   176           |
| 45   |     | 7818 | 7863 | 7908 | 7952 | 7997 | 8041 | 8086 | 8130 | 8175 | 8220 | 5   220           |
| 46   |     | 8264 | 8309 | 8353 | 8398 | 8442 | 8487 | 8531 | 8576 | 8621 | 8665 | 6   264           |
| 47   |     | 8710 | 8754 | 8799 | 8843 | 8888 | 8932 | 8977 | 9022 | 9066 | 9111 | 7   308           |
| 48   |     | 9155 | 9200 | 9244 | 9289 | 9333 | 9378 | 9423 | 9467 | 9512 | 9556 | 8   352           |
| 49   | •   | 9601 | 9645 | 9690 | 9734 | 9779 | 9823 | 9868 | 9913 | 9957 | •002 | 9   396           |
| 9750 | 989 | 0046 | 0091 | 0135 | 0180 | 0224 | 0269 | 0313 | 0358 | 0402 | 0447 |                   |
| 51   |     | 0492 | 0536 | 0581 | 0625 | 0670 | 0714 | 0759 | 0803 | 0848 | 0892 |                   |
| 52   |     | 0937 | 0981 | 1026 | 1071 | 1115 | 1160 | 1204 | 1249 | 1293 | 1338 |                   |
| 53   |     | 1382 | 1427 | 1471 | 1516 | 1560 | 1605 | 1649 | 1694 | 1738 | 1783 |                   |
| 54   |     | 1828 | 1872 | 1917 | 1961 | 2006 | 2050 | 2095 | 2139 | 2184 | 2228 |                   |
| 55   |     | 2273 | 2317 | 2362 | 2406 | 2451 | 2495 | 2540 | 2584 | 2629 | 2673 |                   |
| 56   |     | 2718 | 2762 | 2807 | 2851 | 2896 | 2940 | 2985 | 3030 | 3074 | 3119 |                   |
| 57   |     | 3163 | 3208 | 3252 | 3297 | 3341 | 3386 | 3430 | 3475 | 3519 | 3564 |                   |
| 58   |     | 3608 | 3653 | 3697 | 3742 | 3786 | 3831 | 3875 | 3920 | 3964 | 4009 |                   |
| 59   |     | 4053 | 4098 | 4142 | 4187 | 4231 | 4276 | 4320 | 4365 | 4409 | 4454 |                   |
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|-------------|------------|------|------|------|------|------|-------|------|------|------|-------|---------------|
| <b>9780</b> | <b>989</b> | 4498 | 4543 | 4587 | 4632 | 4676 | 4721  | 4765 | 4810 | 4854 | 4899  |               |
| 61          |            | 4943 | 4988 | 5032 | 5077 | 5121 | 5166  | 5210 | 5255 | 5299 | 5344  |               |
| 62          |            | 5388 | 5433 | 5477 | 5521 | 5566 | 5610  | 5655 | 5699 | 5744 | 5788  |               |
| 63          |            | 5833 | 5877 | 5922 | 5966 | 6011 | 6055  | 6100 | 6144 | 6189 | 6233  |               |
| 64          |            | 6278 | 6322 | 6367 | 6411 | 6456 | 6500  | 6545 | 6589 | 6634 | 6678  |               |
| 65          |            | 6722 | 6767 | 6811 | 6856 | 6900 | 6945  | 6989 | 7034 | 7078 | 7123  |               |
| 66          |            | 7167 | 7212 | 7256 | 7301 | 7345 | 7390  | 7434 | 7478 | 7523 | 7567  |               |
| 67          |            | 7612 | 7656 | 7701 | 7745 | 7790 | 7834  | 7879 | 7923 | 7968 | 8012  |               |
| 68          |            | 8057 | 8101 | 8145 | 8190 | 8234 | 8279  | 8323 | 8368 | 8412 | 8457  |               |
| 69          |            | 8501 | 8546 | 8590 | 8634 | 8679 | 8723  | 8768 | 8812 | 8857 | 8901  |               |
| <b>9770</b> |            | 8946 | 8990 | 9035 | 9079 | 9123 | 9168  | 9212 | 9257 | 9301 | 9346  | 1 45          |
| 71          |            | 9390 | 9435 | 9479 | 9523 | 9568 | 9612  | 9657 | 9701 | 9746 | 9790  | 2 90          |
| 72          | *          | 9835 | 9879 | 9923 | 9968 | •012 | 0057  | 0101 | 0146 | 0190 | 0235  | 3 135         |
| 73          | 990        | 0279 | 0323 | 0368 | 0412 | 0457 | 0501  | 0546 | 0590 | 0634 | 0679  | 4 180         |
| 74          |            | 0723 | 0768 | 0812 | 0857 | 0901 | 0946  | 0990 | 1034 | 1079 | 1123  | 5 225         |
| 75          |            | 1168 | 1212 | 1257 | 1301 | 1345 | 1390  | 1434 | 1479 | 1523 | 1568  | 6 270         |
| 76          |            | 1612 | 1656 | 1701 | 1745 | 1790 | 1834  | 1878 | 1923 | 1967 | 2012  | 7 315         |
| 77          |            | 2056 | 2101 | 2145 | 2189 | 2234 | 2278  | 2323 | 2367 | 2411 | 2456  | 8 360         |
| 78          |            | 2500 | 2545 | 2589 | 2634 | 2678 | 2722  | 2767 | 2811 | 2856 | 2900  | 9 405         |
| 79          |            | 2944 | 2989 | 3033 | 3078 | 3122 | 3167  | 3211 | 3255 | 3300 | 3344  |               |
| <b>9780</b> |            | 3389 | 3433 | 3477 | 3522 | 3566 | 3611  | 3655 | 3699 | 3744 | 3788  |               |
| 81          |            | 3833 | 3877 | 3921 | 3966 | 4010 | 4055  | 4099 | 4143 | 4188 | 4232  |               |
| 82          |            | 4277 | 4321 | 4365 | 4410 | 4454 | 4499  | 4543 | 4587 | 4632 | 4676  |               |
| 83          |            | 4721 | 4765 | 4809 | 4854 | 4898 | 4942  | 4987 | 5031 | 5076 | 5120  |               |
| 84          |            | 5164 | 5209 | 5253 | 5298 | 5342 | 5386  | 5431 | 5475 | 5520 | 5564  |               |
| 85          |            | 5608 | 5653 | 5697 | 5741 | 5786 | 5830  | 5875 | 5919 | 5963 | 6008  |               |
| 86          |            | 6052 | 6096 | 6141 | 6185 | 6230 | 6274  | 6318 | 6363 | 6407 | 6452  |               |
| 87          |            | 6496 | 6540 | 6585 | 6629 | 6673 | 6718  | 6762 | 6806 | 6851 | 6895  |               |
| 88          |            | 6940 | 6984 | 7028 | 7073 | 7117 | 7161  | 7206 | 7250 | 7295 | 7339  |               |
| 89          |            | 7383 | 7428 | 7472 | 7516 | 7561 | 7605  | 7649 | 7694 | 7738 | 7783  |               |
| <b>9790</b> |            | 7827 | 7871 | 7916 | 7960 | 8004 | 8049  | 8093 | 8137 | 8182 | 8226  |               |
| 91          |            | 8271 | 8315 | 8359 | 8404 | 8448 | 8492  | 8537 | 8581 | 8625 | 8670  |               |
| 92          |            | 8714 | 8758 | 8803 | 8847 | 8891 | 8936  | 8980 | 9025 | 9069 | 9113  |               |
| 93          |            | 9158 | 9202 | 9246 | 9291 | 9335 | 9379  | 9424 | 9468 | 9512 | 9557  |               |
| 94          | *          | 9601 | 9645 | 9690 | 9734 | 9778 | 9823  | 9867 | 9911 | 9956 | •000  |               |
| 95          | 991        | 0044 | 0089 | 0133 | 0177 | 0222 | 0266  | 0310 | 0355 | 0399 | 0443  |               |
| 96          |            | 0488 | 0532 | 0576 | 0621 | 0665 | 0709  | 0754 | 0798 | 0842 | 0887  |               |
| 97          |            | 0931 | 0975 | 1020 | 1064 | 1108 | 1153  | 1197 | 1241 | 1286 | 1330  |               |
| 98          |            | 1374 | 1419 | 1463 | 1507 | 1552 | 1596  | 1640 | 1685 | 1729 | 1773  |               |
| 99          |            | 1818 | 1862 | 1906 | 1951 | 1995 | 2039  | 2083 | 2128 | 2172 | 2216  |               |
| <b>9800</b> |            | 2261 | 2305 | 2349 | 2394 | 2438 | 2482  | 2527 | 2571 | 2615 | 2660  |               |
| 01          |            | 2704 | 2748 | 2793 | 2837 | 2881 | 2925  | 2970 | 3014 | 3058 | 3103  | 1 44          |
| 02          | 1          | 3147 | 3191 | 3236 | 3280 | 3324 | 3369  | 3413 | 3457 | 3501 | 3546  | 2 88          |
| 03          |            | 3590 | 3634 | 3679 | 3723 | 3767 | 3812  | 3856 | 3900 | 3944 | 3989  | 3 132         |
| 04          |            | 4033 | 4077 | 4122 | 4166 | 4210 | 4255  | 4299 | 4343 | 4387 | 4432  | 4 176         |
| 05          |            | 4476 | 4520 | 4565 | 4609 | 4653 | 4697  | 4742 | 4786 | 4830 | 4875  | 5 220         |
| 06          |            | 4919 | 4963 | 5007 | 5052 | 5096 | 5140  | 5185 | 5229 | 5273 | 5317  | 6 264         |
| 07          |            | 5362 | 5406 | 5450 | 5495 | 5539 | 5583  | 5627 | 5672 | 5716 | 5760  | 7 308         |
| 08          |            | 5805 | 5849 | 5893 | 5937 | 5982 | 6026  | 6070 | 6115 | 6159 | 6203  | 8 352         |
| 09          |            | 6247 | 6292 | 6336 | 6380 | 6424 | 6469  | 6513 | 6557 | 6602 | 6646  | 9 396         |
| <b>9810</b> |            | 6690 | 6734 | 6779 | 6823 | 6867 | 6911  | 6956 | 7000 | 7044 | 7088  |               |
| 11          |            | 7133 | 7177 | 7221 | 7266 | 7310 | 7354  | 7399 | 7443 | 7487 | 7531  |               |
| 12          |            | 7575 | 7620 | 7664 | 7708 | 7752 | 7797  | 7841 | 7885 | 7929 | 7974  |               |
| 13          |            | 8018 | 8062 | 8107 | 8151 | 8195 | 8239  | 8284 | 8328 | 8372 | 8416  |               |
| 14          |            | 8461 | 8505 | 8549 | 8593 | 8638 | 8682  | 8726 | 8770 | 8815 | 8859  |               |
| 15          |            | 8903 | 8947 | 8991 | 9036 | 9080 | 9124  | 9169 | 9213 | 9257 | 9301  |               |
| 16          |            | 9345 | 9389 | 9433 | 9478 | 9522 | 9567  | 9611 | 9655 | 9699 | 9744  |               |
| 17          | *          | 9788 | 9832 | 9876 | 9921 | 9965 | •0009 | 0053 | 0098 | 0142 | 0186  |               |
| 18          | 992        | 0230 | 0275 | 0319 | 0363 | 0407 | 0451  | 0496 | 0540 | 0584 | 0628  |               |
| 19          |            | 0673 | 0717 | 0761 | 0805 | 0850 | 0894  | 0938 | 0982 | 1026 | 1071  |               |
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| 21   |     | 1557 | 1601 | 1646 | 1690 | 1734 | 1778 | 1822 | 1867 | 1911 | 1955  |               |
| 22   |     | 1999 | 2044 | 2088 | 2132 | 2176 | 2220 | 2265 | 2309 | 2353 | 2397  |               |
| 23   |     | 2441 | 2486 | 2530 | 2574 | 2618 | 2662 | 2707 | 2751 | 2795 | 2839  |               |
| 24   |     | 2884 | 2928 | 2972 | 3016 | 3060 | 3105 | 3149 | 3193 | 3237 | 3281  |               |
| 25   |     | 3326 | 3370 | 3414 | 3458 | 3502 | 3547 | 3591 | 3635 | 3679 | 3723  |               |
| 26   |     | 3768 | 3812 | 3856 | 3900 | 3944 | 3989 | 4033 | 4077 | 4121 | 4165  |               |
| 27   |     | 4210 | 4254 | 4298 | 4342 | 4386 | 4431 | 4475 | 4519 | 4563 | 4607  |               |
| 28   |     | 4651 | 4695 | 4740 | 4784 | 4828 | 4872 | 4917 | 4961 | 5005 | 5049  |               |
| 29   |     | 5093 | 5138 | 5182 | 5226 | 5270 | 5314 | 5358 | 5403 | 5447 | 5491  |               |
| 9830 |     | 5535 | 5579 | 5624 | 5668 | 5712 | 5756 | 5800 | 5844 | 5889 | 5933  |               |
| 31   |     | 5977 | 6021 | 6065 | 6109 | 6154 | 6198 | 6242 | 6286 | 6330 | 6375  | 1             |
| 32   |     | 6419 | 6463 | 6507 | 6551 | 6595 | 6640 | 6684 | 6728 | 6772 | 6816  | 2             |
| 33   |     | 6860 | 6905 | 6949 | 6993 | 7037 | 7081 | 7125 | 7170 | 7214 | 7258  | 3             |
| 34   |     | 7302 | 7346 | 7390 | 7435 | 7479 | 7523 | 7567 | 7611 | 7655 | 7699  | 4             |
| 35   |     | 7744 | 7788 | 7832 | 7876 | 7920 | 7964 | 8009 | 8053 | 8097 | 8141  | 5             |
| 36   |     | 8185 | 8229 | 8274 | 8318 | 8362 | 8406 | 8450 | 8494 | 8538 | 8583  | 6             |
| 37   |     | 8627 | 8671 | 8715 | 8759 | 8803 | 8847 | 8892 | 8936 | 8980 | 9024  | 7             |
| 38   |     | 9068 | 9112 | 9156 | 9201 | 9245 | 9289 | 9333 | 9377 | 9421 | 9465  | 8             |
| 39   |     | 9510 | 9554 | 9598 | 9642 | 9686 | 9730 | 9774 | 9819 | 9863 | 9907  | 9             |
| 9840 |     | 9951 | 9995 | 0039 | 0083 | 0128 | 0172 | 0216 | 0260 | 0304 | 0348  |               |
| 41   | 993 | 0392 | 0436 | 0481 | 0525 | 0569 | 0613 | 0657 | 0701 | 0745 | 0789  |               |
| 42   |     | 0834 | 0878 | 0922 | 0966 | 1010 | 1054 | 1098 | 1142 | 1187 | 1231  |               |
| 43   |     | 1275 | 1319 | 1363 | 1407 | 1451 | 1495 | 1540 | 1584 | 1628 | 1672  |               |
| 44   |     | 1716 | 1760 | 1804 | 1848 | 1893 | 1937 | 1981 | 2025 | 2069 | 2113  |               |
| 45   |     | 2157 | 2201 | 2245 | 2290 | 2334 | 2378 | 2422 | 2466 | 2510 | 2554  |               |
| 46   |     | 2598 | 2642 | 2687 | 2731 | 2775 | 2819 | 2863 | 2907 | 2951 | 2995  |               |
| 47   |     | 3039 | 3083 | 3128 | 3172 | 3216 | 3260 | 3304 | 3348 | 3392 | 3436  |               |
| 48   |     | 3480 | 3524 | 3569 | 3613 | 3657 | 3701 | 3745 | 3789 | 3833 | 3877  |               |
| 49   |     | 3921 | 3965 | 4010 | 4054 | 4098 | 4142 | 4186 | 4230 | 4274 | 4318  |               |
| 9850 |     | 4362 | 4406 | 4450 | 4495 | 4539 | 4583 | 4627 | 4671 | 4715 | 4759  |               |
| 51   |     | 4803 | 4847 | 4891 | 4935 | 4980 | 5024 | 5068 | 5112 | 5156 | 5200  |               |
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| 53   |     | 5685 | 5729 | 5773 | 5817 | 5861 | 5905 | 5949 | 5993 | 6037 | 6082  |               |
| 54   |     | 6126 | 6170 | 6214 | 6258 | 6302 | 6346 | 6390 | 6434 | 6478 | 6522  |               |
| 55   |     | 6566 | 6610 | 6654 | 6698 | 6743 | 6787 | 6831 | 6875 | 6919 | 6963  |               |
| 56   |     | 7007 | 7051 | 7095 | 7139 | 7183 | 7227 | 7271 | 7315 | 7359 | 7404  |               |
| 57   |     | 7448 | 7492 | 7536 | 7580 | 7624 | 7668 | 7712 | 7756 | 7800 | 7844  |               |
| 58   |     | 7888 | 7932 | 7976 | 8020 | 8064 | 8108 | 8152 | 8197 | 8241 | 8285  |               |
| 59   |     | 8329 | 8373 | 8417 | 8461 | 8505 | 8549 | 8593 | 8637 | 8681 | 8725  |               |
| 9860 |     | 8769 | 8813 | 8857 | 8901 | 8945 | 8989 | 9033 | 9077 | 9122 | 9166  |               |
| 61   |     | 9210 | 9254 | 9298 | 9342 | 9386 | 9430 | 9474 | 9518 | 9562 | 9606  |               |
| 62   |     | 9650 | 9694 | 9738 | 9782 | 9826 | 9870 | 9914 | 9958 | 0002 | 0046  | 1             |
| 63   | 994 | 0090 | 0134 | 0178 | 0222 | 0266 | 0310 | 0355 | 0399 | 0443 | 0487  | 2             |
| 64   |     | 0531 | 0575 | 0619 | 0663 | 0707 | 0751 | 0795 | 0839 | 0883 | 0927  | 3             |
| 65   |     | 0971 | 1015 | 1059 | 1103 | 1147 | 1191 | 1235 | 1279 | 1323 | 1367  | 4             |
| 66   |     | 1411 | 1455 | 1499 | 1543 | 1587 | 1631 | 1675 | 1719 | 1763 | 1807  | 5             |
| 67   |     | 1851 | 1895 | 1939 | 1983 | 2027 | 2071 | 2115 | 2159 | 2203 | 2247  | 6             |
| 68   |     | 2291 | 2335 | 2379 | 2423 | 2467 | 2511 | 2555 | 2599 | 2643 | 2687  | 7             |
| 69   |     | 2731 | 2775 | 2820 | 2864 | 2908 | 2952 | 2996 | 3040 | 3084 | 3128  | 8             |
| 9870 |     | 3172 | 3216 | 3260 | 3304 | 3348 | 3392 | 3436 | 3480 | 3524 | 3568  | 9             |
| 71   |     | 3612 | 3656 | 3700 | 3744 | 3788 | 3831 | 3875 | 3919 | 3963 | 4007  |               |
| 72   |     | 4051 | 4095 | 4139 | 4183 | 4227 | 4271 | 4315 | 4359 | 4403 | 4447  |               |
| 73   |     | 4491 | 4535 | 4579 | 4623 | 4667 | 4711 | 4755 | 4799 | 4843 | 4887  |               |
| 74   |     | 4931 | 4975 | 5019 | 5063 | 5107 | 5151 | 5195 | 5239 | 5283 | 5327  |               |
| 75   |     | 5371 | 5415 | 5459 | 5503 | 5547 | 5591 | 5635 | 5679 | 5723 | 5767  |               |
| 76   |     | 5811 | 5855 | 5899 | 5943 | 5987 | 6031 | 6075 | 6119 | 6163 | 6207  |               |
| 77   |     | 6251 | 6295 | 6339 | 6383 | 6426 | 6470 | 6514 | 6558 | 6602 | 6646  |               |
| 78   |     | 6690 | 6734 | 6778 | 6822 | 6866 | 6910 | 6954 | 6998 | 7042 | 7086  |               |
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| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |

|   |     |
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| 3 | 132 |
| 4 | 176 |
| 5 | 220 |
| 6 | 264 |
| 7 | 308 |
| 8 | 352 |
| 9 | 396 |

|   |     |
|---|-----|
| 1 | 43  |
| 2 | 86  |
| 3 | 129 |
| 4 | 172 |
| 5 | 215 |
| 6 | 258 |
| 7 | 301 |
| 8 | 344 |
| 9 | 387 |

44

| Num.  | 0   | 1    | 2    | 3     | 4     | 5     | 6     | 7     | 8     | 9     | Diff. | Diff. & Mult. |
|-------|-----|------|------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|
| 9880  | 994 | 7569 | 7613 | 7657  | 7701  | 7745  | 7789  | 7833  | 7877  | 7921  | 7965  |               |
| 81    |     | 8009 | 8053 | 8097  | 8141  | 8185  | 8229  | 8273  | 8317  | 8361  | 8405  |               |
| 82    |     | 8448 | 8492 | 8536  | 8580  | 8624  | 8668  | 8712  | 8756  | 8800  | 8844  |               |
| 83    |     | 8888 | 8932 | 8976  | 9020  | 9064  | 9108  | 9152  | 9196  | 9239  | 9283  |               |
| 84    |     | 9327 | 9371 | 9415  | 9459  | 9503  | 9547  | 9591  | 9635  | 9679  | 9723  |               |
| 85    | *   | 9767 | 9811 | 9855  | 9899  | 9942  | 9986  | 10030 | 10074 | 10118 | 10162 |               |
| 86    | 995 | 0206 | 0250 | 0294  | 0338  | 0382  | 0426  | 0470  | 0514  | 0557  | 0601  |               |
| 87    |     | 0645 | 0689 | 0733  | 0777  | 0821  | 0865  | 0909  | 0953  | 0997  | 1041  |               |
| 88    |     | 1085 | 1128 | 1172  | 1216  | 1260  | 1304  | 1348  | 1392  | 1436  | 1480  |               |
| 89    |     | 1524 | 1568 | 1612  | 1656  | 1699  | 1743  | 1787  | 1831  | 1875  | 1919  |               |
| 98 90 |     | 1963 | 2007 | 2051  | 2095  | 2139  | 2182  | 2226  | 2270  | 2314  | 2358  | 1 44          |
| 91    |     | 2402 | 2446 | 2490  | 2534  | 2578  | 2622  | 2665  | 2709  | 2753  | 2797  | 2 88          |
| 92    |     | 2841 | 2885 | 2929  | 2973  | 3017  | 3061  | 3104  | 3148  | 3192  | 3236  | 3 132         |
| 93    |     | 3280 | 3324 | 3368  | 3412  | 3456  | 3500  | 3543  | 3587  | 3631  | 3675  | 4 176         |
| 94    |     | 3719 | 3763 | 3807  | 3851  | 3895  | 3939  | 3982  | 4026  | 4070  | 4114  | 5 220         |
| 95    |     | 4158 | 4202 | 4246  | 4290  | 4334  | 4377  | 4421  | 4465  | 4509  | 4553  | 6 264         |
| 96    |     | 4597 | 4641 | 4685  | 4729  | 4772  | 4816  | 4860  | 4904  | 4948  | 4992  | 7 308         |
| 97    |     | 5036 | 5080 | 5123  | 5167  | 5211  | 5255  | 5299  | 5343  | 5387  | 5431  | 8 352         |
| 98    |     | 5474 | 5518 | 5562  | 5606  | 5650  | 5694  | 5738  | 5782  | 5825  | 5869  | 9 396         |
| 99    |     | 5913 | 5957 | 6001  | 6045  | 6089  | 6133  | 6176  | 6220  | 6264  | 6308  |               |
| 99 00 |     | 6352 | 6396 | 6440  | 6484  | 6527  | 6571  | 6615  | 6659  | 6703  | 6747  |               |
| 01    |     | 6791 | 6834 | 6878  | 6922  | 6966  | 7010  | 7054  | 7098  | 7142  | 7185  |               |
| 02    |     | 7229 | 7273 | 7317  | 7361  | 7405  | 7449  | 7492  | 7536  | 7580  | 7624  |               |
| 03    |     | 7668 | 7712 | 7755  | 7799  | 7843  | 7887  | 7931  | 7975  | 8019  | 8062  |               |
| 04    |     | 8106 | 8150 | 8194  | 8238  | 8282  | 8326  | 8369  | 8413  | 8457  | 8501  |               |
| 05    |     | 8545 | 8589 | 8633  | 8676  | 8720  | 8764  | 8808  | 8852  | 8896  | 8939  |               |
| 06    |     | 8983 | 9027 | 9071  | 9115  | 9159  | 9202  | 9246  | 9290  | 9334  | 9378  |               |
| 07    |     | 9422 | 9465 | 9509  | 9553  | 9597  | 9641  | 9685  | 9728  | 9772  | 9816  |               |
| 08    | *   | 9860 | 9904 | 9948  | 9991  | 10035 | 10079 | 10123 | 10167 | 10211 | 10254 |               |
| 09    | 996 | 0298 | 0342 | 0386  | 0430  | 0474  | 0517  | 0561  | 0605  | 0649  | 0693  |               |
| 99 10 |     | 0737 | 0780 | 0824  | 0868  | 0912  | 0956  | 1000  | 1043  | 1087  | 1131  |               |
| 11    |     | 1175 | 1219 | 1262  | 1306  | 1350  | 1394  | 1438  | 1481  | 1525  | 1569  |               |
| 12    |     | 1613 | 1657 | 1701  | 1744  | 1788  | 1832  | 1876  | 1920  | 1963  | 2007  |               |
| 13    |     | 2051 | 2095 | 2139  | 2182  | 2226  | 2270  | 2314  | 2358  | 2402  | 2445  |               |
| 14    |     | 2489 | 2533 | 2577  | 2621  | 2664  | 2708  | 2752  | 2796  | 2840  | 2883  |               |
| 15    |     | 2927 | 2971 | 3015  | 3059  | 3102  | 3146  | 3190  | 3234  | 3278  | 3321  |               |
| 16    |     | 3365 | 3409 | 3453  | 3497  | 3540  | 3584  | 3628  | 3672  | 3716  | 3759  |               |
| 17    |     | 3803 | 3847 | 3891  | 3935  | 3978  | 4022  | 4066  | 4110  | 4154  | 4197  |               |
| 18    |     | 4241 | 4285 | 4329  | 4372  | 4416  | 4460  | 4504  | 4548  | 4591  | 4635  |               |
| 19    |     | 4679 | 4723 | 4766  | 4810  | 4854  | 4898  | 4942  | 4985  | 5029  | 5073  |               |
| 99 20 |     | 5117 | 5161 | 5204  | 5248  | 5292  | 5336  | 5379  | 5423  | 5467  | 5511  |               |
| 21    |     | 5554 | 5598 | 5642  | 5686  | 5730  | 5773  | 5817  | 5861  | 5905  | 5948  |               |
| 22    |     | 5992 | 6036 | 6080  | 6124  | 6167  | 6211  | 6255  | 6299  | 6342  | 6386  |               |
| 23    |     | 6430 | 6474 | 6517  | 6561  | 6605  | 6649  | 6693  | 6736  | 6780  | 6824  |               |
| 24    |     | 6868 | 6911 | 6955  | 6999  | 7043  | 7086  | 7130  | 7174  | 7218  | 7261  |               |
| 25    |     | 7305 | 7349 | 7393  | 7436  | 7480  | 7524  | 7568  | 7611  | 7655  | 7699  |               |
| 26    |     | 7743 | 7786 | 7830  | 7874  | 7918  | 7961  | 8005  | 8049  | 8093  | 8136  |               |
| 27    |     | 8180 | 8224 | 8268  | 8311  | 8355  | 8399  | 8443  | 8486  | 8530  | 8574  |               |
| 28    |     | 8618 | 8661 | 8705  | 8749  | 8793  | 8836  | 8880  | 8924  | 8968  | 9011  |               |
| 29    |     | 9055 | 9099 | 9143  | 9186  | 9230  | 9274  | 9318  | 9361  | 9405  | 9449  |               |
| 99 30 |     | 9492 | 9536 | 9580  | 9624  | 9667  | 9711  | 9755  | 9799  | 9842  | 9886  |               |
| 31    | *   | 9930 | 9974 | 10017 | 10061 | 10105 | 10148 | 10192 | 10236 | 10280 | 10323 |               |
| 32    | 997 | 0367 | 0411 | 0455  | 0498  | 0542  | 0586  | 0629  | 0673  | 0717  | 0761  |               |
| 33    |     | 0804 | 0848 | 0892  | 0936  | 0979  | 1023  | 1067  | 1110  | 1154  | 1198  |               |
| 34    |     | 1242 | 1285 | 1329  | 1373  | 1416  | 1460  | 1504  | 1548  | 1591  | 1635  |               |
| 35    |     | 1679 | 1722 | 1766  | 1810  | 1854  | 1897  | 1941  | 1985  | 2028  | 2072  |               |
| 36    |     | 2116 | 2160 | 2203  | 2247  | 2291  | 2334  | 2378  | 2422  | 2465  | 2509  |               |
| 37    |     | 2553 | 2597 | 2640  | 2684  | 2728  | 2771  | 2815  | 2859  | 2903  | 2946  |               |
| 38    |     | 2990 | 3034 | 3077  | 3121  | 3165  | 3208  | 3252  | 3296  | 3340  | 3383  |               |
| 39    |     | 3427 | 3471 | 3514  | 3558  | 3602  | 3645  | 3689  | 3733  | 3776  | 3820  |               |
| Num.  | 0   | 1    | 2    | 3     | 4     | 5     | 6     | 7     | 8     | 9     | Diff. | Diff. & Mult. |

1 44  
2 88  
3 132  
4 176  
5 220  
6 264  
7 308  
8 352  
9 396

1 43  
2 86  
3 129  
4 172  
5 215  
6 258  
7 301  
8 344  
9 387



| Num. | 0   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | Diff. | Diff. & Mult. |
|------|-----|------|------|------|------|------|------|------|------|------|-------|---------------|
| 9940 | 997 | 3864 | 3908 | 3951 | 3995 | 4039 | 4082 | 4126 | 4170 | 4213 | 4257  |               |
| 41   |     | 4301 | 4344 | 4388 | 4432 | 4475 | 4519 | 4563 | 4607 | 4650 | 4694  |               |
| 42   |     | 4738 | 4781 | 4825 | 4869 | 4912 | 4956 | 5000 | 5043 | 5087 | 5131  |               |
| 43   |     | 5174 | 5218 | 5262 | 5305 | 5349 | 5393 | 5436 | 5480 | 5524 | 5567  |               |
| 44   |     | 5611 | 5655 | 5699 | 5742 | 5786 | 5830 | 5873 | 5917 | 5961 | 6004  |               |
| 45   | •   | 6048 | 6092 | 6135 | 6179 | 6223 | 6266 | 6310 | 6354 | 6397 | 6441  |               |
| 46   | •   | 6485 | 6528 | 6572 | 6616 | 6659 | 6703 | 6747 | 6790 | 6834 | 6878  |               |
| 47   | •   | 6921 | 6965 | 7009 | 7052 | 7096 | 7139 | 7183 | 7227 | 7270 | 7314  |               |
| 48   | •   | 7358 | 7401 | 7445 | 7489 | 7532 | 7576 | 7620 | 7663 | 7707 | 7751  |               |
| 49   | •   | 7794 | 7838 | 7882 | 7925 | 7969 | 8013 | 8056 | 8100 | 8144 | 8187  |               |
| 9950 | •   | 8231 | 8274 | 8318 | 8362 | 8405 | 8449 | 8493 | 8536 | 8580 | 8624  | 1   44        |
| 51   | •   | 8667 | 8711 | 8755 | 8798 | 8842 | 8885 | 8929 | 8973 | 9016 | 9060  | 2   88        |
| 52   | •   | 9104 | 9147 | 9191 | 9235 | 9278 | 9322 | 9365 | 9409 | 9453 | 9496  | 3   132       |
| 53   | •   | 9540 | 9584 | 9627 | 9671 | 9715 | 9758 | 9802 | 9845 | 9889 | 9933  | 4   176       |
| 54   | •   | 9976 | 0020 | 0064 | 0107 | 0151 | 0195 | 0238 | 0282 | 0325 | 0369  | 5   220       |
| 55   | 998 | 0413 | 0456 | 0500 | 0544 | 0587 | 0631 | 0674 | 0718 | 0762 | 0805  | 6   264       |
| 56   |     | 0849 | 0893 | 0936 | 0980 | 1023 | 1067 | 1111 | 1154 | 1198 | 1241  | 7   308       |
| 57   |     | 1285 | 1329 | 1372 | 1416 | 1460 | 1503 | 1547 | 1590 | 1634 | 1678  | 8   352       |
| 58   |     | 1721 | 1765 | 1808 | 1852 | 1896 | 1939 | 1983 | 2026 | 2070 | 2114  | 9   396       |
| 59   |     | 2157 | 2201 | 2245 | 2288 | 2332 | 2375 | 2419 | 2463 | 2506 | 2550  |               |
| 9960 |     | 2593 | 2637 | 2681 | 2724 | 2768 | 2811 | 2855 | 2899 | 2942 | 2986  |               |
| 61   |     | 3029 | 3073 | 3117 | 3160 | 3204 | 3247 | 3291 | 3335 | 3378 | 3422  |               |
| 62   |     | 3465 | 3509 | 3553 | 3596 | 3640 | 3683 | 3727 | 3771 | 3814 | 3858  |               |
| 63   |     | 3901 | 3945 | 3988 | 4032 | 4076 | 4119 | 4163 | 4206 | 4250 | 4294  |               |
| 64   |     | 4337 | 4381 | 4424 | 4468 | 4512 | 4555 | 4599 | 4642 | 4686 | 4729  |               |
| 65   |     | 4773 | 4817 | 4860 | 4904 | 4947 | 4991 | 5035 | 5078 | 5122 | 5165  |               |
| 66   |     | 5209 | 5252 | 5296 | 5340 | 5383 | 5427 | 5470 | 5514 | 5557 | 5601  |               |
| 67   |     | 5645 | 5688 | 5732 | 5775 | 5819 | 5862 | 5906 | 5950 | 5993 | 6037  |               |
| 68   |     | 6080 | 6124 | 6167 | 6211 | 6255 | 6298 | 6342 | 6385 | 6429 | 6472  |               |
| 69   |     | 6516 | 6560 | 6603 | 6647 | 6690 | 6734 | 6777 | 6821 | 6864 | 6908  |               |
| 9970 |     | 6952 | 6995 | 7039 | 7082 | 7126 | 7169 | 7213 | 7256 | 7300 | 7344  |               |
| 71   |     | 7387 | 7431 | 7474 | 7518 | 7561 | 7605 | 7648 | 7692 | 7736 | 7779  |               |
| 72   |     | 7823 | 7866 | 7910 | 7953 | 7997 | 8040 | 8084 | 8128 | 8171 | 8215  |               |
| 73   |     | 8258 | 8302 | 8345 | 8389 | 8432 | 8476 | 8519 | 8563 | 8607 | 8650  |               |
| 74   |     | 8694 | 8737 | 8781 | 8824 | 8868 | 8911 | 8955 | 8998 | 9042 | 9086  |               |
| 75   |     | 9129 | 9173 | 9216 | 9260 | 9303 | 9347 | 9390 | 9434 | 9477 | 9521  |               |
| 76   |     | 9564 | 9608 | 9651 | 9695 | 9739 | 9782 | 9826 | 9869 | 9913 | 9956  |               |
| 77   | 999 | 0000 | 0043 | 0087 | 0130 | 0174 | 0217 | 0261 | 0304 | 0348 | 0391  |               |
| 78   |     | 0435 | 0479 | 0522 | 0566 | 0609 | 0653 | 0696 | 0740 | 0783 | 0827  |               |
| 79   |     | 0870 | 0914 | 0957 | 1001 | 1044 | 1088 | 1131 | 1175 | 1218 | 1262  |               |
| 9980 |     | 1305 | 1349 | 1392 | 1436 | 1479 | 1523 | 1567 | 1610 | 1654 | 1697  |               |
| 81   |     | 1741 | 1784 | 1828 | 1871 | 1915 | 1958 | 2002 | 2045 | 2089 | 2132  | 1   43        |
| 82   |     | 2176 | 2219 | 2263 | 2306 | 2350 | 2393 | 2437 | 2480 | 2524 | 2567  | 2   86        |
| 83   |     | 2611 | 2654 | 2698 | 2741 | 2785 | 2828 | 2872 | 2915 | 2959 | 3002  | 3   129       |
| 84   |     | 3046 | 3089 | 3133 | 3176 | 3220 | 3263 | 3307 | 3350 | 3394 | 3437  | 4   172       |
| 85   |     | 3481 | 3524 | 3568 | 3611 | 3655 | 3698 | 3742 | 3785 | 3829 | 3872  | 5   215       |
| 86   |     | 3916 | 3959 | 4003 | 4046 | 4090 | 4133 | 4177 | 4220 | 4264 | 4307  | 6   258       |
| 87   |     | 4350 | 4394 | 4437 | 4481 | 4524 | 4568 | 4611 | 4655 | 4698 | 4742  | 7   301       |
| 88   |     | 4785 | 4829 | 4872 | 4916 | 4959 | 5003 | 5046 | 5090 | 5133 | 5177  | 8   344       |
| 89   |     | 5220 | 5264 | 5307 | 5351 | 5394 | 5438 | 5481 | 5524 | 5568 | 5611  | 9   387       |
| 9990 |     | 5655 | 5698 | 5742 | 5785 | 5829 | 5872 | 5916 | 5959 | 6003 | 6046  |               |
| 91   |     | 6090 | 6133 | 6177 | 6220 | 6263 | 6307 | 6350 | 6394 | 6437 | 6481  |               |
| 92   |     | 6524 | 6568 | 6611 | 6655 | 6698 | 6742 | 6785 | 6829 | 6872 | 6915  |               |
| 93   |     | 6959 | 7002 | 7046 | 7089 | 7133 | 7176 | 7220 | 7263 | 7307 | 7350  |               |
| 94   |     | 7393 | 7437 | 7480 | 7524 | 7567 | 7611 | 7654 | 7698 | 7741 | 7785  |               |
| 95   |     | 7828 | 7871 | 7915 | 7958 | 8002 | 8045 | 8089 | 8132 | 8176 | 8219  |               |
| 96   |     | 8262 | 8306 | 8349 | 8393 | 8436 | 8480 | 8523 | 8567 | 8610 | 8653  |               |
| 97   |     | 8697 | 8740 | 8784 | 8827 | 8871 | 8914 | 8958 | 9001 | 9044 | 9088  |               |
| 98   |     | 9131 | 9175 | 9218 | 9262 | 9305 | 9349 | 9392 | 9435 | 9479 | 9522  |               |
| 99   |     | 9566 | 9609 | 9653 | 9696 | 9739 | 9783 | 9826 | 9870 | 9913 | 9957  |               |

$$\cos A = \sqrt{(1 + \sin A)(1 - \sin A)}$$

$$\sin(M + 1') = \sin M + \sin 1' \cos$$

$$\tan \frac{1}{2}(A - B) = \frac{a - b}{a + b} \tan \frac{1}{2}(A + B)$$

$$\cos \frac{1}{2} A = \sqrt{\frac{s(s-a)}{bc}}$$

$$\text{Diff. Long} \times \text{Cos. Lat.} = \text{Dep.}$$

$$" \quad " \quad = \frac{D \times P}{\cos \text{Lat.}} = \text{Dep.}$$

$$\frac{c^2 \sin A \sin B}{2 \sin C}$$

$$\frac{1}{2} bc \sin A$$

$$\text{Area of } \triangle = \frac{1}{2} (b-a)(c-b) \sqrt{155}$$

$$\begin{array}{l} \text{L. } \frac{B}{C} \\ \text{or } \frac{b}{c} \end{array} \quad \begin{array}{l} a = h \sin A \quad (21) \\ b = h \sin A \quad (22) \end{array}$$

## TABLE

or

## LOGARITHMIC

### SINES, TANGENTS, &c.

$$\begin{array}{l} \sin A = \cos B = \frac{a}{h} \\ \cos A = \sin B = \frac{b}{h} \\ \text{tang } A = \text{cotang } B = \frac{b}{a} \\ \text{Cotang. } A = \text{tang } B = \frac{a}{b} \\ \text{sec. } A = \text{cosec. } B = \frac{h}{a} \\ \text{cosec } A = \text{sec } B = \frac{h}{b} \end{array}$$

|      |    | 0°         |       |        |            |             |        | 179°   |             |
|------|----|------------|-------|--------|------------|-------------|--------|--------|-------------|
| n    | r  | sin.       | q - n | tan.   | col.       | q + n       | cosec. | sec.   | cos.        |
|      |    | 4.685      |       | 15.314 |            |             |        | 10.000 | 9.999       |
| 0    | 0  | inf. neg.  | 5749  | 5749   | inf. neg.  | inf. pos.   | 4251   | 4251   | inf. pos.   |
| 60   | 1  | 6.463 7261 | 5749  | 5749   | 6.463 7261 | 13.536 2739 | 4251   | 4251   | 13.536 2739 |
| 120  | 2  | 6.764 7561 | 5748  | 5749   | 6.764 7562 | 13.235 2438 | 4251   | 4252   | 13.235 2439 |
| 180  | 3  | 6.940 8473 | 5748  | 5750   | 6.940 8475 | 13.059 1525 | 4250   | 4252   | 13.059 1527 |
| 240  | 4  | 7.065 7860 | 5748  | 5751   | 7.065 7863 | 12.934 2137 | 4249   | 4252   | 12.934 2140 |
| 300  | 5  | 7.162 6960 | 5747  | 5752   | 7.162 6964 | 12.837 3036 | 4248   | 4253   | 12.837 3040 |
| 360  | 6  | 7.241 8771 | 5746  | 5753   | 7.241 8778 | 12.758 1222 | 4247   | 4254   | 12.758 1229 |
| 420  | 7  | 7.308 8239 | 5746  | 5755   | 7.308 8248 | 12.691 1752 | 4245   | 4254   | 12.691 1761 |
| 480  | 8  | 7.366 8157 | 5745  | 5757   | 7.366 8169 | 12.633 1831 | 4243   | 4255   | 12.633 1843 |
| 540  | 9  | 7.417 9681 | 5744  | 5759   | 7.417 9696 | 12.582 0304 | 4241   | 4256   | 12.582 0319 |
| 600  | 10 | 7.463 7255 | 5743  | 5761   | 7.463 7273 | 12.536 2727 | 4239   | 4257   | 12.536 2745 |
| 660  | 11 | 7.505 1181 | 5741  | 5763   | 7.505 1203 | 12.494 8797 | 4237   | 4259   | 12.494 8819 |
| 720  | 12 | 7.542 9065 | 5740  | 5766   | 7.542 9091 | 12.457 0909 | 4234   | 4260   | 12.457 0935 |
| 780  | 13 | 7.577 6684 | 5738  | 5769   | 7.577 6715 | 12.422 3285 | 4231   | 4262   | 12.422 3316 |
| 840  | 14 | 7.609 8530 | 5737  | 5773   | 7.609 8566 | 12.390 1434 | 4227   | 4263   | 12.390 1470 |
| 900  | 15 | 7.639 8160 | 5735  | 5776   | 7.639 8201 | 12.360 1799 | 4224   | 4265   | 12.360 1840 |
| 960  | 16 | 7.667 8445 | 5733  | 5780   | 7.667 8492 | 12.332 1508 | 4220   | 4267   | 12.332 1555 |
| 1020 | 17 | 7.694 1733 | 5731  | 5784   | 7.694 1766 | 12.305 8214 | 4216   | 4269   | 12.305 8267 |
| 1080 | 18 | 7.718 9966 | 5729  | 5788   | 7.719 0026 | 12.280 9974 | 4212   | 4271   | 12.281 0034 |
| 1140 | 19 | 7.742 4775 | 5727  | 5793   | 7.742 4841 | 12.257 5159 | 4207   | 4273   | 12.257 5225 |
| 1200 | 20 | 7.764 7537 | 5724  | 5798   | 7.764 7610 | 12.235 2390 | 4202   | 4276   | 12.235 2463 |
| 1260 | 21 | 7.785 9427 | 5722  | 5803   | 7.785 9508 | 12.214 0492 | 4197   | 4278   | 12.214 0573 |
| 1320 | 22 | 7.806 1458 | 5719  | 5808   | 7.806 1547 | 12.193 8453 | 4192   | 4281   | 12.193 8542 |
| 1380 | 23 | 7.825 4507 | 5716  | 5813   | 7.825 4604 | 12.174 5396 | 4187   | 4284   | 12.174 5493 |
| 1440 | 24 | 7.843 9338 | 5713  | 5819   | 7.843 9444 | 12.156 0556 | 4181   | 4287   | 12.156 0662 |
| 1500 | 25 | 7.861 6623 | 5710  | 5825   | 7.861 6738 | 12.138 3262 | 4175   | 4290   | 12.138 3377 |
| 1560 | 26 | 7.878 6953 | 5707  | 5831   | 7.878 7077 | 12.121 2923 | 4169   | 4293   | 12.121 3047 |
| 1620 | 27 | 7.895 0854 | 5704  | 5838   | 7.895 0988 | 12.104 9012 | 4162   | 4296   | 12.104 9146 |
| 1680 | 28 | 7.910 8793 | 5701  | 5845   | 7.910 8938 | 12.089 1662 | 4155   | 4299   | 12.089 1707 |
| 1740 | 29 | 7.926 1190 | 5697  | 5852   | 7.926 1344 | 12.073 8656 | 4148   | 4303   | 12.073 8810 |
| 1800 | 30 | 7.940 8419 | 5694  | 5859   | 7.940 8584 | 12.059 1416 | 4141   | 4306   | 12.059 1581 |
| 1860 | 31 | 7.955 0819 | 5690  | 5866   | 7.955 0966 | 12.044 9004 | 4134   | 4310   | 12.044 9181 |
| 1920 | 32 | 7.968 8698 | 5686  | 5874   | 7.968 8886 | 12.031 1114 | 4126   | 4314   | 12.031 1302 |
| 1980 | 33 | 7.982 2334 | 5682  | 5882   | 7.982 2534 | 12.017 7466 | 4118   | 4318   | 12.017 7666 |
| 2040 | 34 | 7.995 1980 | 5678  | 5890   | 7.995 2192 | 12.004 7808 | 4110   | 4322   | 12.004 8020 |
| 2100 | 35 | 8.007 7867 | 5674  | 5899   | 8.007 8092 | 11.992 1908 | 4101   | 4326   | 11.992 2133 |
| 2160 | 36 | 8.020 0207 | 5669  | 5907   | 8.020 0445 | 11.979 9555 | 4093   | 4331   | 11.979 9793 |
| 2220 | 37 | 8.031 9195 | 5665  | 5916   | 8.031 9446 | 11.968 0554 | 4084   | 4335   | 11.968 0805 |
| 2280 | 38 | 8.043 5009 | 5660  | 5926   | 8.043 5274 | 11.956 4726 | 4074   | 4340   | 11.956 4991 |
| 2340 | 39 | 8.054 7814 | 5655  | 5935   | 8.054 8094 | 11.945 1906 | 4065   | 4344   | 11.945 2186 |
| 2400 | 40 | 8.065 7763 | 5651  | 5945   | 8.065 8057 | 11.934 1943 | 4055   | 4349   | 11.934 2237 |
| 2460 | 41 | 8.076 4997 | 5646  | 5955   | 8.076 5306 | 11.923 4694 | 4045   | 4354   | 11.923 5003 |
| 2520 | 42 | 8.086 9646 | 5641  | 5965   | 8.086 9970 | 11.913 0030 | 4035   | 4359   | 11.913 0354 |
| 2580 | 43 | 8.097 1832 | 5635  | 5975   | 8.097 2172 | 11.902 7828 | 4025   | 4365   | 11.902 8168 |
| 2640 | 44 | 8.107 1669 | 5630  | 5986   | 8.107 2025 | 11.892 7975 | 4014   | 4370   | 11.892 8331 |
| 2700 | 45 | 8.116 9262 | 5625  | 5997   | 8.116 9634 | 11.883 0366 | 4003   | 4375   | 11.883 0738 |
| 2760 | 46 | 8.126 4710 | 5619  | 6008   | 8.126 5099 | 11.873 4901 | 3992   | 4381   | 11.873 5290 |
| 2820 | 47 | 8.135 8104 | 5613  | 6019   | 8.135 8510 | 11.864 1490 | 3981   | 4387   | 11.864 1896 |
| 2880 | 48 | 8.144 9532 | 5608  | 6031   | 8.144 9956 | 11.855 0044 | 3969   | 4392   | 11.855 0468 |
| 2940 | 49 | 8.153 9075 | 5602  | 6043   | 8.153 9516 | 11.846 0484 | 3957   | 4398   | 11.846 0925 |
| 3000 | 50 | 8.162 6808 | 5596  | 6055   | 8.162 7267 | 11.837 2733 | 3945   | 4404   | 11.837 3192 |
| 3060 | 51 | 8.171 2804 | 5589  | 6067   | 8.171 3282 | 11.828 6718 | 3933   | 4411   | 11.828 7196 |
| 3120 | 52 | 8.179 7129 | 5583  | 6080   | 8.179 7626 | 11.820 2374 | 3920   | 4417   | 11.820 2871 |
| 3180 | 53 | 8.187 9848 | 5577  | 6093   | 8.188 0364 | 11.811 9636 | 3907   | 4423   | 11.812 0152 |
| 3240 | 54 | 8.196 1020 | 5570  | 6106   | 8.196 1556 | 11.803 8444 | 3894   | 4430   | 11.803 8980 |
| 3300 | 55 | 8.204 0703 | 5563  | 6119   | 8.204 1259 | 11.795 8741 | 3881   | 4437   | 11.795 9297 |
| 3360 | 56 | 8.211 8949 | 5557  | 6133   | 8.211 9526 | 11.788 0474 | 3867   | 4443   | 11.788 1051 |
| 3420 | 57 | 8.219 5811 | 5550  | 6147   | 8.219 6408 | 11.780 3592 | 3853   | 4450   | 11.780 4189 |
| 3480 | 58 | 8.227 1335 | 5543  | 6161   | 8.227 1953 | 11.772 8047 | 3839   | 4457   | 11.772 8665 |
| 3540 | 59 | 8.234 5568 | 5535  | 6175   | 8.234 6208 | 11.765 3792 | 3825   | 4465   | 11.765 4432 |
| 3600 | 60 | 8.241 8553 | 5528  | 6190   | 8.241 9215 | 11.758 0785 | 3810   | 4472   | 11.758 1447 |
|      | r  | 4.685      |       | 15.314 |            |             |        | 10.000 | 9.999       |
|      | n  | cos.       | q - n | col.   | tan.       | q + n       | sec.   | cosec. | sin.        |



| 1°   |            | 178°  |       |            |             |        |      |             |        |       |      |
|------|------------|-------|-------|------------|-------------|--------|------|-------------|--------|-------|------|
| °    | sin.       | q - n |       | tan.       | cot.        | q + n  |      | cosec.      | sec.   | csc.  | sine |
|      |            | 4.685 |       |            |             | 15.314 |      |             |        |       |      |
| 3600 | 8.241 8553 | 5528  | 6190  | 8.241 9215 | 11.758 0785 | 3810   | 4472 | 11.758 1447 | 0662   | 9.999 | 0662 |
| 3660 | 8.249 0332 | 5521  | 6205  | 8.249 1015 | 11.750 8985 | 3795   | 4479 | 11.750 9668 | 0684   | 9.999 | 0684 |
| 3720 | 8.256 0943 | 5513  | 6220  | 8.256 1649 | 11.743 8351 | 3780   | 4487 | 11.743 9057 | 0706   | 9.999 | 0706 |
| 3780 | 8.263 0424 | 5506  | 6235  | 8.263 1153 | 11.736 8847 | 3765   | 4494 | 11.736 9576 | 0729   | 9.999 | 0729 |
| 3840 | 8.269 8810 | 5498  | 6250  | 8.269 9563 | 11.730 0437 | 3750   | 4502 | 11.730 1190 | 0753   | 9.999 | 0753 |
| 3900 | 8.276 6136 | 5490  | 6266  | 8.276 6912 | 11.723 3088 | 3734   | 4510 | 11.723 3864 | 0776   | 9.999 | 0776 |
| 3960 | 8.283 2434 | 5482  | 6282  | 8.283 3234 | 11.716 6766 | 3718   | 4518 | 11.716 7566 | 0800   | 9.999 | 0800 |
| 4020 | 8.289 7734 | 5474  | 6299  | 8.289 8559 | 11.710 1441 | 3701   | 4526 | 11.710 2266 | 0825   | 9.999 | 0825 |
| 4080 | 8.296 2067 | 5465  | 6315  | 8.296 2917 | 11.703 7083 | 3685   | 4535 | 11.703 7933 | 0850   | 9.999 | 0850 |
| 4140 | 8.302 5460 | 5457  | 6332  | 8.302 6335 | 11.697 3665 | 3668   | 4543 | 11.697 4540 | 0875   | 9.999 | 0875 |
| 4200 | 8.308 7941 | 5449  | 6349  | 8.308 8842 | 11.691 1158 | 3651   | 4551 | 11.691 2059 | 0900   | 9.999 | 0900 |
| 4260 | 8.314 9536 | 5440  | 6366  | 8.315 0462 | 11.684 9538 | 3634   | 4560 | 11.685 0464 | 0926   | 9.999 | 0926 |
| 4320 | 8.321 0269 | 5431  | 6384  | 8.321 1221 | 11.678 8779 | 3616   | 4569 | 11.678 9731 | 0953   | 9.999 | 0953 |
| 4380 | 8.327 0163 | 5422  | 6402  | 8.327 1143 | 11.672 8857 | 3598   | 4578 | 11.672 9837 | 0979   | 9.999 | 0979 |
| 4440 | 8.332 9243 | 5413  | 6420  | 8.333 0249 | 11.666 9751 | 3580   | 4587 | 11.667 0757 | 1006   | 9.999 | 1006 |
| 4500 | 8.338 7529 | 5404  | 6438  | 8.338 8563 | 11.661 1437 | 3563   | 4596 | 11.661 2471 | 1034   | 9.999 | 1034 |
| 4560 | 8.344 5043 | 5395  | 6456  | 8.344 6105 | 11.655 3895 | 3544   | 4605 | 11.655 4957 | 1061   | 9.999 | 1061 |
| 4620 | 8.350 1805 | 5386  | 6475  | 8.350 2895 | 11.649 7105 | 3525   | 4614 | 11.649 8195 | 1089   | 9.999 | 1089 |
| 4680 | 8.355 7835 | 5376  | 6494  | 8.355 8953 | 11.644 1047 | 3506   | 4624 | 11.644 2165 | 1118   | 9.999 | 1118 |
| 4740 | 8.361 3150 | 5366  | 6513  | 8.361 4297 | 11.638 5703 | 3487   | 4634 | 11.638 6850 | 1147   | 9.999 | 1147 |
| 4800 | 8.366 7769 | 5357  | 6533  | 8.366 8945 | 11.633 1055 | 3467   | 4643 | 11.633 2231 | 1176   | 9.999 | 1176 |
| 4860 | 8.372 1710 | 5347  | 6552  | 8.372 2915 | 11.627 7085 | 3448   | 4653 | 11.627 8290 | 1206   | 9.999 | 1206 |
| 4920 | 8.377 4988 | 5337  | 6572  | 8.377 6223 | 11.622 3777 | 3428   | 4663 | 11.622 5012 | 1236   | 9.999 | 1236 |
| 4980 | 8.382 7690 | 5327  | 6593  | 8.382 8886 | 11.617 1114 | 3407   | 4673 | 11.617 3818 | 1266   | 9.999 | 1266 |
| 5040 | 8.387 9822 | 5317  | 6613  | 8.388 0918 | 11.611 9082 | 3387   | 4683 | 11.612 0378 | 1297   | 9.999 | 1297 |
| 5100 | 8.393 1008 | 5306  | 6634  | 8.393 2336 | 11.606 7664 | 3366   | 4694 | 11.606 8992 | 1328   | 9.999 | 1328 |
| 5160 | 8.398 1793 | 5296  | 6655  | 8.398 3152 | 11.601 6848 | 3345   | 4704 | 11.601 8207 | 1359   | 9.999 | 1359 |
| 5220 | 8.403 1990 | 5285  | 6676  | 8.403 3381 | 11.596 6619 | 3324   | 4715 | 11.596 8010 | 1391   | 9.999 | 1391 |
| 5280 | 8.408 1614 | 5274  | 6697  | 8.408 3037 | 11.591 6963 | 3303   | 4726 | 11.591 8386 | 1423   | 9.999 | 1423 |
| 5340 | 8.413 0676 | 5264  | 6719  | 8.413 2132 | 11.586 7868 | 3281   | 4736 | 11.586 9324 | 1456   | 9.999 | 1456 |
| 5400 | 8.417 9190 | 5253  | 6741  | 8.418 0679 | 11.581 9321 | 3259   | 4747 | 11.582 0810 | 1488   | 9.999 | 1488 |
| 5460 | 8.422 7168 | 5241  | 6763  | 8.422 8690 | 11.577 1310 | 3237   | 4759 | 11.577 2832 | 1522   | 9.999 | 1522 |
| 5520 | 8.427 4621 | 5230  | 6786  | 8.427 6176 | 11.572 3824 | 3214   | 4770 | 11.572 5379 | 1555   | 9.999 | 1555 |
| 5580 | 8.432 1561 | 5219  | 6808  | 8.432 3150 | 11.567 6850 | 3192   | 4781 | 11.567 8439 | 1589   | 9.999 | 1589 |
| 5640 | 8.436 7999 | 5207  | 6831  | 8.436 9522 | 11.563 0378 | 3169   | 4793 | 11.563 2001 | 1624   | 9.999 | 1624 |
| 5700 | 8.441 3944 | 5196  | 6854  | 8.441 5603 | 11.558 4397 | 3146   | 4804 | 11.558 6656 | 1658   | 9.999 | 1658 |
| 5760 | 8.445 9409 | 5184  | 6878  | 8.446 1103 | 11.553 8897 | 3122   | 4816 | 11.554 0591 | 1694   | 9.999 | 1694 |
| 5820 | 8.450 4402 | 5172  | 6901  | 8.450 6131 | 11.549 3869 | 3099   | 4828 | 11.549 5598 | 1729   | 9.999 | 1729 |
| 5880 | 8.454 8934 | 5160  | 6925  | 8.455 0699 | 11.544 9301 | 3075   | 4840 | 11.545 1066 | 1765   | 9.999 | 1765 |
| 5940 | 8.459 3013 | 5148  | 6949  | 8.459 4814 | 11.540 5186 | 3051   | 4852 | 11.540 6987 | 1801   | 9.999 | 1801 |
| 6000 | 8.463 6649 | 5136  | 6974  | 8.463 8486 | 11.536 1514 | 3026   | 4864 | 11.536 3351 | 1838   | 9.999 | 1838 |
| 6060 | 8.467 9850 | 5124  | 6998  | 8.468 1725 | 11.531 8275 | 3002   | 4876 | 11.532 0150 | 1875   | 9.999 | 1875 |
| 6120 | 8.472 2626 | 5111  | 7023  | 8.472 4538 | 11.527 5462 | 2977   | 4889 | 11.527 7374 | 1912   | 9.999 | 1912 |
| 6180 | 8.476 4984 | 5099  | 7048  | 8.476 6933 | 11.523 3067 | 2952   | 4901 | 11.523 5016 | 1950   | 9.999 | 1950 |
| 6240 | 8.480 6932 | 5086  | 7074  | 8.480 8920 | 11.519 1080 | 2926   | 4914 | 11.519 3068 | 1988   | 9.999 | 1988 |
| 6300 | 8.484 8479 | 5073  | 7099  | 8.485 0505 | 11.514 9495 | 2901   | 4927 | 11.515 1591 | 2026   | 9.999 | 2026 |
| 6360 | 8.488 9632 | 5060  | 7125  | 8.489 1696 | 11.510 8304 | 2875   | 4940 | 11.511 0362 | 2065   | 9.999 | 2065 |
| 6420 | 8.493 0398 | 5047  | 7151  | 8.493 2502 | 11.506 7498 | 2849   | 4953 | 11.506 9602 | 2104   | 9.999 | 2104 |
| 6480 | 8.497 0784 | 5034  | 7178  | 8.497 2928 | 11.502 7072 | 2822   | 4966 | 11.502 9216 | 2144   | 9.999 | 2144 |
| 6540 | 8.501 0798 | 5021  | 7204  | 8.501 2982 | 11.498 7018 | 2796   | 4979 | 11.498 9202 | 2183   | 9.999 | 2183 |
| 6600 | 8.505 0447 | 5008  | 7231  | 8.505 2671 | 11.494 7329 | 2769   | 4992 | 11.494 9553 | 2224   | 9.999 | 2224 |
| 6660 | 8.508 9736 | 4994  | 7258  | 8.509 2001 | 11.490 7999 | 2742   | 5006 | 11.491 0264 | 2266   | 9.999 | 2266 |
| 6720 | 8.512 8673 | 4980  | 7286  | 8.513 0978 | 11.486 9022 | 2714   | 5020 | 11.487 1397 | 2305   | 9.999 | 2305 |
| 6780 | 8.516 7264 | 4967  | 7313  | 8.516 9610 | 11.483 0390 | 2687   | 5033 | 11.483 2736 | 2347   | 9.999 | 2347 |
| 6840 | 8.520 5514 | 4953  | 7341  | 8.520 7902 | 11.479 2098 | 2659   | 5047 | 11.479 4486 | 2388   | 9.999 | 2388 |
| 6900 | 8.524 3430 | 4939  | 7369  | 8.524 5860 | 11.475 4140 | 2631   | 5061 | 11.475 6570 | 2430   | 9.999 | 2430 |
| 6960 | 8.528 1017 | 4924  | 7397  | 8.528 3490 | 11.471 6510 | 2603   | 5076 | 11.471 8983 | 2473   | 9.999 | 2473 |
| 7020 | 8.531 8281 | 4910  | 7426  | 8.532 0797 | 11.467 9203 | 2574   | 5090 | 11.468 1719 | 2516   | 9.999 | 2516 |
| 7080 | 8.535 5228 | 4896  | 7455  | 8.535 7787 | 11.464 2213 | 2545   | 5104 | 11.464 4772 | 2559   | 9.999 | 2559 |
| 7140 | 8.539 1863 | 4881  | 7484  | 8.539 4466 | 11.460 5534 | 2516   | 5119 | 11.460 8137 | 2602   | 9.999 | 2602 |
| 7200 | 8.542 8192 | 4867  | 7513  | 8.543 0838 | 11.456 9162 | 2487   | 5133 | 11.457 1808 | 2646   | 9.999 | 2646 |
|      |            | 4.685 |       |            |             | 15.314 |      |             | 10.000 | 9.999 |      |
|      |            | cos.  | q - n | col.       | tan.        | q + n  | sec. | cosec.      | sec.   | sin.  |      |

0°

179°

|    | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.      | co-sin.   |     |
|----|------------|-----------|-------------|------------|-----------|-------------|-----------|-----------|-----|
| 0' | inf. neg.  | inf.      | inf. pos.   | inf. neg.  | inf.      | inf. pos.   | 10.000000 | ten       | 60' |
| 10 | 5.685 5749 | 301030.   | 14.314 4251 | 5.685 5749 | 301030.   | 14.314 4251 | 0000      | ten       | 50  |
| 20 | 5.986 6049 | 176091.   | 14.013 3951 | 5.986 6049 | 176091.   | 14.013 3951 | 0000      | ten       | 40  |
| 30 | 6.162 6661 | 124939.   | 13.837 3039 | 6.162 6661 | 124939.   | 13.837 3039 | 0000      | ten       | 30  |
| 40 | 287 6349   | 96910.0   | 712 3651    | 287 6349   | 96910.0   | 712 3651    | 0000      | ten       | 20  |
| 50 | 384 5449   | 79181.2   | 615 4551    | 384 5449   | 79181.2   | 615 4551    | 0000      | ten       | 10  |
| 1' | 6.463 7261 | 66946.8   | 13.536 2739 | 6.463 7261 | 66946.8   | 13.536 2739 | 10.000000 | ten       | 59  |
| 10 | 530 6729   | 57991.9   | 469 3271    | 530 6729   | 57991.9   | 469 3271    | 0000      | ten       | 50  |
| 20 | 588 6648   | 51152.6   | 411 3352    | 588 6648   | 51152.6   | 411 3352    | 0000      | ten       | 40  |
| 30 | 639 8174   | 45757.4   | 360 1826    | 639 8174   | 45757.4   | 360 1826    | 0000      | ten       | 30  |
| 40 | 685 5748   | 41392.7   | 314 4252    | 685 5749   | 41392.7   | 314 4251    | 0001      | 9.9999999 | 20  |
| 50 | 726 9675   | 37788.6   | 273 0325    | 726 9676   | 37788.6   | 273 0324    | 0001      | 9999      | 10  |
| 1' | 6.764 7561 | 34762.1   | 13.235 2439 | 6.764 7562 | 34762.1   | 13.235 2438 | 10.000001 | 9.9999999 | 59  |
| 10 | 799 5182   | 32184.7   | 200 4818    | 799 5183   | 32184.7   | 200 4817    | 0001      | 9999      | 50  |
| 20 | 831 7029   | 29963.2   | 168 2971    | 831 7030   | 29963.2   | 168 2970    | 0001      | 9999      | 40  |
| 30 | 861 6661   | 28028.7   | 138 3339    | 861 6662   | 28028.7   | 138 3338    | 0001      | 9999      | 30  |
| 40 | 889 6948   | 26328.9   | 110 3052    | 889 6949   | 26329.0   | 110 3051    | 0001      | 9999      | 20  |
| 50 | 916 0237   | 24823.6   | 83 9763     | 916 0239   | 24823.6   | 83 9761     | 0001      | 9999      | 10  |
| 1' | 6.940 8473 | 22276.4   | 13.059 1527 | 6.940 8475 | 22276.4   | 13.059 1525 | 10.000000 | 9.9999999 | 57  |
| 10 | 964 3284   | 21189.3   | 035 6716    | 964 3286   | 21189.3   | 035 6714    | 0002      | 9998      | 50  |
| 20 | 6.986 6048 | 20203.4   | 13.013 3952 | 6.986 6050 | 20203.4   | 13.013 3950 | 0002      | 9998      | 40  |
| 30 | 7.007 7941 | 19305.1   | 12.992 2059 | 7.007 7943 | 19305.2   | 12.992 2057 | 0002      | 9998      | 30  |
| 40 | 027 9975   | 18483.4   | 972 0025    | 027 9977   | 18483.4   | 972 0023    | 0002      | 9998      | 20  |
| 50 | 047 3026   | 17728.8   | 952 6974    | 047 3029   | 17728.8   | 952 6971    | 0003      | 9997      | 10  |
| 1' | 7.065 7860 | 17033.3   | 12.934 2140 | 7.065 7863 | 17033.3   | 12.934 2137 | 10.000003 | 9.9999997 | 56  |
| 10 | 083 5148   | 16390.4   | 916 4852    | 083 5151   | 16390.5   | 916 4849    | 0003      | 9997      | 50  |
| 20 | 100 5481   | 15794.3   | 899 4519    | 100 5484   | 15794.3   | 899 4516    | 0003      | 9997      | 40  |
| 30 | 116 9385   | 15239.9   | 883 0615    | 116 9389   | 15240.0   | 883 0611    | 0004      | 9996      | 30  |
| 40 | 132 7328   | 14723.3   | 867 2672    | 132 7332   | 14723.2   | 867 2668    | 0004      | 9996      | 20  |
| 50 | 147 9727   | 14240.4   | 852 0273    | 147 9732   | 14240.5   | 852 0268    | 0004      | 9996      | 10  |
| 1' | 7.162 6900 | 13788.3   | 12.837 3040 | 7.162 6904 | 13788.3   | 12.837 3036 | 10.000005 | 9.9999995 | 55  |
| 10 | 176 9364   | 13363.9   | 833 0636    | 176 9369   | 13364.0   | 833 0631    | 0005      | 9995      | 50  |
| 20 | 190 7247   | 12965.0   | 809 2753    | 190 7252   | 12965.0   | 809 2748    | 0005      | 9995      | 40  |
| 30 | 204 0886   | 12589.1   | 795 9114    | 204 0892   | 12589.1   | 795 9108    | 0006      | 9994      | 30  |
| 40 | 217 0536   | 12234.4   | 782 9664    | 217 0542   | 12234.5   | 782 9658    | 0006      | 9994      | 20  |
| 50 | 229 6427   | 11899.3   | 770 3573    | 229 6433   | 11899.3   | 770 3567    | 0007      | 9994      | 10  |
| 1' | 7.241 8771 | 11581.8   | 12.758 1229 | 7.241 8778 | 11581.9   | 12.758 1222 | 10.000006 | 9.9999994 | 54  |
| 10 | 253 7764   | 11281.0   | 746 2236    | 253 7771   | 11281.0   | 746 2229    | 0007      | 9993      | 50  |
| 20 | 265 3582   | 10995.4   | 734 6418    | 265 3590   | 10995.4   | 734 6410    | 0007      | 9993      | 40  |
| 30 | 276 6392   | 10723.8   | 723 3608    | 276 6400   | 10723.9   | 723 3600    | 0008      | 9992      | 30  |
| 40 | 287 6346   | 10465.5   | 712 3654    | 287 6354   | 10465.5   | 712 3646    | 0008      | 9992      | 20  |
| 50 | 298 3584   | 10219.1   | 701 6416    | 298 3593   | 10219.2   | 701 6407    | 0009      | 9991      | 10  |
| 1' | 7.308 8239 | 9984.2    | 12.691 1761 | 7.308 8248 | 9984.2    | 12.691 1752 | 10.000009 | 9.9999991 | 53  |
| 10 | 319 0430   | 9759.8    | 680 9570    | 319 0440   | 9759.9    | 680 9560    | 0009      | 9991      | 50  |
| 20 | 329 0272   | 9545.3    | 670 9728    | 329 0282   | 9545.3    | 670 9718    | 0010      | 9990      | 40  |
| 30 | 338 7870   | 9340.0    | 661 2130    | 338 7881   | 9340.1    | 661 2119    | 0010      | 9990      | 30  |
| 40 | 348 3323   | 9143.4    | 651 6077    | 348 3334   | 9143.4    | 651 6066    | 0011      | 9989      | 20  |
| 50 | 357 6723   | 8954.8    | 642 3277    | 357 6735   | 8954.9    | 642 3265    | 0011      | 9989      | 10  |
| 1' | 7.366 8157 | 8773.9    | 12.633 1843 | 7.366 8169 | 8773.9    | 12.633 1831 | 10.000012 | 9.9999988 | 52  |
| 10 | 375 7705   | 8600.2    | 634 2295    | 375 7718   | 8600.2    | 634 2282    | 0012      | 9988      | 50  |
| 20 | 384 5444   | 8433.2    | 615 4556    | 384 5457   | 8433.2    | 615 4543    | 0013      | 9987      | 40  |
| 30 | 393 1446   | 8272.5    | 606 8554    | 393 1459   | 8272.6    | 606 8541    | 0013      | 9987      | 30  |
| 40 | 401 5778   | 8117.8    | 598 4222    | 401 5791   | 8117.9    | 598 4209    | 0014      | 9986      | 20  |
| 50 | 409 8503   | 7968.9    | 590 1497    | 409 8517   | 7968.9    | 590 1483    | 0014      | 9986      | 10  |
| 1' | 7.417 9681 | 7825.4    | 12.582 0319 | 7.417 9696 | 7825.4    | 12.582 0304 | 10.000015 | 9.9999985 | 51  |
| 10 | 425 9370   | 7686.8    | 574 0630    | 425 9386   | 7686.8    | 574 0614    | 0015      | 9985      | 50  |
| 20 | 433 7624   | 7553.1    | 566 2376    | 433 7640   | 7553.2    | 566 2360    | 0016      | 9984      | 40  |
| 30 | 441 4492   | 7424.0    | 558 5508    | 441 4508   | 7424.1    | 558 5492    | 0017      | 9983      | 30  |
| 40 | 449 0023   | 7299.2    | 550 9977    | 449 0040   | 7299.2    | 550 9960    | 0017      | 9983      | 20  |
| 50 | 456 4263   | 7152.6    | 543 5737    | 456 4281   | 7152.6    | 543 5719    | 0018      | 9982      | 10  |
| 1' | 7.463 7255 | 7029.2    | 12.536 2745 | 7.463 7273 | 7029.2    | 12.536 2727 | 10.000018 | 9.9999982 | 50  |
|    | co-sin.    | diff. 1'' | sec.        | co-tang.   | diff. 1'' | tang.       | co-sec.   | sin.      |     |

90°

89°

90°

179°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | co-sin.   |     |
|----|------------|----------|-------------|------------|----------|-------------|------------|-----------|-----|
| 10 | 7.463 7255 | 7178.6   | 12.536 2745 | 7.463 7273 | 7178.7   | 12.536 2727 | 10.0000018 | 9.9999982 | 50' |
| 10 | 470 9041   | 7061.8   | 529 0959    | 470 9060   | 7061.9   | 529 0940    | 0019       | 9981      | 50  |
| 20 | 477 9659   | 6948.8   | 522 0341    | 477 9679   | 6948.9   | 522 0321    | 0020       | 9980      | 40  |
| 30 | 484 9147   | 6839.4   | 515 0853    | 484 9168   | 6839.4   | 515 0832    | 0020       | 9980      | 30  |
| 40 | 491 7541   | 6733.4   | 508 2459    | 491 7562   | 6733.5   | 508 2438    | 0021       | 9979      | 20  |
| 50 | 498 4875   | 6630.6   | 501 5125    | 498 4897   | 6630.6   | 501 5103    | 0022       | 9978      | 10  |
| 11 | 7.505 1181 | 6530.8   | 12.494 8819 | 7.505 1203 | 6530.9   | 12.494 8797 | 10.0000022 | 9.9999978 | 49' |
| 10 | 511 6489   | 6434.1   | 488 3511    | 511 6512   | 6434.2   | 488 3488    | 0023       | 9977      | 50  |
| 20 | 518 0830   | 6340.1   | 481 9170    | 518 0854   | 6340.2   | 481 9146    | 0024       | 9976      | 40  |
| 30 | 524 4231   | 6249.0   | 475 5769    | 524 4256   | 6249.0   | 475 5744    | 0024       | 9976      | 30  |
| 40 | 530 6721   | 6160.3   | 469 3279    | 530 6746   | 6160.3   | 469 3254    | 0025       | 9975      | 20  |
| 50 | 536 8324   | 6074.1   | 463 1676    | 536 8349   | 6074.2   | 463 1651    | 0026       | 9974      | 10  |
| 12 | 7.542 9065 | 5990.9   | 12.457 0935 | 7.542 9091 | 5990.9   | 12.457 0909 | 10.0000026 | 9.9999974 | 48' |
| 10 | 548 8668   | 5908.9   | 451 1032    | 548 8695   | 5908.9   | 451 1005    | 0027       | 9973      | 50  |
| 20 | 554 8057   | 5829.5   | 445 1943    | 554 8084   | 5829.6   | 445 1916    | 0028       | 9972      | 40  |
| 30 | 560 6352   | 5752.3   | 439 3648    | 560 6380   | 5752.4   | 439 3620    | 0029       | 9971      | 30  |
| 40 | 566 3875   | 5677.1   | 433 6125    | 566 3904   | 5677.2   | 433 6096    | 0029       | 9971      | 20  |
| 50 | 572 0646   | 5603.8   | 427 9354    | 572 0676   | 5603.9   | 427 9324    | 0030       | 9970      | 10  |
| 13 | 7.577 6684 | 5532.5   | 12.422 3316 | 7.577 6715 | 5532.6   | 12.422 3285 | 10.0000031 | 9.9999969 | 47' |
| 10 | 583 2009   | 5462.9   | 416 7991    | 583 2041   | 5462.9   | 416 7959    | 0032       | 9968      | 50  |
| 20 | 588 6638   | 5395.0   | 411 3362    | 588 6670   | 5395.1   | 411 3330    | 0033       | 9967      | 40  |
| 30 | 594 0588   | 5328.8   | 405 9412    | 594 0621   | 5328.9   | 405 9379    | 0033       | 9967      | 30  |
| 40 | 599 3876   | 5264.2   | 400 6124    | 599 3910   | 5264.3   | 400 6090    | 0034       | 9966      | 20  |
| 50 | 604 6518   | 5201.2   | 395 3482    | 604 6553   | 5201.3   | 395 3447    | 0035       | 9965      | 10  |
| 14 | 7.609 8530 | 5139.6   | 12.390 1470 | 7.609 8566 | 5139.7   | 12.390 1434 | 10.0000036 | 9.9999964 | 46' |
| 10 | 614 9926   | 5079.5   | 385 0074    | 614 9963   | 5079.5   | 385 0037    | 0037       | 9963      | 50  |
| 20 | 620 0721   | 5020.7   | 379 9279    | 620 0758   | 5020.9   | 379 9242    | 0038       | 9962      | 40  |
| 30 | 625 0928   | 4963.4   | 374 9072    | 625 0967   | 4963.5   | 374 9033    | 0039       | 9961      | 30  |
| 40 | 630 0562   | 4907.3   | 369 9438    | 630 0602   | 4907.4   | 369 9398    | 0040       | 9960      | 20  |
| 50 | 634 9635   | 4852.5   | 365 0365    | 634 9676   | 4852.5   | 365 0324    | 0040       | 9960      | 10  |
| 15 | 7.639 8160 | 4798.9   | 12.360 1849 | 7.639 8201 | 4798.9   | 12.360 1799 | 10.0000041 | 9.9999959 | 45' |
| 10 | 644 6149   | 4746.4   | 355 3851    | 644 6191   | 4746.5   | 355 3809    | 0042       | 9958      | 50  |
| 20 | 649 3613   | 4695.0   | 350 6387    | 649 3656   | 4695.2   | 350 6344    | 0043       | 9957      | 40  |
| 30 | 654 0563   | 4644.9   | 345 9437    | 654 0608   | 4644.9   | 345 9392    | 0044       | 9956      | 30  |
| 40 | 658 7012   | 4595.7   | 341 2988    | 658 7057   | 4595.8   | 341 2943    | 0045       | 9955      | 20  |
| 50 | 663 2969   | 4547.6   | 336 7031    | 663 3015   | 4547.7   | 336 6985    | 0046       | 9954      | 10  |
| 16 | 7.667 8445 | 4500.5   | 12.332 1555 | 7.667 8492 | 4500.6   | 12.332 1508 | 10.0000047 | 9.9999953 | 44' |
| 10 | 672 3450   | 4454.3   | 327 6550    | 672 3498   | 4454.4   | 327 6502    | 0048       | 9953      | 50  |
| 20 | 676 7993   | 4409.1   | 323 2007    | 676 8042   | 4409.2   | 323 1958    | 0049       | 9951      | 40  |
| 30 | 681 2084   | 4364.8   | 318 7916    | 681 2134   | 4364.9   | 318 7866    | 0050       | 9950      | 30  |
| 40 | 685 5732   | 4321.3   | 314 4268    | 685 5783   | 4321.4   | 314 4217    | 0051       | 9949      | 20  |
| 50 | 689 8945   | 4278.8   | 310 1055    | 689 8997   | 4278.9   | 310 1003    | 0052       | 9948      | 10  |
| 17 | 7.694 1733 | 4237.0   | 12.305 8267 | 7.694 1786 | 4237.1   | 12.305 8214 | 10.0000053 | 9.9999947 | 43' |
| 10 | 698 4103   | 4196.1   | 301 5897    | 698 4157   | 4196.2   | 301 5843    | 0054       | 9946      | 50  |
| 20 | 702 6064   | 4155.9   | 297 3936    | 702 6119   | 4156.0   | 297 3881    | 0055       | 9945      | 40  |
| 30 | 706 7623   | 4116.5   | 293 2377    | 706 7679   | 4116.7   | 293 2321    | 0056       | 9944      | 30  |
| 40 | 710 8788   | 4077.9   | 289 1212    | 710 8846   | 4077.9   | 289 1154    | 0057       | 9943      | 20  |
| 50 | 714 9567   | 4039.9   | 285 0433    | 714 9625   | 4040.1   | 285 0375    | 0058       | 9942      | 10  |
| 18 | 7.718 9906 | 4002.7   | 12.281 0034 | 7.719 0026 | 4002.8   | 12.280 9974 | 10.0000060 | 9.9999940 | 42' |
| 10 | 722 9993   | 3966.2   | 277 0007    | 723 0054   | 3966.3   | 276 9946    | 0061       | 9939      | 50  |
| 20 | 726 9655   | 3930.2   | 273 0345    | 726 9717   | 3930.3   | 273 0283    | 0062       | 9938      | 40  |
| 30 | 730 8957   | 3895.1   | 269 1043    | 730 9020   | 3895.2   | 269 0980    | 0063       | 9937      | 30  |
| 40 | 734 7908   | 3860.3   | 265 2092    | 734 7972   | 3860.5   | 265 2028    | 0064       | 9936      | 20  |
| 50 | 738 6511   | 3826.4   | 261 3489    | 738 6577   | 3826.4   | 261 3423    | 0065       | 9935      | 10  |
| 19 | 7.744 4775 | 3793.0   | 12.257 5225 | 7.744 4841 | 3793.1   | 12.257 5159 | 10.0000066 | 9.9999934 | 41' |
| 10 | 746 2705   | 3760.1   | 253 7295    | 746 2772   | 3760.2   | 253 7228    | 0067       | 9933      | 50  |
| 20 | 750 0306   | 3727.8   | 249 9604    | 750 0374   | 3727.8   | 249 9626    | 0069       | 9931      | 40  |
| 30 | 753 7584   | 3696.1   | 246 2416    | 753 7654   | 3696.2   | 246 2346    | 0070       | 9930      | 30  |
| 40 | 757 4545   | 3664.9   | 242 5455    | 757 4616   | 3665.0   | 242 5384    | 0071       | 9929      | 20  |
| 50 | 761 1104   | 3634.3   | 238 8806    | 761 1266   | 3634.4   | 238 8734    | 0072       | 9928      | 10  |
| 20 | 764 7537   |          | 12.235 2463 | 7.764 7610 |          | 12.235 2399 | 10.0000073 | 9.9999927 | 40' |

90°

89°

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|------|--|







LOGARITHMIC SINES, TANGENTS, &C.

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90°

179°

|     | sin.      | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | co-sin.   |     |
|-----|-----------|-----------|-------------|------------|-----------|-------------|------------|-----------|-----|
| 30' | 940 8419  | 2406.0    | 12.059 1581 | 7.940 8584 |           | 12.059 1416 | 10.0000165 | 9.9999835 | 30' |
| 10  | 943 2479  | 2392.7    | 056 7521    | 943 2646   | 2406.2    | 056 7354    | 0167       | 9833      | 50  |
| 20  | 945 6606  | 2379.7    | 054 3594    | 945 6575   | 2392.9    | 054 3425    | 0169       | 9831      | 40  |
| 30  | 948 0203  | 2366.6    | 051 9797    | 948 0374   | 2379.9    | 051 9626    | 0171       | 9829      | 30  |
| 40  | 950 3869  | 2353.9    | 049 6131    | 950 4042   | 2366.8    | 049 5958    | 0173       | 9827      | 20  |
| 50  | 952 7408  | 2341.1    | 047 2592    | 952 7582   | 2354.0    | 047 2418    | 0175       | 9825      | 10  |
| 31' | 955 0819  | 2328.6    | 12.044 9181 | 7.955 0095 | 2341.4    | 12.044 9004 | 10.0000177 | 9.9999823 | 29' |
| 10  | 957 4105  | 2316.2    | 042 5895    | 957 4284   | 2328.8    | 042 5716    | 0178       | 9822      | 50  |
| 20  | 959 7267  | 2303.9    | 040 2733    | 959 7447   | 2316.3    | 040 2553    | 0180       | 9820      | 40  |
| 30  | 962 0306  | 2291.7    | 037 9694    | 962 0488   | 2304.1    | 037 9512    | 0182       | 9818      | 30  |
| 40  | 964 3223  | 2279.7    | 035 6777    | 964 3408   | 2292.0    | 035 6592    | 0184       | 9816      | 20  |
| 50  | 966 6020  | 2267.8    | 033 3980    | 966 6206   | 2279.8    | 033 3794    | 0186       | 9814      | 10  |
| 32' | 968 8698  | 2256.0    | 12.031 1302 | 7.968 8886 | 2268.0    | 12.031 1114 | 10.0000188 | 9.9999812 | 28' |
| 10  | 971 1258  | 2244.4    | 028 8742    | 971 1449   | 2256.3    | 028 8551    | 0190       | 9810      | 50  |
| 20  | 973 3707  | 2232.8    | 026 6298    | 973 3894   | 2244.5    | 026 6106    | 0192       | 9808      | 40  |
| 30  | 975 6030  | 2221.4    | 024 3970    | 975 6224   | 2233.0    | 024 3776    | 0194       | 9806      | 30  |
| 40  | 977 8244  | 2210.1    | 022 1756    | 977 8440   | 2221.6    | 022 1560    | 0196       | 9804      | 20  |
| 50  | 980 0345  | 2198.9    | 019 9655    | 980 0543   | 2210.3    | 019 9457    | 0198       | 9802      | 10  |
| 33' | 982 2332  | 2187.8    | 12.017 7666 | 7.982 2534 | 2199.1    | 12.017 7466 | 10.0000200 | 9.9999800 | 27' |
| 10  | 984 4212  | 2176.9    | 015 5788    | 984 4414   | 2188.0    | 015 5586    | 0202       | 9798      | 50  |
| 20  | 986 5981  | 2166.0    | 013 4019    | 986 6185   | 2177.1    | 013 3815    | 0204       | 9796      | 40  |
| 30  | 988 7641  | 2155.2    | 011 2359    | 988 7847   | 2166.2    | 011 2153    | 0206       | 9794      | 30  |
| 40  | 990 9193  | 2144.6    | 009 0897    | 990 9401   | 2155.4    | 009 0595    | 0208       | 9792      | 20  |
| 50  | 993 0639  | 2134.1    | 006 9361    | 993 0849   | 2144.8    | 006 9151    | 0210       | 9790      | 10  |
| 34' | 995 1980  | 2123.6    | 12.004 8020 | 7.995 2192 | 2134.3    | 12.004 7808 | 10.0000212 | 9.9999788 | 26' |
| 10  | 997 3116  | 2113.3    | 002 6784    | 997 3430   | 2123.8    | 002 6570    | 0214       | 9786      | 50  |
| 20  | 999 4346  | 2103.0    | 12.000 5651 | 7.999 4565 | 2113.5    | 12.000 5435 | 0217       | 9783      | 40  |
| 30  | 1001 5379 | 2092.9    | 11.998 4621 | 8.001 5598 | 2103.3    | 11.998 4402 | 0219       | 9781      | 30  |
| 40  | 1003 6308 | 2082.9    | 996 3692    | 003 6529   | 2093.1    | 996 3471    | 0221       | 9779      | 20  |
| 50  | 1005 7133 | 2073.0    | 994 2863    | 005 7360   | 2083.1    | 994 2640    | 0223       | 9777      | 10  |
| 35' | 1007 7857 | 2063.0    | 11.992 2133 | 8.007 8092 | 2073.2    | 11.992 1908 | 10.0000225 | 9.9999775 | 25' |
| 10  | 1009 8497 | 2053.4    | 990 1503    | 009 8725   | 2063.3    | 990 1275    | 0227       | 9773      | 50  |
| 20  | 1011 9031 | 2043.7    | 988 0669    | 011 9260   | 2053.5    | 988 0740    | 0229       | 9771      | 40  |
| 30  | 1013 9466 | 2034.0    | 986 0532    | 013 9699   | 2043.9    | 986 0301    | 0232       | 9768      | 30  |
| 40  | 1015 9805 | 2024.7    | 984 0192    | 016 0042   | 2034.3    | 983 9958    | 0234       | 9766      | 20  |
| 50  | 1018 0055 | 2015.2    | 981 9945    | 018 0291   | 2024.9    | 981 9709    | 0236       | 9764      | 10  |
| 36' | 1020 0207 | 2005.9    | 11.979 9793 | 8.020 0445 | 2015.4    | 11.979 9555 | 10.0000238 | 9.9999762 | 24' |
| 10  | 1022 0266 | 1996.7    | 977 9734    | 022 0506   | 2006.1    | 977 9494    | 0240       | 9760      | 50  |
| 20  | 1024 0233 | 1987.5    | 975 9767    | 024 0475   | 1996.9    | 975 9225    | 0243       | 9757      | 40  |
| 30  | 1026 0108 | 1978.5    | 973 9892    | 026 0353   | 1987.8    | 973 9647    | 0245       | 9755      | 30  |
| 40  | 1027 9993 | 1969.5    | 972 0107    | 028 0140   | 1978.7    | 971 9860    | 0247       | 9753      | 20  |
| 50  | 1029 9588 | 1960.7    | 970 0412    | 029 9838   | 1969.8    | 970 0162    | 0249       | 9751      | 10  |
| 37' | 1031 9195 | 1951.8    | 11.968 0805 | 8.031 9446 | 1960.8    | 11.968 0554 | 10.0000252 | 9.9999748 | 23' |
| 10  | 1033 8713 | 1943.0    | 966 1287    | 033 8067   | 1952.1    | 966 1033    | 0254       | 9746      | 50  |
| 20  | 1035 8143 | 1934.5    | 964 1857    | 035 8400   | 1943.3    | 964 1600    | 0256       | 9744      | 40  |
| 30  | 1037 7488 | 1925.8    | 962 2512    | 037 7740   | 1934.6    | 962 2254    | 0258       | 9742      | 30  |
| 40  | 1039 6746 | 1917.4    | 960 3254    | 039 7007   | 1926.1    | 960 2993    | 0261       | 9739      | 20  |
| 50  | 1041 5920 | 1908.9    | 958 4080    | 041 6183   | 1917.6    | 958 3817    | 0263       | 9737      | 10  |
| 38' | 1043 5009 | 1900.5    | 11.956 4991 | 8.043 5274 | 1909.1    | 11.956 4726 | 10.0000265 | 9.9999735 | 22' |
| 10  | 1045 4014 | 1892.3    | 954 5986    | 045 4282   | 1900.8    | 954 5718    | 0268       | 9732      | 50  |
| 20  | 1047 2937 | 1884.1    | 952 7063    | 047 3207   | 1892.5    | 952 6793    | 0270       | 9730      | 40  |
| 30  | 1049 1778 | 1875.9    | 950 8222    | 049 2050   | 1884.3    | 950 7950    | 0272       | 9728      | 30  |
| 40  | 1051 0533 | 1867.9    | 948 9463    | 051 0812   | 1876.2    | 948 9188    | 0275       | 9725      | 20  |
| 50  | 1052 9216 | 1859.8    | 947 0784    | 052 9493   | 1868.1    | 947 0507    | 0277       | 9723      | 10  |
| 39' | 1054 7814 | 1851.9    | 11.945 2186 | 8.054 8094 | 1860.1    | 11.945 1906 | 10.0000279 | 9.9999721 | 21' |
| 10  | 1056 6333 | 1844.1    | 943 3667    | 056 6615   | 1852.1    | 943 3385    | 0282       | 9718      | 50  |
| 20  | 1058 4774 | 1836.3    | 941 5226    | 058 5058   | 1844.3    | 941 4042    | 0284       | 9716      | 40  |
| 30  | 1060 3137 | 1828.5    | 939 6863    | 060 3423   | 1836.5    | 939 6577    | 0287       | 9713      | 30  |
| 40  | 1062 1422 | 1820.8    | 937 8578    | 062 1711   | 1828.8    | 937 8289    | 0289       | 9711      | 20  |
| 50  | 1063 9530 | 1813.3    | 936 0370    | 063 9922   | 1821.1    | 936 0078    | 0292       | 9708      | 10  |
| 40' | 1065 7763 | 1805.8    | 11.934 2237 | 8.065 8057 | 1813.5    | 11.934 1943 | 10.0000294 | 9.9999706 | 20' |

90°

89°

| 0°  |            |           |             |            |           |             |            |             |     | 179° |
|-----|------------|-----------|-------------|------------|-----------|-------------|------------|-------------|-----|------|
|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | co-sin.     |     |      |
| 40' | 8.065 7763 | 1805.7    | 11.934 2237 | 8.065 8057 | 1806.0    | 11.934 1943 | 10.0000294 | 9.999970600 | 180 |      |
| 10  | 067 5820   | 1798.3    | 932 4180    | 067 6117   | 1798.5    | 932 3883    | 0296       | 9704        | 5   |      |
| 20  | 069 3803   | 1790.8    | 930 6197    | 069 4102   | 1791.0    | 930 5868    | 0299       | 9701        | 4   |      |
| 30  | 071 1711   | 1783.5    | 928 8259    | 071 2012   | 1783.8    | 928 7988    | 0301       | 9699        | 3   |      |
| 40  | 072 9546   | 1776.1    | 927 0454    | 072 9850   | 1776.4    | 927 0150    | 0304       | 9696        | 2   |      |
| 50  | 074 7307   | 1769.0    | 925 2693    | 074 7614   | 1769.2    | 925 2386    | 0306       | 9694        | 1   |      |
| 41' | 8.076 4997 | 1761.7    | 11.923 5003 | 8.076 5306 | 1762.0    | 11.923 4694 | 10.0000309 | 9.9999691   | 19  |      |
| 10  | 078 2614   | 1754.7    | 921 7386    | 078 2926   | 1754.9    | 921 7074    | 0311       | 9689        | 5   |      |
| 20  | 080 0161   | 1747.6    | 919 9839    | 080 0475   | 1747.8    | 919 9525    | 0314       | 9686        | 4   |      |
| 30  | 081 7637   | 1740.5    | 918 2363    | 081 7953   | 1740.8    | 918 2047    | 0316       | 9684        | 3   |      |
| 40  | 083 5042   | 1733.7    | 916 4958    | 083 5361   | 1733.9    | 916 4639    | 0319       | 9681        | 2   |      |
| 50  | 085 2379   | 1726.7    | 914 7621    | 085 2700   | 1727.0    | 914 7300    | 0322       | 9678        | 1   |      |
| 42' | 8.086 9646 | 1719.9    | 11.913 0354 | 8.086 9970 | 1720.2    | 11.913 0030 | 10.0000324 | 9.9999676   | 18  |      |
| 10  | 088 6845   | 1713.1    | 911 3155    | 088 7172   | 1720.2    | 911 2828    | 0327       | 9673        | 5   |      |
| 20  | 090 3976   | 1706.4    | 909 6024    | 090 4305   | 1713.3    | 909 5695    | 0329       | 9671        | 4   |      |
| 30  | 092 1040   | 1699.7    | 907 8960    | 092 1372   | 1706.7    | 907 8628    | 0332       | 9668        | 3   |      |
| 40  | 093 8037   | 1693.1    | 906 1953    | 093 8371   | 1699.9    | 906 1629    | 0334       | 9666        | 2   |      |
| 50  | 095 4968   | 1686.4    | 904 5032    | 095 5305   | 1693.4    | 904 4665    | 0337       | 9663        | 1   |      |
| 43' | 8.097 1682 | 1680.0    | 11.902 8168 | 8.097 2172 | 1686.3    | 11.902 7823 | 10.0000340 | 9.9999660   | 17  |      |
| 10  | 098 8632   | 1673.5    | 901 1368    | 098 8975   | 1680.3    | 901 1025    | 0342       | 9658        | 5   |      |
| 20  | 100 5367   | 1667.1    | 899 4633    | 100 5712   | 1673.7    | 899 4288    | 0345       | 9655        | 4   |      |
| 30  | 102 2038   | 1660.7    | 897 7992    | 102 2386   | 1667.4    | 897 7614    | 0348       | 9652        | 3   |      |
| 40  | 103 8645   | 1654.3    | 896 1375    | 103 8995   | 1660.9    | 896 1005    | 0350       | 9650        | 2   |      |
| 50  | 105 5188   | 1648.1    | 894 4812    | 105 5542   | 1654.7    | 894 4458    | 0353       | 9647        | 1   |      |
| 44' | 8.107 1609 | 1641.9    | 11.892 8331 | 8.107 2025 | 1648.3    | 11.892 7975 | 10.0000356 | 9.9999644   | 16  |      |
| 10  | 108 8088   | 1635.7    | 891 1912    | 108 8446   | 1642.1    | 891 1554    | 0358       | 9645        | 5   |      |
| 20  | 110 4445   | 1629.5    | 889 5555    | 110 4806   | 1636.0    | 889 5194    | 0361       | 9642        | 4   |      |
| 30  | 112 0740   | 1623.4    | 887 9260    | 112 1104   | 1629.8    | 887 8896    | 0364       | 9639        | 3   |      |
| 40  | 113 6974   | 1617.4    | 886 3026    | 113 7341   | 1623.7    | 886 2659    | 0367       | 9636        | 2   |      |
| 50  | 115 3148   | 1611.4    | 884 6852    | 115 3518   | 1617.7    | 884 6482    | 0369       | 9633        | 1   |      |
| 45' | 8.116 9262 | 1605.5    | 11.883 0738 | 8.116 9634 | 1611.6    | 11.883 0366 | 10.0000372 | 9.9999628   | 15  |      |
| 10  | 118 5317   | 1599.5    | 881 4683    | 118 5691   | 1605.7    | 881 4309    | 0375       | 9625        | 5   |      |
| 20  | 120 1312   | 1593.6    | 879 8688    | 120 1689   | 1599.8    | 879 8311    | 0378       | 9622        | 4   |      |
| 30  | 121 7248   | 1587.9    | 878 2752    | 121 7629   | 1594.0    | 878 2371    | 0380       | 9620        | 3   |      |
| 40  | 123 3127   | 1582.0    | 876 6873    | 123 3510   | 1588.1    | 876 6490    | 0383       | 9617        | 2   |      |
| 50  | 124 8947   | 1576.3    | 875 1053    | 124 9333   | 1582.3    | 875 6667    | 0386       | 9614        | 1   |      |
| 46' | 8.126 4710 | 1570.6    | 11.873 5299 | 8.126 5099 | 1576.6    | 11.873 4901 | 10.0000389 | 9.9999611   | 14  |      |
| 10  | 128 0416   | 1564.9    | 871 9584    | 128 0807   | 1570.8    | 871 9193    | 0392       | 9611        | 5   |      |
| 20  | 129 6065   | 1559.3    | 870 3635    | 129 6469   | 1565.3    | 870 3540    | 0394       | 9608        | 4   |      |
| 30  | 131 1658   | 1553.8    | 868 8342    | 131 2056   | 1559.6    | 868 7944    | 0397       | 9605        | 3   |      |
| 40  | 132 7196   | 1548.2    | 867 2804    | 132 7596   | 1554.0    | 867 2404    | 0400       | 9602        | 2   |      |
| 50  | 134 2678   | 1542.6    | 865 7322    | 134 3081   | 1548.5    | 865 6919    | 0403       | 9599        | 1   |      |
| 47' | 8.135 8104 | 1537.3    | 11.864 1896 | 8.135 8510 | 1542.9    | 11.864 1490 | 10.0000406 | 9.9999594   | 13  |      |
| 10  | 137 3477   | 1531.8    | 862 6523    | 137 3886   | 1537.6    | 862 6115    | 0409       | 9591        | 5   |      |
| 20  | 138 8795   | 1526.4    | 861 1205    | 138 9207   | 1532.1    | 861 0793    | 0412       | 9588        | 4   |      |
| 30  | 140 4059   | 1521.1    | 859 5941    | 140 4474   | 1526.7    | 859 5526    | 0415       | 9585        | 3   |      |
| 40  | 141 9270   | 1515.7    | 858 0730    | 141 9687   | 1521.3    | 858 0313    | 0417       | 9583        | 2   |      |
| 50  | 143 4427   | 1510.5    | 856 5573    | 143 4848   | 1516.1    | 856 5152    | 0420       | 9580        | 1   |      |
| 48' | 8.144 9532 | 1505.3    | 11.855 0468 | 8.144 9956 | 1510.8    | 11.855 0044 | 10.0000423 | 9.9999577   | 12  |      |
| 10  | 146 4585   | 1500.1    | 853 5415    | 146 5011   | 1505.5    | 853 4989    | 0426       | 9572        | 5   |      |
| 20  | 147 9586   | 1494.8    | 852 0414    | 148 0015   | 1500.4    | 851 9985    | 0429       | 9571        | 4   |      |
| 30  | 149 4534   | 1489.8    | 850 5466    | 149 4967   | 1495.2    | 850 5033    | 0432       | 9568        | 3   |      |
| 40  | 150 9432   | 1484.7    | 849 0568    | 150 9867   | 1490.0    | 849 0133    | 0435       | 9565        | 2   |      |
| 50  | 152 4279   | 1479.6    | 847 5721    | 152 4717   | 1485.0    | 847 5283    | 0438       | 9562        | 1   |      |
| 49' | 8.153 9075 | 1474.6    | 11.846 0925 | 8.153 9516 | 1479.9    | 11.846 0484 | 10.0000441 | 9.9999559   | 11  |      |
| 10  | 155 3821   | 1469.6    | 846 6179    | 155 4265   | 1474.9    | 844 5735    | 0444       | 9556        | 5   |      |
| 20  | 156 8517   | 1464.6    | 843 1483    | 156 8964   | 1469.9    | 843 1036    | 0447       | 9553        | 4   |      |
| 30  | 158 3163   | 1459.7    | 841 6837    | 158 3613   | 1464.9    | 841 6387    | 0450       | 9550        | 3   |      |
| 40  | 159 7760   | 1454.8    | 840 2240    | 159 8213   | 1460.0    | 840 1787    | 0453       | 9547        | 2   |      |
| 50  | 161 2308   | 1450.0    | 838 7692    | 161 2765   | 1455.2    | 838 7235    | 0456       | 9544        | 1   |      |
| 50' | 8.162 6808 | 1450.0    | 11.837 3192 | 8.162 7267 | 1450.2    | 11.837 2733 | 10.0000459 | 9.9999541   | 10  |      |

90°

179°

|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | co-sin.   |     |
|-----|------------|-----------|-------------|------------|-----------|-------------|------------|-----------|-----|
| 50' | 8.162 6808 | 1445.1    | 11.837 3192 | 8.162 7267 | 1445.5    | 11.837 2733 | 10.0000459 | 9.9999541 | 10' |
| 10  | 164 1259   | 1440.4    | 835 8741    | 164 1722   | 1440.6    | 835 8278    | 0462       | 9538      | 50  |
| 20  | 165 5663   | 1435.6    | 834 4337    | 165 6128   | 1435.9    | 834 3872    | 0466       | 9534      | 40  |
| 30  | 167 0019   | 1430.8    | 832 9981    | 167 0487   | 1431.2    | 832 9513    | 0469       | 9531      | 30  |
| 40  | 168 4327   | 1426.2    | 831 5673    | 168 4799   | 1426.5    | 831 5201    | 0472       | 9528      | 20  |
| 50  | 169 8589   | 1421.5    | 830 1411    | 169 9064   | 1421.8    | 830 0936    | 0475       | 9525      | 10  |
| 51' | 8.171 2804 | 1416.8    | 11.828 7196 | 8.171 3282 | 1417.1    | 11.828 6718 | 10.0000478 | 9.9999522 | 9'  |
| 10  | 172 6972   | 1412.2    | 827 3028    | 172 7453   | 1412.6    | 827 2547    | 0481       | 9519      | 50  |
| 20  | 174 1094   | 1407.7    | 825 8906    | 174 1579   | 1407.9    | 825 8421    | 0484       | 9516      | 40  |
| 30  | 175 5171   | 1403.1    | 824 4829    | 175 5658   | 1403.5    | 824 4342    | 0487       | 9513      | 30  |
| 40  | 176 9202   | 1398.6    | 823 0908    | 176 9693   | 1398.9    | 823 0307    | 0491       | 9509      | 20  |
| 50  | 178 3188   | 1394.1    | 821 6812    | 178 3682   | 1394.4    | 821 6318    | 0494       | 9506      | 10  |
| 52' | 8.179 7129 | 1389.6    | 11.820 2871 | 8.179 7626 | 1389.9    | 11.820 2374 | 10.0000497 | 9.9999503 | 8'  |
| 10  | 181 1025   | 1385.2    | 818 8975    | 181 1525   | 1385.6    | 818 8475    | 0500       | 9500      | 50  |
| 20  | 182 4877   | 1380.8    | 817 5123    | 182 5381   | 1381.1    | 817 4619    | 0503       | 9497      | 40  |
| 30  | 183 8685   | 1376.5    | 816 1315    | 183 9192   | 1376.7    | 816 0808    | 0506       | 9494      | 30  |
| 40  | 185 2450   | 1372.0    | 814 7550    | 185 2959   | 1372.4    | 814 7041    | 0510       | 9490      | 20  |
| 50  | 186 6170   | 1367.8    | 813 3830    | 186 6683   | 1368.1    | 813 3317    | 0513       | 9487      | 10  |
| 53' | 8.187 9848 | 1363.4    | 11.812 0152 | 8.188 0364 | 1363.8    | 11.811 9636 | 10.0000516 | 9.9999484 | 7'  |
| 10  | 189 3482   | 1359.2    | 810 6518    | 189 4002   | 1359.5    | 810 5998    | 0519       | 9481      | 50  |
| 20  | 190 7074   | 1355.0    | 809 2926    | 190 7597   | 1355.3    | 809 2403    | 0523       | 9477      | 40  |
| 30  | 192 0624   | 1350.7    | 807 9376    | 192 1150   | 1351.0    | 807 8850    | 0526       | 9474      | 30  |
| 40  | 193 4131   | 1346.5    | 806 5869    | 193 4660   | 1346.9    | 806 5340    | 0529       | 9471      | 20  |
| 50  | 194 7596   | 1342.4    | 805 2404    | 194 8129   | 1342.7    | 805 1871    | 0533       | 9467      | 10  |
| 54' | 8.196 1020 | 1338.3    | 11.803 8908 | 8.196 1556 | 1338.6    | 11.803 8444 | 10.0000536 | 9.9999464 | 6'  |
| 10  | 197 4403   | 1334.1    | 802 5597    | 197 4942   | 1334.4    | 802 5058    | 0539       | 9461      | 50  |
| 20  | 198 7744   | 1330.0    | 801 2256    | 198 8286   | 1330.4    | 801 1714    | 0542       | 9458      | 40  |
| 30  | 200 1044   | 1326.0    | 799 8956    | 200 1590   | 1326.3    | 799 8410    | 0546       | 9454      | 30  |
| 40  | 201 4304   | 1321.9    | 798 5696    | 201 4853   | 1322.3    | 798 5147    | 0549       | 9451      | 20  |
| 50  | 202 7523   | 1318.0    | 797 2477    | 202 8076   | 1318.3    | 797 1924    | 0552       | 9448      | 10  |
| 55' | 8.204 0703 | 1313.9    | 11.795 9207 | 8.204 1259 | 1314.2    | 11.795 8741 | 10.0000556 | 9.9999444 | 5'  |
| 10  | 205 3842   | 1310.0    | 794 6158    | 205 4401   | 1310.4    | 794 5599    | 0559       | 9441      | 50  |
| 20  | 206 6942   | 1306.0    | 793 3058    | 206 7505   | 1306.3    | 793 2495    | 0563       | 9437      | 40  |
| 30  | 208 0002   | 1302.2    | 791 9998    | 208 0568   | 1302.5    | 791 9432    | 0566       | 9434      | 30  |
| 40  | 209 3024   | 1298.2    | 790 6976    | 209 3593   | 1298.6    | 790 6407    | 0569       | 9431      | 20  |
| 50  | 210 6006   | 1294.3    | 789 3994    | 210 6579   | 1294.7    | 789 3421    | 0573       | 9427      | 10  |
| 56' | 8.211 8949 | 1290.5    | 11.788 1051 | 8.211 9526 | 1290.8    | 11.788 0474 | 10.0000576 | 9.9999424 | 4'  |
| 10  | 213 1854   | 1286.7    | 786 8146    | 213 2434   | 1287.0    | 786 7566    | 0580       | 9420      | 50  |
| 20  | 214 4721   | 1282.9    | 785 5279    | 214 5304   | 1283.3    | 785 4666    | 0583       | 9417      | 40  |
| 30  | 215 7550   | 1279.1    | 784 2450    | 215 8137   | 1279.4    | 784 1863    | 0587       | 9413      | 30  |
| 40  | 217 0341   | 1275.4    | 782 9659    | 217 0931   | 1275.7    | 782 9069    | 0590       | 9410      | 20  |
| 50  | 218 3095   | 1271.6    | 781 6905    | 218 3688   | 1272.0    | 781 6312    | 0594       | 9406      | 10  |
| 57' | 8.219 5811 | 1267.9    | 11.780 4189 | 8.219 6408 | 1268.2    | 11.780 3592 | 10.0000597 | 9.9999403 | 3'  |
| 10  | 220 8490   | 1264.2    | 779 1510    | 220 9090   | 1264.6    | 779 0910    | 0600       | 9400      | 50  |
| 20  | 222 1132   | 1260.5    | 777 8868    | 222 1736   | 1260.9    | 777 8264    | 0604       | 9396      | 40  |
| 30  | 223 3737   | 1256.9    | 776 6263    | 223 4345   | 1257.2    | 776 5655    | 0608       | 9392      | 30  |
| 40  | 224 6306   | 1253.3    | 775 3694    | 224 6917   | 1253.6    | 775 3083    | 0611       | 9389      | 20  |
| 50  | 225 8839   | 1249.6    | 774 1161    | 225 9453   | 1250.0    | 774 0547    | 0615       | 9385      | 10  |
| 58' | 8.227 1335 | 1246.1    | 11.772 8665 | 8.227 1953 | 1246.4    | 11.772 8047 | 10.0000618 | 9.9999382 | 2'  |
| 10  | 228 3796   | 1242.5    | 771 6204    | 228 4417   | 1242.9    | 771 5583    | 0622       | 9378      | 50  |
| 20  | 229 6221   | 1238.9    | 770 3779    | 229 6846   | 1239.3    | 770 3154    | 0625       | 9375      | 40  |
| 30  | 230 8610   | 1235.5    | 769 1390    | 230 9239   | 1235.8    | 769 0761    | 0629       | 9371      | 30  |
| 40  | 232 0965   | 1231.9    | 767 9035    | 232 1597   | 1232.3    | 767 8403    | 0632       | 9368      | 20  |
| 50  | 233 3284   | 1228.4    | 766 6716    | 233 3920   | 1228.8    | 766 6080    | 0636       | 9364      | 10  |
| 59' | 8.234 5563 | 1225.0    | 11.765 4432 | 8.234 6208 | 1225.3    | 11.765 3792 | 10.0000640 | 9.9999360 | 1'  |
| 10  | 235 7818   | 1221.5    | 764 2182    | 235 8461   | 1221.9    | 764 1539    | 0643       | 9357      | 50  |
| 20  | 237 0033   | 1218.1    | 762 9907    | 237 0680   | 1218.5    | 762 9320    | 0647       | 9353      | 40  |
| 30  | 238 2214   | 1214.7    | 761 7786    | 238 2865   | 1215.0    | 761 7135    | 0651       | 9349      | 30  |
| 40  | 239 4361   | 1211.3    | 760 5639    | 239 5015   | 1211.7    | 760 4985    | 0654       | 9346      | 20  |
| 50  | 240 6474   | 1207.9    | 759 3526    | 240 7132   | 1208.3    | 759 2868    | 0658       | 9342      | 10  |
| 60' | 8.241 8553 | 1204.5    | 11.758 1447 | 8.241 9215 | 1204.8    | 11.758 0785 | 10.0000662 | 9.9999338 | 0'  |

90°

89°

| 1°  |            |           |             |            |         |             |            |           |    | 178° |
|-----|------------|-----------|-------------|------------|---------|-------------|------------|-----------|----|------|
|     | sin.       | diff. 1'' | co-sec.     | tang.      | di. 1'' | co-tang.    | sec.       | co-sin.   |    |      |
| 0   | 8.241 8553 | 1204.6    | 11.758 1447 | 8.241 9215 | 1204.9  | 11.758 0785 | 10.0000662 | 9.9999338 | 60 |      |
| 10  | 243 0599   | 1201.2    | 756 9401    | 243 1264   | 1201.6  | 756 8736    | 0665       | 9335      | 5c |      |
| 20  | 244 2611   | 1198.0    | 755 7389    | 244 3280   | 1198.3  | 755 6720    | 0669       | 9331      | 4c |      |
| 30  | 245 4591   | 1194.6    | 754 5409    | 245 5263   | 1195.0  | 754 4737    | 0673       | 9327      | 3c |      |
| 40  | 246 6537   | 1191.4    | 753 3463    | 246 7213   | 1191.8  | 753 2787    | 0676       | 9324      | 2c |      |
| 50  | 247 8451   | 1188.1    | 752 1549    | 247 9131   | 1188.4  | 752 0869    | 0680       | 9320      | 1c |      |
| 1'  | 8.249 0332 | 1184.8    | 11.750 9668 | 8.249 1015 | 1185.3  | 11.750 8985 | 10.0000684 | 9.9999316 | 59 |      |
| 10  | 250 2180   | 1181.6    | 749 7820    | 250 2868   | 1182.0  | 749 7132    | 0687       | 9313      | 5c |      |
| 20  | 251 3996   | 1178.5    | 748 6004    | 251 4688   | 1178.8  | 748 5312    | 0691       | 9309      | 4c |      |
| 30  | 252 5781   | 1175.2    | 747 4219    | 252 6476   | 1175.6  | 747 3524    | 0695       | 9305      | 3c |      |
| 40  | 253 7533   | 1172.1    | 746 2467    | 253 8232   | 1172.4  | 746 1768    | 0699       | 9301      | 2c |      |
| 50  | 254 9254   | 1168.9    | 745 0746    | 254 9956   | 1169.3  | 745 0044    | 0703       | 9297      | 1c |      |
| 2'  | 8.256 0943 | 1165.7    | 11.743 9057 | 8.256 1649 | 1166.1  | 11.743 8351 | 10.0000706 | 9.9999294 | 58 |      |
| 10  | 257 2600   | 1162.7    | 742 7400    | 257 3310   | 1163.1  | 742 6690    | 0710       | 9294      | 5c |      |
| 20  | 258 4227   | 1159.5    | 741 5773    | 258 4941   | 1159.9  | 741 5059    | 0714       | 9286      | 4c |      |
| 30  | 259 5822   | 1156.5    | 740 4178    | 259 6540   | 1156.8  | 740 3460    | 0718       | 9282      | 3c |      |
| 40  | 260 7387   | 1153.3    | 739 2613    | 260 8108   | 1153.8  | 739 1892    | 0722       | 9278      | 2c |      |
| 50  | 261 8920   | 1150.4    | 738 1080    | 261 9646   | 1150.7  | 738 0354    | 0725       | 9275      | 1c |      |
| 3'  | 8.263 0424 | 1147.2    | 11.736 9576 | 8.263 1153 | 1147.7  | 11.736 8847 | 10.0000729 | 9.9999271 | 57 |      |
| 10  | 264 1896   | 1144.3    | 735 8104    | 264 2630   | 1144.6  | 735 7370    | 0733       | 9267      | 5c |      |
| 20  | 265 3339   | 1141.2    | 734 6661    | 265 4076   | 1141.6  | 734 5924    | 0737       | 9263      | 4c |      |
| 30  | 266 4751   | 1138.3    | 733 5249    | 266 5492   | 1138.7  | 733 4508    | 0741       | 9259      | 3c |      |
| 40  | 267 6134   | 1135.3    | 732 3866    | 267 6879   | 1135.7  | 732 3121    | 0745       | 9255      | 2c |      |
| 50  | 268 7487   | 1132.3    | 731 2513    | 268 8236   | 1132.7  | 731 1764    | 0749       | 9251      | 1c |      |
| 4'  | 8.269 8810 | 1129.4    | 11.730 1190 | 8.269 9563 | 1129.7  | 11.730 0437 | 10.0000753 | 9.9999247 | 56 |      |
| 10  | 271 0104   | 1126.4    | 728 9896    | 271 0860   | 1126.9  | 728 9140    | 0757       | 9243      | 5c |      |
| 20  | 272 1368   | 1123.6    | 727 8632    | 272 2129   | 1123.9  | 727 7871    | 0761       | 9239      | 4c |      |
| 30  | 273 2604   | 1120.6    | 726 7396    | 273 3368   | 1121.0  | 726 6632    | 0764       | 9236      | 3c |      |
| 40  | 274 3810   | 1117.7    | 725 6199    | 274 4578   | 1118.2  | 725 5422    | 0768       | 9232      | 2c |      |
| 50  | 275 4987   | 1114.9    | 724 5013    | 275 5760   | 1115.2  | 724 4240    | 0772       | 9228      | 1c |      |
| 5'  | 8.276 6136 | 1112.0    | 11.723 3864 | 8.276 6912 | 1112.4  | 11.723 3088 | 10.0000776 | 9.9999224 | 55 |      |
| 10  | 277 7256   | 1109.2    | 722 2744    | 277 8036   | 1109.6  | 722 1964    | 0776       | 9220      | 5c |      |
| 20  | 278 8348   | 1106.3    | 721 1652    | 278 9132   | 1106.8  | 721 0866    | 0784       | 9216      | 4c |      |
| 30  | 279 9411   | 1103.6    | 720 0589    | 280 0200   | 1103.9  | 719 9800    | 0788       | 9212      | 3c |      |
| 40  | 281 0447   | 1100.7    | 718 9553    | 281 1239   | 1101.2  | 718 8761    | 0792       | 9208      | 2c |      |
| 50  | 282 1454   | 1098.0    | 717 8546    | 282 2251   | 1098.3  | 717 7749    | 0796       | 9204      | 1c |      |
| 6'  | 8.283 2434 | 1095.2    | 11.716 7566 | 8.283 3234 | 1095.6  | 11.716 6766 | 10.0000800 | 9.9999200 | 54 |      |
| 10  | 284 3386   | 1092.4    | 715 6614    | 284 4190   | 1092.8  | 715 5810    | 0804       | 9196      | 5c |      |
| 20  | 285 4310   | 1089.7    | 714 5690    | 285 5118   | 1090.1  | 714 4882    | 0809       | 9191      | 4c |      |
| 30  | 286 5207   | 1086.9    | 713 4793    | 286 6019   | 1087.4  | 713 3981    | 0813       | 9187      | 3c |      |
| 40  | 287 6076   | 1084.3    | 712 3924    | 287 6893   | 1084.7  | 712 3107    | 0817       | 9183      | 2c |      |
| 50  | 288 6919   | 1081.5    | 711 3081    | 288 7740   | 1081.9  | 711 2260    | 0821       | 9179      | 1c |      |
| 7'  | 8.289 7734 | 1078.9    | 11.710 2266 | 8.289 8559 | 1079.3  | 11.710 1441 | 10.0000825 | 9.9999175 | 53 |      |
| 10  | 290 8523   | 1076.2    | 709 1477    | 290 9352   | 1076.6  | 709 0648    | 0829       | 9171      | 5c |      |
| 20  | 291 9285   | 1073.5    | 708 0715    | 292 0118   | 1073.9  | 707 9882    | 0833       | 9167      | 4c |      |
| 30  | 293 0020   | 1070.9    | 706 9980    | 293 0857   | 1071.3  | 706 9143    | 0837       | 9163      | 3c |      |
| 40  | 294 0729   | 1068.2    | 705 9271    | 294 1570   | 1068.6  | 705 8430    | 0841       | 9159      | 2c |      |
| 50  | 295 1411   | 1065.6    | 704 8589    | 295 2256   | 1066.1  | 704 7744    | 0846       | 9154      | 1c |      |
| 8'  | 8.296 2067 | 1063.0    | 11.703 7933 | 8.296 2917 | 1063.4  | 11.703 7083 | 10.0000850 | 9.9999150 | 52 |      |
| 10  | 297 2697   | 1060.4    | 702 7303    | 297 3551   | 1060.8  | 702 6449    | 0854       | 9146      | 5c |      |
| 20  | 298 3301   | 1057.8    | 701 6699    | 298 4159   | 1058.3  | 701 5841    | 0858       | 9142      | 4c |      |
| 30  | 299 3879   | 1055.3    | 700 6121    | 299 4742   | 1055.6  | 700 5258    | 0862       | 9138      | 3c |      |
| 40  | 300 4432   | 1052.7    | 699 5568    | 300 5298   | 1053.2  | 699 4702    | 0866       | 9134      | 2c |      |
| 50  | 301 4959   | 1050.1    | 698 5041    | 301 5830   | 1050.5  | 698 4170    | 0871       | 9129      | 1c |      |
| 9'  | 8.302 5460 | 1047.7    | 11.697 4540 | 8.302 6335 | 1048.1  | 11.697 3665 | 10.0000875 | 9.9999125 | 51 |      |
| 10  | 303 5937   | 1045.1    | 696 4063    | 303 6816   | 1045.5  | 696 3184    | 0879       | 9121      | 5c |      |
| 20  | 304 6388   | 1042.5    | 695 3612    | 304 7271   | 1043.0  | 695 2729    | 0883       | 9117      | 4c |      |
| 30  | 305 6813   | 1040.1    | 694 3187    | 305 7701   | 1040.5  | 694 2299    | 0888       | 9113      | 3c |      |
| 40  | 306 7214   | 1037.6    | 693 2786    | 306 8106   | 1038.0  | 693 1894    | 0892       | 9108      | 2c |      |
| 50  | 307 7590   | 1035.1    | 692 2410    | 307 8486   | 1035.6  | 692 1514    | 0896       | 9104      | 1c |      |
| 10' | 8.308 7941 |           | 11.691 2059 | 8.308 8842 |         | 11.691 1158 | 10.0000900 | 9.9999100 | 50 |      |



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|    | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | co-sin.       |
|----|------------|-----------|-------------|------------|-----------|-------------|------------|---------------|
| 10 | 8.308 7941 | 1032.7    | 11.691 2059 | 8.308 8842 | 1033.1    | 11.691 1158 | 10.0000900 | 9.9999100 50' |
| 10 | 309 8268   | 1030.2    | 690 1732    | 309 9173   | 1030.6    | 690 0827    | 0905       | 9095 50       |
| 20 | 310 8570   | 1027.8    | 689 1430    | 310 9479   | 1028.2    | 689 0521    | 0909       | 9091 40       |
| 30 | 311 8848   | 1025.3    | 688 1152    | 311 9761   | 1025.8    | 688 0239    | 0913       | 9087 30       |
| 40 | 312 9101   | 1023.0    | 687 0899    | 313 0019   | 1023.4    | 686 9981    | 0918       | 9082 20       |
| 50 | 313 9331   | 1020.5    | 686 0669    | 314 0253   | 1020.9    | 685 9747    | 0922       | 9078 10       |
| 11 | 8.314 9536 | 1018.1    | 11.685 0464 | 8.315 0469 | 1018.6    | 11.684 9538 | 10.0000926 | 9.9999074 49' |
| 10 | 315 9717   | 1015.8    | 684 0283    | 316 0648   | 1016.2    | 683 9352    | 0931       | 9069 50       |
| 20 | 316 9875   | 1013.3    | 683 0125    | 317 0810   | 1013.8    | 682 9190    | 0935       | 9065 40       |
| 30 | 318 0008   | 1011.1    | 681 9992    | 318 0948   | 1011.4    | 681 9052    | 0939       | 9061 30       |
| 40 | 319 0119   | 1008.6    | 680 9881    | 319 1062   | 1009.2    | 680 8938    | 0944       | 9056 20       |
| 50 | 320 0205   | 1006.4    | 679 9795    | 320 1154   | 1006.7    | 679 8846    | 0948       | 9052 10       |
| 12 | 8.321 0269 | 1004.0    | 11.678 9731 | 8.321 1221 | 1004.5    | 11.678 8779 | 10.0000953 | 9.9999047 48' |
| 10 | 322 0309   | 1001.7    | 677 9691    | 322 1266   | 1002.1    | 677 8734    | 0957       | 9043 50       |
| 20 | 323 0326   | 999.3     | 676 9674    | 323 1287   | 999.8     | 676 8713    | 0961       | 9039 40       |
| 30 | 324 0319   | 997.1     | 675 9681    | 324 1285   | 997.5     | 675 8715    | 0966       | 9034 30       |
| 40 | 325 0290   | 994.8     | 674 9710    | 325 1260   | 995.3     | 674 8740    | 0970       | 9030 20       |
| 50 | 326 0238   | 992.5     | 673 9762    | 326 1213   | 993.0     | 673 8787    | 0975       | 9025 10       |
| 13 | 8.327 0163 | 990.3     | 11.672 9837 | 8.327 1143 | 990.7     | 11.672 8857 | 10.0000979 | 9.9999021 47' |
| 10 | 328 0066   | 988.0     | 671 9934    | 328 1050   | 988.4     | 671 8950    | 0984       | 9016 50       |
| 20 | 328 9946   | 985.8     | 671 0054    | 329 0934   | 986.2     | 670 9066    | 0988       | 9012 40       |
| 30 | 329 9804   | 983.5     | 670 0196    | 330 0796   | 984.0     | 669 9204    | 0993       | 9007 30       |
| 40 | 330 9639   | 981.3     | 669 0361    | 331 0636   | 981.8     | 668 9364    | 0997       | 9003 20       |
| 50 | 331 9452   | 979.1     | 668 0548    | 332 0454   | 979.5     | 667 9546    | 1002       | 8998 10       |
| 14 | 8.332 9243 | 976.9     | 11.667 0757 | 8.333 0249 | 977.4     | 11.666 9751 | 10.0001006 | 9.9998994 46' |
| 10 | 333 9012   | 974.7     | 666 0988    | 334 0023   | 975.1     | 665 9977    | 1011       | 8989 50       |
| 20 | 334 8759   | 972.5     | 665 1241    | 334 9774   | 973.0     | 665 0226    | 1015       | 8985 40       |
| 30 | 335 8484   | 970.3     | 664 1516    | 335 9504   | 970.8     | 664 0496    | 1020       | 8980 30       |
| 40 | 336 8187   | 968.2     | 663 1813    | 336 9212   | 968.6     | 663 0788    | 1024       | 8976 20       |
| 50 | 337 7869   | 966.0     | 662 2131    | 337 8898   | 966.5     | 662 1102    | 1029       | 8971 10       |
| 15 | 8.338 7529 | 963.9     | 11.661 2471 | 8.338 8563 | 964.3     | 11.661 0134 | 10.0001034 | 9.9998966 45' |
| 10 | 339 7168   | 961.7     | 660 2832    | 339 8206   | 962.2     | 660 1794    | 1038       | 8962 50       |
| 20 | 340 6785   | 959.7     | 659 3215    | 340 7828   | 960.1     | 659 2172    | 1043       | 8957 40       |
| 30 | 341 6382   | 957.5     | 658 3618    | 341 7429   | 958.0     | 658 2571    | 1047       | 8953 30       |
| 40 | 342 5957   | 955.3     | 657 4043    | 342 7009   | 955.8     | 657 2991    | 1052       | 8948 20       |
| 50 | 343 5510   | 953.3     | 656 4490    | 343 6567   | 953.8     | 656 3433    | 1057       | 8943 10       |
| 16 | 8.344 5043 | 951.2     | 11.655 4957 | 8.344 6105 | 951.6     | 11.655 3895 | 10.0001061 | 9.9998930 44' |
| 10 | 345 4555   | 949.2     | 654 5445    | 345 5621   | 949.6     | 654 4379    | 1066       | 8934 50       |
| 20 | 346 4047   | 947.0     | 653 5953    | 346 5117   | 947.5     | 653 4883    | 1071       | 8929 40       |
| 30 | 347 3517   | 945.0     | 652 6483    | 347 4592   | 945.5     | 652 5408    | 1075       | 8925 30       |
| 40 | 348 2967   | 942.9     | 651 7033    | 348 4047   | 943.4     | 651 5953    | 1080       | 8920 20       |
| 50 | 349 2396   | 940.9     | 650 7604    | 349 3481   | 941.4     | 650 6519    | 1085       | 8915 10       |
| 17 | 8.350 1805 | 938.9     | 11.649 8195 | 8.350 2895 | 939.3     | 11.649 7105 | 10.0001089 | 9.9998911 43' |
| 10 | 351 1194   | 936.8     | 648 8806    | 351 2288   | 937.3     | 648 7712    | 1094       | 8906 50       |
| 20 | 352 0562   | 934.8     | 647 9438    | 352 1661   | 935.3     | 647 8339    | 1099       | 8901 40       |
| 30 | 352 9910   | 932.8     | 647 0090    | 353 1014   | 933.3     | 646 8986    | 1104       | 8896 30       |
| 40 | 353 9238   | 930.8     | 646 0762    | 354 0347   | 931.3     | 645 9653    | 1108       | 8892 20       |
| 50 | 354 8546   | 928.9     | 645 1454    | 354 9660   | 929.3     | 645 0340    | 1113       | 8887 10       |
| 18 | 8.355 7835 | 926.8     | 11.644 2165 | 8.355 8953 | 927.3     | 11.644 1047 | 10.0001118 | 9.9998882 42' |
| 10 | 356 7103   | 924.8     | 643 2897    | 356 8226   | 925.3     | 643 1774    | 1123       | 8877 50       |
| 20 | 357 6351   | 922.9     | 642 3649    | 357 7479   | 923.4     | 642 2521    | 1128       | 8872 40       |
| 30 | 358 5580   | 921.0     | 641 4420    | 358 6713   | 921.4     | 641 3287    | 1132       | 8868 30       |
| 40 | 359 4790   | 918.9     | 640 5210    | 359 5927   | 919.4     | 640 4073    | 1137       | 8863 20       |
| 50 | 360 3979   | 917.1     | 639 6021    | 360 5121   | 917.6     | 639 4879    | 1142       | 8858 10       |
| 19 | 8.361 3150 | 915.1     | 11.638 6850 | 8.361 4297 | 915.6     | 11.638 5703 | 10.0001147 | 9.9998853 41' |
| 10 | 362 2301   | 913.2     | 637 7699    | 362 3453   | 913.6     | 637 6547    | 1152       | 8848 50       |
| 20 | 363 1433   | 911.2     | 636 8567    | 363 2589   | 911.8     | 636 7411    | 1157       | 8843 40       |
| 30 | 364 0545   | 909.4     | 635 9455    | 364 1707   | 909.8     | 635 8293    | 1161       | 8839 30       |
| 40 | 364 9639   | 907.4     | 635 0361    | 365 0805   | 908.0     | 634 9195    | 1166       | 8834 20       |
| 50 | 365 8713   | 905.6     | 634 1287    | 365 9885   | 906.0     | 634 0115    | 1171       | 8829 10       |
| 20 | 8.366 7769 | 905.6     | 11.633 2231 | 8.366 8945 | 906.0     | 11.633 1055 | 10.0001176 | 9.9998824 40' |

91°

88°

|  | co-sin. | diff. 1'' | sec. | co-tang. | diff. 1'' | tang. | co-sec. | sin. |
|--|---------|-----------|------|----------|-----------|-------|---------|------|
|--|---------|-----------|------|----------|-----------|-------|---------|------|

| 1°  |            |          |             |            |          |             |            |       |           | 178° |            |          |             |            |          |             |            |       |           |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|------|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |      | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |
| 20' | 8.366 7769 | 903.7    | 11.633 2231 | 8.366 8945 | 904.2    | 11.633 1055 | 10.0001176 | 0.5   | 9.9998824 | 40'  | 8.366 7769 | 903.7    | 11.633 2231 | 8.366 8945 | 904.2    | 11.633 1055 | 10.0001176 | 0.5   | 9.9998824 |
| 10  | 367 6806   | 901.8    | 632 3194    | 367 7987   | 902.3    | 632 2013    | 1181       | 0.5   | 8819      | 50   | 367 6806   | 901.8    | 632 3194    | 367 7987   | 902.3    | 632 2013    | 1181       | 0.5   | 8819      |
| 20  | 368 5824   | 899.9    | 631 4176    | 368 7010   | 900.4    | 631 2990    | 1186       | 0.5   | 8814      | 40   | 368 5824   | 899.9    | 631 4176    | 368 7010   | 900.4    | 631 2990    | 1186       | 0.5   | 8814      |
| 30  | 369 4823   | 898.1    | 630 5177    | 369 6014   | 898.5    | 630 3986    | 1191       | 0.5   | 8809      | 30   | 369 4823   | 898.1    | 630 5177    | 369 6014   | 898.5    | 630 3986    | 1191       | 0.5   | 8809      |
| 40  | 370 3844   | 896.2    | 629 6196    | 370 4999   | 896.8    | 629 5001    | 1196       | 0.5   | 8804      | 20   | 370 3844   | 896.2    | 629 6196    | 370 4999   | 896.8    | 629 5001    | 1196       | 0.5   | 8804      |
| 50  | 371 2766   | 894.4    | 628 7234    | 371 3967   | 894.8    | 628 6033    | 1201       | 0.5   | 8799      | 10   | 371 2766   | 894.4    | 628 7234    | 371 3967   | 894.8    | 628 6033    | 1201       | 0.5   | 8799      |
| 21' | 8.372 1710 | 892.5    | 11.627 8290 | 8.372 2915 | 893.0    | 11.627 7085 | 10.0001206 | 0.5   | 9.9998794 | 30'  | 8.372 1710 | 892.5    | 11.627 8290 | 8.372 2915 | 893.0    | 11.627 7085 | 10.0001206 | 0.5   | 9.9998794 |
| 10  | 373 0635   | 890.7    | 626 9365    | 373 1845   | 890.2    | 626 8155    | 1211       | 0.5   | 8794      | 50   | 373 0635   | 890.7    | 626 9365    | 373 1845   | 890.2    | 626 8155    | 1211       | 0.5   | 8794      |
| 20  | 373 9544   | 888.8    | 626 0458    | 374 0757   | 889.4    | 625 9243    | 1216       | 0.5   | 8784      | 40   | 373 9544   | 888.8    | 626 0458    | 374 0757   | 889.4    | 625 9243    | 1216       | 0.5   | 8784      |
| 30  | 374 8430   | 887.1    | 625 1570    | 374 9651   | 887.6    | 625 0349    | 1221       | 0.5   | 8779      | 30   | 374 8430   | 887.1    | 625 1570    | 374 9651   | 887.6    | 625 0349    | 1221       | 0.5   | 8779      |
| 40  | 375 7301   | 885.2    | 624 2699    | 375 8527   | 885.7    | 624 1473    | 1226       | 0.5   | 8774      | 20   | 375 7301   | 885.2    | 624 2699    | 375 8527   | 885.7    | 624 1473    | 1226       | 0.5   | 8774      |
| 50  | 376 6153   | 883.5    | 623 3847    | 376 7384   | 883.9    | 623 2616    | 1231       | 0.5   | 8769      | 10   | 376 6153   | 883.5    | 623 3847    | 376 7384   | 883.9    | 623 2616    | 1231       | 0.5   | 8769      |
| 22' | 8.377 4988 | 881.6    | 11.622 5012 | 8.377 6223 | 882.2    | 11.622 3777 | 10.0001236 | 0.5   | 9.9998764 | 38'  | 8.377 4988 | 881.6    | 11.622 5012 | 8.377 6223 | 882.2    | 11.622 3777 | 10.0001236 | 0.5   | 9.9998764 |
| 10  | 378 3804   | 879.9    | 621 6196    | 378 5045   | 880.4    | 621 4955    | 1241       | 0.5   | 8764      | 50   | 378 3804   | 879.9    | 621 6196    | 378 5045   | 880.4    | 621 4955    | 1241       | 0.5   | 8764      |
| 20  | 379 2603   | 878.1    | 620 7397    | 379 3849   | 878.5    | 620 6151    | 1246       | 0.5   | 8754      | 40   | 379 2603   | 878.1    | 620 7397    | 379 3849   | 878.5    | 620 6151    | 1246       | 0.5   | 8754      |
| 30  | 380 1384   | 876.3    | 619 8616    | 380 2634   | 876.9    | 619 7366    | 1251       | 0.5   | 8749      | 30   | 380 1384   | 876.3    | 619 8616    | 380 2634   | 876.9    | 619 7366    | 1251       | 0.5   | 8749      |
| 40  | 381 0147   | 874.5    | 618 9853    | 381 1403   | 875.0    | 618 8597    | 1256       | 0.5   | 8744      | 20   | 381 0147   | 874.5    | 618 9853    | 381 1403   | 875.0    | 618 8597    | 1256       | 0.5   | 8744      |
| 50  | 381 8899   | 872.8    | 618 1108    | 382 0153   | 873.3    | 617 9847    | 1261       | 0.5   | 8739      | 10   | 381 8899   | 872.8    | 618 1108    | 382 0153   | 873.3    | 617 9847    | 1261       | 0.5   | 8739      |
| 23' | 8.382 7620 | 871.0    | 11.617 2380 | 8.382 8886 | 871.5    | 11.617 1114 | 10.0001266 | 0.5   | 9.9998734 | 37'  | 8.382 7620 | 871.0    | 11.617 2380 | 8.382 8886 | 871.5    | 11.617 1114 | 10.0001266 | 0.5   | 9.9998734 |
| 10  | 383 6330   | 869.3    | 616 3670    | 383 7601   | 869.8    | 616 2399    | 1271       | 0.5   | 8729      | 50   | 383 6330   | 869.3    | 616 3670    | 383 7601   | 869.8    | 616 2399    | 1271       | 0.5   | 8729      |
| 20  | 384 5023   | 867.6    | 615 4977    | 384 6299   | 868.1    | 615 3701    | 1276       | 0.5   | 8724      | 40   | 384 5023   | 867.6    | 615 4977    | 384 6299   | 868.1    | 615 3701    | 1276       | 0.5   | 8724      |
| 30  | 385 3699   | 865.8    | 614 6301    | 385 4980   | 866.3    | 614 5020    | 1281       | 0.5   | 8719      | 30   | 385 3699   | 865.8    | 614 6301    | 385 4980   | 866.3    | 614 5020    | 1281       | 0.5   | 8719      |
| 40  | 386 2357   | 864.1    | 613 7643    | 386 3643   | 864.7    | 613 6357    | 1286       | 0.5   | 8714      | 20   | 386 2357   | 864.1    | 613 7643    | 386 3643   | 864.7    | 613 6357    | 1286       | 0.5   | 8714      |
| 50  | 387 0998   | 862.4    | 612 9002    | 387 2290   | 862.8    | 612 7710    | 1291       | 0.5   | 8709      | 10   | 387 0998   | 862.4    | 612 9002    | 387 2290   | 862.8    | 612 7710    | 1291       | 0.5   | 8709      |
| 24' | 8.387 9622 | 860.7    | 11.612 0378 | 8.388 0918 | 861.2    | 11.611 9082 | 10.0001297 | 0.5   | 9.9998703 | 36'  | 8.387 9622 | 860.7    | 11.612 0378 | 8.388 0918 | 861.2    | 11.611 9082 | 10.0001297 | 0.5   | 9.9998703 |
| 10  | 388 8229   | 858.9    | 611 1771    | 388 9530   | 859.5    | 611 0470    | 1302       | 0.5   | 8698      | 50   | 388 8229   | 858.9    | 611 1771    | 388 9530   | 859.5    | 611 0470    | 1302       | 0.5   | 8698      |
| 20  | 389 6816   | 857.3    | 610 3182    | 389 8125   | 857.8    | 610 1875    | 1307       | 0.5   | 8693      | 40   | 389 6816   | 857.3    | 610 3182    | 389 8125   | 857.8    | 610 1875    | 1307       | 0.5   | 8693      |
| 30  | 390 5391   | 855.6    | 609 4609    | 390 6703   | 856.1    | 609 3297    | 1312       | 0.5   | 8688      | 30   | 390 5391   | 855.6    | 609 4609    | 390 6703   | 856.1    | 609 3297    | 1312       | 0.5   | 8688      |
| 40  | 391 3947   | 853.9    | 608 6053    | 391 5264   | 854.4    | 608 4736    | 1317       | 0.5   | 8683      | 20   | 391 3947   | 853.9    | 608 6053    | 391 5264   | 854.4    | 608 4736    | 1317       | 0.5   | 8683      |
| 50  | 392 2486   | 852.2    | 607 7514    | 392 3808   | 852.8    | 607 6199    | 1322       | 0.6   | 8678      | 10   | 392 2486   | 852.2    | 607 7514    | 392 3808   | 852.8    | 607 6199    | 1322       | 0.6   | 8678      |
| 25' | 8.393 1008 | 850.5    | 11.606 8992 | 8.393 2336 | 851.0    | 11.606 7664 | 10.0001328 | 0.5   | 9.9998672 | 35'  | 8.393 1008 | 850.5    | 11.606 8992 | 8.393 2336 | 851.0    | 11.606 7664 | 10.0001328 | 0.5   | 9.9998672 |
| 10  | 393 9513   | 848.9    | 606 0487    | 394 0846   | 849.4    | 605 9154    | 1333       | 0.5   | 8667      | 50   | 393 9513   | 848.9    | 606 0487    | 394 0846   | 849.4    | 605 9154    | 1333       | 0.5   | 8667      |
| 20  | 394 8002   | 847.3    | 605 1998    | 394 9340   | 847.8    | 605 0660    | 1338       | 0.5   | 8662      | 40   | 394 8002   | 847.3    | 605 1998    | 394 9340   | 847.8    | 605 0660    | 1338       | 0.5   | 8662      |
| 30  | 395 6475   | 845.5    | 604 3525    | 395 7818   | 846.1    | 604 2182    | 1343       | 0.6   | 8657      | 30   | 395 6475   | 845.5    | 604 3525    | 395 7818   | 846.1    | 604 2182    | 1343       | 0.6   | 8657      |
| 40  | 396 4930   | 844.0    | 603 5070    | 396 6279   | 844.5    | 603 3721    | 1349       | 0.5   | 8651      | 20   | 396 4930   | 844.0    | 603 5070    | 396 6279   | 844.5    | 603 3721    | 1349       | 0.5   | 8651      |
| 50  | 397 3370   | 842.3    | 602 6630    | 397 4724   | 842.8    | 602 5277    | 1354       | 0.5   | 8646      | 10   | 397 3370   | 842.3    | 602 6630    | 397 4724   | 842.8    | 602 5277    | 1354       | 0.5   | 8646      |
| 26' | 8.398 1793 | 840.6    | 11.601 8207 | 8.398 3152 | 841.2    | 11.601 6848 | 10.0001354 | 0.5   | 9.9998641 | 34'  | 8.398 1793 | 840.6    | 11.601 8207 | 8.398 3152 | 841.2    | 11.601 6848 | 10.0001354 | 0.5   | 9.9998641 |
| 10  | 399 0199   | 839.1    | 600 9009    | 399 1564   | 839.5    | 600 8436    | 1362       | 0.5   | 8636      | 50   | 399 0199   | 839.1    | 600 9009    | 399 1564   | 839.5    | 600 8436    | 1362       | 0.5   | 8636      |
| 20  | 399 8590   | 837.4    | 600 1410    | 399 9959   | 838.0    | 600 0041    | 1370       | 0.5   | 8630      | 40   | 399 8590   | 837.4    | 600 1410    | 399 9959   | 838.0    | 600 0041    | 1370       | 0.5   | 8630      |
| 30  | 400 6964   | 835.8    | 599 3036    | 400 8339   | 836.3    | 599 1661    | 1375       | 0.5   | 8625      | 30   | 400 6964   | 835.8    | 599 3036    | 400 8339   | 836.3    | 599 1661    | 1375       | 0.5   | 8625      |
| 40  | 401 5322   | 834.2    | 598 4678    | 401 6702   | 834.8    | 598 3298    | 1380       | 0.6   | 8620      | 20   | 401 5322   | 834.2    | 598 4678    | 401 6702   | 834.8    | 598 3298    | 1380       | 0.6   | 8620      |
| 50  | 402 3664   | 832.6    | 597 6336    | 402 5050   | 833.1    | 597 4950    | 1386       | 0.5   | 8614      | 10   | 402 3664   | 832.6    | 597 6336    | 402 5050   | 833.1    | 597 4950    | 1386       | 0.5   | 8614      |
| 27' | 8.403 1990 | 831.0    | 11.596 8010 | 8.403 3381 | 831.5    | 11.596 6619 | 10.0001391 | 0.5   | 9.9998609 | 33'  | 8.403 1990 | 831.0    | 11.596 8010 | 8.403 3381 | 831.5    | 11.596 6619 | 10.0001391 | 0.5   | 9.9998609 |
| 10  | 404 0300   | 829.4    | 595 9700    | 404 1696   | 830.9    | 595 8304    | 1396       | 0.5   | 8604      | 50   | 404 0300   | 829.4    | 595 9700    | 404 1696   | 830.9    | 595 8304    | 1396       | 0.5   | 8604      |
| 20  | 404 8594   | 827.9    | 595 1406    | 404 9996   | 828.4    | 595 0004    | 1402       | 0.5   | 8598      | 40   | 404 8594   | 827.9    | 595 1406    | 404 9996   | 828.4    | 595 0004    | 1402       | 0.5   | 8598      |
| 30  | 405 6873   | 826.2    | 594 3127    | 405 8280   | 826.8    | 594 1720    | 1407       | 0.5   | 8593      | 30   | 405 6873   | 826.2    | 594 3127    | 405 8280   | 826.8    | 594 1720    | 1407       | 0.5   | 8593      |
| 40  | 406 5135   | 824.7    | 593 4865    | 406 6548   | 825.2    | 593 3452    | 1412       | 0.6   | 8588      | 20   | 406 5135   | 824.7    | 593 4865    | 406 6548   | 825.2    | 593 3452    | 1412       | 0.6   | 8588      |
| 50  | 407 3382   | 823.2    | 592 6618    | 407 4800   | 823.7    | 592 5200    | 1418       | 0.5   | 8582      | 10   | 407 3382   | 823.2    | 592 6618    | 407 4800   | 823.7    | 592 5200    | 1418       | 0.5   | 8582      |
| 28' | 8.408 1614 | 821.5    | 11.591 8386 | 8.408 3037 | 822.1    | 11.591 6963 | 10.0001423 | 0.5   | 9.9998577 | 32'  | 8.408 1614 | 821.5    | 11.591 8386 | 8.408 3037 | 822.1    | 11.591 6963 | 10.0001423 | 0.5   | 9.9998577 |
| 10  | 408 9829   | 820.0    | 591 0171</  |            |          |             |            |       |           |      |            |          |             |            |          |             |            |       |           |



10

178°

|    | sin. | diff 1'' | co-sec. | tang.  | diff 1'' | co-tang. | sec.  | d.1''  | co-sin. |            |            |           |      |    |
|----|------|----------|---------|--------|----------|----------|-------|--------|---------|------------|------------|-----------|------|----|
| 30 | 8417 | 9190     | 11.582  | 0810   | 8.418    | 0679     | 803.8 | 11.581 | 9321    | 10.0001488 | 9.9998512  | 30'       |      |    |
| 10 | 418  | 7223     | 801.9   | 581    | 2777     | 418      | 8717  | 802.4  | 581     | 1283       | 1494       | 0.6       | 8506 | 50 |
| 20 | 419  | 3242     | 800.3   | 580    | 4758     | 419      | 6741  | 800.9  | 580     | 3259       | 1500       | 0.5       | 8500 | 40 |
| 30 | 420  | 3245     |         | 579    | 6755     | 420      | 4750  | 799.5  | 579     | 5250       | 1505       | 0.6       | 8495 | 30 |
| 40 | 421  | 1234     | 798.9   | 578    | 8766     | 421      | 2745  | 798.0  | 578     | 7255       | 1511       | 0.5       | 8489 | 20 |
| 50 | 421  | 9208     | 797.4   | 578    | 0792     | 422      | 0725  | 796.5  | 577     | 9275       | 1516       | 0.6       | 8484 | 10 |
| 31 | 8422 | 7168     | 794.5   | 11.577 | 2832     | 8.422    | 8690  | 795.0  | 11.577  | 1310       | 10.0001522 | 9.9998478 | 29'  |    |
| 10 | 423  | 5113     | 793.0   | 576    | 4887     | 423      | 6640  | 793.6  | 576     | 3360       | 1527       | 0.6       | 8473 | 50 |
| 20 | 424  | 3043     | 791.6   | 575    | 6957     | 424      | 4576  | 792.2  | 575     | 5424       | 1533       | 0.6       | 8467 | 40 |
| 30 | 425  | 0959     | 790.2   | 574    | 9041     | 425      | 2498  | 790.7  | 574     | 7502       | 1539       | 0.5       | 8461 | 30 |
| 40 | 425  | 8861     | 788.7   | 574    | 1139     | 426      | 0405  | 789.3  | 573     | 9595       | 1544       | 0.6       | 8456 | 20 |
| 50 | 426  | 6748     | 787.3   | 573    | 3252     | 426      | 8298  | 787.8  | 573     | 1702       | 1550       | 0.5       | 8450 | 10 |
| 32 | 8427 | 4621     | 785.9   | 11.572 | 5379     | 8.427    | 6176  | 786.5  | 11.572  | 3824       | 10.0001555 | 9.9998445 | 28'  |    |
| 10 | 428  | 2480     | 784.4   | 571    | 7520     | 428      | 4041  | 785.0  | 571     | 5959       | 1561       | 0.6       | 8439 | 50 |
| 20 | 429  | 0324     | 783.0   | 570    | 9676     | 429      | 1891  | 783.6  | 570     | 8109       | 1567       | 0.5       | 8433 | 40 |
| 30 | 429  | 8154     | 781.7   | 570    | 1846     | 429      | 9727  | 782.2  | 570     | 0273       | 1572       | 0.6       | 8428 | 30 |
| 40 | 430  | 5971     | 780.2   | 569    | 4029     | 430      | 7549  | 780.7  | 569     | 2451       | 1578       | 0.6       | 8422 | 20 |
| 50 | 431  | 3773     | 778.8   | 568    | 6227     | 431      | 5356  | 779.4  | 568     | 4644       | 1584       | 0.5       | 8416 | 10 |
| 33 | 8432 | 1561     | 777.4   | 11.567 | 8439     | 8.432    | 3150  | 778.0  | 11.567  | 6850       | 10.0001580 | 9.9998411 | 27'  |    |
| 10 | 432  | 9335     | 776.0   | 567    | 0665     | 433      | 0930  | 776.6  | 566     | 9070       | 1590       | 0.6       | 8405 | 50 |
| 20 | 433  | 7095     | 774.7   | 566    | 2905     | 433      | 8696  | 775.2  | 566     | 1304       | 1601       | 0.6       | 8399 | 40 |
| 30 | 434  | 4842     | 773.2   | 565    | 5158     | 434      | 6448  | 773.9  | 565     | 3552       | 1607       | 0.5       | 8393 | 30 |
| 40 | 435  | 2574     | 771.9   | 564    | 7426     | 435      | 4187  | 772.4  | 564     | 5813       | 1612       | 0.6       | 8388 | 20 |
| 50 | 436  | 0293     | 770.6   | 563    | 9707     | 436      | 1911  | 771.1  | 563     | 8089       | 1618       | 0.6       | 8382 | 10 |
| 34 | 8436 | 7999     | 769.1   | 11.563 | 2001     | 8.436    | 0622  | 769.8  | 11.563  | 0378       | 10.0001624 | 9.9998376 | 26'  |    |
| 10 | 437  | 5690     | 767.8   | 562    | 4310     | 437      | 7320  | 768.3  | 562     | 2680       | 1630       | 0.5       | 8370 | 50 |
| 20 | 438  | 3368     | 766.4   | 561    | 6632     | 438      | 5003  | 767.0  | 561     | 4997       | 1635       | 0.6       | 8365 | 40 |
| 30 | 439  | 1032     | 765.1   | 560    | 8968     | 439      | 2673  | 765.7  | 560     | 7327       | 1641       | 0.6       | 8359 | 30 |
| 40 | 439  | 8683     | 763.8   | 560    | 1317     | 440      | 0330  | 764.3  | 559     | 9670       | 1647       | 0.6       | 8352 | 20 |
| 50 | 440  | 6321     | 762.3   | 559    | 3679     | 440      | 7973  | 763.0  | 559     | 2027       | 1653       | 0.5       | 8347 | 10 |
| 35 | 8441 | 3944     | 761.1   | 11.558 | 6056     | 8.441    | 5603  | 761.6  | 11.558  | 4397       | 10.0001658 | 9.9998342 | 25'  |    |
| 10 | 442  | 1555     | 759.7   | 557    | 8445     | 442      | 3219  | 760.3  | 557     | 6781       | 1664       | 0.6       | 8336 | 50 |
| 20 | 442  | 0152     | 758.4   | 557    | 0848     | 443      | 0822  | 759.0  | 556     | 9178       | 1670       | 0.6       | 8330 | 40 |
| 30 | 443  | 6736     | 757.1   | 556    | 3264     | 443      | 8412  | 757.7  | 556     | 1588       | 1676       | 0.6       | 8324 | 30 |
| 40 | 444  | 4307     | 755.8   | 555    | 5693     | 444      | 5989  | 756.3  | 555     | 4011       | 1682       | 0.6       | 8318 | 20 |
| 50 | 445  | 1865     | 754.4   | 555    | 8135     | 445      | 3552  | 755.1  | 554     | 6448       | 1688       | 0.6       | 8312 | 10 |
| 36 | 8445 | 9409     | 753.1   | 11.554 | 0591     | 8.446    | 1103  | 753.7  | 11.553  | 8897       | 10.0001694 | 9.9998306 | 24'  |    |
| 10 | 446  | 6940     | 751.9   | 553    | 3060     | 446      | 8640  | 752.4  | 553     | 1360       | 1699       | 0.5       | 8301 | 50 |
| 20 | 447  | 4459     | 750.5   | 552    | 5541     | 447      | 6164  | 751.1  | 552     | 3836       | 1705       | 0.6       | 8295 | 40 |
| 30 | 448  | 1964     | 749.2   | 551    | 8036     | 448      | 3675  | 749.8  | 551     | 6325       | 1711       | 0.6       | 8289 | 30 |
| 40 | 448  | 9456     | 747.9   | 551    | 0544     | 449      | 1173  | 748.6  | 550     | 8827       | 1717       | 0.6       | 8283 | 20 |
| 50 | 449  | 6936     | 746.6   | 550    | 3064     | 449      | 8659  | 747.2  | 550     | 1341       | 1723       | 0.6       | 8277 | 10 |
| 37 | 8450 | 4402     | 745.4   | 11.549 | 5598     | 8.450    | 6131  | 746.0  | 11.549  | 3869       | 10.0001729 | 9.9998271 | 23'  |    |
| 10 | 451  | 1856     | 744.1   | 548    | 8144     | 451      | 3591  | 744.7  | 548     | 6409       | 1735       | 0.6       | 8265 | 50 |
| 20 | 451  | 0297     | 742.8   | 548    | 0703     | 452      | 1038  | 743.4  | 547     | 8962       | 1741       | 0.6       | 8259 | 40 |
| 30 | 452  | 6725     | 741.6   | 547    | 3275     | 452      | 8472  | 742.1  | 547     | 1528       | 1747       | 0.6       | 8253 | 30 |
| 40 | 453  | 4141     | 740.2   | 546    | 5859     | 453      | 5893  | 740.9  | 546     | 4107       | 1753       | 0.6       | 8247 | 20 |
| 50 | 454  | 1543     | 739.1   | 545    | 8457     | 454      | 3302  | 739.7  | 545     | 6698       | 1759       | 0.6       | 8241 | 10 |
| 38 | 8454 | 8634     | 737.7   | 11.545 | 1066     | 8.455    | 0699  | 738.3  | 11.544  | 9301       | 10.0001765 | 9.9998235 | 22'  |    |
| 10 | 455  | 6311     | 736.6   | 544    | 3689     | 455      | 8082  | 737.1  | 544     | 1918       | 1771       | 0.6       | 8229 | 50 |
| 20 | 456  | 3677     | 735.2   | 543    | 6323     | 456      | 5453  | 735.9  | 543     | 4547       | 1777       | 0.6       | 8223 | 40 |
| 30 | 457  | 1029     | 734.0   | 542    | 8971     | 457      | 2812  | 734.6  | 542     | 7188       | 1783       | 0.6       | 8217 | 30 |
| 40 | 457  | 8369     | 732.8   | 542    | 1631     | 458      | 0158  | 733.4  | 541     | 9842       | 1789       | 0.6       | 8211 | 20 |
| 50 | 458  | 5697     | 731.6   | 541    | 4303     | 458      | 7492  | 732.2  | 541     | 2508       | 1795       | 0.6       | 8205 | 10 |
| 39 | 8459 | 3013     | 730.3   | 11.540 | 6987     | 8.459    | 4814  | 730.9  | 11.540  | 5186       | 10.0001801 | 9.9998199 | 21'  |    |
| 10 | 460  | 0316     | 729.1   | 539    | 9684     | 460      | 2123  | 729.7  | 539     | 7877       | 1807       | 0.6       | 8193 | 50 |
| 20 | 460  | 7697     | 727.9   | 539    | 3293     | 460      | 9420  | 728.5  | 539     | 0580       | 1813       | 0.6       | 8187 | 40 |
| 30 | 461  | 4886     | 726.6   | 538    | 5114     | 461      | 6705  | 727.3  | 538     | 3295       | 1819       | 0.6       | 8181 | 30 |
| 40 | 462  | 2152     | 725.4   | 537    | 7848     | 462      | 3978  | 726.0  | 537     | 6022       | 1825       | 0.6       | 8175 | 20 |
| 50 | 462  | 9406     | 724.3   | 537    | 0594     | 463      | 1238  | 724.8  | 536     | 8762       | 1832       | 0.6       | 8168 | 10 |
| 40 | 463  | 6649     | 724.3   | 11.536 | 3351     | 8.463    | 8486  | 724.8  | 11.536  | 1514       | 10.0001838 | 9.9998162 | 20'  |    |

910

88°

| 1°  |            |          |             |            |          |             |            |       |           | 178° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 40' | 8.463 6649 | 723.0    | 11.536 3351 | 8.463 8486 | 723.7    | 11.536 1514 | 10.0001838 | 0.6   | 9.9998162 | 20'  |  |  |  |  |  |  |  |  |  |
| 10  | 464 3879   | 721.8    | 535 6121    | 464 5723   | 722.4    | 535 4277    | 1844       | 0.6   | 8156      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 465 1097   | 720.6    | 534 8903    | 465 2947   | 721.2    | 534 7053    | 1850       | 0.6   | 8150      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 465 8303   | 719.4    | 534 1697    | 466 0159   | 720.1    | 533 9841    | 1856       | 0.6   | 8144      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 466 5497   | 718.3    | 532 7320    | 466 7360   | 718.8    | 533 2640    | 1862       | 0.6   | 8138      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 467 2680   | 717.0    | 531 2991    | 467 4548   | 717.7    | 532 5452    | 1868       | 0.6   | 8132      | 10   |  |  |  |  |  |  |  |  |  |
| 41' | 8.467 9850 | 715.9    | 11.532 0150 | 8.468 1725 | 716.5    | 11.531 8275 | 10.0001875 | 0.6   | 9.9998125 | 19'  |  |  |  |  |  |  |  |  |  |
| 10  | 468 7009   | 714.7    | 530 5844    | 468 8890   | 715.3    | 531 1110    | 1881       | 0.6   | 8119      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 469 4156   | 713.5    | 529 8709    | 469 6043   | 714.1    | 530 3957    | 1887       | 0.6   | 8113      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 470 1291   | 712.3    | 529 1586    | 470 3184   | 712.9    | 529 6816    | 1893       | 0.6   | 8107      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 470 8414   | 711.2    | 528 4474    | 471 0313   | 711.8    | 528 9687    | 1899       | 0.6   | 8101      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 471 5526   | 710.0    | 528 0031    | 471 7431   | 710.7    | 528 2569    | 1906       | 0.6   | 8094      | 10   |  |  |  |  |  |  |  |  |  |
| 42' | 8.472 2626 | 708.8    | 11.527 7374 | 8.472 4538 | 709.4    | 11.527 5462 | 10.0001912 | 0.6   | 9.9998088 | 18'  |  |  |  |  |  |  |  |  |  |
| 10  | 472 9714   | 707.7    | 527 0286    | 473 1632   | 708.3    | 526 8368    | 1918       | 0.6   | 8082      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 473 6791   | 706.5    | 526 3209    | 473 8715   | 707.2    | 526 1285    | 1924       | 0.7   | 8076      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 474 3855   | 705.4    | 525 6144    | 474 5787   | 706.0    | 525 4213    | 1931       | 0.6   | 8069      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 475 0910   | 704.3    | 524 9090    | 475 2847   | 704.9    | 524 7153    | 1937       | 0.6   | 8063      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 475 7953   | 703.1    | 524 2047    | 475 9896   | 703.7    | 524 0104    | 1943       | 0.7   | 8057      | 10   |  |  |  |  |  |  |  |  |  |
| 43' | 8.476 4984 | 701.9    | 11.523 5016 | 8.476 6933 | 702.6    | 11.523 3067 | 10.0001950 | 0.6   | 9.9998050 | 17'  |  |  |  |  |  |  |  |  |  |
| 10  | 477 2003   | 700.9    | 522 7997    | 477 3959   | 701.5    | 522 6041    | 1956       | 0.6   | 8044      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 477 9012   | 699.7    | 522 0988    | 478 0974   | 700.3    | 521 9026    | 1962       | 0.7   | 8038      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 478 6009   | 698.5    | 521 3991    | 478 7977   | 699.2    | 521 2023    | 1969       | 0.6   | 8031      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 479 2994   | 697.5    | 520 7006    | 479 4969   | 698.1    | 520 5031    | 1975       | 0.6   | 8025      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 479 9959   | 696.3    | 520 0031    | 480 1950   | 697.0    | 519 8050    | 1981       | 0.6   | 8019      | 10   |  |  |  |  |  |  |  |  |  |
| 44' | 8.480 6932 | 695.2    | 11.519 3068 | 8.480 8920 | 695.8    | 11.519 1080 | 10.0001988 | 0.6   | 9.9998012 | 16'  |  |  |  |  |  |  |  |  |  |
| 10  | 481 3884   | 694.1    | 518 6116    | 481 5878   | 694.8    | 518 4122    | 1994       | 0.6   | 8006      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 482 0825   | 693.0    | 517 9175    | 482 2826   | 693.6    | 517 7174    | 2000       | 0.7   | 8000      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 482 7755   | 691.9    | 517 2245    | 482 9762   | 692.5    | 517 0238    | 2007       | 0.6   | 7993      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 483 4674   | 690.8    | 516 5326    | 483 6687   | 691.5    | 516 3313    | 2013       | 0.6   | 7987      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 484 1582   | 689.7    | 515 8418    | 484 3602   | 690.3    | 515 6398    | 2020       | 0.7   | 7980      | 10   |  |  |  |  |  |  |  |  |  |
| 45' | 8.484 8479 | 688.6    | 11.515 1521 | 8.485 0505 | 689.2    | 11.514 9495 | 10.0002026 | 0.6   | 9.9997974 | 15'  |  |  |  |  |  |  |  |  |  |
| 10  | 485 5365   | 687.5    | 514 4635    | 485 7397   | 688.2    | 514 2603    | 2032       | 0.6   | 7968      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 486 2240   | 686.4    | 513 7760    | 486 4279   | 687.0    | 513 5721    | 2039       | 0.7   | 7961      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 486 9104   | 685.3    | 513 0896    | 487 1149   | 686.0    | 512 8851    | 2045       | 0.6   | 7955      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 487 5957   | 684.3    | 512 4043    | 487 8009   | 685.0    | 512 1991    | 2052       | 0.6   | 7948      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 488 2800   | 683.2    | 511 7200    | 488 4858   | 684.9    | 511 5142    | 2058       | 0.6   | 7942      | 10   |  |  |  |  |  |  |  |  |  |
| 46' | 8.488 9632 | 682.1    | 11.511 0368 | 8.489 1696 | 683.8    | 11.510 8304 | 10.0002058 | 0.6   | 9.9997935 | 14'  |  |  |  |  |  |  |  |  |  |
| 10  | 489 6453   | 681.0    | 510 3547    | 489 8524   | 682.8    | 510 1476    | 2071       | 0.7   | 7929      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 490 3263   | 680.0    | 509 6737    | 490 5341   | 681.7    | 509 4659    | 2078       | 0.6   | 7922      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 491 0063   | 678.9    | 508 9937    | 491 2147   | 680.6    | 508 7853    | 2084       | 0.6   | 7916      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 491 6852   | 677.8    | 508 3148    | 491 8942   | 679.5    | 508 1058    | 2091       | 0.6   | 7909      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 492 3630   | 676.8    | 507 6370    | 492 5727   | 678.5    | 507 4273    | 2097       | 0.7   | 7903      | 10   |  |  |  |  |  |  |  |  |  |
| 47' | 8.493 0398 | 675.7    | 11.506 9602 | 8.493 2502 | 677.5    | 11.506 7498 | 10.0002104 | 0.6   | 9.9997896 | 13'  |  |  |  |  |  |  |  |  |  |
| 10  | 493 7155   | 674.7    | 506 2845    | 493 9266   | 676.4    | 506 0734    | 2111       | 0.6   | 7889      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 494 3902   | 673.6    | 505 6098    | 494 6019   | 675.3    | 505 3981    | 2117       | 0.7   | 7883      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 495 0638   | 672.6    | 504 9362    | 495 2762   | 674.3    | 504 7238    | 2124       | 0.6   | 7876      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 495 7364   | 671.5    | 504 2636    | 495 9494   | 673.2    | 504 0506    | 2130       | 0.6   | 7870      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 496 4079   | 670.5    | 503 5921    | 496 6216   | 672.2    | 503 3784    | 2137       | 0.7   | 7863      | 10   |  |  |  |  |  |  |  |  |  |
| 48' | 8.497 0784 | 669.5    | 11.502 9216 | 8.497 2928 | 671.2    | 11.502 7072 | 10.0002144 | 0.6   | 9.9997856 | 12'  |  |  |  |  |  |  |  |  |  |
| 10  | 497 7479   | 668.4    | 502 2521    | 497 9629   | 670.1    | 502 0371    | 2150       | 0.7   | 7850      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 498 4163   | 667.5    | 501 5837    | 498 6320   | 669.1    | 501 3680    | 2157       | 0.6   | 7843      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 499 0838   | 666.5    | 500 9162    | 499 3001   | 668.1    | 500 6999    | 2163       | 0.6   | 7837      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 499 7501   | 665.4    | 500 2499    | 499 9671   | 667.0    | 500 0320    | 2170       | 0.7   | 7830      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 500 4155   | 664.3    | 499 5845    | 500 6332   | 666.0    | 499 3668    | 2177       | 0.6   | 7823      | 10   |  |  |  |  |  |  |  |  |  |
| 49' | 8.501 0798 | 663.4    | 11.498 9202 | 8.501 2982 | 665.0    | 11.498 7018 | 10.0002183 | 0.6   | 9.9997817 | 11'  |  |  |  |  |  |  |  |  |  |
| 10  | 501 7432   | 662.3    | 498 2568    | 501 9622   | 664.0    | 498 0378    | 2190       | 0.7   | 7810      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 502 4055   | 661.3    | 497 5945    | 502 6252   | 663.0    | 497 3748    | 2197       | 0.6   | 7803      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 503 0669   | 660.3    | 496 9332    | 503 2871   | 661.9    | 496 7129    | 2203       | 0.7   | 7797      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 503 7271   | 659.3    | 496 2729    | 503 9481   | 660.0    | 496 0519    | 2210       | 0.6   | 7790      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 504 3864   | 658.3    | 495 6136    | 504 6081   | 659.0    | 495 3919    | 2217       | 0.7   | 7783      | 10   |  |  |  |  |  |  |  |  |  |
| 50' | 8.505 0447 |          | 11.494 9553 | 8.505 2671 |          | 11.494 7329 | 10.0002224 | 0.6   | 9.9997776 | 10'  |  |  |  |  |  |  |  |  |  |



| 1°             |         | 178°        |            |         |             |            |      |           |     |
|----------------|---------|-------------|------------|---------|-------------|------------|------|-----------|-----|
| sin.           | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.       | d.1" | co-sin.   |     |
| 50° 8.505 0447 | 657.3   | 11.494 9553 | 8.505 2671 | 657.9   | 11.494 7329 | 10.0002224 |      | 9.9997776 | 10' |
| 10 505 7020    | 656.3   | 494 2980    | 505 9250   | 657.0   | 494 0750    | 2230       | 0.6  | 7770      | 50  |
| 20 506 3583    | 655.3   | 493 6417    | 506 5820   | 656.0   | 493 4180    | 2237       | 0.7  | 7763      | 40  |
| 30 507 0136    | 654.3   | 492 9864    | 507 2380   | 655.0   | 492 7620    | 2244       | 0.7  | 7756      | 30  |
| 40 507 6679    | 653.4   | 492 3321    | 507 8930   | 654.0   | 492 1070    | 2251       | 0.6  | 7749      | 20  |
| 50 508 3213    | 652.3   | 491 6787    | 508 5470   | 653.1   | 491 4530    | 2257       | 0.7  | 7743      | 10  |
| 51° 8.508 9736 | 651.4   | 11.491 0264 | 8.509 2001 | 652.0   | 11.490 7999 | 10.0002264 |      | 9.9997736 | 10' |
| 10 509 6250    | 650.4   | 490 3750    | 509 8521   | 651.1   | 490 1479    | 2271       | 0.7  | 7729      | 50  |
| 20 510 2754    | 649.4   | 489 7246    | 510 5032   | 650.1   | 489 4966    | 2278       | 0.7  | 7722      | 40  |
| 30 510 9248    | 648.5   | 489 0752    | 511 1533   | 649.2   | 488 8467    | 2285       | 0.7  | 7715      | 30  |
| 40 511 5733    | 647.5   | 488 4267    | 511 8025   | 648.1   | 488 1975    | 2292       | 0.6  | 7708      | 20  |
| 50 512 2208    | 646.5   | 487 7792    | 512 4506   | 647.2   | 487 5494    | 2298       | 0.7  | 7702      | 10  |
| 52° 8.512 8673 | 645.6   | 11.487 1327 | 8.513 0978 | 646.3   | 11.486 9022 | 10.0002305 |      | 9.9997695 | 8'  |
| 10 513 5129    | 644.6   | 486 4871    | 513 7441   | 645.3   | 486 2559    | 2312       | 0.7  | 7688      | 50  |
| 20 514 1575    | 643.6   | 485 8425    | 514 3894   | 644.3   | 485 6106    | 2319       | 0.7  | 7681      | 40  |
| 30 514 8011    | 642.7   | 485 1989    | 515 0337   | 643.4   | 484 9663    | 2326       | 0.7  | 7674      | 30  |
| 40 515 4438    | 641.8   | 484 5562    | 515 6771   | 642.4   | 484 3229    | 2333       | 0.7  | 7667      | 20  |
| 50 516 0856    | 640.8   | 483 9144    | 516 3195   | 641.5   | 483 6805    | 2340       | 0.7  | 7660      | 10  |
| 53° 8.516 7264 | 639.8   | 11.483 2736 | 8.516 9610 | 640.6   | 11.483 0390 | 10.0002347 |      | 9.9997653 | 7'  |
| 10 517 3662    | 638.9   | 482 6338    | 517 6016   | 639.6   | 482 3984    | 2354       | 0.7  | 7646      | 50  |
| 20 518 0051    | 638.0   | 481 9949    | 518 2412   | 638.6   | 481 7588    | 2360       | 0.6  | 7640      | 40  |
| 30 518 6431    | 637.0   | 481 3569    | 518 8798   | 637.7   | 481 1202    | 2367       | 0.7  | 7633      | 30  |
| 40 519 2801    | 636.1   | 480 7199    | 519 5175   | 636.8   | 480 4825    | 2374       | 0.7  | 7626      | 20  |
| 50 519 9162    | 635.2   | 480 0838    | 520 1543   | 635.9   | 479 8457    | 2381       | 0.7  | 7619      | 10  |
| 54° 8.520 5514 | 634.2   | 11.479 4486 | 8.520 7902 | 634.9   | 11.479 2098 | 10.0002388 |      | 9.9997612 | 6'  |
| 10 521 1856    | 633.3   | 478 8144    | 521 4251   | 634.0   | 478 5749    | 2395       | 0.7  | 7605      | 50  |
| 20 521 8189    | 632.4   | 478 1811    | 522 0591   | 633.1   | 477 9409    | 2402       | 0.7  | 7598      | 40  |
| 30 522 4513    | 631.5   | 477 5487    | 522 6922   | 632.2   | 477 3078    | 2409       | 0.7  | 7591      | 30  |
| 40 523 0828    | 630.5   | 476 9172    | 523 3244   | 631.3   | 476 6756    | 2416       | 0.7  | 7584      | 20  |
| 50 523 7133    | 629.7   | 476 2867    | 523 9557   | 630.3   | 476 0443    | 2423       | 0.7  | 7577      | 10  |
| 55° 8.524 3430 | 628.7   | 11.475 6570 | 8.524 5860 | 629.4   | 11.475 4140 | 10.0002430 |      | 9.9997570 | 5'  |
| 10 524 9717    | 627.8   | 475 0283    | 525 2154   | 628.5   | 474 7846    | 2437       | 0.7  | 7563      | 50  |
| 20 525 5995    | 626.9   | 474 4005    | 525 8439   | 627.7   | 474 1561    | 2445       | 0.7  | 7555      | 40  |
| 30 526 2264    | 626.0   | 473 7736    | 526 4716   | 626.7   | 473 5284    | 2452       | 0.7  | 7548      | 30  |
| 40 526 8524    | 625.1   | 473 1476    | 527 0983   | 625.8   | 472 9017    | 2459       | 0.7  | 7541      | 20  |
| 50 527 4775    | 624.2   | 472 5225    | 527 7241   | 624.9   | 472 2759    | 2466       | 0.7  | 7534      | 10  |
| 56° 8.528 1017 | 623.3   | 11.471 8983 | 8.528 3490 | 624.0   | 11.471 6510 | 10.0002473 |      | 9.9997527 | 4'  |
| 10 528 7250    | 622.4   | 471 2750    | 528 9730   | 623.1   | 471 0270    | 2480       | 0.7  | 7520      | 50  |
| 20 529 3474    | 621.5   | 470 6526    | 529 5961   | 622.2   | 470 4039    | 2487       | 0.7  | 7513      | 40  |
| 30 529 9689    | 620.6   | 470 0311    | 530 2183   | 621.4   | 469 7817    | 2494       | 0.7  | 7506      | 30  |
| 40 530 5895    | 619.8   | 469 4105    | 530 8397   | 620.4   | 469 1603    | 2501       | 0.7  | 7499      | 20  |
| 50 531 2093    | 618.8   | 468 7907    | 531 4601   | 619.6   | 468 5399    | 2509       | 0.8  | 7491      | 10  |
| 57° 8.531 8281 | 618.0   | 11.468 1719 | 8.532 0797 | 618.7   | 11.467 9203 | 10.0002516 |      | 9.9997482 | 3'  |
| 10 532 4461    | 617.1   | 467 5539    | 532 6984   | 617.8   | 467 3016    | 2523       | 0.7  | 7477      | 50  |
| 20 533 0632    | 616.2   | 466 9368    | 533 3162   | 616.9   | 466 6838    | 2530       | 0.7  | 7470      | 40  |
| 30 533 6794    | 615.4   | 466 3206    | 533 9331   | 616.1   | 466 0669    | 2537       | 0.7  | 7463      | 30  |
| 40 534 2948    | 614.4   | 465 7052    | 534 5492   | 615.2   | 465 4508    | 2544       | 0.8  | 7456      | 20  |
| 50 534 9092    | 613.6   | 465 0908    | 535 1644   | 614.3   | 464 8356    | 2552       | 0.7  | 7448      | 10  |
| 58° 8.535 5228 | 612.8   | 11.464 4772 | 8.535 7787 | 613.5   | 11.464 2213 | 10.0002559 |      | 9.9997441 | 2'  |
| 10 536 1356    | 611.8   | 463 8644    | 536 3922   | 612.6   | 463 6078    | 2566       | 0.7  | 7434      | 50  |
| 20 536 7474    | 611.1   | 463 2526    | 537 0048   | 611.7   | 462 9952    | 2573       | 0.8  | 7427      | 40  |
| 30 537 3585    | 610.1   | 462 6415    | 537 6165   | 610.9   | 462 3835    | 2581       | 0.7  | 7419      | 30  |
| 40 537 9686    | 609.3   | 462 0314    | 538 2274   | 610.0   | 461 7726    | 2588       | 0.7  | 7412      | 20  |
| 50 538 5779    | 608.4   | 461 4221    | 538 8374   | 609.2   | 461 1626    | 2595       | 0.7  | 7405      | 10  |
| 59° 8.539 1863 | 607.6   | 11.460 8137 | 8.539 4466 | 608.3   | 11.460 5534 | 10.0002602 |      | 9.9997398 | 1'  |
| 10 539 7939    | 606.8   | 460 8061    | 540 0549   | 607.5   | 459 9451    | 2610       | 0.8  | 7390      | 50  |
| 20 540 4007    | 605.9   | 459 5993    | 540 6624   | 606.6   | 459 3376    | 2617       | 0.7  | 7383      | 40  |
| 30 541 0066    | 605.0   | 458 9934    | 541 2690   | 605.8   | 458 7310    | 2624       | 0.8  | 7376      | 30  |
| 40 541 6116    | 604.2   | 458 3884    | 541 8748   | 604.9   | 458 1252    | 2632       | 0.7  | 7368      | 20  |
| 50 542 2158    | 603.4   | 457 7842    | 542 4797   | 604.1   | 457 5203    | 2639       | 0.7  | 7361      | 10  |
| 60° 8.542 8192 | 603.4   | 11.457 1808 | 8.543 0838 | 603.1   | 11.456 9162 | 10.0002646 |      | 9.9997354 | 0'  |

|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d. 1" | co-sin.       |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|---------------|
| 0'  | 8.542 8192 | 602.5    | 11.457 1808 | 8.543 0838 | 603.3    | 11.456 9162 | 10.0002646 | 0.8   | 9.9997354 60' |
| 10  | 543 4217   | 601.7    | 456 5983    | 543 6871   | 602.4    | 456 3129    | 2654       | 0.7   | 7346 50       |
| 20  | 544 0234   | 600.8    | 455 9766    | 544 2895   | 601.6    | 455 7105    | 2661       | 0.8   | 7339 40       |
| 30  | 544 6247   | 600.1    | 455 3758    | 544 8911   | 600.7    | 455 1089    | 2669       | 0.8   | 7331 30       |
| 40  | 545 2243   | 599.1    | 454 7757    | 545 4918   | 600.0    | 454 5082    | 2676       | 0.7   | 7324 20       |
| 50  | 545 8234   | 598.4    | 454 1766    | 546 0918   | 599.1    | 453 9082    | 2683       | 0.7   | 7317 10       |
| 1'  | 8.546 4218 | 597.6    | 11.453 5782 | 8.546 6009 | 598.3    | 11.453 3091 | 10.0002691 | 0.8   | 9.9997309 59' |
| 10  | 547 0194   | 596.7    | 452 8906    | 547 2892   | 597.4    | 452 7108    | 2698       | 0.8   | 7309 50       |
| 20  | 547 6161   | 595.9    | 449 4126    | 547 8866   | 597.7    | 452 1134    | 2706       | 0.7   | 7294 40       |
| 30  | 548 2129   | 595.1    | 451 7880    | 548 4833   | 595.8    | 451 5167    | 2713       | 0.7   | 7287 30       |
| 40  | 548 8071   | 594.2    | 451 1929    | 549 0791   | 595.0    | 450 9209    | 2720       | 0.7   | 7280 20       |
| 50  | 549 4013   | 593.5    | 450 5987    | 549 6741   | 594.2    | 450 3259    | 2728       | 0.8   | 7272 10       |
| 2'  | 8.549 9948 | 592.6    | 11.450 0052 | 8.550 2683 | 593.4    | 11.449 7317 | 10.0002735 | 0.8   | 9.9997265 58' |
| 10  | 550 5874   | 591.9    | 448 8207    | 550 8617   | 592.6    | 449 1383    | 2743       | 0.7   | 7257 50       |
| 20  | 551 1793   | 591.0    | 448 2297    | 551 4543   | 591.8    | 448 5457    | 2750       | 0.8   | 7250 40       |
| 30  | 551 7703   | 590.2    | 447 6395    | 552 0461   | 591.0    | 447 9539    | 2758       | 0.8   | 7242 30       |
| 40  | 552 3605   | 589.4    | 447 0501    | 552 6371   | 590.1    | 447 3629    | 2765       | 0.8   | 7235 20       |
| 50  | 552 9499   | 588.7    | 447 4601    | 553 2272   | 589.4    | 446 7728    | 2773       | 0.7   | 7227 10       |
| 3'  | 8.553 5386 | 588.0    | 11.446 4614 | 8.553 8166 | 588.6    | 11.446 1834 | 10.0002780 | 0.8   | 9.9997220 57' |
| 10  | 554 1264   | 587.0    | 445 8736    | 554 4052   | 587.8    | 445 5948    | 2788       | 0.8   | 7212 50       |
| 20  | 554 7134   | 586.3    | 445 2866    | 554 9930   | 587.0    | 445 0070    | 2796       | 0.7   | 7204 40       |
| 30  | 555 2997   | 585.4    | 444 7003    | 555 5800   | 586.2    | 444 4200    | 2803       | 0.8   | 7197 30       |
| 40  | 555 8851   | 584.7    | 444 1149    | 556 1662   | 585.4    | 443 8338    | 2811       | 0.7   | 7189 20       |
| 50  | 556 4698   | 583.8    | 443 5302    | 556 7516   | 584.6    | 443 2484    | 2818       | 0.8   | 7182 10       |
| 4'  | 8.557 0536 | 583.1    | 11.442 9464 | 8.557 3362 | 583.9    | 11.442 6638 | 10.0002826 | 0.8   | 9.9997174 56' |
| 10  | 557 6367   | 582.3    | 442 3633    | 557 9201   | 583.0    | 442 0799    | 2833       | 0.8   | 7167 50       |
| 20  | 558 2199   | 581.5    | 441 7810    | 558 5031   | 582.3    | 441 4969    | 2841       | 0.8   | 7159 40       |
| 30  | 558 8005   | 580.8    | 441 1995    | 559 0854   | 581.5    | 440 9146    | 2849       | 0.8   | 7151 30       |
| 40  | 559 3813   | 579.9    | 440 6187    | 559 6669   | 580.7    | 440 3331    | 2856       | 0.7   | 7144 20       |
| 50  | 559 9612   | 579.2    | 440 0388    | 560 2476   | 580.0    | 439 7524    | 2864       | 0.8   | 7136 10       |
| 5'  | 8.560 5404 | 578.4    | 11.439 4596 | 8.560 8276 | 579.2    | 11.439 1724 | 10.0002872 | 0.8   | 9.9997128 55' |
| 10  | 561 1188   | 577.7    | 438 8812    | 561 4078   | 578.4    | 438 5939    | 2879       | 0.7   | 7121 50       |
| 20  | 561 6965   | 576.9    | 438 3035    | 561 9852   | 577.6    | 438 0148    | 2887       | 0.8   | 7113 40       |
| 30  | 562 2734   | 576.1    | 437 7266    | 562 5628   | 576.9    | 437 4372    | 2895       | 0.7   | 7105 30       |
| 40  | 562 8495   | 575.3    | 437 1505    | 563 1397   | 576.1    | 436 8603    | 2902       | 0.8   | 7098 20       |
| 50  | 563 4248   | 574.6    | 436 5752    | 563 7158   | 575.4    | 436 2849    | 2910       | 0.8   | 7090 10       |
| 6'  | 8.563 9994 | 573.8    | 11.436 0006 | 8.564 2912 | 574.6    | 11.435 7088 | 10.0002918 | 0.8   | 9.9997082 54' |
| 10  | 564 5732   | 573.1    | 435 4268    | 564 8658   | 573.8    | 435 1342    | 2925       | 0.7   | 7075 50       |
| 20  | 565 1463   | 572.3    | 434 8537    | 565 4396   | 573.1    | 434 5604    | 2933       | 0.8   | 7067 40       |
| 30  | 565 7186   | 571.6    | 434 2814    | 566 0127   | 572.4    | 433 9873    | 2941       | 0.8   | 7059 30       |
| 40  | 566 2902   | 570.8    | 433 7098    | 566 5851   | 571.5    | 433 4149    | 2949       | 0.7   | 7051 20       |
| 50  | 566 8610   | 570.0    | 433 1390    | 567 1566   | 570.9    | 432 8434    | 2956       | 0.8   | 7044 10       |
| 7'  | 8.567 4310 | 569.5    | 11.432 5690 | 8.567 7275 | 570.1    | 11.432 2725 | 10.0002964 | 0.8   | 9.9997036 53' |
| 10  | 568 0004   | 568.5    | 431 9976    | 568 2976   | 569.3    | 431 7024    | 2972       | 0.8   | 7028 50       |
| 20  | 568 5699   | 567.8    | 431 4311    | 568 8669   | 568.6    | 431 1331    | 2980       | 0.8   | 7020 40       |
| 30  | 569 1367   | 567.1    | 430 8633    | 569 4355   | 567.9    | 430 5645    | 2988       | 0.7   | 7012 30       |
| 40  | 569 7038   | 566.3    | 430 2962    | 570 0034   | 567.1    | 429 9966    | 2995       | 0.8   | 7005 20       |
| 50  | 570 2709   | 565.6    | 429 7299    | 570 5705   | 566.3    | 429 4295    | 3003       | 0.7   | 6997 10       |
| 8'  | 8.570 8357 | 564.9    | 11.429 1643 | 8.571 1368 | 565.7    | 11.428 8632 | 10.0003011 | 0.8   | 9.9996989 52' |
| 10  | 571 4006   | 564.1    | 428 5204    | 571 7025   | 564.9    | 428 2975    | 3019       | 0.8   | 6981 50       |
| 20  | 571 9647   | 563.4    | 428 0353    | 572 2674   | 564.2    | 427 7326    | 3027       | 0.8   | 6973 40       |
| 30  | 572 5281   | 562.7    | 427 4719    | 572 8316   | 563.4    | 427 1684    | 3035       | 0.8   | 6965 30       |
| 40  | 573 0908   | 561.9    | 426 9092    | 573 3950   | 562.7    | 426 6050    | 3043       | 0.8   | 6957 20       |
| 50  | 573 6527   | 561.2    | 426 3473    | 573 9577   | 562.0    | 426 0423    | 3050       | 0.7   | 6950 10       |
| 9'  | 8.574 2139 | 560.5    | 11.425 7861 | 8.574 5197 | 561.3    | 11.425 4803 | 10.0003058 | 0.8   | 9.9996942 51' |
| 10  | 574 7744   | 559.7    | 425 2256    | 575 0810   | 560.6    | 424 9190    | 3066       | 0.8   | 6934 50       |
| 20  | 575 3341   | 559.0    | 424 6659    | 575 6416   | 559.8    | 424 3584    | 3074       | 0.8   | 6926 40       |
| 30  | 575 8932   | 558.3    | 424 1068    | 576 2014   | 559.1    | 423 7980    | 3082       | 0.8   | 6918 30       |
| 40  | 576 4515   | 557.6    | 423 5485    | 576 7605   | 558.4    | 423 2395    | 3090       | 0.8   | 6910 20       |
| 50  | 577 0091   | 556.9    | 422 9909    | 577 3189   | 557.7    | 422 6811    | 3098       | 0.8   | 6902 10       |
| 11' | 8.577 5660 | 556.2    | 11.422 4340 | 8.577 8766 | 557.0    | 11.422 1234 | 10.0003106 | 0.8   | 9.9996894 50' |

LOGARITHMIC SINES, TANGENTS, &c.

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2°

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|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |     |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|-----|
| 10' | 8.577 5660 | 556.1    | 11.422 4340 | 8.577 8766 | 556.9    | 11.422 1234 | 10.0003106 | 0.8   | 9.9996894 | 50' |
| 10  | 578 1221   | 555.5    | 421 8779    | 578 4335   | 556.3    | 421 5665    | 3114       | 0.8   | 6886      | 50  |
| 20  | 578 6776   | 554.7    | 421 3224    | 578 9898   | 555.5    | 421 0102    | 3122       | 0.8   | 6878      | 40  |
| 30  | 579 2323   | 554.1    | 420 7677    | 579 5453   | 554.8    | 420 4547    | 3130       | 0.8   | 6870      | 30  |
| 40  | 579 7864   | 553.3    | 420 2136    | 580 1001   | 554.2    | 419 8999    | 3138       | 0.8   | 6862      | 20  |
| 50  | 580 3397   | 552.6    | 419 6603    | 580 6543   | 553.4    | 419 3457    | 3146       | 0.8   | 6854      | 10  |
| 11' | 8.580 8923 | 551.9    | 11.419 1077 | 8.581 2077 | 552.7    | 11.418 7923 | 10.0003154 | 0.8   | 9.9996846 | 49' |
| 10  | 581 4442   | 551.2    | 418 5558    | 581 7604   | 552.0    | 418 2396    | 3162       | 0.8   | 6838      | 50  |
| 20  | 581 9954   | 550.6    | 418 0046    | 582 3124   | 551.4    | 417 6876    | 3170       | 0.8   | 6830      | 40  |
| 30  | 582 5460   | 549.8    | 417 4540    | 582 8638   | 550.6    | 417 1362    | 3178       | 0.8   | 6822      | 30  |
| 40  | 583 0958   | 549.1    | 416 9042    | 583 4144   | 549.9    | 416 5850    | 3186       | 0.8   | 6814      | 20  |
| 50  | 583 6449   | 548.4    | 416 3551    | 583 9643   | 549.3    | 416 0357    | 3194       | 0.8   | 6806      | 10  |
| 12' | 8.584 1933 | 547.8    | 11.415 8067 | 8.584 5136 | 548.5    | 11.415 4864 | 10.0003202 | 0.8   | 9.9996798 | 48' |
| 10  | 584 7411   | 547.0    | 415 2589    | 585 0621   | 547.8    | 414 9379    | 3210       | 0.8   | 6790      | 50  |
| 20  | 585 2881   | 546.4    | 414 7119    | 585 6100   | 547.1    | 414 3900    | 3218       | 0.8   | 6782      | 40  |
| 30  | 585 8345   | 545.6    | 414 1655    | 586 1571   | 546.5    | 413 8429    | 3227       | 0.8   | 6773      | 30  |
| 40  | 586 3801   | 545.0    | 413 6199    | 586 7036   | 545.8    | 413 2964    | 3235       | 0.8   | 6765      | 20  |
| 50  | 586 9251   | 544.3    | 413 0749    | 587 2494   | 545.1    | 412 7506    | 3243       | 0.8   | 6757      | 10  |
| 13' | 8.587 4694 | 543.6    | 11.412 5306 | 8.587 7945 | 544.4    | 11.412 2055 | 10.0003251 | 0.8   | 9.9996749 | 47' |
| 10  | 588 0130   | 543.0    | 411 9870    | 588 3389   | 543.8    | 411 6611    | 3259       | 0.8   | 6741      | 50  |
| 20  | 588 5560   | 542.2    | 411 4440    | 588 8827   | 543.1    | 411 1173    | 3267       | 0.8   | 6733      | 40  |
| 30  | 589 0982   | 541.6    | 410 9018    | 589 4258   | 542.4    | 410 5742    | 3276       | 0.8   | 6724      | 30  |
| 40  | 589 6398   | 540.9    | 410 3602    | 589 9682   | 541.7    | 410 0318    | 3284       | 0.8   | 6716      | 20  |
| 50  | 590 1807   | 540.2    | 409 8193    | 590 5099   | 541.0    | 409 4901    | 3292       | 0.8   | 6708      | 10  |
| 14' | 8.590 7209 | 539.6    | 11.409 2791 | 8.591 0509 | 540.4    | 11.408 9491 | 10.0003300 | 0.8   | 9.9996700 | 46' |
| 10  | 591 2605   | 538.9    | 408 7395    | 591 5913   | 539.7    | 408 4087    | 3308       | 0.8   | 6692      | 50  |
| 20  | 591 7994   | 538.2    | 408 2006    | 592 1310   | 539.1    | 407 8690    | 3317       | 0.8   | 6683      | 40  |
| 30  | 592 3376   | 537.5    | 407 6624    | 592 6701   | 538.4    | 407 3299    | 3325       | 0.8   | 6675      | 30  |
| 40  | 592 8751   | 536.9    | 407 1249    | 593 2085   | 537.7    | 406 7915    | 3333       | 0.8   | 6667      | 20  |
| 50  | 593 4120   | 536.3    | 406 5880    | 593 7462   | 537.0    | 406 2538    | 3341       | 0.8   | 6659      | 10  |
| 15' | 8.593 9483 | 535.5    | 11.406 0517 | 8.594 2832 | 536.4    | 11.405 7168 | 10.0003350 | 0.8   | 9.9996650 | 45' |
| 10  | 594 4838   | 534.9    | 405 5162    | 594 8196   | 535.7    | 405 1804    | 3358       | 0.8   | 6642      | 50  |
| 20  | 595 0187   | 534.3    | 404 9813    | 595 3553   | 535.1    | 404 6447    | 3366       | 0.8   | 6634      | 40  |
| 30  | 595 5530   | 533.5    | 404 4470    | 595 8904   | 534.4    | 404 1096    | 3374       | 0.8   | 6626      | 30  |
| 40  | 596 0865   | 533.0    | 403 9135    | 596 4248   | 533.8    | 403 5752    | 3383       | 0.8   | 6617      | 20  |
| 50  | 596 6195   | 532.2    | 403 3805    | 596 9586   | 533.1    | 403 0414    | 3391       | 0.8   | 6609      | 10  |
| 16' | 8.597 1517 | 531.7    | 11.402 8483 | 8.597 4917 | 532.4    | 11.402 5083 | 10.0003399 | 0.8   | 9.9996601 | 44' |
| 10  | 597 6834   | 531.0    | 402 8166    | 598 0241   | 531.8    | 401 9759    | 3408       | 0.8   | 6592      | 50  |
| 20  | 598 2143   | 530.3    | 401 7857    | 598 5559   | 531.2    | 401 4441    | 3416       | 0.8   | 6584      | 40  |
| 30  | 598 7446   | 529.7    | 401 2554    | 599 0871   | 530.5    | 400 9129    | 3424       | 0.8   | 6576      | 30  |
| 40  | 599 2743   | 529.0    | 400 7257    | 599 6176   | 529.9    | 400 3824    | 3433       | 0.8   | 6567      | 20  |
| 50  | 599 8033   | 528.4    | 400 1967    | 600 1475   | 529.2    | 399 8525    | 3441       | 0.8   | 6559      | 10  |
| 17' | 8.600 3317 | 527.8    | 11.399 6683 | 8.600 6767 | 528.6    | 11.399 3233 | 10.0003450 | 0.8   | 9.9996550 | 43' |
| 10  | 600 8595   | 527.1    | 399 1405    | 601 2053   | 527.9    | 398 7947    | 3458       | 0.8   | 6549      | 50  |
| 20  | 601 3866   | 526.4    | 398 6134    | 601 7332   | 527.3    | 398 2668    | 3466       | 0.8   | 6534      | 40  |
| 30  | 601 9130   | 525.8    | 398 0870    | 602 2605   | 526.7    | 397 7395    | 3475       | 0.8   | 6525      | 30  |
| 40  | 602 4388   | 525.2    | 397 5612    | 602 7872   | 526.0    | 397 2128    | 3483       | 0.8   | 6517      | 20  |
| 50  | 602 9640   | 524.6    | 397 0360    | 603 3132   | 525.4    | 396 6868    | 3492       | 0.8   | 6508      | 10  |
| 18' | 8.603 4886 | 523.9    | 11.396 5114 | 8.603 8386 | 524.7    | 11.396 1614 | 10.0003500 | 0.8   | 9.9996500 | 42' |
| 10  | 604 0125   | 523.2    | 395 9875    | 604 3633   | 524.2    | 395 6367    | 3509       | 0.8   | 6491      | 50  |
| 20  | 604 5357   | 522.7    | 395 4643    | 604 8875   | 523.5    | 395 1125    | 3517       | 0.8   | 6483      | 40  |
| 30  | 605 0584   | 522.0    | 394 9416    | 605 4110   | 522.8    | 394 5890    | 3526       | 0.8   | 6474      | 30  |
| 40  | 605 5804   | 521.4    | 394 4196    | 605 9338   | 522.3    | 394 0662    | 3534       | 0.8   | 6466      | 20  |
| 50  | 606 1018   | 520.8    | 393 8982    | 606 4561   | 521.6    | 393 5439    | 3543       | 0.8   | 6457      | 10  |
| 19' | 8.606 6226 | 520.1    | 11.393 3774 | 8.606 9777 | 521.0    | 11.393 0223 | 10.0003551 | 0.8   | 9.9996449 | 41' |
| 10  | 607 1427   | 519.5    | 392 8573    | 607 4987   | 520.3    | 392 5013    | 3560       | 0.8   | 6440      | 50  |
| 20  | 607 6622   | 518.9    | 392 3378    | 608 0190   | 519.8    | 391 9810    | 3568       | 0.8   | 6432      | 40  |
| 30  | 608 1811   | 518.3    | 391 8180    | 608 5388   | 519.1    | 391 4612    | 3577       | 0.8   | 6423      | 30  |
| 40  | 608 6994   | 517.7    | 391 3006    | 609 0579   | 518.5    | 390 9421    | 3585       | 0.8   | 6415      | 20  |
| 50  | 609 2171   | 517.0    | 390 7829    | 609 5764   | 517.9    | 390 4236    | 3594       | 0.8   | 6406      | 10  |
| 20' | 8.609 7341 |          | 11.390 2659 | 8.610 0943 |          | 11.389 9057 | 10.0003602 |       | 9.9996398 | 40' |
|     | co-sin.    | dif. 1'' | sec.        | co-tang.   | dif. 1'' | tang.       | co-sec.    | d.1'' | sin.      |     |

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|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
| 21' | 8.609 7341 | 516.4    | 11.390 2659 | 8.610 0943 | 517.3    | 11.389 9057 | 10.0003602 | 0.9   | 9.9996398 |
| 10  | 610 2505   | 515.8    | 389 7495    | 610 6116   | 516.7    | 389 3884    | 3611       | 0.9   | 6389 40   |
| 20  | 610 7663   | 515.2    | 389 2337    | 611 1283   | 516.0    | 388 8717    | 3620       | 0.8   | 6380 50   |
| 30  | 611 2815   | 514.6    | 388 7185    | 611 6443   | 515.5    | 388 3557    | 3628       | 0.8   | 6372 30   |
| 40  | 611 7961   | 514.0    | 388 2039    | 612 1598   | 514.8    | 387 8402    | 3637       | 0.8   | 6363 20   |
| 50  | 612 3101   | 513.4    | 387 6899    | 612 6746   | 514.3    | 387 3254    | 3645       | 0.8   | 6355 10   |
| 21' | 8.612 8235 | 512.7    | 11.387 1765 | 8.613 1889 | 513.6    | 11.386 8111 | 10.0003654 | 0.9   | 9.9996346 |
| 10  | 613 3362   | 512.2    | 386 6638    | 613 7025   | 513.0    | 386 2975    | 3653       | 0.8   | 6337 50   |
| 20  | 613 8484   | 511.5    | 386 1516    | 614 2155   | 512.4    | 385 7845    | 3671       | 0.9   | 6329 40   |
| 30  | 614 3599   | 511.0    | 385 6401    | 614 7279   | 511.8    | 385 2721    | 3680       | 0.9   | 6320 30   |
| 40  | 614 8709   | 510.3    | 385 1291    | 615 2397   | 511.2    | 384 7603    | 3689       | 0.9   | 6311 20   |
| 50  | 615 3812   | 509.8    | 384 6188    | 615 7509   | 510.7    | 384 2491    | 3697       | 0.8   | 6303 10   |
| 22' | 8.615 8910 | 509.1    | 11.384 1090 | 8.616 2616 | 510.0    | 11.383 7384 | 10.0003706 | 0.9   | 9.9996294 |
| 10  | 616 4001   | 508.6    | 383 5999    | 616 7716   | 509.4    | 383 2284    | 3715       | 0.8   | 6285 50   |
| 20  | 616 9087   | 507.9    | 383 0913    | 617 2810   | 508.8    | 382 7190    | 3723       | 0.8   | 6277 40   |
| 30  | 617 4166   | 507.4    | 382 5834    | 617 7898   | 508.3    | 382 2102    | 3732       | 0.9   | 6268 30   |
| 40  | 617 9240   | 506.7    | 382 0760    | 618 2981   | 507.6    | 381 7019    | 3741       | 0.9   | 6259 20   |
| 50  | 618 4307   | 506.2    | 381 5693    | 618 8057   | 507.0    | 381 1943    | 3750       | 0.8   | 6250 10   |
| 23' | 8.618 9369 | 505.6    | 11.381 0631 | 8.619 3127 | 506.5    | 11.380 6873 | 10.0003758 | 0.9   | 9.9996242 |
| 10  | 619 4425   | 505.0    | 380 5575    | 619 8192   | 505.9    | 380 1808    | 3767       | 0.9   | 6233 50   |
| 20  | 619 9475   | 504.4    | 380 0525    | 620 3251   | 505.3    | 379 6749    | 3776       | 0.9   | 6224 40   |
| 30  | 620 4519   | 503.8    | 379 5481    | 620 8304   | 504.7    | 379 1690    | 3785       | 0.9   | 6215 30   |
| 40  | 620 9557   | 503.2    | 379 0443    | 621 3351   | 504.1    | 378 6649    | 3794       | 0.8   | 6206 20   |
| 50  | 621 4589   | 502.7    | 378 5411    | 621 8392   | 503.5    | 378 1608    | 3802       | 0.9   | 6198 10   |
| 24' | 8.611 9616 | 502.1    | 11.378 0384 | 8.622 3427 | 503.0    | 11.377 6573 | 10.0003811 | 0.9   | 9.9996189 |
| 10  | 622 4637   | 501.5    | 377 5363    | 622 8457   | 502.3    | 377 1543    | 3820       | 0.9   | 6180 50   |
| 20  | 622 9652   | 500.9    | 377 0348    | 623 3480   | 501.8    | 376 6520    | 3829       | 0.9   | 6171 40   |
| 30  | 623 4661   | 500.3    | 376 5339    | 623 8498   | 501.3    | 376 1509    | 3838       | 0.9   | 6162 30   |
| 40  | 623 9664   | 499.8    | 376 0336    | 624 3511   | 500.6    | 375 6489    | 3847       | 0.8   | 6153 20   |
| 50  | 624 4662   | 499.1    | 375 5338    | 624 8517   | 500.0    | 375 1483    | 3855       | 0.8   | 6145 10   |
| 25' | 8.624 9653 | 498.6    | 11.375 0347 | 8.625 3518 | 499.5    | 11.374 6482 | 10.0003864 | 0.9   | 9.9996136 |
| 10  | 625 4639   | 498.1    | 374 5361    | 625 8513   | 498.9    | 374 1487    | 3873       | 0.9   | 6127 50   |
| 20  | 625 9620   | 497.4    | 374 0380    | 626 3502   | 498.3    | 373 6498    | 3882       | 0.9   | 6118 40   |
| 30  | 626 4594   | 496.9    | 373 5406    | 626 8485   | 497.8    | 373 1515    | 3891       | 0.9   | 6109 30   |
| 40  | 626 9563   | 496.4    | 373 0437    | 627 3463   | 497.2    | 372 6537    | 3900       | 0.9   | 6100 20   |
| 50  | 627 4527   | 495.7    | 372 5473    | 627 8435   | 496.7    | 372 1565    | 3909       | 0.9   | 6091 10   |
| 26' | 8.627 9484 | 495.2    | 11.372 0516 | 8.628 3402 | 496.1    | 11.371 6508 | 10.0003918 | 0.9   | 9.9996082 |
| 10  | 628 4436   | 494.6    | 371 5564    | 628 8363   | 495.5    | 371 1637    | 3927       | 0.9   | 6073 50   |
| 20  | 628 9382   | 494.1    | 371 0618    | 629 3318   | 495.0    | 370 6682    | 3936       | 0.9   | 6064 40   |
| 30  | 629 4323   | 493.5    | 370 5677    | 629 8268   | 494.3    | 370 1732    | 3945       | 0.9   | 6055 30   |
| 40  | 629 9258   | 492.9    | 370 0742    | 630 3211   | 493.7    | 369 6789    | 3954       | 0.9   | 6046 20   |
| 50  | 630 4187   | 492.4    | 369 5813    | 630 8150   | 493.0    | 369 1850    | 3963       | 0.9   | 6037 10   |
| 27' | 8.630 9111 | 491.8    | 11.369 0889 | 8.631 3083 | 492.4    | 11.368 6917 | 10.0003972 | 0.9   | 9.9996028 |
| 10  | 631 4029   | 491.3    | 368 5971    | 631 8010   | 491.7    | 368 1990    | 3981       | 0.9   | 6019 50   |
| 20  | 631 8942   | 490.7    | 368 1058    | 632 2931   | 491.1    | 367 7069    | 3990       | 0.9   | 6010 40   |
| 30  | 632 3849   | 490.1    | 367 6151    | 632 7848   | 490.5    | 367 2152    | 3999       | 0.9   | 6001 30   |
| 40  | 632 8750   | 489.6    | 367 1250    | 633 2758   | 490.0    | 366 7242    | 4008       | 0.9   | 5992 20   |
| 50  | 633 3646   | 489.1    | 366 6354    | 633 7663   | 489.4    | 366 2337    | 4017       | 0.9   | 5983 10   |
| 28' | 8.633 8537 | 488.5    | 11.366 1463 | 8.634 2563 | 488.8    | 11.365 7437 | 10.0004026 | 0.9   | 9.9995974 |
| 10  | 634 3422   | 487.9    | 365 6578    | 634 7457   | 488.2    | 365 2543    | 4035       | 0.9   | 5965 50   |
| 20  | 634 8301   | 487.4    | 365 1699    | 635 2345   | 487.6    | 364 7655    | 4044       | 0.9   | 5956 40   |
| 30  | 635 3175   | 486.8    | 364 6825    | 635 7228   | 487.0    | 364 2772    | 4053       | 0.9   | 5947 30   |
| 40  | 635 8043   | 486.3    | 364 1957    | 636 2106   | 486.4    | 363 7894    | 4062       | 0.9   | 5938 20   |
| 50  | 636 2906   | 485.7    | 363 7094    | 636 6978   | 485.8    | 363 3022    | 4071       | 0.9   | 5929 10   |
| 29' | 8.636 7764 | 485.2    | 11.363 2236 | 8.637 1845 | 485.2    | 11.362 8155 | 10.0004081 | 1.0   | 9.9995919 |
| 10  | 637 2616   | 484.7    | 362 7384    | 637 6706   | 484.6    | 362 3204    | 4090       | 0.9   | 5910 50   |
| 20  | 637 7463   | 484.1    | 362 2537    | 638 1562   | 484.0    | 361 8438    | 4099       | 0.9   | 5901 40   |
| 30  | 638 2304   | 483.6    | 361 7696    | 638 6412   | 483.4    | 361 3588    | 4108       | 0.9   | 5892 30   |
| 40  | 638 7140   | 483.1    | 361 2860    | 639 1257   | 482.8    | 360 8743    | 4117       | 0.9   | 5883 20   |
| 50  | 639 1971   | 482.5    | 360 8029    | 639 6097   | 482.2    | 360 3903    | 4126       | 0.9   | 5874 10   |
| 30' | 8.639 6796 | 482.0    | 11.360 3204 | 8.640 0931 | 481.6    | 11.359 9069 | 10.0004135 | 0.9   | 9.9995865 |

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|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.       |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|---------------|
| 30' | 8.639 6795 | 481.9    | 11.360 3204 | 8.640 0931 | 482.9    | 11.359 9069 | 10.0004135 | 1.0   | 9.9995865 30' |
| 10  | 640 1615   | 481.5    | 359 8385    | 640 5760   | 482.4    | 359 4240    | 4145       | 0.9   | 5855 50       |
| 20  | 640 6430   | 480.9    | 359 3570    | 641 0584   | 481.8    | 358 9416    | 4154       | 0.9   | 5846 40       |
| 30  | 641 1230   | 480.4    | 358 8761    | 641 5402   | 481.3    | 358 4598    | 4163       | 0.9   | 5837 30       |
| 40  | 641 6043   | 479.8    | 358 3957    | 642 0215   | 480.8    | 357 9785    | 4172       | 0.9   | 5828 20       |
| 50  | 642 0841   | 479.3    | 357 9159    | 642 5023   | 480.2    | 357 4977    | 4182       | 0.9   | 5818 10       |
| 31' | 8.642 5634 | 478.8    | 11.357 4366 | 8.642 9825 | 479.7    | 11.357 0175 | 10.0004191 | 1.0   | 9.9995809 29' |
| 10  | 643 0422   | 478.2    | 356 9578    | 643 4622   | 479.2    | 356 5378    | 4200       | 0.9   | 5800 50       |
| 20  | 643 5204   | 477.8    | 356 4796    | 643 9414   | 478.6    | 356 0586    | 4209       | 1.0   | 5791 40       |
| 30  | 643 9982   | 477.2    | 356 0018    | 644 4200   | 478.2    | 355 5800    | 4219       | 0.9   | 5781 30       |
| 40  | 644 4754   | 476.6    | 355 5246    | 644 8982   | 477.6    | 355 1018    | 4228       | 0.9   | 5772 20       |
| 50  | 644 9520   | 476.2    | 355 0480    | 645 3758   | 477.0    | 354 6242    | 4237       | 1.0   | 5763 10       |
| 32' | 8.645 4288 | 475.6    | 11.354 5718 | 8.645 8518 | 476.5    | 11.354 1477 | 10.0004246 | 1.0   | 9.9995753 28' |
| 10  | 645 9038   | 475.0    | 354 0924    | 646 3294   | 476.0    | 353 6706    | 4256       | 0.9   | 5744 50       |
| 20  | 646 3780   | 474.6    | 353 6211    | 646 8054   | 475.6    | 353 1946    | 4265       | 0.9   | 5735 40       |
| 30  | 646 8535   | 474.1    | 353 1465    | 647 2810   | 475.0    | 352 7190    | 4275       | 0.9   | 5725 30       |
| 40  | 647 3276   | 473.5    | 352 6724    | 647 7560   | 474.5    | 352 2440    | 4284       | 0.9   | 5716 20       |
| 50  | 647 8011   | 473.1    | 352 1980    | 648 2305   | 473.9    | 351 7695    | 4293       | 1.0   | 5707 10       |
| 33' | 8.648 2742 | 472.5    | 11.351 7258 | 8.648 7044 | 473.5    | 11.351 2956 | 10.0004303 | 1.0   | 9.9995697 27' |
| 10  | 648 7467   | 472.0    | 351 2533    | 649 1779   | 472.9    | 350 8221    | 4312       | 0.9   | 5688 50       |
| 20  | 649 2187   | 471.5    | 350 7813    | 649 6508   | 472.5    | 350 3492    | 4321       | 0.9   | 5679 40       |
| 30  | 649 6902   | 471.0    | 350 3098    | 650 1233   | 471.9    | 349 8767    | 4331       | 0.9   | 5669 30       |
| 40  | 650 1612   | 470.4    | 349 8388    | 650 5952   | 471.4    | 349 4048    | 4340       | 1.0   | 5660 20       |
| 50  | 650 6316   | 470.0    | 349 3684    | 651 0666   | 470.9    | 348 9334    | 4350       | 0.9   | 5650 10       |
| 34' | 8.651 1016 | 469.4    | 11.348 8984 | 8.651 5375 | 470.4    | 11.348 4625 | 10.0004359 | 1.0   | 9.9995561 26' |
| 10  | 651 5710   | 469.0    | 348 4290    | 652 0079   | 470.0    | 347 9921    | 4369       | 0.9   | 5631 50       |
| 20  | 652 0400   | 468.4    | 347 9600    | 652 4778   | 469.9    | 347 5222    | 4378       | 0.9   | 5622 40       |
| 30  | 652 5084   | 467.9    | 347 4916    | 652 9471   | 469.3    | 347 0529    | 4387       | 0.9   | 5613 30       |
| 40  | 652 9763   | 467.4    | 347 0237    | 653 4160   | 468.9    | 346 5840    | 4397       | 0.9   | 5603 20       |
| 50  | 653 4437   | 467.0    | 346 5563    | 653 8844   | 468.4    | 346 1156    | 4406       | 1.0   | 5594 10       |
| 35' | 8.653 9107 | 466.4    | 11.346 0893 | 8.654 3522 | 467.9    | 11.345 6478 | 10.0004416 | 1.0   | 9.9995584 25' |
| 10  | 654 3771   | 465.9    | 345 6229    | 654 8196   | 467.4    | 345 1804    | 4425       | 0.9   | 5575 50       |
| 20  | 654 8430   | 465.4    | 345 1570    | 655 2865   | 466.9    | 344 7135    | 4435       | 0.9   | 5566 40       |
| 30  | 655 3084   | 464.9    | 344 6916    | 655 7528   | 466.3    | 344 2472    | 4444       | 0.9   | 5556 30       |
| 40  | 655 7733   | 464.4    | 344 2267    | 656 2187   | 465.9    | 343 7813    | 4454       | 1.0   | 5546 20       |
| 50  | 656 2377   | 464.0    | 343 7623    | 656 6841   | 465.4    | 343 3159    | 4464       | 0.9   | 5536 10       |
| 36' | 8.656 7017 | 463.4    | 11.343 2983 | 8.657 1490 | 464.9    | 11.342 8510 | 10.0004473 | 1.0   | 9.9995527 24' |
| 10  | 657 1651   | 462.9    | 342 8329    | 657 6133   | 464.3    | 342 3867    | 4483       | 0.9   | 5517 50       |
| 20  | 657 6280   | 462.4    | 342 3720    | 658 0772   | 463.9    | 341 9228    | 4492       | 0.9   | 5508 40       |
| 30  | 658 0904   | 462.0    | 341 9096    | 658 5406   | 463.4    | 341 4594    | 4502       | 0.9   | 5498 30       |
| 40  | 658 5524   | 461.4    | 341 4476    | 659 0035   | 462.9    | 340 9965    | 4511       | 0.9   | 5489 20       |
| 50  | 659 0138   | 461.0    | 340 9862    | 659 4659   | 462.4    | 340 5341    | 4521       | 1.0   | 5479 10       |
| 37' | 8.659 4748 | 460.5    | 11.340 5252 | 8.659 9279 | 461.9    | 11.340 0721 | 10.0004531 | 1.0   | 9.9995469 23' |
| 10  | 659 9353   | 459.9    | 340 0647    | 660 3893   | 461.4    | 339 6107    | 4540       | 0.9   | 5460 50       |
| 20  | 660 3952   | 459.5    | 339 6048    | 660 8502   | 460.9    | 339 1498    | 4550       | 0.9   | 5450 40       |
| 30  | 660 8547   | 459.0    | 339 1453    | 661 3107   | 460.5    | 338 6893    | 4560       | 0.9   | 5440 30       |
| 40  | 661 3137   | 458.6    | 338 6863    | 661 7707   | 460.0    | 338 2293    | 4569       | 0.9   | 5431 20       |
| 50  | 661 7723   | 458.0    | 338 2277    | 662 2301   | 459.4    | 337 7695    | 4579       | 1.0   | 5421 10       |
| 38' | 8.662 2303 | 457.5    | 11.337 7697 | 8.662 6891 | 459.0    | 11.337 3109 | 10.0004589 | 1.0   | 9.9995411 22' |
| 10  | 662 6878   | 457.1    | 337 3122    | 663 1477   | 458.6    | 336 8523    | 4598       | 0.9   | 5402 50       |
| 20  | 663 1449   | 456.6    | 336 8551    | 663 6057   | 458.0    | 336 3943    | 4608       | 0.9   | 5392 40       |
| 30  | 663 6015   | 456.1    | 336 3985    | 664 0633   | 457.6    | 335 9367    | 4618       | 0.9   | 5382 30       |
| 40  | 664 0576   | 455.6    | 335 9424    | 664 5203   | 457.0    | 335 4797    | 4627       | 0.9   | 5373 20       |
| 50  | 664 5132   | 455.2    | 335 4868    | 664 9770   | 456.7    | 335 0230    | 4637       | 1.0   | 5363 10       |
| 39' | 8.664 9684 | 454.7    | 11.335 0316 | 8.665 4331 | 456.1    | 11.334 5669 | 10.0004647 | 1.0   | 9.9995353 21' |
| 10  | 665 4231   | 454.2    | 334 5769    | 665 8887   | 455.6    | 334 1113    | 4657       | 0.9   | 5343 50       |
| 20  | 665 8773   | 453.7    | 334 1207    | 666 3439   | 455.2    | 333 6561    | 4666       | 0.9   | 5334 40       |
| 30  | 666 3310   | 453.2    | 333 6690    | 666 7986   | 454.7    | 333 2014    | 4676       | 1.0   | 5324 30       |
| 40  | 666 7842   | 452.8    | 333 2158    | 667 2528   | 454.2    | 332 7472    | 4686       | 0.9   | 5314 20       |
| 50  | 667 2370   | 452.3    | 332 7630    | 667 7066   | 453.8    | 332 2934    | 4696       | 0.9   | 5304 10       |
| 40' | 8.667 6893 | 452.3    | 11.332 3107 | 8.668 1598 | 453.2    | 11.331 8402 | 10.0004705 | 1.0   | 9.9995295 20' |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d.1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|

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|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.        |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|--------|----------------|
| 40' | 8.667 6893 | 451.8    | 11.332 3107 | 8.668 1598 | 452.9    | 11.331 8402 | 10.000 4705 | 1.0    | 9.999 5295 20' |
| 10  | 668 1411   | 451.4    | 331 8589    | 668 6127   | 452.3    | 331 3873    | 4715        | 1.0    | 5285 50        |
| 20  | 668 5925   | 450.9    | 331 4075    | 669 0650   | 451.9    | 330 9350    | 4725        | 1.0    | 5275 40        |
| 30  | 669 0432   | 450.4    | 330 9566    | 669 5169   | 451.4    | 330 4831    | 4735        | 1.0    | 5265 30        |
| 40  | 669 4938   | 449.9    | 330 5062    | 669 9683   | 450.9    | 330 0317    | 4745        | 1.0    | 5255 20        |
| 50  | 669 9437   | 449.5    | 330 0563    | 670 4192   | 450.5    | 329 5808    | 4755        | 0.9    | 5245 10        |
| 41' | 8.670 3932 | 449.0    | 11.329 6068 | 8.670 8697 | 450.0    | 11.329 1303 | 10.000 4764 | 1.0    | 9.999 5236 19' |
| 10  | 670 8422   | 448.6    | 329 1578    | 671 3197   | 449.5    | 328 6803    | 4774        | 1.0    | 5236 09        |
| 20  | 671 2908   | 448.1    | 328 7092    | 671 7692   | 449.1    | 328 2308    | 4784        | 1.0    | 5216 40        |
| 30  | 671 7389   | 447.6    | 328 2611    | 672 2183   | 448.6    | 327 7817    | 4794        | 1.0    | 5206 30        |
| 40  | 672 1865   | 447.2    | 327 8135    | 672 6669   | 448.2    | 327 3331    | 4804        | 1.0    | 5196 20        |
| 50  | 672 6337   | 446.7    | 327 3663    | 673 1151   | 447.7    | 326 8849    | 4814        | 1.0    | 5186 10        |
| 42' | 8.673 0804 | 446.2    | 11.326 9196 | 8.673 5628 | 447.2    | 11.326 4372 | 10.000 4824 | 1.0    | 9.999 5176 18' |
| 10  | 673 5266   | 445.8    | 326 4734    | 674 0100   | 446.8    | 325 9900    | 4834        | 1.0    | 5166 50        |
| 20  | 673 9722   | 445.3    | 326 0276    | 674 4568   | 446.3    | 325 5432    | 4844        | 1.0    | 5156 40        |
| 30  | 674 4177   | 444.9    | 325 5833    | 674 9031   | 445.9    | 325 0969    | 4854        | 1.0    | 5146 30        |
| 40  | 674 8626   | 444.4    | 325 1374    | 675 3490   | 445.4    | 324 6510    | 4864        | 1.0    | 5136 20        |
| 50  | 675 3070   | 444.0    | 324 6930    | 675 7944   | 444.9    | 324 2056    | 4874        | 1.0    | 5126 10        |
| 43' | 8.675 7510 | 443.5    | 11.324 2490 | 8.676 2393 | 444.4    | 11.323 7607 | 10.000 4884 | 1.0    | 9.999 5116 17' |
| 10  | 676 1945   | 443.0    | 323 8055    | 676 6839   | 444.0    | 323 3161    | 4894        | 1.0    | 5106 50        |
| 20  | 676 6375   | 442.6    | 323 3625    | 677 1279   | 443.6    | 322 8721    | 4904        | 1.0    | 5096 40        |
| 30  | 677 0801   | 442.2    | 322 9199    | 677 5715   | 443.2    | 322 4285    | 4914        | 1.0    | 5086 30        |
| 40  | 677 5223   | 441.7    | 322 4777    | 678 0147   | 442.7    | 321 9853    | 4924        | 1.0    | 5076 20        |
| 50  | 677 9646   | 441.2    | 322 0360    | 678 4573   | 442.3    | 321 5422    | 4934        | 1.0    | 5066 10        |
| 44' | 8.678 4052 | 440.8    | 11.321 5948 | 8.678 8996 | 441.8    | 11.321 1004 | 10.000 4944 | 1.0    | 9.999 5056 16' |
| 10  | 678 8460   | 440.4    | 321 1540    | 679 3414   | 441.4    | 320 6586    | 4954        | 1.0    | 5046 50        |
| 20  | 679 2862   | 439.9    | 320 7136    | 679 7828   | 440.9    | 320 2172    | 4964        | 1.0    | 5036 40        |
| 30  | 679 7263   | 439.4    | 320 2737    | 680 2237   | 440.4    | 319 7763    | 4974        | 1.0    | 5026 30        |
| 40  | 680 1657   | 439.0    | 319 8343    | 680 6641   | 440.0    | 319 3359    | 4984        | 1.0    | 5016 20        |
| 50  | 680 6047   | 438.6    | 319 3953    | 681 1042   | 439.5    | 318 8958    | 4994        | 1.0    | 5006 10        |
| 45' | 8.681 0433 | 438.1    | 11.318 9567 | 8.681 5437 | 439.0    | 11.318 4563 | 10.000 5004 | 1.0    | 9.999 4996 15' |
| 10  | 681 4814   | 437.7    | 318 5186    | 681 9829   | 438.6    | 318 0171    | 5014        | 1.1    | 4986 50        |
| 20  | 681 9191   | 437.2    | 318 0809    | 682 4216   | 438.2    | 317 5784    | 5025        | 1.0    | 4975 40        |
| 30  | 682 3563   | 436.8    | 317 6437    | 682 8598   | 437.8    | 317 1402    | 5035        | 1.0    | 4965 30        |
| 40  | 682 7931   | 436.4    | 317 2069    | 683 2976   | 437.4    | 316 7024    | 5045        | 1.0    | 4955 20        |
| 50  | 683 2295   | 435.9    | 316 7705    | 683 7350   | 436.9    | 316 2650    | 5055        | 1.0    | 4945 10        |
| 46' | 8.683 6654 | 435.5    | 11.316 3346 | 8.684 1719 | 436.5    | 11.315 8281 | 10.000 5065 | 1.0    | 9.999 4935 14' |
| 10  | 684 1009   | 435.0    | 315 8991    | 684 6084   | 436.1    | 315 3916    | 5075        | 1.1    | 4925 50        |
| 20  | 684 5359   | 434.7    | 315 4641    | 685 0445   | 435.6    | 314 9555    | 5086        | 1.0    | 4914 40        |
| 30  | 684 9706   | 434.3    | 315 0294    | 685 4801   | 435.2    | 314 5199    | 5096        | 1.0    | 4904 30        |
| 40  | 685 4047   | 433.8    | 314 5953    | 685 9153   | 434.8    | 314 0847    | 5106        | 1.0    | 4894 20        |
| 50  | 685 8385   | 433.3    | 314 1615    | 686 3501   | 434.3    | 313 6499    | 5116        | 1.0    | 4884 10        |
| 47' | 8.686 2718 | 432.8    | 11.313 7282 | 8.686 7844 | 433.8    | 11.313 2156 | 10.000 5126 | 1.1    | 9.999 4874 13' |
| 10  | 686 7046   | 432.5    | 313 2954    | 687 2183   | 433.5    | 312 7817    | 5137        | 1.0    | 4863 50        |
| 20  | 687 1371   | 432.0    | 312 8629    | 687 6518   | 433.0    | 312 3482    | 5147        | 1.0    | 4853 40        |
| 30  | 687 5691   | 431.6    | 312 4309    | 688 0848   | 432.6    | 311 9152    | 5157        | 1.0    | 4843 30        |
| 40  | 688 0007   | 431.1    | 311 9993    | 688 5174   | 432.2    | 311 4826    | 5167        | 1.1    | 4833 20        |
| 50  | 688 4318   | 430.7    | 311 5682    | 688 9496   | 431.7    | 311 0504    | 5178        | 1.0    | 4822 10        |
| 48' | 8.688 8625 | 430.3    | 11.311 1375 | 8.689 3813 | 431.3    | 11.310 6187 | 10.000 5188 | 1.0    | 9.999 4812 12' |
| 10  | 689 2928   | 429.9    | 310 7072    | 689 8126   | 430.9    | 310 1874    | 5198        | 1.1    | 4802 50        |
| 20  | 689 7227   | 429.4    | 310 2773    | 690 2435   | 430.5    | 309 7565    | 5209        | 1.0    | 4791 40        |
| 30  | 690 1521   | 429.0    | 309 8479    | 690 6740   | 430.1    | 309 3260    | 5219        | 1.0    | 4781 30        |
| 40  | 690 5811   | 428.6    | 309 4189    | 691 1041   | 429.6    | 308 8959    | 5229        | 1.1    | 4771 20        |
| 50  | 691 0097   | 428.2    | 308 9903    | 691 5337   | 429.2    | 308 4663    | 5240        | 1.0    | 4760 10        |
| 49' | 8.691 4379 | 427.7    | 11.308 5621 | 8.691 9629 | 428.8    | 11.308 0371 | 10.000 5250 | 1.0    | 9.999 4750 11' |
| 10  | 691 8656   | 427.3    | 308 1344    | 692 3917   | 428.3    | 307 6083    | 5260        | 1.1    | 4740 50        |
| 20  | 692 2929   | 426.9    | 307 7071    | 692 8200   | 427.9    | 307 1800    | 5271        | 1.0    | 4729 40        |
| 30  | 692 7198   | 426.5    | 307 2802    | 693 2479   | 427.6    | 306 7521    | 5281        | 1.0    | 4719 30        |
| 40  | 693 1463   | 426.1    | 306 8537    | 693 6755   | 427.2    | 306 3245    | 5291        | 1.1    | 4709 20        |
| 50  | 693 5724   | 425.6    | 306 4276    | 694 1026   | 426.8    | 305 8974    | 5302        | 1.0    | 4698 10        |
| 50' | 8.693 9980 |          | 11.306 0020 | 8.694 5292 |          | 11.305 4708 | 10.000 5312 |        | 9.999 4688 10' |

LOGARITHMIC SINES, TANGENTS, &c.

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|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|--------|------------|
| 50' | 8.693 9980 | 425.2    | 11.306 0020 | 8.694 5292 | 426.3    | 11.305 4708 | 10.000 5312 | 1.1    | 9.999 4688 |
| 10  | 694 4232   | 424.8    | 305 5768    | 694 9555   | 425.9    | 305 0445    | 5323        | 1.0    | 4677 50    |
| 20  | 694 8480   | 424.4    | 305 1520    | 695 3814   | 425.4    | 304 6186    | 5333        | 1.1    | 4667 40    |
| 30  | 695 2724   | 424.0    | 304 7276    | 695 8068   | 425.0    | 304 1932    | 5344        | 1.0    | 4656 30    |
| 40  | 695 6964   | 423.6    | 304 3036    | 696 2318   | 424.6    | 303 7682    | 5354        | 1.1    | 4646 20    |
| 50  | 696 1200   | 423.1    | 303 8800    | 696 6564   | 424.2    | 303 3436    | 5365        | 1.0    | 4635 10    |
| 51' | 8.696 5431 | 422.8    | 11.303 4569 | 8.697 0806 | 423.8    | 11.302 9194 | 10.000 5375 | 1.0    | 9.999 4625 |
| 10  | 696 9659   | 422.3    | 303 0341    | 697 5044   | 423.4    | 302 4956    | 5385        | 1.1    | 4615 50    |
| 20  | 697 3882   | 421.9    | 302 6118    | 697 9278   | 422.9    | 302 0722    | 5396        | 1.0    | 4604 40    |
| 30  | 697 8101   | 421.5    | 302 1899    | 698 3507   | 422.6    | 301 6493    | 5406        | 1.1    | 4594 30    |
| 40  | 698 2316   | 421.1    | 301 7684    | 698 7733   | 422.1    | 301 2267    | 5417        | 1.0    | 4583 20    |
| 50  | 698 6527   | 420.7    | 301 3473    | 699 1954   | 421.8    | 300 8046    | 5428        | 1.1    | 4572 10    |
| 52' | 8.699 0734 | 420.2    | 11.300 9266 | 8.699 6172 | 421.3    | 11.300 3828 | 10.000 5438 | 1.1    | 9.999 4562 |
| 10  | 699 4936   | 419.9    | 300 5064    | 700 0385   | 420.9    | 299 9615    | 5449        | 1.0    | 4551 80    |
| 20  | 699 9135   | 419.5    | 300 0865    | 700 4594   | 420.5    | 299 5406    | 5459        | 1.1    | 4541 40    |
| 30  | 700 3330   | 419.0    | 299 6670    | 700 8799   | 420.1    | 299 1201    | 5470        | 1.0    | 4530 30    |
| 40  | 700 7520   | 418.7    | 299 2480    | 701 3000   | 419.7    | 298 7000    | 5480        | 1.1    | 4520 20    |
| 50  | 701 1707   | 418.2    | 298 8293    | 701 7197   | 419.3    | 298 2803    | 5491        | 1.0    | 4509 10    |
| 53' | 8.701 5889 | 417.8    | 11.298 4111 | 8.702 1390 | 418.9    | 11.297 8610 | 10.000 5502 | 1.0    | 9.999 4498 |
| 10  | 702 0067   | 417.5    | 297 9933    | 702 5580   | 418.5    | 297 4420    | 5512        | 1.1    | 4488 50    |
| 20  | 702 4242   | 417.0    | 297 5758    | 702 9765   | 418.1    | 297 0235    | 5523        | 1.0    | 4477 40    |
| 30  | 702 8412   | 416.6    | 297 1588    | 703 3946   | 417.6    | 296 6054    | 5533        | 1.1    | 4467 30    |
| 40  | 703 2578   | 416.3    | 296 7422    | 703 8122   | 417.3    | 296 1878    | 5544        | 1.0    | 4456 20    |
| 50  | 703 6741   | 415.8    | 296 3259    | 704 2295   | 417.0    | 295 7705    | 5555        | 1.1    | 4445 10    |
| 54' | 8.704 0899 | 415.5    | 11.295 9101 | 8.704 6465 | 416.5    | 11.295 3535 | 10.000 5565 | 1.0    | 9.999 4435 |
| 10  | 704 5054   | 415.0    | 295 4946    | 705 0630   | 416.1    | 294 9370    | 5576        | 1.1    | 4424 50    |
| 20  | 704 9204   | 414.6    | 295 0796    | 705 4791   | 415.7    | 294 5209    | 5587        | 1.0    | 4413 40    |
| 30  | 705 3350   | 414.3    | 294 6650    | 705 8948   | 415.3    | 294 1052    | 5597        | 1.1    | 4403 30    |
| 40  | 705 7493   | 413.8    | 294 2507    | 706 3101   | 414.9    | 293 6899    | 5608        | 1.0    | 4392 20    |
| 50  | 706 1631   | 413.5    | 293 8369    | 706 7250   | 414.5    | 293 2750    | 5619        | 1.1    | 4381 10    |
| 55' | 8.706 5766 | 413.0    | 11.293 4234 | 8.707 1395 | 414.2    | 11.292 8605 | 10.000 5630 | 1.0    | 9.999 4370 |
| 10  | 706 9895   | 412.7    | 293 0104    | 707 5537   | 413.7    | 292 4463    | 5640        | 1.1    | 4360 50    |
| 20  | 707 4023   | 412.3    | 292 5977    | 707 9674   | 413.4    | 292 0326    | 5651        | 1.0    | 4349 40    |
| 30  | 707 8146   | 411.9    | 292 1854    | 708 3808   | 412.9    | 291 6192    | 5662        | 1.1    | 4338 30    |
| 40  | 708 2265   | 411.5    | 291 7735    | 708 7937   | 412.6    | 291 2063    | 5672        | 1.0    | 4328 20    |
| 50  | 708 6380   | 411.0    | 291 3620    | 709 2063   | 412.2    | 290 7937    | 5683        | 1.1    | 4317 10    |
| 56' | 8.709 0490 | 410.8    | 11.290 9110 | 8.709 6185 | 411.7    | 11.290 3815 | 10.000 5694 | 1.1    | 9.999 4306 |
| 10  | 709 4598   | 410.3    | 290 5402    | 710 0302   | 411.3    | 289 9698    | 5705        | 1.0    | 4295 50    |
| 20  | 709 8701   | 409.9    | 290 1299    | 710 4416   | 411.1    | 289 5584    | 5716        | 1.1    | 4284 40    |
| 30  | 710 2800   | 409.5    | 289 7200    | 710 8527   | 410.6    | 289 1473    | 5726        | 1.0    | 4274 30    |
| 40  | 710 6895   | 409.1    | 289 3104    | 711 2633   | 410.2    | 288 7367    | 5737        | 1.1    | 4263 20    |
| 50  | 711 0987   | 408.8    | 288 9013    | 711 6735   | 409.9    | 288 3265    | 5748        | 1.0    | 4252 10    |
| 57' | 8.711 5075 | 408.4    | 11.288 4925 | 8.712 0834 | 409.5    | 11.287 9166 | 10.000 5759 | 1.0    | 9.999 4241 |
| 10  | 711 9159   | 408.0    | 288 0841    | 712 4929   | 409.0    | 287 5071    | 5770        | 1.1    | 4230 50    |
| 20  | 712 3239   | 407.6    | 287 6761    | 712 9019   | 408.7    | 287 0981    | 5781        | 1.0    | 4219 40    |
| 30  | 712 7315   | 407.2    | 287 2685    | 713 3106   | 408.4    | 286 6894    | 5792        | 1.1    | 4208 30    |
| 40  | 713 1387   | 406.9    | 286 8613    | 713 7190   | 407.9    | 286 2810    | 5802        | 1.0    | 4198 20    |
| 50  | 713 5456   | 406.4    | 286 4544    | 714 1269   | 407.6    | 285 8731    | 5813        | 1.1    | 4187 10    |
| 58' | 8.713 9520 | 406.1    | 11.286 0480 | 8.714 5345 | 407.2    | 11.285 4655 | 10.000 5824 | 1.1    | 9.999 4176 |
| 10  | 714 3581   | 405.7    | 285 6419    | 714 9417   | 406.8    | 285 0583    | 5835        | 1.0    | 4165 50    |
| 20  | 714 7638   | 405.4    | 285 2362    | 715 3485   | 406.4    | 284 6515    | 5846        | 1.1    | 4154 40    |
| 30  | 715 1692   | 404.9    | 284 8308    | 715 7549   | 406.0    | 284 2451    | 5857        | 1.0    | 4143 30    |
| 40  | 715 5741   | 404.6    | 284 4259    | 716 1609   | 405.7    | 283 8391    | 5868        | 1.1    | 4132 20    |
| 50  | 715 9787   | 404.2    | 284 0213    | 716 5666   | 405.3    | 283 4334    | 5879        | 1.0    | 4121 10    |
| 59' | 8.716 3829 | 403.8    | 11.283 6171 | 8.716 9719 | 404.9    | 11.283 0281 | 10.000 5890 | 1.0    | 9.999 4110 |
| 10  | 716 7867   | 403.4    | 283 2133    | 717 3768   | 404.5    | 282 6232    | 5901        | 1.1    | 4099 50    |
| 20  | 717 1901   | 403.1    | 282 8099    | 717 7813   | 404.2    | 282 2187    | 5912        | 1.0    | 4088 40    |
| 30  | 717 5932   | 402.7    | 282 4068    | 718 1855   | 403.8    | 281 8145    | 5923        | 1.1    | 4077 30    |
| 40  | 717 9959   | 402.3    | 282 0041    | 718 5893   | 403.4    | 281 4107    | 5934        | 1.0    | 4066 20    |
| 50  | 718 3982   | 402.0    | 281 6018    | 718 9927   | 403.1    | 281 0073    | 5945        | 1.1    | 4055 10    |
| 60' | 8.718 8002 | 401.5    | 11.281 1998 | 8.719 3958 | 402.7    | 11.280 6042 | 10.000 5956 | 1.0    | 9.999 4044 |

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|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d. 1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|--------|------|
|--|---------|----------|------|----------|----------|-------|---------|--------|------|



|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d. 1'' | co-sin.   |
|-----|------------|----------|-------------|------------|----------|-------------|------------|--------|-----------|
| 0'  | 8.718 8002 |          | 11.281 1998 | 8.719 3958 |          | 11.280 6042 | 10.0005956 |        | 9.9994044 |
| 10  | 719 2017   | 401.5    | 280 7983    | 719 7984   | 402.6    | 280 2016    | 5967       | 1.1    | 4033 50   |
| 20  | 719 6029   | 401.2    | 280 3971    | 720 2007   | 402.3    | 279 7993    | 5978       | 1.1    | 4022 40   |
| 30  | 720 0038   | 400.9    | 279 9962    | 720 6027   | 402.0    | 279 3973    | 5989       | 1.1    | 4011 30   |
| 40  | 720 4042   | 400.4    | 279 5958    | 721 0042   | 401.5    | 278 9958    | 6000       | 1.1    | 4000 20   |
| 50  | 720 8043   | 400.1    | 279 1957    | 721 4054   | 401.2    | 278 5946    | 6011       | 1.1    | 3989 10   |
| 1'  | 8.721 2040 | 399.7    | 11.278 7960 | 8.721 8063 | 400.9    | 11.278 1937 | 10.0006022 | 1.1    | 9.9993978 |
| 10  | 721 6034   | 399.4    | 278 3966    | 722 2067   | 400.4    | 277 7933    | 6033       | 1.1    | 3967 50   |
| 20  | 722 0024   | 399.0    | 277 9976    | 722 6068   | 400.1    | 277 3932    | 6045       | 1.2    | 3955 40   |
| 30  | 722 4010   | 398.6    | 277 5990    | 723 0065   | 399.7    | 276 9935    | 6056       | 1.1    | 3944 30   |
| 40  | 722 7992   | 398.2    | 277 2008    | 723 4059   | 399.4    | 276 5941    | 6067       | 1.1    | 3933 20   |
| 50  | 723 1971   | 397.9    | 276 8029    | 723 8049   | 399.0    | 276 1951    | 6078       | 1.1    | 3922 10   |
| 2'  | 8.723 5946 | 397.5    | 11.276 4054 | 8.724 2035 | 398.6    | 11.275 9965 | 10.0006089 | 1.1    | 9.9993911 |
| 10  | 723 9918   | 397.2    | 276 0082    | 724 6018   | 398.3    | 275 3982    | 6100       | 1.1    | 3900 50   |
| 20  | 724 3886   | 396.8    | 275 6114    | 724 9997   | 397.9    | 275 0003    | 6111       | 1.2    | 3889 40   |
| 30  | 724 7850   | 396.4    | 275 2150    | 725 3972   | 397.5    | 274 6028    | 6123       | 1.1    | 3877 30   |
| 40  | 725 1810   | 396.0    | 274 8190    | 725 7944   | 397.2    | 274 2056    | 6134       | 1.1    | 3866 20   |
| 50  | 725 5767   | 395.7    | 274 4233    | 726 1912   | 396.8    | 273 8088    | 6145       | 1.1    | 3855 10   |
| 3'  | 8.725 9721 | 395.4    | 11.274 0279 | 8.726 5677 | 396.5    | 11.273 4123 | 10.0006156 | 1.1    | 9.9993844 |
| 10  | 726 3671   | 395.0    | 273 6329    | 726 9838   | 396.1    | 273 0162    | 6167       | 1.1    | 3833 50   |
| 20  | 726 7617   | 394.6    | 273 2383    | 727 3795   | 395.7    | 272 6205    | 6179       | 1.2    | 3821 40   |
| 30  | 727 1559   | 394.2    | 272 8441    | 727 7749   | 395.4    | 272 2251    | 6190       | 1.1    | 3810 30   |
| 40  | 727 5498   | 393.9    | 272 4502    | 728 1700   | 395.1    | 271 8300    | 6201       | 1.1    | 3799 20   |
| 50  | 727 9434   | 393.6    | 272 0566    | 728 5646   | 394.6    | 271 4354    | 6212       | 1.2    | 3788 10   |
| 4'  | 8.728 3366 | 393.2    | 11.271 6634 | 8.728 9589 | 394.3    | 11.271 0411 | 10.0006224 | 1.1    | 9.9993776 |
| 10  | 728 7294   | 392.8    | 271 2706    | 729 3529   | 394.0    | 270 6471    | 6235       | 1.1    | 3765 50   |
| 20  | 729 1219   | 392.5    | 270 8781    | 729 7465   | 393.6    | 270 2535    | 6246       | 1.2    | 3754 40   |
| 30  | 729 5140   | 392.1    | 270 4860    | 730 1397   | 393.2    | 269 8603    | 6258       | 1.1    | 3742 30   |
| 40  | 729 9057   | 391.7    | 270 0943    | 730 5326   | 392.9    | 269 4674    | 6269       | 1.1    | 3731 20   |
| 50  | 730 2972   | 391.5    | 269 7028    | 730 9252   | 392.6    | 269 0748    | 6280       | 1.1    | 3720 10   |
| 5'  | 8.730 6882 | 391.0    | 11.269 3118 | 8.731 3174 | 392.2    | 11.268 6826 | 10.0006292 | 1.1    | 9.9993708 |
| 10  | 731 0789   | 390.7    | 268 9211    | 731 7092   | 391.8    | 268 2908    | 6303       | 1.1    | 3697 50   |
| 20  | 731 4693   | 390.4    | 268 5307    | 732 1007   | 391.5    | 267 8993    | 6314       | 1.1    | 3686 40   |
| 30  | 731 8593   | 390.0    | 268 1407    | 732 4918   | 391.1    | 267 5082    | 6326       | 1.2    | 3674 30   |
| 40  | 732 2489   | 389.6    | 267 7511    | 732 8826   | 390.8    | 267 1174    | 6337       | 1.1    | 3663 20   |
| 50  | 732 6382   | 389.3    | 267 3618    | 733 2730   | 390.4    | 266 7270    | 6348       | 1.1    | 3652 10   |
| 6'  | 8.733 0272 | 389.0    | 11.266 9728 | 8.733 6631 | 390.1    | 11.266 3369 | 10.0006360 | 1.1    | 9.9993640 |
| 10  | 733 4157   | 388.3    | 266 5843    | 734 0529   | 389.8    | 266 9471    | 6371       | 1.2    | 3639 50   |
| 20  | 733 8040   | 388.0    | 266 1960    | 734 4423   | 389.4    | 266 5577    | 6383       | 1.1    | 3627 40   |
| 30  | 734 1919   | 387.9    | 265 8081    | 734 8313   | 389.0    | 266 1687    | 6394       | 1.2    | 3616 30   |
| 40  | 734 5795   | 387.6    | 265 4205    | 735 2200   | 388.7    | 265 7800    | 6406       | 1.1    | 3604 20   |
| 50  | 734 9667   | 387.2    | 265 0333    | 735 6084   | 388.4    | 265 3916    | 6417       | 1.1    | 3593 10   |
| 7'  | 8.735 3535 | 386.8    | 11.264 6465 | 8.735 9964 | 388.0    | 11.264 0036 | 10.0006428 | 1.1    | 9.9993573 |
| 10  | 735 7400   | 386.5    | 264 2600    | 736 3840   | 387.6    | 265 6160    | 6440       | 1.2    | 3560 50   |
| 20  | 736 1262   | 386.2    | 263 8738    | 736 7714   | 387.4    | 265 2286    | 6451       | 1.1    | 3549 40   |
| 30  | 736 5120   | 385.8    | 263 4880    | 737 1583   | 386.9    | 264 8417    | 6463       | 1.2    | 3537 30   |
| 40  | 736 8975   | 385.5    | 263 1025    | 737 5450   | 386.7    | 264 4550    | 6474       | 1.1    | 3526 20   |
| 50  | 737 2827   | 385.2    | 262 7173    | 737 9313   | 386.3    | 264 0687    | 6486       | 1.2    | 3514 10   |
| 8'  | 8.737 6675 | 384.8    | 11.262 3325 | 8.738 3172 | 385.9    | 11.261 6828 | 10.0006497 | 1.1    | 9.9993503 |
| 10  | 738 0519   | 384.4    | 261 9481    | 738 7028   | 385.6    | 261 2972    | 6509       | 1.2    | 3491 50   |
| 20  | 738 4360   | 384.1    | 261 5640    | 739 0881   | 385.3    | 260 9119    | 6520       | 1.1    | 3480 40   |
| 30  | 738 8198   | 383.8    | 261 1809    | 739 4730   | 384.9    | 260 5270    | 6532       | 1.2    | 3468 30   |
| 40  | 739 2033   | 383.5    | 260 7967    | 739 8576   | 384.6    | 260 1424    | 6544       | 1.1    | 3456 20   |
| 50  | 739 5864   | 383.1    | 260 4136    | 740 2419   | 384.3    | 259 7581    | 6555       | 1.2    | 3445 10   |
| 9'  | 8.739 9691 | 382.7    | 11.260 0309 | 8.740 6258 | 383.9    | 11.259 3742 | 10.0006567 | 1.1    | 9.9993433 |
| 10  | 740 3515   | 382.4    | 259 6485    | 741 0094   | 383.6    | 258 9906    | 6578       | 1.2    | 3422 50   |
| 20  | 740 7336   | 382.1    | 259 2664    | 741 3926   | 383.2    | 258 6074    | 6590       | 1.1    | 3410 40   |
| 30  | 741 1154   | 381.8    | 258 8846    | 741 7755   | 382.9    | 258 2245    | 6602       | 1.2    | 3398 30   |
| 40  | 741 4968   | 381.4    | 258 5032    | 742 1581   | 382.6    | 257 8419    | 6613       | 1.1    | 3387 20   |
| 50  | 741 8779   | 381.1    | 258 1221    | 742 5403   | 382.2    | 257 4597    | 6625       | 1.2    | 3375 10   |
| 10' | 8.742 2586 | 380.7    | 11.257 7414 | 8.742 9222 | 381.9    | 11.257 0778 | 10.0006636 | 1.1    | 9.9993364 |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d. 1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|--------|------|
|--|---------|----------|------|----------|----------|-------|---------|--------|------|



LOGARITHMIC SINES, TANGENTS, &c.

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|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
| 10° | 8.742 2586 | 380.4    | 11.257 7414 | 8.742 9222 | 381.6    | 11.257 0778 | 10.0006636 | 1.2   | 9.9993364 |
| 10  | 742 6391   | 380.1    | 257 3610    | 743 3038   | 381.2    | 256 6962    | 6648       | 1.2   | 3352 50   |
| 20  | 743 0191   | 379.7    | 256 9809    | 743 6850   | 381.0    | 256 3150    | 6660       | 1.1   | 3340 40   |
| 30  | 743 3988   | 379.4    | 256 6012    | 744 0660   | 380.5    | 255 9340    | 6671       | 1.2   | 3329 30   |
| 40  | 744 7782   | 379.1    | 255 8427    | 744 4465   | 380.3    | 255 5535    | 6683       | 1.2   | 2317 20   |
| 50  | 744 573    | 378.7    | 255 8427    | 744 8268   | 380.3    | 255 1732    | 6695       | 1.2   | 3305 10   |
| 11° | 8.744 5361 | 378.4    | 11.255 4640 | 8.745 2067 | 379.9    | 11.254 7933 | 10.0006707 | 1.1   | 9.9993293 |
| 10  | 744 9144   | 378.1    | 255 0856    | 745 5863   | 379.2    | 254 4137    | 6718       | 1.2   | 3282 50   |
| 20  | 745 2925   | 377.8    | 254 7075    | 745 9655   | 378.9    | 254 0345    | 6730       | 1.2   | 3270 40   |
| 30  | 745 6703   | 377.4    | 254 3297    | 746 3444   | 378.9    | 253 6556    | 6742       | 1.2   | 3258 30   |
| 40  | 746 0477   | 377.1    | 253 9523    | 746 7230   | 378.3    | 253 2770    | 6753       | 1.2   | 3247 20   |
| 50  | 746 4248   | 376.7    | 253 5752    | 747 1013   | 377.9    | 252 8987    | 6765       | 1.2   | 3235 10   |
| 12° | 8.746 8015 | 376.5    | 11.253 1985 | 8.747 4792 | 377.7    | 11.252 5208 | 10.0006777 | 1.2   | 9.9993223 |
| 10  | 747 1780   | 376.1    | 252 8220    | 747 8569   | 377.2    | 252 1431    | 6789       | 1.2   | 3211 50   |
| 20  | 747 5541   | 375.8    | 252 4459    | 748 2341   | 377.0    | 251 7659    | 6801       | 1.1   | 3199 40   |
| 30  | 747 9299   | 375.4    | 252 0701    | 748 6111   | 376.6    | 251 3889    | 6812       | 1.2   | 3188 30   |
| 40  | 748 3053   | 375.2    | 251 6947    | 748 9877   | 376.4    | 251 0123    | 6824       | 1.2   | 3176 20   |
| 50  | 748 6805   | 374.8    | 251 3195    | 749 3641   | 375.9    | 250 6359    | 6836       | 1.2   | 3164 10   |
| 13° | 8.749 0553 | 374.4    | 11.250 9447 | 8.749 7400 | 375.7    | 11.250 2600 | 10.0006848 | 1.2   | 9.9993152 |
| 10  | 749 4297   | 374.2    | 250 5703    | 750 1157   | 375.4    | 249 8843    | 6860       | 1.1   | 3140 50   |
| 20  | 749 8039   | 373.8    | 250 1961    | 750 4911   | 375.0    | 249 5089    | 6871       | 1.2   | 3129 40   |
| 30  | 750 1777   | 373.6    | 249 8223    | 750 8661   | 374.7    | 249 1339    | 6883       | 1.2   | 3117 30   |
| 40  | 750 5513   | 373.3    | 249 4487    | 751 2408   | 374.4    | 248 7592    | 6895       | 1.2   | 3105 20   |
| 50  | 750 9244   | 372.9    | 249 0756    | 751 6152   | 374.0    | 248 3848    | 6907       | 1.2   | 3093 10   |
| 14° | 8.751 2974 | 372.6    | 11.248 7027 | 8.751 9892 | 373.7    | 11.248 0108 | 10.0006919 | 1.2   | 9.9993081 |
| 10  | 751 6699   | 372.2    | 248 3301    | 752 3629   | 373.5    | 247 6371    | 6931       | 1.2   | 3069 50   |
| 20  | 752 0421   | 371.9    | 247 9579    | 752 7364   | 373.1    | 247 2636    | 6943       | 1.2   | 3057 40   |
| 30  | 752 4140   | 371.6    | 247 5860    | 753 1095   | 372.8    | 246 8905    | 6955       | 1.2   | 3045 30   |
| 40  | 752 7856   | 371.3    | 247 2144    | 753 4823   | 372.4    | 246 5177    | 6967       | 1.2   | 3033 20   |
| 50  | 753 1569   | 370.9    | 246 8431    | 753 8547   | 372.2    | 246 1453    | 6979       | 1.2   | 3021 10   |
| 15° | 8.753 5278 | 370.6    | 11.246 4722 | 8.754 2269 | 371.9    | 11.245 7731 | 10.0006991 | 1.1   | 9.9993009 |
| 10  | 753 8984   | 370.4    | 246 1016    | 754 5987   | 371.5    | 245 4013    | 7002       | 1.2   | 2998 50   |
| 20  | 754 2688   | 370.0    | 245 7312    | 754 9702   | 371.2    | 245 0298    | 7014       | 1.2   | 2986 40   |
| 30  | 754 6388   | 369.7    | 245 3612    | 755 3414   | 370.9    | 244 6586    | 7026       | 1.2   | 2974 30   |
| 40  | 755 0085   | 369.3    | 244 9915    | 755 7123   | 370.6    | 244 2877    | 7038       | 1.2   | 2962 20   |
| 50  | 755 3778   | 369.1    | 244 6222    | 756 0829   | 370.2    | 243 9171    | 7050       | 1.2   | 2950 10   |
| 16° | 8.755 7469 | 368.7    | 11.244 2531 | 8.756 4531 | 370.0    | 11.243 5469 | 10.0007062 | 1.2   | 9.9992938 |
| 10  | 756 1156   | 368.4    | 243 8844    | 756 8231   | 369.6    | 243 1760    | 7074       | 1.2   | 2926 50   |
| 20  | 756 4840   | 368.2    | 243 5160    | 757 1927   | 369.3    | 242 8073    | 7086       | 1.3   | 2914 40   |
| 30  | 756 8522   | 367.8    | 243 1478    | 757 5620   | 369.0    | 242 4380    | 7099       | 1.2   | 2901 30   |
| 40  | 757 2202   | 367.4    | 242 7800    | 757 9310   | 368.7    | 242 0690    | 7111       | 1.2   | 2889 20   |
| 50  | 757 5874   | 367.2    | 242 4126    | 758 2997   | 368.4    | 241 7003    | 7123       | 1.2   | 2877 10   |
| 17° | 8.757 9540 | 366.9    | 11.242 0454 | 8.758 6681 | 368.1    | 11.241 3310 | 10.0007135 | 1.2   | 9.9992865 |
| 10  | 758 3215   | 366.5    | 241 6785    | 759 0362   | 367.7    | 240 9638    | 7147       | 1.2   | 2853 50   |
| 20  | 758 6880   | 366.3    | 241 3120    | 759 4039   | 367.5    | 240 5961    | 7159       | 1.2   | 2841 40   |
| 30  | 759 0543   | 365.9    | 240 9457    | 759 7714   | 367.1    | 240 2286    | 7171       | 1.2   | 2829 30   |
| 40  | 759 4202   | 365.7    | 240 5798    | 760 1385   | 366.9    | 239 8615    | 7183       | 1.2   | 2817 20   |
| 50  | 759 7859   | 365.3    | 240 2141    | 760 5054   | 366.5    | 239 4946    | 7195       | 1.2   | 2805 10   |
| 18° | 8.760 1512 | 365.0    | 11.239 8488 | 8.760 8719 | 366.2    | 11.239 1281 | 10.0007207 | 1.3   | 9.9992793 |
| 10  | 760 5162   | 364.7    | 239 4838    | 761 2381   | 365.9    | 238 7619    | 7220       | 1.2   | 2780 50   |
| 20  | 760 8800   | 364.4    | 239 1191    | 761 6040   | 365.7    | 238 3966    | 7232       | 1.2   | 2768 40   |
| 30  | 761 2453   | 364.1    | 238 7547    | 761 9697   | 365.3    | 238 0303    | 7244       | 1.2   | 2756 30   |
| 40  | 761 6094   | 363.7    | 238 3906    | 762 3350   | 365.0    | 237 6650    | 7256       | 1.2   | 2744 20   |
| 50  | 761 9731   | 363.5    | 238 0269    | 762 7000   | 364.7    | 237 3000    | 7268       | 1.2   | 2732 10   |
| 19° | 8.762 3366 | 363.2    | 11.237 6634 | 8.763 0647 | 364.4    | 11.236 9353 | 10.0007280 | 1.3   | 9.9992720 |
| 10  | 762 6998   | 362.9    | 237 3002    | 763 4291   | 364.0    | 236 5709    | 7293       | 1.2   | 2707 50   |
| 20  | 763 0627   | 362.5    | 236 9373    | 763 7931   | 363.8    | 236 2069    | 7305       | 1.2   | 2695 40   |
| 30  | 763 4252   | 362.3    | 236 5748    | 764 1569   | 363.5    | 235 8431    | 7317       | 1.2   | 2683 30   |
| 40  | 763 7875   | 361.9    | 236 2125    | 764 5204   | 363.2    | 235 4796    | 7329       | 1.3   | 2671 20   |
| 50  | 764 1494   | 361.7    | 235 8506    | 764 8836   | 362.9    | 235 1164    | 7342       | 1.2   | 2658 10   |
| 20° | 8.764 5111 | 361.4    | 11.235 4889 | 8.765 2465 | 362.6    | 11.234 7535 | 10.0007354 | 1.2   | 9.9992646 |

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| 3°  |            |          |             |            |          |             |            |       |           | 176° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 20' | 8.764 5111 | 361.3    | 11.235 4889 | 8.765 2465 | 362.6    | 11.234 7535 | 10.0007354 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 764 8724   | 361.1    | 235 1276    | 765 6091   | 362.2    | 234 3909    | 7366       | 1.2   | 9.9992646 | 40   |  |  |  |  |  |  |  |  |  |
| 20  | 765 2335   | 360.8    | 234 7665    | 765 9713   | 362.0    | 234 0287    | 7378       | 1.2   | 2634      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 765 5943   | 360.4    | 234 4057    | 766 3333   | 361.7    | 233 6667    | 7391       | 1.3   | 2622      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 765 9547   | 360.2    | 234 0453    | 766 6950   | 361.4    | 233 3050    | 7403       | 1.2   | 2609      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 766 3149   | 359.8    | 233 6851    | 767 0564   | 361.1    | 232 9436    | 7415       | 1.2   | 2597      | 20   |  |  |  |  |  |  |  |  |  |
| 21' | 8.766 6747 | 359.6    | 11.233 3253 | 8.767 4175 | 360.7    | 11.232 5825 | 10.0007428 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 767 0343   | 359.2    | 232 9657    | 767 7782   | 360.5    | 232 2218    | 7428       | 1.2   | 9.9992572 | 39'  |  |  |  |  |  |  |  |  |  |
| 20  | 767 3935   | 359.0    | 232 6065    | 768 1387   | 360.2    | 231 8613    | 7452       | 1.2   | 2560      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 767 7525   | 358.6    | 232 2475    | 768 4989   | 359.9    | 231 5011    | 7465       | 1.2   | 2548      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 768 1111   | 358.4    | 231 8889    | 768 8588   | 359.6    | 231 1412    | 7477       | 1.2   | 2535      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 768 4695   | 358.0    | 231 5305    | 769 2184   | 359.3    | 230 7816    | 7489       | 1.2   | 2523      | 20   |  |  |  |  |  |  |  |  |  |
| 22' | 8.768 8275 | 357.8    | 11.231 1725 | 8.769 5777 | 359.0    | 11.230 4223 | 10.0007502 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 769 1853   | 357.5    | 230 8147    | 769 9367   | 358.7    | 230 0633    | 7514       | 1.2   | 9.9992498 | 38'  |  |  |  |  |  |  |  |  |  |
| 20  | 769 5428   | 357.2    | 230 4572    | 770 2954   | 358.5    | 229 7046    | 7526       | 1.2   | 2486      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 769 9000   | 356.8    | 230 1000    | 770 6539   | 358.2    | 229 3461    | 7539       | 1.3   | 2474      | 40   |  |  |  |  |  |  |  |  |  |
| 40  | 770 2568   | 356.6    | 229 7432    | 771 0120   | 357.9    | 228 9880    | 7551       | 1.2   | 2461      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 770 6134   | 356.3    | 229 3866    | 771 3698   | 357.6    | 228 6302    | 7564       | 1.2   | 2449      | 20   |  |  |  |  |  |  |  |  |  |
| 23' | 8.770 9697 | 356.0    | 11.229 0303 | 8.771 7274 | 357.3    | 11.228 2726 | 10.0007576 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 771 3257   | 355.7    | 228 6743    | 772 0846   | 357.0    | 227 9154    | 7589       | 1.2   | 9.9992424 | 37'  |  |  |  |  |  |  |  |  |  |
| 20  | 771 6814   | 355.5    | 228 3186    | 772 4416   | 356.7    | 227 5584    | 7601       | 1.2   | 2411      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 772 0369   | 355.1    | 227 9631    | 772 7982   | 356.4    | 227 2018    | 7614       | 1.2   | 2399      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 772 3920   | 354.8    | 227 6080    | 773 1546   | 356.1    | 226 8454    | 7626       | 1.2   | 2386      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 772 7468   | 354.6    | 227 2532    | 773 5107   | 355.8    | 226 4893    | 7639       | 1.2   | 2374      | 20   |  |  |  |  |  |  |  |  |  |
| 24' | 8.773 1014 | 354.2    | 11.226 8986 | 8.773 8665 | 355.5    | 11.226 1335 | 10.0007651 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 773 4556   | 354.0    | 226 5444    | 774 2220   | 355.2    | 225 7780    | 7664       | 1.2   | 9.9992349 | 36'  |  |  |  |  |  |  |  |  |  |
| 20  | 773 8096   | 353.7    | 226 1904    | 774 5772   | 354.9    | 225 4228    | 7676       | 1.2   | 2336      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 774 1633   | 353.3    | 225 8367    | 774 9321   | 354.7    | 225 0679    | 7689       | 1.2   | 2324      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 774 5166   | 353.1    | 225 4834    | 775 2868   | 354.4    | 224 7132    | 7701       | 1.2   | 2311      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 774 8697   | 352.9    | 225 1303    | 775 6411   | 354.1    | 224 3589    | 7714       | 1.2   | 2299      | 20   |  |  |  |  |  |  |  |  |  |
| 25' | 8.775 2226 | 352.5    | 11.224 7774 | 8.775 9952 | 353.8    | 11.224 0048 | 10.0007726 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 775 5751   | 352.2    | 224 4249    | 776 3490   | 353.5    | 223 6510    | 7739       | 1.2   | 9.9992274 | 35'  |  |  |  |  |  |  |  |  |  |
| 20  | 775 9273   | 352.0    | 224 0727    | 776 7025   | 353.2    | 223 2975    | 7751       | 1.2   | 2261      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 776 2793   | 351.6    | 223 7207    | 777 0557   | 352.9    | 222 9443    | 7764       | 1.2   | 2249      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 776 6309   | 351.4    | 223 3691    | 777 4086   | 352.6    | 222 5914    | 7777       | 1.2   | 2236      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 776 9823   | 351.1    | 223 0177    | 777 7612   | 352.4    | 222 2388    | 7789       | 1.2   | 2223      | 20   |  |  |  |  |  |  |  |  |  |
| 26' | 8.777 3334 | 350.8    | 11.222 6666 | 8.778 1136 | 352.1    | 11.221 8864 | 10.0007807 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 777 6842   | 350.5    | 222 3158    | 778 4657   | 351.8    | 221 5343    | 7815       | 1.2   | 9.9992198 | 34'  |  |  |  |  |  |  |  |  |  |
| 20  | 778 0347   | 350.3    | 221 9653    | 778 8175   | 351.5    | 221 1825    | 7827       | 1.2   | 2185      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 778 3850   | 349.9    | 221 6150    | 779 1690   | 351.2    | 220 8310    | 7840       | 1.2   | 2173      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 778 7349   | 349.7    | 221 2651    | 779 5202   | 350.9    | 220 4798    | 7853       | 1.2   | 2160      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 779 0846   | 349.4    | 220 9154    | 779 8711   | 350.7    | 220 1289    | 7865       | 1.2   | 2147      | 20   |  |  |  |  |  |  |  |  |  |
| 27' | 8.779 4340 | 349.1    | 11.220 5660 | 8.780 2218 | 350.4    | 11.219 7782 | 10.0007878 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 779 7831   | 348.8    | 220 2169    | 780 5722   | 350.1    | 219 4277    | 7891       | 1.2   | 9.9992122 | 33'  |  |  |  |  |  |  |  |  |  |
| 20  | 780 1319   | 348.6    | 219 8681    | 780 9223   | 349.8    | 219 0778    | 7903       | 1.2   | 2109      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 780 4805   | 348.2    | 219 5195    | 781 2721   | 349.5    | 218 7279    | 7916       | 1.2   | 2097      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 780 8287   | 348.0    | 219 1713    | 781 6216   | 349.3    | 218 3784    | 7929       | 1.2   | 2084      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 781 1767   | 347.7    | 218 8233    | 781 9709   | 349.0    | 218 0291    | 7941       | 1.2   | 2071      | 20   |  |  |  |  |  |  |  |  |  |
| 28' | 8.781 5244 | 347.5    | 11.218 4756 | 8.782 3199 | 348.7    | 11.217 6801 | 10.0007954 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 781 8719   | 347.1    | 218 1281    | 782 6686   | 348.4    | 217 3314    | 7967       | 1.2   | 9.9992066 | 32'  |  |  |  |  |  |  |  |  |  |
| 20  | 782 2190   | 346.9    | 217 7810    | 783 0170   | 348.1    | 216 9830    | 7980       | 1.2   | 2059      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 782 5659   | 346.6    | 217 4341    | 783 3651   | 347.9    | 216 6349    | 7993       | 1.2   | 2033      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 782 9125   | 346.3    | 217 0875    | 783 7130   | 347.6    | 216 2870    | 8005       | 1.2   | 2020      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 783 2588   | 346.0    | 216 7412    | 784 0606   | 347.3    | 215 9394    | 8018       | 1.2   | 2007      | 20   |  |  |  |  |  |  |  |  |  |
| 29' | 8.783 6048 | 345.8    | 11.216 3952 | 8.784 4079 | 347.1    | 11.215 5921 | 10.0008031 |       |           |      |  |  |  |  |  |  |  |  |  |
| 10  | 783 9506   | 345.5    | 216 0494    | 784 7550   | 346.7    | 215 2450    | 8044       | 1.2   | 9.9991960 | 31'  |  |  |  |  |  |  |  |  |  |
| 20  | 784 2961   | 345.2    | 215 7039    | 785 1017   | 346.5    | 214 8983    | 8057       | 1.2   | 1956      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 784 6413   | 344.9    | 215 3587    | 785 4482   | 346.2    | 214 5518    | 8069       | 1.2   | 1943      | 46   |  |  |  |  |  |  |  |  |  |
| 40  | 784 9862   | 344.7    | 215 0138    | 785 7945   | 345.9    | 214 2055    | 8082       | 1.2   | 1931      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 785 3309   | 344.4    | 214 6691    | 786 1404   | 345.7    | 213 8596    | 8095       | 1.2   | 1918      | 20   |  |  |  |  |  |  |  |  |  |
| 30' | 8.785 6753 | 344.0    | 11.214 3247 | 8.786 4861 | 345.4    | 11.213 5139 | 10.0008108 |       |           |      |  |  |  |  |  |  |  |  |  |
|     | co-sin.    | dif. 1'' | sec.        | co-tang.   | dif. 1'' | tang.       | co-sec.    | d.1'' | sin.      |      |  |  |  |  |  |  |  |  |  |

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|    | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |
|----|------------|-----------|-------------|------------|-----------|-------------|------------|-------|-----------|
| 33 | 8.785 6753 | 344.1     | 11.214 3247 | 8.786 4861 | 345.4     | 11.213 5139 | 10.0008108 | 1.3   | 9.9991822 |
| 10 | 786 0104   | 343.8     | 213 9806    | 786 8315   | 345.1     | 213 1685    | 8121       | 1.3   | 1879 50   |
| 20 | 786 3632   | 343.6     | 213 6368    | 787 1766   | 344.9     | 212 8234    | 8134       | 1.3   | 1866 40   |
| 30 | 786 7068   | 343.3     | 213 2932    | 787 5215   | 344.6     | 212 4785    | 8147       | 1.3   | 1853 30   |
| 40 | 787 0501   | 343.0     | 212 9499    | 787 8661   | 344.3     | 212 1339    | 8160       | 1.3   | 1840 20   |
| 50 | 787 3931   | 342.8     | 212 6069    | 788 2104   | 344.0     | 211 7896    | 8173       | 1.3   | 1827 10   |
| 31 | 787 7359   | 342.4     | 11.212 2641 | 8.788 5544 | 343.8     | 11.211 4456 | 10.0008185 | 1.3   | 9.9991815 |
| 10 | 788 0783   | 342.2     | 211 9217    | 788 8982   | 343.5     | 211 1018    | 8198       | 1.3   | 1802 50   |
| 20 | 788 4205   | 342.0     | 211 5795    | 789 2417   | 343.2     | 210 7583    | 8211       | 1.3   | 1789 40   |
| 30 | 788 7625   | 341.6     | 211 2375    | 789 5849   | 343.0     | 210 4151    | 8224       | 1.3   | 1776 30   |
| 40 | 789 1041   | 341.4     | 210 8959    | 789 9279   | 342.7     | 210 0721    | 8237       | 1.3   | 1763 20   |
| 50 | 789 4455   | 341.2     | 210 5545    | 790 2706   | 342.4     | 209 7294    | 8250       | 1.3   | 1750 10   |
| 32 | 789 7867   | 340.8     | 11.210 2133 | 8.790 6130 | 342.2     | 11.209 3870 | 10.0008263 | 1.3   | 9.9991737 |
| 10 | 790 1275   | 340.6     | 209 8725    | 790 9552   | 341.9     | 209 0448    | 8276       | 1.3   | 1724 50   |
| 20 | 790 4681   | 340.3     | 209 5319    | 791 2971   | 341.6     | 208 7029    | 8289       | 1.3   | 1711 40   |
| 30 | 790 8084   | 340.1     | 209 1916    | 791 6387   | 341.3     | 208 3613    | 8302       | 1.3   | 1698 30   |
| 40 | 791 1485   | 339.8     | 208 8515    | 791 9800   | 341.1     | 208 0200    | 8315       | 1.3   | 1685 20   |
| 50 | 791 4883   | 339.5     | 208 5117    | 792 3211   | 340.9     | 207 6789    | 8328       | 1.3   | 1672 10   |
| 33 | 791 8278   | 339.3     | 11.208 1722 | 8.792 6620 | 340.5     | 11.207 3380 | 10.0008341 | 1.3   | 9.9991659 |
| 10 | 792 1671   | 339.0     | 207 8329    | 793 0025   | 340.3     | 206 9975    | 8355       | 1.3   | 1645 50   |
| 20 | 792 5061   | 338.7     | 207 4939    | 793 3428   | 340.1     | 206 6572    | 8368       | 1.3   | 1632 40   |
| 30 | 792 8448   | 338.4     | 207 1552    | 793 6829   | 339.7     | 206 3171    | 8381       | 1.3   | 1619 30   |
| 40 | 793 1832   | 338.2     | 206 8168    | 794 0226   | 339.5     | 205 9774    | 8394       | 1.3   | 1606 20   |
| 50 | 793 5214   | 338.0     | 206 4786    | 794 3621   | 339.3     | 205 6379    | 8407       | 1.3   | 1593 10   |
| 34 | 793 8594   | 337.6     | 11.206 1406 | 8.794 7014 | 339.0     | 11.205 2986 | 10.0008420 | 1.3   | 9.9991580 |
| 10 | 794 1970   | 337.4     | 205 8030    | 795 0404   | 338.7     | 204 9566    | 8433       | 1.3   | 1567 50   |
| 20 | 794 5344   | 337.2     | 205 4656    | 795 3791   | 338.4     | 204 6209    | 8446       | 1.3   | 1554 40   |
| 30 | 794 8716   | 336.9     | 205 1284    | 795 7175   | 338.2     | 204 2825    | 8459       | 1.3   | 1541 30   |
| 40 | 795 2085   | 336.6     | 204 7915    | 796 0557   | 338.0     | 203 9443    | 8473       | 1.3   | 1527 20   |
| 50 | 795 5451   | 336.3     | 204 4549    | 796 3937   | 337.6     | 203 6063    | 8486       | 1.3   | 1514 10   |
| 35 | 795 8814   | 336.1     | 11.204 1186 | 8.796 7313 | 337.4     | 11.203 2687 | 10.0008499 | 1.3   | 9.9991501 |
| 10 | 796 2175   | 335.9     | 203 7825    | 797 0687   | 337.2     | 202 9313    | 8512       | 1.3   | 1488 50   |
| 20 | 796 5534   | 335.5     | 203 4466    | 797 4059   | 336.9     | 202 5941    | 8525       | 1.3   | 1475 40   |
| 30 | 796 8889   | 335.3     | 203 1111    | 797 7428   | 336.6     | 202 2572    | 8539       | 1.3   | 1461 30   |
| 40 | 797 2242   | 335.1     | 202 7758    | 798 0794   | 336.4     | 201 9206    | 8552       | 1.3   | 1448 20   |
| 50 | 797 5593   | 334.8     | 202 4407    | 798 4158   | 336.1     | 201 5842    | 8565       | 1.3   | 1435 10   |
| 36 | 797 8941   | 334.5     | 11.202 1059 | 8.798 7519 | 335.9     | 11.201 2481 | 10.0008578 | 1.3   | 9.9991422 |
| 10 | 798 2286   | 334.3     | 201 7714    | 799 0878   | 335.6     | 200 9122    | 8592       | 1.3   | 1408 50   |
| 20 | 798 5629   | 334.0     | 201 4371    | 799 4234   | 335.3     | 200 5766    | 8605       | 1.3   | 1395 40   |
| 30 | 798 8969   | 333.8     | 201 1031    | 799 7587   | 335.1     | 200 2413    | 8618       | 1.3   | 1382 30   |
| 40 | 799 2307   | 333.5     | 200 7693    | 800 0938   | 334.8     | 199 9062    | 8631       | 1.3   | 1369 20   |
| 50 | 799 5642   | 333.2     | 200 4358    | 800 4286   | 334.6     | 199 5714    | 8645       | 1.3   | 1355 10   |
| 37 | 799 8974   | 333.0     | 11.200 1026 | 8.800 7632 | 334.3     | 11.199 2368 | 10.0008658 | 1.3   | 9.9991342 |
| 10 | 800 2304   | 332.7     | 199 7696    | 801 0975   | 334.1     | 198 9025    | 8671       | 1.3   | 1329 50   |
| 20 | 800 5631   | 332.5     | 199 4369    | 801 4316   | 333.8     | 198 5684    | 8685       | 1.3   | 1315 40   |
| 30 | 800 8956   | 332.2     | 199 1044    | 801 7654   | 333.5     | 198 2346    | 8698       | 1.3   | 1302 30   |
| 40 | 801 2278   | 332.0     | 198 7722    | 802 0989   | 333.4     | 197 9011    | 8711       | 1.3   | 1289 20   |
| 50 | 801 5598   | 331.7     | 198 4402    | 802 4323   | 333.0     | 197 5677    | 8725       | 1.3   | 1275 10   |
| 38 | 801 8915   | 331.5     | 11.198 1085 | 8.802 7653 | 332.8     | 11.197 2347 | 10.0008738 | 1.3   | 9.9991262 |
| 10 | 802 2230   | 331.2     | 197 7770    | 803 0981   | 332.5     | 196 9919    | 8751       | 1.3   | 1249 50   |
| 20 | 802 5542   | 330.9     | 197 4458    | 803 4306   | 332.3     | 196 6694    | 8765       | 1.3   | 1235 40   |
| 30 | 802 8851   | 330.7     | 197 1149    | 803 7629   | 332.1     | 196 3371    | 8778       | 1.3   | 1222 30   |
| 40 | 803 2158   | 330.5     | 196 7842    | 804 0950   | 331.7     | 195 9950    | 8792       | 1.3   | 1208 20   |
| 50 | 803 5463   | 330.1     | 196 4537    | 804 4267   | 331.6     | 195 6533    | 8805       | 1.3   | 1195 10   |
| 39 | 803 8764   | 330.0     | 11.196 1236 | 8.804 7583 | 331.3     | 11.195 2417 | 10.0008818 | 1.3   | 9.9991182 |
| 10 | 804 2064   | 329.7     | 195 7936    | 805 0896   | 331.0     | 194 9104    | 8832       | 1.3   | 1168 50   |
| 20 | 804 5361   | 329.4     | 195 4639    | 805 4206   | 330.8     | 194 5794    | 8845       | 1.3   | 1155 40   |
| 30 | 804 8655   | 329.2     | 195 1345    | 805 7514   | 330.5     | 194 2486    | 8859       | 1.3   | 1141 30   |
| 40 | 805 1947   | 328.9     | 194 8053    | 806 0819   | 330.3     | 193 9181    | 8872       | 1.3   | 1128 20   |
| 50 | 805 5236   | 328.7     | 194 4764    | 806 4122   | 330.0     | 193 5878    | 8886       | 1.3   | 1114 10   |
| 40 | 805 8523   | 328.7     | 11.194 1477 | 8.806 7422 | 330.0     | 11.193 2578 | 10.0008899 | 1.3   | 9.9991101 |

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|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.        | diff. 1'' | co-sin.    |
|-----|------------|-----------|-------------|------------|-----------|-------------|-------------|-----------|------------|
| 40' | 8.805 8523 | 328.5     | 11.194 1477 | 8.806 7422 | 329.8     | 11.193 2578 | 10.000 8899 | 1.4       | 9.999 1101 |
| 10  | 806 1808   | 328.1     | 193 8192    | 807 0720   | 329.6     | 192 9280    | 8913        | 1.3       | 1087 50    |
| 20  | 806 5089   | 328.0     | 193 4911    | 807 4016   | 329.6     | 192 5984    | 8926        | 1.4       | 1074 40    |
| 30  | 806 8369   | 327.7     | 193 1631    | 807 7309   | 329.3     | 192 2691    | 8940        | 1.4       | 1060 30    |
| 40  | 807 1646   | 327.4     | 192 8354    | 808 0599   | 328.8     | 191 9401    | 8953        | 1.4       | 1047 20    |
| 50  | 807 4920   | 327.2     | 192 5080    | 808 3887   | 328.5     | 191 6113    | 8967        | 1.3       | 1033 10    |
| 41' | 8.807 8192 | 327.0     | 11.192 1808 | 8.808 7172 | 328.3     | 11.191 2828 | 10.000 8980 | 1.4       | 9.999 1020 |
| 10  | 808 1462   | 326.7     | 191 8538    | 809 0455   | 328.1     | 190 9545    | 8994        | 1.3       | 1006 50    |
| 20  | 808 4729   | 326.4     | 191 5271    | 809 3736   | 327.8     | 190 6264    | 9007        | 1.4       | 993 40     |
| 30  | 808 7993   | 326.2     | 191 2007    | 809 7014   | 327.6     | 190 2986    | 9021        | 1.4       | 979 30     |
| 40  | 809 1255   | 326.0     | 190 8745    | 810 0290   | 327.3     | 189 9710    | 9035        | 1.3       | 965 20     |
| 50  | 809 4515   | 325.7     | 190 5485    | 810 3563   | 327.1     | 189 6437    | 9048        | 1.4       | 952 10     |
| 42' | 8.809 7772 | 325.5     | 11.190 2228 | 8.810 6834 | 326.8     | 11.189 3166 | 10.000 9062 | 1.3       | 9.999 938  |
| 10  | 810 1027   | 325.2     | 189 8973    | 811 0102   | 326.6     | 188 9898    | 9075        | 1.4       | 925 50     |
| 20  | 810 4279   | 325.0     | 189 5721    | 811 3368   | 326.3     | 188 6632    | 9089        | 1.4       | 911 40     |
| 30  | 810 7529   | 324.7     | 189 2471    | 811 6631   | 326.2     | 188 3369    | 9103        | 1.3       | 897 30     |
| 40  | 811 0776   | 324.5     | 188 9224    | 811 9893   | 326.0     | 188 0107    | 9116        | 1.4       | 884 20     |
| 50  | 811 4021   | 324.3     | 188 5979    | 812 3151   | 325.8     | 187 6849    | 9130        | 1.4       | 870 10     |
| 43' | 8.811 7264 | 324.0     | 11.188 2736 | 8.812 6407 | 325.6     | 11.187 3593 | 10.000 9144 | 1.3       | 9.999 8856 |
| 10  | 812 0504   | 323.7     | 187 9496    | 812 9661   | 325.4     | 187 0339    | 9157        | 1.4       | 854 50     |
| 20  | 812 3741   | 323.6     | 187 6259    | 813 2912   | 324.9     | 186 7088    | 9171        | 1.4       | 842 40     |
| 30  | 812 6977   | 323.2     | 187 3023    | 813 6161   | 324.7     | 186 3839    | 9185        | 1.3       | 831 30     |
| 40  | 813 0209   | 323.1     | 186 9791    | 813 9408   | 324.4     | 186 0592    | 9198        | 1.3       | 820 20     |
| 50  | 813 3440   | 322.8     | 186 6560    | 814 2652   | 324.2     | 185 7348    | 9212        | 1.4       | 808 10     |
| 44' | 8.813 6668 | 322.5     | 11.186 3332 | 8.814 5894 | 323.9     | 11.185 4106 | 10.000 9226 | 1.4       | 9.999 9774 |
| 10  | 813 9893   | 322.4     | 186 0107    | 814 9133   | 323.7     | 185 0867    | 9240        | 1.3       | 796 50     |
| 20  | 814 3117   | 322.0     | 185 6883    | 815 2370   | 323.5     | 184 7630    | 9253        | 1.4       | 784 40     |
| 30  | 814 6337   | 321.9     | 185 3663    | 815 5605   | 323.2     | 184 4395    | 9267        | 1.4       | 773 30     |
| 40  | 814 9556   | 321.6     | 185 0444    | 815 8837   | 322.9     | 184 1163    | 9281        | 1.4       | 762 20     |
| 50  | 815 2772   | 321.3     | 184 7228    | 816 2066   | 322.5     | 183 7934    | 9295        | 1.4       | 751 10     |
| 45' | 8.815 5985 | 321.1     | 11.184 4015 | 8.816 5294 | 322.2     | 11.183 4706 | 10.000 9309 | 1.3       | 9.999 9691 |
| 10  | 815 9196   | 320.9     | 184 0504    | 816 8519   | 322.2     | 183 1481    | 9322        | 1.4       | 678 50     |
| 20  | 816 2405   | 320.7     | 183 7595    | 817 1741   | 322.1     | 182 8259    | 9336        | 1.4       | 666 40     |
| 30  | 816 5612   | 320.4     | 183 4388    | 817 4962   | 321.8     | 182 5038    | 9350        | 1.4       | 655 30     |
| 40  | 816 8816   | 320.2     | 183 1184    | 817 8180   | 321.5     | 182 1820    | 9364        | 1.4       | 644 20     |
| 50  | 817 2018   | 319.9     | 182 7982    | 818 1395   | 321.3     | 181 8605    | 9378        | 1.4       | 633 10     |
| 46' | 8.817 5217 | 319.7     | 11.182 4783 | 8.818 4608 | 321.1     | 11.181 5392 | 10.000 9392 | 1.3       | 9.999 9608 |
| 10  | 817 8414   | 319.4     | 182 1586    | 818 7819   | 320.9     | 181 2181    | 9405        | 1.4       | 622 50     |
| 20  | 818 1608   | 319.3     | 181 8392    | 819 1028   | 320.6     | 180 8977    | 9419        | 1.4       | 611 40     |
| 30  | 818 4801   | 319.0     | 181 5199    | 819 4234   | 320.4     | 180 5766    | 9433        | 1.4       | 600 30     |
| 40  | 818 7991   | 318.7     | 181 2009    | 819 7438   | 320.1     | 180 2562    | 9447        | 1.4       | 589 20     |
| 50  | 819 1178   | 318.5     | 180 8822    | 820 0639   | 319.9     | 179 9361    | 9461        | 1.4       | 578 10     |
| 47' | 8.819 4363 | 318.3     | 11.180 5637 | 8.820 3838 | 319.7     | 11.179 0169 | 10.000 9475 | 1.4       | 9.999 9525 |
| 10  | 819 7546   | 318.1     | 180 2454    | 820 7035   | 319.4     | 179 2965    | 9489        | 1.4       | 567 50     |
| 20  | 820 0727   | 317.8     | 179 9273    | 821 0229   | 319.3     | 178 9771    | 9503        | 1.4       | 556 40     |
| 30  | 820 3905   | 317.6     | 179 6095    | 821 3422   | 318.9     | 178 6578    | 9517        | 1.4       | 545 30     |
| 40  | 820 7081   | 317.3     | 179 2919    | 821 6611   | 318.8     | 178 3389    | 9531        | 1.4       | 534 20     |
| 50  | 821 0254   | 317.1     | 178 9746    | 821 9799   | 318.5     | 178 0201    | 9545        | 1.4       | 523 10     |
| 48' | 8.821 3425 | 316.9     | 11.178 6575 | 8.822 2054 | 318.3     | 11.177 7016 | 10.000 9559 | 1.3       | 9.999 9441 |
| 10  | 821 6594   | 316.7     | 178 3406    | 822 6167   | 318.0     | 177 3833    | 9573        | 1.4       | 512 50     |
| 20  | 821 9761   | 316.4     | 178 0230    | 822 9347   | 317.9     | 177 0653    | 9587        | 1.4       | 501 40     |
| 30  | 822 2925   | 316.2     | 177 7075    | 823 2526   | 317.5     | 176 7474    | 9601        | 1.4       | 490 30     |
| 40  | 822 6087   | 315.9     | 177 3913    | 823 5701   | 317.4     | 176 4299    | 9615        | 1.4       | 479 20     |
| 50  | 822 9246   | 315.8     | 177 0754    | 823 8875   | 317.1     | 176 1125    | 9629        | 1.4       | 468 10     |
| 49' | 8.823 2404 | 315.5     | 11.176 7576 | 8.824 2046 | 316.9     | 11.175 7954 | 10.000 9643 | 1.4       | 9.999 9357 |
| 10  | 823 5559   | 315.2     | 176 4441    | 824 5215   | 316.7     | 175 4785    | 9657        | 1.4       | 457 50     |
| 20  | 823 8711   | 315.1     | 176 1289    | 824 8382   | 316.5     | 175 1618    | 9671        | 1.4       | 446 40     |
| 30  | 824 1862   | 314.8     | 175 8139    | 825 1547   | 316.2     | 174 8453    | 9685        | 1.4       | 435 30     |
| 40  | 824 5010   | 314.6     | 175 4990    | 825 4709   | 316.0     | 174 5291    | 9699        | 1.4       | 424 20     |
| 50  | 824 8156   | 314.3     | 175 1844    | 825 7869   | 315.7     | 174 2131    | 9713        | 1.4       | 413 10     |
| 0'  | 8.825 1299 |           | 11.175 8701 | 8.826 1026 |           | 11.173 8974 | 10.000 9727 | 1.4       | 9.999 9273 |

93°

80°

|  | co-sin. | diff. 1'' | sec. | co-tang. | diff. 1'' | tang. | co-sec. | diff. 1'' | sin. |
|--|---------|-----------|------|----------|-----------|-------|---------|-----------|------|
|--|---------|-----------|------|----------|-----------|-------|---------|-----------|------|

3°

176°

|    | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.       | d.1" | co-sin.   |     |
|----|------------|---------|-------------|------------|---------|-------------|------------|------|-----------|-----|
| 50 | 8.825 1299 | 314.1   | 11.174 8701 | 8.826 1026 | 315.6   | 11.173 8974 | 10.0009727 | 1.4  | 9.9990273 | 10' |
| 10 | 825 4440   | 313.9   | 174 5560    | 826 4182   | 315.3   | 173 5818    | 9741       | 1.4  | 0250      | 50  |
| 20 | 825 7579   | 313.7   | 174 2421    | 826 7335   | 315.0   | 173 2665    | 9755       | 1.5  | 0245      | 40  |
| 30 | 826 0718   | 313.4   | 173 9284    | 827 0485   | 314.9   | 172 9515    | 9770       | 1.4  | 0230      | 30  |
| 40 | 826 3850   | 313.2   | 173 6150    | 827 3634   | 314.6   | 172 6366    | 9784       | 1.4  | 0216      | 20  |
| 50 | 826 6982   | 313.0   | 173 3018    | 827 6780   | 314.4   | 172 3220    | 9798       | 1.4  | 0202      | 10  |
| 51 | 827 0112   | 312.8   | 11.172 9888 | 8.827 9924 | 314.2   | 11.172 0076 | 10.0009812 | 1.4  | 9.9990188 | 0'  |
| 10 | 827 3240   | 312.5   | 172 6760    | 828 3066   | 314.0   | 171 6934    | 9826       | 1.4  | 0174      | 50  |
| 20 | 827 6365   | 312.3   | 172 3635    | 828 6206   | 313.7   | 171 3794    | 9840       | 1.5  | 0160      | 40  |
| 30 | 827 9488   | 312.1   | 172 0512    | 828 9343   | 313.5   | 171 0657    | 9855       | 1.4  | 0145      | 30  |
| 40 | 828 2609   | 311.9   | 171 7391    | 829 2478   | 313.3   | 170 7522    | 9869       | 1.4  | 0131      | 20  |
| 50 | 828 5728   | 311.6   | 171 4272    | 829 5611   | 313.0   | 170 4389    | 9883       | 1.4  | 0117      | 10  |
| 52 | 828 8844   | 311.4   | 11.171 1156 | 8.829 8741 | 312.8   | 11.170 1259 | 10.0009917 | 1.4  | 9.9990103 | 8'  |
| 10 | 829 1958   | 311.2   | 170 8042    | 830 1869   | 312.7   | 169 8131    | 9911       | 1.5  | 0089      | 50  |
| 20 | 829 5070   | 310.9   | 170 4930    | 830 4996   | 312.7   | 169 5004    | 9926       | 1.4  | 0074      | 40  |
| 30 | 829 8179   | 310.8   | 170 1821    | 830 8119   | 312.2   | 169 1881    | 9940       | 1.4  | 0060      | 30  |
| 40 | 830 1285   | 310.5   | 169 8713    | 831 1241   | 311.9   | 168 8759    | 9954       | 1.4  | 0046      | 20  |
| 50 | 830 4399   | 310.3   | 169 5608    | 831 4360   | 311.8   | 168 5640    | 9968       | 1.5  | 0032      | 10  |
| 53 | 830 7495   | 310.1   | 11.159 2505 | 8.831 7478 | 311.5   | 11.168 2522 | 10.0009983 | 1.4  | 9.9990017 | 7'  |
| 10 | 831 0599   | 309.8   | 168 9404    | 832 0593   | 311.2   | 167 9407    | 10.0009997 | 1.4  | 9.9990003 | 50  |
| 20 | 831 3694   | 309.6   | 168 6306    | 832 3705   | 311.1   | 167 6295    | 10.0010011 | 1.5  | 9.9989989 | 40  |
| 30 | 831 6790   | 309.4   | 168 3210    | 832 6816   | 310.8   | 167 3184    | 0026       | 1.4  | 9974      | 30  |
| 40 | 831 9884   | 309.2   | 168 0116    | 832 9924   | 310.6   | 167 0076    | 0040       | 1.4  | 9960      | 20  |
| 50 | 832 2976   | 309.0   | 167 7024    | 833 3030   | 310.4   | 166 6970    | 0054       | 1.5  | 9946      | 10  |
| 54 | 832 6066   | 308.7   | 11.167 3934 | 8.833 6134 | 310.2   | 11.166 3866 | 10.0010069 | 1.4  | 9.9989931 | 6'  |
| 10 | 832 9153   | 308.5   | 167 0647    | 833 9236   | 310.0   | 166 0764    | 0083       | 1.4  | 9917      | 50  |
| 20 | 833 2238   | 308.3   | 166 7762    | 834 2336   | 309.7   | 165 7664    | 0097       | 1.5  | 9903      | 40  |
| 30 | 833 5321   | 308.1   | 166 4679    | 834 5433   | 309.5   | 165 4567    | 0112       | 1.4  | 9888      | 30  |
| 40 | 833 8402   | 307.9   | 166 1598    | 834 8528   | 309.3   | 165 1472    | 0126       | 1.5  | 9874      | 20  |
| 50 | 834 1481   | 307.7   | 165 8519    | 835 1621   | 309.1   | 164 8379    | 0141       | 1.4  | 9859      | 10  |
| 55 | 834 4555   | 307.6   | 11.165 5443 | 8.835 4712 | 308.9   | 11.164 5288 | 10.0010155 | 1.4  | 9.9989845 | 5'  |
| 10 | 834 7631   | 307.2   | 165 2369    | 835 7801   | 308.6   | 164 2199    | 0169       | 1.5  | 9831      | 50  |
| 20 | 835 0703   | 307.0   | 164 9297    | 836 0887   | 308.4   | 163 9113    | 0184       | 1.4  | 9816      | 40  |
| 30 | 835 3773   | 306.8   | 164 6227    | 836 3971   | 308.2   | 163 6029    | 0198       | 1.5  | 9802      | 30  |
| 40 | 835 6841   | 306.5   | 164 3159    | 836 7053   | 308.0   | 163 2947    | 0213       | 1.4  | 9787      | 20  |
| 50 | 835 9906   | 306.3   | 164 0094    | 837 0133   | 307.8   | 162 9867    | 0227       | 1.5  | 9773      | 10  |
| 56 | 836 2969   | 306.2   | 11.163 7031 | 8.837 3211 | 307.6   | 11.162 6789 | 10.0010242 | 1.4  | 9.9989758 | 4'  |
| 10 | 836 6031   | 305.9   | 163 3969    | 837 6287   | 307.3   | 162 3713    | 0256       | 1.5  | 9744      | 50  |
| 20 | 836 9090   | 305.6   | 163 0910    | 837 9360   | 307.2   | 162 0640    | 0271       | 1.4  | 9729      | 40  |
| 30 | 837 2146   | 305.5   | 162 7854    | 838 2432   | 306.9   | 161 7568    | 0285       | 1.5  | 9715      | 30  |
| 40 | 837 5201   | 305.3   | 162 4799    | 838 5501   | 306.7   | 161 4499    | 0300       | 1.4  | 9700      | 20  |
| 50 | 837 8254   | 305.0   | 162 1746    | 838 8568   | 306.5   | 161 1432    | 0314       | 1.5  | 9686      | 10  |
| 57 | 838 1304   | 304.8   | 11.161 8696 | 8.839 1633 | 306.2   | 11.160 8367 | 10.0010329 | 1.4  | 9.9989671 | 3'  |
| 10 | 838 4352   | 304.6   | 161 5648    | 839 4695   | 306.1   | 160 5305    | 0343       | 1.5  | 9657      | 50  |
| 20 | 838 7399   | 304.4   | 161 2602    | 839 7756   | 305.8   | 160 2244    | 0358       | 1.4  | 9642      | 40  |
| 30 | 839 0442   | 304.2   | 160 9558    | 840 0814   | 305.7   | 159 9186    | 0372       | 1.5  | 9628      | 30  |
| 40 | 839 3484   | 303.9   | 160 6516    | 840 3871   | 305.4   | 159 6129    | 0387       | 1.5  | 9613      | 20  |
| 50 | 839 6523   | 303.8   | 160 3477    | 840 6925   | 305.2   | 159 3075    | 0402       | 1.4  | 9598      | 10  |
| 58 | 839 9561   | 303.5   | 11.160 0439 | 8.840 9977 | 305.0   | 11.159 0023 | 10.0010416 | 1.5  | 9.9989584 | 2'  |
| 10 | 840 2599   | 303.3   | 159 7404    | 841 3027   | 304.8   | 158 6973    | 0431       | 1.4  | 9569      | 50  |
| 20 | 840 5620   | 303.2   | 159 4371    | 841 6075   | 304.6   | 158 3925    | 0445       | 1.5  | 9555      | 40  |
| 30 | 840 8651   | 302.9   | 159 1339    | 841 9121   | 304.3   | 158 0879    | 0460       | 1.5  | 9540      | 30  |
| 40 | 841 1690   | 302.6   | 158 8310    | 842 2164   | 304.2   | 157 7836    | 0475       | 1.4  | 9525      | 20  |
| 50 | 841 4716   | 302.5   | 158 5284    | 842 5206   | 303.9   | 157 4794    | 0489       | 1.5  | 9511      | 10  |
| 59 | 841 7741   | 302.3   | 11.158 2259 | 8.842 8245 | 303.7   | 11.157 1755 | 10.0010504 | 1.5  | 9.9989496 | 1'  |
| 10 | 842 0764   | 302.0   | 157 9236    | 843 1282   | 303.6   | 156 8718    | 0519       | 1.4  | 9481      | 50  |
| 20 | 842 3784   | 301.9   | 157 6216    | 843 4318   | 303.3   | 156 5682    | 0533       | 1.5  | 9467      | 40  |
| 30 | 842 6803   | 301.6   | 157 3197    | 843 7351   | 303.1   | 156 2649    | 0548       | 1.5  | 9452      | 30  |
| 40 | 842 9816   | 301.4   | 157 0181    | 844 0382   | 302.8   | 155 9618    | 0563       | 1.4  | 9437      | 20  |
| 50 | 843 2833   | 301.2   | 156 7167    | 844 3410   | 302.7   | 155 6590    | 0577       | 1.5  | 9423      | 10  |
| 60 | 843 5845   |         | 11.156 4155 | 8.844 6437 |         | 11.155 3563 | 10.0010592 |      | 9.9989498 | 0'  |

83°

86°



|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
| 0'  | 8.843 5845 | 301.0    | 11.156 4155 | 8.844 6437 | 302.5    | 11.155 3563 | 10.0010592 | 1.5   | 9.9989408 |
| 10  | 843 8855   | 300.8    | 156 1145    | 844 9462   | 302.3    | 155 0538    | 0607       | 1.5   | 9393      |
| 20  | 844 1863   | 300.6    | 155 8137    | 845 2485   | 302.0    | 154 7515    | 0622       | 1.4   | 9378      |
| 30  | 844 4860   | 300.4    | 155 5131    | 845 5505   | 301.9    | 154 4495    | 0636       | 1.5   | 9364      |
| 40  | 844 7873   | 300.1    | 155 2127    | 845 8524   | 301.6    | 154 1476    | 0651       | 1.5   | 9349      |
| 50  | 845 0874   | 300.0    | 154 9126    | 846 1540   | 301.4    | 153 8460    | 0666       | 1.5   | 9334      |
| 1'  | 8.845 3874 | 299.7    | 11.154 6126 | 8.846 4554 | 301.3    | 11.153 5446 | 10.0010681 | 1.5   | 9.9989319 |
| 10  | 845 6871   | 299.6    | 154 3129    | 846 7567   | 301.0    | 153 2433    | 0681       | 1.4   | 9305      |
| 20  | 845 9867   | 299.3    | 154 0133    | 847 0577   | 300.8    | 152 9423    | 0710       | 1.5   | 9290      |
| 30  | 846 2860   | 299.1    | 153 7140    | 847 3585   | 300.6    | 152 6415    | 0725       | 1.5   | 9275      |
| 40  | 846 5851   | 298.9    | 153 4149    | 847 6591   | 300.4    | 152 3409    | 0740       | 1.5   | 9260      |
| 50  | 846 8840   | 298.7    | 153 1160    | 847 9595   | 300.2    | 152 0405    | 0755       | 1.5   | 9245      |
| 2'  | 8.847 1827 | 298.5    | 11.152 8173 | 8.848 2597 | 300.0    | 11.151 7403 | 10.0010770 | 1.4   | 9.9989230 |
| 10  | 847 4812   | 298.3    | 152 5188    | 848 5597   | 299.8    | 151 4403    | 0784       | 1.5   | 9216      |
| 20  | 847 7795   | 298.1    | 152 2205    | 848 8595   | 299.5    | 151 1405    | 0799       | 1.5   | 9201      |
| 30  | 848 0775   | 297.9    | 151 9224    | 849 1590   | 299.2    | 150 8410    | 0814       | 1.5   | 9186      |
| 40  | 848 3755   | 297.7    | 151 6245    | 849 4584   | 299.0    | 150 5416    | 0829       | 1.5   | 9171      |
| 50  | 848 6732   | 297.5    | 151 3268    | 849 7576   | 298.8    | 150 2424    | 0844       | 1.5   | 9156      |
| 3'  | 8.848 9707 | 297.2    | 11.151 0293 | 8.850 0566 | 298.6    | 11.149 9434 | 10.0010859 | 1.5   | 9.9989141 |
| 10  | 849 2679   | 297.1    | 150 7321    | 850 3553   | 298.3    | 149 6447    | 0874       | 1.5   | 9126      |
| 20  | 849 5650   | 296.9    | 150 4350    | 850 6539   | 298.0    | 149 3461    | 0889       | 1.5   | 9111      |
| 30  | 849 8619   | 296.6    | 150 1381    | 850 9522   | 297.8    | 149 0478    | 0904       | 1.5   | 9096      |
| 40  | 850 1585   | 296.5    | 149 8415    | 851 2504   | 297.6    | 148 7497    | 0918       | 1.5   | 9082      |
| 50  | 850 4550   | 296.2    | 149 5450    | 851 5483   | 297.4    | 148 4516    | 0933       | 1.5   | 9067      |
| 4'  | 8.850 7512 | 295.1    | 11.149 2488 | 8.851 8461 | 297.5    | 11.148 1539 | 10.0010948 | 1.5   | 9.9989052 |
| 10  | 851 0473   | 295.8    | 148 9527    | 852 1436   | 297.2    | 147 8564    | 0953       | 1.5   | 9037      |
| 20  | 851 3431   | 295.7    | 148 6569    | 852 4410   | 297.0    | 147 5590    | 0978       | 1.5   | 9022      |
| 30  | 851 6388   | 295.4    | 148 3612    | 852 7381   | 296.8    | 147 2619    | 0993       | 1.5   | 9007      |
| 40  | 851 9342   | 295.3    | 148 0658    | 853 0351   | 296.6    | 146 9649    | 1008       | 1.5   | 8992      |
| 50  | 852 2295   | 295.0    | 147 7705    | 853 3318   | 296.5    | 146 6682    | 1023       | 1.5   | 8977      |
| 5'  | 8.852 5245 | 294.8    | 11.147 4755 | 8.853 6283 | 296.4    | 11.146 3717 | 10.0011038 | 1.5   | 9.9988965 |
| 10  | 852 8193   | 294.7    | 147 1807    | 853 9247   | 296.1    | 146 0753    | 1053       | 1.5   | 8947      |
| 20  | 853 1140   | 294.4    | 146 8860    | 854 2208   | 296.0    | 145 7792    | 1068       | 1.6   | 8932      |
| 30  | 853 4084   | 294.2    | 146 5916    | 854 5168   | 295.8    | 145 4832    | 1084       | 1.5   | 8916      |
| 40  | 853 7026   | 294.1    | 146 2974    | 854 8125   | 295.7    | 145 1875    | 1099       | 1.5   | 8901      |
| 50  | 853 9966   | 293.8    | 146 0033    | 855 1081   | 295.6    | 144 8919    | 1114       | 1.5   | 8886      |
| 6'  | 8.854 2905 | 293.7    | 11.145 7095 | 8.855 4034 | 295.5    | 11.144 5966 | 10.0011129 | 1.5   | 9.9988871 |
| 10  | 854 5842   | 293.4    | 145 4158    | 855 6985   | 295.4    | 144 3015    | 1144       | 1.5   | 8856      |
| 20  | 854 8776   | 293.2    | 145 1224    | 855 9935   | 295.3    | 144 0065    | 1159       | 1.5   | 8841      |
| 30  | 855 1708   | 293.1    | 144 8292    | 856 2882   | 295.2    | 143 7118    | 1174       | 1.5   | 8826      |
| 40  | 855 4639   | 292.8    | 144 5361    | 856 5828   | 295.1    | 143 4172    | 1189       | 1.5   | 8811      |
| 50  | 855 7567   | 292.6    | 144 2433    | 856 8771   | 295.0    | 143 1229    | 1204       | 1.6   | 8796      |
| 7'  | 8.856 0493 | 292.5    | 11.143 9507 | 8.857 1713 | 294.9    | 11.142 8287 | 10.0011220 | 1.5   | 9.9988780 |
| 10  | 856 3418   | 292.2    | 143 6582    | 857 4653   | 294.8    | 142 5347    | 1235       | 1.5   | 8765      |
| 20  | 856 6340   | 292.1    | 143 3660    | 857 7590   | 294.7    | 142 2410    | 1250       | 1.5   | 8750      |
| 30  | 856 9261   | 291.8    | 143 0739    | 858 0526   | 294.6    | 141 9474    | 1265       | 1.5   | 8735      |
| 40  | 857 2179   | 291.7    | 142 7821    | 858 3460   | 294.5    | 141 6540    | 1280       | 1.5   | 8720      |
| 50  | 857 5096   | 291.4    | 142 4904    | 858 6391   | 294.4    | 141 3609    | 1295       | 1.5   | 8705      |
| 8'  | 8.857 8010 | 291.3    | 11.142 1990 | 8.858 9321 | 294.3    | 11.141 0679 | 10.0011311 | 1.5   | 9.9988689 |
| 10  | 858 0923   | 291.1    | 141 9077    | 859 2249   | 294.2    | 140 7751    | 1326       | 1.5   | 8674      |
| 20  | 858 3834   | 290.8    | 141 6166    | 859 5175   | 294.1    | 140 4825    | 1341       | 1.5   | 8659      |
| 30  | 858 6742   | 290.7    | 141 3258    | 859 8099   | 294.0    | 140 1901    | 1356       | 1.6   | 8644      |
| 40  | 858 9649   | 290.5    | 141 0351    | 860 1021   | 293.9    | 139 8979    | 1372       | 1.5   | 8628      |
| 50  | 859 2554   | 290.3    | 140 7446    | 860 3941   | 293.8    | 139 6059    | 1387       | 1.5   | 8613      |
| 9'  | 8.859 5457 | 290.0    | 11.140 4543 | 8.860 6859 | 293.7    | 11.139 3141 | 10.0011402 | 1.5   | 9.9988598 |
| 10  | 859 8357   | 289.9    | 140 4643    | 860 9775   | 293.6    | 139 0225    | 1417       | 1.6   | 8583      |
| 20  | 860 1256   | 289.7    | 139 8744    | 861 2689   | 293.5    | 138 7311    | 1433       | 1.5   | 8567      |
| 30  | 860 4153   | 289.5    | 139 5847    | 861 5601   | 293.4    | 138 4399    | 1448       | 1.5   | 8552      |
| 40  | 860 7048   | 289.3    | 139 2952    | 861 8512   | 293.3    | 138 1488    | 1463       | 1.6   | 8537      |
| 50  | 860 9941   | 289.2    | 139 0059    | 862 1420   | 293.2    | 137 8580    | 1479       | 1.5   | 8521      |
| 10' | 8.861 2833 | 289.0    | 11.138 7167 | 8.862 4327 | 293.1    | 11.137 5673 | 10.0011494 | 1.5   | 9.9988506 |

4°

175°

|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d.1" | co-sin.       |
|-----|------------|----------|-------------|------------|----------|-------------|------------|------|---------------|
| 10' | 8.861 2833 |          | 11.138 7167 | 8.862 4327 |          | 11.137 5673 | 10.0011464 | 1.5  | 9.9988506 50' |
| 10  | 861 5722   | 288.9    | 138 4278    | 862 7231   | 290.4    | 137 2769    | 1509       | 1.6  | 8491 50       |
| 20  | 861 8609   | 288.6    | 138 1391    | 863 0134   | 290.1    | 136 9866    | 1525       | 1.5  | 8475 40       |
| 30  | 862 1495   | 288.3    | 137 8505    | 863 3035   | 289.8    | 136 6965    | 1540       | 1.5  | 8460 30       |
| 40  | 862 4378   | 288.1    | 137 5622    | 863 5933   | 289.5    | 136 4067    | 1555       | 1.6  | 8445 20       |
| 50  | 862 7259   | 288.0    | 137 2741    | 863 8830   | 289.2    | 136 1170    | 1571       | 1.5  | 8429 10       |
| 11' | 8.863 0139 |          | 11.136 9861 | 8.864 1725 |          | 11.135 8275 | 10.0011586 | 1.6  | 9.9988414 49' |
| 10  | 863 3017   | 287.6    | 136 6963    | 864 4618   | 289.2    | 135 5382    | 1602       | 1.5  | 8398 50       |
| 20  | 863 5893   | 287.3    | 136 4107    | 864 7510   | 288.9    | 135 2490    | 1617       | 1.5  | 8383 40       |
| 30  | 863 8766   | 287.2    | 136 1234    | 865 0399   | 288.7    | 134 9601    | 1632       | 1.6  | 8368 30       |
| 40  | 864 1638   | 287.0    | 135 8362    | 865 3286   | 288.6    | 134 6714    | 1648       | 1.5  | 8352 20       |
| 50  | 864 4508   | 286.8    | 135 5492    | 865 6172   | 288.3    | 134 3828    | 1663       | 1.6  | 8337 10       |
| 12' | 8.864 7376 |          | 11.135 2624 | 8.865 9055 |          | 11.134 0945 | 10.0011679 | 1.5  | 9.9988321 48' |
| 10  | 865 0243   | 286.7    | 134 9757    | 866 1937   | 288.2    | 133 8063    | 1694       | 1.6  | 8306 50       |
| 20  | 865 3107   | 286.2    | 134 6893    | 866 4817   | 287.8    | 133 5183    | 1710       | 1.5  | 8290 40       |
| 30  | 865 5969   | 286.1    | 134 4031    | 866 7695   | 287.6    | 133 2305    | 1725       | 1.6  | 8275 30       |
| 40  | 865 8830   | 285.9    | 134 1170    | 867 0571   | 287.4    | 132 9429    | 1741       | 1.5  | 8259 20       |
| 50  | 866 1689   | 285.6    | 133 8311    | 867 3445   | 287.2    | 132 6555    | 1756       | 1.6  | 8244 10       |
| 13' | 8.866 4545 |          | 11.133 5455 | 8.867 6317 |          | 11.132 3683 | 10.0011772 | 1.5  | 9.9988228 47' |
| 10  | 866 7400   | 285.3    | 133 2600    | 867 9187   | 286.9    | 132 0813    | 1787       | 1.6  | 8213 50       |
| 20  | 867 0253   | 285.1    | 132 9747    | 868 2056   | 286.7    | 131 7944    | 1803       | 1.5  | 8197 40       |
| 30  | 867 3104   | 284.9    | 132 6896    | 868 4923   | 286.4    | 131 5077    | 1818       | 1.6  | 8182 30       |
| 40  | 867 5953   | 284.8    | 132 4047    | 868 7787   | 286.3    | 131 2213    | 1834       | 1.5  | 8167 20       |
| 50  | 867 8801   | 284.5    | 132 1199    | 869 0650   | 286.1    | 130 9350    | 1849       | 1.6  | 8151 10       |
| 14' | 8.868 1646 |          | 11.131 8354 | 8.869 3511 |          | 11.130 6489 | 10.0011865 | 1.6  | 9.9988135 46' |
| 10  | 868 4490   | 284.4    | 131 5510    | 869 6370   | 285.9    | 130 3630    | 1881       | 1.5  | 8119 50       |
| 20  | 868 7331   | 284.0    | 131 2669    | 869 9228   | 285.5    | 130 0772    | 1896       | 1.6  | 8104 40       |
| 30  | 869 0171   | 283.8    | 130 9829    | 870 2083   | 285.4    | 129 7917    | 1912       | 1.5  | 8088 30       |
| 40  | 869 3009   | 283.6    | 130 6991    | 870 4937   | 285.2    | 129 5063    | 1927       | 1.6  | 8073 20       |
| 50  | 869 5845   | 283.5    | 130 4155    | 870 7789   | 284.9    | 129 2211    | 1943       | 1.5  | 8057 10       |
| 15' | 8.869 8680 |          | 11.130 1320 | 8.871 0638 |          | 11.128 9362 | 10.0011959 | 1.6  | 9.9988041 45' |
| 10  | 870 1512   | 283.1    | 129 8488    | 871 3486   | 284.7    | 128 6514    | 1974       | 1.6  | 8026 50       |
| 20  | 870 4343   | 282.9    | 129 5657    | 871 6333   | 284.4    | 128 3667    | 1990       | 1.5  | 8010 40       |
| 30  | 870 7171   | 282.8    | 129 2829    | 871 9177   | 284.2    | 128 0823    | 2006       | 1.6  | 7994 30       |
| 40  | 870 9998   | 282.5    | 129 0002    | 872 2019   | 284.1    | 127 7981    | 2021       | 1.5  | 7979 20       |
| 50  | 871 2823   | 282.3    | 128 7177    | 872 4860   | 283.9    | 127 5140    | 2037       | 1.6  | 7963 10       |
| 16' | 8.871 5646 |          | 11.128 4354 | 8.872 7699 |          | 11.127 2301 | 10.0012053 | 1.6  | 9.9987947 44' |
| 10  | 871 8467   | 282.1    | 128 1533    | 873 0536   | 283.7    | 126 9464    | 2069       | 1.5  | 7931 50       |
| 20  | 872 1287   | 281.8    | 127 8713    | 873 3371   | 283.5    | 126 6629    | 2084       | 1.6  | 7916 40       |
| 30  | 872 4105   | 281.5    | 127 5895    | 873 6205   | 283.1    | 126 3795    | 2100       | 1.5  | 7900 30       |
| 40  | 872 6920   | 281.4    | 127 3080    | 873 9036   | 282.8    | 126 0964    | 2116       | 1.6  | 7884 20       |
| 50  | 872 9734   | 281.2    | 127 0266    | 874 1866   | 282.6    | 125 8134    | 2131       | 1.5  | 7869 10       |
| 17' | 8.873 2546 |          | 11.126 7454 | 8.874 4694 |          | 11.125 5306 | 10.0012147 | 1.6  | 9.9987853 43' |
| 10  | 873 5357   | 280.8    | 126 4643    | 874 7520   | 282.4    | 125 2480    | 2163       | 1.6  | 7837 50       |
| 20  | 873 8165   | 280.7    | 126 1835    | 875 0344   | 282.2    | 124 9656    | 2179       | 1.5  | 7821 40       |
| 30  | 874 0972   | 280.4    | 125 9028    | 875 3166   | 282.1    | 124 6834    | 2195       | 1.6  | 7805 30       |
| 40  | 874 3776   | 280.3    | 125 6224    | 875 5987   | 281.9    | 124 4013    | 2210       | 1.5  | 7790 20       |
| 50  | 874 6579   | 280.2    | 125 3421    | 875 8806   | 281.7    | 124 1194    | 2226       | 1.6  | 7774 10       |
| 18' | 8.874 9381 |          | 11.125 0619 | 8.876 1623 |          | 11.123 8377 | 10.0012242 | 1.6  | 9.9987758 42' |
| 10  | 875 2180   | 279.9    | 124 7820    | 876 4438   | 281.5    | 123 5562    | 2258       | 1.5  | 7742 50       |
| 20  | 875 4977   | 279.7    | 124 5023    | 876 7251   | 281.3    | 123 2749    | 2274       | 1.6  | 7726 40       |
| 30  | 875 7773   | 279.6    | 124 2227    | 877 0063   | 281.2    | 122 9937    | 2290       | 1.5  | 7710 30       |
| 40  | 876 0567   | 279.4    | 123 9433    | 877 2873   | 280.8    | 122 7127    | 2305       | 1.6  | 7695 20       |
| 50  | 876 3359   | 279.2    | 123 6641    | 877 5681   | 280.6    | 122 4319    | 2321       | 1.5  | 7679 10       |
| 19' | 8.876 6156 |          | 11.123 3850 | 8.877 8487 |          | 11.122 1513 | 10.0012337 | 1.6  | 9.9987663 41' |
| 10  | 876 8938   | 278.8    | 123 1069    | 878 1291   | 280.4    | 122 1709    | 2337       | 1.6  | 7647 50       |
| 20  | 877 1725   | 278.7    | 122 8275    | 878 4094   | 280.3    | 121 8909    | 2353       | 1.5  | 7631 40       |
| 30  | 877 4510   | 278.5    | 122 5490    | 878 6895   | 280.1    | 121 6105    | 2385       | 1.6  | 7615 30       |
| 40  | 877 7293   | 278.3    | 122 2707    | 878 9694   | 279.9    | 121 3306    | 2401       | 1.5  | 7599 20       |
| 50  | 878 0074   | 278.1    | 121 9926    | 879 2491   | 279.5    | 121 0509    | 2417       | 1.6  | 7583 10       |
| 20' | 8.878 2854 |          | 11.121 7146 | 8.879 5286 |          | 11.120 4714 | 10.0012433 | 1.6  | 9.9987567 40' |

84°

85°



|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d. 1" | co-sin.   |
|----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
| 21 | 8.878 2854 | 277.7    | 11.121 7146 | 8.879 5286 | 279.4    | 11.120 4714 | 10.0012433 | 1.6   | 9.9987567 |
| 10 | 878 5631   | 277.6    | 121 4369    | 879 8080   | 279.2    | 120 1920    | 2449       | 1.6   | 7551 50   |
| 20 | 878 8407   | 277.4    | 121 1593    | 880 0879   | 279.0    | 119 9128    | 2465       | 1.6   | 7535 40   |
| 30 | 879 1181   | 277.3    | 120 8819    | 880 3662   | 278.8    | 119 6338    | 2481       | 1.6   | 7519 30   |
| 40 | 879 3954   | 277.0    | 120 6046    | 880 6450   | 278.7    | 119 3550    | 2497       | 1.6   | 7503 20   |
| 50 | 879 6724   | 276.9    | 120 3276    | 880 9237   | 278.5    | 119 0763    | 2513       | 1.6   | 7487 10   |
| 21 | 8.879 9493 | 276.7    | 11.120 0507 | 8.881 2022 | 278.3    | 11.118 7978 | 10.0012529 | 1.6   | 9.9987471 |
| 10 | 880 2260   | 276.6    | 119 7740    | 881 4805   | 278.1    | 118 5195    | 2545       | 1.6   | 7455 50   |
| 20 | 880 5026   | 276.3    | 119 4974    | 881 7586   | 278.0    | 118 2414    | 2561       | 1.6   | 7439 40   |
| 30 | 880 7789   | 276.2    | 119 2211    | 882 0366   | 277.8    | 117 9634    | 2577       | 1.6   | 7423 30   |
| 40 | 881 0551   | 276.0    | 118 9449    | 882 3144   | 277.6    | 117 6856    | 2593       | 1.6   | 7407 20   |
| 50 | 881 3311   | 275.8    | 118 6689    | 882 5920   | 277.4    | 117 4080    | 2609       | 1.6   | 7391 10   |
| 22 | 8.881 6069 | 275.6    | 11.118 3931 | 8.882 8694 | 277.3    | 11.117 1306 | 10.0012625 | 1.6   | 9.9987355 |
| 10 | 881 8825   | 275.5    | 118 1175    | 883 1467   | 277.0    | 116 8533    | 2641       | 1.6   | 7359 50   |
| 20 | 882 1580   | 275.3    | 117 8420    | 883 4237   | 276.9    | 116 5763    | 2657       | 1.6   | 7343 40   |
| 30 | 882 4333   | 275.1    | 117 5667    | 883 7006   | 276.8    | 116 2994    | 2673       | 1.6   | 7327 30   |
| 40 | 882 7084   | 275.0    | 117 2916    | 883 9774   | 276.5    | 116 0226    | 2689       | 1.6   | 7311 20   |
| 50 | 882 9834   | 274.9    | 117 0166    | 884 2539   | 276.4    | 115 7461    | 2705       | 1.6   | 7295 10   |
| 23 | 8.883 2581 | 274.6    | 11.116 7419 | 8.884 5303 | 276.2    | 11.115 4697 | 10.0012722 | 1.7   | 9.9987238 |
| 10 | 883 5327   | 274.5    | 116 4673    | 884 8065   | 276.0    | 115 1935    | 2738       | 1.6   | 7262 50   |
| 20 | 883 8072   | 274.2    | 116 1928    | 885 0825   | 275.9    | 114 9175    | 2754       | 1.6   | 7246 40   |
| 30 | 884 0814   | 274.1    | 115 9186    | 885 3584   | 275.7    | 114 6416    | 2770       | 1.6   | 7230 30   |
| 40 | 884 3555   | 273.9    | 115 6445    | 885 6341   | 275.5    | 114 3659    | 2786       | 1.6   | 7214 20   |
| 50 | 884 6294   | 273.7    | 115 3706    | 885 9096   | 275.4    | 114 0904    | 2802       | 1.6   | 7198 10   |
| 24 | 8.884 9031 | 273.5    | 11.115 0969 | 8.886 1850 | 275.1    | 11.113 8150 | 10.0012819 | 1.7   | 9.9987181 |
| 10 | 885 1766   | 273.4    | 114 8234    | 886 4601   | 275.0    | 113 5399    | 2835       | 1.6   | 7165 50   |
| 20 | 885 4509   | 273.2    | 114 5500    | 886 7351   | 274.9    | 113 2649    | 2851       | 1.6   | 7149 40   |
| 30 | 885 7232   | 273.1    | 114 2768    | 887 0100   | 274.6    | 112 9900    | 2867       | 1.6   | 7133 30   |
| 40 | 885 9953   | 272.8    | 114 0037    | 887 2846   | 274.5    | 112 7154    | 2884       | 1.6   | 7117 20   |
| 50 | 886 2691   | 272.7    | 113 7309    | 887 5591   | 274.3    | 112 4409    | 2900       | 1.6   | 7101 10   |
| 25 | 8.886 5418 | 272.5    | 11.113 4582 | 8.887 8334 | 274.1    | 11.112 1666 | 10.0012916 | 1.6   | 9.9987084 |
| 10 | 886 8143   | 272.4    | 113 1857    | 888 1075   | 274.0    | 111 8925    | 2932       | 1.6   | 7068 50   |
| 20 | 887 0867   | 272.1    | 112 9133    | 888 3815   | 273.8    | 111 6185    | 2949       | 1.6   | 7052 40   |
| 30 | 887 3588   | 272.0    | 112 6412    | 888 6553   | 273.6    | 111 3447    | 2965       | 1.6   | 7036 30   |
| 40 | 887 6308   | 271.9    | 112 3692    | 888 9289   | 273.5    | 111 0711    | 2981       | 1.6   | 7020 20   |
| 50 | 887 9027   | 271.6    | 112 0973    | 889 2024   | 273.3    | 110 7976    | 2997       | 1.6   | 7003 10   |
| 26 | 8.888 1743 | 271.5    | 11.111 8257 | 8.889 4757 | 273.1    | 11.110 5243 | 10.0013014 | 1.6   | 9.9986986 |
| 10 | 888 4458   | 271.3    | 111 5542    | 889 7488   | 273.0    | 110 2512    | 3030       | 1.6   | 6970 50   |
| 20 | 888 7171   | 271.2    | 111 2829    | 890 0218   | 272.7    | 109 9782    | 3046       | 1.6   | 6954 40   |
| 30 | 888 9883   | 270.9    | 111 0117    | 890 2945   | 272.6    | 109 7055    | 3063       | 1.6   | 6938 30   |
| 40 | 889 2592   | 270.8    | 110 7408    | 890 5671   | 272.5    | 109 4329    | 3079       | 1.6   | 6922 20   |
| 50 | 889 5300   | 270.7    | 110 4700    | 890 8396   | 272.3    | 109 1604    | 3096       | 1.6   | 6906 10   |
| 27 | 8.889 8007 | 270.4    | 11.110 1993 | 8.891 1119 | 272.1    | 11.108 8881 | 10.0013112 | 1.6   | 9.9986888 |
| 10 | 890 0711   | 270.3    | 109 9289    | 891 3840   | 271.9    | 108 6160    | 3128       | 1.6   | 6872 50   |
| 20 | 890 3414   | 270.2    | 109 6586    | 891 6559   | 271.8    | 108 3441    | 3145       | 1.6   | 6855 40   |
| 30 | 890 6116   | 269.9    | 109 3884    | 891 9277   | 271.6    | 108 0723    | 3161       | 1.6   | 6839 30   |
| 40 | 890 8815   | 269.8    | 109 1185    | 892 1993   | 271.4    | 107 8007    | 3178       | 1.6   | 6822 20   |
| 50 | 891 1513   | 269.6    | 108 8487    | 892 4707   | 271.3    | 107 5293    | 3194       | 1.6   | 6806 10   |
| 28 | 8.891 4209 | 269.5    | 11.108 5791 | 8.892 7420 | 271.1    | 11.107 2580 | 10.0013210 | 1.7   | 9.9986790 |
| 10 | 891 6904   | 269.3    | 108 3096    | 893 0131   | 270.9    | 106 9869    | 3227       | 1.6   | 6773 50   |
| 20 | 891 9597   | 269.2    | 108 0403    | 893 2840   | 270.8    | 106 7160    | 3243       | 1.6   | 6757 40   |
| 30 | 892 2288   | 268.9    | 107 7712    | 893 5548   | 270.6    | 106 4452    | 3260       | 1.6   | 6740 30   |
| 40 | 892 4977   | 268.8    | 107 5023    | 893 8254   | 270.4    | 106 1746    | 3276       | 1.6   | 6724 20   |
| 50 | 892 7665   | 268.6    | 107 2335    | 894 0958   | 270.2    | 105 9042    | 3293       | 1.6   | 6707 10   |
| 29 | 8.893 0351 | 268.5    | 11.106 9649 | 8.894 3660 | 270.0    | 11.105 6340 | 10.0013309 | 1.7   | 9.9986691 |
| 10 | 893 3036   | 268.2    | 106 6964    | 894 6361   | 270.0    | 105 3639    | 3326       | 1.6   | 6674 50   |
| 20 | 893 5718   | 268.2    | 106 4282    | 894 9061   | 269.7    | 105 0939    | 3342       | 1.6   | 6658 40   |
| 30 | 893 8400   | 267.9    | 106 1600    | 895 1758   | 269.6    | 104 8242    | 3359       | 1.6   | 6641 30   |
| 40 | 894 1079   | 267.8    | 105 8921    | 895 4454   | 269.5    | 104 5546    | 3375       | 1.6   | 6625 20   |
| 50 | 894 3755   | 267.6    | 105 6243    | 895 7149   | 269.3    | 104 2851    | 3392       | 1.6   | 6608 10   |
| 30 | 8.894 6433 | 267.6    | 11.105 3567 | 8.895 9942 | 269.3    | 11.104 0158 | 10.0013409 | 1.7   | 9.9986591 |

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|



4°

175°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d.1'' | co-sin.     |     |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|-------|-------------|-----|
| 30' | 8.894 6433 | 267.4    | 11.105 3567 | 8.895 9842 | 269.1    | 11.104 0158 | 10.001 3409 | 1.6   | 9.998 86591 | 30' |
| 10  | 894 9107   | 267.3    | 105 0893    | 896 2533   | 268.9    | 103 7467    | 3425        | 1.7   | 6575        | 50  |
| 20  | 895 1780   | 267.1    | 104 8220    | 896 5222   | 268.8    | 103 4778    | 3442        | 1.6   | 6558        | 40  |
| 30  | 895 4451   | 267.0    | 104 5549    | 896 7910   | 268.6    | 103 2090    | 3458        | 1.6   | 6542        | 30  |
| 40  | 895 7121   | 266.8    | 104 2879    | 897 0599   | 268.4    | 102 9404    | 3475        | 1.7   | 6525        | 20  |
| 50  | 895 9789   | 266.6    | 104 0211    | 897 3280   | 268.3    | 102 6720    | 3492        | 1.7   | 6508        | 10  |
| 31' | 8.896 2455 | 266.5    | 11.103 7545 | 8.897 5963 | 268.1    | 11.102 4037 | 10.001 3508 | 1.6   | 9.998 86492 | 29' |
| 10  | 896 5120   | 266.3    | 103 4880    | 897 8644   | 268.0    | 102 1356    | 3525        | 1.7   | 6475        | 50  |
| 20  | 896 7783   | 266.1    | 103 2217    | 898 1324   | 267.8    | 101 8676    | 3541        | 1.6   | 6459        | 40  |
| 30  | 897 0444   | 266.0    | 102 9556    | 898 4002   | 267.6    | 101 5998    | 3558        | 1.7   | 6442        | 30  |
| 40  | 897 3104   | 265.8    | 102 6896    | 898 6678   | 267.5    | 101 3322    | 3575        | 1.6   | 6425        | 20  |
| 50  | 897 5762   | 265.6    | 102 4238    | 898 9353   | 267.3    | 101 0647    | 3591        | 1.6   | 6409        | 10  |
| 32' | 8.897 8418 | 265.5    | 11.102 1582 | 8.899 2026 | 267.2    | 11.100 7974 | 10.001 3608 | 1.7   | 9.998 86392 | 28' |
| 10  | 898 1073   | 265.3    | 101 8927    | 899 4698   | 266.9    | 100 5302    | 3625        | 1.7   | 6375        | 50  |
| 20  | 898 3726   | 265.1    | 101 6274    | 899 7367   | 266.9    | 100 2633    | 3642        | 1.6   | 6358        | 40  |
| 30  | 898 6377   | 265.0    | 101 3623    | 900 0036   | 266.6    | 999 9964    | 3658        | 1.7   | 6342        | 30  |
| 40  | 898 9027   | 264.8    | 101 0973    | 900 2702   | 266.5    | 999 7298    | 3675        | 1.7   | 6325        | 20  |
| 50  | 899 1675   | 264.7    | 100 8325    | 900 5366   | 266.3    | 999 4633    | 3692        | 1.6   | 6308        | 10  |
| 33' | 8.899 4322 | 264.5    | 11.100 5678 | 8.900 8030 | 266.2    | 11.099 1970 | 10.001 3708 | 1.7   | 9.998 86292 | 27' |
| 10  | 899 6967   | 264.3    | 100 3033    | 901 0692   | 266.0    | 998 9308    | 3725        | 1.7   | 6275        | 50  |
| 20  | 899 9610   | 264.2    | 100 0390    | 901 3352   | 265.9    | 998 6648    | 3742        | 1.7   | 6258        | 40  |
| 30  | 900 2252   | 264.0    | 999 7748    | 901 6011   | 265.7    | 998 3989    | 3759        | 1.7   | 6241        | 30  |
| 40  | 900 4892   | 263.9    | 999 5108    | 901 8668   | 265.5    | 998 1332    | 3776        | 1.6   | 6224        | 20  |
| 50  | 900 7531   | 263.7    | 999 2469    | 902 1323   | 265.4    | 997 8677    | 3792        | 1.6   | 6208        | 10  |
| 34' | 8.901 0168 | 263.5    | 11.098 9832 | 8.902 3977 | 265.2    | 11.097 6023 | 10.001 3809 | 1.7   | 9.998 86191 | 26' |
| 10  | 901 2803   | 263.4    | 998 7197    | 902 6629   | 265.0    | 997 3371    | 3826        | 1.7   | 6174        | 50  |
| 20  | 901 5437   | 263.2    | 998 4563    | 902 9279   | 264.9    | 997 0721    | 3843        | 1.7   | 6157        | 40  |
| 30  | 901 8069   | 263.0    | 998 1931    | 903 1928   | 264.8    | 996 8072    | 3860        | 1.7   | 6140        | 30  |
| 40  | 902 0699   | 262.9    | 997 9301    | 903 4576   | 264.5    | 996 5424    | 3877        | 1.7   | 6123        | 20  |
| 50  | 902 3328   | 262.7    | 997 6672    | 903 7221   | 264.5    | 996 2779    | 3893        | 1.7   | 6107        | 10  |
| 35' | 8.902 5955 | 262.6    | 11.097 4045 | 8.903 9866 | 264.2    | 11.096 0134 | 10.001 3910 | 1.7   | 9.998 86090 | 25' |
| 10  | 902 8581   | 262.4    | 997 1419    | 904 2508   | 264.1    | 995 7492    | 3927        | 1.7   | 6073        | 50  |
| 20  | 903 1205   | 262.3    | 996 8795    | 904 5149   | 263.9    | 995 4851    | 3944        | 1.7   | 6056        | 40  |
| 30  | 903 3828   | 262.0    | 996 6172    | 904 7788   | 263.8    | 995 2212    | 3961        | 1.7   | 6039        | 30  |
| 40  | 903 6448   | 262.0    | 996 3552    | 905 0426   | 263.7    | 994 9574    | 3978        | 1.7   | 6022        | 20  |
| 50  | 903 9068   | 261.7    | 996 0932    | 905 3063   | 263.4    | 994 6937    | 3995        | 1.7   | 6005        | 10  |
| 36' | 8.904 1685 | 261.7    | 11.095 8315 | 8.905 5697 | 263.3    | 11.094 4303 | 10.001 4012 | 1.7   | 9.998 85988 | 24' |
| 10  | 904 4302   | 261.4    | 995 5698    | 905 8330   | 263.2    | 994 1670    | 4029        | 1.7   | 5971        | 50  |
| 20  | 904 6916   | 261.3    | 995 3084    | 906 0962   | 263.0    | 993 9038    | 4046        | 1.7   | 5954        | 40  |
| 30  | 904 9529   | 261.1    | 995 0471    | 906 3592   | 262.8    | 993 6408    | 4063        | 1.7   | 5937        | 30  |
| 40  | 905 2140   | 261.0    | 994 7860    | 906 6220   | 262.7    | 993 3780    | 4080        | 1.7   | 5920        | 20  |
| 50  | 905 4750   | 260.8    | 994 5250    | 906 8847   | 262.5    | 993 1153    | 4097        | 1.7   | 5903        | 10  |
| 37' | 8.905 7358 | 260.7    | 11.094 2642 | 8.907 1472 | 262.4    | 11.092 8528 | 10.001 4114 | 1.7   | 9.998 85886 | 23' |
| 10  | 905 9955   | 260.5    | 994 0035    | 907 4096   | 262.2    | 992 5904    | 4131        | 1.7   | 5869        | 50  |
| 20  | 906 2570   | 260.4    | 993 7430    | 907 6718   | 262.0    | 992 3282    | 4148        | 1.7   | 5852        | 40  |
| 30  | 906 5174   | 260.2    | 993 4826    | 907 9338   | 261.9    | 992 0662    | 4165        | 1.7   | 5835        | 30  |
| 40  | 906 7776   | 260.0    | 993 2224    | 908 1957   | 261.8    | 991 8043    | 4182        | 1.7   | 5818        | 20  |
| 50  | 907 0376   | 259.9    | 992 9624    | 908 4575   | 261.5    | 991 5425    | 4199        | 1.7   | 5801        | 10  |
| 38' | 8.907 2975 | 259.7    | 11.092 7025 | 8.908 7190 | 261.5    | 11.091 2810 | 10.001 4216 | 1.7   | 9.998 85784 | 22' |
| 10  | 907 5572   | 259.6    | 992 4428    | 908 9805   | 261.2    | 991 0195    | 4233        | 1.7   | 5767        | 50  |
| 20  | 907 8168   | 259.4    | 992 1833    | 909 2417   | 261.2    | 990 7583    | 4250        | 1.7   | 5750        | 40  |
| 30  | 908 0762   | 259.2    | 991 9238    | 909 5029   | 260.9    | 990 4971    | 4267        | 1.7   | 5733        | 30  |
| 40  | 908 3354   | 259.1    | 991 6646    | 909 7638   | 260.8    | 990 2362    | 4284        | 1.7   | 5716        | 20  |
| 50  | 908 5945   | 259.0    | 991 4055    | 910 0246   | 260.7    | 989 9754    | 4301        | 1.7   | 5699        | 10  |
| 39' | 8.908 8535 | 258.8    | 11.091 1465 | 8.910 2853 | 260.5    | 11.089 7147 | 10.001 4318 | 1.7   | 9.998 85682 | 21' |
| 10  | 909 1123   | 258.6    | 990 8877    | 910 5458   | 260.3    | 989 4542    | 4335        | 1.8   | 5665        | 50  |
| 20  | 909 3709   | 258.5    | 990 6291    | 910 8061   | 260.2    | 989 1930    | 4353        | 1.7   | 5647        | 40  |
| 30  | 909 6294   | 258.3    | 990 3706    | 911 0663   | 260.1    | 988 9337    | 4370        | 1.7   | 5630        | 30  |
| 40  | 909 8877   | 258.2    | 990 1123    | 911 3264   | 259.9    | 988 6736    | 4387        | 1.7   | 5613        | 20  |
| 50  | 910 1459   | 258.0    | 989 8541    | 911 5863   | 259.7    | 988 4137    | 4404        | 1.7   | 5596        | 10  |
| 40' | 8.910 4039 | 258.0    | 11.089 5961 | 8.911 8460 | 259.7    | 11.088 1540 | 10.001 4421 | 1.7   | 9.998 85579 | 20' |

94°

85°

4°

175°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|
| 40' | 8.910 4039 | 257.8    | 11.089 5961 | 8.911 8460 | 259.6    | 11.088 1540 | 10.001 4421 | 1.7   | 9.998 5579 |
| 10  | 910 6617   | 257.7    | 089 3383    | 912 1056   | 259.4    | 087 8944    | 4438        | 1.8   | 5562 50    |
| 20  | 910 9194   | 257.6    | 089 0806    | 912 3650   | 259.3    | 087 6350    | 4456        | 1.7   | 5544 40    |
| 30  | 911 1770   | 257.4    | 088 8230    | 912 6243   | 259.1    | 087 3757    | 4473        | 1.7   | 5527 30    |
| 40  | 911 4344   | 257.2    | 088 5656    | 912 8834   | 258.8    | 087 1166    | 4490        | 1.7   | 5510 20    |
| 50  | 911 6916   | 257.1    | 088 3084    | 913 1424   | 258.6    | 086 8576    | 4507        | 1.8   | 5493 10    |
| 41' | 8.911 9487 | 257.0    | 11.088 0513 | 8.913 4012 | 258.6    | 11.086 5988 | 10.001 4525 | 1.7   | 9.998 5475 |
| 10  | 912 2057   | 256.7    | 087 7943    | 913 6598   | 258.5    | 086 3402    | 4542        | 1.7   | 5458 50    |
| 20  | 912 4624   | 256.7    | 087 5376    | 913 9183   | 258.5    | 086 0817    | 4559        | 1.7   | 5441 40    |
| 30  | 912 7191   | 256.5    | 087 2809    | 914 1767   | 258.4    | 085 8233    | 4576        | 1.8   | 5424 30    |
| 40  | 912 9756   | 256.3    | 087 0244    | 914 4349   | 258.1    | 085 5651    | 4594        | 1.7   | 5406 20    |
| 50  | 913 2319   | 256.2    | 086 7681    | 914 6930   | 257.9    | 085 3070    | 4611        | 1.7   | 5389 10    |
| 42' | 8.913 4881 | 256.0    | 11.086 5119 | 8.914 9509 | 257.7    | 11.085 0491 | 10.001 4628 | 1.8   | 9.998 5372 |
| 10  | 913 7441   | 255.8    | 086 2559    | 915 2086   | 257.6    | 084 7914    | 4646        | 1.7   | 5354 50    |
| 20  | 913 9999   | 255.8    | 086 0001    | 915 4662   | 257.5    | 084 5338    | 4663        | 1.7   | 5337 40    |
| 30  | 914 2557   | 255.5    | 085 7443    | 915 7237   | 257.3    | 084 2763    | 4680        | 1.8   | 5320 30    |
| 40  | 914 5112   | 255.5    | 085 4888    | 915 9810   | 257.1    | 084 0190    | 4698        | 1.7   | 5302 20    |
| 50  | 914 7667   | 255.2    | 085 2333    | 916 2381   | 257.1    | 083 7619    | 4715        | 1.7   | 5285 10    |
| 43' | 8.915 0219 | 255.1    | 11.084 9781 | 8.916 4952 | 256.8    | 11.083 5048 | 10.001 4732 | 1.8   | 9.998 5268 |
| 10  | 915 2770   | 255.0    | 084 7230    | 916 7520   | 256.7    | 083 2480    | 4750        | 1.7   | 5250 50    |
| 20  | 915 5320   | 254.8    | 084 4680    | 917 0087   | 256.6    | 082 9913    | 4767        | 1.7   | 5233 40    |
| 30  | 915 7868   | 254.7    | 084 2132    | 917 2653   | 256.4    | 082 7347    | 4784        | 1.8   | 5216 30    |
| 40  | 916 0415   | 254.5    | 083 9585    | 917 5217   | 256.2    | 082 4783    | 4802        | 1.7   | 5198 20    |
| 50  | 916 2960   | 254.4    | 083 7040    | 917 7779   | 256.1    | 082 2221    | 4819        | 1.7   | 5181 10    |
| 44' | 8.916 5504 | 254.2    | 11.083 4496 | 8.918 0340 | 256.0    | 11.081 9660 | 10.001 4837 | 1.8   | 9.998 5163 |
| 10  | 916 8046   | 254.0    | 083 1954    | 918 2900   | 255.8    | 081 7100    | 4854        | 1.8   | 5146 50    |
| 20  | 917 0586   | 253.9    | 082 9414    | 918 5458   | 255.6    | 081 4542    | 4872        | 1.7   | 5128 40    |
| 30  | 917 3125   | 253.8    | 082 6875    | 918 8014   | 255.6    | 081 1986    | 4889        | 1.8   | 5111 30    |
| 40  | 917 5663   | 253.6    | 082 4337    | 919 0570   | 255.3    | 080 9430    | 4907        | 1.7   | 5093 20    |
| 50  | 917 8199   | 253.5    | 082 1801    | 919 3123   | 255.2    | 080 6877    | 4924        | 1.8   | 5076 10    |
| 45' | 8.918 0734 | 253.3    | 11.081 9266 | 8.919 5675 | 255.1    | 11.080 4325 | 10.001 4942 | 1.7   | 9.998 5058 |
| 10  | 918 3267   | 253.2    | 081 6733    | 919 8226   | 254.9    | 080 1774    | 4959        | 1.8   | 5041 50    |
| 20  | 918 5799   | 253.0    | 081 4201    | 920 0775   | 254.8    | 079 9225    | 4977        | 1.7   | 5023 40    |
| 30  | 918 8329   | 252.9    | 081 1671    | 920 3323   | 254.6    | 079 6677    | 4994        | 1.8   | 5006 30    |
| 40  | 919 0858   | 252.7    | 080 9142    | 920 5869   | 254.5    | 079 4131    | 5012        | 1.7   | 4988 20    |
| 50  | 919 3385   | 252.6    | 080 6615    | 920 8414   | 254.3    | 079 1586    | 5029        | 1.8   | 4971 10    |
| 46' | 8.919 5911 | 252.4    | 11.080 4089 | 8.921 0957 | 254.2    | 11.078 9043 | 10.001 5047 | 1.8   | 9.998 4953 |
| 10  | 919 8435   | 252.3    | 080 1565    | 921 3499   | 254.0    | 078 6501    | 5064        | 1.7   | 4936 50    |
| 20  | 920 0958   | 252.1    | 079 9042    | 921 6039   | 253.9    | 078 3961    | 5082        | 1.7   | 4918 40    |
| 30  | 920 3479   | 252.0    | 079 6521    | 921 8578   | 253.8    | 078 1422    | 5099        | 1.8   | 4901 30    |
| 40  | 920 5999   | 251.8    | 079 4001    | 922 1116   | 253.6    | 077 8884    | 5117        | 1.8   | 4883 20    |
| 50  | 920 8517   | 251.7    | 079 1483    | 922 3652   | 253.4    | 077 6348    | 5135        | 1.7   | 4865 10    |
| 47' | 8.921 1034 | 251.6    | 11.078 8966 | 8.922 6186 | 253.3    | 11.077 3814 | 10.001 5152 | 1.8   | 9.998 4848 |
| 10  | 921 3550   | 251.4    | 078 6450    | 922 8719   | 253.2    | 077 1281    | 5170        | 1.7   | 4830 50    |
| 20  | 921 6064   | 251.2    | 078 3936    | 923 1251   | 253.0    | 076 8749    | 5187        | 1.8   | 4813 40    |
| 30  | 921 8576   | 251.1    | 078 1424    | 923 3781   | 252.9    | 076 6219    | 5205        | 1.8   | 4795 30    |
| 40  | 922 1087   | 251.0    | 077 8913    | 923 6310   | 252.7    | 076 3690    | 5223        | 1.7   | 4777 20    |
| 50  | 922 3597   | 250.8    | 077 6403    | 923 8837   | 252.6    | 076 1163    | 5240        | 1.8   | 4760 10    |
| 48' | 8.922 6105 | 250.6    | 11.077 3895 | 8.924 1363 | 252.4    | 11.075 8637 | 10.001 5258 | 1.8   | 9.998 4742 |
| 10  | 922 8611   | 250.6    | 077 1389    | 924 3887   | 252.3    | 075 6113    | 5276        | 1.7   | 4724 50    |
| 20  | 923 1117   | 250.3    | 076 8883    | 924 6410   | 252.2    | 075 3590    | 5293        | 1.8   | 4707 40    |
| 30  | 923 3620   | 250.3    | 076 6380    | 924 8932   | 252.0    | 075 1068    | 5311        | 1.8   | 4689 30    |
| 40  | 923 6123   | 250.1    | 076 3877    | 925 1452   | 251.8    | 074 8548    | 5329        | 1.7   | 4671 20    |
| 50  | 923 8624   | 249.9    | 076 1376    | 925 3970   | 251.7    | 074 6030    | 5347        | 1.7   | 4653 10    |
| 49' | 8.924 1123 | 249.8    | 11.075 8877 | 8.925 6487 | 251.6    | 11.074 3513 | 10.001 5364 | 1.8   | 9.998 4636 |
| 10  | 924 3621   | 249.6    | 075 6379    | 925 9003   | 251.4    | 074 0997    | 5382        | 1.8   | 4618 50    |
| 20  | 924 6117   | 249.6    | 075 3883    | 926 1517   | 251.3    | 073 8483    | 5400        | 1.8   | 4500 40    |
| 30  | 924 8613   | 249.3    | 075 1387    | 926 4030   | 251.2    | 073 5970    | 5418        | 1.7   | 4582 30    |
| 40  | 925 1106   | 249.2    | 074 8894    | 926 6542   | 251.0    | 073 3458    | 5435        | 1.8   | 4565 20    |
| 50  | 925 3598   | 249.1    | 074 6402    | 926 9052   | 250.8    | 073 0948    | 5453        | 1.8   | 4547 10    |
| 50' | 8.925 6089 | 249.1    | 11.074 3911 | 8.927 1560 | 250.8    | 11.072 8440 | 10.001 5471 | 1.8   | 9.998 4529 |

94°

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4°

175°

|    | sin.       | diff. 1'' | on-sec.     | tang.      | diff. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |
|----|------------|-----------|-------------|------------|-----------|-------------|-------------|-------|------------|
| 59 | 8.925 6089 | 248.9     | 11.074 3911 | 8.927 1560 | 250.7     | 11.072 8440 | 10.001 5471 | 1.8   | 9.998 4529 |
| 10 | 925 8578   | 248.8     | 074 1422    | 927 4067   | 250.6     | 072 5933    | 5489        | 1.8   | 4511       |
| 20 | 926 1066   | 248.7     | 073 8934    | 927 6573   | 250.4     | 072 3427    | 5507        | 1.7   | 4493       |
| 30 | 926 3553   | 248.5     | 073 6447    | 927 9077   | 250.3     | 072 0923    | 5524        | 1.8   | 4476       |
| 40 | 926 6038   | 248.3     | 073 3962    | 928 1580   | 250.1     | 071 8420    | 5542        | 1.8   | 4458       |
| 50 | 926 8521   | 248.2     | 073 1479    | 928 4081   | 250.0     | 071 5919    | 5560        | 1.8   | 4440       |
| 51 | 8.927 1003 | 248.1     | 11.072 8977 | 8.928 6581 | 249.9     | 11.071 3419 | 10.001 5578 | 1.8   | 9.998 4422 |
| 10 | 927 3484   | 247.9     | 072 6516    | 928 9080   | 249.7     | 071 0920    | 5596        | 1.8   | 4404       |
| 20 | 927 5963   | 247.8     | 072 4037    | 929 1577   | 249.6     | 070 8423    | 5614        | 1.8   | 4386       |
| 30 | 927 8441   | 247.7     | 072 1559    | 929 4073   | 249.4     | 070 5927    | 5632        | 1.8   | 4368       |
| 40 | 928 0918   | 247.5     | 071 9082    | 929 6567   | 249.3     | 070 3433    | 5650        | 1.8   | 4350       |
| 50 | 928 3393   | 247.3     | 071 6607    | 929 9060   | 249.2     | 070 0940    | 5667        | 1.7   | 4333       |
| 52 | 8.928 5866 | 247.2     | 11.071 4134 | 8.930 1552 | 249.0     | 11.069 8448 | 10.001 5685 | 1.8   | 9.998 4315 |
| 10 | 928 8338   | 247.1     | 071 1662    | 930 4042   | 248.8     | 069 5958    | 5703        | 1.8   | 4297       |
| 20 | 929 0809   | 247.0     | 070 9191    | 930 6530   | 248.6     | 069 3470    | 5721        | 1.8   | 4279       |
| 30 | 929 3279   | 246.7     | 070 6721    | 930 9018   | 248.5     | 069 0982    | 5739        | 1.8   | 4261       |
| 40 | 929 5746   | 246.5     | 070 4254    | 931 1504   | 248.4     | 068 8496    | 5757        | 1.8   | 4243       |
| 50 | 929 8213   | 246.4     | 070 1787    | 931 3988   | 248.3     | 068 6012    | 5775        | 1.8   | 4225       |
| 53 | 8.930 0678 | 246.4     | 11.069 9322 | 8.931 6471 | 248.2     | 11.068 3520 | 10.001 5793 | 1.8   | 9.998 4207 |
| 10 | 930 3142   | 246.2     | 069 6858    | 931 8953   | 248.1     | 068 1047    | 5811        | 1.8   | 4189       |
| 20 | 930 5604   | 246.1     | 069 4396    | 932 1433   | 247.9     | 067 8567    | 5829        | 1.8   | 4171       |
| 30 | 930 8063   | 245.9     | 069 1935    | 932 3912   | 247.8     | 067 6088    | 5847        | 1.8   | 4153       |
| 40 | 931 0524   | 245.9     | 068 9476    | 932 6390   | 247.6     | 067 3610    | 5865        | 1.8   | 4135       |
| 50 | 931 2983   | 245.6     | 068 7017    | 932 8866   | 247.4     | 067 1134    | 5883        | 1.8   | 4117       |
| 51 | 8.931 5439 | 245.6     | 11.068 4561 | 8.933 1340 | 247.4     | 11.066 8660 | 10.001 5901 | 1.8   | 9.998 4099 |
| 10 | 931 7895   | 245.3     | 068 2105    | 933 3814   | 247.2     | 066 6186    | 5919        | 1.8   | 4081       |
| 20 | 932 0348   | 245.3     | 067 9652    | 933 6286   | 247.0     | 066 3714    | 5937        | 1.8   | 4063       |
| 30 | 932 2801   | 245.1     | 067 7199    | 933 8756   | 247.0     | 066 1244    | 5955        | 1.9   | 4045       |
| 40 | 932 5252   | 245.0     | 067 4748    | 934 1226   | 246.7     | 065 8774    | 5974        | 1.8   | 4026       |
| 50 | 932 7702   | 244.8     | 067 2298    | 934 3693   | 246.7     | 065 6307    | 5992        | 1.8   | 4008       |
| 53 | 8.933 0150 | 244.7     | 11.066 9850 | 8.934 6160 | 246.5     | 11.065 3840 | 10.001 6010 | 1.8   | 9.998 3990 |
| 10 | 933 2597   | 244.5     | 066 7403    | 934 8625   | 246.3     | 065 1375    | 6028        | 1.8   | 3972       |
| 20 | 933 5042   | 244.5     | 066 4958    | 935 1088   | 246.3     | 064 8912    | 6046        | 1.8   | 3954       |
| 30 | 933 7487   | 244.2     | 066 2513    | 935 3551   | 246.3     | 064 6449    | 6064        | 1.8   | 3936       |
| 40 | 933 9929   | 244.2     | 066 0071    | 935 6012   | 246.1     | 064 3988    | 6082        | 1.8   | 3918       |
| 50 | 934 2371   | 244.0     | 065 7629    | 935 8471   | 245.9     | 064 1529    | 6100        | 1.9   | 3900       |
| 56 | 8.934 4811 | 243.8     | 11.065 5189 | 8.936 0929 | 245.7     | 11.063 9071 | 10.001 6119 | 1.8   | 9.998 3881 |
| 10 | 934 7249   | 243.8     | 065 2751    | 936 3386   | 245.6     | 063 6614    | 6137        | 1.8   | 3863       |
| 20 | 934 9687   | 243.5     | 065 0313    | 936 5842   | 245.4     | 063 4158    | 6155        | 1.8   | 3845       |
| 30 | 935 2122   | 243.5     | 064 7878    | 936 8296   | 245.2     | 063 1704    | 6173        | 1.8   | 3827       |
| 40 | 935 4557   | 243.3     | 064 5443    | 937 0748   | 245.2     | 062 9252    | 6191        | 1.9   | 3809       |
| 50 | 935 6990   | 243.2     | 064 3010    | 937 3200   | 245.0     | 062 6800    | 6210        | 1.8   | 3790       |
| 57 | 8.935 9422 | 243.0     | 11.064 0578 | 8.937 5650 | 244.8     | 11.062 4350 | 10.001 6228 | 1.8   | 9.998 3772 |
| 10 | 936 1852   | 242.9     | 063 8148    | 937 8098   | 244.7     | 062 1902    | 6246        | 1.8   | 3754       |
| 20 | 936 4281   | 242.8     | 063 5719    | 938 0545   | 244.6     | 061 9455    | 6264        | 1.9   | 3736       |
| 30 | 936 6709   | 242.6     | 063 3291    | 938 2991   | 244.5     | 061 7009    | 6283        | 1.9   | 3717       |
| 40 | 936 9135   | 242.5     | 063 0865    | 938 5436   | 244.3     | 061 4564    | 6301        | 1.8   | 3699       |
| 50 | 937 1560   | 242.3     | 062 8440    | 938 7879   | 244.2     | 061 2121    | 6319        | 1.8   | 3681       |
| 53 | 8.937 3983 | 242.3     | 11.062 6017 | 8.939 0321 | 244.0     | 11.060 9679 | 10.001 6337 | 1.9   | 9.998 3663 |
| 10 | 937 6406   | 242.0     | 062 3594    | 939 2761   | 243.9     | 060 7239    | 6356        | 1.8   | 3644       |
| 20 | 937 8826   | 242.0     | 062 1174    | 939 5200   | 243.8     | 060 4800    | 6374        | 1.8   | 3626       |
| 30 | 938 1246   | 241.8     | 061 8754    | 939 7638   | 243.7     | 060 2362    | 6392        | 1.9   | 3608       |
| 40 | 938 3664   | 241.7     | 061 6336    | 940 0075   | 243.5     | 059 9925    | 6411        | 1.8   | 3589       |
| 50 | 938 6081   | 241.5     | 061 3919    | 940 2510   | 243.4     | 059 7490    | 6429        | 1.8   | 3571       |
| 51 | 8.938 8496 | 241.3     | 11.061 1504 | 8.940 4944 | 243.2     | 11.059 5056 | 10.001 6447 | 1.9   | 9.998 3553 |
| 10 | 939 0910   | 241.3     | 060 9090    | 940 7376   | 243.1     | 059 2624    | 6466        | 1.8   | 3534       |
| 20 | 939 3323   | 241.1     | 060 6677    | 940 9807   | 243.0     | 059 0193    | 6484        | 1.9   | 3516       |
| 30 | 939 5734   | 241.0     | 060 4266    | 941 2237   | 242.8     | 058 7763    | 6503        | 1.8   | 3497       |
| 40 | 939 8144   | 240.9     | 060 1856    | 941 4665   | 242.7     | 058 5335    | 6521        | 1.8   | 3479       |
| 50 | 940 0553   | 240.7     | 059 9447    | 941 7092   | 242.6     | 058 2908    | 6539        | 1.9   | 3461       |
| 51 | 8.940 2960 |           | 11.059 7040 | 8.941 9518 |           | 11.058 0482 | 10.001 6558 |       | 9.998 3442 |

84°

85°

| 5°  |            |         |             |            |         |             |             |      |            | 174° |  |
|-----|------------|---------|-------------|------------|---------|-------------|-------------|------|------------|------|--|
|     | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | d.1" | co-sin.    |      |  |
| 0'  | 8.940 2960 | 240.6   | 11.059 7040 | 8.941 9518 | 242.4   | 11.058 0482 | 10.001 6558 | 1.8  | 9.998 3442 | 60'  |  |
| 10  | 940 5366   | 240.5   | 059 4634    | 942 1942   | 242.3   | 057 8058    | 6576        | 1.9  | 3424       | 50   |  |
| 20  | 940 7771   | 240.3   | 059 2229    | 942 4365   | 242.2   | 057 5635    | 6595        | 1.9  | 3405       | 40   |  |
| 30  | 941 0174   | 240.2   | 058 9826    | 942 6787   | 242.0   | 057 3213    | 6613        | 1.9  | 3387       | 30   |  |
| 40  | 941 2576   | 240.0   | 058 7424    | 942 9207   | 241.9   | 057 0793    | 6632        | 1.8  | 3368       | 20   |  |
| 50  | 941 4976   | 240.0   | 058 5024    | 943 1626   | 241.8   | 056 8374    | 6650        | 1.8  | 3350       | 10   |  |
| 1'  | 8.941 7376 | 240.0   | 11.058 2624 | 8.943 4044 | 241.8   | 11.056 5956 | 10.001 6668 | 1.9  | 9.998 3333 | 59'  |  |
| 10  | 941 9774   | 239.8   | 058 0226    | 943 6461   | 241.7   | 056 3539    | 6687        | 1.9  | 3315       | 50   |  |
| 20  | 942 2170   | 239.5   | 057 7830    | 943 8876   | 241.5   | 056 1124    | 6705        | 1.8  | 3295       | 40   |  |
| 30  | 942 4565   | 239.4   | 057 5435    | 944 1289   | 241.3   | 055 8711    | 6724        | 1.8  | 3276       | 30   |  |
| 40  | 942 6959   | 239.3   | 057 3041    | 944 3702   | 241.3   | 055 6298    | 6742        | 1.8  | 3258       | 20   |  |
| 50  | 942 9352   | 239.3   | 057 0648    | 944 6113   | 241.1   | 055 3887    | 6761        | 1.9  | 3239       | 10   |  |
| 2'  | 8.943 1743 | 239.1   | 11.056 8257 | 8.944 8523 | 241.0   | 11.055 1477 | 10.001 6780 | 1.8  | 9.998 3220 | 58'  |  |
| 10  | 943 4133   | 239.0   | 056 5867    | 945 0931   | 240.8   | 054 9069    | 6798        | 1.8  | 3202       | 50   |  |
| 20  | 943 6522   | 238.9   | 056 3478    | 945 3338   | 240.7   | 054 6662    | 6817        | 1.9  | 3183       | 40   |  |
| 30  | 943 8909   | 238.7   | 056 1091    | 945 5744   | 240.6   | 054 4256    | 6835        | 1.8  | 3165       | 30   |  |
| 40  | 944 1295   | 238.6   | 055 8705    | 945 8149   | 240.5   | 054 1851    | 6854        | 1.9  | 3146       | 20   |  |
| 50  | 944 3680   | 238.5   | 055 6320    | 946 0552   | 240.3   | 053 9448    | 6872        | 1.9  | 3128       | 10   |  |
| 3'  | 8.944 6063 | 238.3   | 11.055 3937 | 8.946 2954 | 240.2   | 11.053 7046 | 10.001 6891 | 1.9  | 9.998 3109 | 57'  |  |
| 10  | 944 8445   | 238.2   | 055 1555    | 946 5355   | 240.1   | 053 4645    | 6910        | 1.9  | 3090       | 50   |  |
| 20  | 945 0826   | 238.1   | 054 9174    | 946 7754   | 239.9   | 053 2246    | 6928        | 1.8  | 3072       | 40   |  |
| 30  | 945 3205   | 237.9   | 054 6795    | 947 0152   | 239.8   | 052 9848    | 6947        | 1.9  | 3053       | 30   |  |
| 40  | 945 5583   | 237.8   | 054 4417    | 947 2549   | 239.7   | 052 7451    | 6965        | 1.9  | 3035       | 20   |  |
| 50  | 945 7960   | 237.7   | 054 2040    | 947 4944   | 239.5   | 052 5056    | 6984        | 1.9  | 3016       | 10   |  |
| 4'  | 8.946 0335 | 237.4   | 11.053 9665 | 8.947 7338 | 239.3   | 11.052 2662 | 10.001 7003 | 1.8  | 9.998 2997 | 56'  |  |
| 10  | 946 2709   | 237.3   | 053 7291    | 947 9731   | 239.1   | 052 0269    | 7021        | 1.9  | 2979       | 50   |  |
| 20  | 946 5082   | 237.3   | 053 4918    | 948 2122   | 239.1   | 051 7878    | 7040        | 1.9  | 2960       | 40   |  |
| 30  | 946 7454   | 237.2   | 053 2546    | 948 4513   | 239.1   | 051 5487    | 7059        | 1.9  | 2941       | 30   |  |
| 40  | 946 9824   | 237.0   | 053 0176    | 948 6902   | 238.9   | 051 3098    | 7078        | 1.9  | 2922       | 20   |  |
| 50  | 947 2193   | 236.9   | 052 7807    | 948 9289   | 238.7   | 051 0711    | 7096        | 1.8  | 2904       | 10   |  |
| 5'  | 8.947 4561 | 236.8   | 11.052 5439 | 8.949 1676 | 238.7   | 11.050 8324 | 10.001 7115 | 1.9  | 9.998 2885 | 55'  |  |
| 10  | 947 6927   | 236.5   | 052 3073    | 949 4061   | 238.5   | 050 5939    | 7134        | 1.9  | 2866       | 50   |  |
| 20  | 947 9292   | 236.4   | 052 0708    | 949 6444   | 238.3   | 050 3556    | 7152        | 1.8  | 2848       | 40   |  |
| 30  | 948 1656   | 236.2   | 051 8344    | 949 8827   | 238.1   | 050 1173    | 7171        | 1.9  | 2829       | 30   |  |
| 40  | 948 4018   | 236.2   | 051 5982    | 950 1208   | 238.0   | 049 8792    | 7190        | 1.9  | 2810       | 20   |  |
| 50  | 948 6379   | 236.1   | 051 3621    | 950 3588   | 237.9   | 049 6412    | 7209        | 1.9  | 2791       | 10   |  |
| 6'  | 3.948 8739 | 236.0   | 11.051 1261 | 8.950 5967 | 237.7   | 11.049 4033 | 10.001 7228 | 1.8  | 9.998 2775 | 54'  |  |
| 10  | 949 1098   | 235.9   | 050 8902    | 950 8344   | 237.6   | 049 1656    | 7246        | 1.8  | 2756       | 50   |  |
| 20  | 949 3455   | 235.7   | 050 6545    | 951 0720   | 237.6   | 048 9280    | 7265        | 1.9  | 2737       | 40   |  |
| 30  | 949 5811   | 235.6   | 050 4189    | 951 3095   | 237.5   | 048 6905    | 7284        | 1.9  | 2718       | 30   |  |
| 40  | 949 8165   | 235.4   | 050 1835    | 951 5468   | 237.3   | 048 4532    | 7303        | 1.9  | 2699       | 20   |  |
| 50  | 950 0519   | 235.2   | 049 9481    | 951 7840   | 237.1   | 048 2160    | 7322        | 1.8  | 2678       | 10   |  |
| 7'  | 8.950 2871 | 235.1   | 11.049 7129 | 8.952 0211 | 237.0   | 11.047 9789 | 10.001 7340 | 1.9  | 9.998 2660 | 53'  |  |
| 10  | 950 5222   | 234.9   | 049 4778    | 952 2581   | 236.8   | 047 7419    | 7359        | 1.9  | 2641       | 50   |  |
| 20  | 950 7571   | 234.9   | 049 2429    | 952 4949   | 236.8   | 047 5051    | 7378        | 1.9  | 2622       | 40   |  |
| 30  | 950 9920   | 234.9   | 049 0080    | 952 7317   | 236.5   | 047 2683    | 7397        | 1.9  | 2603       | 30   |  |
| 40  | 951 2267   | 234.7   | 048 7733    | 952 9682   | 236.5   | 047 0318    | 7416        | 1.9  | 2584       | 20   |  |
| 50  | 951 4612   | 234.5   | 048 5388    | 953 2047   | 236.3   | 046 7953    | 7435        | 1.9  | 2565       | 10   |  |
| 8'  | 8.951 6957 | 234.3   | 11.048 3043 | 8.953 4410 | 236.3   | 11.046 5599 | 10.001 7454 | 1.9  | 9.998 2546 | 52'  |  |
| 10  | 951 9300   | 234.2   | 048 0700    | 953 6773   | 236.0   | 046 3227    | 7473        | 1.9  | 2527       | 50   |  |
| 20  | 952 1642   | 234.0   | 047 8358    | 953 9133   | 236.0   | 046 0867    | 7492        | 1.9  | 2508       | 40   |  |
| 30  | 952 3982   | 234.0   | 047 6018    | 954 1493   | 235.8   | 045 8507    | 7511        | 1.9  | 2489       | 30   |  |
| 40  | 952 6322   | 233.8   | 047 3678    | 954 3851   | 235.8   | 045 6149    | 7530        | 1.9  | 2470       | 20   |  |
| 50  | 952 8660   | 233.6   | 047 1340    | 954 6208   | 235.6   | 045 3792    | 7548        | 1.8  | 2451       | 10   |  |
| 9'  | 8.953 0996 | 233.6   | 11.046 9004 | 8.954 8564 | 235.4   | 11.045 1436 | 10.001 7567 | 1.9  | 9.998 2433 | 51'  |  |
| 10  | 953 3332   | 233.4   | 046 6668    | 955 0918   | 235.4   | 044 9082    | 7586        | 1.9  | 2414       | 50   |  |
| 20  | 953 5666   | 233.3   | 046 4334    | 955 3272   | 235.2   | 044 6728    | 7605        | 1.9  | 2395       | 40   |  |
| 30  | 953 7999   | 233.2   | 046 2001    | 955 5624   | 235.0   | 044 4376    | 7624        | 1.9  | 2376       | 30   |  |
| 40  | 954 0331   | 233.0   | 045 9669    | 955 7974   | 235.0   | 044 2026    | 7643        | 1.9  | 2357       | 20   |  |
| 50  | 954 2661   | 233.0   | 045 7339    | 956 0324   | 234.8   | 043 9676    | 7662        | 2.0  | 2338       | 10   |  |
| 11' | 8.954 4991 | 233.0   | 11.045 5009 | 8.956 2672 | 234.8   | 11.043 7328 | 10.001 7682 | 1.9  | 9.998 2318 | 50'  |  |
|     | co-sin.    | dif. 1" | sec.        | co-tang.   | dif. 1" | tang.       | co-sec.     | d.1" | sin.       |      |  |

5°

174°

|    | sin.       | dif 1''  | co-sec.     | tang.      | dif 1''  | co-tang.    | sec.       | d.1'' | co-sin.       |
|----|------------|----------|-------------|------------|----------|-------------|------------|-------|---------------|
| 10 | 8.954 4991 | 232.8    | 11.045 5009 | 8.956 2672 | 234.7    | 11.043 7328 | 10.0017682 |       | 9.9982318 50' |
| 10 | 954 7319   | 232.6    | 045 2681    | 956 5019   | 234.6    | 043 4981    | 7701       | 1.9   | 2299 50       |
| 20 | 954 9645   | 232.6    | 045 0355    | 956 7365   | 234.4    | 043 2635    | 7720       | 1.9   | 2280 40       |
| 30 | 955 1971   | 232.4    | 044 8029    | 956 9709   | 234.4    | 043 0291    | 7739       | 1.9   | 2261 30       |
| 40 | 955 4295   | 232.3    | 044 5705    | 957 2053   | 234.2    | 042 7947    | 7758       | 1.9   | 2242 20       |
| 50 | 955 6618   | 232.2    | 044 3382    | 957 4395   | 234.0    | 042 5605    | 7777       | 1.9   | 2223 10       |
| 11 | 8.955 8940 | 232.0    | 11.044 1060 | 8.957 6735 | 234.0    | 11.042 3265 | 10.0017796 |       | 9.9982204 49' |
| 10 | 956 1260   | 231.9    | 043 8740    | 957 9075   | 233.8    | 042 0925    | 7815       | 1.9   | 2185 50       |
| 20 | 956 3579   | 231.8    | 043 6421    | 958 1413   | 233.7    | 041 8587    | 7834       | 1.9   | 2166 40       |
| 30 | 956 5897   | 231.7    | 043 4103    | 958 3750   | 233.7    | 041 6250    | 7853       | 1.9   | 2147 30       |
| 40 | 956 8214   | 231.5    | 043 1786    | 958 6086   | 233.6    | 041 3914    | 7872       | 1.9   | 2128 20       |
| 50 | 957 0529   | 231.4    | 042 9471    | 958 8421   | 233.5    | 041 1579    | 7892       | 2.0   | 2108 10       |
| 12 | 8.957 2843 | 231.3    | 11.042 7157 | 8.959 0754 | 233.3    | 11.040 9246 | 10.0017911 |       | 9.9982089 48' |
| 10 | 957 5156   | 231.2    | 042 4844    | 959 3086   | 233.2    | 040 6914    | 7930       | 1.9   | 2070 50       |
| 20 | 957 7468   | 231.1    | 042 2532    | 959 5417   | 233.1    | 040 4583    | 7949       | 1.9   | 2051 40       |
| 30 | 957 9779   | 230.9    | 042 0221    | 959 7747   | 232.8    | 040 2253    | 7968       | 1.9   | 2032 30       |
| 40 | 958 2088   | 230.8    | 041 7912    | 960 0075   | 232.7    | 039 9925    | 7987       | 1.9   | 2013 20       |
| 50 | 958 4396   | 230.7    | 041 5604    | 960 2402   | 232.6    | 039 7598    | 8007       | 1.9   | 1993 10       |
| 13 | 8.958 6703 | 230.5    | 11.041 3297 | 8.960 4728 | 232.5    | 11.039 5272 | 10.0018026 |       | 9.9981974 47' |
| 10 | 958 9008   | 230.4    | 041 0992    | 960 7053   | 232.4    | 039 2947    | 8045       | 1.9   | 1955 50       |
| 20 | 959 1312   | 230.3    | 040 8688    | 960 9377   | 232.2    | 039 0623    | 8064       | 1.9   | 1936 40       |
| 30 | 959 3615   | 230.2    | 040 6385    | 961 1699   | 232.1    | 038 8301    | 8084       | 2.0   | 1916 30       |
| 40 | 959 5917   | 230.1    | 040 4083    | 961 4020   | 232.0    | 038 5980    | 8103       | 1.9   | 1897 20       |
| 50 | 959 8218   | 229.9    | 040 1782    | 961 6340   | 231.9    | 038 3660    | 8122       | 1.9   | 1878 10       |
| 14 | 8.960 0517 | 229.8    | 11.039 9483 | 8.961 8659 | 231.7    | 11.038 1341 | 10.0018141 |       | 9.9981859 46' |
| 10 | 960 2815   | 229.7    | 039 7185    | 962 0976   | 231.6    | 037 9024    | 8161       | 1.9   | 1839 50       |
| 20 | 960 5112   | 229.6    | 039 4888    | 962 3292   | 231.5    | 037 6708    | 8180       | 1.9   | 1820 40       |
| 30 | 960 7408   | 229.4    | 039 2592    | 962 5607   | 231.4    | 037 4393    | 8199       | 1.9   | 1801 30       |
| 40 | 960 9702   | 229.4    | 039 0298    | 962 7921   | 231.3    | 037 2079    | 8219       | 1.9   | 1782 20       |
| 50 | 961 1996   | 229.2    | 038 8004    | 963 0234   | 231.1    | 036 9766    | 8238       | 1.9   | 1762 10       |
| 15 | 8.961 4288 | 229.1    | 11.038 5712 | 8.963 2545 | 231.0    | 11.036 7455 | 10.0018257 |       | 9.9981743 45' |
| 10 | 961 6579   | 228.9    | 038 3421    | 963 4855   | 230.9    | 036 5145    | 8277       | 1.9   | 1723 50       |
| 20 | 961 8868   | 228.9    | 038 1132    | 963 7164   | 230.8    | 036 2836    | 8296       | 1.9   | 1704 40       |
| 30 | 962 1157   | 228.7    | 037 8843    | 963 9472   | 230.6    | 036 0528    | 8315       | 1.9   | 1685 30       |
| 40 | 962 3444   | 228.6    | 037 6556    | 964 1778   | 230.6    | 035 8222    | 8335       | 1.9   | 1665 20       |
| 50 | 962 5730   | 228.4    | 037 4270    | 964 4084   | 230.4    | 035 5916    | 8354       | 1.9   | 1646 10       |
| 16 | 8.963 8014 | 228.4    | 11.037 1986 | 8.964 6388 | 230.3    | 11.035 3612 | 10.0018374 |       | 9.9981626 44' |
| 10 | 963 0298   | 228.2    | 036 9702    | 964 8691   | 230.3    | 035 1309    | 8373       | 1.9   | 1607 50       |
| 20 | 963 2580   | 228.1    | 036 7420    | 965 0993   | 230.2    | 034 9007    | 8412       | 1.9   | 1588 40       |
| 30 | 963 4861   | 228.0    | 036 5139    | 965 3293   | 229.9    | 034 6707    | 8432       | 1.9   | 1568 30       |
| 40 | 963 7141   | 227.9    | 036 2859    | 965 5592   | 229.9    | 034 4408    | 8451       | 1.9   | 1549 20       |
| 50 | 963 9420   | 227.7    | 036 0580    | 965 7891   | 229.7    | 034 2109    | 8471       | 1.9   | 1529 10       |
| 17 | 8.964 1697 | 227.7    | 11.035 8303 | 8.966 0188 | 229.7    | 11.033 9812 | 10.0018490 |       | 9.9981510 43' |
| 10 | 964 3974   | 227.5    | 035 6026    | 966 2483   | 229.5    | 033 7517    | 8510       | 1.9   | 1490 50       |
| 20 | 964 6249   | 227.4    | 035 3751    | 966 4778   | 229.5    | 033 5222    | 8529       | 1.9   | 1471 40       |
| 30 | 964 8523   | 227.2    | 035 1477    | 966 7071   | 229.3    | 033 2929    | 8549       | 2.0   | 1451 30       |
| 40 | 965 0795   | 227.2    | 034 9205    | 966 9363   | 229.2    | 033 0637    | 8568       | 1.9   | 1432 20       |
| 50 | 965 3067   | 227.0    | 034 6933    | 967 1654   | 229.0    | 032 8346    | 8588       | 1.9   | 1412 10       |
| 18 | 8.965 5337 | 226.9    | 11.034 4663 | 8.967 3944 | 228.9    | 11.032 6056 | 10.0018607 |       | 9.9981393 42' |
| 10 | 965 7606   | 226.8    | 034 2394    | 967 6233   | 228.7    | 032 3767    | 8627       | 1.9   | 1373 50       |
| 20 | 965 9874   | 226.7    | 034 0126    | 967 8520   | 228.7    | 032 1480    | 8646       | 2.0   | 1354 40       |
| 30 | 966 2141   | 226.5    | 033 7859    | 968 0807   | 228.5    | 031 9193    | 8666       | 1.9   | 1334 30       |
| 40 | 966 4406   | 226.5    | 033 5594    | 968 3092   | 228.4    | 031 6908    | 8685       | 1.9   | 1315 20       |
| 50 | 966 6671   | 226.3    | 033 3329    | 968 5376   | 228.2    | 031 4624    | 8705       | 2.0   | 1295 10       |
| 19 | 8.966 8934 | 226.2    | 11.033 1066 | 8.968 7658 | 228.2    | 11.031 2342 | 10.0018725 |       | 9.9981275 41' |
| 10 | 967 1196   | 226.0    | 032 8804    | 968 9940   | 228.0    | 031 0060    | 8744       | 1.9   | 1256 50       |
| 20 | 967 3456   | 226.0    | 032 6544    | 969 2220   | 227.9    | 030 7780    | 8764       | 2.0   | 1236 40       |
| 30 | 967 5716   | 225.8    | 032 4284    | 969 4499   | 227.9    | 030 5501    | 8783       | 1.9   | 1217 30       |
| 40 | 967 7974   | 225.7    | 032 2026    | 969 6777   | 227.8    | 030 3223    | 8803       | 2.0   | 1197 20       |
| 50 | 968 0231   | 225.6    | 031 9769    | 969 9054   | 227.7    | 030 0946    | 8823       | 2.0   | 1177 10       |
| 20 | 8.968 2487 | 225.6    | 11.031 7513 | 8.970 1330 | 227.6    | 11.029 8670 | 10.0018842 |       | 9.9981158 40' |
|    | co-sin.    | dif. 1'' | sec.        | co-tang.   | dif. 1'' | tang.       | co-sec.    | d.1'' | sin.          |

95°

84°



| 5°  |            |          |             |            |          |             |             |        |            | 174° |  |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|--------|------------|------|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |      |  |
| 21' | 8.968 2487 | 225.5    | 11.031 7513 | 8.970 1330 | 227.4    | 11.029 8670 | 10.001 8842 | 2.0    | 9.998 1158 | 40   |  |
| 10  | 968 4742   | 225.4    | 031 5258    | 970 3604   | 227.4    | 029 6396    | 8862        | 2.0    | 1138       | 50   |  |
| 20  | 968 6926   | 225.4    | 031 3004    | 970 5878   | 227.2    | 029 4122    | 8882        | 2.0    | 1118       | 40   |  |
| 30  | 968 9248   | 225.2    | 031 0752    | 970 8150   | 227.2    | 029 1850    | 8901        | 1.9    | 1099       | 30   |  |
| 40  | 969 1500   | 225.0    | 030 8500    | 971 0421   | 227.0    | 028 9579    | 8921        | 2.0    | 1079       | 20   |  |
| 50  | 969 3750   | 224.9    | 030 6250    | 971 2691   | 226.8    | 028 7309    | 8941        | 1.9    | 1059       | 10   |  |
| 21' | 8.969 5929 | 224.7    | 11.030 4001 | 8.971 4959 | 226.8    | 11.028 5041 | 10.001 8960 | 2.0    | 9.998 1040 | 30   |  |
| 10  | 969 8246   | 224.7    | 030 1754    | 971 7227   | 226.6    | 028 2773    | 8980        | 2.0    | 1020       | 50   |  |
| 20  | 970 0493   | 224.5    | 029 9507    | 971 9493   | 226.5    | 028 0507    | 9000        | 2.0    | 1000       | 40   |  |
| 30  | 970 2738   | 224.5    | 029 7262    | 972 1758   | 226.4    | 027 8242    | 9020        | 2.0    | 9980       | 30   |  |
| 40  | 970 4983   | 224.3    | 029 5017    | 972 4022   | 226.3    | 027 5978    | 9039        | 1.9    | 9961       | 20   |  |
| 50  | 970 7226   | 224.2    | 029 2774    | 972 6285   | 226.2    | 027 3715    | 9059        | 2.0    | 9941       | 10   |  |
| 22' | 8.970 9468 | 224.0    | 11.029 0532 | 8.972 8547 | 226.0    | 11.027 1453 | 10.001 9079 | 2.0    | 9.998 0921 | 38   |  |
| 10  | 971 1708   | 224.0    | 028 8292    | 973 0807   | 226.0    | 026 9193    | 9099        | 2.0    | 9901       | 50   |  |
| 20  | 971 3948   | 223.8    | 028 6052    | 973 3067   | 225.8    | 026 6933    | 9119        | 1.9    | 9881       | 40   |  |
| 30  | 971 6186   | 223.8    | 028 3814    | 973 5325   | 225.7    | 026 4675    | 9138        | 2.0    | 9862       | 30   |  |
| 40  | 971 8424   | 223.6    | 028 1576    | 973 7582   | 225.6    | 026 2418    | 9158        | 2.0    | 9842       | 20   |  |
| 50  | 972 0660   | 223.5    | 027 9340    | 973 9838   | 225.4    | 026 0162    | 9178        | 2.0    | 9822       | 10   |  |
| 23' | 8.972 2895 | 223.3    | 11.027 7105 | 8.974 2092 | 225.4    | 11.025 7908 | 10.001 9198 | 2.0    | 9.998 0802 | 37   |  |
| 10  | 972 5128   | 223.3    | 027 4872    | 974 4346   | 225.3    | 025 5654    | 9218        | 2.0    | 9782       | 50   |  |
| 20  | 972 7361   | 223.1    | 027 2639    | 974 6599   | 225.1    | 025 3401    | 9238        | 1.9    | 9762       | 40   |  |
| 30  | 972 9592   | 223.1    | 027 0408    | 974 8850   | 225.0    | 025 1150    | 9257        | 2.0    | 9743       | 30   |  |
| 40  | 973 1823   | 222.9    | 026 8177    | 975 1100   | 224.9    | 024 8900    | 9277        | 2.0    | 9723       | 20   |  |
| 50  | 973 4052   | 222.8    | 026 5948    | 975 3349   | 224.8    | 024 6651    | 9297        | 2.0    | 9703       | 10   |  |
| 24' | 8.973 6280 | 222.7    | 11.026 3720 | 8.975 5597 | 224.7    | 11.024 4403 | 10.001 9317 | 2.0    | 9.998 0683 | 36   |  |
| 10  | 973 8507   | 222.5    | 026 1493    | 975 7844   | 224.5    | 024 2156    | 9337        | 2.0    | 9663       | 50   |  |
| 20  | 974 0732   | 222.5    | 025 9268    | 976 0089   | 224.5    | 023 9911    | 9357        | 2.0    | 9643       | 40   |  |
| 30  | 974 2957   | 222.3    | 025 7043    | 976 2334   | 224.3    | 023 7666    | 9377        | 2.0    | 9623       | 30   |  |
| 40  | 974 5180   | 222.3    | 025 4820    | 976 4577   | 224.2    | 023 5423    | 9397        | 2.0    | 9603       | 20   |  |
| 50  | 974 7403   | 222.1    | 025 2597    | 976 6819   | 224.1    | 023 3181    | 9417        | 2.0    | 9583       | 10   |  |
| 25' | 8.974 9624 | 222.0    | 11.025 0376 | 8.976 9060 | 224.0    | 11.023 0940 | 10.001 9437 | 2.0    | 9.998 0563 | 35   |  |
| 10  | 975 1844   | 221.8    | 024 8156    | 977 1300   | 223.9    | 022 8700    | 9457        | 2.0    | 9563       | 50   |  |
| 20  | 975 4062   | 221.8    | 024 5938    | 977 3539   | 223.8    | 022 6461    | 9477        | 2.0    | 9543       | 40   |  |
| 30  | 975 6280   | 221.7    | 024 3720    | 977 5777   | 223.6    | 022 4223    | 9497        | 2.0    | 9523       | 30   |  |
| 40  | 975 8497   | 221.5    | 024 1503    | 977 8013   | 223.5    | 022 1987    | 9517        | 2.0    | 9503       | 20   |  |
| 50  | 976 0712   | 221.4    | 023 9288    | 978 0248   | 223.5    | 021 9752    | 9537        | 2.0    | 9483       | 10   |  |
| 26' | 8.976 2926 | 221.3    | 11.023 7074 | 8.978 2483 | 223.3    | 11.021 7517 | 10.001 9557 | 2.0    | 9.998 0443 | 34   |  |
| 10  | 976 5139   | 221.2    | 023 4861    | 978 4716   | 223.2    | 021 5284    | 9577        | 2.0    | 9423       | 50   |  |
| 20  | 976 7351   | 221.1    | 023 2649    | 978 6948   | 223.1    | 021 3052    | 9597        | 2.0    | 9403       | 40   |  |
| 30  | 976 9562   | 221.0    | 023 0438    | 978 9179   | 222.9    | 021 0821    | 9617        | 2.0    | 9383       | 30   |  |
| 40  | 977 1772   | 220.8    | 022 8228    | 979 1408   | 222.9    | 020 8592    | 9637        | 2.0    | 9363       | 20   |  |
| 50  | 977 3980   | 220.8    | 022 6020    | 979 3637   | 222.8    | 020 6363    | 9657        | 2.0    | 9343       | 10   |  |
| 27' | 8.977 6188 | 220.6    | 11.022 3812 | 8.979 5865 | 222.6    | 11.020 4135 | 10.001 9677 | 2.0    | 9.998 0323 | 33   |  |
| 10  | 977 8394   | 220.5    | 022 1606    | 979 8091   | 222.5    | 020 1909    | 9697        | 2.0    | 9303       | 50   |  |
| 20  | 978 0599   | 220.4    | 021 9401    | 980 0316   | 222.4    | 019 9684    | 9717        | 2.0    | 9283       | 40   |  |
| 30  | 978 2803   | 220.3    | 021 7197    | 980 2540   | 222.3    | 019 7460    | 9737        | 2.0    | 9263       | 30   |  |
| 40  | 978 5005   | 220.2    | 021 4994    | 980 4763   | 222.2    | 019 5237    | 9757        | 2.0    | 9243       | 20   |  |
| 50  | 978 7208   | 220.0    | 021 2792    | 980 6985   | 222.1    | 019 3015    | 9778        | 2.0    | 9223       | 10   |  |
| 28' | 8.978 9408 | 220.0    | 11.021 0592 | 8.980 9206 | 222.0    | 11.019 0794 | 10.001 9798 | 2.0    | 9.998 0202 | 32   |  |
| 10  | 979 1608   | 219.8    | 020 8392    | 981 1426   | 221.8    | 018 8574    | 9818        | 2.0    | 9182       | 50   |  |
| 20  | 979 3806   | 219.8    | 020 6194    | 981 3644   | 221.8    | 018 6356    | 9838        | 2.0    | 9162       | 40   |  |
| 30  | 979 6004   | 219.6    | 020 3996    | 981 5862   | 221.6    | 018 4138    | 9858        | 2.0    | 9142       | 30   |  |
| 40  | 979 8200   | 219.5    | 020 1800    | 981 8078   | 221.5    | 018 1922    | 9878        | 2.0    | 9122       | 20   |  |
| 50  | 980 0395   | 219.4    | 019 9605    | 982 0293   | 221.4    | 017 9707    | 9899        | 2.0    | 9101       | 10   |  |
| 29' | 8.980 2589 | 219.2    | 11.019 7411 | 8.982 2507 | 221.3    | 11.017 7493 | 10.001 9919 | 2.0    | 9.998 0081 | 31   |  |
| 10  | 980 4781   | 219.2    | 019 5219    | 982 4720   | 221.3    | 017 5280    | 9939        | 2.0    | 9081       | 50   |  |
| 20  | 980 6973   | 219.1    | 019 3027    | 982 6932   | 221.1    | 017 3068    | 9959        | 2.0    | 9061       | 40   |  |
| 30  | 980 9164   | 218.9    | 019 0836    | 982 9143   | 221.0    | 017 0857    | 10.001 9979 | 2.0    | 9.998 0021 | 30   |  |
| 40  | 981 1353   | 218.8    | 018 8647    | 983 1353   | 220.8    | 016 8647    | 10.002 0000 | 2.0    | 9.998 0000 | 20   |  |
| 50  | 981 3541   | 218.8    | 018 6459    | 983 3561   | 220.8    | 016 6439    | 10.002 0020 | 2.0    | 9.997 9980 | 10   |  |
| 30' | 8.981 5729 | 218.8    | 11.018 4271 | 8.983 5769 | 220.8    | 11.016 4231 | 10.002 0040 | 2.0    | 9.997 9960 | 30   |  |

5°

174°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|--------|------------|
| 30' | 8.981 5729 | 218.6    | 11.018 4271 | 8.983 5769 | 220.6    | 11.016 4231 | 10.002 0040 | 2.1    | 9.997 9960 |
| 10  | 881 7915   | 218.5    | 018 2085    | 983 7975   | 220.6    | 016 2025    | 0061        | 2.0    | 9939 50    |
| 20  | 982 0100   | 218.4    | 017 9900    | 984 0181   | 220.4    | 015 9819    | 0081        | 2.0    | 9919 40    |
| 30  | 982 2284   | 218.2    | 017 7716    | 984 2385   | 220.3    | 015 7615    | 0101        | 2.0    | 9899 30    |
| 40  | 982 4466   | 218.2    | 017 5534    | 984 4588   | 220.2    | 015 5412    | 0121        | 2.1    | 9879 20    |
| 50  | 982 6648   | 218.1    | 017 3352    | 984 6790   | 220.1    | 015 3210    | 0142        | 2.0    | 9858 10    |
| 31' | 8.982 8829 | 217.9    | 11.017 1171 | 8.984 8991 | 220.0    | 11.015 1009 | 10.002 0162 | 2.0    | 9.997 9838 |
| 10  | 983 1006   | 217.9    | 016 8992    | 985 1191   | 219.8    | 014 8809    | 0182        | 2.1    | 9818 50    |
| 20  | 983 3187   | 217.7    | 016 6813    | 985 3389   | 219.8    | 014 6611    | 0203        | 2.0    | 9797 40    |
| 30  | 983 5364   | 217.6    | 016 4636    | 985 5587   | 219.6    | 014 4413    | 0223        | 2.0    | 9777 30    |
| 40  | 983 7540   | 217.5    | 016 2460    | 985 7783   | 219.6    | 014 2217    | 0243        | 2.1    | 9757 20    |
| 50  | 983 9715   | 217.4    | 016 0285    | 985 9979   | 219.4    | 014 0021    | 0264        | 2.0    | 9736 10    |
| 32' | 8.984 1889 | 217.3    | 11.015 8111 | 8.986 2173 | 219.4    | 11.013 7827 | 10.002 0284 | 2.1    | 9.997 9716 |
| 10  | 984 4062   | 217.2    | 015 5938    | 986 4367   | 219.2    | 013 5633    | 0305        | 2.0    | 9695 50    |
| 20  | 984 6234   | 217.2    | 015 3766    | 986 6559   | 219.2    | 013 3441    | 0325        | 2.0    | 9675 40    |
| 30  | 984 8404   | 217.0    | 015 1596    | 986 8750   | 219.1    | 013 1250    | 0345        | 2.0    | 9655 30    |
| 40  | 985 0574   | 216.8    | 014 9426    | 987 0940   | 218.9    | 012 9060    | 0366        | 2.1    | 9634 20    |
| 50  | 985 2742   | 216.8    | 014 7258    | 987 3129   | 218.8    | 012 6871    | 0386        | 2.1    | 9614 10    |
| 33' | 8.985 4910 | 216.6    | 11.014 5098 | 8.987 5317 | 218.6    | 11.012 4683 | 10.002 0407 | 2.0    | 9.997 9593 |
| 10  | 985 7076   | 216.5    | 014 2924    | 987 7503   | 218.6    | 012 2497    | 0427        | 2.1    | 9573 50    |
| 20  | 985 9241   | 216.4    | 014 0759    | 987 9689   | 218.5    | 012 0311    | 0448        | 2.0    | 9552 40    |
| 30  | 986 1405   | 216.3    | 013 8595    | 988 1874   | 218.3    | 011 8126    | 0468        | 2.1    | 9532 30    |
| 40  | 986 3568   | 216.2    | 013 6432    | 988 4057   | 218.3    | 011 5943    | 0489        | 2.0    | 9511 20    |
| 50  | 986 5730   | 216.1    | 013 4270    | 988 6240   | 218.1    | 011 3760    | 0509        | 2.1    | 9491 10    |
| 34' | 8.986 7891 | 215.9    | 11.013 2109 | 8.988 8421 | 218.0    | 11.011 1579 | 10.002 0530 | 2.0    | 9.997 9470 |
| 10  | 987 0051   | 215.9    | 012 9949    | 989 0601   | 217.9    | 010 9399    | 0550        | 2.1    | 9450 50    |
| 20  | 987 2210   | 215.7    | 012 7790    | 989 2780   | 217.9    | 010 7220    | 0571        | 2.0    | 9429 40    |
| 30  | 987 4367   | 215.7    | 012 5633    | 989 4959   | 217.7    | 010 5041    | 0591        | 2.1    | 9409 30    |
| 40  | 987 6524   | 215.5    | 012 3476    | 989 7136   | 217.6    | 010 2864    | 0612        | 2.0    | 9388 20    |
| 50  | 987 8679   | 215.5    | 012 1321    | 989 9312   | 217.5    | 010 0688    | 0632        | 2.1    | 9368 10    |
| 35' | 8.988 0834 | 215.3    | 11.011 9166 | 8.990 1487 | 217.4    | 11.009 8513 | 10.002 0653 | 2.1    | 9.997 9347 |
| 10  | 988 2987   | 215.2    | 011 7013    | 990 3661   | 217.2    | 009 6339    | 0674        | 2.0    | 9346 50    |
| 20  | 988 5139   | 215.1    | 011 4861    | 990 5833   | 217.2    | 009 4167    | 0694        | 2.1    | 9326 40    |
| 30  | 988 7290   | 215.0    | 011 2710    | 990 8005   | 217.1    | 009 1995    | 0715        | 2.0    | 9285 30    |
| 40  | 988 9440   | 214.9    | 011 0560    | 991 0176   | 216.9    | 008 9824    | 0735        | 2.1    | 9265 20    |
| 50  | 989 1589   | 214.8    | 010 8411    | 991 2345   | 216.9    | 008 7655    | 0756        | 2.1    | 9244 10    |
| 36' | 8.989 3737 | 214.7    | 11.010 6263 | 8.991 4514 | 216.7    | 11.008 5486 | 10.002 0777 | 2.0    | 9.997 9223 |
| 10  | 989 5884   | 214.6    | 010 4116    | 991 6681   | 216.7    | 008 3319    | 0797        | 2.1    | 9203 50    |
| 20  | 989 8030   | 214.4    | 010 1970    | 991 8848   | 216.5    | 008 1152    | 0818        | 2.1    | 9182 40    |
| 30  | 990 0174   | 214.4    | 009 9826    | 992 1013   | 216.5    | 007 8987    | 0839        | 2.0    | 9161 30    |
| 40  | 990 2318   | 214.3    | 009 7682    | 992 3178   | 216.3    | 007 6822    | 0859        | 2.1    | 9141 20    |
| 50  | 990 4461   | 214.3    | 009 5539    | 992 5341   | 216.2    | 007 4659    | 0880        | 2.1    | 9120 10    |
| 37' | 8.990 6602 | 214.1    | 11.009 3368 | 8.992 7503 | 216.1    | 11.007 2497 | 10.002 0901 | 2.1    | 9.997 9099 |
| 10  | 990 8743   | 213.9    | 009 1257    | 992 9664   | 216.0    | 007 0336    | 0922        | 2.0    | 9078 50    |
| 20  | 991 0882   | 213.8    | 008 9118    | 993 1824   | 215.9    | 006 8176    | 0942        | 2.1    | 9058 40    |
| 30  | 991 3020   | 213.8    | 008 6980    | 993 3983   | 215.8    | 006 6017    | 0963        | 2.1    | 9037 30    |
| 40  | 991 5158   | 213.6    | 008 4842    | 993 6141   | 215.7    | 006 3859    | 0984        | 2.0    | 9016 20    |
| 50  | 991 7294   | 213.5    | 008 2706    | 993 8298   | 215.6    | 006 1702    | 1004        | 2.1    | 8995 10    |
| 38' | 8.991 9429 | 213.4    | 11.008 0571 | 8.994 0454 | 215.5    | 11.005 9546 | 10.002 1025 | 2.1    | 9.997 8975 |
| 10  | 992 1563   | 213.3    | 007 8437    | 994 2609   | 215.4    | 005 7391    | 1046        | 2.1    | 8954 50    |
| 20  | 992 3696   | 213.2    | 007 6304    | 994 4763   | 215.2    | 005 5237    | 1067        | 2.1    | 8933 40    |
| 30  | 992 5828   | 213.1    | 007 4172    | 994 6915   | 215.2    | 005 3085    | 1088        | 2.0    | 8912 30    |
| 40  | 992 7959   | 213.0    | 007 2041    | 994 9067   | 215.1    | 005 0933    | 1108        | 2.1    | 8892 20    |
| 50  | 993 0089   | 212.8    | 006 9911    | 995 1218   | 214.9    | 004 8782    | 1129        | 2.1    | 8871 10    |
| 39' | 8.993 2217 | 212.8    | 11.006 7783 | 8.995 3367 | 214.9    | 11.004 6633 | 10.002 1150 | 2.1    | 9.997 8850 |
| 10  | 993 4345   | 212.7    | 006 5655    | 995 5516   | 214.7    | 004 4484    | 1171        | 2.1    | 8849 50    |
| 20  | 993 6472   | 212.5    | 006 3528    | 995 7663   | 214.7    | 004 2337    | 1192        | 2.1    | 8828 40    |
| 30  | 993 8597   | 212.5    | 006 1403    | 995 9810   | 214.5    | 004 0190    | 1213        | 2.0    | 8807 30    |
| 40  | 994 0722   | 212.3    | 005 9278    | 996 1955   | 214.5    | 003 8045    | 1233        | 2.1    | 8786 20    |
| 50  | 994 2845   | 212.3    | 005 7155    | 996 4100   | 214.3    | 003 5900    | 1254        | 2.1    | 8765 10    |
| 40' | 8.994 4968 | 212.2    | 11.005 5032 | 8.996 6243 | 214.3    | 11.003 3757 | 10.002 1275 | 2.1    | 9.997 8725 |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d. 1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|--------|------|
|--|---------|----------|------|----------|----------|-------|---------|--------|------|

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|     | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |
|-----|------------|---------|-------------|------------|---------|-------------|-------------|-------|------------|
| 40' | 8.994 4968 | 212.1   | 11.005 5032 | 8.996 6243 | 214.2   | 11.003 3757 | 10.002 1275 | 2.1   | 9.997 8725 |
| 10  | 994 7089   | 212.1   | 005 2911    | 996 8385   | 214.2   | 003 1615    | 1266        | 2.1   | 8704 50    |
| 20  | 994 9210   | 211.9   | 005 0790    | 997 0527   | 214.0   | 002 9473    | 1317        | 2.1   | 8683 40    |
| 30  | 995 1329   | 211.8   | 004 8671    | 997 2667   | 213.9   | 002 7333    | 1338        | 2.1   | 8662 30    |
| 40  | 995 3447   | 211.8   | 004 6553    | 997 4806   | 213.8   | 002 5194    | 1359        | 2.1   | 8641 20    |
| 50  | 995 5565   | 211.6   | 004 4435    | 997 6944   | 213.7   | 002 3056    | 1380        | 2.1   | 8620 10    |
| 41' | 8.995 7681 | 211.5   | 11.004 2319 | 8.997 9081 | 213.7   | 11.002 0919 | 10.002 1401 | 2.1   | 9.997 8599 |
| 10  | 995 9796   | 211.4   | 004 0204    | 998 1218   | 213.5   | 001 8782    | 1422        | 2.1   | 8578 50    |
| 20  | 996 1910   | 211.3   | 003 8090    | 998 3353   | 213.4   | 001 6647    | 1443        | 2.1   | 8557 40    |
| 30  | 996 4023   | 211.2   | 003 5977    | 998 5487   | 213.3   | 001 4513    | 1464        | 2.1   | 8536 30    |
| 40  | 996 6135   | 211.1   | 003 3865    | 998 7620   | 213.2   | 001 2380    | 1485        | 2.1   | 8515 20    |
| 50  | 996 8246   | 211.0   | 003 1754    | 998 9752   | 213.1   | 001 0248    | 1506        | 2.1   | 8494 10    |
| 42' | 8.997 0356 | 210.9   | 11.002 9644 | 8.999 1883 | 213.0   | 11.000 8117 | 10.002 1527 | 2.1   | 9.997 8473 |
| 10  | 997 2465   | 210.8   | 002 7535    | 999 4013   | 212.9   | 000 5987    | 1548        | 2.1   | 8452 50    |
| 20  | 997 4573   | 210.7   | 002 5427    | 999 6142   | 212.8   | 000 3858    | 1569        | 2.1   | 8431 40    |
| 30  | 997 6680   | 210.6   | 002 3320    | 8.999 8270 | 212.7   | 11.000 1730 | 1590        | 2.1   | 8410 30    |
| 40  | 997 8786   | 210.5   | 002 1214    | 9.000 0397 | 212.7   | 10.999 9603 | 1611        | 2.1   | 8389 20    |
| 50  | 998 0891   | 210.3   | 001 9109    | 000 2522   | 212.5   | 999 7478    | 1632        | 2.1   | 8368 10    |
| 43' | 8.998 2994 | 210.3   | 11.001 7006 | 9.000 4647 | 212.4   | 10.999 5353 | 10.002 1653 | 2.1   | 9.997 8347 |
| 10  | 998 5097   | 210.2   | 001 4903    | 000 6771   | 212.3   | 999 3229    | 1674        | 2.1   | 8326 50    |
| 20  | 998 7199   | 210.1   | 001 2801    | 000 8894   | 212.2   | 999 1106    | 1695        | 2.1   | 8305 40    |
| 30  | 998 9300   | 209.9   | 001 0700    | 001 1016   | 212.0   | 998 8984    | 1716        | 2.1   | 8284 30    |
| 40  | 999 1399   | 209.9   | 000 8601    | 001 3136   | 212.0   | 998 6864    | 1737        | 2.1   | 8263 20    |
| 50  | 999 3498   | 209.7   | 000 6502    | 001 5256   | 211.9   | 998 4744    | 1758        | 2.1   | 8242 10    |
| 44' | 8.999 5595 | 209.7   | 11.000 4405 | 9.001 7375 | 211.8   | 10.998 2625 | 10.002 1780 | 2.1   | 9.997 8220 |
| 10  | 999 7692   | 209.6   | 000 2308    | 001 9493   | 211.7   | 998 0507    | 1801        | 2.1   | 8199 50    |
| 20  | 8.999 9788 | 209.4   | 11.000 0212 | 002 1610   | 211.5   | 997 8390    | 1822        | 2.1   | 8178 40    |
| 30  | 9.000 1884 | 209.4   | 10.999 8118 | 002 3725   | 211.5   | 997 6275    | 1843        | 2.1   | 8157 30    |
| 40  | 000 3976   | 209.2   | 999 6024    | 002 5840   | 211.4   | 997 4160    | 1864        | 2.1   | 8136 20    |
| 50  | 000 6068   | 209.2   | 999 3932    | 002 7954   | 211.2   | 997 2046    | 1885        | 2.1   | 8115 10    |
| 45' | 9.000 8160 | 209.0   | 10.999 1840 | 9.003 0066 | 211.2   | 10.996 9934 | 10.002 1907 | 2.1   | 9.997 8093 |
| 10  | 001 0250   | 209.0   | 998 9750    | 003 2178   | 211.1   | 996 7822    | 1928        | 2.1   | 8092 50    |
| 20  | 001 2340   | 208.8   | 998 7660    | 003 4289   | 210.9   | 996 5711    | 1949        | 2.1   | 8051 40    |
| 30  | 001 4428   | 208.8   | 998 5572    | 003 6398   | 210.9   | 996 3602    | 1970        | 2.1   | 8030 30    |
| 40  | 001 6516   | 208.6   | 998 3484    | 003 8507   | 210.8   | 996 1493    | 1991        | 2.1   | 8009 20    |
| 50  | 001 8602   | 208.5   | 998 1398    | 004 0615   | 210.6   | 995 9385    | 2013        | 2.1   | 7987 10    |
| 46' | 9.002 0687 | 208.5   | 10.997 9313 | 9.004 2721 | 210.6   | 10.995 7279 | 10.002 2034 | 2.1   | 9.997 7966 |
| 10  | 002 2772   | 208.3   | 997 7228    | 004 4827   | 210.5   | 995 5173    | 2055        | 2.1   | 7945 50    |
| 20  | 002 4855   | 208.3   | 997 5145    | 004 6932   | 210.3   | 995 3068    | 2077        | 2.1   | 7923 40    |
| 30  | 002 6938   | 208.1   | 997 3062    | 004 9035   | 210.3   | 995 0965    | 2098        | 2.1   | 7902 30    |
| 40  | 002 9019   | 208.0   | 997 0981    | 005 1138   | 210.2   | 994 8862    | 2119        | 2.1   | 7881 20    |
| 50  | 003 1099   | 208.0   | 996 8901    | 005 3240   | 210.0   | 994 6760    | 2140        | 2.1   | 7860 10    |
| 47' | 9.003 3179 | 207.8   | 10.996 6821 | 9.005 5340 | 210.0   | 10.994 4660 | 10.002 2162 | 2.1   | 9.997 7838 |
| 10  | 003 5257   | 207.7   | 996 4743    | 005 7440   | 209.9   | 994 2560    | 2183        | 2.1   | 7817 50    |
| 20  | 003 7334   | 207.7   | 996 2666    | 005 9539   | 209.8   | 994 0461    | 2204        | 2.1   | 7796 40    |
| 30  | 003 9411   | 207.5   | 996 0589    | 006 1637   | 209.6   | 993 8363    | 2226        | 2.1   | 7774 30    |
| 40  | 004 1486   | 207.4   | 995 8514    | 006 3733   | 209.6   | 993 6267    | 2247        | 2.1   | 7753 20    |
| 50  | 004 3560   | 207.4   | 995 6440    | 006 5829   | 209.5   | 993 4171    | 2269        | 2.1   | 7731 10    |
| 48' | 9.004 5634 | 207.1   | 10.995 4366 | 9.006 7924 | 209.5   | 10.993 2076 | 10.002 2290 | 2.1   | 9.997 7710 |
| 10  | 004 7706   | 207.2   | 995 2294    | 007 0017   | 209.3   | 992 9983    | 2311        | 2.1   | 7689 50    |
| 20  | 004 9778   | 207.0   | 995 0222    | 007 2110   | 209.2   | 992 7890    | 2333        | 2.1   | 7667 40    |
| 30  | 005 1848   | 206.9   | 994 8152    | 007 4202   | 209.1   | 992 5798    | 2354        | 2.1   | 7646 30    |
| 40  | 005 3917   | 206.9   | 994 6083    | 007 6293   | 209.1   | 992 3707    | 2376        | 2.1   | 7624 20    |
| 50  | 005 5986   | 206.7   | 994 4014    | 007 8383   | 208.8   | 992 1617    | 2397        | 2.1   | 7603 10    |
| 49' | 9.005 8053 | 206.6   | 10.994 1947 | 9.008 0471 | 208.8   | 10.991 9529 | 10.002 2418 | 2.1   | 9.997 7580 |
| 10  | 006 0119   | 206.6   | 993 9881    | 008 2559   | 208.7   | 991 7441    | 2440        | 2.1   | 7560 50    |
| 20  | 006 2185   | 206.4   | 993 7815    | 008 4646   | 208.6   | 991 5354    | 2461        | 2.1   | 7539 40    |
| 30  | 006 4249   | 206.3   | 993 5751    | 008 6732   | 208.5   | 991 3268    | 2483        | 2.1   | 7517 30    |
| 40  | 006 6312   | 206.3   | 993 3688    | 008 8817   | 208.4   | 991 1183    | 2504        | 2.1   | 7496 20    |
| 50  | 006 8375   | 206.1   | 993 1625    | 009 0901   | 208.3   | 990 9099    | 2526        | 2.1   | 7474 10    |
| 50' | 9.007 0436 |         | 10.992 9564 | 9.009 2984 |         | 10.990 7016 | 10.002 2547 |       | 9.997 7453 |



90°

174°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |     |
|----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|-----|
| 50 | 9.007 0436 | 206.1    | 10.992 9564 | 9.009 2984 | 208.1    | 10.990 7016 | 10.002 2547 | 2.2   | 9.997 7453 | 10' |
| 10 | 007 2497   | 205.9    | 992 7503    | 009 5665   | 208.1    | 990 4935    | 2569        | 2.1   | 7431       | 50  |
| 20 | 007 4556   | 205.9    | 992 5444    | 009 7146   | 208.0    | 990 2854    | 2590        | 2.2   | 7410       | 40  |
| 30 | 007 6615   | 205.9    | 992 3385    | 009 9226   | 207.9    | 990 0774    | 2612        | 2.1   | 7388       | 30  |
| 40 | 007 8674   | 205.7    | 992 1328    | 010 1305   | 207.8    | 989 8695    | 2633        | 2.2   | 7367       | 20  |
| 50 | 008 0729   | 205.5    | 991 9271    | 010 3383   | 207.8    | 989 6517    | 2655        | 2.2   | 7345       | 10  |
| 51 | 9.008 2784 | 205.5    | 10.991 7216 | 9.010 5461 | 207.6    | 10.989 4539 | 10.002 2677 | 2.1   | 9.997 7323 | 9'  |
| 10 | 008 4839   | 205.3    | 991 5161    | 010 7537   | 207.6    | 989 2463    | 2698        | 2.2   | 7302       | 50  |
| 20 | 008 6892   | 205.3    | 991 3108    | 010 9612   | 207.5    | 989 0388    | 2720        | 2.1   | 7280       | 40  |
| 30 | 008 8945   | 205.1    | 991 1055    | 011 1686   | 207.3    | 988 8314    | 2741        | 2.2   | 7259       | 30  |
| 40 | 009 0996   | 204.9    | 990 9004    | 011 3759   | 207.2    | 988 6241    | 2763        | 2.2   | 7237       | 20  |
| 50 | 009 3047   | 204.9    | 990 6953    | 011 5831   | 207.2    | 988 4169    | 2785        | 2.1   | 7215       | 10  |
| 51 | 9.009 5096 | 204.9    | 10.990 4904 | 9.011 7903 | 207.0    | 10.988 2097 | 10.002 2806 | 2.2   | 9.997 7194 | 8'  |
| 10 | 009 7145   | 204.8    | 990 2855    | 011 9973   | 206.9    | 988 0027    | 2828        | 2.1   | 7172       | 50  |
| 20 | 009 9193   | 204.6    | 990 0807    | 012 2042   | 206.8    | 987 7958    | 2849        | 2.2   | 7151       | 40  |
| 30 | 010 1239   | 204.6    | 989 8761    | 012 4110   | 206.8    | 987 5890    | 2871        | 2.2   | 7129       | 30  |
| 40 | 010 3285   | 204.5    | 989 6715    | 012 6178   | 206.6    | 987 3822    | 2893        | 2.1   | 7107       | 20  |
| 50 | 010 5330   | 204.4    | 989 4670    | 012 8244   | 206.6    | 987 1756    | 2914        | 2.2   | 7086       | 10  |
| 51 | 9.010 7374 | 204.2    | 10.989 2626 | 9.013 0310 | 206.4    | 10.986 9690 | 10.002 2936 | 2.2   | 9.997 7064 | 7'  |
| 10 | 010 9416   | 204.2    | 989 0584    | 013 2374   | 206.4    | 986 7626    | 2958        | 2.2   | 7042       | 50  |
| 20 | 011 1458   | 204.1    | 988 8542    | 013 4438   | 206.2    | 986 5562    | 2980        | 2.1   | 7020       | 40  |
| 30 | 011 3499   | 204.0    | 988 6501    | 013 6500   | 206.2    | 986 3500    | 3001        | 2.2   | 6999       | 30  |
| 40 | 011 5539   | 203.9    | 988 4461    | 013 8562   | 206.1    | 986 1438    | 3023        | 2.2   | 6977       | 20  |
| 50 | 011 7578   | 203.8    | 988 2422    | 014 0623   | 205.9    | 985 9377    | 3045        | 2.2   | 6955       | 10  |
| 51 | 9.011 9616 | 203.7    | 10.988 0384 | 9.014 2682 | 205.9    | 10.985 7318 | 10.002 3067 | 2.1   | 9.997 6933 | 6'  |
| 10 | 012 1653   | 203.6    | 987 8347    | 014 4741   | 205.8    | 985 5259    | 3088        | 2.2   | 6912       | 50  |
| 20 | 012 3689   | 203.5    | 987 6311    | 014 6799   | 205.7    | 985 3201    | 3110        | 2.2   | 6890       | 40  |
| 30 | 012 5724   | 203.4    | 987 4276    | 014 8856   | 205.6    | 985 1144    | 3132        | 2.2   | 6868       | 30  |
| 40 | 012 7758   | 203.3    | 987 2242    | 015 0912   | 205.5    | 984 9088    | 3154        | 2.1   | 6846       | 20  |
| 50 | 012 9791   | 203.2    | 987 0209    | 015 2967   | 205.4    | 984 7033    | 3175        | 2.2   | 6825       | 10  |
| 51 | 9.013 1823 | 203.2    | 10.986 8177 | 9.015 5021 | 205.3    | 10.984 4979 | 10.002 3197 | 2.2   | 9.997 6803 | 5'  |
| 10 | 013 3855   | 203.0    | 986 6145    | 015 7074   | 205.2    | 984 2926    | 3219        | 2.2   | 6781       | 50  |
| 20 | 013 5885   | 202.9    | 986 4115    | 015 9126   | 205.1    | 984 0874    | 3241        | 2.2   | 6759       | 40  |
| 30 | 013 7914   | 202.8    | 986 2086    | 016 1177   | 205.0    | 983 8823    | 3263        | 2.2   | 6737       | 30  |
| 40 | 013 9942   | 202.8    | 986 0058    | 016 3227   | 204.9    | 983 6773    | 3285        | 2.1   | 6715       | 20  |
| 50 | 014 1970   | 202.6    | 985 8030    | 016 5276   | 204.9    | 983 4724    | 3306        | 2.2   | 6694       | 10  |
| 51 | 9.014 3996 | 202.6    | 10.985 6004 | 9.016 7325 | 204.7    | 10.983 2675 | 10.002 3328 | 2.2   | 9.997 6672 | 4'  |
| 10 | 014 6022   | 202.4    | 985 3978    | 016 9372   | 204.6    | 983 0628    | 3350        | 2.2   | 6650       | 50  |
| 20 | 014 8046   | 202.4    | 985 1954    | 017 1418   | 204.6    | 982 8582    | 3372        | 2.2   | 6628       | 40  |
| 30 | 015 0070   | 202.2    | 984 9930    | 017 3464   | 204.4    | 982 6536    | 3394        | 2.2   | 6606       | 30  |
| 40 | 015 2092   | 202.2    | 984 7908    | 017 5508   | 204.4    | 982 4492    | 3416        | 2.2   | 6584       | 20  |
| 50 | 015 4114   | 202.1    | 984 5886    | 017 7552   | 204.2    | 982 2448    | 3438        | 2.2   | 6562       | 10  |
| 51 | 9.015 6135 | 202.1    | 10.984 3865 | 9.017 9594 | 204.2    | 10.982 0406 | 10.002 3460 | 2.2   | 9.997 6540 | 3'  |
| 10 | 015 8154   | 201.9    | 984 1846    | 018 1636   | 204.1    | 981 8364    | 3482        | 2.2   | 6518       | 50  |
| 20 | 016 0173   | 201.8    | 983 9827    | 018 3677   | 204.0    | 981 6323    | 3504        | 2.2   | 6496       | 40  |
| 30 | 016 2191   | 201.7    | 983 7809    | 018 5717   | 203.9    | 981 4283    | 3526        | 2.2   | 6474       | 30  |
| 40 | 016 4208   | 201.6    | 983 5792    | 018 7756   | 203.8    | 981 2244    | 3548        | 2.2   | 6452       | 20  |
| 50 | 016 6224   | 201.5    | 983 3776    | 018 9794   | 203.7    | 981 0206    | 3570        | 2.2   | 6430       | 10  |
| 51 | 9.016 8230 | 201.4    | 10.983 1761 | 9.019 1831 | 203.6    | 10.980 8169 | 10.002 3592 | 2.2   | 9.997 6408 | 2'  |
| 10 | 017 0253   | 201.3    | 982 9747    | 019 3867   | 203.5    | 980 6133    | 3614        | 2.2   | 6386       | 50  |
| 20 | 017 2266   | 201.2    | 982 7734    | 019 5902   | 203.4    | 980 4098    | 3636        | 2.2   | 6364       | 40  |
| 30 | 017 4278   | 201.2    | 982 5722    | 019 7936   | 203.3    | 980 2064    | 3658        | 2.2   | 6342       | 30  |
| 40 | 017 6290   | 201.0    | 982 3710    | 019 9969   | 203.3    | 980 0031    | 3680        | 2.2   | 6320       | 20  |
| 50 | 017 8300   | 200.9    | 982 1700    | 020 2002   | 203.1    | 979 7998    | 3702        | 2.2   | 6298       | 10  |
| 51 | 9.018 0309 | 200.9    | 10.981 9691 | 9.020 4033 | 203.1    | 10.979 5967 | 10.002 3724 | 2.2   | 9.997 6276 | 1'  |
| 10 | 018 2318   | 200.7    | 981 7682    | 020 6064   | 202.9    | 979 3936    | 3746        | 2.2   | 6254       | 50  |
| 20 | 018 4325   | 200.7    | 981 5675    | 020 8093   | 202.9    | 979 1907    | 3768        | 2.2   | 6232       | 40  |
| 30 | 018 6332   | 200.5    | 981 3668    | 021 0122   | 202.8    | 978 9878    | 3790        | 2.2   | 6210       | 30  |
| 40 | 018 8337   | 200.5    | 981 1663    | 021 2150   | 202.6    | 978 7850    | 3812        | 2.2   | 6188       | 20  |
| 50 | 019 0342   | 200.4    | 980 9658    | 021 4176   | 202.6    | 978 5824    | 3834        | 2.3   | 6166       | 10  |
| 51 | 9.019 2346 | 200.4    | 10.980 7654 | 9.021 6202 | 202.6    | 10.978 3798 | 10.002 3857 | 2.2   | 9.997 6143 | 0'  |

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|--|

95°

84°

| 6°  |            |          |             |            |          |             |             |        |            | 173° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|--------|------------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |      |  |  |  |  |  |  |  |  |  |
| 0'  | 9.019 2346 | 200.2    | 10.980 7654 | 9.021 6202 | 202.5    | 10.978 3798 | 10.002 3857 | 2.2    | 9.977 6143 | 60   |  |  |  |  |  |  |  |  |  |
| 10  | 019 4348   | 200.2    | 980 5652    | 021 8227   | 202.4    | 978 1773    | 3879        | 2.2    | 6121       | 54   |  |  |  |  |  |  |  |  |  |
| 20  | 019 6350   | 200.1    | 980 3650    | 022 0251   | 202.3    | 977 9749    | 3901        | 2.2    | 6099       | 46   |  |  |  |  |  |  |  |  |  |
| 30  | 019 8351   | 200.0    | 980 1649    | 022 2274   | 202.2    | 977 7726    | 3923        | 2.2    | 6077       | 38   |  |  |  |  |  |  |  |  |  |
| 40  | 020 0351   | 199.9    | 979 9649    | 022 4296   | 202.2    | 977 5704    | 3945        | 2.2    | 6055       | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 020 2350   | 199.8    | 979 7650    | 022 6318   | 202.0    | 977 3682    | 3967        | 2.2    | 6033       | 22   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.020 4348 | 199.8    | 10.979 5652 | 9.022 8338 | 201.9    | 10.977 1662 | 10.002 3989 | 2.3    | 9.977 6011 | 59   |  |  |  |  |  |  |  |  |  |
| 10  | 020 6346   | 199.6    | 979 3654    | 023 0357   | 201.9    | 976 9643    | 4012        | 2.2    | 5988       | 51   |  |  |  |  |  |  |  |  |  |
| 20  | 020 8342   | 199.5    | 979 1658    | 023 2376   | 201.7    | 976 7624    | 4034        | 2.2    | 5966       | 43   |  |  |  |  |  |  |  |  |  |
| 30  | 021 0337   | 199.5    | 978 9663    | 023 4393   | 201.7    | 976 5607    | 4056        | 2.2    | 5944       | 35   |  |  |  |  |  |  |  |  |  |
| 40  | 021 2332   | 199.3    | 978 7668    | 023 6410   | 201.6    | 976 3590    | 4078        | 2.3    | 5922       | 27   |  |  |  |  |  |  |  |  |  |
| 50  | 021 4325   | 199.3    | 978 5675    | 023 8426   | 201.5    | 976 1574    | 4101        | 2.2    | 5899       | 19   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.021 6318 | 199.2    | 10.978 3682 | 9.024 0441 | 201.4    | 10.975 9559 | 10.002 4123 | 2.2    | 9.977 5877 | 58   |  |  |  |  |  |  |  |  |  |
| 10  | 021 8310   | 199.0    | 978 1690    | 024 2455   | 201.3    | 975 7545    | 4145        | 2.2    | 5855       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 022 0300   | 199.0    | 977 9700    | 024 4468   | 201.2    | 975 5532    | 4167        | 2.3    | 5833       | 42   |  |  |  |  |  |  |  |  |  |
| 30  | 022 2290   | 198.9    | 977 7710    | 024 6480   | 201.1    | 975 3520    | 4190        | 2.2    | 5810       | 34   |  |  |  |  |  |  |  |  |  |
| 40  | 022 4279   | 198.8    | 977 5721    | 024 8491   | 201.0    | 975 1509    | 4212        | 2.2    | 5788       | 26   |  |  |  |  |  |  |  |  |  |
| 50  | 022 6267   | 198.7    | 977 3733    | 025 0501   | 200.9    | 974 9499    | 4234        | 2.3    | 5766       | 18   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.022 8254 | 198.6    | 10.977 1746 | 9.025 2510 | 200.9    | 10.974 7490 | 10.002 4257 | 2.2    | 9.977 5743 | 57   |  |  |  |  |  |  |  |  |  |
| 10  | 023 0240   | 198.5    | 976 9760    | 025 4519   | 200.7    | 974 5481    | 4279        | 2.2    | 5721       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 023 2225   | 198.5    | 976 7775    | 025 6526   | 200.7    | 974 3474    | 4301        | 2.3    | 5699       | 42   |  |  |  |  |  |  |  |  |  |
| 30  | 023 4210   | 198.3    | 976 5790    | 025 8533   | 200.6    | 974 1467    | 4324        | 2.2    | 5676       | 34   |  |  |  |  |  |  |  |  |  |
| 40  | 023 6192   | 198.2    | 976 3807    | 026 0539   | 200.5    | 973 9461    | 4346        | 2.2    | 5654       | 26   |  |  |  |  |  |  |  |  |  |
| 50  | 023 8175   | 198.2    | 976 1825    | 026 2544   | 200.4    | 973 7456    | 4368        | 2.3    | 5632       | 18   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.024 0157 | 198.1    | 10.975 9843 | 9.026 4548 | 200.3    | 10.973 5452 | 10.002 4391 | 2.2    | 9.977 5609 | 56   |  |  |  |  |  |  |  |  |  |
| 10  | 024 2138   | 197.9    | 975 7863    | 026 6551   | 200.2    | 973 3449    | 4413        | 2.2    | 5587       | 48   |  |  |  |  |  |  |  |  |  |
| 20  | 024 4117   | 197.9    | 975 5883    | 026 8553   | 200.1    | 973 1447    | 4435        | 2.3    | 5565       | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 024 6096   | 197.8    | 975 3904    | 027 0554   | 200.0    | 972 9446    | 4458        | 2.2    | 5542       | 32   |  |  |  |  |  |  |  |  |  |
| 40  | 024 8074   | 197.7    | 975 1926    | 027 2554   | 200.0    | 972 7446    | 4480        | 2.2    | 5520       | 24   |  |  |  |  |  |  |  |  |  |
| 50  | 025 0051   | 197.7    | 974 9949    | 027 4554   | 199.8    | 972 5446    | 4503        | 2.3    | 5497       | 16   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.025 2027 | 197.5    | 10.974 7973 | 9.027 6552 | 199.8    | 10.972 3448 | 10.002 4525 | 2.2    | 9.977 5475 | 55   |  |  |  |  |  |  |  |  |  |
| 10  | 025 4002   | 197.5    | 974 5998    | 027 8550   | 199.6    | 972 1450    | 4547        | 2.2    | 5453       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 025 5977   | 197.3    | 974 4023    | 028 0546   | 199.6    | 971 9454    | 4570        | 2.3    | 5430       | 42   |  |  |  |  |  |  |  |  |  |
| 30  | 025 7950   | 197.2    | 974 2050    | 028 2542   | 199.6    | 971 7458    | 4592        | 2.2    | 5408       | 34   |  |  |  |  |  |  |  |  |  |
| 40  | 025 9922   | 197.2    | 974 0078    | 028 4537   | 199.5    | 971 5463    | 4615        | 2.3    | 5385       | 26   |  |  |  |  |  |  |  |  |  |
| 50  | 026 1894   | 197.1    | 973 8106    | 028 6531   | 199.4    | 971 3469    | 4637        | 2.3    | 5363       | 18   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.026 3865 | 197.0    | 10.973 6135 | 9.028 8524 | 199.3    | 10.971 1476 | 10.002 4660 | 2.2    | 9.977 5340 | 54   |  |  |  |  |  |  |  |  |  |
| 10  | 026 5834   | 196.9    | 973 4166    | 029 0517   | 199.3    | 970 9483    | 4682        | 2.2    | 5318       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 026 7803   | 196.8    | 973 2197    | 029 2508   | 199.1    | 970 7492    | 4705        | 2.3    | 5295       | 42   |  |  |  |  |  |  |  |  |  |
| 30  | 026 9771   | 196.7    | 973 0229    | 029 4498   | 199.0    | 970 5502    | 4727        | 2.2    | 5273       | 34   |  |  |  |  |  |  |  |  |  |
| 40  | 027 1738   | 196.6    | 972 8262    | 029 6488   | 198.9    | 970 3512    | 4750        | 2.3    | 5250       | 26   |  |  |  |  |  |  |  |  |  |
| 50  | 027 3704   | 196.5    | 972 6296    | 029 8477   | 198.7    | 970 1523    | 4773        | 2.2    | 5227       | 18   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.027 5669 | 196.5    | 10.972 4331 | 9.030 0464 | 198.7    | 10.969 9536 | 10.002 4795 | 2.2    | 9.977 5205 | 53   |  |  |  |  |  |  |  |  |  |
| 10  | 027 7634   | 196.3    | 972 2366    | 030 2451   | 198.6    | 969 7549    | 4818        | 2.2    | 5189       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 027 9597   | 196.3    | 972 0403    | 030 4437   | 198.5    | 969 5563    | 4840        | 2.3    | 5166       | 42   |  |  |  |  |  |  |  |  |  |
| 30  | 028 1560   | 196.1    | 971 8440    | 030 6422   | 198.5    | 969 3578    | 4863        | 2.2    | 5143       | 34   |  |  |  |  |  |  |  |  |  |
| 40  | 028 3521   | 196.1    | 971 6479    | 030 8407   | 198.3    | 969 1593    | 4885        | 2.3    | 5121       | 26   |  |  |  |  |  |  |  |  |  |
| 50  | 028 5482   | 196.0    | 971 4518    | 031 0390   | 198.3    | 968 9610    | 4908        | 2.3    | 5099       | 18   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.028 7442 | 195.9    | 10.971 2558 | 9.031 2373 | 198.1    | 10.968 7627 | 10.002 4931 | 2.2    | 9.977 5069 | 52   |  |  |  |  |  |  |  |  |  |
| 10  | 028 9401   | 195.8    | 971 0599    | 031 4354   | 198.1    | 968 5646    | 4953        | 2.3    | 5047       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 029 1359   | 195.7    | 970 8641    | 031 6335   | 198.0    | 968 3665    | 4976        | 2.3    | 5024       | 42   |  |  |  |  |  |  |  |  |  |
| 30  | 029 3316   | 195.6    | 970 6684    | 031 8315   | 197.9    | 968 1685    | 4999        | 2.2    | 5001       | 34   |  |  |  |  |  |  |  |  |  |
| 40  | 029 5272   | 195.6    | 970 4728    | 032 0294   | 197.8    | 967 9706    | 5021        | 2.3    | 4979       | 26   |  |  |  |  |  |  |  |  |  |
| 50  | 029 7228   | 195.4    | 970 2772    | 032 2272   | 197.7    | 967 7728    | 5044        | 2.3    | 4956       | 18   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.029 9182 | 195.4    | 10.970 0818 | 9.032 4249 | 197.6    | 10.967 5751 | 10.002 5067 | 2.2    | 9.977 4933 | 51   |  |  |  |  |  |  |  |  |  |
| 10  | 030 1136   | 195.2    | 969 8864    | 032 6225   | 197.5    | 967 3775    | 5089        | 2.3    | 4911       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 030 3088   | 195.2    | 969 6912    | 032 8200   | 197.5    | 967 1800    | 5112        | 2.3    | 4888       | 42   |  |  |  |  |  |  |  |  |  |
| 30  | 030 5040   | 195.1    | 969 4960    | 033 0175   | 197.5    | 966 9825    | 5135        | 2.3    | 4865       | 34   |  |  |  |  |  |  |  |  |  |
| 40  | 030 6991   | 195.0    | 969 3009    | 033 2149   | 197.4    | 966 7851    | 5157        | 2.2    | 4843       | 26   |  |  |  |  |  |  |  |  |  |
| 50  | 030 8941   | 194.9    | 969 1059    | 033 4121   | 197.2    | 966 5879    | 5180        | 2.3    | 4820       | 18   |  |  |  |  |  |  |  |  |  |
| 10' | 9.031 0890 | 194.9    | 10.968 9110 | 9.033 6093 | 197.2    | 10.966 3907 | 10.002 5203 | 2.2    | 9.977 4797 | 60   |  |  |  |  |  |  |  |  |  |

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173°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d.1" | co-sin.       |
|----|------------|----------|-------------|------------|----------|-------------|------------|------|---------------|
| 10 | 0.031 0890 | 194.9    | 10.968 9110 | 9.033 6093 | 197.1    | 10.966 3907 | 10.0025203 | 2.3  | 9.9974797 50' |
| 10 | 031 2839   | 194.7    | 968 7161    | 033 8064   | 197.1    | 966 1936    | 5226       | 2.2  | 4774 50       |
| 20 | 031 4786   | 194.7    | 968 5214    | 034 0035   | 197.9    | 965 9965    | 5248       | 2.3  | 4752 40       |
| 30 | 031 6733   | 194.5    | 968 3267    | 034 2004   | 198.8    | 965 7996    | 5271       | 2.3  | 4729 30       |
| 40 | 031 8678   | 194.5    | 968 1322    | 034 3972   | 198.8    | 965 6028    | 5294       | 2.3  | 4706 20       |
| 50 | 032 0623   | 194.4    | 967 9377    | 034 5940   | 199.6    | 965 4060    | 5317       | 2.3  | 4683 10       |
| 11 | 9.032 2567 | 194.3    | 10.967 7433 | 9.034 7906 | 199.6    | 10.965 2094 | 10.0025340 | 2.2  | 9.9974660 49' |
| 10 | 032 4510   | 194.2    | 967 5490    | 034 9872   | 199.6    | 965 0128    | 5362       | 2.3  | 4638 50       |
| 20 | 032 6452   | 194.1    | 967 3548    | 035 1837   | 199.5    | 964 8163    | 5385       | 2.3  | 4615 40       |
| 30 | 032 8393   | 194.1    | 967 1607    | 035 3801   | 199.4    | 964 6199    | 5408       | 2.3  | 4592 30       |
| 40 | 033 0334   | 193.9    | 966 9666    | 035 5764   | 199.3    | 964 4236    | 5431       | 2.3  | 4569 20       |
| 50 | 033 2273   | 193.9    | 966 7727    | 035 7727   | 199.1    | 964 2273    | 5454       | 2.3  | 4546 10       |
| 12 | 9.033 4212 | 193.7    | 10.966 5788 | 9.035 9688 | 199.1    | 10.964 0312 | 10.0025477 | 2.2  | 9.9974523 48' |
| 10 | 033 6149   | 193.7    | 966 3851    | 036 1649   | 199.0    | 963 8351    | 5499       | 2.3  | 4501 50       |
| 20 | 033 8086   | 193.6    | 966 1914    | 036 3609   | 199.0    | 963 6391    | 5522       | 2.3  | 4478 40       |
| 30 | 034 0022   | 193.5    | 965 9978    | 036 5567   | 199.0    | 963 4433    | 5545       | 2.3  | 4455 30       |
| 40 | 034 1957   | 193.5    | 965 8043    | 036 7526   | 199.9    | 963 2474    | 5568       | 2.3  | 4432 20       |
| 50 | 034 3892   | 193.3    | 965 6108    | 036 9483   | 199.7    | 963 0517    | 5591       | 2.3  | 4409 10       |
| 13 | 9.034 5825 | 193.2    | 10.965 4175 | 9.037 1439 | 199.6    | 10.962 8561 | 10.0025614 | 2.3  | 9.9974386 47' |
| 10 | 034 7757   | 193.2    | 965 2243    | 037 3394   | 199.5    | 962 6606    | 5637       | 2.3  | 4363 50       |
| 20 | 034 9689   | 193.1    | 965 0311    | 037 5349   | 199.4    | 962 4651    | 5660       | 2.3  | 4340 40       |
| 30 | 035 1620   | 193.0    | 964 8380    | 037 7303   | 199.4    | 962 2697    | 5683       | 2.3  | 4317 30       |
| 40 | 035 3550   | 192.9    | 964 6450    | 037 9256   | 199.3    | 962 0744    | 5706       | 2.3  | 4294 20       |
| 50 | 035 5479   | 192.9    | 964 4521    | 038 1208   | 199.2    | 961 8792    | 5729       | 2.3  | 4271 10       |
| 14 | 9.035 7407 | 192.8    | 10.964 2593 | 9.038 3159 | 199.1    | 10.961 6841 | 10.0025752 | 2.3  | 9.9974248 46' |
| 10 | 035 9334   | 192.7    | 964 0666    | 038 5109   | 199.0    | 961 4891    | 5775       | 2.3  | 4225 50       |
| 20 | 036 1261   | 192.7    | 963 8739    | 038 7058   | 199.9    | 961 2942    | 5798       | 2.3  | 4202 40       |
| 30 | 036 3186   | 192.5    | 963 6814    | 038 9007   | 199.9    | 961 0993    | 5821       | 2.3  | 4179 30       |
| 40 | 036 5111   | 192.4    | 963 4889    | 039 0955   | 199.7    | 960 9045    | 5844       | 2.3  | 4156 20       |
| 50 | 036 7035   | 192.3    | 963 2965    | 039 2902   | 199.6    | 960 7098    | 5867       | 2.3  | 4133 10       |
| 15 | 9.036 8958 | 192.2    | 10.963 1042 | 9.039 4848 | 199.6    | 10.960 5152 | 10.0025890 | 2.3  | 9.9974110 45' |
| 10 | 037 0880   | 192.2    | 962 9120    | 039 6793   | 199.5    | 960 3207    | 5913       | 2.3  | 4087 50       |
| 20 | 037 2801   | 192.0    | 962 7199    | 039 8737   | 199.4    | 960 1263    | 5936       | 2.3  | 4064 40       |
| 30 | 037 4721   | 192.0    | 962 5279    | 040 0681   | 199.4    | 959 9319    | 5959       | 2.3  | 4041 30       |
| 40 | 037 6641   | 191.8    | 962 3359    | 040 2623   | 199.2    | 959 7377    | 5982       | 2.3  | 4018 20       |
| 50 | 037 8559   | 191.8    | 962 1441    | 040 4565   | 199.2    | 959 5435    | 6005       | 2.3  | 3995 10       |
| 16 | 9.038 0477 | 191.7    | 10.961 9523 | 9.040 6506 | 199.1    | 10.959 3494 | 10.0026029 | 2.3  | 9.9973971 44' |
| 10 | 038 2394   | 191.6    | 961 7606    | 040 8446   | 199.0    | 959 1554    | 6052       | 2.3  | 3948 50       |
| 20 | 038 4310   | 191.6    | 961 5690    | 041 0385   | 199.9    | 958 9615    | 6075       | 2.3  | 3925 40       |
| 30 | 038 6226   | 191.6    | 961 3774    | 041 2324   | 199.9    | 958 7676    | 6098       | 2.3  | 3902 30       |
| 40 | 038 8140   | 191.4    | 961 1860    | 041 4261   | 199.7    | 958 5739    | 6121       | 2.3  | 3879 20       |
| 50 | 039 0054   | 191.2    | 960 9946    | 041 6198   | 199.7    | 958 3802    | 6144       | 2.3  | 3856 10       |
| 17 | 9.039 1966 | 191.2    | 10.960 8034 | 9.041 8134 | 199.6    | 10.958 1866 | 10.0026167 | 2.3  | 9.9973833 43' |
| 10 | 039 3878   | 191.1    | 960 6122    | 042 0069   | 199.5    | 957 9931    | 6191       | 2.3  | 3809 50       |
| 20 | 039 5789   | 191.1    | 960 4211    | 042 2003   | 199.4    | 957 7997    | 6214       | 2.3  | 3786 40       |
| 30 | 039 7699   | 191.0    | 960 2301    | 042 3936   | 199.3    | 957 6064    | 6237       | 2.3  | 3763 30       |
| 40 | 039 9608   | 190.9    | 960 0392    | 042 5869   | 199.3    | 957 4131    | 6260       | 2.3  | 3740 20       |
| 50 | 040 1517   | 190.9    | 959 8483    | 042 7800   | 199.1    | 957 2200    | 6284       | 2.4  | 3716 10       |
| 18 | 9.040 3424 | 190.7    | 10.959 6576 | 9.042 9731 | 199.1    | 10.957 0269 | 10.0026307 | 2.3  | 9.9973693 42' |
| 10 | 040 5331   | 190.6    | 959 4669    | 043 1661   | 199.0    | 956 8339    | 6330       | 2.3  | 3670 50       |
| 20 | 040 7237   | 190.6    | 959 2763    | 043 3590   | 199.9    | 956 6410    | 6353       | 2.3  | 3647 40       |
| 30 | 040 9142   | 190.5    | 959 0858    | 043 5519   | 199.9    | 956 4481    | 6377       | 2.4  | 3623 30       |
| 40 | 041 1046   | 190.4    | 958 8954    | 043 7446   | 199.7    | 956 2554    | 6400       | 2.3  | 3600 20       |
| 50 | 041 2950   | 190.4    | 958 7050    | 043 9373   | 199.7    | 956 0627    | 6423       | 2.3  | 3577 10       |
| 19 | 9.041 4852 | 190.2    | 10.958 5148 | 9.044 1299 | 199.6    | 10.955 8701 | 10.0026446 | 2.4  | 9.9973554 41' |
| 10 | 041 6754   | 190.2    | 958 3246    | 044 3223   | 199.4    | 955 6777    | 6470       | 2.3  | 3530 50       |
| 20 | 041 8655   | 190.1    | 958 1345    | 044 5148   | 199.3    | 955 4852    | 6493       | 2.3  | 3507 40       |
| 30 | 042 0555   | 189.9    | 957 9445    | 044 7071   | 199.2    | 955 2929    | 6516       | 2.3  | 3484 30       |
| 40 | 042 2454   | 189.9    | 957 7546    | 044 8993   | 199.2    | 955 1007    | 6540       | 2.4  | 3460 20       |
| 50 | 042 4352   | 189.7    | 957 5648    | 045 0915   | 199.1    | 954 9085    | 6563       | 2.3  | 3437 10       |
| 20 | 9.042 6249 | 189.7    | 10.957 3751 | 9.045 2836 | 199.1    | 10.954 7164 | 10.0026586 | 2.3  | 9.9973414 40' |

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|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d.1" | sin. |
|--|---------|----------|------|----------|----------|-------|---------|------|------|
|--|---------|----------|------|----------|----------|-------|---------|------|------|

6°

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|    | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | d.1" | co-sin.    |    |
|----|------------|---------|-------------|------------|---------|-------------|-------------|------|------------|----|
| 20 | 9.042 6249 | 189.7   | 10.957 3751 | 9.045 2836 | 192.0   | 10.954 7164 | 10.002 6586 | 2.4  | 9.997 3414 | 40 |
| 10 | 042 8146   | 189.6   | 957 1854    | 045 4756   | 191.9   | 954 5244    | 6610        | 2.3  | 3390       | 50 |
| 20 | 043 0042   | 189.5   | 956 9958    | 045 6675   | 191.8   | 954 3325    | 6633        | 2.4  | 3367       | 40 |
| 30 | 043 1937   | 189.4   | 956 8063    | 045 8593   | 191.8   | 954 1407    | 6657        | 2.4  | 3343       | 30 |
| 40 | 043 3831   | 189.3   | 956 6169    | 046 0511   | 191.7   | 953 9489    | 6680        | 2.3  | 3320       | 20 |
| 50 | 043 5724   | 189.3   | 956 4276    | 046 2428   | 191.7   | 953 7572    | 6703        | 2.4  | 3297       | 10 |
| 21 | 9.043 7617 | 189.3   | 10.956 2383 | 9.046 4343 | 191.5   | 10.953 5657 | 10.002 6727 | 2.4  | 9.997 3273 | 30 |
| 10 | 043 9508   | 189.1   | 956 0492    | 046 6258   | 191.5   | 953 3742    | 6750        | 2.3  | 3250       | 50 |
| 20 | 044 1399   | 189.0   | 955 8601    | 046 8173   | 191.5   | 953 1827    | 6774        | 2.4  | 3226       | 40 |
| 30 | 044 3289   | 188.9   | 955 6711    | 047 0086   | 191.3   | 952 9914    | 6797        | 2.4  | 3203       | 30 |
| 40 | 044 5178   | 188.9   | 955 4822    | 047 1999   | 191.3   | 952 8001    | 6821        | 2.4  | 3179       | 20 |
| 50 | 044 7066   | 188.8   | 955 2934    | 047 3910   | 191.1   | 952 6090    | 6844        | 2.3  | 3156       | 10 |
| 22 | 9.044 8954 | 188.6   | 10.955 1046 | 9.047 5821 | 191.0   | 10.952 4179 | 10.002 6868 | 2.4  | 9.997 3134 | 30 |
| 10 | 045 0840   | 188.6   | 954 9160    | 047 7731   | 191.0   | 952 2269    | 6891        | 2.3  | 3109       | 50 |
| 20 | 045 2726   | 188.5   | 954 7274    | 047 9641   | 191.0   | 952 0359    | 6915        | 2.4  | 3085       | 40 |
| 30 | 045 4611   | 188.5   | 954 5389    | 048 1549   | 190.8   | 951 8451    | 6938        | 2.3  | 3062       | 30 |
| 40 | 045 6495   | 188.4   | 954 3505    | 048 3457   | 190.8   | 951 6543    | 6962        | 2.4  | 3038       | 20 |
| 50 | 045 8378   | 188.3   | 954 1622    | 048 5364   | 190.7   | 951 4636    | 6985        | 2.3  | 3015       | 10 |
| 23 | 9.046 0261 | 188.2   | 10.953 9939 | 9.048 7270 | 190.6   | 10.951 2730 | 10.002 7009 | 2.4  | 9.997 2991 | 30 |
| 10 | 046 2143   | 188.0   | 953 7857    | 048 9175   | 190.5   | 951 0825    | 7032        | 2.3  | 2968       | 50 |
| 20 | 046 4023   | 188.0   | 953 5977    | 049 1079   | 190.4   | 950 8921    | 7056        | 2.4  | 2944       | 40 |
| 30 | 046 5903   | 188.0   | 953 4097    | 049 2983   | 190.4   | 950 7017    | 7079        | 2.3  | 2921       | 30 |
| 40 | 046 7783   | 188.0   | 953 2217    | 049 4886   | 190.3   | 950 5114    | 7103        | 2.4  | 2897       | 20 |
| 50 | 046 9661   | 187.8   | 953 0339    | 049 6788   | 190.2   | 950 3212    | 7127        | 2.4  | 2873       | 10 |
| 24 | 9.047 1538 | 187.7   | 10.952 8462 | 9.049 8689 | 190.1   | 10.950 1311 | 10.002 7150 | 2.4  | 9.997 2850 | 30 |
| 10 | 047 3415   | 187.6   | 952 6585    | 050 0589   | 190.0   | 949 9411    | 7174        | 2.3  | 2826       | 50 |
| 20 | 047 5291   | 187.6   | 952 4709    | 050 2489   | 190.0   | 949 7511    | 7198        | 2.4  | 2802       | 40 |
| 30 | 047 7166   | 187.5   | 952 2834    | 050 4387   | 189.8   | 949 5613    | 7221        | 2.3  | 2779       | 30 |
| 40 | 047 9040   | 187.4   | 952 0960    | 050 6285   | 189.8   | 949 3715    | 7245        | 2.4  | 2755       | 20 |
| 50 | 048 0914   | 187.4   | 951 9086    | 050 8182   | 189.7   | 949 1818    | 7268        | 2.3  | 2732       | 10 |
| 25 | 9.048 2786 | 187.2   | 10.951 7214 | 9.051 0078 | 189.6   | 10.948 9922 | 10.002 7292 | 2.4  | 9.997 2708 | 30 |
| 10 | 048 4658   | 187.2   | 951 5342    | 051 1974   | 189.6   | 948 8026    | 7316        | 2.4  | 2684       | 50 |
| 20 | 048 6529   | 187.1   | 951 3471    | 051 3869   | 189.5   | 948 6131    | 7340        | 2.4  | 2660       | 40 |
| 30 | 048 8399   | 187.0   | 951 1601    | 051 5762   | 189.3   | 948 4238    | 7363        | 2.3  | 2637       | 30 |
| 40 | 049 0269   | 187.0   | 950 9731    | 051 7656   | 189.4   | 948 2344    | 7387        | 2.4  | 2613       | 20 |
| 50 | 049 2137   | 186.8   | 950 7863    | 051 9548   | 189.2   | 948 0452    | 7411        | 2.4  | 2589       | 10 |
| 26 | 9.049 4005 | 186.8   | 10.950 5995 | 9.052 1439 | 189.1   | 10.947 8561 | 10.002 7434 | 2.4  | 9.997 2566 | 30 |
| 10 | 049 5872   | 186.6   | 950 4128    | 052 3330   | 189.1   | 947 6670    | 7458        | 2.4  | 2542       | 50 |
| 20 | 049 7738   | 186.6   | 950 2262    | 052 5220   | 189.0   | 947 4780    | 7482        | 2.4  | 2518       | 40 |
| 30 | 049 9603   | 186.5   | 950 0397    | 052 7109   | 188.9   | 947 2891    | 7506        | 2.4  | 2494       | 30 |
| 40 | 050 1468   | 186.5   | 949 8532    | 052 8997   | 188.8   | 947 1003    | 7529        | 2.3  | 2471       | 20 |
| 50 | 050 3331   | 186.3   | 949 6669    | 053 0884   | 188.7   | 946 9116    | 7553        | 2.4  | 2447       | 10 |
| 27 | 9.050 5194 | 186.3   | 10.949 4806 | 9.053 2771 | 188.7   | 10.946 7229 | 10.002 7577 | 2.4  | 9.997 2423 | 30 |
| 10 | 050 7056   | 186.2   | 949 2944    | 053 4657   | 188.6   | 946 5343    | 7601        | 2.4  | 2399       | 50 |
| 20 | 050 8917   | 186.1   | 949 1083    | 053 6542   | 188.5   | 946 3458    | 7625        | 2.4  | 2375       | 40 |
| 30 | 051 0778   | 185.9   | 948 9222    | 053 8426   | 188.4   | 946 1574    | 7649        | 2.4  | 2351       | 30 |
| 40 | 051 2637   | 185.9   | 948 7363    | 054 0310   | 188.4   | 945 9690    | 7672        | 2.3  | 2328       | 20 |
| 50 | 051 4496   | 185.8   | 948 5504    | 054 2192   | 188.2   | 945 7808    | 7696        | 2.4  | 2304       | 10 |
| 28 | 9.051 6354 | 185.8   | 10.948 3646 | 9.054 4074 | 188.2   | 10.945 5926 | 10.002 7720 | 2.4  | 9.997 2280 | 30 |
| 10 | 051 8211   | 185.7   | 948 1789    | 054 5955   | 188.1   | 945 4045    | 7744        | 2.4  | 2256       | 50 |
| 20 | 052 0068   | 185.7   | 947 9932    | 054 7836   | 188.1   | 945 2164    | 7768        | 2.4  | 2232       | 40 |
| 30 | 052 1923   | 185.5   | 947 8077    | 054 9715   | 187.9   | 945 0285    | 7792        | 2.4  | 2208       | 30 |
| 40 | 052 3778   | 185.4   | 947 6222    | 055 1594   | 187.9   | 944 8406    | 7816        | 2.4  | 2184       | 20 |
| 50 | 052 5632   | 185.3   | 947 4368    | 055 3472   | 187.8   | 944 6528    | 7840        | 2.3  | 2160       | 10 |
| 29 | 9.052 7485 | 185.3   | 10.947 2515 | 9.055 5349 | 187.7   | 10.944 4651 | 10.002 7863 | 2.4  | 9.997 2137 | 30 |
| 10 | 052 9338   | 185.3   | 947 0662    | 055 7225   | 187.6   | 944 2775    | 7887        | 2.4  | 2113       | 50 |
| 20 | 053 1189   | 185.1   | 946 8811    | 055 9101   | 187.6   | 944 0899    | 7911        | 2.4  | 2089       | 40 |
| 30 | 053 3040   | 185.0   | 946 6960    | 056 0975   | 187.4   | 943 9025    | 7935        | 2.4  | 2065       | 30 |
| 40 | 053 4890   | 184.9   | 946 5110    | 056 2849   | 187.4   | 943 7151    | 7959        | 2.4  | 2041       | 20 |
| 50 | 053 6739   | 184.9   | 946 3261    | 056 4722   | 187.3   | 943 5278    | 7983        | 2.4  | 2017       | 10 |
| 30 | 9.053 8588 | 184.9   | 10.946 1412 | 9.056 6595 | 187.3   | 10.943 3405 | 10.002 8007 | 2.4  | 9.997 1993 | 30 |

98°

83°



90° 173°

|     | sin.      | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |     |
|-----|-----------|-----------|-------------|------------|-----------|-------------|------------|-------|-----------|-----|
| 30  | 0.53 8588 | 184.7     | 10.946 1412 | 9.056 6595 | 187.1     | 10.943 3405 | 10.0028007 | 2.4   | 9.9971993 | 30' |
| 10  | 054 0435  | 184.7     | 945 9565    | 056 8466   | 187.1     | 943 1534    | 8031       | 2.4   | 1969      | 50  |
| 20  | 054 2282  | 184.6     | 945 7718    | 057 0337   | 187.0     | 942 9663    | 8055       | 2.4   | 1945      | 40  |
| 30  | 054 4128  | 184.5     | 945 5872    | 057 2207   | 186.9     | 942 7793    | 8079       | 2.4   | 1921      | 30  |
| 40  | 054 5973  | 184.5     | 945 4027    | 057 4076   | 186.9     | 942 5924    | 8103       | 2.4   | 1897      | 20  |
| 50  | 054 7818  | 184.3     | 945 2182    | 057 5945   | 186.8     | 942 4055    | 8127       | 2.4   | 1873      | 10  |
| 31  | 054 9661  | 184.3     | 10.945 0339 | 9.057 7813 | 186.6     | 10.942 2187 | 10.0028151 | 2.4   | 9.9971849 | 20' |
| 10  | 055 1504  | 184.2     | 944 8496    | 057 9679   | 186.6     | 942 0321    | 8175       | 2.4   | 1825      | 50  |
| 20  | 055 3346  | 184.1     | 944 6654    | 058 1545   | 186.6     | 941 8455    | 8199       | 2.5   | 1801      | 40  |
| 30  | 055 5187  | 184.1     | 944 4813    | 058 3411   | 186.4     | 941 6589    | 8224       | 2.4   | 1776      | 30  |
| 40  | 055 7028  | 183.9     | 944 2972    | 058 5275   | 186.4     | 941 4723    | 8248       | 2.4   | 1752      | 20  |
| 50  | 055 8867  | 183.9     | 944 1133    | 058 7139   | 186.3     | 941 2861    | 8272       | 2.4   | 1728      | 10  |
| 32  | 056 0706  | 183.8     | 10.943 9294 | 9.058 9002 | 186.2     | 10.941 0998 | 10.0028266 | 2.4   | 9.9971704 | 25' |
| 10  | 056 2544  | 183.8     | 943 7456    | 059 0864   | 186.2     | 940 9136    | 8300       | 2.4   | 1680      | 50  |
| 20  | 056 4382  | 183.6     | 943 5618    | 059 2726   | 186.0     | 940 7274    | 8344       | 2.4   | 1656      | 40  |
| 30  | 056 6218  | 183.6     | 943 3782    | 059 4586   | 186.0     | 940 5414    | 8368       | 2.4   | 1632      | 30  |
| 40  | 056 8054  | 183.5     | 943 1946    | 059 6446   | 185.9     | 940 3554    | 8392       | 2.4   | 1608      | 20  |
| 50  | 056 9889  | 183.4     | 943 0111    | 059 8305   | 185.9     | 940 1695    | 8417       | 2.5   | 1583      | 10  |
| 33  | 057 1723  | 183.3     | 10.942 8277 | 9.060 0164 | 185.7     | 10.939 9836 | 10.0028441 | 2.4   | 9.9971559 | 27' |
| 10  | 057 3556  | 183.3     | 942 6444    | 060 2021   | 185.7     | 939 7979    | 8465       | 2.4   | 1535      | 50  |
| 20  | 057 5388  | 183.2     | 942 4611    | 060 3878   | 185.6     | 939 6122    | 8489       | 2.4   | 1511      | 40  |
| 30  | 057 7221  | 183.1     | 942 2779    | 060 5734   | 185.5     | 939 4266    | 8513       | 2.4   | 1487      | 30  |
| 40  | 057 9052  | 183.0     | 942 0948    | 060 7589   | 185.5     | 939 2411    | 8537       | 2.4   | 1463      | 20  |
| 50  | 058 0882  | 182.9     | 941 9118    | 060 9444   | 185.3     | 939 0556    | 8562       | 2.4   | 1438      | 10  |
| 34  | 058 2711  | 182.9     | 10.941 7289 | 9.061 1297 | 185.3     | 10.938 8703 | 10.0028586 | 2.4   | 9.9971414 | 26' |
| 10  | 058 4540  | 182.8     | 941 5460    | 061 3150   | 185.2     | 938 6850    | 8610       | 2.4   | 1390      | 50  |
| 20  | 058 6368  | 182.7     | 941 3632    | 061 5002   | 185.2     | 938 4998    | 8634       | 2.5   | 1366      | 40  |
| 30  | 058 8195  | 182.7     | 941 1805    | 061 6854   | 185.0     | 938 3146    | 8659       | 2.4   | 1341      | 30  |
| 40  | 059 0022  | 182.5     | 940 9978    | 061 8704   | 185.0     | 938 1296    | 8683       | 2.4   | 1317      | 20  |
| 50  | 059 1848  | 182.5     | 940 8153    | 062 0554   | 184.9     | 937 9446    | 8707       | 2.5   | 1293      | 10  |
| 35  | 059 3672  | 182.4     | 10.940 6328 | 9.062 2403 | 184.9     | 10.937 7597 | 10.0028732 | 2.4   | 9.9971268 | 25' |
| 10  | 059 5499  | 182.3     | 940 4504    | 062 4252   | 184.7     | 937 5748    | 8756       | 2.4   | 1244      | 50  |
| 20  | 059 7319  | 182.3     | 940 2681    | 062 6099   | 184.7     | 937 3901    | 8780       | 2.4   | 1220      | 40  |
| 30  | 059 9142  | 182.1     | 940 0858    | 062 7946   | 184.6     | 937 2054    | 8804       | 2.4   | 1196      | 30  |
| 40  | 060 0963  | 182.1     | 939 9037    | 062 9792   | 184.5     | 937 0208    | 8829       | 2.4   | 1171      | 20  |
| 50  | 060 2784  | 182.0     | 939 7216    | 063 1637   | 184.5     | 936 8363    | 8853       | 2.5   | 1147      | 10  |
| 36  | 060 4604  | 182.0     | 10.939 5396 | 9.063 3482 | 184.3     | 10.936 6518 | 10.0028878 | 2.4   | 9.9971122 | 24' |
| 10  | 060 6424  | 181.8     | 939 3576    | 063 5325   | 184.3     | 936 4675    | 8902       | 2.4   | 1098      | 50  |
| 20  | 060 8242  | 181.8     | 939 1758    | 063 7168   | 184.3     | 936 2832    | 8926       | 2.5   | 1074      | 40  |
| 30  | 061 0060  | 181.7     | 938 9940    | 063 9011   | 184.1     | 936 0989    | 8951       | 2.4   | 1049      | 30  |
| 40  | 061 1877  | 181.6     | 938 8123    | 064 0852   | 184.1     | 935 9148    | 8975       | 2.4   | 1025      | 20  |
| 50  | 061 3693  | 181.6     | 938 6307    | 064 2693   | 184.0     | 935 7307    | 8999       | 2.4   | 1001      | 10  |
| 37  | 061 5509  | 181.5     | 10.938 4491 | 9.064 4533 | 183.9     | 10.935 5467 | 10.0029024 | 2.4   | 9.9970976 | 23' |
| 10  | 061 7324  | 181.4     | 938 2676    | 064 6372   | 183.8     | 935 3628    | 9048       | 2.5   | 9952      | 50  |
| 20  | 061 9138  | 181.3     | 938 0862    | 064 8210   | 183.8     | 935 1790    | 9073       | 2.4   | 9927      | 40  |
| 30  | 062 0951  | 181.2     | 937 9049    | 065 0048   | 183.7     | 934 9952    | 9097       | 2.5   | 9903      | 30  |
| 40  | 062 2763  | 181.2     | 937 7237    | 065 1885   | 183.6     | 934 8115    | 9122       | 2.4   | 9878      | 20  |
| 50  | 062 4575  | 181.1     | 937 5425    | 065 3721   | 183.5     | 934 6279    | 9146       | 2.5   | 9854      | 10  |
| 38  | 062 6386  | 181.0     | 10.937 2614 | 9.065 5556 | 183.5     | 10.934 4444 | 10.0029171 | 2.4   | 9.9970829 | 22' |
| 10  | 062 8196  | 180.9     | 937 1804    | 065 7391   | 183.4     | 934 2609    | 9195       | 2.5   | 9805      | 50  |
| 20  | 063 0005  | 180.9     | 936 9995    | 065 9225   | 183.3     | 934 0775    | 9220       | 2.4   | 9780      | 40  |
| 30  | 063 1814  | 180.8     | 936 8186    | 066 1058   | 183.2     | 933 8942    | 9244       | 2.5   | 9756      | 30  |
| 40  | 063 3622  | 180.7     | 936 6378    | 066 2890   | 183.2     | 933 7110    | 9269       | 2.4   | 9731      | 20  |
| 50  | 063 5429  | 180.6     | 936 4571    | 066 4722   | 183.1     | 933 5278    | 9293       | 2.4   | 9707      | 10  |
| 39  | 063 7235  | 180.6     | 10.936 2765 | 9.066 6553 | 183.0     | 10.933 3447 | 10.0029318 | 2.4   | 9.9970682 | 21' |
| 10  | 063 9041  | 180.5     | 936 0959    | 066 8383   | 182.9     | 933 1617    | 9342       | 2.5   | 9658      | 50  |
| 20  | 064 0846  | 180.4     | 935 9154    | 067 0212   | 182.9     | 932 9788    | 9367       | 2.4   | 9633      | 40  |
| 30  | 064 2650  | 180.3     | 935 7350    | 067 2041   | 182.8     | 932 7959    | 9391       | 2.4   | 9609      | 30  |
| 40  | 064 4453  | 180.2     | 935 5547    | 067 3869   | 182.7     | 932 6131    | 9416       | 2.5   | 9584      | 20  |
| 50  | 064 6255  | 180.2     | 935 3745    | 067 5696   | 182.6     | 932 4304    | 9441       | 2.4   | 9559      | 10  |
| 40' | 064 8057  | 180.2     | 10.935 1943 | 9.067 7522 | 182.6     | 10.932 2478 | 10.0029465 | 2.4   | 9.9970535 | 20' |

| 6°  |            |          |             |            |          |             |            |      |           | 173° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|------------|------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d.1" | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 40' | 9.064 8057 | 180.1    | 10.935 1943 | 9.067 7522 | 182.6    | 10.932 2478 | 10.0029465 | 2.5  | 9.9970535 | 20'  |  |  |  |  |  |  |  |  |  |
| 10  | 064 8858   | 180.0    | 935 0142    | 067 9348   | 182.5    | 932 0652    | 0490       | 2.4  | 0510      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 065 1658   | 180.0    | 934 8342    | 068 1173   | 182.4    | 931 8827    | 9514       | 2.5  | 0486      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 065 3458   | 179.9    | 934 6542    | 068 2997   | 182.3    | 931 7003    | 9539       | 2.5  | 0461      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 065 5257   | 179.8    | 934 4743    | 068 4820   | 182.3    | 931 5180    | 9564       | 2.4  | 0436      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 065 7055   | 179.7    | 934 2945    | 068 6643   | 182.2    | 931 3357    | 9588       | 2.5  | 0412      | 10   |  |  |  |  |  |  |  |  |  |
| 41' | 9.065 8852 | 179.6    | 10.934 1148 | 9.068 8465 | 182.1    | 10.931 1535 | 10.0029613 | 2.5  | 9.9970387 | 19'  |  |  |  |  |  |  |  |  |  |
| 10  | 066 0648   | 179.6    | 933 9352    | 069 0286   | 182.0    | 930 9714    | 9638       | 2.4  | 0362      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 066 2444   | 179.5    | 933 7556    | 069 2106   | 182.0    | 930 7894    | 9662       | 2.5  | 0338      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 066 4239   | 179.4    | 933 5761    | 069 3926   | 181.9    | 930 6074    | 9687       | 2.5  | 0313      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 066 6033   | 179.4    | 933 3967    | 069 5745   | 181.8    | 930 4255    | 9712       | 2.5  | 0288      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 066 7827   | 179.2    | 933 2173    | 069 7563   | 181.8    | 930 2437    | 9737       | 2.4  | 0263      | 10   |  |  |  |  |  |  |  |  |  |
| 42' | 9.066 9619 | 179.2    | 10.933 0381 | 9.069 9381 | 181.6    | 10.930 0619 | 10.0029761 | 2.5  | 9.9970239 | 18'  |  |  |  |  |  |  |  |  |  |
| 10  | 067 1411   | 179.2    | 932 8589    | 070 1197   | 181.6    | 929 8803    | 9766       | 2.5  | 0214      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 067 3203   | 179.2    | 932 6797    | 070 3013   | 181.6    | 929 6987    | 9811       | 2.5  | 0189      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 067 4993   | 179.0    | 932 5007    | 070 4829   | 181.4    | 929 5171    | 9835       | 2.5  | 0165      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 067 6783   | 178.9    | 932 3217    | 070 6643   | 181.4    | 929 3357    | 9860       | 2.5  | 0140      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 067 8572   | 178.8    | 932 1428    | 070 8457   | 181.3    | 929 1543    | 9885       | 2.5  | 0115      | 10   |  |  |  |  |  |  |  |  |  |
| 43' | 9.068 0360 | 178.7    | 10.931 9640 | 9.071 0270 | 181.2    | 10.928 9730 | 10.0029910 | 2.5  | 9.9970090 | 17'  |  |  |  |  |  |  |  |  |  |
| 10  | 068 2147   | 178.7    | 931 7853    | 071 2082   | 181.2    | 928 7918    | 9935       | 2.4  | 0085      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 068 3934   | 178.6    | 931 6066    | 071 3894   | 181.0    | 928 6106    | 9959       | 2.5  | 0041      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 068 5720   | 178.5    | 931 4280    | 071 5704   | 181.0    | 928 4296    | 10.0029984 | 2.5  | 9.9970016 | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 068 7505   | 178.5    | 931 2495    | 071 7515   | 180.9    | 928 2485    | 10.0030009 | 2.5  | 9.9969991 | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 068 9290   | 178.4    | 931 0710    | 071 9324   | 180.9    | 928 0676    | 0034       | 2.5  | 9966      | 10   |  |  |  |  |  |  |  |  |  |
| 44' | 9.069 1074 | 178.3    | 10.930 8926 | 9.072 1133 | 180.7    | 10.927 8867 | 10.0030059 | 2.5  | 9.9969941 | 16'  |  |  |  |  |  |  |  |  |  |
| 10  | 069 2857   | 178.2    | 930 7143    | 072 2940   | 180.7    | 927 7060    | 0084       | 2.5  | 9916      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 069 4639   | 178.2    | 930 5361    | 072 4748   | 180.8    | 927 5252    | 0109       | 2.5  | 9891      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 069 6421   | 178.2    | 930 3579    | 072 6554   | 180.6    | 927 3446    | 0133       | 2.4  | 9867      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 069 8201   | 178.0    | 930 1799    | 072 8360   | 180.5    | 927 1640    | 0158       | 2.5  | 9842      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 069 9981   | 178.0    | 930 0019    | 073 0165   | 180.4    | 926 9835    | 0183       | 2.5  | 9817      | 10   |  |  |  |  |  |  |  |  |  |
| 45' | 9.070 1761 | 177.8    | 10.929 8239 | 9.073 1969 | 180.3    | 10.926 8031 | 10.0030208 | 2.5  | 9.9969790 | 15'  |  |  |  |  |  |  |  |  |  |
| 10  | 070 3539   | 177.8    | 929 6461    | 073 3772   | 180.3    | 926 6228    | 0233       | 2.5  | 9767      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 070 5317   | 177.7    | 929 4683    | 073 5575   | 180.2    | 926 4425    | 0258       | 2.5  | 9742      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 070 7094   | 177.7    | 929 2906    | 073 7377   | 180.1    | 926 2623    | 0283       | 2.5  | 9717      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 070 8871   | 177.5    | 929 1129    | 073 9178   | 180.1    | 926 0822    | 0308       | 2.5  | 9692      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 071 0646   | 177.5    | 928 9354    | 074 0979   | 180.0    | 925 9021    | 0333       | 2.5  | 9667      | 10   |  |  |  |  |  |  |  |  |  |
| 46' | 9.071 2421 | 177.4    | 10.928 7579 | 9.074 2779 | 179.9    | 10.925 7221 | 10.0030358 | 2.5  | 9.9969649 | 14'  |  |  |  |  |  |  |  |  |  |
| 10  | 071 4195   | 177.4    | 928 5805    | 074 4578   | 179.9    | 925 5422    | 0383       | 2.5  | 9617      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 071 5969   | 177.2    | 928 4031    | 074 6376   | 179.8    | 925 3624    | 0408       | 2.5  | 9592      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 071 7741   | 177.2    | 928 2259    | 074 8174   | 179.7    | 925 1826    | 0433       | 2.5  | 9567      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 071 9513   | 177.2    | 928 0487    | 074 9971   | 179.6    | 925 0029    | 0458       | 2.5  | 9542      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 072 1285   | 177.0    | 927 8715    | 075 1767   | 179.6    | 924 8233    | 0483       | 2.5  | 9517      | 10   |  |  |  |  |  |  |  |  |  |
| 47' | 9.072 3055 | 177.0    | 10.927 6945 | 9.075 3563 | 179.5    | 10.924 6437 | 10.0030508 | 2.5  | 9.9969492 | 13'  |  |  |  |  |  |  |  |  |  |
| 10  | 072 4825   | 176.9    | 927 5175    | 075 5358   | 179.4    | 924 4642    | 0533       | 2.5  | 9467      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 072 6594   | 176.8    | 927 3406    | 075 7152   | 179.3    | 924 2848    | 0558       | 2.5  | 9442      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 072 8362   | 176.8    | 927 1638    | 075 8945   | 179.3    | 924 1055    | 0583       | 2.5  | 9417      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 073 0130   | 176.6    | 926 9870    | 076 0738   | 179.2    | 923 9262    | 0608       | 2.5  | 9392      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 073 1896   | 176.7    | 926 8104    | 076 2530   | 179.1    | 923 7470    | 0633       | 2.5  | 9367      | 10   |  |  |  |  |  |  |  |  |  |
| 48' | 9.073 3663 | 176.5    | 10.926 6337 | 9.076 4321 | 179.0    | 10.923 5679 | 10.0030658 | 2.5  | 9.9969349 | 12'  |  |  |  |  |  |  |  |  |  |
| 10  | 073 5428   | 176.5    | 926 4572    | 076 6111   | 179.0    | 923 3889    | 0683       | 2.6  | 9317      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 073 7193   | 176.4    | 926 2807    | 076 7901   | 178.9    | 923 2099    | 0709       | 2.5  | 9291      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 073 8957   | 176.3    | 926 1043    | 076 9690   | 178.9    | 923 0310    | 0734       | 2.5  | 9266      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 074 0720   | 176.2    | 925 9280    | 077 1479   | 178.7    | 922 8521    | 0759       | 2.5  | 9241      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 074 2482   | 176.1    | 925 7518    | 077 3266   | 178.7    | 922 6734    | 0784       | 2.5  | 9216      | 10   |  |  |  |  |  |  |  |  |  |
| 49' | 9.074 4244 | 176.1    | 10.925 5756 | 9.077 5053 | 178.6    | 10.922 4947 | 10.0030809 | 2.5  | 9.9969191 | 11'  |  |  |  |  |  |  |  |  |  |
| 10  | 074 6005   | 176.0    | 925 3995    | 077 6839   | 178.6    | 922 3161    | 0834       | 2.6  | 9166      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 074 7765   | 176.0    | 925 2235    | 077 8625   | 178.5    | 922 1375    | 0860       | 2.5  | 9140      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 074 9525   | 175.9    | 925 0475    | 078 0410   | 178.5    | 921 9590    | 0885       | 2.5  | 9115      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 075 1284   | 175.8    | 924 8716    | 078 2194   | 178.4    | 921 7806    | 0910       | 2.5  | 9090      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 075 3042   | 175.7    | 924 6958    | 078 3977   | 178.3    | 921 6023    | 0935       | 2.5  | 9065      | 10   |  |  |  |  |  |  |  |  |  |
| 50' | 9.075 4799 | 175.7    | 10.924 5201 | 9.078 5760 | 178.3    | 10.921 4240 | 10.0030960 | 2.5  | 9.9969040 | 10'  |  |  |  |  |  |  |  |  |  |

80°

173°

|    | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |
|----|------------|-----------|-------------|------------|-----------|-------------|-------------|-------|------------|
| 50 | 0.975 4799 |           | 10.924 5201 | 9.078 5760 |           | 10.921 4240 | 10.003 0960 | 2.6   | 9.996 9040 |
| 10 | 075 6556   | 175.7     | 924 3444    | 078 7542   | 178.2     | 921 2458    | 0986        | 2.5   | 9014 50    |
| 20 | 075 8312   | 175.6     | 924 1688    | 078 9323   | 178.1     | 921 0677    | 1011        | 2.5   | 8989 40    |
| 30 | 076 0067   | 175.5     | 923 9933    | 079 1103   | 178.0     | 920 8897    | 1036        | 2.5   | 8964 30    |
| 40 | 076 1822   | 175.5     | 923 8178    | 079 2883   | 178.0     | 920 7117    | 1061        | 2.6   | 8939 20    |
| 50 | 076 3575   | 175.3     | 923 6425    | 079 4662   | 177.9     | 920 5338    | 1087        | 2.6   | 8913 10    |
| 51 | 076 5329   | 175.4     | 10.923 4671 | 9.079 6441 | 177.9     | 10.920 3559 | 10.003 1112 | 2.5   | 9.996 8888 |
| 10 | 076 7081   | 175.2     | 923 2919    | 079 8218   | 177.7     | 920 1782    | 1137        | 2.6   | 8863 50    |
| 20 | 076 8833   | 175.2     | 923 1167    | 079 9995   | 177.7     | 920 0005    | 1163        | 2.5   | 8837 40    |
| 30 | 077 0584   | 175.1     | 922 9416    | 080 1771   | 177.6     | 919 8229    | 1188        | 2.5   | 8812 30    |
| 40 | 077 2334   | 175.0     | 922 7666    | 080 3547   | 177.6     | 919 6453    | 1213        | 2.6   | 8787 20    |
| 50 | 077 4083   | 174.9     | 922 5917    | 080 5322   | 177.5     | 919 4678    | 1239        | 2.5   | 8761 10    |
| 52 | 077 5832   | 174.8     | 10.922 4168 | 9.080 7096 | 177.4     | 10.919 2904 | 10.003 1264 | 2.5   | 9.996 8736 |
| 10 | 077 7580   | 174.8     | 922 2420    | 080 8869   | 177.3     | 919 1131    | 1289        | 2.5   | 8711 50    |
| 20 | 077 9327   | 174.7     | 922 0673    | 081 0642   | 177.3     | 918 9358    | 1315        | 2.6   | 8685 40    |
| 30 | 078 1074   | 174.7     | 921 8926    | 081 2414   | 177.2     | 918 7586    | 1340        | 2.5   | 8660 30    |
| 40 | 078 2820   | 174.6     | 921 7180    | 081 4185   | 177.1     | 918 5815    | 1365        | 2.6   | 8635 20    |
| 50 | 078 4565   | 174.5     | 921 5435    | 081 5956   | 177.1     | 918 4044    | 1391        | 2.5   | 8609 10    |
| 53 | 078 6310   | 174.5     | 10.921 3690 | 9.081 7726 | 177.0     | 10.918 2274 | 10.003 1416 | 2.6   | 9.996 8584 |
| 10 | 078 8054   | 174.4     | 921 1946    | 081 9495   | 176.9     | 918 0505    | 1442        | 2.5   | 8558 50    |
| 20 | 078 9797   | 174.3     | 921 0203    | 082 1264   | 176.9     | 917 8736    | 1467        | 2.6   | 8533 40    |
| 30 | 079 1539   | 174.2     | 920 8461    | 082 3032   | 176.8     | 917 6968    | 1493        | 2.5   | 8507 30    |
| 40 | 079 3281   | 174.2     | 920 6719    | 082 4799   | 176.7     | 917 5201    | 1518        | 2.5   | 8482 20    |
| 50 | 079 5022   | 174.1     | 920 4978    | 082 6565   | 176.6     | 917 3435    | 1543        | 2.5   | 8457 10    |
| 54 | 079 6762   | 174.0     | 10.920 3238 | 9.082 8331 | 176.5     | 10.917 1669 | 10.003 1569 | 2.6   | 9.996 8431 |
| 10 | 079 8502   | 173.8     | 920 1498    | 083 0096   | 176.5     | 916 9904    | 1594        | 2.6   | 8406 50    |
| 20 | 080 0240   | 173.8     | 919 9760    | 083 1860   | 176.4     | 916 8140    | 1620        | 2.5   | 8380 40    |
| 30 | 080 1979   | 173.7     | 919 8021    | 083 3624   | 176.4     | 916 6376    | 1645        | 2.5   | 8355 30    |
| 40 | 080 3716   | 173.7     | 919 6284    | 083 5387   | 176.3     | 916 4613    | 1671        | 2.6   | 8329 20    |
| 50 | 080 5453   | 173.7     | 919 4547    | 083 7149   | 176.2     | 916 2851    | 1696        | 2.5   | 8304 10    |
| 55 | 080 7189   | 173.6     | 10.919 2811 | 9.083 8911 | 176.2     | 10.916 1089 | 10.003 1722 | 2.6   | 9.996 8278 |
| 10 | 080 8924   | 173.5     | 919 1076    | 084 0672   | 176.1     | 915 9328    | 1748        | 2.5   | 8252 50    |
| 20 | 081 0659   | 173.5     | 918 9341    | 084 2432   | 176.0     | 915 7568    | 1773        | 2.6   | 8227 40    |
| 30 | 081 2393   | 173.4     | 918 7607    | 084 4191   | 175.9     | 915 5809    | 1799        | 2.5   | 8201 30    |
| 40 | 081 4126   | 173.3     | 918 5874    | 084 5950   | 175.9     | 915 4050    | 1824        | 2.6   | 8176 20    |
| 50 | 081 5858   | 173.2     | 918 4142    | 084 7708   | 175.8     | 915 2292    | 1850        | 2.5   | 8150 10    |
| 56 | 081 7590   | 173.1     | 10.918 2410 | 9.084 9466 | 175.8     | 10.915 0534 | 10.003 1875 | 2.6   | 9.996 8125 |
| 10 | 081 9321   | 173.1     | 918 0679    | 085 1222   | 175.6     | 914 8778    | 1901        | 2.5   | 8099 50    |
| 20 | 082 1052   | 173.1     | 917 8948    | 085 2978   | 175.6     | 914 7022    | 1927        | 2.6   | 8073 40    |
| 30 | 082 2781   | 172.9     | 917 7219    | 085 4734   | 175.6     | 914 5266    | 1952        | 2.5   | 8048 30    |
| 40 | 082 4510   | 172.9     | 917 5490    | 085 6488   | 175.4     | 914 3512    | 1978        | 2.6   | 8022 20    |
| 50 | 082 6239   | 172.9     | 917 3761    | 085 8242   | 175.4     | 914 1758    | 2004        | 2.5   | 7996 10    |
| 57 | 082 7966   | 172.7     | 10.917 2034 | 9.085 9996 | 175.4     | 10.914 0004 | 10.003 2029 | 2.6   | 9.996 7971 |
| 10 | 082 9693   | 172.7     | 917 0307    | 086 1748   | 175.2     | 913 8252    | 2055        | 2.6   | 7945 50    |
| 20 | 083 1419   | 172.6     | 916 8581    | 086 3500   | 175.2     | 913 6500    | 2081        | 2.5   | 7919 40    |
| 30 | 083 3145   | 172.6     | 916 6855    | 086 5251   | 175.1     | 913 4749    | 2106        | 2.6   | 7894 30    |
| 40 | 083 4870   | 172.5     | 916 5130    | 086 7002   | 175.1     | 913 2998    | 2132        | 2.5   | 7868 20    |
| 50 | 083 6594   | 172.4     | 916 3406    | 086 8752   | 175.0     | 913 1248    | 2158        | 2.6   | 7842 10    |
| 58 | 083 8317   | 172.3     | 10.916 1683 | 9.087 0501 | 174.9     | 10.912 9499 | 10.003 2183 | 2.6   | 9.996 817  |
| 10 | 084 0040   | 172.3     | 915 9960    | 087 2249   | 174.8     | 912 7751    | 2209        | 2.5   | 7791 50    |
| 20 | 084 1762   | 172.2     | 915 8238    | 087 3997   | 174.8     | 912 6003    | 2235        | 2.6   | 7765 40    |
| 30 | 084 3484   | 172.2     | 915 6516    | 087 5744   | 174.7     | 912 4256    | 2261        | 2.5   | 7739 30    |
| 40 | 084 5204   | 172.0     | 915 4796    | 087 7491   | 174.7     | 912 2509    | 2286        | 2.6   | 7714 20    |
| 50 | 084 6924   | 172.0     | 915 3076    | 087 9236   | 174.5     | 912 0764    | 2312        | 2.5   | 7688 10    |
| 59 | 084 8643   | 171.9     | 10.915 1357 | 9.088 0981 | 174.5     | 10.911 9019 | 10.003 2338 | 2.6   | 9.996 8662 |
| 10 | 085 0362   | 171.9     | 914 9638    | 088 2726   | 174.5     | 911 7274    | 2364        | 2.6   | 7663 50    |
| 20 | 085 2080   | 171.8     | 914 7920    | 088 4470   | 174.4     | 911 5530    | 2390        | 2.5   | 7610 40    |
| 30 | 085 3797   | 171.7     | 914 6203    | 088 6213   | 174.3     | 911 3787    | 2415        | 2.6   | 7585 30    |
| 40 | 085 5514   | 171.7     | 914 4486    | 088 7955   | 174.2     | 911 2045    | 2441        | 2.5   | 7559 20    |
| 50 | 085 7230   | 171.6     | 914 2770    | 088 9697   | 174.2     | 911 0303    | 2467        | 2.6   | 7533 10    |
| 60 | 085 8945   | 171.5     | 10.914 1055 | 9.089 1438 | 174.1     | 10.910 8562 | 10.003 2493 | 2.6   | 9.996 8507 |
|    | co-sin.    | diff. 1'' | sec.        | co-tang.   | diff. 1'' | tang.       | co-sec.     | d.1'' | sin.       |

86°

83°

| 7°  |            |          |             |            |          |             |            |       |           | 172° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 0'  | 9.085 8945 | 171.4    | 10.914 1055 | 9.089 1438 | 174.0    | 10.910 8562 | 10.0032463 | 2.6   | 9.9967507 | 60   |  |  |  |  |  |  |  |  |  |
| 10  | 086 0659   | 171.4    | 913 9341    | 089 3178   | 174.0    | 910 6822    | 2519       | 2.6   | 7481      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 086 2373   | 171.3    | 913 7627    | 089 4918   | 173.9    | 910 5082    | 2545       | 2.6   | 7455      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 086 4086   | 171.2    | 913 5914    | 089 6657   | 173.8    | 910 3343    | 2571       | 2.5   | 7429      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 086 5798   | 171.2    | 913 4202    | 089 8395   | 173.7    | 910 1605    | 2596       | 2.6   | 7404      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 086 7510   | 171.1    | 913 2490    | 090 0132   | 173.7    | 909 9868    | 2622       | 2.6   | 7378      | 1c   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.086 9221 | 171.1    | 10.913 0779 | 9.090 1869 | 173.7    | 10.909 8131 | 10.0032648 | 2.6   | 9.9967352 | 59   |  |  |  |  |  |  |  |  |  |
| 10  | 087 0932   | 171.1    | 912 9066    | 090 3606   | 173.5    | 909 6394    | 2674       | 2.6   | 7352      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 087 2641   | 170.9    | 912 7353    | 090 5341   | 173.5    | 909 4659    | 2700       | 2.6   | 7300      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 087 4350   | 170.9    | 912 5650    | 090 7076   | 173.4    | 909 2924    | 2726       | 2.6   | 7274      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 087 6059   | 170.7    | 912 3941    | 090 8810   | 173.4    | 909 1190    | 2752       | 2.6   | 7248      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 087 7766   | 170.7    | 912 2234    | 091 0544   | 173.3    | 908 9456    | 2778       | 2.6   | 7222      | 1c   |  |  |  |  |  |  |  |  |  |
| 2'  | 9.087 9473 | 170.6    | 10.912 0527 | 9.091 2277 | 173.2    | 10.908 7723 | 10.0032804 | 2.6   | 9.9967196 | 58   |  |  |  |  |  |  |  |  |  |
| 10  | 088 1179   | 170.6    | 911 8821    | 091 4009   | 173.2    | 908 5991    | 2830       | 2.6   | 7170      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 088 2885   | 170.5    | 911 7115    | 091 5741   | 173.1    | 908 4259    | 2856       | 2.6   | 7144      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 088 4590   | 170.4    | 911 5410    | 091 7472   | 173.0    | 908 2528    | 2882       | 2.6   | 7118      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 088 6294   | 170.4    | 911 3706    | 091 9202   | 172.9    | 908 0798    | 2908       | 2.6   | 7092      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 088 7998   | 170.2    | 911 2002    | 092 0931   | 172.9    | 907 9069    | 2934       | 2.6   | 7066      | 1c   |  |  |  |  |  |  |  |  |  |
| 3'  | 9.088 9700 | 170.3    | 10.911 0309 | 9.092 2660 | 172.7    | 10.907 7340 | 10.0032960 | 2.6   | 9.9967040 | 57   |  |  |  |  |  |  |  |  |  |
| 10  | 089 1403   | 170.1    | 910 8597    | 092 4389   | 172.7    | 907 5611    | 2966       | 2.6   | 7014      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 089 3104   | 170.1    | 910 6896    | 092 6116   | 172.7    | 907 3884    | 3012       | 2.6   | 6988      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 089 4805   | 170.0    | 910 5195    | 092 7843   | 172.6    | 907 2157    | 3038       | 2.6   | 6962      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 089 6505   | 170.0    | 910 3495    | 092 9569   | 172.6    | 907 0431    | 3064       | 2.6   | 6936      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 089 8205   | 169.8    | 910 1795    | 093 1295   | 172.5    | 906 8705    | 3090       | 2.6   | 6910      | 1c   |  |  |  |  |  |  |  |  |  |
| 4'  | 9.089 9903 | 169.9    | 10.910 0097 | 9.093 3020 | 172.4    | 10.906 6980 | 10.0033116 | 2.6   | 9.9966884 | 56   |  |  |  |  |  |  |  |  |  |
| 10  | 090 1602   | 169.7    | 909 8398    | 093 4744   | 172.4    | 906 5256    | 3142       | 2.7   | 6858      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 090 3299   | 169.7    | 909 6701    | 093 6468   | 172.2    | 906 3532    | 3169       | 2.6   | 6831      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 090 4996   | 169.6    | 909 5004    | 093 8190   | 172.2    | 906 1810    | 3195       | 2.6   | 6805      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 090 6692   | 169.5    | 909 3308    | 093 9913   | 172.1    | 906 0087    | 3221       | 2.6   | 6779      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 090 8387   | 169.5    | 909 1613    | 094 1634   | 172.1    | 905 8366    | 3247       | 2.6   | 6753      | 1c   |  |  |  |  |  |  |  |  |  |
| 5'  | 9.091 0082 | 169.4    | 10.908 9918 | 9.094 3355 | 172.0    | 10.905 6645 | 10.0033273 | 2.6   | 9.9966727 | 55   |  |  |  |  |  |  |  |  |  |
| 10  | 091 1776   | 169.4    | 908 8224    | 094 5075   | 172.0    | 905 4925    | 3299       | 2.6   | 6701      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 091 3470   | 169.2    | 908 6530    | 094 6795   | 171.9    | 905 3205    | 3325       | 2.7   | 6675      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 091 5162   | 169.2    | 908 4838    | 094 8514   | 171.8    | 905 1486    | 3352       | 2.6   | 6648      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 091 6854   | 169.2    | 908 3146    | 095 0232   | 171.8    | 904 9768    | 3378       | 2.6   | 6622      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 091 8546   | 169.1    | 908 1454    | 095 1950   | 171.8    | 904 8050    | 3404       | 2.6   | 6596      | 1c   |  |  |  |  |  |  |  |  |  |
| 6'  | 9.092 0237 | 169.0    | 10.907 9763 | 9.095 3667 | 171.7    | 10.904 6333 | 10.0033430 | 2.7   | 9.9966554 | 54   |  |  |  |  |  |  |  |  |  |
| 10  | 092 1927   | 168.9    | 907 8073    | 095 5383   | 171.6    | 904 4617    | 3455       | 2.6   | 6543      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 092 3616   | 168.9    | 907 6384    | 095 7099   | 171.5    | 904 2901    | 3483       | 2.6   | 6517      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 092 5305   | 168.8    | 907 4695    | 095 8814   | 171.4    | 904 1186    | 3509       | 2.6   | 6491      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 092 6993   | 168.7    | 907 3007    | 096 0528   | 171.4    | 903 9472    | 3535       | 2.6   | 6465      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 092 8680   | 168.7    | 907 1320    | 096 2242   | 171.3    | 903 7758    | 3562       | 2.6   | 6438      | 1c   |  |  |  |  |  |  |  |  |  |
| 7'  | 9.093 0367 | 168.6    | 10.906 9633 | 9.096 3955 | 171.2    | 10.903 6045 | 10.0033588 | 2.6   | 9.9966412 | 53   |  |  |  |  |  |  |  |  |  |
| 10  | 093 2053   | 168.6    | 906 7947    | 096 5667   | 171.2    | 903 4333    | 3614       | 2.6   | 6386      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 093 3739   | 168.4    | 906 6261    | 096 7379   | 171.1    | 903 2621    | 3640       | 2.7   | 6360      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 093 5423   | 168.4    | 906 4577    | 096 9090   | 171.0    | 903 0910    | 3667       | 2.6   | 6333      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 093 7107   | 168.4    | 906 2893    | 097 0800   | 171.0    | 902 9200    | 3693       | 2.6   | 6307      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 093 8791   | 168.3    | 906 1209    | 097 2510   | 170.9    | 902 7490    | 3719       | 2.6   | 6281      | 1c   |  |  |  |  |  |  |  |  |  |
| 8'  | 9.094 0474 | 168.2    | 10.905 9526 | 9.097 4219 | 170.9    | 10.902 5781 | 10.0033746 | 2.6   | 9.9966254 | 52   |  |  |  |  |  |  |  |  |  |
| 10  | 094 2156   | 168.1    | 905 7844    | 097 5928   | 170.8    | 902 4072    | 3772       | 2.6   | 6228      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 094 3837   | 168.1    | 905 6163    | 097 7636   | 170.7    | 902 2364    | 3798       | 2.6   | 6202      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 094 5518   | 168.0    | 905 4482    | 097 9343   | 170.6    | 902 0657    | 3825       | 2.7   | 6175      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 094 7198   | 167.9    | 905 2802    | 098 1049   | 170.6    | 901 8951    | 3851       | 2.6   | 6149      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 094 8877   | 167.9    | 905 1123    | 098 2755   | 170.5    | 901 7245    | 3878       | 2.7   | 6122      | 1c   |  |  |  |  |  |  |  |  |  |
| 9'  | 9.095 0556 | 167.8    | 10.904 9444 | 9.098 4460 | 170.5    | 10.901 5540 | 10.0033904 | 2.6   | 9.9966097 | 51   |  |  |  |  |  |  |  |  |  |
| 10  | 095 2234   | 167.8    | 904 7766    | 098 6165   | 170.4    | 901 3835    | 3930       | 2.6   | 6070      | 5c   |  |  |  |  |  |  |  |  |  |
| 20  | 095 3912   | 167.7    | 904 6088    | 098 7869   | 170.3    | 901 2131    | 3957       | 2.7   | 6043      | 4c   |  |  |  |  |  |  |  |  |  |
| 30  | 095 5589   | 167.7    | 904 4411    | 098 9572   | 170.3    | 901 0428    | 3983       | 2.6   | 6017      | 3c   |  |  |  |  |  |  |  |  |  |
| 40  | 095 7265   | 167.5    | 904 2735    | 099 1275   | 170.2    | 900 8725    | 4010       | 2.7   | 5990      | 2c   |  |  |  |  |  |  |  |  |  |
| 50  | 095 8940   | 167.5    | 904 1060    | 099 2977   | 170.1    | 900 7023    | 4036       | 2.7   | 5964      | 1c   |  |  |  |  |  |  |  |  |  |
| 10' | 9.096 0615 | 167.5    | 10.903 9385 | 9.099 4678 | 170.1    | 10.900 5322 | 10.0034063 | 2.7   | 9.9965937 | 50   |  |  |  |  |  |  |  |  |  |



70

172°

|    | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | d. 1'' | co-sin.   |    |
|----|------------|-----------|-------------|------------|-----------|-------------|------------|--------|-----------|----|
| 10 | 9.096 0615 | 167.4     | 10.903 9385 | 9.099 4678 | 170.1     | 10.900 5322 | 10.0034063 | 2.6    | 9.9965937 | 50 |
| 10 | 096 2289   | 167.4     | 903 7711    | 099 6379   | 170.0     | 900 3621    | 4089       | 2.7    | 5911      | 50 |
| 20 | 096 3063   | 167.3     | 903 6037    | 099 8079   | 169.9     | 900 1921    | 4116       | 2.6    | 5884      | 40 |
| 30 | 096 5636   | 167.2     | 903 4364    | 099 9778   | 169.9     | 900 0222    | 4142       | 2.6    | 5858      | 30 |
| 40 | 096 7308   | 167.2     | 903 2692    | 100 1477   | 169.8     | 899 8523    | 4169       | 2.6    | 5831      | 20 |
| 50 | 096 8980   | 167.1     | 903 1020    | 100 3175   | 169.7     | 899 6825    | 4195       | 2.6    | 5805      | 10 |
| 11 | 9.097 0651 | 167.0     | 10.902 9349 | 9.100 4872 | 169.7     | 10.899 5128 | 10.0034222 | 2.7    | 9.9965778 | 41 |
| 10 | 097 2321   | 166.9     | 902 7679    | 100 6569   | 169.7     | 899 3431    | 4248       | 2.6    | 5752      | 50 |
| 20 | 097 3999   | 166.9     | 902 6010    | 100 8265   | 169.6     | 899 1735    | 4275       | 2.6    | 5725      | 40 |
| 30 | 097 5679   | 166.9     | 902 4341    | 100 9961   | 169.5     | 899 0039    | 4301       | 2.6    | 5699      | 30 |
| 40 | 097 7328   | 166.7     | 902 2672    | 101 1656   | 169.4     | 898 8344    | 4328       | 2.7    | 5672      | 20 |
| 50 | 097 8995   | 166.7     | 902 1005    | 101 3350   | 169.4     | 898 6650    | 4355       | 2.6    | 5645      | 10 |
| 12 | 9.098 0662 | 166.7     | 10.901 9338 | 9.101 5044 | 169.3     | 10.898 4956 | 10.0034381 | 2.7    | 9.9965619 | 48 |
| 10 | 098 2329   | 166.6     | 901 7671    | 101 6737   | 169.2     | 898 3263    | 4408       | 2.6    | 5592      | 50 |
| 20 | 098 3999   | 166.5     | 901 6005    | 101 8429   | 169.2     | 898 1571    | 4434       | 2.6    | 5566      | 40 |
| 30 | 098 5666   | 166.4     | 901 4340    | 102 0121   | 169.1     | 897 9879    | 4461       | 2.7    | 5539      | 30 |
| 40 | 098 7324   | 166.4     | 901 2676    | 102 1812   | 169.1     | 897 8188    | 4488       | 2.6    | 5512      | 20 |
| 50 | 098 8988   | 166.3     | 901 1012    | 102 3502   | 169.0     | 897 6498    | 4514       | 2.7    | 5486      | 10 |
| 13 | 9.099 0651 | 166.2     | 10.900 9349 | 9.102 5192 | 168.9     | 10.897 4808 | 10.0034541 | 2.7    | 9.9965459 | 47 |
| 10 | 099 2315   | 166.2     | 900 7687    | 102 6881   | 168.8     | 897 3119    | 4568       | 2.6    | 5432      | 50 |
| 20 | 099 3975   | 166.1     | 900 6025    | 102 8569   | 168.8     | 897 1431    | 4594       | 2.6    | 5406      | 40 |
| 30 | 099 5636   | 166.1     | 900 4364    | 103 0257   | 168.8     | 896 9743    | 4621       | 2.7    | 5379      | 30 |
| 40 | 099 7297   | 166.0     | 900 2703    | 103 1945   | 168.6     | 896 8055    | 4648       | 2.6    | 5352      | 20 |
| 50 | 099 8957   | 165.9     | 900 1043    | 103 3631   | 168.6     | 896 6369    | 4674       | 2.6    | 5326      | 10 |
| 14 | 9.100 0616 | 165.9     | 10.899 9384 | 9.103 5317 | 168.5     | 10.896 4683 | 10.0034701 | 2.7    | 9.9965299 | 46 |
| 10 | 100 2275   | 165.8     | 899 7725    | 103 7002   | 168.5     | 896 2998    | 4728       | 2.7    | 5272      | 50 |
| 20 | 100 3933   | 165.7     | 899 6067    | 103 8687   | 168.5     | 896 1313    | 4755       | 2.7    | 5245      | 40 |
| 30 | 100 5599   | 165.7     | 899 4410    | 104 0371   | 168.4     | 895 9629    | 4781       | 2.6    | 5219      | 30 |
| 40 | 100 7247   | 165.7     | 899 2752    | 104 2055   | 168.4     | 895 7945    | 4808       | 2.7    | 5192      | 20 |
| 50 | 100 8903   | 165.5     | 899 1097    | 104 3738   | 168.3     | 895 6262    | 4835       | 2.7    | 5165      | 10 |
| 15 | 9.101 0558 | 165.5     | 10.898 9442 | 9.104 5420 | 168.2     | 10.895 4580 | 10.0034862 | 2.6    | 9.9965138 | 45 |
| 10 | 101 2213   | 165.4     | 898 7787    | 104 7101   | 168.1     | 895 2899    | 4888       | 2.6    | 5112      | 50 |
| 20 | 101 3867   | 165.3     | 898 6133    | 104 8782   | 168.1     | 895 1218    | 4915       | 2.7    | 5085      | 40 |
| 30 | 101 5520   | 165.3     | 898 4480    | 105 0462   | 168.0     | 894 9538    | 4942       | 2.7    | 5058      | 30 |
| 40 | 101 7173   | 165.2     | 898 2827    | 105 2142   | 167.9     | 894 7858    | 4969       | 2.7    | 5031      | 20 |
| 50 | 101 8825   | 165.2     | 898 1175    | 105 3821   | 167.9     | 894 6179    | 4996       | 2.7    | 5004      | 10 |
| 16 | 9.102 0477 | 165.2     | 10.897 9523 | 9.105 5500 | 167.7     | 10.894 4500 | 10.0035023 | 2.6    | 9.9964977 | 44 |
| 10 | 102 2128   | 165.0     | 897 7872    | 105 7177   | 167.7     | 894 2823    | 5049       | 2.7    | 4951      | 50 |
| 20 | 102 3778   | 165.0     | 897 6222    | 105 8854   | 167.7     | 894 1146    | 5076       | 2.7    | 4924      | 40 |
| 30 | 102 5428   | 164.9     | 897 4572    | 106 0531   | 167.6     | 893 9469    | 5103       | 2.7    | 4897      | 30 |
| 40 | 102 7077   | 164.8     | 897 2923    | 106 2207   | 167.5     | 893 7793    | 5130       | 2.7    | 4870      | 20 |
| 50 | 102 8725   | 164.8     | 897 1275    | 106 3882   | 167.5     | 893 6118    | 5157       | 2.7    | 4843      | 10 |
| 17 | 9.103 0373 | 164.7     | 10.896 9627 | 9.106 5557 | 167.4     | 10.893 4443 | 10.0035184 | 2.7    | 9.9964816 | 43 |
| 10 | 103 2020   | 164.7     | 896 7980    | 106 7231   | 167.3     | 893 2769    | 5211       | 2.7    | 4789      | 50 |
| 20 | 103 3667   | 164.6     | 896 6333    | 106 8904   | 167.3     | 893 1096    | 5238       | 2.7    | 4762      | 40 |
| 30 | 103 5315   | 164.5     | 896 4688    | 107 0577   | 167.2     | 892 9423    | 5265       | 2.7    | 4735      | 30 |
| 40 | 103 6958   | 164.4     | 896 3042    | 107 2249   | 167.2     | 892 7751    | 5292       | 2.6    | 4708      | 20 |
| 50 | 103 8602   | 164.4     | 896 1398    | 107 3921   | 167.0     | 892 6079    | 5318       | 2.6    | 4682      | 10 |
| 18 | 9.104 0246 | 164.3     | 10.895 9754 | 9.107 5591 | 167.0     | 10.892 4409 | 10.0035345 | 2.7    | 9.9964655 | 42 |
| 10 | 104 1889   | 164.3     | 895 8111    | 107 7262   | 166.9     | 892 2738    | 5372       | 2.7    | 4628      | 50 |
| 20 | 104 3532   | 164.2     | 895 6468    | 107 8931   | 166.9     | 892 1069    | 5399       | 2.7    | 4601      | 40 |
| 30 | 104 5174   | 164.1     | 895 4826    | 108 0600   | 166.9     | 891 9400    | 5426       | 2.7    | 4574      | 30 |
| 40 | 104 6815   | 164.1     | 895 3185    | 108 2269   | 166.8     | 891 7731    | 5453       | 2.7    | 4547      | 20 |
| 50 | 104 8456   | 164.0     | 895 1544    | 108 3937   | 166.7     | 891 6063    | 5480       | 2.7    | 4520      | 10 |
| 19 | 9.105 0096 | 164.0     | 10.894 9904 | 9.108 5604 | 166.6     | 10.891 4396 | 10.0035507 | 2.7    | 9.9964493 | 41 |
| 10 | 105 1736   | 163.9     | 894 8264    | 108 7270   | 166.6     | 891 2730    | 5534       | 2.7    | 4466      | 50 |
| 20 | 105 3375   | 163.8     | 894 6625    | 108 8936   | 166.6     | 891 1064    | 5562       | 2.7    | 4438      | 40 |
| 30 | 105 5013   | 163.8     | 894 4987    | 109 0602   | 166.4     | 890 9398    | 5589       | 2.7    | 4411      | 30 |
| 40 | 105 6651   | 163.7     | 894 3349    | 109 2266   | 166.4     | 890 7734    | 5616       | 2.7    | 4384      | 20 |
| 50 | 105 8288   | 163.6     | 894 1712    | 109 3930   | 166.4     | 890 6070    | 5643       | 2.7    | 4357      | 10 |
| 20 | 9.105 9924 | 163.6     | 10.894 0076 | 9.109 5594 | 166.4     | 10.890 4406 | 10.0035670 | 2.7    | 9.9964330 | 40 |

|  | co-sin. | diff. 1'' | sec. | co-tang. | diff. 1'' | tang. | co-sec. | d. 1'' | sin. |
|--|---------|-----------|------|----------|-----------|-------|---------|--------|------|
|--|---------|-----------|------|----------|-----------|-------|---------|--------|------|

970

820

| 70° |            |          |             |            |          |             |             |        |            | 172° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|--------|------------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |      |  |  |  |  |  |  |  |  |  |
| 20' | 9.105 9924 | 163.6    | 10.894 0076 | 9.109 5594 | 166.3    | 10.890 4406 | 10.003 5670 | 2.7    | 9.996 4330 | 44   |  |  |  |  |  |  |  |  |  |
| 10  | 106 1560   | 163.5    | 893 8440    | 109 7257   | 166.2    | 890 2743    | 5677        | 2.7    | 4303       | 45   |  |  |  |  |  |  |  |  |  |
| 20  | 106 3195   | 163.4    | 893 6805    | 109 8919   | 166.2    | 890 1081    | 5724        | 2.7    | 4276       | 46   |  |  |  |  |  |  |  |  |  |
| 30  | 106 4829   | 163.4    | 893 5171    | 110 0581   | 166.1    | 889 9419    | 5751        | 2.7    | 4249       | 47   |  |  |  |  |  |  |  |  |  |
| 40  | 106 6463   | 163.4    | 893 3537    | 110 2242   | 166.0    | 889 7758    | 5778        | 2.7    | 4222       | 48   |  |  |  |  |  |  |  |  |  |
| 50  | 106 8097   | 163.2    | 893 1903    | 110 3902   | 166.0    | 889 6098    | 5805        | 2.7    | 4195       | 49   |  |  |  |  |  |  |  |  |  |
| 21' | 9.106 9729 | 163.2    | 10.893 0271 | 9.110 5562 | 165.9    | 10.889 4438 | 10.003 5833 | 2.7    | 9.996 4167 | 50   |  |  |  |  |  |  |  |  |  |
| 10  | 107 1361   | 163.2    | 892 8639    | 110 7221   | 165.8    | 889 2779    | 5860        | 2.7    | 4140       | 51   |  |  |  |  |  |  |  |  |  |
| 20  | 107 2993   | 163.0    | 892 7007    | 110 8879   | 165.8    | 889 1121    | 5887        | 2.7    | 4113       | 52   |  |  |  |  |  |  |  |  |  |
| 30  | 107 4623   | 163.0    | 892 5377    | 111 0537   | 165.8    | 888 9463    | 5914        | 2.7    | 4086       | 53   |  |  |  |  |  |  |  |  |  |
| 40  | 107 6253   | 163.0    | 892 3747    | 111 2195   | 165.6    | 888 7805    | 5941        | 2.7    | 4059       | 54   |  |  |  |  |  |  |  |  |  |
| 50  | 107 7883   | 163.0    | 892 2117    | 111 3851   | 165.5    | 888 6149    | 5969        | 2.7    | 4031       | 55   |  |  |  |  |  |  |  |  |  |
| 22' | 9.107 9512 | 162.8    | 10.892 0488 | 9.111 5508 | 165.5    | 10.888 4492 | 10.003 5996 | 2.7    | 9.996 4004 | 56   |  |  |  |  |  |  |  |  |  |
| 10  | 108 1140   | 162.8    | 891 8860    | 111 7163   | 165.5    | 888 2837    | 6023        | 2.7    | 3977       | 57   |  |  |  |  |  |  |  |  |  |
| 20  | 108 2768   | 162.7    | 891 7232    | 111 8818   | 165.4    | 888 1182    | 6050        | 2.7    | 3950       | 58   |  |  |  |  |  |  |  |  |  |
| 30  | 108 4395   | 162.6    | 891 5605    | 112 0472   | 165.4    | 887 9528    | 6077        | 2.7    | 3923       | 59   |  |  |  |  |  |  |  |  |  |
| 40  | 108 6021   | 162.6    | 891 3979    | 112 2126   | 165.3    | 887 7874    | 6105        | 2.7    | 3895       | 60   |  |  |  |  |  |  |  |  |  |
| 50  | 108 7647   | 162.5    | 891 2353    | 112 3779   | 165.2    | 887 6221    | 6132        | 2.7    | 3868       | 61   |  |  |  |  |  |  |  |  |  |
| 23' | 9.108 9272 | 162.5    | 10.891 0728 | 9.112 5431 | 165.2    | 10.887 4599 | 10.003 6139 | 2.7    | 9.996 3841 | 62   |  |  |  |  |  |  |  |  |  |
| 10  | 109 0897   | 162.5    | 890 9103    | 112 7083   | 165.1    | 887 2917    | 6187        | 2.7    | 3813       | 63   |  |  |  |  |  |  |  |  |  |
| 20  | 109 2521   | 162.3    | 890 7479    | 112 8734   | 165.1    | 887 1266    | 6214        | 2.7    | 3786       | 64   |  |  |  |  |  |  |  |  |  |
| 30  | 109 4144   | 162.3    | 890 5856    | 113 0385   | 165.0    | 886 9615    | 6241        | 2.7    | 3759       | 65   |  |  |  |  |  |  |  |  |  |
| 40  | 109 5767   | 162.2    | 890 4233    | 113 2035   | 164.9    | 886 7965    | 6268        | 2.7    | 3732       | 66   |  |  |  |  |  |  |  |  |  |
| 50  | 109 7389   | 162.1    | 890 2611    | 113 3684   | 164.9    | 886 6316    | 6296        | 2.7    | 3704       | 67   |  |  |  |  |  |  |  |  |  |
| 24' | 9.109 9010 | 162.1    | 10.890 0990 | 9.113 5333 | 164.9    | 10.886 4667 | 10.003 6323 | 2.7    | 9.996 3677 | 68   |  |  |  |  |  |  |  |  |  |
| 10  | 110 0631   | 162.0    | 889 9369    | 113 6982   | 164.9    | 886 3018    | 6351        | 2.7    | 3649       | 69   |  |  |  |  |  |  |  |  |  |
| 20  | 110 2251   | 162.0    | 889 7749    | 113 8629   | 164.7    | 886 1371    | 6378        | 2.7    | 3622       | 70   |  |  |  |  |  |  |  |  |  |
| 30  | 110 3871   | 161.9    | 889 6129    | 114 0276   | 164.6    | 885 9724    | 6405        | 2.7    | 3595       | 71   |  |  |  |  |  |  |  |  |  |
| 40  | 110 5490   | 161.8    | 889 4510    | 114 1922   | 164.6    | 885 8078    | 6433        | 2.7    | 3567       | 72   |  |  |  |  |  |  |  |  |  |
| 50  | 110 7108   | 161.8    | 889 2892    | 114 3568   | 164.5    | 885 6432    | 6460        | 2.7    | 3540       | 73   |  |  |  |  |  |  |  |  |  |
| 25' | 9.110 8726 | 161.7    | 10.889 1274 | 9.114 5213 | 164.5    | 10.885 4787 | 10.003 6652 | 2.7    | 9.996 3513 | 74   |  |  |  |  |  |  |  |  |  |
| 10  | 111 0343   | 161.7    | 888 9657    | 114 6858   | 164.4    | 885 3142    | 6515        | 2.7    | 3485       | 75   |  |  |  |  |  |  |  |  |  |
| 20  | 111 1960   | 161.6    | 888 8040    | 114 8502   | 164.3    | 885 1498    | 6542        | 2.7    | 3458       | 76   |  |  |  |  |  |  |  |  |  |
| 30  | 111 3576   | 161.5    | 888 6424    | 115 0145   | 164.3    | 884 9855    | 6570        | 2.7    | 3430       | 77   |  |  |  |  |  |  |  |  |  |
| 40  | 111 5191   | 161.5    | 888 4809    | 115 1788   | 164.2    | 884 8212    | 6597        | 2.7    | 3403       | 78   |  |  |  |  |  |  |  |  |  |
| 50  | 111 6806   | 161.4    | 888 3194    | 115 3430   | 164.2    | 884 6570    | 6625        | 2.7    | 3375       | 79   |  |  |  |  |  |  |  |  |  |
| 26' | 9.111 8420 | 161.3    | 10.888 1580 | 9.115 5072 | 164.2    | 10.884 4928 | 10.003 6652 | 2.7    | 9.996 3348 | 80   |  |  |  |  |  |  |  |  |  |
| 10  | 112 0033   | 161.3    | 887 9967    | 115 6713   | 164.1    | 884 3287    | 6680        | 2.7    | 3320       | 81   |  |  |  |  |  |  |  |  |  |
| 20  | 112 1646   | 161.3    | 887 8354    | 115 8353   | 164.0    | 884 1647    | 6707        | 2.7    | 3293       | 82   |  |  |  |  |  |  |  |  |  |
| 30  | 112 3259   | 161.3    | 887 6741    | 115 9993   | 163.9    | 884 0007    | 6735        | 2.7    | 3265       | 83   |  |  |  |  |  |  |  |  |  |
| 40  | 112 4870   | 161.1    | 887 5130    | 116 1632   | 163.9    | 883 8368    | 6762        | 2.7    | 3238       | 84   |  |  |  |  |  |  |  |  |  |
| 50  | 112 6481   | 161.1    | 887 3519    | 116 3271   | 163.8    | 883 6729    | 6790        | 2.7    | 3210       | 85   |  |  |  |  |  |  |  |  |  |
| 27' | 9.112 8092 | 161.0    | 10.887 1908 | 9.116 4909 | 163.7    | 10.883 5091 | 10.003 6817 | 2.7    | 9.996 3183 | 86   |  |  |  |  |  |  |  |  |  |
| 10  | 112 9702   | 160.9    | 887 0298    | 116 6546   | 163.7    | 883 3454    | 6845        | 2.7    | 3155       | 87   |  |  |  |  |  |  |  |  |  |
| 20  | 113 1311   | 160.9    | 886 8689    | 116 8183   | 163.6    | 883 1817    | 6872        | 2.7    | 3128       | 88   |  |  |  |  |  |  |  |  |  |
| 30  | 113 2920   | 160.8    | 886 7080    | 116 9819   | 163.6    | 883 0181    | 6900        | 2.7    | 3100       | 89   |  |  |  |  |  |  |  |  |  |
| 40  | 113 4528   | 160.7    | 886 5472    | 117 1455   | 163.5    | 882 8545    | 6927        | 2.7    | 3073       | 90   |  |  |  |  |  |  |  |  |  |
| 50  | 113 6135   | 160.7    | 886 3865    | 117 3090   | 163.4    | 882 6910    | 6955        | 2.7    | 3045       | 91   |  |  |  |  |  |  |  |  |  |
| 28' | 9.113 7742 | 160.6    | 10.886 2258 | 9.117 4724 | 163.4    | 10.882 5276 | 10.003 6982 | 2.7    | 9.996 3018 | 92   |  |  |  |  |  |  |  |  |  |
| 10  | 113 9348   | 160.6    | 886 0652    | 117 6358   | 163.3    | 882 3642    | 7010        | 2.7    | 2990       | 93   |  |  |  |  |  |  |  |  |  |
| 20  | 114 0954   | 160.5    | 885 9046    | 117 7991   | 163.3    | 882 2009    | 7038        | 2.7    | 2962       | 94   |  |  |  |  |  |  |  |  |  |
| 30  | 114 2559   | 160.4    | 885 7441    | 117 9624   | 163.2    | 882 0376    | 7065        | 2.7    | 2935       | 95   |  |  |  |  |  |  |  |  |  |
| 40  | 114 4163   | 160.4    | 885 5837    | 118 1256   | 163.1    | 881 8744    | 7093        | 2.7    | 2907       | 96   |  |  |  |  |  |  |  |  |  |
| 50  | 114 5767   | 160.3    | 885 4233    | 118 2887   | 163.1    | 881 7113    | 7121        | 2.7    | 2879       | 97   |  |  |  |  |  |  |  |  |  |
| 29' | 9.114 7370 | 160.3    | 10.885 2630 | 9.118 4518 | 163.1    | 10.881 5482 | 10.003 7148 | 2.7    | 9.996 2852 | 98   |  |  |  |  |  |  |  |  |  |
| 10  | 114 8973   | 160.2    | 885 1027    | 118 6149   | 162.9    | 881 3851    | 7176        | 2.7    | 2824       | 99   |  |  |  |  |  |  |  |  |  |
| 20  | 115 0575   | 160.1    | 884 9425    | 118 7778   | 162.9    | 881 2222    | 7204        | 2.7    | 2796       | 100  |  |  |  |  |  |  |  |  |  |
| 30  | 115 2176   | 160.1    | 884 7824    | 118 9407   | 162.9    | 881 0593    | 7231        | 2.7    | 2769       | 101  |  |  |  |  |  |  |  |  |  |
| 40  | 115 3777   | 160.0    | 884 6223    | 119 1036   | 162.8    | 880 8964    | 7259        | 2.7    | 2741       | 102  |  |  |  |  |  |  |  |  |  |
| 50  | 115 5377   | 160.0    | 884 4623    | 119 2664   | 162.7    | 880 7336    | 7287        | 2.7    | 2713       | 103  |  |  |  |  |  |  |  |  |  |
| 30' | 9.115 6977 | 160.0    | 10.884 3023 | 9.119 4291 | 162.7    | 10.880 5799 | 10.003 7314 | 2.7    | 9.996 2686 | 104  |  |  |  |  |  |  |  |  |  |

7°

172°

|    | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |     |
|----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|-----|
| 30 | 9.115 6977 | 159.9    | 10.884 3023 | 9.119 4291 | 162.7    | 10.880 5709 | 10.0037314 | 2.8   | 9.9962686 | 30' |
| 10 | 115 8576   | 159.8    | 884 1424    | 119 5918   | 162.6    | 880 4082    | 7342       | 2.8   | 2658      | 50  |
| 20 | 116 0174   | 159.8    | 883 9826    | 119 7544   | 162.5    | 880 2456    | 7370       | 2.8   | 2630      | 40  |
| 30 | 116 1772   | 159.7    | 883 8228    | 119 9169   | 162.5    | 880 0831    | 7398       | 2.7   | 2602      | 30  |
| 40 | 116 3369   | 159.7    | 883 6631    | 120 0794   | 162.5    | 879 9206    | 7425       | 2.7   | 2575      | 20  |
| 50 | 116 4966   | 159.6    | 883 5034    | 120 2419   | 162.5    | 879 7581    | 7453       | 2.8   | 2547      | 10  |
| 31 | 9.116 6562 | 159.6    | 10.883 3438 | 9.120 4043 | 162.4    | 10.879 5957 | 10.0037481 | 2.8   | 9.9962519 | 29' |
| 10 | 116 8157   | 159.5    | 883 1843    | 120 5666   | 162.2    | 879 4334    | 7509       | 2.7   | 2491      | 50  |
| 20 | 116 9752   | 159.4    | 883 0248    | 120 7288   | 162.2    | 879 2712    | 7536       | 2.7   | 2464      | 40  |
| 30 | 117 1346   | 159.4    | 882 8654    | 120 8910   | 162.2    | 879 1090    | 7564       | 2.8   | 2436      | 30  |
| 40 | 117 2940   | 159.3    | 882 7060    | 121 0532   | 162.1    | 878 9468    | 7592       | 2.8   | 2408      | 20  |
| 50 | 117 4533   | 159.2    | 882 5467    | 121 2153   | 162.0    | 878 7847    | 7620       | 2.8   | 2380      | 10  |
| 32 | 9.117 6125 | 159.2    | 10.882 3875 | 9.121 3773 | 162.0    | 10.878 6227 | 10.0037648 | 2.8   | 9.9962352 | 28' |
| 10 | 117 7717   | 159.1    | 882 2883    | 121 5393   | 161.9    | 878 4607    | 7646       | 2.7   | 2324      | 50  |
| 20 | 117 9308   | 159.1    | 882 0692    | 121 7012   | 161.8    | 878 2988    | 7703       | 2.8   | 2297      | 40  |
| 30 | 118 0899   | 159.0    | 881 9101    | 121 8630   | 161.8    | 878 1370    | 7731       | 2.8   | 2269      | 30  |
| 40 | 118 2489   | 159.0    | 881 7511    | 122 0248   | 161.8    | 877 9752    | 7759       | 2.8   | 2241      | 20  |
| 50 | 118 4079   | 158.9    | 881 5921    | 122 1866   | 161.6    | 877 8134    | 7787       | 2.8   | 2213      | 10  |
| 33 | 9.118 5667 | 158.8    | 10.881 4333 | 9.122 3482 | 161.7    | 10.877 6518 | 10.0037815 | 2.8   | 9.9962185 | 27' |
| 10 | 118 7256   | 158.7    | 881 2744    | 122 5099   | 161.5    | 877 4901    | 7843       | 2.8   | 2157      | 50  |
| 20 | 118 8843   | 158.8    | 881 1157    | 122 6714   | 161.5    | 877 3286    | 7871       | 2.8   | 2129      | 40  |
| 30 | 119 0431   | 158.6    | 880 9569    | 122 8329   | 161.5    | 877 1671    | 7899       | 2.8   | 2101      | 30  |
| 40 | 119 2017   | 158.6    | 880 7983    | 122 9944   | 161.4    | 877 0056    | 7927       | 2.8   | 2073      | 20  |
| 50 | 119 3603   | 158.5    | 880 6397    | 123 1558   | 161.3    | 876 8442    | 7955       | 2.8   | 2045      | 10  |
| 34 | 9.119 5188 | 158.5    | 10.880 4812 | 9.123 3171 | 161.3    | 10.876 6829 | 10.0037983 | 2.8   | 9.9962017 | 26' |
| 10 | 119 6773   | 158.4    | 880 3227    | 123 4784   | 161.2    | 876 5216    | 8011       | 2.8   | 1989      | 50  |
| 20 | 119 8357   | 158.4    | 880 1643    | 123 6396   | 161.1    | 876 3604    | 8039       | 2.8   | 1961      | 40  |
| 30 | 119 9941   | 158.3    | 880 0059    | 123 8007   | 161.1    | 876 1993    | 8067       | 2.8   | 1933      | 30  |
| 40 | 120 1524   | 158.2    | 879 8476    | 123 9618   | 161.1    | 876 0382    | 8095       | 2.8   | 1905      | 20  |
| 50 | 120 3106   | 158.2    | 879 6894    | 124 1229   | 161.1    | 875 8771    | 8123       | 2.8   | 1877      | 10  |
| 35 | 9.120 4688 | 158.2    | 10.879 5312 | 9.124 2839 | 161.0    | 10.875 7161 | 10.0038151 | 2.8   | 9.9961849 | 25' |
| 10 | 120 6269   | 158.1    | 879 3731    | 124 4448   | 160.9    | 875 5552    | 8179       | 2.8   | 1821      | 50  |
| 20 | 120 7850   | 158.0    | 879 2150    | 124 6057   | 160.9    | 875 3943    | 8207       | 2.8   | 1793      | 40  |
| 30 | 120 9430   | 157.9    | 879 0570    | 124 7665   | 160.8    | 875 2335    | 8235       | 2.8   | 1765      | 30  |
| 40 | 121 1009   | 157.9    | 878 8991    | 124 9272   | 160.7    | 875 0728    | 8263       | 2.8   | 1737      | 20  |
| 50 | 121 2588   | 157.9    | 878 7412    | 125 0879   | 160.7    | 874 9121    | 8291       | 2.8   | 1709      | 10  |
| 36 | 9.121 4167 | 157.7    | 10.878 5833 | 9.125 2486 | 160.5    | 10.874 7514 | 10.0038319 | 2.8   | 9.9961681 | 24' |
| 10 | 121 5744   | 157.7    | 878 4256    | 125 4091   | 160.5    | 874 5909    | 8347       | 2.8   | 1653      | 50  |
| 20 | 121 7322   | 157.6    | 878 2678    | 125 5697   | 160.6    | 874 4303    | 8375       | 2.8   | 1625      | 40  |
| 30 | 121 8898   | 157.6    | 878 1102    | 125 7301   | 160.4    | 874 2699    | 8403       | 2.8   | 1597      | 30  |
| 40 | 122 0474   | 157.5    | 877 9526    | 125 8905   | 160.4    | 874 1095    | 8431       | 2.8   | 1569      | 20  |
| 50 | 122 2049   | 157.5    | 877 7951    | 126 0509   | 160.4    | 873 9491    | 8460       | 2.9   | 1540      | 10  |
| 37 | 9.122 3624 | 157.5    | 10.877 6376 | 9.126 2112 | 160.3    | 10.873 7888 | 10.0038488 | 2.8   | 9.9961512 | 23' |
| 10 | 122 5198   | 157.4    | 877 4802    | 126 3714   | 160.2    | 873 6286    | 8516       | 2.8   | 1484      | 50  |
| 20 | 122 6772   | 157.4    | 877 3228    | 126 5316   | 160.2    | 873 4684    | 8544       | 2.8   | 1456      | 40  |
| 30 | 122 8345   | 157.3    | 877 1655    | 126 6917   | 160.1    | 873 3083    | 8572       | 2.8   | 1428      | 30  |
| 40 | 122 9918   | 157.3    | 877 0082    | 126 8518   | 160.1    | 873 1482    | 8600       | 2.9   | 1400      | 20  |
| 50 | 123 1490   | 157.2    | 876 8510    | 127 0118   | 160.0    | 872 9882    | 8629       | 2.8   | 1371      | 10  |
| 38 | 9.123 3061 | 157.1    | 10.876 6939 | 9.127 1718 | 159.9    | 10.872 8282 | 10.0038657 | 2.8   | 9.9961343 | 22' |
| 10 | 123 4632   | 157.0    | 876 5368    | 127 3317   | 159.9    | 872 6683    | 8685       | 2.8   | 1315      | 50  |
| 20 | 123 6202   | 156.9    | 876 3798    | 127 4915   | 159.8    | 872 5085    | 8713       | 2.9   | 1287      | 40  |
| 30 | 123 7771   | 156.9    | 876 2229    | 127 6513   | 159.7    | 872 3487    | 8741       | 2.8   | 1258      | 30  |
| 40 | 123 9340   | 156.9    | 876 0660    | 127 8110   | 159.7    | 872 1890    | 8770       | 2.8   | 1230      | 20  |
| 50 | 124 0909   | 156.8    | 875 9091    | 127 9707   | 159.6    | 872 0293    | 8798       | 2.8   | 1202      | 10  |
| 39 | 9.124 2477 | 156.8    | 10.875 7523 | 9.128 1303 | 159.6    | 10.871 8697 | 10.0038826 | 2.8   | 9.9961174 | 21' |
| 10 | 124 4044   | 156.7    | 875 7596    | 128 2899   | 159.5    | 871 7101    | 8855       | 2.8   | 1145      | 50  |
| 20 | 124 5611   | 156.6    | 875 4389    | 128 4494   | 159.4    | 871 5506    | 8883       | 2.8   | 1117      | 40  |
| 30 | 124 7177   | 156.5    | 875 2823    | 128 6088   | 159.4    | 871 3912    | 8911       | 2.8   | 1089      | 30  |
| 40 | 124 8742   | 156.5    | 875 1258    | 128 7682   | 159.3    | 871 2318    | 8940       | 2.9   | 1060      | 20  |
| 50 | 125 0307   | 156.5    | 874 9693    | 128 9275   | 159.3    | 871 0725    | 8968       | 2.8   | 1032      | 10  |
| 40 | 9.125 1872 | 156.5    | 10.874 8128 | 9.129 0868 | 159.3    | 10.870 9132 | 10.0038996 | 2.8   | 9.9961004 | 20' |

97°

82°



| 70° |            |         |             |            |         |             |            |       |           | 172° |  |  |  |  |  |  |  |  |  |
|-----|------------|---------|-------------|------------|---------|-------------|------------|-------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.       | d. 1" | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 40' | 9.125 1872 | 156.4   | 10.874 8128 | 9.129 0868 | 159.2   | 10.870 9132 | 10.0038996 | 2.9   | 9.9961004 | 20'  |  |  |  |  |  |  |  |  |  |
| 10  | 125 3436   | 156.3   | 874 6564    | 129 2460   | 159.2   | 870 7540    | 9025       | 2.8   | 0975      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 125 4999   | 156.3   | 874 5001    | 129 4052   | 159.1   | 870 5948    | 9053       | 2.8   | 0947      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 125 6562   | 156.2   | 874 3438    | 129 5643   | 159.0   | 870 4357    | 9081       | 2.8   | 0919      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 125 8124   | 156.1   | 874 1876    | 129 7233   | 159.0   | 870 2767    | 9110       | 2.8   | 0890      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 125 9685   | 156.1   | 874 0315    | 129 8823   | 159.0   | 870 1177    | 9138       | 2.8   | 0862      | 10   |  |  |  |  |  |  |  |  |  |
| 41' | 9.126 1246 | 156.1   | 10.873 8754 | 9.130 0413 | 158.9   | 10.869 9587 | 10.0039166 | 2.9   | 9.9960834 | 19'  |  |  |  |  |  |  |  |  |  |
| 10  | 126 2807   | 156.0   | 873 7193    | 130 2002   | 158.8   | 869 7998    | 9195       | 2.8   | 0805      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 126 4367   | 155.9   | 873 5633    | 130 3590   | 158.8   | 869 6410    | 9223       | 2.8   | 0777      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 126 5926   | 155.9   | 873 4074    | 130 5178   | 158.7   | 869 4822    | 9252       | 2.8   | 0748      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 126 7485   | 155.8   | 873 2515    | 130 6765   | 158.6   | 869 3235    | 9280       | 2.8   | 0720      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 126 9043   | 155.7   | 873 0957    | 130 8351   | 158.6   | 869 1649    | 9309       | 2.8   | 0691      | 10   |  |  |  |  |  |  |  |  |  |
| 42' | 9.127 0600 | 155.7   | 10.872 9400 | 9.130 9937 | 158.6   | 10.869 0063 | 10.0039337 | 2.9   | 9.9960663 | 18'  |  |  |  |  |  |  |  |  |  |
| 10  | 127 2157   | 155.7   | 872 7843    | 131 1523   | 158.5   | 868 8477    | 9366       | 2.8   | 0634      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 127 3714   | 155.5   | 872 6286    | 131 3108   | 158.4   | 868 6892    | 9394       | 2.8   | 0606      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 127 5269   | 155.5   | 872 4731    | 131 4692   | 158.4   | 868 5308    | 9423       | 2.8   | 0577      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 127 6825   | 155.5   | 872 3175    | 131 6276   | 158.3   | 868 3724    | 9451       | 2.8   | 0549      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 127 8380   | 155.4   | 872 1620    | 131 7859   | 158.3   | 868 2141    | 9480       | 2.8   | 0520      | 10   |  |  |  |  |  |  |  |  |  |
| 43' | 9.127 9934 | 155.4   | 10.872 0066 | 9.131 9442 | 158.2   | 10.868 0558 | 10.0039508 | 2.9   | 9.9960492 | 17'  |  |  |  |  |  |  |  |  |  |
| 10  | 128 1487   | 155.3   | 871 8513    | 132 1024   | 158.1   | 867 8976    | 9537       | 2.8   | 0463      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 128 3040   | 155.3   | 871 6960    | 132 2605   | 158.1   | 867 7395    | 9565       | 2.8   | 0435      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 128 4593   | 155.2   | 871 5407    | 132 4186   | 158.1   | 867 5814    | 9594       | 2.8   | 0406      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 128 6145   | 155.1   | 871 3855    | 132 5767   | 158.0   | 867 4233    | 9622       | 2.8   | 0378      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 128 7696   | 155.1   | 871 2304    | 132 7347   | 157.9   | 867 2653    | 9651       | 2.8   | 0349      | 10   |  |  |  |  |  |  |  |  |  |
| 44' | 9.128 9247 | 155.0   | 10.871 0753 | 9.132 8926 | 157.9   | 10.867 1074 | 10.0039679 | 2.9   | 9.9960321 | 16'  |  |  |  |  |  |  |  |  |  |
| 10  | 129 0797   | 155.0   | 870 9203    | 133 0505   | 157.8   | 866 9495    | 9708       | 2.8   | 0293      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 129 2347   | 154.9   | 870 7653    | 133 2083   | 157.8   | 866 7917    | 9737       | 2.8   | 0265      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 129 3896   | 154.8   | 870 6104    | 133 3661   | 157.7   | 866 6339    | 9765       | 2.8   | 0235      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 129 5444   | 154.8   | 870 4556    | 133 5238   | 157.7   | 866 4762    | 9794       | 2.8   | 0206      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 129 6992   | 154.7   | 870 3008    | 133 6815   | 157.6   | 866 3185    | 9823       | 2.8   | 0177      | 10   |  |  |  |  |  |  |  |  |  |
| 45' | 9.129 8530 | 154.7   | 10.870 1461 | 9.133 8391 | 157.5   | 10.866 1609 | 10.0039851 | 2.9   | 9.9960149 | 15'  |  |  |  |  |  |  |  |  |  |
| 10  | 130 0086   | 154.7   | 869 9914    | 133 9966   | 157.5   | 866 0034    | 9880       | 2.8   | 0120      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 130 1633   | 154.5   | 869 8367    | 134 1541   | 157.4   | 865 8459    | 9909       | 2.8   | 0091      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 130 3178   | 154.5   | 869 6822    | 134 3115   | 157.4   | 865 6885    | 9937       | 2.8   | 0063      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 130 4723   | 154.5   | 869 5277    | 134 4689   | 157.4   | 865 5311    | 9966       | 2.8   | 0034      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 130 6268   | 154.4   | 869 3732    | 134 6263   | 157.2   | 865 3737    | 10.0039995 | 2.8   | 9.9960005 | 10   |  |  |  |  |  |  |  |  |  |
| 46' | 9.130 7812 | 154.4   | 10.869 2188 | 9.134 7835 | 157.2   | 10.865 2165 | 10.0040023 | 2.9   | 9.9959977 | 14'  |  |  |  |  |  |  |  |  |  |
| 10  | 130 9355   | 154.3   | 869 0645    | 134 9408   | 157.3   | 865 0592    | 0052       | 2.8   | 9946      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 131 0898   | 154.3   | 868 9102    | 135 0979   | 157.1   | 864 9021    | 0081       | 2.8   | 9919      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 131 2441   | 154.2   | 868 7559    | 135 2550   | 157.1   | 864 7450    | 0109       | 2.8   | 9891      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 131 3983   | 154.2   | 868 6017    | 135 4121   | 157.1   | 864 5879    | 0138       | 2.8   | 9862      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 131 5524   | 154.0   | 868 4476    | 135 5691   | 157.0   | 864 4309    | 0167       | 2.8   | 9833      | 10   |  |  |  |  |  |  |  |  |  |
| 47' | 9.131 7064 | 154.1   | 10.868 2936 | 9.135 7260 | 156.9   | 10.864 2740 | 10.0040196 | 2.9   | 9.9959804 | 13'  |  |  |  |  |  |  |  |  |  |
| 10  | 131 8605   | 153.9   | 868 1395    | 135 8829   | 156.8   | 864 1171    | 0225       | 2.8   | 9775      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 132 0144   | 153.9   | 867 9856    | 136 0397   | 156.8   | 863 9603    | 0253       | 2.8   | 9747      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 132 1683   | 153.9   | 867 8317    | 136 1965   | 156.8   | 863 8035    | 0282       | 2.8   | 9718      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 132 3222   | 153.7   | 867 6778    | 136 3533   | 156.6   | 863 6467    | 0311       | 2.8   | 9689      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 132 4759   | 153.8   | 867 5241    | 136 5099   | 156.6   | 863 4901    | 0340       | 2.8   | 9660      | 10   |  |  |  |  |  |  |  |  |  |
| 48' | 9.132 6297 | 153.7   | 10.867 3703 | 9.136 6665 | 156.6   | 10.863 3335 | 10.0040369 | 2.9   | 9.9959631 | 12'  |  |  |  |  |  |  |  |  |  |
| 10  | 132 7834   | 153.6   | 867 3166    | 136 8231   | 156.5   | 863 1769    | 0398       | 2.8   | 9603      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 132 9370   | 153.6   | 867 0630    | 136 9796   | 156.5   | 863 0204    | 0426       | 2.8   | 9574      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 133 0906   | 153.5   | 866 9094    | 137 1361   | 156.4   | 862 8639    | 0455       | 2.8   | 9545      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 133 2441   | 153.4   | 866 7559    | 137 2925   | 156.3   | 862 7075    | 0484       | 2.8   | 9516      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 133 3975   | 153.4   | 866 6025    | 137 4488   | 156.3   | 862 5512    | 0513       | 2.8   | 9487      | 10   |  |  |  |  |  |  |  |  |  |
| 49' | 9.133 5506 | 153.4   | 10.866 4491 | 9.137 6051 | 156.3   | 10.862 3949 | 10.0040542 | 2.9   | 9.9959458 | 11'  |  |  |  |  |  |  |  |  |  |
| 10  | 133 7043   | 153.3   | 866 2957    | 137 7614   | 156.1   | 862 2386    | 0571       | 2.8   | 9429      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 133 8576   | 153.2   | 866 1424    | 137 9175   | 156.2   | 862 0825    | 0600       | 2.8   | 9400      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 134 0108   | 153.2   | 865 9892    | 138 0737   | 156.2   | 861 9263    | 0629       | 2.8   | 9371      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 134 1640   | 153.1   | 865 8360    | 138 2297   | 156.0   | 861 7703    | 0658       | 2.8   | 9342      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 134 3171   | 153.1   | 865 6829    | 138 3858   | 155.9   | 861 6142    | 0687       | 2.8   | 9313      | 10   |  |  |  |  |  |  |  |  |  |
| 50' | 9.134 4702 | 153.1   | 10.865 5298 | 9.138 5417 | 155.9   | 10.861 4583 | 10.0040716 | 2.9   | 9.9959284 | 10'  |  |  |  |  |  |  |  |  |  |

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|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d.1" | co-sin.   |     |
|----|------------|----------|-------------|------------|----------|-------------|------------|------|-----------|-----|
| 50 | 9.134 4702 | 153.0    | 10.865 5298 | 9.138 5417 | 155.9    | 10.861 4583 | 10.0040716 | 2.8  | 9.9959284 | 10' |
| 10 | 134 6232   | 153.0    | 865 3768    | 138 6976   | 155.9    | 861 3024    | 0744       | 2.9  | 9256      | 50  |
| 20 | 134 7762   | 152.9    | 865 2238    | 138 8535   | 155.8    | 861 1465    | 0773       | 2.9  | 9227      | 40  |
| 30 | 134 9291   | 152.8    | 865 0709    | 139 0093   | 155.8    | 860 9907    | 0802       | 2.9  | 9198      | 30  |
| 40 | 135 0819   | 152.8    | 864 9181    | 139 1651   | 155.7    | 860 8349    | 0831       | 2.9  | 9169      | 20  |
| 50 | 135 2347   | 152.8    | 864 7653    | 139 3208   | 155.6    | 860 6792    | 0860       | 2.9  | 9140      | 10  |
| 51 | 9.135 3875 | 152.7    | 10.864 6125 | 9.139 4764 | 155.6    | 10.860 5235 | 10.0040889 | 3.0  | 9.9959111 | 9'  |
| 10 | 135 5402   | 152.6    | 864 4598    | 139 6320   | 155.5    | 860 3680    | 0919       | 2.9  | 9081      | 50  |
| 20 | 135 6928   | 152.6    | 864 3072    | 139 7875   | 155.5    | 860 2125    | 0948       | 2.9  | 9052      | 40  |
| 30 | 135 8454   | 152.5    | 864 1546    | 139 9430   | 155.5    | 860 0570    | 0977       | 2.9  | 9023      | 30  |
| 40 | 135 9979   | 152.5    | 864 0021    | 140 0985   | 155.5    | 859 9015    | 1006       | 2.9  | 8994      | 20  |
| 50 | 136 1504   | 152.4    | 863 8496    | 140 2538   | 155.4    | 859 7462    | 1035       | 2.9  | 8965      | 10  |
| 52 | 9.136 3028 | 152.3    | 10.863 6972 | 9.140 4092 | 155.2    | 10.859 5908 | 10.0041064 | 2.9  | 9.9958936 | 8'  |
| 10 | 136 4551   | 152.3    | 863 5449    | 140 5644   | 155.2    | 859 4356    | 1093       | 2.9  | 8907      | 50  |
| 20 | 136 6074   | 152.3    | 863 3926    | 140 7196   | 155.2    | 859 2804    | 1122       | 2.9  | 8878      | 40  |
| 30 | 136 7597   | 152.2    | 863 2403    | 140 8748   | 155.1    | 859 1252    | 1151       | 2.9  | 8849      | 30  |
| 40 | 136 9119   | 152.1    | 863 0881    | 141 0299   | 155.1    | 858 9701    | 1180       | 2.9  | 8820      | 20  |
| 50 | 137 0640   | 152.1    | 862 9360    | 141 1850   | 155.0    | 858 8150    | 1209       | 2.9  | 8791      | 10  |
| 53 | 9.137 2161 | 152.1    | 10.862 7839 | 9.141 3400 | 154.9    | 10.858 6600 | 10.0041239 | 2.9  | 9.9958761 | 7'  |
| 10 | 137 3682   | 151.9    | 862 6318    | 141 4949   | 154.9    | 858 5051    | 1268       | 2.9  | 8732      | 50  |
| 20 | 137 5201   | 151.9    | 862 4799    | 141 6498   | 154.9    | 858 3502    | 1297       | 2.9  | 8703      | 40  |
| 30 | 137 6721   | 151.8    | 862 3279    | 141 8047   | 154.8    | 858 1953    | 1326       | 2.9  | 8674      | 30  |
| 40 | 137 8239   | 151.8    | 862 1761    | 141 9595   | 154.8    | 858 0405    | 1355       | 2.9  | 8645      | 20  |
| 50 | 137 9757   | 151.8    | 862 0243    | 142 1142   | 154.7    | 857 8858    | 1384       | 2.9  | 8616      | 10  |
| 54 | 9.138 1275 | 151.7    | 10.861 8725 | 9.142 2589 | 154.6    | 10.857 7311 | 10.0041414 | 2.9  | 9.9958586 | 6'  |
| 10 | 138 2792   | 151.7    | 861 7208    | 142 4235   | 154.6    | 857 5765    | 1443       | 2.9  | 8557      | 50  |
| 20 | 138 4309   | 151.6    | 861 5691    | 142 5781   | 154.5    | 857 4219    | 1472       | 2.9  | 8528      | 40  |
| 30 | 138 5825   | 151.5    | 861 4175    | 142 7326   | 154.5    | 857 2674    | 1501       | 2.9  | 8499      | 30  |
| 40 | 138 7340   | 151.5    | 861 2660    | 142 8871   | 154.4    | 857 1129    | 1531       | 2.9  | 8469      | 20  |
| 50 | 138 8855   | 151.5    | 861 1145    | 143 0415   | 154.4    | 856 9585    | 1560       | 2.9  | 8440      | 10  |
| 55 | 9.139 0373 | 151.5    | 10.860 9630 | 9.143 1959 | 154.3    | 10.856 8041 | 10.0041589 | 2.9  | 9.9958411 | 5'  |
| 10 | 139 1883   | 151.4    | 860 8117    | 143 3502   | 154.3    | 856 6498    | 1618       | 2.9  | 8382      | 50  |
| 20 | 139 3397   | 151.3    | 860 6603    | 143 5045   | 154.2    | 856 4955    | 1648       | 2.9  | 8352      | 40  |
| 30 | 139 4910   | 151.2    | 860 5090    | 143 6587   | 154.1    | 856 3413    | 1677       | 2.9  | 8323      | 30  |
| 40 | 139 6422   | 151.2    | 860 3578    | 143 8128   | 154.1    | 856 1872    | 1706       | 2.9  | 8294      | 20  |
| 50 | 139 7934   | 151.1    | 860 2066    | 143 9669   | 154.1    | 856 0331    | 1736       | 2.9  | 8264      | 10  |
| 56 | 9.139 9445 | 151.0    | 10.860 0555 | 9.144 1210 | 154.0    | 10.855 8790 | 10.0041765 | 2.9  | 9.9958235 | 5'  |
| 10 | 140 0955   | 151.0    | 859 9045    | 144 2750   | 153.9    | 855 7250    | 1794       | 2.9  | 8206      | 50  |
| 20 | 140 2465   | 151.0    | 859 7535    | 144 4289   | 153.9    | 855 5711    | 1824       | 2.9  | 8176      | 40  |
| 30 | 140 3975   | 150.9    | 859 6025    | 144 5828   | 153.9    | 855 4172    | 1853       | 2.9  | 8147      | 30  |
| 40 | 140 5484   | 150.9    | 859 4516    | 144 7367   | 153.7    | 855 2633    | 1883       | 2.9  | 8117      | 20  |
| 50 | 140 6993   | 150.8    | 859 3007    | 144 8904   | 153.8    | 855 1096    | 1912       | 2.9  | 8088      | 10  |
| 57 | 9.140 8501 | 150.7    | 10.859 1499 | 9.145 0442 | 153.7    | 10.854 9558 | 10.0041941 | 2.9  | 9.9958059 | 3'  |
| 10 | 141 0008   | 150.7    | 858 9992    | 145 1979   | 153.6    | 854 8021    | 1971       | 2.9  | 8029      | 50  |
| 20 | 141 1515   | 150.6    | 858 8485    | 145 3515   | 153.6    | 854 6485    | 2000       | 2.9  | 8000      | 40  |
| 30 | 141 3021   | 150.6    | 858 6979    | 145 5051   | 153.5    | 854 4949    | 2030       | 2.9  | 7970      | 30  |
| 40 | 141 4527   | 150.5    | 858 5473    | 145 6586   | 153.5    | 854 3414    | 2059       | 2.9  | 7941      | 20  |
| 50 | 141 6032   | 150.5    | 858 3968    | 145 8121   | 153.4    | 854 1879    | 2088       | 2.9  | 7912      | 10  |
| 58 | 9.141 7537 | 150.4    | 10.858 2463 | 9.145 9655 | 153.4    | 10.854 0345 | 10.0042118 | 2.9  | 9.9957882 | 2'  |
| 10 | 141 9041   | 150.4    | 858 0959    | 146 1189   | 153.3    | 853 8811    | 2147       | 2.9  | 7853      | 50  |
| 20 | 142 0545   | 150.3    | 857 9455    | 146 2722   | 153.3    | 853 7278    | 2177       | 2.9  | 7823      | 40  |
| 30 | 142 2048   | 150.3    | 857 7952    | 146 4255   | 153.2    | 853 5745    | 2206       | 2.9  | 7794      | 30  |
| 40 | 142 3551   | 150.2    | 857 6449    | 146 5787   | 153.1    | 853 4212    | 2236       | 2.9  | 7764      | 20  |
| 50 | 142 5053   | 150.2    | 857 4947    | 146 7318   | 153.2    | 853 2682    | 2265       | 2.9  | 7735      | 10  |
| 59 | 9.142 6555 | 150.1    | 10.857 3445 | 9.146 8850 | 153.0    | 10.853 1150 | 10.0042295 | 2.9  | 9.9957705 | 1'  |
| 10 | 142 8056   | 150.0    | 857 1944    | 147 0380   | 153.0    | 852 9620    | 2324       | 2.9  | 7676      | 50  |
| 20 | 142 9556   | 150.0    | 857 0444    | 147 1910   | 153.0    | 852 8090    | 2354       | 2.9  | 7646      | 40  |
| 30 | 143 1056   | 150.0    | 856 8944    | 147 3440   | 152.9    | 852 6560    | 2384       | 2.9  | 7616      | 30  |
| 40 | 143 2556   | 149.9    | 856 7444    | 147 4969   | 152.8    | 852 5031    | 2413       | 2.9  | 7587      | 20  |
| 50 | 143 4055   | 149.8    | 856 5945    | 147 6497   | 152.8    | 852 3503    | 2443       | 2.9  | 7557      | 10  |
| 60 | 9.143 5553 |          | 10.856 4447 | 9.147 8025 |          | 10.852 1975 | 10.0042472 |      | 9.9957528 | 0'  |

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82°



| 80° |            |         |             |            |         |             |             |      |            |     | 171° |
|-----|------------|---------|-------------|------------|---------|-------------|-------------|------|------------|-----|------|
|     | sin.       | diff 1" | co-sec.     | tang.      | diff 1" | co-tang.    | sec.        | d.1" | co-sin.    |     |      |
| 0'  | 9.143 5553 |         | 10.856 4447 | 9.147 8025 | 152.8   | 10.852 1975 | 10.004 2472 | 3.0  | 9.995 7528 | 60' |      |
| 10  | 143 7051   | 149.8   | 856 2049    | 147 9553   | 152.7   | 852 0447    | 2502        | 2.9  | 7498       | 50  |      |
| 20  | 143 8548   | 149.7   | 856 1452    | 148 1080   | 152.6   | 851 8920    | 2531        | 3.0  | 7469       | 40  |      |
| 30  | 144 0045   | 149.6   | 855 9955    | 148 2606   | 152.6   | 851 7394    | 2561        | 3.0  | 7439       | 30  |      |
| 40  | 144 1541   | 149.6   | 855 8459    | 148 4132   | 152.6   | 851 5868    | 2591        | 3.0  | 7409       | 20  |      |
| 50  | 144 3037   | 149.6   | 855 6963    | 148 5658   | 152.6   | 851 4342    | 2620        | 2.9  | 7380       | 10  |      |
| 1'  | 9.144 4532 | 149.5   | 10.855 5468 | 9.148 7182 | 152.4   | 10.851 2818 | 10.004 2650 | 3.0  | 9.995 7350 | 50' |      |
| 10  | 144 6027   | 149.5   | 855 3973    | 148 8707   | 152.5   | 851 1293    | 2680        | 3.0  | 7320       | 50  |      |
| 20  | 144 7521   | 149.4   | 855 2479    | 149 0231   | 152.4   | 850 9769    | 2709        | 3.0  | 7291       | 40  |      |
| 30  | 144 9015   | 149.4   | 855 0985    | 149 1754   | 152.3   | 850 8246    | 2739        | 3.0  | 7261       | 30  |      |
| 40  | 145 0508   | 149.3   | 854 9492    | 149 3277   | 152.3   | 850 6723    | 2769        | 3.0  | 7231       | 20  |      |
| 50  | 145 2001   | 149.3   | 854 7999    | 149 4799   | 152.2   | 850 5201    | 2798        | 2.9  | 7202       | 10  |      |
| 2'  | 9.145 3493 | 149.2   | 10.854 6507 | 9.149 6321 | 152.1   | 10.850 3679 | 10.004 2828 | 3.0  | 9.995 7172 | 50' |      |
| 10  | 145 4985   | 149.2   | 854 5015    | 149 7842   | 152.1   | 850 2158    | 2858        | 3.0  | 7149       | 50  |      |
| 20  | 145 6476   | 149.1   | 854 3524    | 149 9363   | 152.1   | 850 0637    | 2888        | 2.9  | 7112       | 40  |      |
| 30  | 145 7966   | 149.0   | 854 2034    | 150 0884   | 151.9   | 849 9116    | 2917        | 3.0  | 7083       | 30  |      |
| 40  | 145 9456   | 149.0   | 854 0544    | 150 2403   | 152.0   | 849 7597    | 2947        | 3.0  | 7053       | 20  |      |
| 50  | 146 0946   | 148.9   | 853 9054    | 150 3923   | 151.8   | 849 6077    | 2977        | 3.0  | 7023       | 10  |      |
| 3'  | 9.146 2435 | 148.9   | 10.853 7565 | 9.150 5441 | 151.8   | 10.849 4559 | 10.004 3007 | 2.9  | 9.995 6903 | 57' |      |
| 10  | 146 3923   | 148.8   | 853 6077    | 150 6960   | 151.9   | 849 3040    | 3036        | 3.0  | 6964       | 50  |      |
| 20  | 146 5411   | 148.8   | 853 4589    | 150 8477   | 151.7   | 849 1523    | 3066        | 3.0  | 6934       | 40  |      |
| 30  | 146 6899   | 148.8   | 853 3101    | 150 9995   | 151.8   | 849 0005    | 3096        | 3.0  | 6904       | 30  |      |
| 40  | 146 8386   | 148.7   | 853 1614    | 151 1511   | 151.6   | 848 8489    | 3126        | 3.0  | 6874       | 20  |      |
| 50  | 146 9872   | 148.6   | 853 0128    | 151 3028   | 151.7   | 848 6972    | 3156        | 2.9  | 6844       | 10  |      |
| 4'  | 9.147 1358 | 148.6   | 10.852 8642 | 9.151 4543 | 151.5   | 10.848 5457 | 10.004 3185 | 3.0  | 9.995 6681 | 56' |      |
| 10  | 147 2843   | 148.5   | 852 7157    | 151 6058   | 151.5   | 848 3942    | 3215        | 3.0  | 6855       | 50  |      |
| 20  | 147 4328   | 148.5   | 852 5672    | 151 7573   | 151.5   | 848 2427    | 3245        | 3.0  | 6825       | 40  |      |
| 30  | 147 5812   | 148.4   | 852 4188    | 151 9087   | 151.4   | 848 0913    | 3275        | 3.0  | 6795       | 30  |      |
| 40  | 147 7296   | 148.4   | 852 2704    | 152 0601   | 151.4   | 847 9399    | 3305        | 3.0  | 6765       | 20  |      |
| 50  | 147 8779   | 148.3   | 852 1221    | 152 2114   | 151.3   | 847 7886    | 3335        | 3.0  | 6735       | 10  |      |
| 5'  | 9.148 0262 | 148.3   | 10.851 9736 | 9.152 3627 | 151.3   | 10.847 6373 | 10.004 3365 | 3.0  | 9.995 6535 | 55' |      |
| 10  | 148 1744   | 148.2   | 851 8256    | 152 5139   | 151.2   | 847 4861    | 3395        | 2.9  | 6705       | 50  |      |
| 20  | 148 3226   | 148.2   | 851 6774    | 152 6651   | 151.2   | 847 3349    | 3424        | 3.0  | 6676       | 40  |      |
| 30  | 148 4707   | 148.1   | 851 5293    | 152 8162   | 151.1   | 847 1838    | 3454        | 3.0  | 6646       | 30  |      |
| 40  | 148 6188   | 148.1   | 851 3812    | 152 9672   | 151.0   | 847 0328    | 3484        | 3.0  | 6616       | 20  |      |
| 50  | 148 7668   | 148.0   | 851 2332    | 153 1183   | 151.1   | 846 8817    | 3514        | 3.0  | 6586       | 10  |      |
| 6'  | 9.148 9148 | 148.0   | 10.851 0852 | 9.153 2692 | 150.9   | 10.846 7308 | 10.004 3544 | 3.0  | 9.995 6456 | 54' |      |
| 10  | 149 0627   | 147.9   | 850 9373    | 153 2701   | 150.9   | 846 5799    | 3574        | 3.0  | 6426       | 50  |      |
| 20  | 149 2106   | 147.9   | 850 7894    | 153 5710   | 150.9   | 846 4290    | 3604        | 3.0  | 6396       | 40  |      |
| 30  | 149 3584   | 147.8   | 850 6416    | 153 7218   | 150.8   | 846 2782    | 3634        | 3.0  | 6366       | 30  |      |
| 40  | 149 5061   | 147.8   | 850 4939    | 153 8726   | 150.7   | 846 1274    | 3664        | 3.0  | 6336       | 20  |      |
| 50  | 149 6539   | 147.7   | 850 3461    | 154 0233   | 150.7   | 845 9767    | 3694        | 3.0  | 6306       | 10  |      |
| 7'  | 9.149 8015 | 147.6   | 10.850 1985 | 9.154 1739 | 150.6   | 10.845 8261 | 10.004 3724 | 3.0  | 9.995 6276 | 53' |      |
| 10  | 149 9491   | 147.6   | 850 0509    | 154 3246   | 150.7   | 845 6754    | 3754        | 3.0  | 6246       | 50  |      |
| 20  | 150 0967   | 147.6   | 849 9033    | 154 4751   | 150.5   | 845 5249    | 3784        | 3.0  | 6216       | 40  |      |
| 30  | 150 2442   | 147.5   | 849 7558    | 154 6256   | 150.5   | 845 3744    | 3814        | 3.0  | 6186       | 30  |      |
| 40  | 150 3916   | 147.4   | 849 6084    | 154 7761   | 150.5   | 845 2239    | 3844        | 3.0  | 6156       | 20  |      |
| 50  | 150 5390   | 147.4   | 849 4610    | 154 9265   | 150.4   | 845 0735    | 3875        | 3.0  | 6125       | 10  |      |
| 8'  | 9.150 6864 | 147.4   | 10.849 3136 | 9.155 0769 | 150.4   | 10.844 9231 | 10.004 3905 | 3.0  | 9.995 6095 | 52' |      |
| 10  | 150 8337   | 147.3   | 849 1663    | 155 2272   | 150.3   | 844 7728    | 3935        | 3.0  | 6065       | 50  |      |
| 20  | 150 9809   | 147.2   | 849 0191    | 155 3774   | 150.2   | 844 6226    | 3965        | 3.0  | 6035       | 40  |      |
| 30  | 151 1281   | 147.2   | 848 8719    | 155 5276   | 150.2   | 844 4724    | 3995        | 3.0  | 6005       | 30  |      |
| 40  | 151 2753   | 147.2   | 848 7247    | 155 6778   | 150.1   | 844 3222    | 4025        | 3.0  | 5975       | 20  |      |
| 50  | 151 4224   | 147.1   | 848 5776    | 155 8279   | 150.1   | 844 1721    | 4055        | 3.0  | 5945       | 10  |      |
| 9'  | 9.151 5694 | 147.0   | 10.848 4306 | 9.155 9780 | 150.0   | 10.844 0220 | 10.004 4085 | 3.0  | 9.995 5915 | 51' |      |
| 10  | 151 7164   | 147.0   | 848 2836    | 156 1280   | 150.0   | 843 8720    | 4116        | 3.1  | 5884       | 50  |      |
| 20  | 151 8634   | 146.9   | 848 1366    | 156 2780   | 149.9   | 843 7220    | 4146        | 3.0  | 5854       | 40  |      |
| 30  | 152 0103   | 146.9   | 847 9897    | 156 4279   | 149.8   | 843 5721    | 4176        | 3.0  | 5824       | 30  |      |
| 40  | 152 1571   | 146.8   | 847 8429    | 156 5777   | 149.8   | 843 4223    | 4206        | 3.0  | 5794       | 20  |      |
| 50  | 152 3039   | 146.8   | 847 6961    | 156 7275   | 149.8   | 843 2725    | 4236        | 3.0  | 5764       | 10  |      |
| 10' | 9.152 4507 | 146.8   | 10.847 5493 | 9.156 8773 | 149.8   | 10.843 1227 | 10.004 4266 | 3.0  | 9.995 5734 | 60' |      |
|     | co-sin.    | diff 1" | sec.        | co-tang.   | diff 1" | tang.       | co-sec.     | d.1" | sin.       |     |      |

| 80° |            |         |             |             |         |             |            |      |           | 171° |  |  |  |  |  |  |  |  |  |
|-----|------------|---------|-------------|-------------|---------|-------------|------------|------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1" | co-sec.     | tang.       | dif. 1" | co-tang.    | sec.       | d.1" | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 10  | 9.152 4507 | 146.7   | 10.847 5493 | 9.156 8773  | 149.7   | 10.843 1227 | 10.0044266 | 3.1  | 9.9955734 | 50'  |  |  |  |  |  |  |  |  |  |
| 20  | 152 5974   | 146.6   | 847 4020    | 157 0270    | 149.7   | 842 9730    | 4297       | 3.0  | 5703      | 50   |  |  |  |  |  |  |  |  |  |
| 30  | 152 7440   | 146.6   | 847 2560    | 157 1767    | 149.6   | 842 8233    | 4327       | 3.0  | 5673      | 40   |  |  |  |  |  |  |  |  |  |
| 40  | 152 8906   | 146.5   | 847 1094    | 157 3: 53   | 149.6   | 842 6737    | 4357       | 3.0  | 5643      | 30   |  |  |  |  |  |  |  |  |  |
| 50  | 153 0371   | 146.5   | 846 9629    | 157 4: 59   | 149.5   | 842 5241    | 4387       | 3.0  | 5613      | 20   |  |  |  |  |  |  |  |  |  |
| 60  | 153 1836   | 146.5   | 846 8164    | 157 6: 34   | 149.4   | 842 3746    | 4418       | 3.0  | 5582      | 10   |  |  |  |  |  |  |  |  |  |
| 70  | 153 3301   | 146.3   | 10.846 6699 | 9.157 7: 48 | 149.3   | 10.842 2252 | 10.0044448 | 3.0  | 9.9955552 | 49'  |  |  |  |  |  |  |  |  |  |
| 80  | 153 4764   | 146.3   | 846 5236    | 157 9: 43   | 149.3   | 842 0757    | 4478       | 3.0  | 5522      | 50   |  |  |  |  |  |  |  |  |  |
| 90  | 153 6228   | 146.3   | 846 3772    | 158 0: 36   | 149.3   | 841 9264    | 4509       | 3.0  | 5491      | 40   |  |  |  |  |  |  |  |  |  |
| 100 | 153 7691   | 146.2   | 846 2309    | 158 2: 30   | 149.2   | 841 7770    | 4539       | 3.0  | 5461      | 30   |  |  |  |  |  |  |  |  |  |
| 110 | 153 9153   | 146.2   | 846 0847    | 158 3: 22   | 149.2   | 841 6278    | 4569       | 3.0  | 5431      | 20   |  |  |  |  |  |  |  |  |  |
| 120 | 154 0615   | 146.1   | 845 9385    | 158 5: 14   | 149.1   | 841 4786    | 4599       | 3.0  | 5401      | 10   |  |  |  |  |  |  |  |  |  |
| 130 | 154 2076   | 146.1   | 10.845 7924 | 9.158 6: 36 | 149.1   | 10.841 3294 | 10.0044630 | 3.0  | 9.9955370 | 48'  |  |  |  |  |  |  |  |  |  |
| 140 | 154 3537   | 146.1   | 845 6463    | 158 8: 17   | 149.1   | 841 1803    | 4660       | 3.0  | 5340      | 50   |  |  |  |  |  |  |  |  |  |
| 150 | 154 4998   | 145.9   | 845 5002    | 158 9: 38   | 149.0   | 841 0312    | 4691       | 3.0  | 5309      | 40   |  |  |  |  |  |  |  |  |  |
| 160 | 154 6457   | 145.9   | 845 3543    | 159 1: 18   | 149.0   | 840 8822    | 4721       | 3.0  | 5279      | 30   |  |  |  |  |  |  |  |  |  |
| 170 | 154 7917   | 145.9   | 845 2083    | 159 2: 38   | 148.9   | 840 7332    | 4751       | 3.0  | 5249      | 20   |  |  |  |  |  |  |  |  |  |
| 180 | 154 9376   | 145.8   | 845 0624    | 159 4: 17   | 148.9   | 840 5843    | 4782       | 3.0  | 5218      | 10   |  |  |  |  |  |  |  |  |  |
| 190 | 155 0834   | 145.8   | 10.844 9166 | 9.159 5: 46 | 148.8   | 10.840 4354 | 10.0044812 | 3.0  | 9.9955188 | 47'  |  |  |  |  |  |  |  |  |  |
| 200 | 155 2292   | 145.7   | 844 7708    | 159 7: 34   | 148.8   | 840 2866    | 4842       | 3.0  | 5158      | 50   |  |  |  |  |  |  |  |  |  |
| 210 | 155 3749   | 145.7   | 844 6251    | 159 8: 12   | 148.8   | 840 1378    | 4873       | 3.0  | 5127      | 40   |  |  |  |  |  |  |  |  |  |
| 220 | 155 5206   | 145.7   | 844 4794    | 160 0: 10   | 148.6   | 839 9890    | 4903       | 3.0  | 5097      | 30   |  |  |  |  |  |  |  |  |  |
| 230 | 155 6663   | 145.5   | 844 3337    | 160 1: 26   | 148.7   | 839 8404    | 4934       | 3.0  | 5066      | 20   |  |  |  |  |  |  |  |  |  |
| 240 | 155 8118   | 145.6   | 844 1882    | 160 3: 33   | 148.7   | 839 6917    | 4964       | 3.0  | 5036      | 10   |  |  |  |  |  |  |  |  |  |
| 250 | 155 9574   | 145.5   | 10.844 0426 | 9.160 4: 59 | 148.5   | 10.839 5431 | 10.0044995 | 3.0  | 9.9955005 | 46'  |  |  |  |  |  |  |  |  |  |
| 260 | 156 1029   | 145.4   | 843 8971    | 160 6: 34   | 148.5   | 839 3946    | 5025       | 3.1  | 4975      | 50   |  |  |  |  |  |  |  |  |  |
| 270 | 156 2483   | 145.4   | 843 7517    | 160 7: 39   | 148.4   | 839 2461    | 5056       | 3.0  | 4944      | 40   |  |  |  |  |  |  |  |  |  |
| 280 | 156 3937   | 145.3   | 843 6063    | 160 9: 23   | 148.4   | 839 0977    | 5086       | 3.1  | 4914      | 30   |  |  |  |  |  |  |  |  |  |
| 290 | 156 5390   | 145.3   | 843 4610    | 161 0: 27   | 148.3   | 838 9493    | 5117       | 3.0  | 4883      | 20   |  |  |  |  |  |  |  |  |  |
| 300 | 156 6843   | 145.3   | 843 3157    | 161 1: 30   | 148.3   | 838 8010    | 5147       | 3.0  | 4853      | 10   |  |  |  |  |  |  |  |  |  |
| 310 | 156 8296   | 145.2   | 10.843 1704 | 9.161 3: 23 | 148.3   | 10.838 6527 | 10.0045178 | 3.0  | 9.9954822 | 45'  |  |  |  |  |  |  |  |  |  |
| 320 | 156 9748   | 145.1   | 843 0252    | 161 4: 36   | 148.2   | 838 5044    | 5208       | 3.1  | 4792      | 50   |  |  |  |  |  |  |  |  |  |
| 330 | 157 1199   | 145.1   | 842 8801    | 161 6: 38   | 148.1   | 838 3562    | 5239       | 3.0  | 4761      | 40   |  |  |  |  |  |  |  |  |  |
| 340 | 157 2650   | 145.0   | 842 7350    | 161 7: 19   | 148.1   | 838 2081    | 5269       | 3.1  | 4731      | 30   |  |  |  |  |  |  |  |  |  |
| 350 | 157 4100   | 145.0   | 842 5900    | 161 9: 20   | 148.1   | 838 0600    | 5300       | 3.0  | 4700      | 20   |  |  |  |  |  |  |  |  |  |
| 360 | 157 5550   | 145.0   | 842 4450    | 162 0: 31   | 148.0   | 837 9119    | 5330       | 3.1  | 4670      | 10   |  |  |  |  |  |  |  |  |  |
| 370 | 157 7000   | 144.9   | 10.842 3000 | 9.162 2: 51 | 147.9   | 10.837 7639 | 10.0045361 | 3.0  | 9.9954639 | 44'  |  |  |  |  |  |  |  |  |  |
| 380 | 157 8449   | 144.8   | 842 1551    | 162 3: 40   | 147.9   | 837 6160    | 5362       | 3.0  | 4608      | 50   |  |  |  |  |  |  |  |  |  |
| 390 | 157 9897   | 144.8   | 842 0103    | 162 5: 19   | 147.9   | 837 4681    | 5422       | 3.1  | 4578      | 40   |  |  |  |  |  |  |  |  |  |
| 400 | 158 1345   | 144.8   | 841 8655    | 162 6: 38   | 147.9   | 837 3202    | 5453       | 3.0  | 4547      | 30   |  |  |  |  |  |  |  |  |  |
| 410 | 158 2792   | 144.7   | 841 7208    | 162 8: 76   | 147.8   | 837 1724    | 5483       | 3.1  | 4517      | 20   |  |  |  |  |  |  |  |  |  |
| 420 | 158 4239   | 144.7   | 841 5761    | 162 9: 54   | 147.7   | 837 0246    | 5514       | 3.0  | 4486      | 10   |  |  |  |  |  |  |  |  |  |
| 430 | 158 5686   | 144.6   | 10.841 4314 | 9.163 1: 31 | 147.6   | 10.836 8769 | 10.0045545 | 3.0  | 9.9954455 | 43'  |  |  |  |  |  |  |  |  |  |
| 440 | 158 7132   | 144.5   | 841 2868    | 163 2: 27   | 147.6   | 836 7293    | 5575       | 3.1  | 4425      | 50   |  |  |  |  |  |  |  |  |  |
| 450 | 158 8577   | 144.5   | 841 1423    | 163 4: 33   | 147.6   | 836 5817    | 5606       | 3.1  | 4394      | 40   |  |  |  |  |  |  |  |  |  |
| 460 | 159 0022   | 144.5   | 840 9978    | 163 5: 59   | 147.5   | 836 4341    | 5637       | 3.0  | 4363      | 30   |  |  |  |  |  |  |  |  |  |
| 470 | 159 1467   | 144.4   | 840 8533    | 163 7: 34   | 147.5   | 836 2866    | 5667       | 3.1  | 4332      | 20   |  |  |  |  |  |  |  |  |  |
| 480 | 159 2911   | 144.3   | 840 7089    | 163 8: 29   | 147.4   | 836 1391    | 5698       | 3.0  | 4302      | 10   |  |  |  |  |  |  |  |  |  |
| 490 | 159 4354   | 144.3   | 10.840 5646 | 9.164 0: 33 | 147.4   | 10.835 9917 | 10.0045729 | 3.1  | 9.9954271 | 42'  |  |  |  |  |  |  |  |  |  |
| 500 | 159 5797   | 144.3   | 840 4203    | 164 1: 57   | 147.3   | 835 8443    | 5760       | 3.0  | 4240      | 50   |  |  |  |  |  |  |  |  |  |
| 510 | 159 7240   | 144.2   | 840 2760    | 164 3: 00   | 147.3   | 835 6970    | 5790       | 3.1  | 4210      | 40   |  |  |  |  |  |  |  |  |  |
| 520 | 159 8682   | 144.2   | 840 1318    | 164 4: 53   | 147.2   | 835 5497    | 5821       | 3.1  | 4179      | 30   |  |  |  |  |  |  |  |  |  |
| 530 | 160 0124   | 144.1   | 839 9876    | 164 5: 97   | 147.2   | 835 4025    | 5852       | 3.0  | 4148      | 20   |  |  |  |  |  |  |  |  |  |
| 540 | 160 1565   | 144.1   | 839 8435    | 164 7: 47   | 147.2   | 835 2553    | 5883       | 3.0  | 4117      | 10   |  |  |  |  |  |  |  |  |  |
| 550 | 160 3005   | 144.0   | 10.839 6995 | 9.164 8: 19 | 147.1   | 10.835 1081 | 10.0045913 | 3.1  | 9.9954087 | 41'  |  |  |  |  |  |  |  |  |  |
| 560 | 160 4445   | 144.0   | 839 5555    | 165 0: 30   | 147.1   | 834 9610    | 5944       | 3.0  | 4056      | 50   |  |  |  |  |  |  |  |  |  |
| 570 | 160 5885   | 143.9   | 839 4115    | 165 1: 86   | 147.0   | 834 8140    | 5975       | 3.1  | 4025      | 40   |  |  |  |  |  |  |  |  |  |
| 580 | 160 7324   | 143.9   | 839 2676    | 165 3: 30   | 146.9   | 834 6670    | 6006       | 3.0  | 3994      | 30   |  |  |  |  |  |  |  |  |  |
| 590 | 160 8763   | 143.8   | 839 1237    | 165 4: 99   | 146.9   | 834 5201    | 6037       | 3.1  | 3963      | 20   |  |  |  |  |  |  |  |  |  |
| 600 | 161 0201   | 143.8   | 838 9799    | 165 6: 28   | 146.9   | 834 3732    | 6067       | 3.0  | 3933      | 10   |  |  |  |  |  |  |  |  |  |
| 610 | 161 1639   | 143.8   | 10.838 8361 | 9.165 7: 37 | 146.9   | 10.834 2263 | 10.0046098 | 3.1  | 9.9953902 | 40'  |  |  |  |  |  |  |  |  |  |

|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d.1" | co-sin.      |
|-----|------------|----------|-------------|------------|----------|-------------|------------|------|--------------|
| 20' | 9.161 1630 | 143.7    | 10.838 8361 | 9.165 7737 | 146.8    | 10.834 2263 | 10.0046098 | 3.1  | 9.9953902 40 |
| 10  | 161 3076   | 143.7    | 838 6924    | 165 9205   | 146.7    | 834 0795    | 6129       | 3.1  | 3871 50      |
| 20  | 161 4513   | 143.7    | 838 5487    | 166 0672   | 146.7    | 833 9328    | 6160       | 3.1  | 3840 40      |
| 30  | 161 5949   | 143.6    | 838 4051    | 166 2139   | 146.7    | 833 7861    | 6191       | 3.1  | 3809 30      |
| 40  | 161 7384   | 143.5    | 838 2616    | 166 3606   | 146.7    | 833 6394    | 6222       | 3.1  | 3778 20      |
| 50  | 161 8820   | 143.4    | 838 1180    | 166 5072   | 146.6    | 833 4928    | 6253       | 3.0  | 3747 10      |
| 21' | 9.162 0254 | 143.5    | 10.837 9746 | 9.166 6538 | 146.5    | 10.833 3462 | 10.0046283 | 3.1  | 9.9953717 39 |
| 10  | 162 1689   | 143.4    | 837 8311    | 166 8003   | 146.5    | 833 1997    | 6314       | 3.1  | 3686 50      |
| 20  | 162 3123   | 143.3    | 837 6877    | 166 9468   | 146.4    | 833 0532    | 6345       | 3.1  | 3655 40      |
| 30  | 162 4556   | 143.3    | 837 5444    | 167 0932   | 146.4    | 832 9068    | 6376       | 3.1  | 3624 30      |
| 40  | 162 5989   | 143.2    | 837 4011    | 167 2396   | 146.3    | 832 7604    | 6407       | 3.1  | 3593 20      |
| 50  | 162 7421   | 143.2    | 837 2579    | 167 3859   | 146.3    | 832 6141    | 6438       | 3.1  | 3562 10      |
| 22' | 9.162 8853 | 143.1    | 10.837 1147 | 9.167 5322 | 146.2    | 10.832 4678 | 10.0046469 | 3.1  | 9.9953531 38 |
| 10  | 163 0284   | 143.1    | 836 9716    | 167 6784   | 146.2    | 832 3216    | 6500       | 3.1  | 3500 50      |
| 20  | 163 1715   | 143.1    | 836 8285    | 167 8246   | 146.2    | 832 1754    | 6531       | 3.1  | 3469 40      |
| 30  | 163 3146   | 142.9    | 836 6854    | 167 9708   | 146.0    | 832 0292    | 6562       | 3.1  | 3438 30      |
| 40  | 163 4575   | 142.9    | 836 5425    | 168 1168   | 146.1    | 831 8832    | 6593       | 3.1  | 3407 20      |
| 50  | 163 6005   | 142.9    | 836 3995    | 168 2629   | 146.0    | 831 7371    | 6624       | 3.1  | 3376 10      |
| 23' | 9.163 7434 | 142.8    | 10.836 2566 | 9.168 4089 | 145.9    | 10.831 5911 | 10.0046655 | 3.1  | 9.9953345 37 |
| 10  | 163 8862   | 142.8    | 836 1138    | 168 5548   | 145.9    | 831 4452    | 6686       | 3.1  | 3314 50      |
| 20  | 164 0290   | 142.8    | 835 9710    | 168 7007   | 145.9    | 831 2993    | 6717       | 3.1  | 3283 40      |
| 30  | 164 1718   | 142.7    | 835 8282    | 168 8466   | 145.8    | 831 1534    | 6748       | 3.1  | 3252 30      |
| 40  | 164 3145   | 142.7    | 835 6855    | 168 9924   | 145.8    | 831 0076    | 6779       | 3.1  | 3221 20      |
| 50  | 164 4572   | 142.6    | 835 5428    | 169 1382   | 145.7    | 830 8618    | 6810       | 3.1  | 3190 10      |
| 24' | 9.164 5998 | 142.5    | 10.835 4002 | 9.169 2839 | 145.7    | 10.830 7161 | 10.0046841 | 3.1  | 9.9953159 36 |
| 10  | 164 7423   | 142.5    | 835 2577    | 169 4296   | 145.6    | 830 5704    | 6872       | 3.2  | 3128 50      |
| 20  | 164 8848   | 142.5    | 835 1152    | 169 5752   | 145.6    | 830 4248    | 6904       | 3.2  | 3097 40      |
| 30  | 165 0273   | 142.4    | 834 9727    | 169 7208   | 145.5    | 830 2792    | 6935       | 3.1  | 3066 30      |
| 40  | 165 1697   | 142.4    | 834 8303    | 169 8663   | 145.5    | 830 1337    | 6966       | 3.1  | 3035 20      |
| 50  | 165 3121   | 142.3    | 834 6879    | 170 0118   | 145.4    | 829 9882    | 6997       | 3.1  | 3004 10      |
| 25' | 9.165 4544 | 142.3    | 10.834 5456 | 9.170 1572 | 145.4    | 10.829 8428 | 10.0047028 | 3.1  | 9.9952975 35 |
| 10  | 165 5967   | 142.2    | 834 4033    | 170 3026   | 145.4    | 829 6974    | 7059       | 3.1  | 2941 50      |
| 20  | 165 7389   | 142.2    | 834 2611    | 170 4480   | 145.3    | 829 5520    | 7090       | 3.2  | 2910 40      |
| 30  | 165 8811   | 142.1    | 834 1189    | 170 5933   | 145.2    | 829 4067    | 7122       | 3.1  | 2879 30      |
| 40  | 166 0232   | 142.1    | 833 9768    | 170 7385   | 145.2    | 829 2615    | 7153       | 3.1  | 2848 20      |
| 50  | 166 1653   | 142.1    | 833 8347    | 170 8837   | 145.2    | 829 1163    | 7184       | 3.1  | 2817 10      |
| 26' | 9.166 3074 | 141.9    | 10.833 6926 | 9.171 0289 | 145.1    | 10.828 9715 | 10.0047215 | 3.1  | 9.9952785 34 |
| 10  | 166 4493   | 142.0    | 833 5507    | 171 1740   | 145.1    | 828 8260    | 7246       | 3.2  | 2754 50      |
| 20  | 166 5913   | 141.9    | 833 4087    | 171 3191   | 145.0    | 828 6809    | 7278       | 3.1  | 2723 40      |
| 30  | 166 7332   | 141.8    | 833 2668    | 171 4641   | 144.9    | 828 5359    | 7309       | 3.1  | 2692 30      |
| 40  | 166 8750   | 141.8    | 833 1251    | 171 6090   | 144.9    | 828 3910    | 7340       | 3.1  | 2661 20      |
| 50  | 167 0168   | 141.8    | 832 9832    | 171 7540   | 144.9    | 828 2460    | 7371       | 3.2  | 2630 10      |
| 27' | 9.167 1586 | 141.7    | 10.832 8414 | 9.171 8989 | 144.8    | 10.828 1011 | 10.0047403 | 3.1  | 9.9952597 33 |
| 10  | 167 3003   | 141.6    | 832 6997    | 172 0437   | 144.8    | 827 9563    | 7434       | 3.1  | 2566 50      |
| 20  | 167 4419   | 141.7    | 832 5581    | 172 1885   | 144.7    | 827 8115    | 7465       | 3.2  | 2535 40      |
| 30  | 167 5836   | 141.5    | 832 4164    | 172 3332   | 144.7    | 827 6668    | 7497       | 3.1  | 2504 30      |
| 40  | 167 7251   | 141.5    | 832 2749    | 172 4779   | 144.7    | 827 5221    | 7528       | 3.1  | 2473 20      |
| 50  | 167 8666   | 141.5    | 832 1334    | 172 6226   | 144.6    | 827 3774    | 7559       | 3.2  | 2441 10      |
| 28' | 9.168 0081 | 141.4    | 10.831 9919 | 9.172 7672 | 144.5    | 10.827 2328 | 10.0047591 | 3.1  | 9.9952409 32 |
| 10  | 168 1495   | 141.4    | 831 8505    | 172 9117   | 144.5    | 827 0883    | 7622       | 3.1  | 2378 50      |
| 20  | 168 2909   | 141.3    | 831 7091    | 173 0562   | 144.5    | 826 9438    | 7653       | 3.2  | 2347 40      |
| 30  | 168 4322   | 141.3    | 831 5678    | 173 2007   | 144.4    | 826 7993    | 7685       | 3.1  | 2316 30      |
| 40  | 168 5735   | 141.3    | 831 4265    | 173 3451   | 144.4    | 826 6549    | 7716       | 3.1  | 2285 20      |
| 50  | 168 7148   | 141.3    | 831 2852    | 173 4895   | 144.3    | 826 5105    | 7747       | 3.2  | 2254 10      |
| 29' | 9.168 8559 | 141.2    | 10.831 1441 | 9.173 6338 | 144.3    | 10.826 3662 | 10.0047779 | 3.1  | 9.9952221 31 |
| 10  | 168 9971   | 141.2    | 831 0029    | 173 7781   | 144.2    | 826 2217    | 7810       | 3.2  | 2190 50      |
| 20  | 169 1382   | 141.1    | 830 8618    | 173 9223   | 144.2    | 826 0777    | 7842       | 3.1  | 2158 40      |
| 30  | 169 2792   | 141.0    | 830 7208    | 174 0665   | 144.2    | 825 9335    | 7873       | 3.2  | 2127 30      |
| 40  | 169 4202   | 141.0    | 830 5798    | 174 2107   | 144.1    | 825 7893    | 7905       | 3.1  | 2095 20      |
| 50  | 169 5612   | 140.9    | 830 4388    | 174 3548   | 144.0    | 825 6452    | 7936       | 3.1  | 2064 10      |
| 30' | 9.169 7021 | 140.9    | 10.830 2979 | 9.174 4988 | 144.0    | 10.825 5012 | 10.0047967 | 3.1  | 9.9952033 30 |



| 80° |            | 171°      |             |            |           |             |             |       |            |
|-----|------------|-----------|-------------|------------|-----------|-------------|-------------|-------|------------|
|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |
| 30  | 0.169 7021 | 140.8     | 10.830 2979 | 9.174 4988 | 144.0     | 10.825 5012 | 10.004 7967 | 3.2   | 9.995 2033 |
| 10  | 0.169 8429 | 140.7     | 830 1571    | 174 6428   | 144.0     | 825 3572    | 7999        | 3.1   | 2001 50    |
| 20  | 0.169 9838 | 140.7     | 830 0162    | 174 7868   | 143.9     | 825 2132    | 8030        | 3.2   | 1970 40    |
| 30  | 0.170 1245 | 140.7     | 829 8755    | 174 9307   | 143.9     | 825 0693    | 8062        | 3.1   | 1938 30    |
| 40  | 0.170 2652 | 140.7     | 829 7348    | 175 0746   | 143.8     | 824 9254    | 8093        | 3.2   | 1907 20    |
| 50  | 0.170 4059 | 140.6     | 829 5941    | 175 2184   | 143.8     | 824 7816    | 8125        | 3.1   | 1875 10    |
| 31  | 0.170 5465 | 140.6     | 10.829 4535 | 9.175 3622 | 143.7     | 10.824 6378 | 10.004 8156 | 3.2   | 9.995 1844 |
| 10  | 0.170 6871 | 140.6     | 829 3129    | 175 5059   | 143.7     | 824 4941    | 8188        | 3.1   | 1812 50    |
| 20  | 0.170 8277 | 140.5     | 829 1723    | 175 6496   | 143.7     | 824 3504    | 8219        | 3.2   | 1781 40    |
| 30  | 0.170 9682 | 140.4     | 829 0318    | 175 7933   | 143.6     | 824 2067    | 8251        | 3.2   | 1749 30    |
| 40  | 0.171 1086 | 140.4     | 828 8914    | 175 9369   | 143.5     | 824 0631    | 8283        | 3.1   | 1717 20    |
| 50  | 0.171 2490 | 140.3     | 828 7510    | 176 0804   | 143.5     | 823 9195    | 8314        | 3.2   | 1686 10    |
| 32  | 0.171 3893 | 140.3     | 10.828 6107 | 9.176 2239 | 143.5     | 10.823 7761 | 10.004 8346 | 3.1   | 9.995 1654 |
| 10  | 0.171 5296 | 140.3     | 828 4704    | 176 3674   | 143.4     | 823 6326    | 8377        | 3.2   | 1623 20    |
| 20  | 0.171 6699 | 140.2     | 828 3301    | 176 5108   | 143.4     | 823 4892    | 8409        | 3.2   | 1591 40    |
| 30  | 0.171 8101 | 140.2     | 828 1899    | 176 6542   | 143.3     | 823 3458    | 8441        | 3.1   | 1559 30    |
| 40  | 0.171 9503 | 140.1     | 828 0497    | 176 7975   | 143.3     | 823 2025    | 8472        | 3.2   | 1528 20    |
| 50  | 0.172 0904 | 140.1     | 827 9096    | 176 9408   | 143.2     | 823 0592    | 8504        | 3.2   | 1496 10    |
| 33  | 0.172 2305 | 140.0     | 10.827 7695 | 9.177 0840 | 143.2     | 10.822 9160 | 10.004 8536 | 3.1   | 9.995 1464 |
| 10  | 0.172 3705 | 140.0     | 827 6295    | 177 2272   | 143.1     | 822 7728    | 8567        | 3.2   | 1433 50    |
| 20  | 0.172 5105 | 139.9     | 827 4895    | 177 3703   | 143.1     | 822 6297    | 8599        | 3.2   | 1401 40    |
| 30  | 0.172 6504 | 139.9     | 827 3496    | 177 5134   | 143.1     | 822 4866    | 8631        | 3.1   | 1369 30    |
| 40  | 0.172 7903 | 139.8     | 827 2097    | 177 6565   | 143.0     | 822 3435    | 8662        | 3.2   | 1338 20    |
| 50  | 0.172 9301 | 139.8     | 827 0699    | 177 7995   | 143.0     | 822 2005    | 8694        | 3.2   | 1306 10    |
| 34  | 0.173 0699 | 139.8     | 10.826 9301 | 9.177 9425 | 142.9     | 10.822 0575 | 10.004 8726 | 3.1   | 9.995 1274 |
| 10  | 0.173 2097 | 139.7     | 826 7903    | 178 0854   | 142.9     | 821 9146    | 8757        | 3.2   | 1243 50    |
| 20  | 0.173 3494 | 139.6     | 826 6506    | 178 2283   | 142.8     | 821 7717    | 8789        | 3.2   | 1211 40    |
| 30  | 0.173 4890 | 139.6     | 826 5110    | 178 3711   | 142.8     | 821 6289    | 8821        | 3.2   | 1179 30    |
| 40  | 0.173 6286 | 139.5     | 826 3714    | 178 5139   | 142.7     | 821 4861    | 8853        | 3.1   | 1147 20    |
| 50  | 0.173 7682 | 139.5     | 826 2318    | 178 6566   | 142.7     | 821 3434    | 8884        | 3.2   | 1116 10    |
| 35  | 0.173 9077 | 139.5     | 10.826 0923 | 9.178 7993 | 142.7     | 10.821 2007 | 10.004 8916 | 3.2   | 9.995 1084 |
| 10  | 0.174 0472 | 139.4     | 825 9528    | 178 9420   | 142.6     | 821 0580    | 8948        | 3.2   | 1052 50    |
| 20  | 0.174 1866 | 139.4     | 825 8134    | 179 0846   | 142.5     | 820 9154    | 8980        | 3.2   | 1020 40    |
| 30  | 0.174 3260 | 139.3     | 825 6740    | 179 2271   | 142.6     | 820 7729    | 9012        | 3.1   | 0988 30    |
| 40  | 0.174 4653 | 139.3     | 825 5347    | 179 3697   | 142.4     | 820 6303    | 9043        | 3.2   | 0957 20    |
| 50  | 0.174 6046 | 139.3     | 825 3954    | 179 5121   | 142.5     | 820 4879    | 9075        | 3.2   | 0925 10    |
| 36  | 0.174 7439 | 139.2     | 10.825 2561 | 9.179 6546 | 142.3     | 10.820 3454 | 10.004 9107 | 3.2   | 9.995 0869 |
| 10  | 0.174 8831 | 139.1     | 825 1169    | 179 7969   | 142.3     | 820 2031    | 9139        | 3.2   | 0861 50    |
| 20  | 0.175 0222 | 139.1     | 824 9778    | 179 9393   | 142.3     | 820 0607    | 9171        | 3.2   | 0829 40    |
| 30  | 0.175 1613 | 139.1     | 824 8387    | 180 0816   | 142.2     | 819 9184    | 9203        | 3.1   | 0797 30    |
| 40  | 0.175 3004 | 139.0     | 824 6996    | 180 2238   | 142.2     | 819 7762    | 9234        | 3.2   | 0766 20    |
| 50  | 0.175 4394 | 139.0     | 824 5606    | 180 3660   | 142.2     | 819 6340    | 9266        | 3.2   | 0734 10    |
| 37  | 0.175 5784 | 138.9     | 10.824 4216 | 9.180 5082 | 142.1     | 10.819 4918 | 10.004 9298 | 3.2   | 9.995 0702 |
| 10  | 0.175 7173 | 138.9     | 824 2827    | 180 6503   | 142.1     | 819 3497    | 9330        | 3.2   | 0670 50    |
| 20  | 0.175 8565 | 138.8     | 824 1438    | 180 7924   | 142.0     | 819 2076    | 9362        | 3.2   | 0638 40    |
| 30  | 0.175 9950 | 138.8     | 824 0050    | 180 9344   | 142.0     | 819 0656    | 9394        | 3.2   | 0606 30    |
| 40  | 0.176 1338 | 138.7     | 823 8662    | 181 0764   | 141.9     | 818 9236    | 9426        | 3.2   | 0574 20    |
| 50  | 0.176 2725 | 138.7     | 823 7275    | 181 2183   | 141.9     | 818 7817    | 9458        | 3.2   | 0542 10    |
| 38  | 0.176 4112 | 138.7     | 10.823 5888 | 9.181 3602 | 141.9     | 10.818 6398 | 10.004 9490 | 3.2   | 9.995 0510 |
| 10  | 0.176 5499 | 138.6     | 823 4501    | 181 5021   | 141.8     | 818 4979    | 9522        | 3.2   | 0478 50    |
| 20  | 0.176 6885 | 138.5     | 823 3115    | 181 6439   | 141.7     | 818 3561    | 9554        | 3.2   | 0446 40    |
| 30  | 0.176 8270 | 138.5     | 823 1730    | 181 7856   | 141.7     | 818 2144    | 9586        | 3.2   | 0414 30    |
| 40  | 0.176 9656 | 138.4     | 823 0344    | 181 9273   | 141.7     | 818 0727    | 9618        | 3.2   | 0382 20    |
| 50  | 0.177 1040 | 138.4     | 822 8960    | 182 0690   | 141.6     | 817 9310    | 9650        | 3.2   | 0350 10    |
| 39  | 0.177 2425 | 138.3     | 10.822 7575 | 9.182 2106 | 141.6     | 10.817 7894 | 10.004 9682 | 3.2   | 9.995 0318 |
| 10  | 0.177 3808 | 138.3     | 822 6192    | 182 3522   | 141.5     | 817 6478    | 9714        | 3.2   | 0286 50    |
| 20  | 0.177 5192 | 138.3     | 822 4808    | 182 4938   | 141.5     | 817 5062    | 9746        | 3.2   | 0254 40    |
| 30  | 0.177 6575 | 138.2     | 822 3425    | 182 6353   | 141.4     | 817 3647    | 9778        | 3.2   | 0222 30    |
| 40  | 0.177 7955 | 138.2     | 822 2043    | 182 7767   | 141.4     | 817 2233    | 9810        | 3.2   | 0190 20    |
| 50  | 0.177 9339 | 138.2     | 822 0661    | 182 9181   | 141.4     | 817 0819    | 9842        | 3.2   | 0158 10    |
| 40  | 0.178 0721 | 138.2     | 10.821 9279 | 9.183 0595 | 141.4     | 10.816 9405 | 10.004 9874 | 3.1   | 9.995 0126 |

|  | co-sin. | diff. 1'' | sec. | co-tang. | diff. 1'' | tang. | co-sec. | d.1'' | sin. |
|--|---------|-----------|------|----------|-----------|-------|---------|-------|------|
|--|---------|-----------|------|----------|-----------|-------|---------|-------|------|

| 8°  |            |          |             |            |          |             |            |       |           | 171° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 40' | 9.178 0721 | 138.1    | 10.821 9270 | 9.183 0595 | 141.3    | 10.816 9405 | 10.0049874 | 3.2   | 9.9950156 | 20'  |  |  |  |  |  |  |  |  |  |
| 10  | 178 2102   | 138.1    | 821 7908    | 183 2008   | 141.3    | 816 7992    | 9906       | 3.2   | 0094      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 178 3483   | 138.0    | 821 6517    | 183 3421   | 141.2    | 816 6579    | 9938       | 3.2   | 0062      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 178 4863   | 138.0    | 821 5137    | 183 4833   | 141.2    | 816 5167    | 10.0049971 | 3.2   | 9.9950029 | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 178 6243   | 137.9    | 821 3757    | 183 6245   | 141.2    | 816 3755    | 10.0050003 | 3.2   | 9.9949977 | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 178 7622   | 137.9    | 821 2378    | 183 7657   | 141.1    | 816 2343    | 0035       | 3.2   | 9955      | 10   |  |  |  |  |  |  |  |  |  |
| 41' | 9.178 9001 | 137.8    | 10.821 0999 | 9.183 9068 | 141.0    | 10.816 0932 | 10.0050067 | 3.2   | 9.9949933 | 19'  |  |  |  |  |  |  |  |  |  |
| 10  | 179 0379   | 137.8    | 820 9621    | 184 0478   | 141.0    | 815 9522    | 0099       | 3.2   | 9901      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 179 1757   | 137.8    | 820 8243    | 184 1888   | 141.0    | 815 8112    | 0131       | 3.2   | 9869      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 179 3135   | 137.7    | 820 6865    | 184 3298   | 140.9    | 815 6702    | 0164       | 3.2   | 9836      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 179 4512   | 137.7    | 820 5488    | 184 4707   | 140.9    | 815 5293    | 0196       | 3.2   | 9804      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 179 5888   | 137.6    | 820 4112    | 184 6116   | 140.9    | 815 3884    | 0228       | 3.2   | 9772      | 10   |  |  |  |  |  |  |  |  |  |
| 42' | 9.179 7265 | 137.5    | 10.820 2735 | 9.184 7525 | 140.8    | 10.815 2475 | 10.0050260 | 3.2   | 9.9949740 | 18'  |  |  |  |  |  |  |  |  |  |
| 10  | 179 8640   | 137.6    | 820 1360    | 184 8933   | 140.7    | 815 1067    | 0292       | 3.2   | 9708      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 180 0016   | 137.4    | 819 9984    | 185 0340   | 140.7    | 814 9660    | 0325       | 3.2   | 9675      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 180 1390   | 137.4    | 819 8610    | 185 1747   | 140.7    | 814 8253    | 0357       | 3.2   | 9643      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 180 2765   | 137.4    | 819 7235    | 185 3154   | 140.6    | 814 6846    | 0389       | 3.2   | 9611      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 180 4139   | 137.3    | 819 5861    | 185 4560   | 140.6    | 814 5440    | 0421       | 3.2   | 9579      | 10   |  |  |  |  |  |  |  |  |  |
| 43' | 9.180 5512 | 137.3    | 10.819 4488 | 9.185 5966 | 140.5    | 10.814 4034 | 10.0050454 | 3.2   | 9.9949546 | 17'  |  |  |  |  |  |  |  |  |  |
| 10  | 180 6885   | 137.3    | 819 3115    | 185 5971   | 140.5    | 814 2629    | 0466       | 3.2   | 9514      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 180 8258   | 137.2    | 819 1742    | 185 7376   | 140.5    | 814 1224    | 0518       | 3.2   | 9482      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 180 9630   | 137.2    | 819 0370    | 185 8781   | 140.4    | 813 9819    | 0551       | 3.2   | 9449      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 181 1002   | 137.2    | 818 8998    | 186 1585   | 140.3    | 813 8415    | 0583       | 3.2   | 9417      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 181 2373   | 137.1    | 818 7627    | 186 2988   | 140.3    | 813 7012    | 0615       | 3.2   | 9385      | 10   |  |  |  |  |  |  |  |  |  |
| 44' | 9.181 3744 | 137.1    | 10.818 6256 | 9.186 4392 | 140.4    | 10.813 5608 | 10.0050648 | 3.2   | 9.9949352 | 16   |  |  |  |  |  |  |  |  |  |
| 10  | 181 5114   | 137.0    | 818 4886    | 186 5794   | 140.2    | 813 4206    | 0680       | 3.2   | 9320      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 181 6484   | 137.0    | 818 3516    | 186 7197   | 140.2    | 813 2803    | 0712       | 3.2   | 9288      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 181 7854   | 136.9    | 818 2146    | 186 8599   | 140.1    | 813 1401    | 0745       | 3.2   | 9255      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 181 9223   | 136.9    | 818 0777    | 187 0000   | 140.1    | 813 0000    | 0777       | 3.2   | 9223      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 182 0592   | 136.8    | 817 9408    | 187 1401   | 140.1    | 812 8599    | 0809       | 3.2   | 9191      | 10   |  |  |  |  |  |  |  |  |  |
| 45' | 9.182 1960 | 136.8    | 10.817 8040 | 9.187 2802 | 140.0    | 10.812 7198 | 10.0050842 | 3.2   | 9.9949158 | 15   |  |  |  |  |  |  |  |  |  |
| 10  | 182 3338   | 136.7    | 817 6672    | 187 4202   | 140.0    | 812 5798    | 0874       | 3.2   | 9126      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 182 4665   | 136.7    | 817 5305    | 187 5602   | 139.9    | 812 4398    | 0907       | 3.2   | 9093      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 182 6002   | 136.6    | 817 3938    | 187 7001   | 139.9    | 812 2999    | 0939       | 3.2   | 9061      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 182 7438   | 136.6    | 817 2572    | 187 8400   | 139.8    | 812 1600    | 0971       | 3.2   | 9029      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 182 8794   | 136.6    | 817 1206    | 187 9798   | 139.8    | 812 0202    | 1004       | 3.2   | 8996      | 10   |  |  |  |  |  |  |  |  |  |
| 46' | 9.183 0160 | 136.5    | 10.816 9840 | 9.188 1196 | 139.8    | 10.811 8804 | 10.0051036 | 3.2   | 9.9948964 | 14   |  |  |  |  |  |  |  |  |  |
| 10  | 183 1525   | 136.5    | 816 8475    | 188 2594   | 139.7    | 811 7406    | 1069       | 3.2   | 8931      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 183 2890   | 136.4    | 816 7110    | 188 3991   | 139.7    | 811 6009    | 1101       | 3.2   | 8899      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 183 4254   | 136.4    | 816 5746    | 188 5388   | 139.6    | 811 4612    | 1134       | 3.2   | 8866      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 183 5618   | 136.3    | 816 4382    | 188 6784   | 139.6    | 811 3216    | 1166       | 3.2   | 8834      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 183 6981   | 136.3    | 816 3019    | 188 8180   | 139.5    | 811 1820    | 1199       | 3.2   | 8801      | 10   |  |  |  |  |  |  |  |  |  |
| 47' | 9.183 8344 | 136.2    | 10.816 1656 | 9.188 9575 | 139.5    | 10.811 0425 | 10.0051231 | 3.2   | 9.9948769 | 13   |  |  |  |  |  |  |  |  |  |
| 10  | 183 9706   | 136.2    | 816 0294    | 189 0970   | 139.5    | 810 9030    | 1264       | 3.2   | 8736      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 184 1068   | 136.2    | 815 8932    | 189 2365   | 139.4    | 810 7635    | 1296       | 3.2   | 8704      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 184 2430   | 136.1    | 815 7570    | 189 3759   | 139.4    | 810 6241    | 1329       | 3.2   | 8671      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 184 3791   | 136.1    | 815 6209    | 189 5153   | 139.3    | 810 4847    | 1362       | 3.2   | 8638      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 184 5152   | 136.0    | 815 4848    | 189 6546   | 139.3    | 810 3454    | 1394       | 3.2   | 8606      | 10   |  |  |  |  |  |  |  |  |  |
| 48' | 9.184 6512 | 136.0    | 10.815 3488 | 9.189 7939 | 139.2    | 10.810 2061 | 10.0051427 | 3.2   | 9.9948573 | 18   |  |  |  |  |  |  |  |  |  |
| 10  | 184 7872   | 136.0    | 815 2128    | 189 9331   | 139.2    | 810 0669    | 1459       | 3.2   | 8541      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 184 9232   | 135.9    | 815 0768    | 190 0724   | 139.1    | 809 9276    | 1492       | 3.2   | 8508      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 185 0591   | 135.8    | 814 9409    | 190 2115   | 139.1    | 809 7885    | 1525       | 3.2   | 8475      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 185 1949   | 135.8    | 814 8051    | 190 3506   | 139.1    | 809 6494    | 1557       | 3.2   | 8443      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 185 3307   | 135.8    | 814 6693    | 190 4897   | 139.0    | 809 5103    | 1590       | 3.2   | 8410      | 10   |  |  |  |  |  |  |  |  |  |
| 49' | 9.185 4665 | 135.7    | 10.814 5335 | 9.190 6287 | 139.0    | 10.809 3713 | 10.0051623 | 3.2   | 9.9948377 | 11   |  |  |  |  |  |  |  |  |  |
| 10  | 185 6022   | 135.7    | 814 3978    | 190 7677   | 139.0    | 809 2323    | 1655       | 3.2   | 8345      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 185 7379   | 135.6    | 814 2621    | 190 9067   | 138.9    | 809 0933    | 1688       | 3.2   | 8312      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 185 8735   | 135.6    | 814 1265    | 191 0456   | 138.9    | 808 9544    | 1721       | 3.2   | 8279      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 186 0091   | 135.6    | 813 9909    | 191 1845   | 138.8    | 808 8155    | 1753       | 3.2   | 8247      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 186 1447   | 135.5    | 813 8553    | 191 3233   | 138.8    | 808 6767    | 1786       | 3.2   | 8214      | 10   |  |  |  |  |  |  |  |  |  |
| 50' | 9.186 2802 | 135.5    | 10.813 7198 | 9.191 4621 | 138.8    | 10.808 5379 | 10.0051819 | 3.2   | 9.9948181 | 11   |  |  |  |  |  |  |  |  |  |

80

171°

|    | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |     |
|----|------------|-----------|-------------|------------|-----------|-------------|------------|-------|-----------|-----|
| 50 | 9.186 2802 | 135.5     | 10.813 7198 | 9.191 4621 |           | 10.808 5379 | 10.0051819 | 3.2   | 9.9948181 | 10' |
| 10 | 186 4157   | 135.4     | 813 5843    | 191 6008   | 138.7     | 808 3092    | 1851       | 3.3   | 8149      | 50  |
| 20 | 186 5511   | 135.4     | 813 4489    | 191 7395   | 138.7     | 808 2605    | 1884       | 3.3   | 8116      | 40  |
| 30 | 186 6865   | 135.3     | 813 3135    | 191 8781   | 138.6     | 808 1219    | 1917       | 3.3   | 8083      | 30  |
| 40 | 186 8218   | 135.3     | 813 1782    | 192 0168   | 138.7     | 807 9832    | 1950       | 3.2   | 8050      | 20  |
| 50 | 186 9571   | 135.3     | 813 0429    | 192 1553   | 138.5     | 807 8447    | 1982       | 3.3   | 8018      | 10  |
| 51 | 9.187 0923 | 135.2     | 10.812 9077 | 9.192 2939 |           | 10.807 7061 | 10.0052015 | 3.3   | 9.9947985 | 9'  |
| 10 | 187 2275   | 135.2     | 812 7725    | 192 4323   | 138.4     | 807 5677    | 2048       | 3.3   | 7952      | 50  |
| 20 | 187 3627   | 135.2     | 812 6373    | 192 5708   | 138.5     | 807 4292    | 2081       | 3.3   | 7919      | 40  |
| 30 | 187 4978   | 135.1     | 812 5022    | 192 7092   | 138.4     | 807 2908    | 2114       | 3.2   | 7886      | 30  |
| 40 | 187 6329   | 135.1     | 812 3671    | 192 8475   | 138.3     | 807 1525    | 2146       | 3.3   | 7854      | 20  |
| 50 | 187 7679   | 135.0     | 812 2321    | 192 9859   | 138.4     | 807 0141    | 2179       | 3.3   | 7821      | 10  |
| 52 | 9.187 9029 | 135.0     | 10.812 0971 | 9.193 1241 |           | 10.806 8759 | 10.0052212 | 3.3   | 9.9947788 | 8'  |
| 10 | 188 0379   | 135.0     | 811 0621    | 193 2624   | 138.3     | 806 7376    | 2245       | 3.3   | 7755      | 50  |
| 20 | 188 1728   | 134.9     | 811 8272    | 193 4006   | 138.2     | 806 5994    | 2278       | 3.3   | 7722      | 40  |
| 30 | 188 3076   | 134.8     | 811 6924    | 193 5387   | 138.1     | 806 4613    | 2311       | 3.3   | 7689      | 30  |
| 40 | 188 4425   | 134.9     | 811 5575    | 193 6768   | 138.1     | 806 3232    | 2344       | 3.2   | 7656      | 20  |
| 50 | 188 5772   | 134.7     | 811 4228    | 193 8149   | 138.1     | 806 1851    | 2376       | 3.3   | 7624      | 10  |
| 53 | 9.188 7120 | 134.7     | 10.811 2880 | 9.193 9529 |           | 10.806 0471 | 10.0052409 | 3.3   | 9.9947591 | 7'  |
| 10 | 188 8467   | 134.7     | 811 1533    | 194 0909   | 138.0     | 805 9091    | 2442       | 3.3   | 7558      | 50  |
| 20 | 188 9813   | 134.6     | 811 0187    | 194 2288   | 137.9     | 805 7712    | 2475       | 3.3   | 7525      | 40  |
| 30 | 189 1159   | 134.6     | 810 8841    | 194 3667   | 137.9     | 805 6333    | 2508       | 3.3   | 7492      | 30  |
| 40 | 189 2505   | 134.6     | 810 7495    | 194 5046   | 137.9     | 805 4954    | 2541       | 3.3   | 7459      | 20  |
| 50 | 189 3850   | 134.5     | 810 6150    | 194 6424   | 137.8     | 805 3576    | 2574       | 3.3   | 7426      | 10  |
| 54 | 9.189 5195 | 134.5     | 10.810 4805 | 9.194 7802 |           | 10.805 2198 | 10.0052607 | 3.3   | 9.9947393 | 6'  |
| 10 | 189 6539   | 134.4     | 810 3461    | 194 9179   | 137.7     | 805 0821    | 2640       | 3.3   | 7360      | 50  |
| 20 | 189 7883   | 134.4     | 810 2117    | 195 0556   | 137.7     | 804 9444    | 2673       | 3.3   | 7327      | 40  |
| 30 | 189 9226   | 134.4     | 810 0774    | 195 1932   | 137.6     | 804 8068    | 2706       | 3.3   | 7294      | 30  |
| 40 | 190 0570   | 134.2     | 809 9430    | 195 3308   | 137.6     | 804 6692    | 2739       | 3.3   | 7261      | 20  |
| 50 | 190 1912   | 134.2     | 809 8088    | 195 4684   | 137.6     | 804 5316    | 2772       | 3.3   | 7228      | 10  |
| 55 | 9.190 3254 | 134.2     | 10.809 6746 | 9.195 6059 |           | 10.804 3941 | 10.0052805 | 3.3   | 9.9947195 | 5'  |
| 10 | 190 4596   | 134.2     | 809 5404    | 195 7434   | 137.5     | 804 2566    | 2838       | 3.3   | 7192      | 50  |
| 20 | 190 5938   | 134.0     | 809 4062    | 195 8809   | 137.5     | 804 1191    | 2871       | 3.3   | 7159      | 40  |
| 30 | 190 7278   | 134.0     | 809 2722    | 196 0183   | 137.4     | 803 9817    | 2904       | 3.3   | 7096      | 30  |
| 40 | 190 8619   | 134.1     | 809 1381    | 196 1556   | 137.3     | 803 8444    | 2937       | 3.3   | 7063      | 20  |
| 50 | 190 9959   | 134.0     | 809 0041    | 196 2929   | 137.3     | 803 7071    | 2970       | 3.3   | 7030      | 10  |
| 56 | 9.191 1299 | 133.9     | 10.808 8701 | 9.196 4302 |           | 10.803 5698 | 10.0053003 | 3.3   | 9.9946997 | 4'  |
| 10 | 191 2638   | 133.9     | 808 7362    | 196 5674   | 137.2     | 803 4326    | 3036       | 3.4   | 6964      | 50  |
| 20 | 191 3977   | 133.8     | 808 6023    | 196 7046   | 137.2     | 803 2954    | 3070       | 3.3   | 6930      | 40  |
| 30 | 191 5315   | 133.8     | 808 4685    | 196 8418   | 137.2     | 803 1582    | 3103       | 3.3   | 6897      | 30  |
| 40 | 191 6653   | 133.8     | 808 3347    | 196 9789   | 137.1     | 803 0211    | 3136       | 3.3   | 6864      | 20  |
| 50 | 191 7991   | 133.8     | 808 2009    | 197 1160   | 137.1     | 802 8840    | 3169       | 3.3   | 6831      | 10  |
| 57 | 9.191 9328 | 133.7     | 10.808 0672 | 9.197 2530 |           | 10.802 7470 | 10.0053202 | 3.3   | 9.9946798 | 3'  |
| 10 | 192 0665   | 133.7     | 807 9335    | 197 2900   | 137.0     | 802 6100    | 3235       | 3.3   | 6765      | 50  |
| 20 | 192 2001   | 133.6     | 807 7999    | 197 5269   | 136.9     | 802 4731    | 3268       | 3.4   | 6732      | 40  |
| 30 | 192 3337   | 133.6     | 807 6663    | 197 6638   | 136.9     | 802 3362    | 3302       | 3.3   | 6698      | 30  |
| 40 | 192 4672   | 133.5     | 807 5328    | 197 8007   | 136.9     | 802 1993    | 3335       | 3.3   | 6665      | 20  |
| 50 | 192 6007   | 133.5     | 807 3993    | 197 9375   | 136.8     | 802 0625    | 3368       | 3.3   | 6632      | 10  |
| 58 | 9.192 7342 | 133.4     | 10.807 2658 | 9.198 0743 |           | 10.801 9257 | 10.0053401 | 3.4   | 9.9946599 | 2'  |
| 10 | 192 8676   | 133.4     | 807 1324    | 198 2111   | 136.8     | 801 7889    | 3435       | 3.3   | 6565      | 50  |
| 20 | 193 0010   | 133.3     | 806 9990    | 198 3478   | 136.7     | 801 6522    | 3468       | 3.3   | 6532      | 40  |
| 30 | 193 1343   | 133.3     | 806 8657    | 198 4844   | 136.6     | 801 5156    | 3501       | 3.3   | 6499      | 30  |
| 40 | 193 2676   | 133.3     | 806 7324    | 198 6210   | 136.6     | 801 3790    | 3534       | 3.4   | 6466      | 20  |
| 50 | 193 4009   | 133.3     | 806 5991    | 198 7576   | 136.6     | 801 2424    | 3568       | 3.3   | 6433      | 10  |
| 59 | 9.193 5341 | 133.2     | 10.806 4659 | 9.198 8941 |           | 10.801 1059 | 10.0053601 | 3.3   | 9.9946399 | 1'  |
| 10 | 193 6674   | 133.1     | 806 3328    | 199 0306   | 136.5     | 800 9694    | 3634       | 3.3   | 6366      | 50  |
| 20 | 193 8004   | 133.0     | 806 1996    | 199 1671   | 136.5     | 800 8329    | 3667       | 3.4   | 6333      | 40  |
| 30 | 193 9334   | 133.1     | 806 0666    | 199 3035   | 136.4     | 800 6965    | 3701       | 3.3   | 6299      | 30  |
| 40 | 194 0665   | 133.0     | 805 9335    | 199 4399   | 136.4     | 800 5601    | 3734       | 3.3   | 6266      | 20  |
| 50 | 194 1995   | 133.0     | 805 8005    | 199 5762   | 136.3     | 800 4238    | 3767       | 3.4   | 6233      | 10  |
| 60 | 9.194 3324 | 132.9     | 10.805 6676 | 9.199 7125 |           | 10.800 2875 | 10.0053801 | 3.4   | 9.9946199 | 0'  |

|  | co-sin. | diff. 1'' | sec. | co-tang. | diff. 1'' | tang. | co-sec. | d.1'' | sin. |
|--|---------|-----------|------|----------|-----------|-------|---------|-------|------|
|--|---------|-----------|------|----------|-----------|-------|---------|-------|------|

88°

81°



| 9°  |            |          |             |            |          |             |            |       |           | 170° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 0'  | 9.194 3324 | 133.0    | 10.805 6676 | 9.199 7125 | 136.3    | 10.800 2875 | 10.0053801 | 3.3   | 9.9946199 | 60'  |  |  |  |  |  |  |  |  |  |
| 10  | 194 4654   | 132.8    | 805 5346    | 199 8488   | 136.2    | 800 1512    | 3834       | 3.3   | 6166      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 194 5982   | 132.9    | 805 4018    | 199 9850   | 136.1    | 800 0150    | 3867       | 3.4   | 6133      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 194 7311   | 132.8    | 805 2689    | 200 1211   | 136.2    | 799 8789    | 3901       | 3.3   | 6099      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 194 8639   | 132.7    | 805 1361    | 200 2573   | 136.1    | 799 7427    | 3934       | 3.4   | 6066      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 194 9966   | 132.7    | 805 0034    | 200 3934   | 136.0    | 799 6066    | 3968       | 3.3   | 6032      | 10   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.195 1293 | 132.7    | 10.804 8707 | 9.200 5294 | 136.0    | 10.799 4706 | 10.0054001 | 3.3   | 9.9945999 | 50'  |  |  |  |  |  |  |  |  |  |
| 10  | 195 2620   | 132.6    | 804 7380    | 200 6654   | 136.0    | 799 3346    | 4034       | 3.4   | 5966      | 40   |  |  |  |  |  |  |  |  |  |
| 20  | 195 3946   | 132.6    | 804 6054    | 200 8014   | 135.9    | 799 1986    | 4068       | 3.3   | 5932      | 30   |  |  |  |  |  |  |  |  |  |
| 30  | 195 5272   | 132.5    | 804 4728    | 200 9373   | 135.9    | 799 0627    | 4101       | 3.4   | 5899      | 20   |  |  |  |  |  |  |  |  |  |
| 40  | 195 6597   | 132.5    | 804 3403    | 201 0732   | 135.9    | 798 9268    | 4135       | 3.3   | 5865      | 10   |  |  |  |  |  |  |  |  |  |
| 50  | 195 7922   | 132.5    | 804 2078    | 201 2091   | 135.8    | 798 7909    | 4168       | 3.4   | 5832      | 0    |  |  |  |  |  |  |  |  |  |
| 1'  | 9.195 9247 | 132.4    | 10.804 0753 | 9.201 3449 | 135.7    | 10.798 6551 | 10.0054202 | 3.3   | 9.9945798 | 58'  |  |  |  |  |  |  |  |  |  |
| 10  | 196 0571   | 132.4    | 803 9429    | 201 4806   | 135.7    | 798 5194    | 4235       | 3.4   | 5797      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 196 1895   | 132.3    | 803 8105    | 201 6163   | 135.7    | 798 3837    | 4269       | 3.3   | 5763      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 196 3218   | 132.3    | 803 6782    | 201 7520   | 135.7    | 798 2480    | 4302       | 3.4   | 5729      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 196 4541   | 132.3    | 803 5459    | 201 8877   | 135.6    | 798 1123    | 4336       | 3.3   | 5694      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 196 5864   | 132.2    | 803 4136    | 202 0233   | 135.5    | 797 9767    | 4369       | 3.4   | 5659      | 10   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.196 7186 | 132.1    | 10.803 2814 | 9.202 1588 | 135.5    | 10.797 8412 | 10.0054403 | 3.3   | 9.9945597 | 57'  |  |  |  |  |  |  |  |  |  |
| 10  | 196 8507   | 132.2    | 803 1493    | 202 2944   | 135.5    | 797 7056    | 4436       | 3.4   | 5624      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 196 9829   | 132.1    | 803 0171    | 202 4299   | 135.4    | 797 5701    | 4470       | 3.3   | 5589      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 197 1150   | 132.0    | 802 8850    | 202 5653   | 135.4    | 797 4347    | 4503       | 3.4   | 5553      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 197 2470   | 132.0    | 802 7530    | 202 7007   | 135.4    | 797 2993    | 4537       | 3.3   | 5517      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 197 3790   | 132.0    | 802 6210    | 202 8361   | 135.3    | 797 1639    | 4571       | 3.4   | 5481      | 10   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.197 5110 | 131.9    | 10.802 4890 | 9.202 9714 | 135.3    | 10.797 0286 | 10.0054604 | 3.3   | 9.9945396 | 56'  |  |  |  |  |  |  |  |  |  |
| 10  | 197 6429   | 131.9    | 802 3571    | 203 1067   | 135.2    | 796 8933    | 4638       | 3.4   | 5362      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 197 7748   | 131.8    | 802 2252    | 203 2419   | 135.2    | 796 7581    | 4671       | 3.3   | 5326      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 197 9066   | 131.8    | 802 0934    | 203 3771   | 135.2    | 796 6229    | 4705       | 3.4   | 5290      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 198 0384   | 131.8    | 801 9616    | 203 5123   | 135.1    | 796 4877    | 4739       | 3.3   | 5254      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 198 1702   | 131.7    | 801 8298    | 203 6474   | 135.1    | 796 3526    | 4772       | 3.4   | 5218      | 10   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.198 3019 | 131.7    | 10.801 6981 | 9.203 7825 | 135.0    | 10.796 2175 | 10.0054806 | 3.3   | 9.9945194 | 55'  |  |  |  |  |  |  |  |  |  |
| 10  | 198 4336   | 131.6    | 801 5664    | 203 9175   | 135.0    | 796 0825    | 4840       | 3.4   | 5180      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 198 5652   | 131.6    | 801 4348    | 204 0525   | 135.0    | 795 9475    | 4873       | 3.3   | 5144      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 198 6968   | 131.6    | 801 3032    | 204 1875   | 134.9    | 795 8125    | 4907       | 3.4   | 5107      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 198 8284   | 131.5    | 801 1716    | 204 3224   | 134.9    | 795 6776    | 4941       | 3.3   | 5070      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 198 9599   | 131.4    | 801 0401    | 204 4573   | 134.9    | 795 5427    | 4974       | 3.4   | 5032      | 10   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.199 0913 | 131.5    | 10.800 9087 | 9.204 5922 | 134.8    | 10.795 4078 | 10.0055008 | 3.3   | 9.9944992 | 54'  |  |  |  |  |  |  |  |  |  |
| 10  | 199 2228   | 131.4    | 800 7772    | 204 7270   | 134.7    | 795 2730    | 5042       | 3.4   | 4968      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 199 3542   | 131.3    | 800 6458    | 204 8617   | 134.7    | 795 1383    | 5076       | 3.3   | 4924      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 199 4855   | 131.3    | 800 5145    | 204 9964   | 134.7    | 795 0036    | 5109       | 3.4   | 4881      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 199 6168   | 131.3    | 800 3832    | 205 1311   | 134.7    | 794 8689    | 5143       | 3.3   | 4837      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 199 7481   | 131.2    | 800 2519    | 205 2658   | 134.6    | 794 7342    | 5177       | 3.4   | 4793      | 10   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.199 8793 | 131.2    | 10.800 1207 | 9.205 4004 | 134.6    | 10.794 5996 | 10.0055211 | 3.3   | 9.9944789 | 53'  |  |  |  |  |  |  |  |  |  |
| 10  | 200 0105   | 131.2    | 799 9895    | 205 5350   | 134.5    | 794 4650    | 5244       | 3.4   | 4756      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 200 1417   | 131.1    | 799 8583    | 205 6695   | 134.5    | 794 3305    | 5278       | 3.3   | 4712      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 200 2728   | 131.0    | 799 7272    | 205 8040   | 134.4    | 794 1960    | 5312       | 3.4   | 4668      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 200 4038   | 131.0    | 799 5962    | 205 9384   | 134.4    | 794 0616    | 5346       | 3.3   | 4624      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 200 5349   | 130.9    | 799 4651    | 206 0728   | 134.4    | 793 9272    | 5380       | 3.4   | 4580      | 10   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.200 6658 | 130.9    | 10.799 3342 | 9.206 2072 | 134.3    | 10.793 7928 | 10.0055413 | 3.3   | 9.9944587 | 52'  |  |  |  |  |  |  |  |  |  |
| 10  | 200 7968   | 130.9    | 799 2032    | 206 3415   | 134.3    | 793 6585    | 5447       | 3.4   | 4535      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 200 9277   | 130.9    | 799 0723    | 206 4758   | 134.3    | 793 5242    | 5481       | 3.3   | 4519      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 201 0586   | 130.8    | 798 9414    | 206 6101   | 134.2    | 793 3899    | 5515       | 3.4   | 4485      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 201 1894   | 130.8    | 798 8106    | 206 7443   | 134.1    | 793 2557    | 5549       | 3.3   | 4451      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 201 3202   | 130.7    | 798 6798    | 206 8784   | 134.2    | 793 1216    | 5583       | 3.4   | 4417      | 10   |  |  |  |  |  |  |  |  |  |
| 1'  | 9.201 4509 | 130.7    | 10.798 5491 | 9.207 0126 | 134.1    | 10.792 9874 | 10.0055617 | 3.3   | 9.9944383 | 51'  |  |  |  |  |  |  |  |  |  |
| 10  | 201 5816   | 130.7    | 798 4184    | 207 1467   | 134.0    | 792 8533    | 5651       | 3.4   | 4349      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 201 7123   | 130.6    | 798 2877    | 207 2807   | 134.0    | 792 7193    | 5685       | 3.3   | 4315      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 201 8429   | 130.6    | 798 1571    | 207 4147   | 133.9    | 792 5853    | 5719       | 3.4   | 4281      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 201 9735   | 130.5    | 798 0265    | 207 5487   | 133.9    | 792 4513    | 5753       | 3.3   | 4247      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 202 1040   | 130.5    | 797 8960    | 207 6826   | 133.9    | 792 3174    | 5786       | 3.4   | 4214      | 10   |  |  |  |  |  |  |  |  |  |
| 10' | 9.202 2345 |          | 10.797 7655 | 9.207 8165 |          | 10.792 1835 | 10.0055820 |       | 9.9944180 | 50'  |  |  |  |  |  |  |  |  |  |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d.1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|

90°

170°

|    | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | d. 1'' | co-sin.   |     |
|----|------------|-----------|-------------|------------|-----------|-------------|------------|--------|-----------|-----|
| 10 | 9.202 2345 | 130.5     | 10.797 7655 | 9.207 8165 | 133.9     | 10.792 1835 | 10.0055820 | 3.4    | 9.9944180 | 50' |
| 10 | 202 3650   | 130.4     | 797 6350    | 207 9504   | 133.8     | 792 0496    | 5854       | 3.4    | 4146      | 50  |
| 20 | 202 4654   | 130.3     | 797 5046    | 208 0842   | 133.8     | 791 9158    | 5888       | 3.4    | 4112      | 40  |
| 30 | 202 6258   | 130.3     | 797 3742    | 208 2180   | 133.7     | 791 7820    | 5922       | 3.4    | 4078      | 30  |
| 40 | 202 7561   | 130.3     | 797 2439    | 208 3517   | 133.7     | 791 6483    | 5956       | 3.4    | 4044      | 20  |
| 50 | 202 8864   | 130.3     | 797 1136    | 208 4854   | 133.7     | 791 5146    | 5990       | 3.5    | 4010      | 10  |
| 11 | 9.203 0167 | 130.2     | 10.796 0833 | 9.208 6191 | 133.6     | 10.791 3809 | 10.0056025 | 3.4    | 9.9943975 | 49' |
| 10 | 203 1469   | 130.2     | 796 8531    | 208 7527   | 133.6     | 791 2473    | 6059       | 3.4    | 3941      | 50  |
| 20 | 203 2771   | 130.1     | 796 7229    | 208 8863   | 133.6     | 791 1137    | 6093       | 3.4    | 3907      | 40  |
| 30 | 203 4072   | 130.1     | 796 5928    | 209 0199   | 133.5     | 790 9801    | 6127       | 3.4    | 3873      | 30  |
| 40 | 203 5373   | 130.0     | 796 4627    | 209 1534   | 133.4     | 790 8466    | 6161       | 3.4    | 3839      | 20  |
| 50 | 203 6673   | 130.1     | 796 3327    | 209 2868   | 133.5     | 790 7132    | 6195       | 3.4    | 3805      | 10  |
| 12 | 9.203 7974 | 129.9     | 10.795 2026 | 9.209 4203 | 133.3     | 10.790 5797 | 10.0056229 | 3.4    | 9.9943771 | 48' |
| 10 | 203 9273   | 129.9     | 795 0727    | 209 5536   | 133.3     | 790 4464    | 6263       | 3.4    | 3737      | 50  |
| 20 | 204 0573   | 129.9     | 795 9427    | 209 6870   | 133.3     | 790 3130    | 6297       | 3.4    | 3703      | 40  |
| 30 | 204 1872   | 129.8     | 795 8128    | 209 8203   | 133.3     | 790 1797    | 6331       | 3.4    | 3669      | 30  |
| 40 | 204 3170   | 129.9     | 795 6830    | 209 9536   | 133.2     | 790 0464    | 6365       | 3.5    | 3635      | 20  |
| 50 | 204 4469   | 129.7     | 795 5531    | 210 0868   | 133.2     | 789 9132    | 6400       | 3.4    | 3600      | 10  |
| 13 | 9.204 5766 | 129.8     | 10.795 4234 | 9.210 2200 | 133.2     | 10.789 7800 | 10.0056434 | 3.4    | 9.9943566 | 47' |
| 10 | 204 7064   | 129.7     | 795 2936    | 210 3532   | 133.1     | 789 6468    | 6468       | 3.4    | 3532      | 50  |
| 20 | 204 8361   | 129.6     | 795 1639    | 210 4863   | 133.1     | 789 5137    | 6502       | 3.4    | 3498      | 40  |
| 30 | 204 9657   | 129.6     | 795 0343    | 210 6194   | 133.0     | 789 3806    | 6536       | 3.4    | 3464      | 30  |
| 40 | 205 0954   | 129.5     | 794 9046    | 210 7524   | 133.0     | 789 2476    | 6570       | 3.4    | 3430      | 20  |
| 50 | 205 2249   | 129.6     | 794 7751    | 210 8854   | 133.0     | 789 1146    | 6605       | 3.5    | 3395      | 10  |
| 14 | 9.205 3545 | 129.5     | 10.794 6455 | 9.211 0184 | 132.9     | 10.788 9816 | 10.0056639 | 3.4    | 9.9943361 | 46' |
| 10 | 205 4840   | 129.5     | 794 5160    | 211 1513   | 132.9     | 788 8487    | 6673       | 3.4    | 3327      | 50  |
| 20 | 205 6134   | 129.4     | 794 3866    | 211 2842   | 132.8     | 788 7158    | 6707       | 3.4    | 3293      | 40  |
| 30 | 205 7429   | 129.3     | 794 2571    | 211 4170   | 132.8     | 788 5830    | 6742       | 3.4    | 3258      | 30  |
| 40 | 205 8722   | 129.4     | 794 1278    | 211 5498   | 132.8     | 788 4502    | 6776       | 3.4    | 3224      | 20  |
| 50 | 206 0016   | 129.3     | 793 9984    | 211 6826   | 132.7     | 788 3174    | 6810       | 3.4    | 3190      | 10  |
| 15 | 9.206 1309 | 129.3     | 10.793 8691 | 9.211 8153 | 132.7     | 10.788 1847 | 10.0056844 | 3.5    | 9.9943156 | 45' |
| 10 | 206 2602   | 129.2     | 793 7398    | 211 9480   | 132.7     | 788 0520    | 6879       | 3.4    | 3121      | 50  |
| 20 | 206 3894   | 129.2     | 793 6106    | 212 0807   | 132.6     | 787 9193    | 6913       | 3.4    | 3087      | 40  |
| 30 | 206 5186   | 129.1     | 793 4814    | 212 2133   | 132.6     | 787 7867    | 6947       | 3.5    | 3053      | 30  |
| 40 | 206 6477   | 129.1     | 793 3523    | 212 3459   | 132.5     | 787 6541    | 6982       | 3.4    | 3018      | 20  |
| 50 | 206 7768   | 129.1     | 793 2232    | 212 4784   | 132.5     | 787 5216    | 7016       | 3.4    | 2984      | 10  |
| 16 | 9.206 9059 | 129.0     | 10.793 0941 | 9.212 6109 | 132.5     | 10.787 3891 | 10.0057050 | 3.5    | 9.9942950 | 44' |
| 10 | 207 0349   | 129.0     | 792 9651    | 212 7434   | 132.4     | 787 2566    | 7085       | 3.4    | 2915      | 50  |
| 20 | 207 1639   | 129.0     | 792 8361    | 212 8758   | 132.4     | 787 1242    | 7119       | 3.5    | 2881      | 40  |
| 30 | 207 2929   | 128.9     | 792 7071    | 213 0082   | 132.4     | 786 9918    | 7154       | 3.4    | 2846      | 30  |
| 40 | 207 4218   | 128.8     | 792 5782    | 213 1406   | 132.3     | 786 8594    | 7188       | 3.4    | 2812      | 20  |
| 50 | 207 5506   | 128.9     | 792 4494    | 213 2729   | 132.2     | 786 7271    | 7222       | 3.5    | 2778      | 10  |
| 17 | 9.207 6795 | 128.8     | 10.792 3205 | 9.213 4051 | 132.2     | 10.786 5949 | 10.0057257 | 3.4    | 9.9942743 | 43' |
| 10 | 207 8083   | 128.7     | 792 1917    | 213 5374   | 132.2     | 786 4626    | 7291       | 3.5    | 2709      | 50  |
| 20 | 207 9370   | 128.7     | 792 0630    | 213 6696   | 132.1     | 786 3304    | 7326       | 3.4    | 2674      | 40  |
| 30 | 208 0657   | 128.7     | 791 9343    | 213 8017   | 132.1     | 786 1983    | 7360       | 3.4    | 2640      | 30  |
| 40 | 208 1944   | 128.6     | 791 8056    | 213 9338   | 132.1     | 786 0662    | 7394       | 3.5    | 2606      | 20  |
| 50 | 208 3230   | 128.6     | 791 6770    | 214 0659   | 132.0     | 785 9341    | 7429       | 3.4    | 2571      | 10  |
| 18 | 9.208 4516 | 128.6     | 10.791 5484 | 9.214 1980 | 132.0     | 10.785 8020 | 10.0057463 | 3.5    | 9.9942537 | 42' |
| 10 | 208 5802   | 128.5     | 791 4198    | 214 3300   | 131.9     | 785 6700    | 7498       | 3.4    | 2502      | 50  |
| 20 | 208 7087   | 128.5     | 791 2913    | 214 4619   | 131.9     | 785 5381    | 7532       | 3.5    | 2468      | 40  |
| 30 | 208 8372   | 128.4     | 791 1628    | 214 5939   | 131.9     | 785 4061    | 7567       | 3.4    | 2433      | 30  |
| 40 | 208 9656   | 128.4     | 791 0344    | 214 7258   | 131.8     | 785 2742    | 7601       | 3.5    | 2399      | 20  |
| 50 | 209 0940   | 128.4     | 790 9060    | 214 8576   | 131.8     | 785 1424    | 7636       | 3.4    | 2364      | 10  |
| 19 | 9.209 2224 | 128.3     | 10.790 7776 | 9.214 9894 | 131.8     | 10.785 0106 | 10.0057670 | 3.5    | 9.9942330 | 41' |
| 10 | 209 3507   | 128.3     | 790 6493    | 215 1212   | 131.7     | 784 8788    | 7705       | 3.5    | 2295      | 50  |
| 20 | 209 4790   | 128.2     | 790 5210    | 215 2529   | 131.7     | 784 7471    | 7740       | 3.4    | 2260      | 40  |
| 30 | 209 6072   | 128.2     | 790 3928    | 215 3846   | 131.7     | 784 6154    | 7774       | 3.5    | 2226      | 30  |
| 40 | 209 7354   | 128.2     | 790 2646    | 215 5163   | 131.6     | 784 4837    | 7809       | 3.4    | 2191      | 20  |
| 50 | 209 8636   | 128.1     | 790 1364    | 215 6479   | 131.6     | 784 3521    | 7843       | 3.5    | 2157      | 10  |
| 20 | 9.209 9917 | 128.1     | 10.790 0083 | 9.215 7795 | 131.6     | 10.784 2205 | 10.0057878 | 3.5    | 9.9942122 | 40' |

99°

80°

|  | co-sin. | diff. 1'' | sec. | co-tang. | diff. 1'' | tang. | co-sec. | d. 1'' | sin. |  |
|--|---------|-----------|------|----------|-----------|-------|---------|--------|------|--|
|--|---------|-----------|------|----------|-----------|-------|---------|--------|------|--|



| 90° |            |          |             |            |          |             |             |       |            | 170° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |      |  |  |  |  |  |  |  |  |  |
| 20' | 9.209 9917 | 128.1    | 10.790 0083 | 9.215 7795 | 131.6    | 10.784 2205 | 10.005 7878 | 3.5   | 9.994 2122 | 40'  |  |  |  |  |  |  |  |  |  |
| 10  | 210 1198   | 128.1    | 789 8802    | 215 9111   | 131.5    | 784 0889    | 7913        | 3.4   | 2087       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 210 2479   | 128.0    | 789 7521    | 216 0426   | 131.5    | 783 9574    | 7947        | 3.5   | 2053       | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 210 3759   | 128.0    | 789 6241    | 216 1741   | 131.4    | 783 8259    | 7982        | 3.4   | 2018       | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 210 5039   | 127.9    | 789 4961    | 216 3055   | 131.4    | 783 6945    | 8016        | 3.5   | 1984       | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 210 6318   | 127.9    | 789 3682    | 216 4369   | 131.4    | 783 5631    | 8051        | 3.5   | 1949       | 10   |  |  |  |  |  |  |  |  |  |
| 21' | 210 7597   | 127.8    | 10.789 2403 | 9.216 5683 | 131.3    | 10.783 4317 | 10.005 8086 | 3.4   | 9.994 1914 | 39'  |  |  |  |  |  |  |  |  |  |
| 10  | 210 8875   | 127.8    | 789 1125    | 216 6996   | 131.3    | 783 3004    | 8120        | 3.5   | 1880       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 211 0154   | 127.7    | 788 9846    | 216 8309   | 131.3    | 783 1691    | 8155        | 3.5   | 1845       | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 211 1431   | 127.7    | 788 8569    | 216 9621   | 131.2    | 783 0379    | 8190        | 3.4   | 1810       | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 211 2709   | 127.8    | 788 7291    | 217 0933   | 131.2    | 782 9067    | 8224        | 3.5   | 1776       | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 211 3986   | 127.7    | 788 6014    | 217 2245   | 131.2    | 782 7755    | 8259        | 3.5   | 1741       | 10   |  |  |  |  |  |  |  |  |  |
| 22' | 211 5263   | 127.7    | 10.788 4737 | 9.217 3556 | 131.1    | 10.782 6444 | 10.005 8294 | 3.5   | 9.994 1706 | 38'  |  |  |  |  |  |  |  |  |  |
| 10  | 211 6539   | 127.6    | 788 3461    | 217 4867   | 131.1    | 782 5133    | 8329        | 3.4   | 1671       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 211 7815   | 127.5    | 788 2185    | 217 6178   | 131.0    | 782 3822    | 8363        | 3.5   | 1637       | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 211 9090   | 127.5    | 788 0910    | 217 7488   | 131.0    | 782 2512    | 8398        | 3.5   | 1602       | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 212 0365   | 127.5    | 787 9635    | 217 8798   | 131.0    | 782 1202    | 8433        | 3.5   | 1567       | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 212 1640   | 127.4    | 787 8360    | 218 0108   | 130.9    | 781 9892    | 8468        | 3.4   | 1532       | 10   |  |  |  |  |  |  |  |  |  |
| 23' | 212 2914   | 127.4    | 10.787 7086 | 9.218 1417 | 130.9    | 10.781 8583 | 10.005 8502 | 3.5   | 9.994 1498 | 37'  |  |  |  |  |  |  |  |  |  |
| 10  | 212 4188   | 127.4    | 787 5812    | 218 2726   | 130.8    | 781 7274    | 8537        | 3.5   | 1463       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 212 5462   | 127.3    | 787 4538    | 218 4034   | 130.8    | 781 5966    | 8572        | 3.5   | 1428       | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 212 6735   | 127.3    | 787 3265    | 218 5342   | 130.8    | 781 4658    | 8607        | 3.5   | 1393       | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 212 8008   | 127.2    | 787 1992    | 218 6650   | 130.7    | 781 3350    | 8642        | 3.5   | 1358       | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 212 9280   | 127.2    | 787 0720    | 218 7957   | 130.7    | 781 2043    | 8677        | 3.4   | 1323       | 10   |  |  |  |  |  |  |  |  |  |
| 24' | 213 0552   | 127.2    | 10.786 9448 | 9.218 9264 | 130.6    | 10.781 0736 | 10.005 8711 | 3.5   | 9.994 1289 | 36'  |  |  |  |  |  |  |  |  |  |
| 10  | 213 1824   | 127.1    | 786 8176    | 219 0570   | 130.6    | 780 9430    | 8746        | 3.5   | 1254       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 213 3095   | 127.1    | 786 6905    | 219 1876   | 130.6    | 780 8124    | 8781        | 3.5   | 1219       | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 213 4366   | 127.1    | 786 5634    | 219 3182   | 130.6    | 780 6818    | 8816        | 3.5   | 1184       | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 213 5637   | 127.0    | 786 4363    | 219 4488   | 130.5    | 780 5512    | 8851        | 3.5   | 1149       | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 213 6907   | 126.9    | 786 3093    | 219 5793   | 130.4    | 780 4207    | 8886        | 3.5   | 1114       | 10   |  |  |  |  |  |  |  |  |  |
| 25' | 213 8176   | 126.9    | 10.786 1824 | 9.219 7097 | 130.4    | 10.780 2903 | 10.005 8921 | 3.5   | 9.994 1079 | 35'  |  |  |  |  |  |  |  |  |  |
| 10  | 213 9446   | 126.8    | 786 0554    | 219 8401   | 130.4    | 780 1599    | 8956        | 3.5   | 1044       | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 214 0715   | 126.8    | 785 9285    | 219 9705   | 130.4    | 780 0295    | 8991        | 3.5   | 1009       | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 214 1983   | 126.9    | 785 8017    | 220 1009   | 130.3    | 779 8991    | 9026        | 3.5   | 974        | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 214 3252   | 126.7    | 785 6748    | 220 2312   | 130.3    | 779 7688    | 9061        | 3.4   | 939        | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 214 4519   | 126.7    | 785 5481    | 220 3615   | 130.2    | 779 6385    | 9095        | 3.5   | 905        | 10   |  |  |  |  |  |  |  |  |  |
| 26' | 214 5787   | 126.7    | 10.785 4213 | 9.220 4917 | 130.2    | 10.779 5083 | 10.005 9130 | 3.5   | 9.994 0879 | 34'  |  |  |  |  |  |  |  |  |  |
| 10  | 214 7054   | 126.7    | 785 2946    | 220 6219   | 130.2    | 779 3781    | 9165        | 3.5   | 883        | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 214 8321   | 126.6    | 785 1679    | 220 7521   | 130.1    | 779 2479    | 9200        | 3.5   | 848        | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 214 9587   | 126.6    | 785 0413    | 220 8822   | 130.1    | 779 1176    | 9235        | 3.5   | 813        | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 215 0853   | 126.5    | 784 9147    | 221 0123   | 130.1    | 778 9877    | 9270        | 3.6   | 778        | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 215 2118   | 126.6    | 784 7882    | 221 1424   | 130.0    | 778 8576    | 9306        | 3.5   | 743        | 10   |  |  |  |  |  |  |  |  |  |
| 27' | 215 3384   | 126.4    | 10.784 6616 | 9.221 2724 | 130.0    | 10.778 7276 | 10.005 9341 | 3.5   | 9.994 0659 | 33'  |  |  |  |  |  |  |  |  |  |
| 10  | 215 4648   | 126.5    | 784 5352    | 221 4024   | 130.0    | 778 5976    | 9376        | 3.5   | 708        | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 215 5913   | 126.4    | 784 4087    | 221 5324   | 129.9    | 778 4676    | 9411        | 3.5   | 683        | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 215 7177   | 126.4    | 784 2823    | 221 6623   | 129.8    | 778 3377    | 9446        | 3.5   | 658        | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 215 8441   | 126.3    | 784 1559    | 221 7921   | 129.9    | 778 2079    | 9481        | 3.5   | 633        | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 215 9704   | 126.3    | 784 0296    | 221 9220   | 129.8    | 778 0780    | 9516        | 3.5   | 608        | 10   |  |  |  |  |  |  |  |  |  |
| 28' | 216 0967   | 126.2    | 10.783 9033 | 9.222 0518 | 129.8    | 10.777 9482 | 10.005 9551 | 3.5   | 9.994 0449 | 32'  |  |  |  |  |  |  |  |  |  |
| 10  | 216 2229   | 126.2    | 783 7771    | 222 1815   | 129.7    | 777 8185    | 9586        | 3.5   | 583        | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 216 3491   | 126.2    | 783 6509    | 222 3113   | 129.7    | 777 6887    | 9621        | 3.5   | 558        | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 216 4753   | 126.2    | 783 5247    | 222 4410   | 129.6    | 777 5590    | 9656        | 3.6   | 533        | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 216 6015   | 126.1    | 783 3985    | 222 5706   | 129.6    | 777 4294    | 9692        | 3.5   | 508        | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 216 7276   | 126.0    | 783 2724    | 222 7002   | 129.6    | 777 2998    | 9727        | 3.5   | 483        | 10   |  |  |  |  |  |  |  |  |  |
| 29' | 216 8536   | 126.1    | 10.783 1464 | 9.222 8298 | 129.6    | 10.777 1702 | 10.005 9762 | 3.5   | 9.994 0238 | 31'  |  |  |  |  |  |  |  |  |  |
| 10  | 216 9797   | 125.9    | 783 0203    | 222 9594   | 129.5    | 777 0406    | 9797        | 3.5   | 458        | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 217 1056   | 126.0    | 782 8944    | 223 0889   | 129.5    | 776 9111    | 9832        | 3.5   | 433        | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 217 2316   | 125.9    | 782 7684    | 223 2183   | 129.5    | 776 7817    | 9867        | 3.6   | 408        | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 217 3575   | 125.9    | 782 6425    | 223 3478   | 129.4    | 776 6522    | 9903        | 3.5   | 383        | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 217 4834   | 125.8    | 782 5166    | 223 4772   | 129.3    | 776 5228    | 9938        | 3.5   | 358        | 10   |  |  |  |  |  |  |  |  |  |
| 30' | 217 6092   | 125.8    | 10.782 3908 | 9.223 6065 | 129.3    | 10.776 3935 | 10.005 9973 | 3.5   | 9.994 0027 | 30'  |  |  |  |  |  |  |  |  |  |

90

170°

|    | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |
|----|------------|----------|-------------|------------|----------|-------------|-------------|--------|------------|
| 30 | 9.217 6092 | 125.8    | 10.782 3908 | 9.223 6065 | 129.4    | 10.776 3935 | 10.005 9973 | 3.5    | 9.994 0027 |
| 10 | 217 7350   | 125.8    | 782 2650    | 223 7350   | 129.3    | 776 2641    | 10.006 0008 | 3.6    | 9.993 9992 |
| 20 | 217 8608   | 125.7    | 782 1392    | 223 8652   | 129.2    | 776 1348    | 0044        | 3.5    | 9956 40    |
| 30 | 217 9865   | 125.7    | 782 0135    | 223 9944   | 129.2    | 776 0056    | 0079        | 3.5    | 9921 30    |
| 40 | 218 1122   | 125.7    | 781 8878    | 224 1236   | 129.2    | 775 8764    | 0114        | 3.5    | 9886 20    |
| 50 | 218 2379   | 125.6    | 781 7621    | 224 2528   | 129.1    | 775 7472    | 0149        | 3.6    | 9851 10    |
| 31 | 9.218 3635 | 125.6    | 10.781 6365 | 9.224 3819 | 129.1    | 10.775 6181 | 10.006 0185 | 3.5    | 9.993 9815 |
| 10 | 218 4891   | 125.5    | 781 5109    | 224 5111   | 129.0    | 775 4889    | 0220        | 3.5    | 9780 50    |
| 20 | 218 6146   | 125.5    | 781 3854    | 224 6401   | 129.0    | 775 3599    | 0255        | 3.6    | 9745 40    |
| 30 | 218 7401   | 125.5    | 781 2599    | 224 7692   | 129.0    | 775 2308    | 0291        | 3.5    | 9709 30    |
| 40 | 218 8656   | 125.4    | 781 1344    | 224 8982   | 128.9    | 775 1018    | 0326        | 3.5    | 9674 20    |
| 50 | 218 9910   | 125.4    | 781 0090    | 225 0271   | 128.9    | 774 9729    | 0361        | 3.6    | 9639 10    |
| 32 | 9.219 1164 | 125.3    | 10.780 8836 | 9.225 1561 | 128.8    | 10.774 8439 | 10.006 0397 | 3.5    | 9.993 9603 |
| 10 | 219 2417   | 125.4    | 780 7583    | 225 2849   | 128.8    | 774 7151    | 0432        | 3.5    | 9568 50    |
| 20 | 219 3671   | 125.2    | 780 6329    | 225 4136   | 128.8    | 774 5862    | 0467        | 3.6    | 9533 40    |
| 30 | 219 4923   | 125.2    | 780 5077    | 225 5426   | 128.8    | 774 4574    | 0503        | 3.5    | 9497 30    |
| 40 | 219 6176   | 125.2    | 780 3824    | 225 6714   | 128.7    | 774 3286    | 0538        | 3.6    | 9462 20    |
| 50 | 219 7428   | 125.2    | 780 2572    | 225 8001   | 128.8    | 774 1999    | 0574        | 3.5    | 9426 10    |
| 33 | 9.219 8680 | 125.1    | 10.780 1320 | 9.225 9289 | 128.6    | 10.774 0711 | 10.006 0609 | 3.5    | 9.993 9391 |
| 10 | 219 9931   | 125.1    | 780 0069    | 226 0575   | 128.6    | 773 9425    | 0644        | 3.6    | 9356 50    |
| 20 | 220 1182   | 125.0    | 779 8818    | 226 1862   | 128.7    | 773 8138    | 0680        | 3.5    | 9320 40    |
| 30 | 220 2432   | 125.0    | 779 7568    | 226 3148   | 128.6    | 773 6852    | 0715        | 3.6    | 9285 30    |
| 40 | 220 3683   | 124.9    | 779 6317    | 226 4433   | 128.5    | 773 5567    | 0751        | 3.5    | 9249 20    |
| 50 | 220 4932   | 124.9    | 779 5068    | 226 5719   | 128.5    | 773 4281    | 0786        | 3.6    | 9214 10    |
| 34 | 9.220 6182 | 124.9    | 10.779 3818 | 9.226 7004 | 128.4    | 10.773 2996 | 10.006 0822 | 3.5    | 9.993 9178 |
| 10 | 220 7431   | 124.9    | 779 2569    | 226 8288   | 128.4    | 773 1712    | 0857        | 3.6    | 9143 50    |
| 20 | 220 8680   | 124.8    | 779 1320    | 226 9572   | 128.4    | 773 0428    | 0893        | 3.5    | 9107 40    |
| 30 | 220 9928   | 124.8    | 779 0072    | 227 0856   | 128.4    | 772 9144    | 0928        | 3.6    | 9072 30    |
| 40 | 221 1176   | 124.8    | 778 8824    | 227 2140   | 128.3    | 772 7860    | 0964        | 3.5    | 9036 20    |
| 50 | 221 2424   | 124.7    | 778 7576    | 227 3423   | 128.3    | 772 6577    | 0999        | 3.6    | 9001 10    |
| 35 | 9.221 3671 | 124.7    | 10.778 6320 | 9.227 4706 | 128.2    | 10.772 5294 | 10.006 1035 | 3.5    | 9.993 8955 |
| 10 | 221 4918   | 124.6    | 778 5082    | 227 5988   | 128.2    | 772 4012    | 1070        | 3.6    | 8920 50    |
| 20 | 221 6164   | 124.6    | 778 3836    | 227 7270   | 128.2    | 772 2730    | 1106        | 3.6    | 8894 40    |
| 30 | 221 7410   | 124.6    | 778 2590    | 227 8552   | 128.1    | 772 1448    | 1142        | 3.5    | 8858 30    |
| 40 | 221 8656   | 124.6    | 778 1344    | 227 9833   | 128.1    | 772 0167    | 1177        | 3.6    | 8823 20    |
| 50 | 221 9902   | 124.5    | 778 0098    | 228 1114   | 128.1    | 771 8886    | 1213        | 3.5    | 8787 10    |
| 36 | 9.222 1147 | 124.4    | 10.777 8853 | 9.228 2395 | 128.0    | 10.771 7605 | 10.006 1248 | 3.6    | 9.993 8752 |
| 10 | 222 2391   | 124.5    | 777 7609    | 228 3675   | 128.0    | 771 6325    | 1284        | 3.6    | 8716 50    |
| 20 | 222 3636   | 124.5    | 777 6364    | 228 4955   | 128.0    | 771 5045    | 1320        | 3.5    | 8680 40    |
| 30 | 222 4880   | 124.4    | 777 5120    | 228 6235   | 127.9    | 771 3765    | 1355        | 3.6    | 8645 30    |
| 40 | 222 6123   | 124.3    | 777 3877    | 228 7514   | 127.9    | 771 2486    | 1391        | 3.5    | 8609 20    |
| 50 | 222 7366   | 124.3    | 777 2634    | 228 8793   | 127.8    | 771 1207    | 1426        | 3.6    | 8574 10    |
| 37 | 9.222 8609 | 124.3    | 10.777 1391 | 9.229 0071 | 127.8    | 10.770 9929 | 10.006 1462 | 3.6    | 9.993 8538 |
| 10 | 222 9852   | 124.2    | 777 0148    | 229 1350   | 127.9    | 770 8650    | 1498        | 3.6    | 8502 50    |
| 20 | 223 1094   | 124.2    | 776 8906    | 229 2627   | 127.7    | 770 7373    | 1534        | 3.5    | 8466 40    |
| 30 | 223 2336   | 124.1    | 776 7664    | 229 3905   | 127.7    | 770 6095    | 1569        | 3.6    | 8431 30    |
| 40 | 223 3577   | 124.1    | 776 6423    | 229 5182   | 127.7    | 770 4818    | 1605        | 3.6    | 8395 20    |
| 50 | 223 4818   | 124.1    | 776 5182    | 229 6459   | 127.7    | 770 3541    | 1641        | 3.5    | 8359 10    |
| 38 | 9.223 6059 | 124.0    | 10.776 3941 | 9.229 7735 | 127.6    | 10.770 2265 | 10.006 1676 | 3.6    | 9.993 8324 |
| 10 | 223 7299   | 124.0    | 776 2701    | 229 9011   | 127.6    | 770 0989    | 1712        | 3.6    | 8288 50    |
| 20 | 223 8539   | 123.9    | 776 1461    | 230 0287   | 127.5    | 769 9713    | 1748        | 3.6    | 8252 40    |
| 30 | 223 9778   | 124.0    | 776 0222    | 230 1562   | 127.5    | 769 8438    | 1784        | 3.5    | 8216 30    |
| 40 | 224 1018   | 123.8    | 775 8982    | 230 2837   | 127.5    | 769 7163    | 1819        | 3.6    | 8181 20    |
| 50 | 224 2256   | 123.8    | 775 7742    | 230 4112   | 127.4    | 769 5888    | 1855        | 3.6    | 8145 10    |
| 39 | 9.224 3495 | 123.9    | 10.775 6505 | 9.230 5386 | 127.4    | 10.769 4614 | 10.006 1891 | 3.6    | 9.993 8107 |
| 10 | 224 4733   | 123.8    | 775 5267    | 230 6660   | 127.4    | 769 3340    | 1927        | 3.6    | 8073 50    |
| 20 | 224 5971   | 123.7    | 775 4029    | 230 7933   | 127.4    | 769 2067    | 1963        | 3.5    | 8037 40    |
| 30 | 224 7208   | 123.7    | 775 2792    | 230 9207   | 127.2    | 769 0793    | 1998        | 3.6    | 8002 30    |
| 40 | 224 8445   | 123.7    | 775 1555    | 231 0479   | 127.3    | 768 9521    | 2034        | 3.6    | 7966 20    |
| 50 | 224 9682   | 123.6    | 775 0318    | 231 1752   | 127.3    | 768 8248    | 2070        | 3.6    | 7930 10    |
| 40 | 9.225 0918 | 123.6    | 10.774 9082 | 9.231 3024 | 127.2    | 10.768 6976 | 10.006 2106 | 3.6    | 9.993 7894 |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d. 1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|--------|------|
|--|---------|----------|------|----------|----------|-------|---------|--------|------|

99°

80°



| 90° |            |          |             |            |          |             |            |        |           | 170° |  |  |  |  |  |  |  |  |  |
|-----|------------|----------|-------------|------------|----------|-------------|------------|--------|-----------|------|--|--|--|--|--|--|--|--|--|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d. 1'' | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 40' | 9.225 0918 | 123.6    | 10.774 9082 | 9.231 3024 | 127.2    | 10.768 6976 | 10.0062106 | 3.6    | 9.9937894 | 20'  |  |  |  |  |  |  |  |  |  |
| 10  | 225 2154   | 123.6    | 774 7846    | 231 4266   | 127.1    | 768 5704    | 2142       | 3.6    | 7858      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 225 3390   | 123.5    | 774 6610    | 231 5567   | 127.1    | 768 4433    | 2178       | 3.6    | 7822      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 225 4625   | 123.5    | 774 5375    | 231 6838   | 127.1    | 768 3162    | 2214       | 3.6    | 7786      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 225 5860   | 123.4    | 774 4140    | 231 8109   | 127.1    | 768 1891    | 2250       | 3.5    | 7750      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 225 7094   | 123.4    | 774 2906    | 231 9380   | 127.1    | 768 0620    | 2285       | 3.6    | 7715      | 10   |  |  |  |  |  |  |  |  |  |
| 41' | 9.225 8328 | 123.4    | 10.774 1672 | 9.232 0650 | 126.9    | 10.767 9350 | 10.0062321 | 3.6    | 9.9937679 | 19'  |  |  |  |  |  |  |  |  |  |
| 10  | 225 9562   | 123.3    | 774 0438    | 232 1919   | 127.0    | 767 8081    | 2357       | 3.6    | 7643      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 226 0795   | 123.3    | 773 9205    | 232 3189   | 127.0    | 767 6811    | 2393       | 3.6    | 7607      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 226 2028   | 123.3    | 773 7972    | 232 4458   | 126.9    | 767 5542    | 2429       | 3.6    | 7571      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 226 3261   | 123.2    | 773 6739    | 232 5726   | 126.8    | 767 4274    | 2465       | 3.6    | 7535      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 226 4493   | 123.2    | 773 5507    | 232 6995   | 126.9    | 767 3005    | 2501       | 3.6    | 7499      | 10   |  |  |  |  |  |  |  |  |  |
| 42' | 9.226 5725 | 123.2    | 10.773 4275 | 9.232 8262 | 126.7    | 10.767 1738 | 10.0062537 | 3.6    | 9.9937463 | 18'  |  |  |  |  |  |  |  |  |  |
| 10  | 226 6957   | 123.1    | 773 3043    | 232 9530   | 126.8    | 767 0470    | 2537       | 3.6    | 7427      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 226 8188   | 123.1    | 773 1812    | 233 0797   | 126.7    | 766 9203    | 2609       | 3.6    | 7391      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 226 9419   | 123.1    | 773 0581    | 233 2064   | 126.7    | 766 7936    | 2645       | 3.6    | 7355      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 227 0650   | 123.0    | 772 9350    | 233 3331   | 126.7    | 766 6669    | 2681       | 3.6    | 7319      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 227 1880   | 123.0    | 772 8120    | 233 4597   | 126.6    | 766 5403    | 2717       | 3.6    | 7283      | 10   |  |  |  |  |  |  |  |  |  |
| 43' | 9.227 3110 | 122.9    | 10.772 6890 | 9.233 5863 | 126.5    | 10.766 4137 | 10.0062753 | 3.6    | 9.9937247 | 17'  |  |  |  |  |  |  |  |  |  |
| 10  | 227 4339   | 122.9    | 772 5661    | 233 7128   | 126.5    | 766 2872    | 2789       | 3.6    | 7211      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 227 5568   | 122.9    | 772 4432    | 233 8393   | 126.5    | 766 1607    | 2825       | 3.6    | 7175      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 227 6797   | 122.9    | 772 3203    | 233 9658   | 126.5    | 766 0342    | 2861       | 3.7    | 7139      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 227 8025   | 122.8    | 772 1975    | 234 0923   | 126.4    | 765 9077    | 2898       | 3.6    | 7102      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 227 9253   | 122.8    | 772 0747    | 234 2187   | 126.4    | 765 7813    | 2934       | 3.6    | 7066      | 10   |  |  |  |  |  |  |  |  |  |
| 44' | 9.228 0481 | 122.8    | 10.771 9519 | 9.234 3451 | 126.4    | 10.765 6549 | 10.0062970 | 3.6    | 9.9937030 | 16'  |  |  |  |  |  |  |  |  |  |
| 10  | 228 1708   | 122.7    | 771 8292    | 234 4714   | 126.3    | 765 5286    | 3006       | 3.6    | 6994      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 228 2935   | 122.7    | 771 7065    | 234 5977   | 126.3    | 765 4023    | 3042       | 3.6    | 6958      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 228 4162   | 122.6    | 771 5838    | 234 7240   | 126.2    | 765 2760    | 3078       | 3.6    | 6922      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 228 5388   | 122.6    | 771 4612    | 234 8502   | 126.2    | 765 1498    | 3114       | 3.7    | 6886      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 228 6614   | 122.5    | 771 3386    | 234 9764   | 126.2    | 765 0236    | 3151       | 3.6    | 6849      | 10   |  |  |  |  |  |  |  |  |  |
| 45' | 9.228 7839 | 122.5    | 10.771 2161 | 9.235 1026 | 126.1    | 10.764 8974 | 10.0063187 | 3.6    | 9.9936813 | 15'  |  |  |  |  |  |  |  |  |  |
| 10  | 228 9064   | 122.5    | 771 0936    | 235 2287   | 126.1    | 764 7713    | 3223       | 3.6    | 6777      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 229 0289   | 122.5    | 770 9711    | 235 3548   | 126.1    | 764 6452    | 3259       | 3.6    | 6741      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 229 1514   | 122.4    | 770 8486    | 235 4809   | 126.1    | 764 5191    | 3295       | 3.6    | 6705      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 229 2738   | 122.4    | 770 7262    | 235 6069   | 126.0    | 764 3931    | 3331       | 3.7    | 6669      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 229 3962   | 122.3    | 770 6038    | 235 7329   | 126.0    | 764 2671    | 3368       | 3.6    | 6632      | 10   |  |  |  |  |  |  |  |  |  |
| 46' | 9.229 5185 | 122.3    | 10.770 4815 | 9.235 8589 | 125.9    | 10.764 1411 | 10.0063404 | 3.6    | 9.9936566 | 14'  |  |  |  |  |  |  |  |  |  |
| 10  | 229 6408   | 122.3    | 770 3592    | 235 9848   | 125.9    | 764 0152    | 3440       | 3.6    | 6560      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 229 7631   | 122.2    | 770 2369    | 236 1107   | 125.9    | 763 8893    | 3476       | 3.7    | 6524      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 229 8853   | 122.2    | 770 1147    | 236 2366   | 125.8    | 763 7634    | 3513       | 3.6    | 6487      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 230 0075   | 122.2    | 769 9925    | 236 3624   | 125.8    | 763 6376    | 3549       | 3.6    | 6451      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 230 1297   | 122.1    | 769 8703    | 236 4882   | 125.8    | 763 5118    | 3585       | 3.7    | 6415      | 10   |  |  |  |  |  |  |  |  |  |
| 47' | 9.230 2518 | 122.1    | 10.769 7482 | 9.236 6139 | 125.8    | 10.763 3861 | 10.0063622 | 3.6    | 9.9936378 | 13'  |  |  |  |  |  |  |  |  |  |
| 10  | 230 3739   | 122.0    | 769 6261    | 236 7397   | 125.6    | 763 2603    | 3658       | 3.6    | 6342      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 230 4959   | 122.0    | 769 5041    | 236 8653   | 125.6    | 763 1347    | 3694       | 3.7    | 6306      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 230 6179   | 122.0    | 769 3821    | 236 9910   | 125.6    | 763 0090    | 3731       | 3.6    | 6269      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 230 7399   | 122.0    | 769 2601    | 237 1166   | 125.6    | 762 8834    | 3767       | 3.6    | 6233      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 230 8619   | 121.9    | 769 1381    | 237 2422   | 125.6    | 762 7578    | 3803       | 3.7    | 6197      | 10   |  |  |  |  |  |  |  |  |  |
| 48' | 9.230 9838 | 121.9    | 10.769 0162 | 9.237 3678 | 125.5    | 10.762 6322 | 10.0063840 | 3.6    | 9.9936160 | 12'  |  |  |  |  |  |  |  |  |  |
| 10  | 231 1057   | 121.8    | 768 8943    | 237 4933   | 125.5    | 762 5067    | 3836       | 3.6    | 6124      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 231 2275   | 121.8    | 768 7725    | 237 6188   | 125.4    | 762 3812    | 3912       | 3.7    | 6088      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 231 3493   | 121.8    | 768 6507    | 237 7442   | 125.4    | 762 2558    | 3949       | 3.6    | 6051      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 231 4711   | 121.7    | 768 5289    | 237 8696   | 125.4    | 762 1304    | 3985       | 3.7    | 6015      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 231 5928   | 121.7    | 768 4072    | 237 9950   | 125.3    | 762 0050    | 4022       | 3.6    | 5978      | 10   |  |  |  |  |  |  |  |  |  |
| 49' | 9.231 7145 | 121.7    | 10.768 2855 | 9.238 1203 | 125.4    | 10.761 8797 | 10.0064058 | 3.6    | 9.9935949 | 11'  |  |  |  |  |  |  |  |  |  |
| 10  | 231 8362   | 121.6    | 768 1638    | 238 2457   | 125.4    | 761 7543    | 4094       | 3.7    | 5906      | 50   |  |  |  |  |  |  |  |  |  |
| 20  | 231 9578   | 121.6    | 768 0422    | 238 3709   | 125.3    | 761 6291    | 4131       | 3.6    | 5869      | 40   |  |  |  |  |  |  |  |  |  |
| 30  | 232 0794   | 121.6    | 767 9206    | 238 4962   | 125.3    | 761 5038    | 4167       | 3.7    | 5833      | 30   |  |  |  |  |  |  |  |  |  |
| 40  | 232 2010   | 121.5    | 767 7990    | 238 6214   | 125.2    | 761 3786    | 4204       | 3.6    | 5796      | 20   |  |  |  |  |  |  |  |  |  |
| 50  | 232 3225   | 121.5    | 767 6775    | 238 7466   | 125.1    | 761 2534    | 4240       | 3.7    | 5760      | 10   |  |  |  |  |  |  |  |  |  |
| 50' | 9.232 4440 | 121.5    | 10.767 5560 | 9.238 8717 | 125.1    | 10.761 1283 | 10.0064277 | 3.6    | 9.9935723 | 10'  |  |  |  |  |  |  |  |  |  |

LOGARITHMIC SINES, TANGENTS, &C.

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| 90° |            | 170°      |             |            |           |             |            |       |           |     |  |
|-----|------------|-----------|-------------|------------|-----------|-------------|------------|-------|-----------|-----|--|
|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |     |  |
| 50  | 0.332 4440 | 121.5     | 10.767 5560 | 0.238 8717 | 125.1     | 10.761 1283 | 10.0064277 | 3.6   | 9.9935723 | 10' |  |
| 10  | 0.332 5655 | 121.4     | 767 4345    | 238 9968   | 125.1     | 761 0032    | 4313       | 3.7   | 5687      | 50  |  |
| 20  | 0.332 6869 | 121.4     | 767 3131    | 239 1219   | 125.0     | 760 8781    | 4350       | 3.6   | 5650      | 40  |  |
| 30  | 0.332 8083 | 121.4     | 767 1917    | 239 2469   | 125.0     | 760 7531    | 4386       | 3.7   | 5614      | 30  |  |
| 40  | 0.332 9296 | 121.4     | 767 0704    | 239 3719   | 125.0     | 760 6281    | 4423       | 3.7   | 5577      | 20  |  |
| 50  | 0.333 0510 | 121.4     | 766 9490    | 239 4969   | 124.9     | 760 5031    | 4459       | 3.6   | 5541      | 10  |  |
| 51  | 0.333 1722 | 121.3     | 10.766 8278 | 0.239 6218 | 124.9     | 10.760 3782 | 10.0064496 | 3.7   | 9.9935504 | 9'  |  |
| 10  | 0.333 2935 | 121.3     | 766 7065    | 239 7467   | 124.9     | 760 2533    | 4533       | 3.7   | 5467      | 50  |  |
| 20  | 0.333 4147 | 121.2     | 766 5853    | 239 8716   | 124.9     | 760 1284    | 4569       | 3.6   | 5431      | 40  |  |
| 30  | 0.333 5359 | 121.2     | 766 4641    | 239 9964   | 124.8     | 760 0036    | 4606       | 3.7   | 5394      | 30  |  |
| 40  | 0.333 6570 | 121.1     | 766 3430    | 240 1213   | 124.9     | 759 8787    | 4642       | 3.6   | 5358      | 20  |  |
| 50  | 0.333 7781 | 121.1     | 766 2219    | 240 2460   | 124.7     | 759 7540    | 4679       | 3.6   | 5321      | 10  |  |
| 52  | 0.333 8992 | 121.0     | 10.766 1008 | 0.240 3708 | 124.8     | 10.759 6292 | 10.0064715 | 3.7   | 9.9935285 | 8'  |  |
| 10  | 0.334 0202 | 121.0     | 765 9798    | 240 4955   | 124.7     | 759 5045    | 4752       | 3.7   | 5248      | 50  |  |
| 20  | 0.334 1413 | 120.9     | 765 8587    | 240 6201   | 124.7     | 759 3799    | 4789       | 3.6   | 5211      | 40  |  |
| 30  | 0.334 2623 | 120.9     | 765 7378    | 240 7448   | 124.6     | 759 2552    | 4825       | 3.7   | 5175      | 30  |  |
| 40  | 0.334 3833 | 120.9     | 765 6168    | 240 8694   | 124.6     | 759 1306    | 4862       | 3.7   | 5138      | 20  |  |
| 50  | 0.334 5041 | 120.8     | 765 4959    | 240 9939   | 124.5     | 759 0061    | 4899       | 3.7   | 5101      | 10  |  |
| 53  | 0.334 6249 | 120.8     | 10.765 3751 | 0.241 1185 | 124.6     | 10.758 8815 | 10.0064935 | 3.7   | 9.9935065 | 7'  |  |
| 10  | 0.334 7456 | 120.8     | 765 2542    | 241 2430   | 124.5     | 758 7570    | 4972       | 3.7   | 5068      | 50  |  |
| 20  | 0.334 8666 | 120.8     | 765 1334    | 241 3674   | 124.4     | 758 6326    | 5009       | 3.6   | 4991      | 40  |  |
| 30  | 0.334 9873 | 120.7     | 765 0127    | 241 4919   | 124.5     | 758 5081    | 5045       | 3.7   | 4955      | 30  |  |
| 40  | 0.335 1080 | 120.7     | 764 8920    | 241 6163   | 124.4     | 758 3837    | 5082       | 3.7   | 4918      | 20  |  |
| 50  | 0.335 2287 | 120.7     | 764 7713    | 241 7406   | 124.3     | 758 2594    | 5119       | 3.7   | 4881      | 10  |  |
| 54  | 0.335 3494 | 120.7     | 10.764 6506 | 0.241 8650 | 124.4     | 10.758 1350 | 10.0065156 | 3.6   | 9.9934844 | 6'  |  |
| 10  | 0.335 4700 | 120.6     | 764 5300    | 241 9893   | 124.3     | 758 0107    | 5192       | 3.7   | 4848      | 50  |  |
| 20  | 0.335 5906 | 120.6     | 764 4094    | 242 1135   | 124.2     | 757 8865    | 5229       | 3.7   | 4811      | 40  |  |
| 30  | 0.335 7112 | 120.5     | 764 2888    | 242 2378   | 124.3     | 757 7622    | 5266       | 3.7   | 4774      | 30  |  |
| 40  | 0.335 8317 | 120.5     | 764 1683    | 242 3620   | 124.2     | 757 6380    | 5303       | 3.7   | 4737      | 20  |  |
| 50  | 0.335 9522 | 120.5     | 764 0478    | 242 4861   | 124.1     | 757 5139    | 5340       | 3.6   | 4660      | 10  |  |
| 55  | 0.336 0726 | 120.4     | 10.763 9274 | 0.242 6103 | 124.2     | 10.757 3897 | 10.0065376 | 3.7   | 9.9934624 | 5'  |  |
| 10  | 0.336 1930 | 120.4     | 763 8070    | 242 7343   | 124.0     | 757 2657    | 5413       | 3.7   | 4587      | 50  |  |
| 20  | 0.336 3134 | 120.4     | 763 6866    | 242 8584   | 124.1     | 757 1416    | 5450       | 3.7   | 4550      | 40  |  |
| 30  | 0.336 4338 | 120.3     | 763 5662    | 242 9824   | 124.0     | 757 0176    | 5487       | 3.7   | 4513      | 30  |  |
| 40  | 0.336 5541 | 120.3     | 763 4459    | 243 1064   | 124.0     | 756 8936    | 5524       | 3.7   | 4476      | 20  |  |
| 50  | 0.336 6744 | 120.2     | 763 3256    | 243 2304   | 123.9     | 756 7696    | 5561       | 3.6   | 4439      | 10  |  |
| 56  | 0.336 7946 | 120.2     | 10.763 2054 | 0.243 3543 | 123.9     | 10.756 6457 | 10.0065597 | 3.7   | 9.9934403 | 4'  |  |
| 10  | 0.336 9148 | 120.2     | 763 0852    | 243 4782   | 123.9     | 756 5218    | 5634       | 3.7   | 4366      | 50  |  |
| 20  | 0.337 0350 | 120.1     | 762 9650    | 243 6021   | 123.9     | 756 3979    | 5671       | 3.7   | 4329      | 40  |  |
| 30  | 0.337 1551 | 120.1     | 762 8449    | 243 7259   | 123.8     | 756 2741    | 5708       | 3.7   | 4292      | 30  |  |
| 40  | 0.337 2752 | 120.1     | 762 7248    | 243 8497   | 123.8     | 756 1503    | 5745       | 3.7   | 4255      | 20  |  |
| 50  | 0.337 3953 | 120.0     | 762 6047    | 243 9735   | 123.7     | 756 0265    | 5782       | 3.7   | 4218      | 10  |  |
| 57  | 0.337 5153 | 120.0     | 10.762 4847 | 0.244 0972 | 123.7     | 10.755 9028 | 10.0065819 | 3.7   | 9.9934181 | 3'  |  |
| 10  | 0.337 6354 | 119.9     | 762 3646    | 244 2209   | 123.7     | 755 7791    | 5856       | 3.7   | 4144      | 50  |  |
| 20  | 0.337 7553 | 119.9     | 762 2447    | 244 3446   | 123.7     | 755 6554    | 5893       | 3.7   | 4107      | 40  |  |
| 30  | 0.337 8753 | 119.9     | 762 1247    | 244 4682   | 123.6     | 755 5318    | 5930       | 3.7   | 4070      | 30  |  |
| 40  | 0.337 9952 | 119.8     | 762 0048    | 244 5918   | 123.6     | 755 4082    | 5967       | 3.7   | 4033      | 20  |  |
| 50  | 0.338 1150 | 119.8     | 761 8850    | 244 7154   | 123.5     | 755 2846    | 6004       | 3.7   | 3996      | 10  |  |
| 58  | 0.338 2349 | 119.8     | 10.761 7651 | 0.244 8380 | 123.5     | 10.755 1611 | 10.0066041 | 3.7   | 9.9933959 | 2'  |  |
| 10  | 0.338 3547 | 119.7     | 761 6453    | 244 9624   | 123.5     | 755 0376    | 6078       | 3.7   | 3922      | 50  |  |
| 20  | 0.338 4744 | 119.7     | 761 5256    | 245 0859   | 123.4     | 754 9141    | 6115       | 3.7   | 3885      | 40  |  |
| 30  | 0.338 5942 | 119.7     | 761 4058    | 245 2093   | 123.4     | 754 7907    | 6152       | 3.7   | 3848      | 30  |  |
| 40  | 0.338 7139 | 119.7     | 761 2861    | 245 3327   | 123.4     | 754 6673    | 6189       | 3.7   | 3811      | 20  |  |
| 50  | 0.338 8335 | 119.6     | 761 1665    | 245 4561   | 123.4     | 754 5439    | 6226       | 3.7   | 3774      | 10  |  |
| 59  | 0.338 9532 | 119.6     | 10.761 0468 | 0.245 5794 | 123.3     | 10.754 4206 | 10.0066263 | 3.7   | 9.9933737 | 1'  |  |
| 10  | 0.339 0728 | 119.5     | 760 9272    | 245 7027   | 123.3     | 754 2973    | 6300       | 3.7   | 3700      | 50  |  |
| 20  | 0.339 1923 | 119.5     | 760 8077    | 245 8260   | 123.3     | 754 1740    | 6337       | 3.7   | 3663      | 40  |  |
| 30  | 0.339 3118 | 119.5     | 760 6882    | 245 9493   | 123.2     | 754 0507    | 6374       | 3.7   | 3626      | 30  |  |
| 40  | 0.339 4313 | 119.5     | 760 5687    | 246 0725   | 123.1     | 753 9275    | 6411       | 3.7   | 3589      | 20  |  |
| 50  | 0.339 5508 | 119.5     | 760 4492    | 246 1956   | 123.1     | 753 8044    | 6448       | 3.7   | 3552      | 10  |  |
| 60  | 0.339 6702 | 119.4     | 10.760 3298 | 0.246 3188 | 123.2     | 10.753 6812 | 10.0066485 | 3.7   | 9.9933515 | 0'  |  |
|     | co-sin.    | diff. 1'' | sec.        | co-tang.   | diff. 1'' | tang.       | co-sec.    | d.1'' | sin.      |     |  |

90°

80°





10°

100°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d. 1" | co-sin.       |
|----|------------|----------|-------------|------------|----------|-------------|------------|-------|---------------|
| 10 | 9.246 7746 | 117.3    | 10.753 2254 | 9.253 6477 | 121.2    | 10.746 3523 | 10.0068732 | 3.8   | 9.9931268 50' |
| 10 | 246 8919   | 117.4    | 753 1081    | 253 7689   | 121.2    | 746 2311    | 8770       | 3.7   | 1230 50       |
| 20 | 247 0093   | 117.3    | 752 9907    | 253 8901   | 121.1    | 746 1099    | 8807       | 3.8   | 1193 40       |
| 30 | 247 1266   | 117.3    | 752 8734    | 254 0112   | 121.0    | 745 9888    | 8845       | 3.8   | 1155 30       |
| 40 | 247 2439   | 117.3    | 752 7561    | 254 1322   | 121.1    | 745 8678    | 8883       | 3.8   | 1117 20       |
| 50 | 247 3612   | 117.2    | 752 6388    | 254 2533   | 121.0    | 745 7467    | 8921       | 3.8   | 1079 10       |
| 11 | 9.247 4784 | 117.2    | 10.752 5216 | 9.254 3743 | 121.0    | 10.745 6257 | 10.0068959 | 3.7   | 9.9931041 49' |
| 10 | 247 5956   | 117.2    | 752 4044    | 254 4953   | 120.9    | 745 5047    | 8959       | 3.8   | 1004 50       |
| 20 | 247 7128   | 117.1    | 752 2872    | 254 6164   | 120.9    | 745 3838    | 9034       | 3.8   | 9966 40       |
| 30 | 247 8299   | 117.1    | 752 1701    | 254 7371   | 120.9    | 745 2629    | 9072       | 3.8   | 9928 30       |
| 40 | 247 9470   | 117.1    | 752 0530    | 254 8580   | 120.9    | 745 1420    | 9110       | 3.8   | 9890 20       |
| 50 | 248 0641   | 117.0    | 751 9359    | 254 9789   | 120.8    | 745 0211    | 9148       | 3.8   | 9852 10       |
| 12 | 9.248 1811 | 117.0    | 10.751 8189 | 9.255 0997 | 120.8    | 10.744 9003 | 10.0069186 | 3.8   | 9.9930814 48' |
| 10 | 248 2981   | 117.0    | 751 7019    | 255 2205   | 120.8    | 744 7795    | 9224       | 3.8   | 9776 50       |
| 20 | 248 4151   | 117.0    | 751 5849    | 255 3413   | 120.7    | 744 6587    | 9262       | 3.7   | 9738 40       |
| 30 | 248 5321   | 116.9    | 751 4679    | 255 4620   | 120.7    | 744 5380    | 9299       | 3.8   | 9701 30       |
| 40 | 248 6490   | 116.8    | 751 3510    | 255 5827   | 120.7    | 744 4173    | 9337       | 3.8   | 9663 20       |
| 50 | 248 7658   | 116.9    | 751 2342    | 255 7034   | 120.6    | 744 2966    | 9375       | 3.8   | 9625 10       |
| 13 | 9.248 8827 | 116.8    | 10.751 1173 | 9.255 8240 | 120.6    | 10.744 1760 | 10.0069413 | 3.8   | 9.9930587 47' |
| 10 | 248 9995   | 116.8    | 751 0005    | 255 9446   | 120.6    | 744 0554    | 9451       | 3.8   | 9549 50       |
| 20 | 249 1163   | 116.7    | 750 8837    | 256 0652   | 120.5    | 743 9348    | 9489       | 3.8   | 9511 40       |
| 30 | 249 2330   | 116.7    | 750 7670    | 256 1857   | 120.5    | 743 8143    | 9527       | 3.8   | 9473 30       |
| 40 | 249 3497   | 116.7    | 750 6503    | 256 3062   | 120.5    | 743 6938    | 9565       | 3.8   | 9435 20       |
| 50 | 249 4664   | 116.6    | 750 5336    | 256 4267   | 120.5    | 743 5733    | 9603       | 3.8   | 9397 10       |
| 14 | 9.249 5830 | 116.7    | 10.750 4170 | 9.256 5472 | 120.4    | 10.743 4528 | 10.0069641 | 3.8   | 9.9930359 46' |
| 10 | 249 6997   | 116.5    | 750 3003    | 256 6676   | 120.4    | 743 3324    | 9679       | 3.8   | 9321 50       |
| 20 | 249 8164   | 116.5    | 750 1838    | 256 7880   | 120.3    | 743 2120    | 9717       | 3.8   | 9283 40       |
| 30 | 249 9329   | 116.6    | 750 0672    | 256 9083   | 120.3    | 743 0917    | 9755       | 3.8   | 9245 30       |
| 40 | 250 0493   | 116.5    | 749 9507    | 257 0286   | 120.3    | 742 9714    | 9793       | 3.8   | 9207 20       |
| 50 | 250 1658   | 116.4    | 749 8342    | 257 1489   | 120.3    | 742 8511    | 9831       | 3.8   | 9169 10       |
| 15 | 9.250 2821 | 116.5    | 10.749 7178 | 9.257 2692 | 120.2    | 10.742 7308 | 10.0069869 | 3.8   | 9.9930131 45' |
| 10 | 250 3987   | 116.3    | 749 6013    | 257 3894   | 120.2    | 742 6106    | 9907       | 3.9   | 9093 50       |
| 20 | 250 5150   | 116.4    | 749 4850    | 257 5096   | 120.2    | 742 4904    | 9946       | 3.9   | 9054 40       |
| 30 | 250 6314   | 116.3    | 749 3686    | 257 6298   | 120.1    | 742 3702    | 10.0069984 | 3.8   | 9.9930016 30  |
| 40 | 250 7477   | 116.3    | 749 2523    | 257 7499   | 120.1    | 742 2501    | 10.0070022 | 3.8   | 9.9929978 20  |
| 50 | 250 8640   | 116.3    | 749 1360    | 257 8700   | 120.1    | 742 1300    | 0060       | 3.8   | 9940 10       |
| 16 | 9.250 9803 | 116.2    | 10.749 0197 | 9.257 9901 | 120.0    | 10.742 0099 | 10.0070068 | 3.8   | 9.9929902 44' |
| 10 | 251 0965   | 116.2    | 748 9035    | 258 1101   | 120.0    | 741 8899    | 0136       | 3.8   | 9864 50       |
| 20 | 251 2127   | 116.2    | 748 7873    | 258 2301   | 120.0    | 741 7699    | 0174       | 3.8   | 9826 40       |
| 30 | 251 3289   | 116.1    | 748 6711    | 258 3501   | 120.0    | 741 6499    | 0212       | 3.9   | 9788 30       |
| 40 | 251 4450   | 116.1    | 748 5550    | 258 4701   | 119.9    | 741 5299    | 0251       | 3.8   | 9749 20       |
| 50 | 251 5611   | 116.1    | 748 4389    | 258 5900   | 119.9    | 741 4100    | 0289       | 3.8   | 9711 10       |
| 17 | 9.251 6771 | 116.0    | 10.748 3228 | 9.258 7099 | 119.8    | 10.741 2901 | 10.0070327 | 3.8   | 9.9929673 43' |
| 10 | 251 7931   | 116.0    | 748 2068    | 258 8297   | 119.8    | 741 1703    | 0365       | 3.8   | 9635 50       |
| 20 | 251 9091   | 116.0    | 748 0908    | 258 9495   | 119.8    | 741 0505    | 0403       | 3.9   | 9597 40       |
| 30 | 252 0251   | 115.9    | 747 9748    | 259 0693   | 119.8    | 740 9307    | 0442       | 3.8   | 9558 30       |
| 40 | 252 1411   | 115.9    | 747 8589    | 259 1891   | 119.7    | 740 8109    | 0480       | 3.8   | 9520 20       |
| 50 | 252 2570   | 115.9    | 747 7430    | 259 3088   | 119.7    | 740 6912    | 0518       | 3.8   | 9482 10       |
| 18 | 9.252 3729 | 115.8    | 10.747 6271 | 9.259 4285 | 119.7    | 10.740 5715 | 10.0070556 | 3.9   | 9.9929444 42' |
| 10 | 252 4887   | 115.8    | 747 5113    | 259 5482   | 119.6    | 740 4518    | 0555       | 3.8   | 9405 50       |
| 20 | 252 6045   | 115.8    | 747 3955    | 259 6678   | 119.7    | 740 3322    | 0633       | 3.8   | 9367 40       |
| 30 | 252 7203   | 115.8    | 747 2797    | 259 7875   | 119.7    | 740 2125    | 0671       | 3.9   | 9329 30       |
| 40 | 252 8361   | 115.7    | 747 1639    | 259 9070   | 119.6    | 740 0930    | 0710       | 3.8   | 9290 20       |
| 50 | 252 9518   | 115.7    | 747 0482    | 260 0266   | 119.5    | 739 9734    | 0748       | 3.8   | 9252 10       |
| 19 | 9.253 0675 | 115.6    | 10.746 9325 | 9.260 1461 | 119.5    | 10.739 8539 | 10.0070786 | 3.9   | 9.9929214 41' |
| 10 | 253 1831   | 115.6    | 746 8169    | 260 2656   | 119.4    | 739 7344    | 0825       | 3.8   | 9175 50       |
| 20 | 253 2987   | 115.6    | 746 7013    | 260 3850   | 119.5    | 739 6150    | 0863       | 3.8   | 9137 40       |
| 30 | 253 4143   | 115.6    | 746 5857    | 260 5045   | 119.5    | 739 4955    | 0901       | 3.9   | 9099 30       |
| 40 | 253 5299   | 115.5    | 746 4701    | 260 6239   | 119.4    | 739 3761    | 0940       | 3.9   | 9060 20       |
| 50 | 253 6454   | 115.5    | 746 3546    | 260 7432   | 119.3    | 739 2568    | 0978       | 3.8   | 9022 10       |
| 20 | 9.253 7609 | 115.5    | 10.746 2391 | 9.260 8625 | 119.3    | 10.739 1375 | 10.0071016 | 3.8   | 9.9928964 40' |

100°

79°

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|

| 10° |            |           |             |            |           |             |             |       |            | 100° |
|-----|------------|-----------|-------------|------------|-----------|-------------|-------------|-------|------------|------|
|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |      |
| 20' | 9.253 7609 | 115.5     | 10.746 2391 | 9.260 8625 | 119.3     | 10.739 1375 | 10.007 1016 | 3.9   | 9.992 8984 | 40'  |
| 10  | 253 8764   | 115.4     | 746 1236    | 260 9818   | 119.3     | 739 0182    | 1055        | 3.8   | 8945       | 50   |
| 20  | 253 9918   | 115.4     | 746 0082    | 261 1011   | 119.3     | 738 8989    | 1093        | 3.9   | 8907       | 00   |
| 30  | 254 1072   | 115.4     | 745 8928    | 261 2204   | 119.2     | 738 7796    | 1132        | 3.8   | 8868       | 30   |
| 40  | 254 2226   | 115.3     | 745 7774    | 261 3396   | 119.1     | 738 6604    | 1170        | 3.8   | 8830       | 20   |
| 50  | 254 3379   | 115.3     | 745 6621    | 261 4587   | 119.2     | 738 5413    | 1208        | 3.9   | 8792       | 10   |
| 21' | 9.254 4532 | 115.3     | 10.745 5468 | 9.261 5779 | 119.2     | 10.738 4221 | 10.007 1247 | 3.8   | 9.992 8753 | 20'  |
| 10  | 254 5685   | 115.2     | 745 4315    | 261 6970   | 119.1     | 738 3030    | 1285        | 3.9   | 8715       | 50   |
| 20  | 254 6837   | 115.2     | 745 3163    | 261 8161   | 119.1     | 738 1839    | 1324        | 3.8   | 8676       | 40   |
| 30  | 254 7989   | 115.2     | 745 2011    | 261 9352   | 119.0     | 738 0648    | 1362        | 3.9   | 8638       | 30   |
| 40  | 254 9141   | 115.1     | 745 0859    | 262 0542   | 119.0     | 737 9458    | 1401        | 3.8   | 8599       | 20   |
| 50  | 255 0292   | 115.2     | 744 9708    | 262 1732   | 118.9     | 737 8268    | 1439        | 3.9   | 8561       | 10   |
| 22' | 9.255 1444 | 115.0     | 10.744 8556 | 9.262 2921 | 118.9     | 10.737 7079 | 10.007 1476 | 3.8   | 9.992 8522 | 20'  |
| 10  | 255 2594   | 115.1     | 744 7406    | 262 4111   | 118.9     | 737 5889    | 1516        | 3.9   | 8484       | 50   |
| 20  | 255 3745   | 115.0     | 744 6255    | 262 5300   | 118.9     | 737 4700    | 1555        | 3.8   | 8445       | 40   |
| 30  | 255 4895   | 115.0     | 744 5105    | 262 6489   | 118.8     | 737 3511    | 1593        | 3.9   | 8407       | 30   |
| 40  | 255 6045   | 115.0     | 744 3955    | 262 7677   | 118.8     | 737 2322    | 1632        | 3.9   | 8368       | 20   |
| 50  | 255 7195   | 114.9     | 744 2805    | 262 8865   | 118.8     | 737 1135    | 1671        | 3.8   | 8329       | 10   |
| 23' | 9.255 8344 | 114.8     | 10.744 1656 | 9.263 0053 | 118.7     | 10.736 9947 | 10.007 1709 | 3.9   | 9.992 8291 | 20'  |
| 10  | 255 9493   | 114.8     | 744 0507    | 263 1240   | 118.8     | 736 8760    | 1748        | 3.8   | 8252       | 50   |
| 20  | 256 0641   | 114.9     | 743 9359    | 263 2428   | 118.7     | 736 7572    | 1786        | 3.9   | 8214       | 40   |
| 30  | 256 1790   | 114.8     | 743 8210    | 263 3615   | 118.6     | 736 6385    | 1825        | 3.9   | 8175       | 30   |
| 40  | 256 2938   | 114.7     | 743 7062    | 263 4801   | 118.6     | 736 5199    | 1864        | 3.8   | 8136       | 20   |
| 50  | 256 4085   | 114.8     | 743 5915    | 263 5987   | 118.6     | 736 4013    | 1902        | 3.9   | 8098       | 10   |
| 24' | 9.256 5233 | 114.7     | 10.743 4767 | 9.263 7173 | 118.6     | 10.736 2827 | 10.007 1941 | 3.8   | 9.992 8059 | 20'  |
| 10  | 256 6380   | 114.6     | 743 3620    | 263 8359   | 118.6     | 736 1641    | 1979        | 3.9   | 8021       | 50   |
| 20  | 256 7526   | 114.7     | 743 2474    | 263 9545   | 118.5     | 736 0455    | 2018        | 3.9   | 7982       | 40   |
| 30  | 256 8673   | 114.7     | 743 1327    | 264 0730   | 118.4     | 735 9270    | 2057        | 3.8   | 7943       | 30   |
| 40  | 256 9819   | 114.6     | 743 0181    | 264 1914   | 118.5     | 735 8086    | 2095        | 3.9   | 7905       | 20   |
| 50  | 257 0965   | 114.5     | 742 9035    | 264 3099   | 118.4     | 735 6901    | 2134        | 3.9   | 7866       | 10   |
| 25' | 9.257 2110 | 114.5     | 10.742 7890 | 9.264 4283 | 118.4     | 10.735 5717 | 10.007 2173 | 3.9   | 9.992 7827 | 20'  |
| 10  | 257 3255   | 114.5     | 742 6745    | 264 5467   | 118.4     | 735 4533    | 2212        | 3.8   | 7788       | 50   |
| 20  | 257 4400   | 114.5     | 742 5600    | 264 6651   | 118.3     | 735 3349    | 2250        | 3.9   | 7750       | 40   |
| 30  | 257 5545   | 114.4     | 742 4455    | 264 7834   | 118.3     | 735 2166    | 2289        | 3.9   | 7711       | 30   |
| 40  | 257 6689   | 114.4     | 742 3311    | 264 9017   | 118.3     | 735 0983    | 2328        | 3.8   | 7672       | 20   |
| 50  | 257 7833   | 114.4     | 742 2167    | 265 0200   | 118.2     | 734 9800    | 2366        | 3.9   | 7634       | 10   |
| 26' | 9.257 8977 | 114.3     | 10.742 1023 | 9.265 1382 | 118.2     | 10.734 8618 | 10.007 2405 | 3.9   | 9.992 7595 | 20'  |
| 10  | 258 0120   | 114.3     | 741 9880    | 265 2564   | 118.2     | 734 7436    | 2444        | 3.9   | 7556       | 50   |
| 20  | 258 1263   | 114.3     | 741 8737    | 265 3746   | 118.1     | 734 6254    | 2483        | 3.9   | 7517       | 40   |
| 30  | 258 2406   | 114.2     | 741 7594    | 265 4927   | 118.1     | 734 5073    | 2522        | 3.8   | 7478       | 30   |
| 40  | 258 3548   | 114.2     | 741 6452    | 265 6108   | 118.1     | 734 3892    | 2560        | 3.9   | 7440       | 20   |
| 50  | 258 4690   | 114.2     | 741 5310    | 265 7289   | 118.1     | 734 2711    | 2599        | 3.9   | 7401       | 10   |
| 27' | 9.258 5832 | 114.1     | 10.741 4168 | 9.265 8470 | 118.0     | 10.734 1530 | 10.007 2638 | 3.9   | 9.992 7362 | 20'  |
| 10  | 258 6973   | 114.1     | 741 3027    | 265 9650   | 118.0     | 734 0350    | 2677        | 3.9   | 7323       | 50   |
| 20  | 258 8114   | 114.1     | 741 1886    | 266 0830   | 118.0     | 733 9170    | 2716        | 3.9   | 7284       | 40   |
| 30  | 258 9255   | 114.1     | 741 0745    | 266 2010   | 117.9     | 733 7990    | 2755        | 3.8   | 7245       | 30   |
| 40  | 259 0396   | 114.0     | 740 9604    | 266 3189   | 117.9     | 733 6811    | 2793        | 3.9   | 7207       | 20   |
| 50  | 259 1536   | 114.0     | 740 8464    | 266 4368   | 117.9     | 733 5632    | 2832        | 3.9   | 7168       | 10   |
| 28' | 9.259 2676 | 113.9     | 10.740 7324 | 9.266 5547 | 117.9     | 10.733 4453 | 10.007 2871 | 3.9   | 9.992 7129 | 20'  |
| 10  | 259 3815   | 114.0     | 740 6185    | 266 6726   | 117.8     | 733 3274    | 2910        | 3.9   | 7090       | 50   |
| 20  | 259 4955   | 113.9     | 740 5045    | 266 7904   | 117.8     | 733 2096    | 2949        | 3.9   | 7051       | 40   |
| 30  | 259 6094   | 113.8     | 740 3906    | 266 9082   | 117.7     | 733 0918    | 2988        | 3.9   | 7012       | 30   |
| 40  | 259 7232   | 113.9     | 740 2768    | 267 0259   | 117.7     | 732 9741    | 3027        | 3.9   | 6973       | 20   |
| 50  | 259 8371   | 113.8     | 740 1629    | 267 1437   | 117.6     | 732 8563    | 3066        | 3.9   | 6934       | 10   |
| 29' | 9.259 9509 | 113.7     | 10.740 0491 | 9.267 2613 | 117.7     | 10.732 7387 | 10.007 3105 | 3.9   | 9.992 6895 | 20'  |
| 10  | 260 0646   | 113.8     | 739 9354    | 267 3790   | 117.7     | 732 6210    | 3144        | 3.9   | 6856       | 50   |
| 20  | 260 1784   | 113.7     | 739 8216    | 267 4967   | 117.6     | 732 5033    | 3183        | 3.9   | 6817       | 40   |
| 30  | 260 2921   | 113.7     | 739 7079    | 267 6143   | 117.5     | 732 3857    | 3222        | 3.9   | 6778       | 30   |
| 40  | 260 4058   | 113.6     | 739 5942    | 267 7318   | 117.6     | 732 2682    | 3261        | 3.9   | 6739       | 20   |
| 50  | 260 5194   | 113.6     | 739 4806    | 267 8494   | 117.5     | 732 1506    | 3300        | 3.9   | 6700       | 10   |
| 30' | 9.260 6330 | 113.6     | 10.739 3670 | 9.267 9669 | 117.5     | 10.732 0331 | 10.007 3339 | 3.9   | 9.992 6661 | 20'  |

100°

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|    | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |     |
|----|------------|----------|-------------|------------|----------|-------------|-------------|--------|------------|-----|
| 31 | 9.260 6330 | 113.6    | 10.739 3670 | 9.267 9669 | 117.5    | 10.732 0331 | 10.007 3330 | 3.9    | 9.992 6661 | 30' |
| 10 | 260 7466   | 113.6    | 739 2534    | 268 0844   | 117.5    | 731 9156    | 3378        | 3.9    | 6622       | 50  |
| 20 | 260 8602   | 113.5    | 739 1398    | 268 2019   | 117.4    | 731 7981    | 3417        | 3.9    | 6583       | 40  |
| 30 | 260 9737   | 113.5    | 739 0263    | 268 3193   | 117.4    | 731 6807    | 3456        | 3.9    | 6544       | 30  |
| 40 | 261 0872   | 113.5    | 738 9128    | 268 4367   | 117.4    | 731 5633    | 3495        | 3.9    | 6505       | 20  |
| 50 | 261 2007   | 113.4    | 738 7993    | 268 5541   | 117.3    | 731 4459    | 3534        | 3.9    | 6466       | 10  |
| 31 | 9.261 3141 | 113.4    | 10.738 6859 | 9.268 6714 | 117.3    | 10.732 3286 | 10.007 3573 | 3.9    | 9.992 6427 | 29' |
| 10 | 261 4275   | 113.4    | 738 5725    | 268 7887   | 117.3    | 731 2113    | 3612        | 3.9    | 6388       | 50  |
| 20 | 261 5409   | 113.3    | 738 4591    | 268 9060   | 117.3    | 731 0940    | 3651        | 3.9    | 6349       | 40  |
| 30 | 261 6542   | 113.3    | 738 3458    | 269 0233   | 117.2    | 730 9767    | 3690        | 4.0    | 6310       | 30  |
| 40 | 261 7675   | 113.3    | 738 2325    | 269 1405   | 117.2    | 730 8595    | 3730        | 3.9    | 6270       | 20  |
| 50 | 261 8808   | 113.3    | 738 1192    | 269 2577   | 117.2    | 730 7423    | 3769        | 3.9    | 6231       | 10  |
| 32 | 9.261 9941 | 113.2    | 10.738 0059 | 9.269 3749 | 117.1    | 10.730 6251 | 10.007 3808 | 3.9    | 9.992 6192 | 28' |
| 10 | 262 1073   | 113.2    | 737 8927    | 269 4920   | 117.1    | 730 5080    | 3847        | 3.9    | 6153       | 50  |
| 20 | 262 2205   | 113.1    | 737 7795    | 269 6091   | 117.1    | 730 3909    | 3886        | 3.9    | 6114       | 40  |
| 30 | 262 3336   | 113.1    | 737 6664    | 269 7262   | 117.0    | 730 2738    | 3925        | 4.0    | 6075       | 30  |
| 40 | 262 4468   | 113.1    | 737 5532    | 269 8432   | 117.0    | 730 1568    | 3965        | 3.9    | 6035       | 20  |
| 50 | 262 5599   | 113.0    | 737 4401    | 269 9602   | 117.0    | 730 0398    | 4004        | 3.9    | 5996       | 10  |
| 33 | 9.262 6729 | 113.0    | 10.737 3271 | 9.270 0772 | 116.9    | 10.729 9228 | 10.007 4043 | 3.9    | 9.992 5957 | 27' |
| 10 | 262 7860   | 113.0    | 737 2140    | 270 1942   | 116.9    | 729 8058    | 4082        | 3.9    | 5918       | 50  |
| 20 | 262 8990   | 113.0    | 737 1010    | 270 3111   | 116.9    | 729 6889    | 4121        | 4.0    | 5879       | 40  |
| 30 | 263 0120   | 112.9    | 736 9880    | 270 4280   | 116.9    | 729 5720    | 4161        | 3.9    | 5839       | 30  |
| 40 | 263 1249   | 112.9    | 736 8751    | 270 5449   | 116.8    | 729 4551    | 4200        | 3.9    | 5800       | 20  |
| 50 | 263 2378   | 112.9    | 736 7622    | 270 6617   | 116.9    | 729 3383    | 4239        | 3.9    | 5761       | 10  |
| 34 | 9.263 3507 | 112.9    | 10.736 6493 | 9.270 7786 | 116.7    | 10.729 2214 | 10.007 4278 | 4.0    | 9.992 5722 | 26' |
| 10 | 263 4636   | 112.8    | 736 5364    | 270 8953   | 116.8    | 729 1047    | 4318        | 3.9    | 5682       | 50  |
| 20 | 263 5764   | 112.8    | 736 4236    | 271 0121   | 116.7    | 728 9879    | 4357        | 3.9    | 5643       | 40  |
| 30 | 263 6892   | 112.8    | 736 3108    | 271 1288   | 116.7    | 728 8712    | 4396        | 4.0    | 5604       | 30  |
| 40 | 263 8020   | 112.7    | 736 1980    | 271 2455   | 116.7    | 728 7545    | 4436        | 3.9    | 5565       | 20  |
| 50 | 263 9147   | 112.7    | 736 0853    | 271 3622   | 116.6    | 728 6378    | 4475        | 3.9    | 5525       | 10  |
| 35 | 9.264 0274 | 112.7    | 10.735 9726 | 9.271 4788 | 116.6    | 10.728 5212 | 10.007 4514 | 4.0    | 9.992 5486 | 25' |
| 10 | 264 1401   | 112.6    | 735 8599    | 271 5954   | 116.6    | 728 4046    | 4554        | 3.9    | 5446       | 50  |
| 20 | 264 2527   | 112.6    | 735 7473    | 271 7120   | 116.6    | 728 2880    | 4593        | 3.9    | 5407       | 40  |
| 30 | 264 3653   | 112.6    | 735 6347    | 271 8286   | 116.5    | 728 1714    | 4632        | 3.9    | 5368       | 30  |
| 40 | 264 4779   | 112.6    | 735 5221    | 271 9451   | 116.5    | 728 0549    | 4672        | 3.9    | 5328       | 20  |
| 50 | 264 5905   | 112.5    | 735 4095    | 272 0616   | 116.5    | 727 9384    | 4711        | 3.9    | 5289       | 10  |
| 36 | 9.264 7030 | 112.5    | 10.735 2970 | 9.272 1780 | 116.5    | 10.727 8220 | 10.007 4750 | 4.0    | 9.992 5250 | 24' |
| 10 | 264 8155   | 112.5    | 735 1845    | 272 2945   | 116.4    | 727 7055    | 4790        | 3.9    | 5210       | 50  |
| 20 | 264 9279   | 112.4    | 735 0721    | 272 4109   | 116.4    | 727 5891    | 4829        | 4.0    | 5171       | 40  |
| 30 | 265 0404   | 112.4    | 734 9596    | 272 5272   | 116.4    | 727 4728    | 4869        | 3.9    | 5131       | 30  |
| 40 | 265 1528   | 112.3    | 734 8472    | 272 6436   | 116.4    | 727 3564    | 4908        | 4.0    | 5092       | 20  |
| 50 | 265 2651   | 112.4    | 734 7349    | 272 7599   | 116.3    | 727 2401    | 4948        | 3.9    | 5052       | 10  |
| 37 | 9.265 3775 | 112.3    | 10.734 6225 | 9.272 8762 | 116.2    | 10.727 1238 | 10.007 4987 | 4.0    | 9.992 5013 | 23' |
| 10 | 265 4898   | 112.3    | 734 5102    | 272 9924   | 116.2    | 727 0076    | 5027        | 3.9    | 4973       | 50  |
| 20 | 265 6021   | 112.2    | 734 3979    | 273 1087   | 116.2    | 726 8913    | 5066        | 4.0    | 4934       | 40  |
| 30 | 265 7143   | 112.2    | 734 2857    | 273 2249   | 116.2    | 726 7751    | 5106        | 3.9    | 4894       | 30  |
| 40 | 265 8265   | 112.2    | 734 1735    | 273 3411   | 116.1    | 726 6589    | 5145        | 4.0    | 4855       | 20  |
| 50 | 265 9387   | 112.2    | 734 0613    | 273 4572   | 116.1    | 726 5428    | 5185        | 3.9    | 4815       | 10  |
| 38 | 9.266 0509 | 112.1    | 10.733 9491 | 9.273 5733 | 116.1    | 10.726 4267 | 10.007 5224 | 4.0    | 9.992 4776 | 22' |
| 10 | 266 1630   | 112.1    | 733 8370    | 273 6894   | 116.1    | 726 3106    | 5264        | 3.9    | 4736       | 50  |
| 20 | 266 2751   | 112.1    | 733 7249    | 273 8055   | 116.0    | 726 1945    | 5303        | 4.0    | 4697       | 40  |
| 30 | 266 3872   | 112.0    | 733 6128    | 273 9215   | 116.0    | 726 0785    | 5343        | 3.9    | 4657       | 30  |
| 40 | 266 4992   | 112.1    | 733 5008    | 274 0375   | 115.9    | 725 9625    | 5382        | 4.0    | 4618       | 20  |
| 50 | 266 6113   | 111.9    | 733 3887    | 274 1534   | 116.0    | 725 8466    | 5422        | 3.9    | 4578       | 10  |
| 39 | 9.266 7232 | 112.0    | 10.733 2768 | 9.274 2694 | 115.9    | 10.725 7306 | 10.007 5461 | 4.0    | 9.992 4539 | 21' |
| 10 | 266 8352   | 111.9    | 733 1648    | 274 3853   | 115.9    | 725 6147    | 5501        | 4.0    | 4499       | 50  |
| 20 | 266 9471   | 111.9    | 733 0529    | 274 5012   | 115.8    | 725 4988    | 5541        | 4.0    | 4459       | 40  |
| 30 | 267 0590   | 111.9    | 732 9410    | 274 6170   | 115.9    | 725 3830    | 5580        | 4.0    | 4420       | 30  |
| 40 | 267 1709   | 111.8    | 732 8291    | 274 7329   | 115.8    | 725 2671    | 5620        | 3.9    | 4380       | 20  |
| 50 | 267 2827   | 111.8    | 732 7173    | 274 8487   | 115.7    | 725 1513    | 5660        | 4.0    | 4340       | 10  |
| 40 | 9.267 3945 | 111.8    | 10.732 6055 | 9.274 9644 | 115.7    | 10.725 0356 | 10.007 5699 | 3.9    | 9.992 4301 | 20' |

co-sin. dif. 1'' sec. co-tang. dif. 1'' tang. co-sec. d. 1'' sin.

100°

79°



10°

169°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |     |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|-----|
| 40' | 9.267 3945 | 111.8    | 10.732 6055 | 9.274 9644 | 115.8    | 10.725 0356 | 10.0075699 | 4.0   | 9.9924301 | 20' |
| 10  | 267 5063   | 111.7    | 732 4937    | 275 0802   | 115.7    | 724 9198    | 5739       | 4.0   | 4261      | 50  |
| 20  | 267 6180   | 111.7    | 732 3820    | 275 1959   | 115.7    | 724 8041    | 5779       | 3.9   | 4221      | 40  |
| 30  | 267 7297   | 111.7    | 732 2703    | 275 3116   | 115.6    | 724 6884    | 5818       | 4.0   | 4182      | 30  |
| 40  | 267 8414   | 111.7    | 732 1586    | 275 4272   | 115.6    | 724 5728    | 5858       | 4.0   | 4142      | 20  |
| 50  | 267 9531   | 111.6    | 732 0469    | 275 5428   | 115.6    | 724 4572    | 5898       | 3.9   | 4102      | 10  |
| 41' | 9.268 0647 | 111.6    | 10.731 9353 | 9.275 6584 | 115.6    | 10.724 3416 | 10.0075937 | 4.0   | 9.9924063 | 19' |
| 10  | 268 1763   | 111.6    | 731 8237    | 275 7740   | 115.5    | 724 2260    | 5977       | 4.0   | 4023      | 50  |
| 20  | 268 2879   | 111.5    | 731 7121    | 275 8895   | 115.5    | 724 1105    | 6017       | 4.0   | 3983      | 40  |
| 30  | 268 3994   | 111.5    | 731 6006    | 276 0050   | 115.5    | 723 9950    | 6057       | 3.9   | 3943      | 30  |
| 40  | 268 5109   | 111.5    | 731 4891    | 276 1205   | 115.5    | 723 8795    | 6096       | 4.0   | 3904      | 20  |
| 50  | 268 6224   | 111.4    | 731 3776    | 276 2360   | 115.4    | 723 7640    | 6136       | 4.0   | 3864      | 10  |
| 42' | 9.268 7338 | 111.4    | 10.731 2662 | 9.276 3514 | 115.4    | 10.723 6486 | 10.0076176 | 4.0   | 9.9923824 | 18' |
| 10  | 268 8452   | 111.4    | 731 1548    | 276 4668   | 115.4    | 723 5332    | 6216       | 3.9   | 3784      | 50  |
| 20  | 268 9566   | 111.4    | 731 0434    | 276 5822   | 115.3    | 723 4178    | 6255       | 4.0   | 3745      | 40  |
| 30  | 269 0680   | 111.3    | 730 9320    | 276 6975   | 115.3    | 723 3025    | 6295       | 4.0   | 3705      | 30  |
| 40  | 269 1793   | 111.3    | 730 8207    | 276 8128   | 115.3    | 723 1872    | 6335       | 4.0   | 3665      | 20  |
| 50  | 269 2906   | 111.3    | 730 7094    | 276 9281   | 115.3    | 723 0719    | 6375       | 4.0   | 3625      | 10  |
| 43' | 9.269 4019 | 111.2    | 10.730 5981 | 9.277 0434 | 115.2    | 10.722 9566 | 10.0076415 | 4.0   | 9.9923585 | 17' |
| 10  | 269 5131   | 111.2    | 730 4869    | 277 1586   | 115.2    | 722 8414    | 6455       | 3.9   | 3545      | 50  |
| 20  | 269 6243   | 111.2    | 730 3757    | 277 2738   | 115.2    | 722 7262    | 6494       | 4.0   | 3506      | 40  |
| 30  | 269 7355   | 111.2    | 730 2645    | 277 3889   | 115.1    | 722 6111    | 6534       | 4.0   | 3466      | 30  |
| 40  | 269 8467   | 111.1    | 730 1533    | 277 5041   | 115.1    | 722 4959    | 6574       | 4.0   | 3426      | 20  |
| 50  | 269 9578   | 111.1    | 730 0422    | 277 6192   | 115.1    | 722 3808    | 6614       | 4.0   | 3386      | 10  |
| 44' | 9.270 0689 | 111.0    | 10.729 9311 | 9.277 7343 | 115.0    | 10.722 2657 | 10.0076654 | 4.0   | 9.9923346 | 16' |
| 10  | 270 1799   | 111.1    | 729 8201    | 277 8493   | 115.1    | 722 1507    | 6694       | 4.0   | 3306      | 50  |
| 20  | 270 2910   | 111.0    | 729 7090    | 277 9644   | 114.9    | 722 0356    | 6734       | 4.0   | 3266      | 40  |
| 30  | 270 4020   | 110.9    | 729 5980    | 278 0793   | 115.0    | 721 9207    | 6774       | 4.0   | 3226      | 30  |
| 40  | 270 5129   | 111.0    | 729 4871    | 278 1943   | 115.0    | 721 8057    | 6814       | 4.0   | 3186      | 20  |
| 50  | 270 6239   | 110.9    | 729 3761    | 278 3093   | 114.9    | 721 6907    | 6854       | 4.0   | 3146      | 10  |
| 45' | 9.270 7348 | 110.9    | 10.729 2652 | 9.278 4242 | 114.9    | 10.721 5758 | 10.0076894 | 4.0   | 9.9923106 | 15' |
| 10  | 270 8457   | 110.8    | 729 1543    | 278 5391   | 114.8    | 721 4609    | 6934       | 4.0   | 3066      | 50  |
| 20  | 270 9565   | 110.9    | 729 0435    | 278 6539   | 114.8    | 721 3461    | 6974       | 4.0   | 3026      | 40  |
| 30  | 271 0674   | 110.8    | 728 9326    | 278 7687   | 114.8    | 721 2313    | 7014       | 4.0   | 2986      | 30  |
| 40  | 271 1782   | 110.7    | 728 8218    | 278 8835   | 114.8    | 721 1165    | 7054       | 4.0   | 2946      | 20  |
| 50  | 271 2889   | 110.8    | 728 7111    | 278 9983   | 114.8    | 721 0017    | 7094       | 4.0   | 2906      | 10  |
| 46' | 9.271 3997 | 110.7    | 10.728 6003 | 9.279 1131 | 114.7    | 10.720 8869 | 10.0077134 | 4.0   | 9.9922866 | 14' |
| 10  | 271 5104   | 110.7    | 728 4896    | 279 2278   | 114.7    | 720 7722    | 7174       | 4.0   | 2826      | 50  |
| 20  | 271 6211   | 110.6    | 728 3789    | 279 3425   | 114.6    | 720 6575    | 7214       | 4.0   | 2786      | 40  |
| 30  | 271 7317   | 110.6    | 728 2683    | 279 4571   | 114.6    | 720 5429    | 7254       | 4.0   | 2746      | 30  |
| 40  | 271 8423   | 110.6    | 728 1577    | 279 5717   | 114.6    | 720 4283    | 7294       | 4.0   | 2706      | 20  |
| 50  | 271 9529   | 110.6    | 728 0471    | 279 6863   | 114.6    | 720 3137    | 7334       | 4.0   | 2666      | 10  |
| 47' | 9.272 0635 | 110.5    | 10.727 9365 | 9.279 8009 | 114.6    | 10.720 1991 | 10.0077374 | 4.0   | 9.9922626 | 13' |
| 10  | 272 1740   | 110.5    | 727 8260    | 279 9155   | 114.5    | 720 0845    | 7414       | 4.0   | 2586      | 50  |
| 20  | 272 2845   | 110.5    | 727 7155    | 280 0300   | 114.5    | 719 9700    | 7454       | 4.0   | 2546      | 40  |
| 30  | 272 3950   | 110.5    | 727 6050    | 280 1445   | 114.4    | 719 8555    | 7494       | 4.1   | 2506      | 30  |
| 40  | 272 5055   | 110.4    | 727 4945    | 280 2589   | 114.4    | 719 7411    | 7535       | 4.0   | 2466      | 20  |
| 50  | 272 6159   | 110.4    | 727 3841    | 280 3734   | 114.4    | 719 6266    | 7575       | 4.0   | 2426      | 10  |
| 48' | 9.272 7263 | 110.3    | 10.727 2737 | 9.280 4878 | 114.4    | 10.719 5122 | 10.0077615 | 4.0   | 9.9922385 | 12' |
| 10  | 272 8366   | 110.4    | 727 1634    | 280 6022   | 114.3    | 719 3978    | 7655       | 4.0   | 2345      | 50  |
| 20  | 272 9470   | 110.3    | 727 0530    | 280 7165   | 114.3    | 719 2835    | 7695       | 4.0   | 2305      | 40  |
| 30  | 273 0573   | 110.2    | 726 9427    | 280 8308   | 114.3    | 719 1692    | 7735       | 4.1   | 2265      | 30  |
| 40  | 273 1675   | 110.3    | 726 8325    | 280 9451   | 114.3    | 719 0549    | 7776       | 4.0   | 2224      | 20  |
| 50  | 273 2778   | 110.2    | 726 7222    | 281 0594   | 114.2    | 718 9406    | 7816       | 4.0   | 2184      | 10  |
| 49' | 9.273 3880 | 110.2    | 10.726 6120 | 9.281 1736 | 114.2    | 10.718 8264 | 10.0077856 | 4.0   | 9.9922144 | 11' |
| 10  | 273 4982   | 110.2    | 726 5018    | 281 2878   | 114.2    | 718 7122    | 7856       | 4.0   | 2144      | 50  |
| 20  | 273 6084   | 110.1    | 726 3916    | 281 4020   | 114.2    | 718 5980    | 7937       | 4.1   | 2063      | 40  |
| 30  | 273 7185   | 110.1    | 726 2815    | 281 5162   | 114.1    | 718 4838    | 7977       | 4.0   | 2023      | 30  |
| 40  | 273 8286   | 110.1    | 726 1714    | 281 6303   | 114.1    | 718 3697    | 8017       | 4.0   | 1983      | 20  |
| 50  | 273 9387   | 110.0    | 726 0613    | 281 7444   | 114.1    | 718 2556    | 8057       | 4.1   | 1943      | 10  |
| 50' | 9.274 0487 | 110.0    | 10.725 9513 | 9.281 8585 | 114.1    | 10.718 1415 | 10.0078098 | 4.0   | 9.9921902 | 10' |

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|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d.1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|



LOGARITHMIC SINES, TANGENTS, &c.

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|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | d. 1'' | co-sin.   |     |
|-----|------------|-----------|-------------|------------|-----------|-------------|------------|--------|-----------|-----|
| 50' | 9.274 0487 |           | 10.725 9513 | 9.281 8585 |           | 10.718 1415 | 10.0078098 | 4.0    | 9.9921902 | 10' |
| 10  | 274 1587   | 110.0     | 725 8413    | 281 9725   | 114.0     | 718 0275    | 8138       | 4.0    | 1862      | 50  |
| 20  | 274 2687   | 110.0     | 725 7313    | 282 0865   | 114.0     | 717 9135    | 8178       | 4.1    | 1822      | 40  |
| 30  | 274 3786   | 109.9     | 725 6214    | 282 2005   | 114.0     | 717 7995    | 8219       | 4.1    | 1781      | 30  |
| 40  | 274 4886   | 110.0     | 725 5114    | 282 3145   | 114.0     | 717 6855    | 8259       | 4.0    | 1741      | 20  |
| 50  | 274 5985   | 109.9     | 725 4015    | 282 4284   | 113.9     | 717 5716    | 8299       | 4.0    | 1701      | 10  |
| 51' | 9.274 7083 |           | 10.725 2917 | 9.282 5423 |           | 10.717 4577 | 10.0078340 | 4.0    | 9.9921660 | 9'  |
| 10  | 274 8182   | 109.9     | 725 1818    | 282 6562   | 113.9     | 717 3438    | 8380       | 4.0    | 1620      | 50  |
| 20  | 274 9280   | 109.8     | 725 0720    | 282 7700   | 113.8     | 717 2300    | 8420       | 4.0    | 1580      | 40  |
| 30  | 275 0378   | 109.8     | 724 9622    | 282 8838   | 113.8     | 717 1162    | 8461       | 4.1    | 1539      | 30  |
| 40  | 275 1475   | 109.7     | 724 8525    | 282 9976   | 113.8     | 717 0024    | 8501       | 4.1    | 1499      | 20  |
| 50  | 275 2573   | 109.6     | 724 7427    | 283 1114   | 113.8     | 716 8886    | 8542       | 4.1    | 1458      | 10  |
| 52' | 9.275 3669 |           | 10.724 6331 | 9.283 2251 |           | 10.716 7749 | 10.0078582 | 4.0    | 9.9921418 | 8'  |
| 10  | 275 4766   | 109.7     | 724 5234    | 283 3388   | 113.7     | 716 6612    | 8622       | 4.1    | 1378      | 50  |
| 20  | 275 5863   | 109.7     | 724 4137    | 283 4525   | 113.7     | 716 5475    | 8663       | 4.0    | 1337      | 40  |
| 30  | 275 6959   | 109.5     | 724 3041    | 283 5662   | 113.6     | 716 4338    | 8703       | 4.1    | 1297      | 30  |
| 40  | 275 8054   | 109.6     | 724 1946    | 283 6798   | 113.6     | 716 3202    | 8744       | 4.0    | 1256      | 20  |
| 50  | 275 9150   | 109.5     | 724 0850    | 283 7934   | 113.6     | 716 2066    | 8784       | 4.1    | 1216      | 10  |
| 53' | 9.276 0245 |           | 10.723 9755 | 9.283 9070 |           | 10.716 0930 | 10.0078825 | 4.0    | 9.9921175 | 7'  |
| 10  | 276 1340   | 109.5     | 723 8660    | 284 0205   | 113.5     | 715 9795    | 8865       | 4.1    | 1135      | 50  |
| 20  | 276 2435   | 109.4     | 723 7565    | 284 1340   | 113.5     | 715 8660    | 8906       | 4.0    | 1094      | 40  |
| 30  | 276 3529   | 109.4     | 723 6471    | 284 2475   | 113.5     | 715 7525    | 8946       | 4.1    | 1054      | 30  |
| 40  | 276 4623   | 109.4     | 723 5377    | 284 3610   | 113.4     | 715 6390    | 8987       | 4.0    | 1013      | 20  |
| 50  | 276 5717   | 109.4     | 723 4283    | 284 4744   | 113.4     | 715 5256    | 9027       | 4.1    | 973       | 10  |
| 54' | 9.276 6811 |           | 10.723 3189 | 9.284 5878 |           | 10.715 4122 | 10.0079068 | 4.0    | 9.9920932 | 6'  |
| 10  | 276 7904   | 109.3     | 723 2096    | 284 7012   | 113.4     | 715 2988    | 9108       | 4.1    | 932       | 50  |
| 20  | 276 8997   | 109.3     | 723 1003    | 284 8146   | 113.3     | 715 1854    | 9149       | 4.0    | 891       | 40  |
| 30  | 277 0089   | 109.2     | 722 9911    | 284 9279   | 113.3     | 715 0721    | 9189       | 4.1    | 851       | 30  |
| 40  | 277 1182   | 109.2     | 722 8818    | 285 0412   | 113.3     | 714 9588    | 9230       | 4.1    | 811       | 20  |
| 50  | 277 2274   | 109.2     | 722 7726    | 285 1545   | 113.2     | 714 8455    | 9271       | 4.0    | 772       | 10  |
| 55' | 9.277 3366 |           | 10.722 6634 | 9.285 2677 |           | 10.714 7323 | 10.0079311 | 4.0    | 9.9920690 | 5'  |
| 10  | 277 4457   | 109.2     | 722 5543    | 285 3809   | 113.2     | 714 6191    | 9352       | 4.0    | 668       | 60  |
| 20  | 277 5549   | 109.1     | 722 4451    | 285 4941   | 113.2     | 714 5059    | 9392       | 4.1    | 628       | 50  |
| 30  | 277 6640   | 109.0     | 722 3360    | 285 6073   | 113.1     | 714 3927    | 9433       | 4.1    | 587       | 40  |
| 40  | 277 7730   | 109.1     | 722 2270    | 285 7204   | 113.1     | 714 2796    | 9474       | 4.0    | 546       | 30  |
| 50  | 277 8821   | 109.1     | 722 1179    | 285 8335   | 113.1     | 714 1665    | 9514       | 4.1    | 506       | 20  |
| 56' | 9.277 9911 |           | 10.722 0089 | 9.285 9466 |           | 10.714 0534 | 10.0079555 | 4.1    | 9.9920445 | 4'  |
| 10  | 278 1001   | 108.9     | 721 8999    | 286 0596   | 113.0     | 713 9404    | 9556       | 4.1    | 465       | 50  |
| 20  | 278 2090   | 108.9     | 721 7910    | 286 1726   | 113.0     | 713 8274    | 9596       | 4.0    | 424       | 40  |
| 30  | 278 3179   | 108.9     | 721 6821    | 286 2856   | 113.0     | 713 7144    | 9636       | 4.1    | 383       | 30  |
| 40  | 278 4268   | 108.9     | 721 5732    | 286 3986   | 112.9     | 713 6014    | 9677       | 4.1    | 342       | 20  |
| 50  | 278 5357   | 108.8     | 721 4643    | 286 5115   | 112.9     | 713 4885    | 9717       | 4.1    | 301       | 10  |
| 57' | 9.278 6445 |           | 10.721 3555 | 9.286 6245 |           | 10.713 3755 | 10.0079799 | 4.1    | 9.9920201 | 3'  |
| 10  | 278 7533   | 108.8     | 721 2467    | 286 7373   | 112.8     | 713 2627    | 9840       | 4.1    | 260       | 50  |
| 20  | 278 8621   | 108.8     | 721 1379    | 286 8502   | 112.8     | 713 1498    | 9881       | 4.1    | 219       | 40  |
| 30  | 278 9709   | 108.8     | 721 0291    | 286 9630   | 112.8     | 713 0370    | 9922       | 4.1    | 178       | 30  |
| 40  | 279 0796   | 108.7     | 720 9204    | 287 0758   | 112.8     | 712 9242    | 9962       | 4.0    | 137       | 20  |
| 50  | 279 1883   | 108.7     | 720 8117    | 287 1886   | 112.8     | 712 8114    | 10.0080003 | 4.1    | 9.9919997 | 10' |
| 58' | 9.279 2970 |           | 10.720 7030 | 9.287 3014 |           | 10.712 6986 | 10.0080044 | 4.1    | 9.9919956 | 2'  |
| 10  | 279 4056   | 108.6     | 720 5944    | 287 4141   | 112.7     | 712 5859    | 0085       | 4.1    | 901       | 50  |
| 20  | 279 5142   | 108.6     | 720 4858    | 287 5268   | 112.7     | 712 4732    | 0125       | 4.1    | 860       | 40  |
| 30  | 279 6228   | 108.6     | 720 3772    | 287 6395   | 112.6     | 712 3605    | 0166       | 4.1    | 819       | 30  |
| 40  | 279 7314   | 108.5     | 720 2686    | 287 7521   | 112.6     | 712 2479    | 0207       | 4.1    | 778       | 20  |
| 50  | 279 8399   | 108.5     | 720 1601    | 287 8647   | 112.6     | 712 1353    | 0248       | 4.1    | 737       | 10  |
| 59' | 9.279 9484 |           | 10.720 0516 | 9.287 9773 |           | 10.712 0227 | 10.0080289 | 4.1    | 9.9919711 | 1'  |
| 10  | 280 0569   | 108.4     | 719 9431    | 288 0899   | 112.5     | 711 9101    | 0330       | 4.1    | 696       | 50  |
| 20  | 280 1653   | 108.4     | 719 8347    | 288 2024   | 112.5     | 711 7976    | 0371       | 4.1    | 655       | 40  |
| 30  | 280 2738   | 108.3     | 719 7262    | 288 3149   | 112.5     | 711 6851    | 0412       | 4.0    | 614       | 30  |
| 40  | 280 3821   | 108.3     | 719 6179    | 288 4274   | 112.4     | 711 5726    | 0452       | 4.1    | 573       | 20  |
| 50  | 280 4905   | 108.3     | 719 5095    | 288 5398   | 112.4     | 711 4602    | 0493       | 4.1    | 532       | 10  |
| 61' | 9.280 5988 |           | 10.719 4012 | 9.288 6523 |           | 10.711 3477 | 10.0080534 | 4.1    | 9.9919466 | 0'  |

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|  | co-sin. | diff. 1'' | sec. | co-tang. | diff. 1'' | tang. | co-sec. | d. 1'' | sin. |  |
|--|---------|-----------|------|----------|-----------|-------|---------|--------|------|--|
|--|---------|-----------|------|----------|-----------|-------|---------|--------|------|--|

|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |
|-----|------------|-----------|-------------|------------|-----------|-------------|-------------|--------|------------|
| 0'  | 9.280 5988 | 108.4     | 10.719 4012 | 9.288 6523 | 112.4     | 10.711 3477 | 10.008 0534 | 4.1    | 9.991 9466 |
| 10  | 280 7072   | 108.2     | 719 2928    | 288 7647   | 112.3     | 711 2353    | 0575        | 4.1    | 9425 50    |
| 20  | 280 8154   | 108.3     | 719 1846    | 288 8770   | 112.4     | 711 1230    | 0616        | 4.1    | 9384 40    |
| 30  | 280 9237   | 108.2     | 719 0763    | 288 9894   | 112.3     | 711 0106    | 0657        | 4.1    | 9343 30    |
| 40  | 281 0319   | 108.2     | 718 9681    | 289 1017   | 112.3     | 710 8983    | 0698        | 4.1    | 9302 20    |
| 50  | 281 1401   | 108.2     | 718 8599    | 289 2140   | 112.3     | 710 7860    | 0739        | 4.1    | 9261 10    |
| 1'  | 9.281 2483 | 108.1     | 10.718 7517 | 9.289 3263 | 112.2     | 10.710 6737 | 10.008 0780 | 4.1    | 9.991 9220 |
| 10  | 281 3564   | 108.1     | 718 6436    | 289 4385   | 112.2     | 710 5615    | 0821        | 4.1    | 9179 50    |
| 20  | 281 4645   | 108.1     | 718 5355    | 289 5507   | 112.2     | 710 4493    | 0862        | 4.1    | 9138 40    |
| 30  | 281 5726   | 108.1     | 718 4274    | 289 6629   | 112.2     | 710 3371    | 0903        | 4.1    | 9097 30    |
| 40  | 281 6806   | 108.0     | 718 3194    | 289 7750   | 112.2     | 710 2250    | 0944        | 4.1    | 9056 20    |
| 50  | 281 7887   | 108.1     | 718 2113    | 289 8872   | 112.2     | 710 1128    | 0985        | 4.1    | 9015 10    |
| 2'  | 9.281 8967 | 108.0     | 10.718 1033 | 9.289 9993 | 112.1     | 10.710 0007 | 10.008 1026 | 4.1    | 9.991 8974 |
| 10  | 282 0046   | 108.0     | 717 9954    | 290 1114   | 112.0     | 709 8886    | 1067        | 4.1    | 8933 50    |
| 20  | 282 1126   | 107.9     | 717 8874    | 290 2234   | 112.0     | 709 7766    | 1108        | 4.1    | 8892 40    |
| 30  | 282 2205   | 107.9     | 717 7795    | 290 3354   | 112.0     | 709 6646    | 1149        | 4.1    | 8851 30    |
| 40  | 282 3284   | 107.9     | 717 6716    | 290 4474   | 112.0     | 709 5526    | 1190        | 4.1    | 8810 20    |
| 50  | 282 4362   | 107.8     | 717 5638    | 290 5594   | 112.0     | 709 4406    | 1232        | 4.2    | 8768 10    |
| 3'  | 9.282 5441 | 107.9     | 10.717 4559 | 9.290 6713 | 111.9     | 10.709 3287 | 10.008 1273 | 4.1    | 9.991 8727 |
| 10  | 282 6519   | 107.8     | 717 3481    | 290 7832   | 111.9     | 709 2168    | 1314        | 4.1    | 8686 50    |
| 20  | 282 7596   | 107.8     | 717 2404    | 290 8951   | 111.9     | 709 1049    | 1355        | 4.1    | 8645 40    |
| 30  | 282 8674   | 107.8     | 717 1326    | 291 0070   | 111.9     | 708 9930    | 1396        | 4.1    | 8604 30    |
| 40  | 282 9751   | 107.7     | 717 0249    | 291 1188   | 111.8     | 708 8812    | 1437        | 4.1    | 8563 20    |
| 50  | 283 0828   | 107.7     | 716 9172    | 291 2306   | 111.8     | 708 7694    | 1478        | 4.2    | 8522 10    |
| 4'  | 9.283 1905 | 107.7     | 10.716 8097 | 9.291 3424 | 111.8     | 10.708 6576 | 10.008 1520 | 4.1    | 9.991 8480 |
| 10  | 283 2981   | 107.6     | 716 7019    | 291 4542   | 111.8     | 708 5458    | 1561        | 4.1    | 8439 50    |
| 20  | 283 4057   | 107.6     | 716 5943    | 291 5659   | 111.7     | 708 4341    | 1602        | 4.1    | 8398 40    |
| 30  | 283 5133   | 107.6     | 716 4867    | 291 6776   | 111.7     | 708 3224    | 1643        | 4.1    | 8357 30    |
| 40  | 283 6209   | 107.6     | 716 3791    | 291 7893   | 111.7     | 708 2107    | 1684        | 4.1    | 8316 20    |
| 50  | 283 7284   | 107.5     | 716 2716    | 291 9009   | 111.6     | 708 0991    | 1726        | 4.2    | 8274 10    |
| 5'  | 9.283 8359 | 107.5     | 10.716 1641 | 9.292 0126 | 111.6     | 10.707 9874 | 10.008 1767 | 4.1    | 9.991 8233 |
| 10  | 283 9433   | 107.5     | 716 0567    | 292 1242   | 111.5     | 707 8758    | 1808        | 4.1    | 8192 50    |
| 20  | 284 0508   | 107.5     | 715 9492    | 292 2357   | 111.5     | 707 7643    | 1849        | 4.1    | 8151 40    |
| 30  | 284 1582   | 107.4     | 715 8418    | 292 3473   | 111.6     | 707 6527    | 1891        | 4.2    | 8110 30    |
| 40  | 284 2656   | 107.4     | 715 7344    | 292 4588   | 111.5     | 707 5412    | 1932        | 4.1    | 8068 20    |
| 50  | 284 3730   | 107.4     | 715 6270    | 292 5703   | 111.5     | 707 4297    | 1973        | 4.1    | 8027 10    |
| 6'  | 9.284 4803 | 107.3     | 10.715 5197 | 9.292 6817 | 111.4     | 10.707 3183 | 10.008 2014 | 4.1    | 9.991 7986 |
| 10  | 284 5876   | 107.3     | 715 4124    | 292 7932   | 111.5     | 707 2068    | 2056        | 4.2    | 7944 50    |
| 20  | 284 6949   | 107.2     | 715 3051    | 292 9046   | 111.4     | 707 0954    | 2097        | 4.1    | 7903 40    |
| 30  | 284 8021   | 107.2     | 715 1977    | 293 0160   | 111.3     | 706 9840    | 2138        | 4.1    | 7862 30    |
| 40  | 284 9093   | 107.2     | 715 0907    | 293 1273   | 111.4     | 706 8727    | 2180        | 4.2    | 7820 20    |
| 50  | 285 0165   | 107.2     | 714 9835    | 293 2387   | 111.3     | 706 7613    | 2221        | 4.1    | 7779 10    |
| 7'  | 9.285 1237 | 107.1     | 10.714 8763 | 9.293 3500 | 111.2     | 10.706 6500 | 10.008 2263 | 4.1    | 9.991 7737 |
| 10  | 285 2308   | 107.2     | 714 7692    | 293 4612   | 111.3     | 706 5388    | 2304        | 4.1    | 7696 50    |
| 20  | 285 3380   | 107.0     | 714 6620    | 293 5725   | 111.2     | 706 4275    | 2345        | 4.1    | 7655 40    |
| 30  | 285 4450   | 107.1     | 714 5550    | 293 6837   | 111.2     | 706 3163    | 2387        | 4.2    | 7613 30    |
| 40  | 285 5521   | 107.0     | 714 4479    | 293 7949   | 111.2     | 706 2051    | 2428        | 4.1    | 7572 20    |
| 50  | 285 6591   | 107.0     | 714 3409    | 293 9061   | 111.1     | 706 0939    | 2470        | 4.1    | 7530 10    |
| 8'  | 9.285 7661 | 107.0     | 10.714 2339 | 9.294 0172 | 111.2     | 10.705 9828 | 10.008 2511 | 4.1    | 9.991 7489 |
| 10  | 285 8731   | 107.0     | 714 1269    | 294 1284   | 111.0     | 705 8716    | 2552        | 4.1    | 7448 50    |
| 20  | 285 9801   | 106.9     | 714 0199    | 294 2394   | 111.1     | 705 7606    | 2594        | 4.1    | 7406 40    |
| 30  | 286 0870   | 106.9     | 713 9130    | 294 3505   | 111.1     | 705 6495    | 2635        | 4.1    | 7365 30    |
| 40  | 286 1939   | 106.8     | 713 8061    | 294 4616   | 111.0     | 705 5384    | 2677        | 4.2    | 7323 20    |
| 50  | 286 3007   | 106.9     | 713 6993    | 294 5726   | 111.0     | 705 4274    | 2718        | 4.1    | 7282 10    |
| 9'  | 9.286 4076 | 106.8     | 10.713 5924 | 9.294 6836 | 110.9     | 10.705 3164 | 10.008 2760 | 4.1    | 9.991 7240 |
| 10  | 286 5144   | 106.8     | 713 4856    | 294 7945   | 111.0     | 705 2055    | 2801        | 4.1    | 7199 50    |
| 20  | 286 6212   | 106.7     | 713 3788    | 294 9055   | 110.9     | 705 0945    | 2843        | 4.1    | 7157 40    |
| 30  | 286 7279   | 106.8     | 713 2721    | 295 0164   | 110.9     | 704 9836    | 2884        | 4.1    | 7116 30    |
| 40  | 286 8347   | 106.7     | 713 1653    | 295 1273   | 110.8     | 704 8727    | 2926        | 4.2    | 7074 20    |
| 50  | 286 9414   | 106.6     | 713 0586    | 295 2381   | 110.8     | 704 7619    | 2967        | 4.1    | 7033 10    |
| 10' | 9.287 0480 | 106.6     | 10.712 9520 | 9.295 3489 | 110.8     | 10.704 6511 | 10.008 3009 | 4.2    | 9.991 6991 |
|     | co-sin.    | diff. 1'' | sec.        | co-tang.   | diff. 1'' | tang.       | co-sec.     | d. 1'' | sin.       |

LOGARITHMIC SINES, TANGENTS, &C.

225

| 110° |            |         |             |            |         |             |            |       |           | 168° |  |  |  |  |  |  |  |  |  |
|------|------------|---------|-------------|------------|---------|-------------|------------|-------|-----------|------|--|--|--|--|--|--|--|--|--|
|      | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.       | d. 1" | co-sin.   |      |  |  |  |  |  |  |  |  |  |
| 10'  | 9.287 0480 | 106.7   | 10.712 9520 | 9.295 3489 | 110.8   | 10.704 6511 | 10.0083009 | 4.2   | 9.9916991 | 50'  |  |  |  |  |  |  |  |  |  |
| 20   | 287 1547   | 106.6   | 712 8453    | 295 4597   | 110.8   | 704 5403    | 3051       | 4.1   | 6049      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 287 2613   | 106.6   | 712 7387    | 295 5705   | 110.8   | 704 4295    | 3092       | 4.2   | 6008      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 287 3679   | 106.6   | 712 6321    | 295 6813   | 110.8   | 704 3187    | 3134       | 4.1   | 6866      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 287 4745   | 106.5   | 712 5255    | 295 7920   | 110.7   | 704 2080    | 3175       | 4.2   | 6825      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 287 5810   | 106.5   | 712 4190    | 295 9027   | 110.7   | 704 0973    | 3217       | 4.2   | 6783      | 10   |  |  |  |  |  |  |  |  |  |
| 11'  | 9.287 6875 | 106.5   | 10.712 3125 | 9.296 0134 | 110.7   | 10.703 9866 | 10.0083259 | 4.1   | 9.9916741 | 49'  |  |  |  |  |  |  |  |  |  |
| 20   | 287 7940   | 106.5   | 712 2060    | 296 1240   | 110.6   | 703 8760    | 3300       | 4.1   | 6700      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 287 9005   | 106.4   | 712 0995    | 296 2347   | 110.7   | 703 7653    | 3342       | 4.2   | 6658      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 288 0070   | 106.4   | 711 9931    | 296 3453   | 110.6   | 703 6547    | 3383       | 4.1   | 6617      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 288 1135   | 106.4   | 711 8867    | 296 4558   | 110.5   | 703 5442    | 3425       | 4.2   | 6575      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 288 2200   | 106.3   | 711 7803    | 296 5664   | 110.6   | 703 4336    | 3467       | 4.1   | 6533      | 10   |  |  |  |  |  |  |  |  |  |
| 12'  | 9.288 3300 | 106.4   | 10.711 6740 | 9.296 6769 | 110.5   | 10.703 3231 | 10.0083508 | 4.2   | 9.9916492 | 48'  |  |  |  |  |  |  |  |  |  |
| 20   | 288 4364   | 106.3   | 711 5676    | 296 7874   | 110.5   | 703 2126    | 3550       | 4.2   | 6450      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 288 5429   | 106.2   | 711 4613    | 296 8978   | 110.4   | 703 1022    | 3592       | 4.2   | 6408      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 288 6493   | 106.2   | 711 3549    | 297 0083   | 110.5   | 702 9917    | 3634       | 4.2   | 6366      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 288 7557   | 106.2   | 711 2488    | 297 1187   | 110.4   | 702 8813    | 3675       | 4.1   | 6325      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 288 8621   | 106.2   | 711 1426    | 297 2291   | 110.4   | 702 7709    | 3717       | 4.2   | 6283      | 10   |  |  |  |  |  |  |  |  |  |
| 13'  | 9.288 9636 | 106.2   | 10.711 0364 | 9.297 3395 | 110.4   | 10.702 6605 | 10.0083759 | 4.2   | 9.9916241 | 47'  |  |  |  |  |  |  |  |  |  |
| 20   | 289 0697   | 106.1   | 710 9303    | 297 4498   | 110.3   | 702 5502    | 3801       | 4.2   | 6199      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 289 1759   | 106.2   | 710 8241    | 297 5601   | 110.3   | 702 4399    | 3842       | 4.1   | 6158      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 289 2820   | 106.1   | 710 7180    | 297 6704   | 110.3   | 702 3296    | 3884       | 4.2   | 6116      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 289 3881   | 106.1   | 710 6119    | 297 7806   | 110.2   | 702 2194    | 3926       | 4.2   | 6074      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 289 4941   | 106.0   | 710 5059    | 297 8909   | 110.3   | 702 1091    | 3968       | 4.2   | 6032      | 10   |  |  |  |  |  |  |  |  |  |
| 14'  | 9.289 6011 | 106.0   | 10.710 3999 | 9.298 0011 | 110.2   | 10.701 9989 | 10.0084010 | 4.2   | 9.9915990 | 46'  |  |  |  |  |  |  |  |  |  |
| 20   | 289 7071   | 106.0   | 710 2939    | 298 1113   | 110.2   | 701 8887    | 4051       | 4.2   | 5949      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 289 8131   | 106.0   | 710 1879    | 298 2214   | 110.1   | 701 7786    | 4093       | 4.2   | 5907      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 289 9191   | 106.0   | 710 0819    | 298 3316   | 110.2   | 701 6684    | 4135       | 4.2   | 5865      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 290 0250   | 105.9   | 709 9760    | 298 4417   | 110.1   | 701 5583    | 4177       | 4.2   | 5823      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 290 1309   | 105.9   | 709 8701    | 298 5517   | 110.0   | 701 4483    | 4219       | 4.2   | 5781      | 10   |  |  |  |  |  |  |  |  |  |
| 15'  | 9.290 2337 | 105.8   | 10.709 7643 | 9.298 6618 | 110.1   | 10.701 3382 | 10.0084261 | 4.1   | 9.9915739 | 45'  |  |  |  |  |  |  |  |  |  |
| 20   | 290 3416   | 105.8   | 709 6584    | 298 7718   | 110.0   | 701 2282    | 4302       | 4.1   | 5698      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 290 4474   | 105.8   | 709 5526    | 298 8818   | 110.0   | 701 1182    | 4344       | 4.2   | 5656      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 290 5532   | 105.7   | 709 4468    | 298 9918   | 110.0   | 701 0082    | 4386       | 4.2   | 5614      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 290 6590   | 105.7   | 709 3411    | 299 1017   | 109.9   | 700 8983    | 4428       | 4.2   | 5572      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 290 7648   | 105.7   | 709 2354    | 299 2117   | 110.0   | 700 7883    | 4470       | 4.2   | 5530      | 10   |  |  |  |  |  |  |  |  |  |
| 16'  | 9.290 8724 | 105.8   | 10.709 1296 | 9.299 3216 | 109.9   | 10.700 6784 | 10.0084512 | 4.2   | 9.9915488 | 44'  |  |  |  |  |  |  |  |  |  |
| 20   | 290 9730   | 105.7   | 709 0240    | 299 4314   | 109.8   | 700 5686    | 4554       | 4.2   | 5446      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 291 0817   | 105.6   | 708 9183    | 299 5413   | 109.9   | 700 4587    | 4596       | 4.2   | 5404      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 291 1873   | 105.6   | 708 8127    | 299 6511   | 109.8   | 700 3489    | 4638       | 4.2   | 5362      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 291 2929   | 105.6   | 708 7071    | 299 7609   | 109.8   | 700 2391    | 4680       | 4.2   | 5320      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 291 3985   | 105.5   | 708 6015    | 299 8707   | 109.7   | 700 1293    | 4722       | 4.2   | 5278      | 10   |  |  |  |  |  |  |  |  |  |
| 17'  | 9.291 5040 | 105.5   | 10.708 4960 | 9.299 9804 | 109.7   | 10.700 0196 | 10.0084764 | 4.2   | 9.9915236 | 43'  |  |  |  |  |  |  |  |  |  |
| 20   | 291 6095   | 105.5   | 708 3905    | 300 0901   | 109.7   | 699 9099    | 4806       | 4.2   | 5194      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 291 7150   | 105.5   | 708 2850    | 300 1998   | 109.7   | 699 8002    | 4848       | 4.2   | 5152      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 291 8205   | 105.4   | 708 1795    | 300 3095   | 109.7   | 699 6905    | 4890       | 4.2   | 5110      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 291 9260   | 105.4   | 708 0741    | 300 4191   | 109.6   | 699 5809    | 4932       | 4.2   | 5068      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 292 0313   | 105.4   | 707 9687    | 300 5288   | 109.7   | 699 4712    | 4974       | 4.2   | 5026      | 10   |  |  |  |  |  |  |  |  |  |
| 18'  | 9.292 1375 | 105.4   | 10.707 8633 | 9.300 6383 | 109.5   | 10.699 3617 | 10.0085016 | 4.2   | 9.9914984 | 42'  |  |  |  |  |  |  |  |  |  |
| 20   | 292 2421   | 105.3   | 707 7579    | 300 7479   | 109.6   | 699 2521    | 5058       | 4.2   | 4942      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 292 3474   | 105.3   | 707 6526    | 300 8574   | 109.5   | 699 1426    | 5100       | 4.2   | 4900      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 292 4527   | 105.3   | 707 5473    | 300 9670   | 109.6   | 699 0330    | 5142       | 4.2   | 4858      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 292 5580   | 105.2   | 707 4420    | 301 0764   | 109.4   | 698 9236    | 5185       | 4.3   | 4815      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 292 6632   | 105.3   | 707 3368    | 301 1859   | 109.5   | 698 8141    | 5227       | 4.2   | 4773      | 10   |  |  |  |  |  |  |  |  |  |
| 19'  | 9.292 7635 | 105.2   | 10.707 2315 | 9.301 2954 | 109.5   | 10.698 7046 | 10.0085269 | 4.2   | 9.9914731 | 41'  |  |  |  |  |  |  |  |  |  |
| 20   | 292 8637   | 105.2   | 707 1263    | 301 4048   | 109.4   | 698 5952    | 5311       | 4.2   | 4689      | 50   |  |  |  |  |  |  |  |  |  |
| 30   | 292 9638   | 105.1   | 707 0212    | 301 5142   | 109.4   | 698 4858    | 5353       | 4.2   | 4647      | 40   |  |  |  |  |  |  |  |  |  |
| 40   | 293 0640   | 105.1   | 706 9160    | 301 6235   | 109.3   | 698 3765    | 5395       | 4.2   | 4605      | 30   |  |  |  |  |  |  |  |  |  |
| 50   | 293 1641   | 105.1   | 706 8109    | 301 7328   | 109.3   | 698 2672    | 5437       | 4.3   | 4563      | 20   |  |  |  |  |  |  |  |  |  |
| 60   | 293 2642   | 105.1   | 706 7058    | 301 8422   | 109.4   | 698 1578    | 5480       | 4.2   | 4520      | 10   |  |  |  |  |  |  |  |  |  |
| 20'  | 9.293 3693 | 105.1   | 10.706 6007 | 9.301 9514 | 109.2   | 10.698 0486 | 10.0085522 | 4.2   | 9.9914478 | 40'  |  |  |  |  |  |  |  |  |  |

101°

78°



11°

168°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
| 20' | 9.293 3993 | 105.0    | 10.706 6007 | 9.301 9514 | 109.3    | 10.698 0486 | 10.0085522 | 4.2   | 9.9914478 |
| 10  | 293 5043   | 105.0    | 706 4957    | 302 0607   | 109.2    | 697 9393    | 5564       | 4.2   | 4436 50   |
| 20  | 293 6093   | 105.0    | 706 3907    | 302 1699   | 109.2    | 697 8301    | 5606       | 4.2   | 4394 40   |
| 30  | 293 7143   | 105.0    | 706 2857    | 302 2791   | 109.2    | 697 7209    | 5648       | 4.2   | 4352 30   |
| 40  | 293 8193   | 104.9    | 706 1807    | 302 3883   | 109.2    | 697 6117    | 5691       | 4.2   | 4309 20   |
| 50  | 293 9242   | 104.9    | 706 0758    | 302 4975   | 109.1    | 697 5025    | 5733       | 4.2   | 4267 10   |
| 21' | 9.294 0291 | 104.9    | 10.705 9709 | 9.302 6066 | 109.1    | 10.697 3934 | 10.0085775 | 4.2   | 9.9914225 |
| 10  | 294 1340   | 104.8    | 705 8660    | 302 7157   | 109.1    | 697 2843    | 5817       | 4.3   | 4183 50   |
| 20  | 294 2388   | 104.9    | 705 7612    | 302 8248   | 109.1    | 697 1752    | 5860       | 4.2   | 4140 40   |
| 30  | 294 3437   | 104.8    | 705 6563    | 302 9339   | 109.0    | 697 0661    | 5902       | 4.2   | 4098 30   |
| 40  | 294 4485   | 104.7    | 705 5515    | 303 0429   | 109.0    | 696 9571    | 5944       | 4.2   | 4056 20   |
| 50  | 294 5532   | 104.8    | 705 4468    | 303 1519   | 109.0    | 696 8481    | 5987       | 4.2   | 4013 10   |
| 22' | 9.294 6580 | 104.7    | 10.705 3420 | 9.303 2609 | 109.0    | 10.696 7391 | 10.0086029 | 4.2   | 9.9913971 |
| 10  | 294 7627   | 104.7    | 705 2373    | 303 3699   | 108.9    | 696 6301    | 6071       | 4.3   | 3929 50   |
| 20  | 294 8674   | 104.7    | 705 1326    | 303 4788   | 108.9    | 696 5212    | 6114       | 4.2   | 3886 40   |
| 30  | 294 9721   | 104.6    | 705 0279    | 303 5877   | 108.9    | 696 4123    | 6156       | 4.2   | 3844 30   |
| 40  | 295 0767   | 104.7    | 704 9233    | 303 6966   | 108.8    | 696 3034    | 6198       | 4.2   | 3802 20   |
| 50  | 295 1814   | 104.5    | 704 8186    | 303 8054   | 108.9    | 696 1946    | 6241       | 4.2   | 3759 10   |
| 23' | 9.295 2859 | 104.5    | 10.704 7141 | 9.303 9143 | 108.8    | 10.696 0857 | 10.0086283 | 4.2   | 9.9913717 |
| 10  | 295 3905   | 104.5    | 704 6095    | 304 0231   | 108.8    | 695 9769    | 6326       | 4.2   | 3674 50   |
| 20  | 295 4950   | 104.6    | 704 5050    | 304 1318   | 108.8    | 695 8682    | 6368       | 4.2   | 3632 40   |
| 30  | 295 5996   | 104.5    | 704 4004    | 304 2406   | 108.8    | 695 7594    | 6410       | 4.2   | 3590 30   |
| 40  | 295 7041   | 104.4    | 704 2959    | 304 3493   | 108.7    | 695 6507    | 6453       | 4.2   | 3547 20   |
| 50  | 295 8085   | 104.4    | 704 1915    | 304 4580   | 108.7    | 695 5420    | 6495       | 4.2   | 3505 10   |
| 24' | 9.295 9129 | 104.5    | 10.704 0871 | 9.304 5667 | 108.7    | 10.695 4333 | 10.0086538 | 4.2   | 9.9913462 |
| 10  | 296 0174   | 104.3    | 703 9826    | 304 6754   | 108.6    | 695 3246    | 6580       | 4.2   | 3420 50   |
| 20  | 296 1217   | 104.4    | 703 8783    | 304 7840   | 108.6    | 695 2160    | 6623       | 4.2   | 3377 40   |
| 30  | 296 2261   | 104.3    | 703 7739    | 304 8926   | 108.6    | 695 1074    | 6665       | 4.2   | 3335 30   |
| 40  | 296 3304   | 104.3    | 703 6696    | 305 0012   | 108.5    | 694 9988    | 6708       | 4.2   | 3292 20   |
| 50  | 296 4347   | 104.3    | 703 5653    | 305 1097   | 108.6    | 694 8903    | 6750       | 4.2   | 3250 10   |
| 25' | 9.296 5390 | 104.3    | 10.703 4610 | 9.305 2183 | 108.5    | 10.694 7817 | 10.0086793 | 4.2   | 9.9913207 |
| 10  | 296 6433   | 104.2    | 703 3567    | 305 3268   | 108.5    | 694 6732    | 6835       | 4.2   | 3167 50   |
| 20  | 296 7475   | 104.2    | 703 2525    | 305 4353   | 108.4    | 694 5647    | 6878       | 4.2   | 3124 40   |
| 30  | 296 8517   | 104.2    | 703 1483    | 305 5437   | 108.4    | 694 4563    | 6920       | 4.2   | 3080 30   |
| 40  | 296 9559   | 104.1    | 703 0441    | 305 6521   | 108.4    | 694 3479    | 6963       | 4.2   | 3037 20   |
| 50  | 297 0600   | 104.1    | 702 9400    | 305 7605   | 108.4    | 694 2395    | 7005       | 4.2   | 2995 10   |
| 26' | 9.297 1641 | 104.1    | 10.702 8359 | 9.305 8689 | 108.4    | 10.694 1311 | 10.0087048 | 4.2   | 9.9912952 |
| 10  | 297 2682   | 104.1    | 702 7318    | 305 9773   | 108.3    | 694 0227    | 7090       | 4.2   | 2910 50   |
| 20  | 297 3723   | 104.0    | 702 6277    | 306 0856   | 108.3    | 693 9144    | 7133       | 4.2   | 2867 40   |
| 30  | 297 4763   | 104.0    | 702 5237    | 306 1939   | 108.3    | 693 8061    | 7176       | 4.2   | 2824 30   |
| 40  | 297 5804   | 104.0    | 702 4196    | 306 3022   | 108.3    | 693 6978    | 7218       | 4.2   | 2782 20   |
| 50  | 297 6844   | 103.9    | 702 3156    | 306 4105   | 108.2    | 693 5895    | 7261       | 4.2   | 2739 10   |
| 27' | 9.297 7883 | 103.9    | 10.702 2117 | 9.306 5187 | 108.2    | 10.693 4813 | 10.0087304 | 4.2   | 9.9912696 |
| 10  | 297 8923   | 103.9    | 702 1077    | 306 6269   | 108.2    | 693 3731    | 7346       | 4.2   | 2654 50   |
| 20  | 297 9962   | 103.9    | 702 0038    | 306 7351   | 108.2    | 693 2649    | 7389       | 4.2   | 2611 40   |
| 30  | 298 1001   | 103.8    | 701 8999    | 306 8432   | 108.1    | 693 1568    | 7432       | 4.2   | 2568 30   |
| 40  | 298 2039   | 103.8    | 701 7961    | 306 9514   | 108.1    | 693 0486    | 7474       | 4.2   | 2526 20   |
| 50  | 298 3078   | 103.8    | 701 6922    | 307 0595   | 108.0    | 692 9405    | 7517       | 4.2   | 2483 10   |
| 28' | 9.298 4116 | 103.8    | 10.701 5884 | 9.307 1675 | 108.1    | 10.692 8325 | 10.0087560 | 4.2   | 9.9912440 |
| 10  | 298 5154   | 103.7    | 701 4846    | 307 2756   | 108.0    | 692 7244    | 7602       | 4.2   | 2398 50   |
| 20  | 298 6191   | 103.8    | 701 3809    | 307 3836   | 108.0    | 692 6164    | 7645       | 4.2   | 2355 40   |
| 30  | 298 7229   | 103.7    | 701 2771    | 307 4916   | 108.0    | 692 5084    | 7688       | 4.2   | 2312 30   |
| 40  | 298 8266   | 103.7    | 701 1734    | 307 5996   | 108.0    | 692 4004    | 7731       | 4.2   | 2269 20   |
| 50  | 298 9303   | 103.6    | 701 0697    | 307 7076   | 107.9    | 692 2924    | 7773       | 4.2   | 2227 10   |
| 29' | 9.299 0339 | 103.6    | 10.700 9661 | 9.307 8155 | 107.9    | 10.692 1845 | 10.0087816 | 4.2   | 9.9912184 |
| 10  | 299 1375   | 103.6    | 700 8625    | 307 9234   | 107.9    | 692 0766    | 7859       | 4.2   | 2141 50   |
| 20  | 299 2411   | 103.6    | 700 7589    | 308 0313   | 107.9    | 691 9687    | 7902       | 4.2   | 2098 40   |
| 30  | 299 3447   | 103.6    | 700 6553    | 308 1392   | 107.8    | 691 8608    | 7944       | 4.2   | 2056 30   |
| 40  | 299 4483   | 103.5    | 700 5517    | 308 2470   | 107.8    | 691 7530    | 7987       | 4.2   | 2013 20   |
| 50  | 299 5518   | 103.5    | 700 4482    | 308 3548   | 107.8    | 691 6452    | 8030       | 4.2   | 1970 10   |
| 30' | 9.299 6553 | 103.5    | 10.700 3447 | 9.308 4626 | 107.8    | 10.691 5374 | 10.0088073 | 4.2   | 9.9911927 |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d.1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|

11°

168°

|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d. 1" | co-sin.    |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|------------|
| 30' | 9.299 6553 | 103.5    | 10.700 3447 | 9.308 4626 | 107.8    | 10.691 5374 | 10.0088073 | 4.3   | 9.991 1927 |
| 10  | 299 7588   | 103.4    | 700 2412    | 308 5704   | 107.7    | 691 4296    | 8116       | 4.3   | 1884 50    |
| 20  | 299 8622   | 103.5    | 700 1378    | 308 6781   | 107.7    | 691 3219    | 8159       | 4.2   | 1841 40    |
| 30  | 299 9657   | 103.5    | 700 0343    | 308 7858   | 107.7    | 691 2142    | 8201       | 4.3   | 1799 30    |
| 40  | 300 0691   | 103.3    | 699 9309    | 308 8935   | 107.7    | 691 1065    | 8244       | 4.3   | 1756 20    |
| 50  | 300 1724   | 103.4    | 699 8276    | 309 0012   | 107.7    | 690 9988    | 8287       | 4.3   | 1713 10    |
| 31' | 9.300 2758 | 103.4    | 10.699 7242 | 9.309 1088 | 107.6    | 10.690 8912 | 10.0088330 | 4.3   | 9.991 1670 |
| 10  | 300 3791   | 103.3    | 699 6209    | 309 2164   | 107.6    | 690 7836    | 8373       | 4.3   | 1627 50    |
| 20  | 300 4824   | 103.3    | 699 5176    | 309 3240   | 107.6    | 690 6760    | 8416       | 4.3   | 1584 40    |
| 30  | 300 5857   | 103.2    | 699 4143    | 309 4316   | 107.5    | 690 5684    | 8459       | 4.3   | 1541 30    |
| 40  | 300 6889   | 103.2    | 699 3111    | 309 5391   | 107.5    | 690 4609    | 8502       | 4.3   | 1498 20    |
| 50  | 300 7921   | 103.2    | 699 2079    | 309 6466   | 107.5    | 690 3534    | 8545       | 4.3   | 1455 10    |
| 32' | 9.300 8953 | 103.2    | 10.699 1047 | 9.309 7541 | 107.5    | 10.690 2459 | 10.0088588 | 4.3   | 9.991 1412 |
| 10  | 300 9985   | 103.2    | 699 0015    | 309 8616   | 107.5    | 690 1384    | 8631       | 4.3   | 1369 50    |
| 20  | 301 1017   | 103.1    | 698 8983    | 309 9690   | 107.4    | 690 0310    | 8674       | 4.3   | 1326 40    |
| 30  | 301 2048   | 103.1    | 698 7952    | 310 0764   | 107.4    | 689 9236    | 8717       | 4.3   | 1283 30    |
| 40  | 301 3079   | 103.0    | 698 6921    | 310 1838   | 107.4    | 689 8162    | 8760       | 4.3   | 1240 20    |
| 50  | 301 4109   | 103.1    | 698 5891    | 310 2912   | 107.4    | 689 7088    | 8803       | 4.3   | 1197 10    |
| 33' | 9.301 5140 | 103.0    | 10.698 4860 | 9.310 3985 | 107.3    | 10.689 6015 | 10.0088846 | 4.3   | 9.991 1154 |
| 10  | 301 6170   | 103.0    | 698 3830    | 310 5059   | 107.4    | 689 4941    | 8889       | 4.3   | 1111 50    |
| 20  | 301 7200   | 102.9    | 698 2800    | 310 6133   | 107.3    | 689 3868    | 8932       | 4.3   | 1068 40    |
| 30  | 301 8229   | 102.9    | 698 1771    | 310 7207   | 107.2    | 689 2796    | 8975       | 4.3   | 1025 30    |
| 40  | 301 9259   | 103.0    | 698 0741    | 310 8277   | 107.3    | 689 1723    | 9018       | 4.3   | 0982 20    |
| 50  | 302 0288   | 102.9    | 697 9712    | 310 9349   | 107.2    | 689 0651    | 9061       | 4.3   | 0939 10    |
| 34' | 9.302 1317 | 102.9    | 10.697 8683 | 9.311 0421 | 107.2    | 10.688 9579 | 10.0089104 | 4.3   | 9.991 0896 |
| 10  | 302 2346   | 102.8    | 697 7654    | 311 1493   | 107.2    | 688 8507    | 9147       | 4.3   | 0853 50    |
| 20  | 302 3374   | 102.8    | 697 6626    | 311 2564   | 107.1    | 688 7436    | 9190       | 4.3   | 0810 40    |
| 30  | 302 4402   | 102.8    | 697 5598    | 311 3635   | 107.1    | 688 6365    | 9233       | 4.4   | 0767 30    |
| 40  | 302 5430   | 102.8    | 697 4570    | 311 4706   | 107.1    | 688 5294    | 9277       | 4.3   | 0723 20    |
| 50  | 302 6458   | 102.8    | 697 3542    | 311 5777   | 107.1    | 688 4223    | 9320       | 4.3   | 0680 10    |
| 35' | 9.302 7485 | 102.7    | 10.697 2515 | 9.311 6848 | 107.1    | 10.688 3152 | 10.0089363 | 4.3   | 9.991 0637 |
| 10  | 302 8512   | 102.7    | 697 1488    | 311 7918   | 107.0    | 688 2082    | 9406       | 4.3   | 0594 50    |
| 20  | 302 9539   | 102.7    | 697 0461    | 311 8988   | 107.0    | 688 1012    | 9449       | 4.3   | 0551 40    |
| 30  | 303 0566   | 102.7    | 696 9434    | 312 0058   | 107.0    | 687 9942    | 9492       | 4.4   | 0508 30    |
| 40  | 303 1592   | 102.6    | 696 8408    | 312 1127   | 106.9    | 687 8873    | 9536       | 4.4   | 0464 20    |
| 50  | 303 2618   | 102.6    | 696 7382    | 312 2197   | 107.0    | 687 7803    | 9579       | 4.3   | 0421 10    |
| 36' | 9.303 3644 | 102.6    | 10.696 6356 | 9.312 3260 | 106.9    | 10.687 6734 | 10.0089622 | 4.3   | 9.991 0378 |
| 10  | 303 4669   | 102.5    | 696 5331    | 312 4335   | 106.8    | 687 5665    | 9665       | 4.3   | 0335 50    |
| 20  | 303 5695   | 102.5    | 696 4305    | 312 5403   | 106.8    | 687 4597    | 9708       | 4.4   | 0292 40    |
| 30  | 303 6720   | 102.5    | 696 3280    | 312 6472   | 106.9    | 687 3528    | 9752       | 4.4   | 0248 30    |
| 40  | 303 7745   | 102.5    | 696 2255    | 312 7540   | 106.8    | 687 2460    | 9795       | 4.3   | 0205 20    |
| 50  | 303 8769   | 102.4    | 696 1231    | 312 8608   | 106.8    | 687 1392    | 9838       | 4.3   | 0162 10    |
| 37' | 9.303 9794 | 102.5    | 10.696 0206 | 9.312 9675 | 106.7    | 10.687 0325 | 10.0089881 | 4.4   | 9.991 0119 |
| 10  | 304 0818   | 102.4    | 695 9182    | 313 0743   | 106.8    | 686 9257    | 9925       | 4.4   | 0075 50    |
| 20  | 304 1842   | 102.4    | 695 8158    | 313 1810   | 106.7    | 686 8190    | 10.0089968 | 4.3   | 9.991 0032 |
| 30  | 304 2865   | 102.3    | 695 7135    | 313 2877   | 106.7    | 686 7123    | 10.0090011 | 4.4   | 9.9909989  |
| 40  | 304 3889   | 102.4    | 695 6111    | 313 3943   | 106.6    | 686 6057    | 0055       | 4.3   | 9945 20    |
| 50  | 304 4912   | 102.3    | 695 5088    | 313 5010   | 106.7    | 686 4990    | 0098       | 4.3   | 9902 10    |
| 38' | 9.304 5934 | 102.3    | 10.695 4066 | 9.313 6076 | 106.6    | 10.686 3924 | 10.0090141 | 4.4   | 9.9909859  |
| 10  | 304 6957   | 102.2    | 695 3043    | 313 7142   | 106.5    | 686 2858    | 0185       | 4.3   | 9815 50    |
| 20  | 304 7979   | 102.2    | 695 2021    | 313 8207   | 106.5    | 686 1793    | 0228       | 4.3   | 9772 40    |
| 30  | 304 9001   | 102.2    | 695 0999    | 313 9273   | 106.5    | 686 0727    | 0271       | 4.4   | 9729 30    |
| 40  | 305 0023   | 102.2    | 694 9977    | 314 0338   | 106.5    | 685 9662    | 0315       | 4.3   | 9685 20    |
| 50  | 305 1045   | 102.1    | 694 8955    | 314 1403   | 106.5    | 685 8597    | 0358       | 4.4   | 9642 10    |
| 39' | 9.305 2066 | 102.1    | 10.694 7934 | 9.314 2468 | 106.5    | 10.685 7532 | 10.0090402 | 4.3   | 9.9909598  |
| 10  | 305 3087   | 102.1    | 694 6913    | 314 3532   | 106.4    | 685 6468    | 0445       | 4.3   | 9555 50    |
| 20  | 305 4108   | 102.1    | 694 5892    | 314 4597   | 106.4    | 685 5403    | 0488       | 4.4   | 9512 40    |
| 30  | 305 5129   | 102.0    | 694 4871    | 314 5661   | 106.3    | 685 4339    | 0532       | 4.3   | 9468 30    |
| 40  | 305 6149   | 102.0    | 694 3851    | 314 6724   | 106.4    | 685 3276    | 0575       | 4.3   | 9425 20    |
| 50  | 305 7169   | 102.0    | 694 2831    | 314 7788   | 106.3    | 685 2212    | 0619       | 4.4   | 9381 10    |
| 40' | 9.305 8189 | 102.0    | 10.694 1811 | 9.314 8851 | 106.3    | 10.685 1149 | 10.0090662 | 4.3   | 9.9909338  |

101°

78°

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|



|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d. 1" | co-sin.   |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
| 40' | 9.305 8189 | 102.0    | 10.694 1811 | 9.314 8851 | 106.3    | 10.685 1149 | 10.0090662 | 4.4   | 9.9909338 |
| 10  | 305 9209   | 101.9    | 694 0791    | 314 9914   | 106.3    | 685 0086    | 0706       | 4.3   | 9294 50   |
| 20  | 306 0228   | 101.9    | 693 9772    | 315 0977   | 106.3    | 684 9023    | 0749       | 4.4   | 9251 50   |
| 30  | 306 1247   | 101.9    | 693 8753    | 315 2040   | 106.2    | 684 7960    | 0793       | 4.3   | 9207 30   |
| 40  | 306 2266   | 101.8    | 693 7734    | 315 3102   | 106.2    | 684 6898    | 0836       | 4.4   | 9164 20   |
| 50  | 306 3284   | 101.8    | 693 6716    | 315 4164   | 106.2    | 684 5836    | 0880       | 4.4   | 9120 10   |
| 41' | 9.306 4303 | 101.9    | 10.693 5697 | 9.315 5226 | 106.2    | 10.684 4774 | 10.0090923 | 4.4   | 9.9909077 |
| 10  | 306 5321   | 101.8    | 693 4679    | 315 6288   | 106.2    | 684 3712    | 0967       | 4.3   | 9033 50   |
| 20  | 306 6339   | 101.8    | 693 3661    | 315 7349   | 106.1    | 684 2651    | 1010       | 4.4   | 8990 40   |
| 30  | 306 7356   | 101.7    | 693 2644    | 315 8410   | 106.1    | 684 1590    | 1054       | 4.4   | 8946 30   |
| 40  | 306 8373   | 101.7    | 693 1627    | 315 9471   | 106.1    | 684 0529    | 1098       | 4.4   | 8902 20   |
| 50  | 306 9391   | 101.6    | 693 0609    | 316 0532   | 106.0    | 683 9468    | 1141       | 4.3   | 8859 10   |
| 42' | 9.307 0407 | 101.7    | 10.692 9593 | 9.316 1592 | 106.0    | 10.683 8408 | 10.0091185 | 4.3   | 9.9908815 |
| 10  | 307 1424   | 101.6    | 692 8576    | 316 2652   | 106.0    | 683 7348    | 1228       | 4.4   | 8772 50   |
| 20  | 307 2440   | 101.6    | 692 7560    | 316 3712   | 106.0    | 683 6288    | 1272       | 4.4   | 8728 40   |
| 30  | 307 3456   | 101.6    | 692 6544    | 316 4772   | 106.0    | 683 5228    | 1316       | 4.3   | 8684 30   |
| 40  | 307 4472   | 101.6    | 692 5528    | 316 5832   | 105.9    | 683 4168    | 1359       | 4.4   | 8641 20   |
| 50  | 307 5488   | 101.5    | 692 4512    | 316 6891   | 105.9    | 683 3109    | 1403       | 4.4   | 8597 10   |
| 43' | 9.307 6503 | 101.5    | 10.692 3497 | 9.316 7950 | 105.9    | 10.683 2050 | 10.0091447 | 4.3   | 9.9908553 |
| 10  | 307 7518   | 101.5    | 692 2482    | 316 9009   | 105.8    | 683 0991    | 1490       | 4.4   | 8510 50   |
| 20  | 307 8533   | 101.5    | 692 1467    | 317 0067   | 105.8    | 682 9933    | 1534       | 4.4   | 8466 40   |
| 30  | 307 9548   | 101.4    | 692 0452    | 317 1125   | 105.8    | 682 8875    | 1578       | 4.4   | 8422 30   |
| 40  | 308 0562   | 101.4    | 691 9438    | 317 2184   | 105.9    | 682 7816    | 1621       | 4.3   | 8379 20   |
| 50  | 308 1576   | 101.4    | 691 8424    | 317 3241   | 105.8    | 682 6759    | 1665       | 4.4   | 8335 10   |
| 44' | 9.308 2590 | 101.4    | 10.691 7410 | 9.317 4299 | 105.7    | 10.682 5701 | 10.0091709 | 4.4   | 9.9908291 |
| 10  | 308 3604   | 101.3    | 691 6396    | 317 5356   | 105.7    | 682 4644    | 1753       | 4.3   | 8247 50   |
| 20  | 308 4617   | 101.3    | 691 5383    | 317 6413   | 105.7    | 682 3587    | 1796       | 4.4   | 8204 40   |
| 30  | 308 5630   | 101.3    | 691 4370    | 317 7470   | 105.7    | 682 2530    | 1840       | 4.4   | 8160 30   |
| 40  | 308 6643   | 101.3    | 691 3357    | 317 8527   | 105.6    | 682 1473    | 1884       | 4.4   | 8116 20   |
| 50  | 308 7656   | 101.2    | 691 2344    | 317 9583   | 105.6    | 682 0417    | 1928       | 4.4   | 8072 10   |
| 45' | 9.308 8668 | 101.2    | 10.691 1332 | 9.318 0640 | 105.6    | 10.681 9360 | 10.0091971 | 4.3   | 9.9908029 |
| 10  | 308 9680   | 101.2    | 691 0320    | 318 1696   | 105.5    | 681 8304    | 2015       | 4.4   | 7985 50   |
| 20  | 309 0692   | 101.2    | 690 9308    | 318 2751   | 105.5    | 681 7249    | 2059       | 4.4   | 7941 40   |
| 30  | 309 1704   | 101.1    | 690 8296    | 318 3807   | 105.5    | 681 6193    | 2103       | 4.4   | 7897 30   |
| 40  | 309 2715   | 101.1    | 690 7285    | 318 4862   | 105.5    | 681 5138    | 2147       | 4.3   | 7853 20   |
| 50  | 309 3726   | 101.1    | 690 6274    | 318 5917   | 105.5    | 681 4083    | 2190       | 4.4   | 7810 10   |
| 46' | 9.309 4737 | 101.1    | 10.690 5263 | 9.318 6972 | 105.4    | 10.681 3028 | 10.0092234 | 4.4   | 9.9907766 |
| 10  | 309 5748   | 101.1    | 690 4252    | 318 8026   | 105.4    | 681 1974    | 2228       | 4.4   | 7722 50   |
| 20  | 309 6759   | 101.0    | 690 3241    | 318 9081   | 105.4    | 681 0919    | 2322       | 4.4   | 7678 40   |
| 30  | 309 7769   | 101.0    | 690 2231    | 319 0135   | 105.3    | 680 9865    | 2366       | 4.4   | 7634 30   |
| 40  | 309 8779   | 100.9    | 690 1221    | 319 1188   | 105.4    | 680 8812    | 2410       | 4.4   | 7590 20   |
| 50  | 309 9788   | 100.9    | 690 0212    | 319 2242   | 105.3    | 680 7758    | 2454       | 4.4   | 7546 10   |
| 47' | 9.310 0798 | 100.9    | 10.689 9202 | 9.319 3295 | 105.3    | 10.680 6705 | 10.0092498 | 4.4   | 9.9907502 |
| 10  | 310 1807   | 100.9    | 689 8193    | 319 4349   | 105.2    | 680 5651    | 2542       | 4.4   | 7458 50   |
| 20  | 310 2816   | 100.9    | 689 7184    | 319 5401   | 105.3    | 680 4599    | 2586       | 4.3   | 7414 40   |
| 30  | 310 3825   | 100.8    | 689 6175    | 319 6454   | 105.3    | 680 3546    | 2629       | 4.4   | 7371 30   |
| 40  | 310 4833   | 100.8    | 689 5167    | 319 7507   | 105.2    | 680 2493    | 2673       | 4.4   | 7327 20   |
| 50  | 310 5841   | 100.8    | 689 4159    | 319 8559   | 105.2    | 680 1441    | 2717       | 4.4   | 7283 10   |
| 48' | 9.310 6849 | 100.8    | 10.689 3151 | 9.319 9611 | 105.1    | 10.680 0389 | 10.0092761 | 4.4   | 9.9907239 |
| 10  | 310 7857   | 100.7    | 689 2143    | 320 0662   | 105.2    | 679 9338    | 2805       | 4.4   | 7195 50   |
| 20  | 310 8864   | 100.8    | 689 1136    | 320 1714   | 105.1    | 679 8286    | 2849       | 4.4   | 7151 40   |
| 30  | 310 9872   | 100.7    | 689 0128    | 320 2765   | 105.1    | 679 7235    | 2893       | 4.4   | 7107 30   |
| 40  | 311 0879   | 100.7    | 688 9121    | 320 3816   | 105.1    | 679 6184    | 2937       | 4.4   | 7063 20   |
| 50  | 311 1886   | 100.6    | 688 8114    | 320 4867   | 105.1    | 679 5133    | 2981       | 4.4   | 7019 10   |
| 49' | 9.311 2892 | 100.6    | 10.688 7108 | 9.320 5918 | 105.0    | 10.679 4082 | 10.0093026 | 4.5   | 9.9906974 |
| 10  | 311 3898   | 100.6    | 688 6102    | 320 6968   | 105.0    | 679 3032    | 3070       | 4.4   | 6930 50   |
| 20  | 311 4904   | 100.6    | 688 5096    | 320 8018   | 105.0    | 679 1982    | 3114       | 4.4   | 6886 40   |
| 30  | 311 5910   | 100.6    | 688 4090    | 320 9068   | 104.9    | 679 0932    | 3158       | 4.4   | 6842 30   |
| 40  | 311 6916   | 100.5    | 688 3084    | 321 0117   | 104.9    | 678 9883    | 3202       | 4.4   | 6798 20   |
| 50  | 311 7921   | 100.5    | 688 2079    | 321 1167   | 104.9    | 678 8833    | 3246       | 4.4   | 6754 10   |
| 50' | 9.311 8926 | 100.5    | 10.688 1074 | 9.321 2216 | 104.9    | 10.678 7784 | 10.0093290 | 4.4   | 9.9906710 |

110°

168°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |     |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|--------|------------|-----|
| 50' | 9.311 8926 | 100.5    | 10.688 1074 | 9.321 2216 | 104.9    | 10.678 7784 | 10.009 3290 | 4.4    | 9.990 6710 | 10' |
| 10  | 311 9931   | 100.4    | 688 0069    | 321 3265   | 104.9    | 678 6735    | 3334        | 4.4    | 6666       | 50  |
| 20  | 312 0935   | 100.5    | 687 9065    | 321 4314   | 104.8    | 678 5686    | 3378        | 4.4    | 6622       | 40  |
| 30  | 312 1940   | 100.4    | 687 8060    | 321 5362   | 104.8    | 678 4638    | 3422        | 4.5    | 6578       | 30  |
| 40  | 312 2944   | 100.4    | 687 7056    | 321 6410   | 104.8    | 678 3590    | 3467        | 4.4    | 6533       | 20  |
| 50  | 312 3948   | 100.3    | 687 6052    | 321 7458   | 104.8    | 678 2542    | 3511        | 4.4    | 6489       | 10  |
| 51' | 9.312 4951 | 100.3    | 10.687 5049 | 9.321 8506 | 104.8    | 10.678 1494 | 10.009 3555 | 4.4    | 9.990 6445 | 9'  |
| 10  | 312 5955   | 100.4    | 687 4045    | 321 9554   | 104.7    | 678 0446    | 3599        | 4.4    | 6401       | 50  |
| 20  | 312 6958   | 100.3    | 687 3042    | 322 0601   | 104.7    | 677 9399    | 3643        | 4.4    | 6357       | 40  |
| 30  | 312 7961   | 100.3    | 687 2039    | 322 1648   | 104.7    | 677 8352    | 3687        | 4.4    | 6313       | 30  |
| 40  | 312 8963   | 100.2    | 687 1037    | 322 2695   | 104.7    | 677 7305    | 3732        | 4.5    | 6268       | 20  |
| 50  | 312 9966   | 100.3    | 687 0034    | 322 3742   | 104.7    | 677 6258    | 3776        | 4.4    | 6224       | 10  |
| 52' | 9.313 0968 | 100.2    | 10.686 9032 | 9.322 4788 | 104.6    | 10.677 5212 | 10.009 3820 | 4.4    | 9.990 6180 | 8'  |
| 10  | 313 1970   | 100.1    | 686 8030    | 322 5834   | 104.6    | 677 4166    | 3864        | 4.5    | 6136       | 50  |
| 20  | 313 2971   | 100.2    | 686 7029    | 322 6880   | 104.6    | 677 3120    | 3909        | 4.5    | 6091       | 40  |
| 30  | 313 3973   | 100.1    | 686 6027    | 322 7926   | 104.6    | 677 2074    | 3953        | 4.4    | 6047       | 30  |
| 40  | 313 4974   | 100.1    | 686 5026    | 322 8971   | 104.5    | 677 1029    | 3997        | 4.4    | 6003       | 20  |
| 50  | 313 5975   | 100.1    | 686 4025    | 323 0016   | 104.5    | 676 9984    | 4041        | 4.4    | 5959       | 10  |
| 53' | 9.313 6976 | 100.1    | 10.686 3024 | 9.323 1061 | 104.5    | 10.676 8939 | 10.009 4086 | 4.5    | 9.990 5914 | 7'  |
| 10  | 313 7976   | 100.0    | 686 2024    | 323 2106   | 104.5    | 676 7894    | 4130        | 4.4    | 5870       | 50  |
| 20  | 313 8976   | 100.0    | 686 1024    | 323 3151   | 104.4    | 676 6849    | 4174        | 4.5    | 5826       | 40  |
| 30  | 313 9976   | 100.0    | 686 0024    | 323 4195   | 104.4    | 676 5805    | 4219        | 4.5    | 5781       | 30  |
| 40  | 314 0976   | 100.0    | 685 9024    | 323 5239   | 104.4    | 676 4761    | 4263        | 4.4    | 5737       | 20  |
| 50  | 314 1976   | 100.0    | 685 8024    | 323 6283   | 104.4    | 676 3717    | 4307        | 4.5    | 5693       | 10  |
| 54' | 9.314 2975 | 99.9     | 10.685 7025 | 9.323 7327 | 104.3    | 10.676 2673 | 10.009 4352 | 4.4    | 9.990 5648 | 6'  |
| 10  | 314 3974   | 99.9     | 685 6026    | 323 8370   | 104.3    | 676 1630    | 4396        | 4.4    | 5604       | 50  |
| 20  | 314 4973   | 99.9     | 685 5027    | 323 9413   | 104.3    | 676 0587    | 4441        | 4.5    | 5559       | 40  |
| 30  | 314 5971   | 99.8     | 685 4029    | 324 0456   | 104.3    | 675 9544    | 4485        | 4.4    | 5515       | 30  |
| 40  | 314 6969   | 99.8     | 685 3031    | 324 1499   | 104.2    | 675 8501    | 4529        | 4.5    | 5471       | 20  |
| 50  | 314 7967   | 99.8     | 685 2033    | 324 2541   | 104.2    | 675 7459    | 4574        | 4.4    | 5426       | 10  |
| 55' | 9.314 8965 | 99.8     | 10.685 1035 | 9.324 3584 | 104.2    | 10.675 6416 | 10.009 4618 | 4.5    | 9.990 5382 | 5'  |
| 10  | 314 9963   | 99.7     | 685 0037    | 324 4626   | 104.1    | 675 5374    | 4663        | 4.4    | 5337       | 50  |
| 20  | 315 0960   | 99.7     | 684 9040    | 324 5667   | 104.1    | 675 4333    | 4707        | 4.5    | 5293       | 40  |
| 30  | 315 1957   | 99.7     | 684 8043    | 324 6709   | 104.1    | 675 3291    | 4752        | 4.5    | 5248       | 30  |
| 40  | 315 2954   | 99.7     | 684 7046    | 324 7750   | 104.1    | 675 2250    | 4796        | 4.4    | 5204       | 20  |
| 50  | 315 3951   | 99.7     | 684 6049    | 324 8791   | 104.1    | 675 1209    | 4841        | 4.5    | 5159       | 10  |
| 56' | 9.315 4947 | 99.6     | 10.684 5053 | 9.324 9832 | 104.1    | 10.675 0166 | 10.009 4885 | 4.5    | 9.990 5115 | 4'  |
| 10  | 315 5943   | 99.6     | 684 4057    | 325 0873   | 104.1    | 674 9127    | 4930        | 4.4    | 5070       | 50  |
| 20  | 315 6939   | 99.6     | 684 3061    | 325 1913   | 104.0    | 674 8087    | 4974        | 4.4    | 5026       | 40  |
| 30  | 315 7935   | 99.5     | 684 2065    | 325 2953   | 104.0    | 674 7047    | 5019        | 4.5    | 4981       | 30  |
| 40  | 315 8930   | 99.5     | 684 1070    | 325 3993   | 104.0    | 674 6007    | 5063        | 4.4    | 4937       | 20  |
| 50  | 315 9926   | 99.5     | 684 0074    | 325 5033   | 104.0    | 674 4967    | 5108        | 4.5    | 4892       | 10  |
| 57' | 9.316 0921 | 99.5     | 10.683 9079 | 9.325 6073 | 103.9    | 10.674 3927 | 10.009 5152 | 4.4    | 9.990 4848 | 3'  |
| 10  | 316 1915   | 99.4     | 683 8085    | 325 7112   | 103.9    | 674 2888    | 5197        | 4.5    | 4803       | 50  |
| 20  | 316 2910   | 99.4     | 683 7090    | 325 8151   | 103.9    | 674 1849    | 5241        | 4.4    | 4759       | 40  |
| 30  | 316 3904   | 99.4     | 683 6096    | 325 9190   | 103.9    | 674 0810    | 5286        | 4.5    | 4714       | 30  |
| 40  | 316 4898   | 99.4     | 683 5102    | 326 0228   | 103.8    | 673 9772    | 5331        | 4.5    | 4669       | 20  |
| 50  | 316 5892   | 99.4     | 683 4108    | 326 1267   | 103.8    | 673 8733    | 5375        | 4.4    | 4625       | 10  |
| 58' | 9.316 6885 | 99.3     | 10.683 3115 | 9.326 2305 | 103.8    | 10.673 7695 | 10.009 5420 | 4.4    | 9.990 4580 | 2'  |
| 10  | 316 7879   | 99.3     | 683 2121    | 326 3343   | 103.8    | 673 6657    | 5464        | 4.4    | 4536       | 50  |
| 20  | 316 8872   | 99.3     | 683 1128    | 326 4381   | 103.8    | 673 5619    | 5509        | 4.5    | 4491       | 40  |
| 30  | 316 9864   | 99.2     | 683 0136    | 326 5418   | 103.7    | 673 4582    | 5554        | 4.5    | 4446       | 30  |
| 40  | 317 0857   | 99.2     | 682 9143    | 326 6455   | 103.7    | 673 3545    | 5598        | 4.4    | 4402       | 20  |
| 50  | 317 1849   | 99.2     | 682 8151    | 326 7492   | 103.7    | 673 2508    | 5643        | 4.5    | 4357       | 10  |
| 59' | 9.317 2841 | 99.2     | 10.682 7159 | 9.326 8529 | 103.7    | 10.673 1471 | 10.009 5688 | 4.5    | 9.990 4312 | 1'  |
| 10  | 317 3833   | 99.2     | 682 6167    | 326 9566   | 103.6    | 673 0434    | 5732        | 4.4    | 4268       | 50  |
| 20  | 317 4825   | 99.2     | 682 5175    | 327 0602   | 103.6    | 672 9398    | 5777        | 4.5    | 4223       | 40  |
| 30  | 317 5816   | 99.1     | 682 4184    | 327 1638   | 103.6    | 672 8362    | 5822        | 4.5    | 4178       | 30  |
| 40  | 317 6807   | 99.1     | 682 3193    | 327 2674   | 103.6    | 672 7326    | 5867        | 4.5    | 4133       | 20  |
| 50  | 317 7798   | 99.1     | 682 2202    | 327 3710   | 103.5    | 672 6290    | 5911        | 4.4    | 4089       | 10  |
| 60' | 9.317 8789 | 99.1     | 10.682 1211 | 9.327 4745 | 103.5    | 10.672 5255 | 10.009 5956 | 4.5    | 9.990 4044 | 0'  |

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78°



|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d. 1'' | co-sin.   |
|-----|------------|----------|-------------|------------|----------|-------------|------------|--------|-----------|
| 0'  | 9.317 8789 |          | 10.682 1211 | 9.327 4745 |          | 10.672 5255 | 10.0095956 | 4.5    | 9.9904044 |
| 10  | 317 9780   | 99.1     | 682 0220    | 327 5780   | 103.5    | 672 4220    | 6001       | 4.5    | 3999      |
| 20  | 318 0770   | 99.0     | 681 9230    | 327 6815   | 103.5    | 672 3185    | 6046       | 4.5    | 3954      |
| 30  | 318 1760   | 99.0     | 681 8240    | 327 7850   | 103.5    | 672 2150    | 6090       | 4.4    | 3910      |
| 40  | 318 2749   | 98.9     | 681 7251    | 327 8885   | 103.5    | 672 1115    | 6135       | 4.5    | 3865      |
| 50  | 318 3739   | 99.0     | 681 6261    | 327 9919   | 103.4    | 672 0081    | 6180       | 4.5    | 3820      |
| 1'  | 9.318 4728 | 98.9     | 10.681 5272 | 9.328 0953 |          | 10.671 9047 | 10.0095225 | 4.5    | 9.9903775 |
| 10  | 318 5717   | 98.9     | 681 4283    | 328 1987   | 103.4    | 671 8013    | 6270       | 4.5    | 3730      |
| 20  | 318 6706   | 98.9     | 681 3294    | 328 3021   | 103.4    | 671 6979    | 6314       | 4.4    | 3686      |
| 30  | 318 7695   | 98.9     | 681 2305    | 328 4054   | 103.3    | 671 5946    | 6359       | 4.5    | 3641      |
| 40  | 318 8683   | 98.8     | 681 1317    | 328 5087   | 103.3    | 671 4913    | 6404       | 4.5    | 3596      |
| 50  | 318 9671   | 98.8     | 681 0329    | 328 6120   | 103.3    | 671 3880    | 6449       | 4.5    | 3551      |
| 1'  | 9.319 0659 | 98.8     | 10.680 9341 | 9.328 7153 |          | 10.671 2847 | 10.0095492 | 4.5    | 9.9903566 |
| 10  | 319 1647   | 98.7     | 680 8353    | 328 8185   | 103.2    | 671 1815    | 6519       | 4.5    | 3461      |
| 20  | 319 2634   | 98.7     | 680 7366    | 328 9218   | 103.2    | 671 0782    | 6564       | 4.5    | 3416      |
| 30  | 319 3621   | 98.7     | 680 6379    | 329 0250   | 103.2    | 670 9750    | 6609       | 4.5    | 3371      |
| 40  | 319 4608   | 98.7     | 680 5392    | 329 1283   | 103.1    | 670 8718    | 6653       | 4.4    | 3327      |
| 50  | 319 5595   | 98.7     | 680 4405    | 329 2313   | 103.2    | 670 7687    | 6718       | 4.5    | 3282      |
| 3'  | 9.319 6581 | 98.6     | 10.680 3419 | 9.329 3345 |          | 10.670 6655 | 10.0095763 | 4.5    | 9.9903237 |
| 10  | 319 7567   | 98.6     | 680 2433    | 329 4376   | 103.1    | 670 5624    | 6808       | 4.5    | 3192      |
| 20  | 319 8553   | 98.6     | 680 1447    | 329 5407   | 103.1    | 670 4593    | 6853       | 4.5    | 3147      |
| 30  | 319 9539   | 98.6     | 680 0461    | 329 6437   | 103.0    | 670 3563    | 6898       | 4.5    | 3102      |
| 40  | 320 0525   | 98.5     | 679 9475    | 329 7468   | 103.0    | 670 2532    | 6943       | 4.5    | 3057      |
| 50  | 320 1510   | 98.5     | 679 8498    | 329 8498   | 103.0    | 670 1502    | 6988       | 4.5    | 3012      |
| 4'  | 9.320 2495 | 98.5     | 10.679 7505 | 9.329 9528 |          | 10.670 0472 | 10.0097033 | 4.5    | 9.9902967 |
| 10  | 320 3480   | 98.4     | 679 6520    | 330 0558   | 103.0    | 669 9442    | 7078       | 4.5    | 2922      |
| 20  | 320 4464   | 98.4     | 679 5536    | 330 1588   | 102.9    | 669 8412    | 7113       | 4.5    | 2877      |
| 30  | 320 5449   | 98.5     | 679 4551    | 330 2617   | 102.9    | 669 7383    | 7168       | 4.5    | 2832      |
| 40  | 320 6433   | 98.4     | 679 3567    | 330 3646   | 102.9    | 669 6354    | 7213       | 4.5    | 2787      |
| 50  | 320 7417   | 98.3     | 679 2583    | 330 4675   | 102.9    | 669 5325    | 7258       | 4.5    | 2742      |
| 5'  | 9.320 8400 | 98.4     | 10.679 1600 | 9.330 5704 |          | 10.669 4296 | 10.0097303 | 4.6    | 9.9902697 |
| 10  | 320 9384   | 98.4     | 679 0616    | 330 6733   | 102.8    | 669 3268    | 7319       | 4.6    | 2651      |
| 20  | 321 0367   | 98.3     | 678 9633    | 330 7761   | 102.8    | 669 2239    | 7374       | 4.5    | 2606      |
| 30  | 321 1350   | 98.3     | 678 8650    | 330 8789   | 102.8    | 669 1211    | 7419       | 4.5    | 2561      |
| 40  | 321 2333   | 98.3     | 678 7667    | 330 9817   | 102.8    | 669 0183    | 7464       | 4.5    | 2516      |
| 50  | 321 3315   | 98.2     | 678 6685    | 331 0844   | 102.7    | 668 9156    | 7509       | 4.5    | 2471      |
| 6'  | 9.321 4297 | 98.2     | 10.678 5703 | 9.331 1872 |          | 10.668 8128 | 10.0097574 | 4.5    | 9.9902465 |
| 10  | 321 5279   | 98.2     | 678 4721    | 331 2899   | 102.7    | 668 7101    | 7519       | 4.5    | 2381      |
| 20  | 321 6261   | 98.2     | 678 3739    | 331 3926   | 102.6    | 668 6074    | 7664       | 4.6    | 2336      |
| 30  | 321 7243   | 98.2     | 678 2757    | 331 4952   | 102.6    | 668 5048    | 7710       | 4.6    | 2290      |
| 40  | 321 8224   | 98.1     | 678 1776    | 331 5977   | 102.6    | 668 4021    | 7755       | 4.5    | 2245      |
| 50  | 321 9205   | 98.1     | 678 0795    | 331 7003   | 102.6    | 668 2995    | 7800       | 4.5    | 2200      |
| 7'  | 9.322 0186 | 98.1     | 10.677 9814 | 9.331 8031 |          | 10.668 1969 | 10.0097845 | 4.5    | 9.9902155 |
| 10  | 322 1167   | 98.1     | 677 8833    | 331 9057   | 102.6    | 668 0943    | 7890       | 4.6    | 2110      |
| 20  | 322 2147   | 98.0     | 677 7853    | 332 0083   | 102.6    | 667 9917    | 7936       | 4.5    | 2064      |
| 30  | 322 3127   | 98.0     | 677 6873    | 332 1108   | 102.5    | 667 8892    | 7981       | 4.5    | 2019      |
| 40  | 322 4107   | 98.0     | 677 5893    | 332 2133   | 102.5    | 667 7867    | 8026       | 4.5    | 1974      |
| 50  | 322 5087   | 98.0     | 677 4913    | 332 3158   | 102.5    | 667 6842    | 8071       | 4.5    | 1929      |
| 8'  | 9.322 6066 | 97.9     | 10.677 3934 | 9.332 4183 |          | 10.667 5817 | 10.0098117 | 4.6    | 9.9901883 |
| 10  | 322 7046   | 97.9     | 677 2954    | 332 5207   | 102.4    | 667 4793    | 8162       | 4.5    | 1838      |
| 20  | 322 8025   | 97.9     | 677 1975    | 332 6232   | 102.4    | 667 3768    | 8207       | 4.5    | 1793      |
| 30  | 322 9003   | 97.8     | 677 0997    | 332 7256   | 102.4    | 667 2744    | 8252       | 4.5    | 1748      |
| 40  | 322 9982   | 97.9     | 677 0018    | 332 8280   | 102.4    | 667 1720    | 8298       | 4.6    | 1702      |
| 50  | 323 0960   | 97.8     | 676 9040    | 332 9303   | 102.3    | 667 0697    | 8343       | 4.5    | 1657      |
| 9'  | 9.323 1938 | 97.8     | 10.676 8062 | 9.333 0327 |          | 10.666 9673 | 10.0098388 | 4.6    | 9.9901612 |
| 10  | 323 2916   | 97.8     | 676 7084    | 333 1350   | 102.3    | 666 8650    | 8434       | 4.6    | 1566      |
| 20  | 323 3894   | 97.8     | 676 6106    | 333 2373   | 102.3    | 666 7627    | 8479       | 4.5    | 1521      |
| 30  | 323 4871   | 97.7     | 676 5129    | 333 3396   | 102.3    | 666 6604    | 8524       | 4.5    | 1476      |
| 40  | 323 5848   | 97.7     | 676 4152    | 333 4418   | 102.2    | 666 5582    | 8570       | 4.6    | 1430      |
| 50  | 323 6825   | 97.7     | 676 3175    | 333 5440   | 102.2    | 666 4560    | 8615       | 4.5    | 1385      |
| 10' | 9.323 7802 | 97.7     | 10.676 2198 | 9.333 6463 |          | 10.666 3537 | 10.0098661 | 4.6    | 9.9901339 |
|     | co-sin.    | dif. 1'' | sec.        | co-tang.   | dif. 1'' | tang.       | co-sec.    | d. 1'' | sin.      |

| 12°             |           |          |             |          | 167°     |             |            |       |           |
|-----------------|-----------|----------|-------------|----------|----------|-------------|------------|-------|-----------|
|                 | sin.      | diff. 1" | co-sec.     | tang.    | diff. 1" | co-tang.    | sec.       | d. 1" | co-sin.   |
| 10 <sup>v</sup> | 323 7802  | 97.6     | 10.676 2198 | 333 6463 |          | 10.666 3537 | 10.0098661 | 4.5   | 9.9901339 |
| 10              | 323 8778  | 97.7     | 676 1222    | 333 7484 | 102.1    | 666 2516    | 8706       | 4.5   | 1204 50   |
| 20              | 323 9755  | 97.7     | 676 0245    | 333 8506 | 102.2    | 666 1494    | 8751       | 4.5   | 1249 40   |
| 30              | 324 0731  | 97.6     | 675 9269    | 333 9528 | 102.1    | 666 0472    | 8797       | 4.6   | 1203 30   |
| 40              | 324 17 27 | 97.5     | 675 8293    | 334 0549 | 102.1    | 665 9451    | 8842       | 4.6   | 1158 20   |
| 50              | 324 26 32 | 97.5     | 675 7318    | 334 1570 | 102.1    | 665 8430    | 8888       | 4.6   | 1112 10   |
| 11 <sup>v</sup> | 324 36 57 | 97.5     | 10.675 6343 | 334 2591 | 102.1    | 10.665 7409 | 10.0098933 | 4.5   | 9.9901067 |
| 10              | 324 46 33 | 97.6     | 675 5367    | 334 3611 | 102.0    | 665 6389    | 8979       | 4.6   | 1021 50   |
| 20              | 324 56 27 | 97.4     | 675 4393    | 334 4631 | 102.0    | 665 5369    | 9024       | 4.6   | 0976 40   |
| 30              | 324 66 32 | 97.5     | 675 3418    | 334 5652 | 102.1    | 665 4348    | 9070       | 4.6   | 0930 30   |
| 40              | 324 76 56 | 97.4     | 675 2444    | 334 6671 | 101.9    | 665 3329    | 9115       | 4.5   | 0885 20   |
| 50              | 324 86 31 | 97.5     | 675 1469    | 334 7691 | 102.0    | 665 2309    | 9161       | 4.6   | 0839 10   |
| 12 <sup>v</sup> | 324 96 25 | 97.3     | 10.675 0495 | 334 8711 | 101.9    | 10.665 1289 | 10.0099206 | 4.6   | 9.9900794 |
| 10              | 325 06 28 | 97.3     | 674 9522    | 334 9730 | 101.9    | 665 0270    | 9252       | 4.6   | 0748 50   |
| 20              | 325 16 52 | 97.4     | 674 8548    | 335 0749 | 101.9    | 664 9251    | 9297       | 4.5   | 0703 40   |
| 30              | 325 26 25 | 97.3     | 674 7575    | 335 1768 | 101.9    | 664 8232    | 9343       | 4.6   | 0657 30   |
| 40              | 325 36 38 | 97.3     | 674 6602    | 335 2786 | 101.8    | 664 7214    | 9388       | 4.5   | 0612 20   |
| 50              | 325 46 71 | 97.3     | 674 5629    | 335 3805 | 101.9    | 664 6195    | 9434       | 4.6   | 0566 10   |
| 13 <sup>v</sup> | 325 56 44 | 97.2     | 10.674 4656 | 335 4823 | 101.8    | 10.664 5177 | 10.0099479 | 4.5   | 9.9900521 |
| 10              | 325 66 16 | 97.2     | 674 3684    | 335 5841 | 101.8    | 664 4159    | 9525       | 4.6   | 0475 50   |
| 20              | 325 76 38 | 97.2     | 674 2712    | 335 6859 | 101.8    | 664 3141    | 9571       | 4.6   | 0429 40   |
| 30              | 325 86 50 | 97.2     | 674 1740    | 335 7876 | 101.7    | 664 2124    | 9616       | 4.5   | 0384 30   |
| 40              | 325 96 32 | 97.1     | 674 0768    | 335 8893 | 101.7    | 664 1107    | 9662       | 4.6   | 0338 20   |
| 50              | 326 06 23 | 97.1     | 673 9797    | 335 9910 | 101.7    | 664 0090    | 9707       | 4.5   | 0293 10   |
| 14 <sup>v</sup> | 326 16 14 | 97.1     | 10.673 8826 | 336 0927 | 101.7    | 10.663 9073 | 10.0099753 | 4.6   | 9.9900247 |
| 10              | 326 26 45 | 97.1     | 673 7855    | 336 1944 | 101.7    | 663 8056    | 9799       | 4.6   | 0201 50   |
| 20              | 326 31 16 | 97.1     | 673 6884    | 336 2960 | 101.6    | 663 7040    | 9844       | 4.5   | 0156 40   |
| 30              | 326 46 37 | 97.0     | 673 5913    | 336 3977 | 101.7    | 663 6023    | 9890       | 4.6   | 0110 30   |
| 40              | 326 56 37 | 97.0     | 673 4943    | 336 4993 | 101.6    | 663 5007    | 9936       | 4.6   | 0064 20   |
| 50              | 326 66 17 | 97.0     | 673 3973    | 336 6008 | 101.5    | 663 3992    | 9981       | 4.5   | 0019 10   |
| 15 <sup>v</sup> | 326 76 37 | 96.9     | 10.673 3003 | 336 7024 | 101.6    | 10.663 2976 | 10.0100027 | 4.6   | 9.9899973 |
| 10              | 326 76 36 | 97.0     | 673 2034    | 336 8039 | 101.5    | 663 1961    | 0073       | 4.6   | 9927 50   |
| 20              | 326 86 36 | 96.9     | 673 1064    | 336 9054 | 101.5    | 663 0946    | 0119       | 4.6   | 9881 40   |
| 30              | 326 96 25 | 96.9     | 673 0095    | 337 0069 | 101.5    | 662 9931    | 0164       | 4.5   | 9836 30   |
| 40              | 327 06 24 | 96.8     | 672 9126    | 337 1084 | 101.5    | 662 8916    | 0210       | 4.6   | 9790 20   |
| 50              | 327 16 43 | 96.9     | 672 8157    | 337 2099 | 101.5    | 662 7901    | 0256       | 4.6   | 9744 10   |
| 16 <sup>v</sup> | 327 26 11 | 96.8     | 10.672 7189 | 337 3113 | 101.4    | 10.662 6887 | 10.0100302 | 4.5   | 9.9899698 |
| 10              | 327 36 79 | 96.7     | 672 6221    | 337 4127 | 101.4    | 662 5873    | 0347       | 4.6   | 9653 50   |
| 20              | 327 46 48 | 96.9     | 672 5252    | 337 5141 | 101.4    | 662 4859    | 0393       | 4.6   | 9607 40   |
| 30              | 327 56 15 | 96.7     | 672 4285    | 337 6154 | 101.3    | 662 3846    | 0439       | 4.6   | 9561 30   |
| 40              | 327 66 33 | 96.8     | 672 3317    | 337 7168 | 101.4    | 662 2832    | 0485       | 4.6   | 9515 20   |
| 50              | 327 7650  | 96.7     | 672 2350    | 337 8181 | 101.3    | 662 1819    | 0531       | 4.6   | 9469 10   |
| 17 <sup>v</sup> | 327 8617  | 96.7     | 10.672 1383 | 337 9194 | 101.3    | 10.662 0806 | 10.0100577 | 4.6   | 9.9899423 |
| 10              | 327 9584  | 96.7     | 672 0416    | 338 0207 | 101.3    | 661 9793    | 0622       | 4.5   | 9378 50   |
| 20              | 328 0551  | 96.7     | 671 9449    | 338 1219 | 101.2    | 661 8781    | 0668       | 4.6   | 9332 40   |
| 30              | 328 1518  | 96.7     | 671 8482    | 338 2232 | 101.3    | 661 7768    | 0714       | 4.6   | 9286 30   |
| 40              | 328 2484  | 96.6     | 671 7516    | 338 3244 | 101.2    | 661 6756    | 0760       | 4.6   | 9240 20   |
| 50              | 328 3450  | 96.6     | 671 6550    | 338 4256 | 101.2    | 661 5744    | 0806       | 4.6   | 9194 10   |
| 18 <sup>v</sup> | 328 4416  | 96.6     | 10.671 5584 | 338 5267 | 101.1    | 10.661 4733 | 10.0100852 | 4.6   | 9.9899148 |
| 10              | 328 5381  | 96.5     | 671 4619    | 338 6279 | 101.2    | 661 3721    | 0898       | 4.6   | 9102 50   |
| 20              | 328 6346  | 96.5     | 671 3654    | 338 7290 | 101.1    | 661 2710    | 0944       | 4.6   | 9056 40   |
| 30              | 328 7312  | 96.4     | 671 2688    | 338 8301 | 101.1    | 661 1699    | 0990       | 4.6   | 9010 30   |
| 40              | 328 8276  | 96.5     | 671 1724    | 338 9312 | 101.1    | 661 0688    | 1035       | 4.5   | 8965 20   |
| 50              | 328 9241  | 96.5     | 671 0759    | 339 0323 | 101.1    | 660 9677    | 1081       | 4.6   | 8919 10   |
| 19 <sup>v</sup> | 329 0206  | 96.5     | 10.670 9704 | 339 1333 | 101.0    | 10.660 8667 | 10.0101127 | 4.6   | 9.9898873 |
| 10              | 329 1170  | 96.4     | 670 8830    | 339 2343 | 101.0    | 660 7657    | 1173       | 4.6   | 8872 50   |
| 20              | 329 2134  | 96.4     | 670 7866    | 339 3353 | 101.0    | 660 6647    | 1219       | 4.6   | 8781 40   |
| 30              | 329 3098  | 96.4     | 670 6902    | 339 4363 | 101.0    | 660 5637    | 1265       | 4.6   | 8735 30   |
| 40              | 329 4061  | 96.3     | 670 5939    | 339 5372 | 100.9    | 660 4628    | 1311       | 4.6   | 8689 20   |
| 50              | 329 5024  | 96.3     | 670 4976    | 339 6382 | 101.0    | 660 3618    | 1357       | 4.6   | 8643 10   |
| 20 <sup>v</sup> | 329 5988  | 96.4     | 10.670 4012 | 339 7391 | 100.9    | 10.660 2609 | 10.0101403 | 4.6   | 9.9898597 |

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.       |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|---------------|
| 21' | 9.329 5988 | 96.2     | 10.670 4012 | 9.339 7391 | 100.9    | 10.660 2609 | 10.0101403 | 4.6   | 9.9898597 40' |
| 10  | 329 6950   | 96.3     | 670 3050    | 339 8400   | 100.9    | 660 1600    | 1449       | 4.7   | 8551 50       |
| 20  | 329 7913   | 95.2     | 670 2087    | 339 9409   | 100.8    | 660 0591    | 1496       | 4.6   | 8504 40       |
| 30  | 329 8875   | 96.3     | 670 1125    | 340 0417   | 100.8    | 659 9583    | 1542       | 4.6   | 8458 30       |
| 40  | 329 9838   | 95.2     | 670 0162    | 340 1425   | 100.8    | 659 8575    | 1588       | 4.6   | 8412 20       |
| 50  | 330 0800   | 96.2     | 669 9200    | 340 2433   | 100.8    | 659 7567    | 1634       | 4.6   | 8366 10       |
| 21' | 9.330 1731 | 96.1     | 10.669 8239 | 9.340 3441 | 100.8    | 10.659 6559 | 10.0101680 | 4.6   | 9.9898320 38' |
| 10  | 330 2733   | 96.1     | 669 7277    | 340 4449   | 100.7    | 659 5551    | 1726       | 4.6   | 8274 50       |
| 20  | 330 3634   | 96.1     | 669 6316    | 340 5456   | 100.8    | 659 4544    | 1772       | 4.6   | 8228 40       |
| 30  | 330 4645   | 96.1     | 669 5355    | 340 6464   | 100.7    | 659 3536    | 1818       | 4.6   | 8182 30       |
| 40  | 330 5646   | 96.1     | 669 4394    | 340 7471   | 100.6    | 659 2529    | 1864       | 4.6   | 8136 20       |
| 50  | 330 6637   | 95.1     | 669 3433    | 340 8477   | 100.7    | 659 1523    | 1910       | 4.7   | 8090 10       |
| 22' | 9.330 7537 | 96.0     | 10.669 2473 | 9.340 9484 | 100.6    | 10.659 0516 | 10.0101957 | 4.6   | 9.9898043 32' |
| 10  | 330 8437   | 96.0     | 669 1513    | 341 0490   | 100.6    | 658 9510    | 2003       | 4.6   | 7997 50       |
| 20  | 330 9447   | 95.0     | 669 0553    | 341 1496   | 100.6    | 658 8504    | 2049       | 4.6   | 7951 40       |
| 30  | 331 0447   | 95.0     | 668 9593    | 341 2502   | 100.6    | 658 7498    | 2095       | 4.6   | 7905 30       |
| 40  | 331 1337   | 95.9     | 668 8633    | 341 3508   | 100.6    | 658 6492    | 2141       | 4.6   | 7859 20       |
| 50  | 331 2336   | 95.9     | 668 7674    | 341 4514   | 100.5    | 658 5486    | 2188       | 4.7   | 7812 10       |
| 23' | 9.331 3235 | 95.9     | 10.668 6715 | 9.341 5519 | 100.5    | 10.658 4481 | 10.0102234 | 4.6   | 9.9897766 37' |
| 10  | 331 4244   | 95.9     | 668 5756    | 341 6524   | 100.5    | 658 3476    | 2280       | 4.6   | 7720 50       |
| 20  | 331 5243   | 95.8     | 668 4797    | 341 7529   | 100.5    | 658 2471    | 2326       | 4.6   | 7674 40       |
| 30  | 331 6131   | 95.8     | 668 3839    | 341 8534   | 100.4    | 658 1466    | 2373       | 4.7   | 7627 30       |
| 40  | 331 7119   | 95.8     | 668 2881    | 341 9538   | 100.4    | 658 0462    | 2419       | 4.6   | 7581 20       |
| 50  | 331 8077   | 95.8     | 668 1923    | 342 0542   | 100.4    | 657 9458    | 2465       | 4.6   | 7535 10       |
| 24' | 9.331 8935 | 95.8     | 10.668 0965 | 9.342 1546 | 100.4    | 10.657 8454 | 10.0102511 | 4.6   | 9.9897489 36' |
| 10  | 331 9933   | 95.7     | 668 0007    | 342 2550   | 100.4    | 657 7450    | 2558       | 4.6   | 7442 50       |
| 20  | 332 0930   | 95.7     | 667 9050    | 342 3554   | 100.3    | 657 6446    | 2604       | 4.6   | 7396 40       |
| 30  | 332 1927   | 95.7     | 667 8093    | 342 4557   | 100.3    | 657 5443    | 2650       | 4.7   | 7350 30       |
| 40  | 332 2934   | 95.7     | 667 7136    | 342 5560   | 100.3    | 657 4440    | 2697       | 4.7   | 7303 20       |
| 50  | 332 3820   | 95.6     | 667 6180    | 342 6563   | 100.3    | 657 3437    | 2743       | 4.6   | 7257 10       |
| 25' | 9.332 4777 | 95.6     | 10.667 5223 | 9.342 7566 | 100.3    | 10.657 2434 | 10.0102789 | 4.6   | 9.9897211 35' |
| 10  | 332 5733   | 95.6     | 667 4267    | 342 8569   | 100.2    | 657 1431    | 2836       | 4.7   | 7164 50       |
| 20  | 332 6639   | 95.6     | 667 3311    | 342 9571   | 100.2    | 657 0429    | 2882       | 4.6   | 7118 40       |
| 30  | 332 7645   | 95.6     | 667 2355    | 343 0573   | 100.2    | 656 9427    | 2928       | 4.6   | 7072 30       |
| 40  | 332 8640   | 95.6     | 667 1400    | 343 1575   | 100.2    | 656 8425    | 2975       | 4.7   | 7025 20       |
| 50  | 332 9636   | 95.5     | 667 0444    | 343 2577   | 100.1    | 656 7423    | 3021       | 4.7   | 6979 10       |
| 26' | 9.333 0511 | 95.5     | 10.666 9489 | 9.343 3578 | 100.2    | 10.656 6422 | 10.0103068 | 4.6   | 9.9896932 34' |
| 10  | 333 1466   | 95.4     | 666 8534    | 343 4580   | 100.1    | 656 5420    | 3114       | 4.6   | 6886 50       |
| 20  | 333 2420   | 95.5     | 666 7580    | 343 5581   | 100.1    | 656 4419    | 3161       | 4.7   | 6839 40       |
| 30  | 333 3375   | 95.4     | 666 6625    | 343 6582   | 100.0    | 656 3418    | 3207       | 4.6   | 6793 30       |
| 40  | 333 4329   | 95.4     | 666 5671    | 343 7582   | 100.1    | 656 2418    | 3253       | 4.6   | 6747 20       |
| 50  | 333 5283   | 95.4     | 666 4717    | 343 8583   | 100.0    | 656 1417    | 3300       | 4.7   | 6700 10       |
| 27' | 9.333 6237 | 95.3     | 10.666 3763 | 9.343 9583 | 100.0    | 10.656 0417 | 10.0103346 | 4.6   | 9.9896654 33' |
| 10  | 333 7199   | 95.3     | 666 2810    | 344 0583   | 100.0    | 655 9417    | 3393       | 4.7   | 6667 50       |
| 20  | 333 8144   | 95.3     | 666 1856    | 344 1583   | 100.0    | 655 8417    | 3439       | 4.6   | 6621 40       |
| 30  | 333 9097   | 95.3     | 666 0903    | 344 2583   | 100.0    | 655 7417    | 3486       | 4.7   | 6575 30       |
| 40  | 334 0050   | 95.2     | 665 9950    | 344 3582   | 99.9     | 655 6418    | 3532       | 4.6   | 6529 20       |
| 50  | 334 1002   | 95.2     | 665 8998    | 344 4581   | 99.9     | 655 5419    | 3579       | 4.7   | 6482 10       |
| 28' | 9.334 1955 | 95.2     | 10.665 8045 | 9.344 5580 | 99.9     | 10.655 4420 | 10.0103626 | 4.6   | 9.9896374 32' |
| 10  | 334 2939   | 95.2     | 665 7093    | 344 6579   | 99.9     | 655 3421    | 3672       | 4.7   | 6436 50       |
| 20  | 334 3859   | 95.2     | 665 6141    | 344 7578   | 99.8     | 655 2422    | 3719       | 4.6   | 6390 40       |
| 30  | 334 4811   | 95.2     | 665 5189    | 344 8576   | 99.8     | 655 1424    | 3765       | 4.6   | 6343 30       |
| 40  | 334 5763   | 95.2     | 665 4237    | 344 9574   | 99.8     | 655 0426    | 3812       | 4.7   | 6297 20       |
| 50  | 334 6714   | 95.1     | 665 3286    | 345 0572   | 99.8     | 654 9428    | 3858       | 4.6   | 6251 10       |
| 29' | 9.334 7665 | 95.1     | 10.665 2335 | 9.345 1570 | 99.8     | 10.654 8430 | 10.0103905 | 4.7   | 9.9896095 31' |
| 10  | 334 8616   | 95.1     | 665 1384    | 345 2568   | 99.8     | 654 7432    | 3952       | 4.6   | 6204 50       |
| 20  | 334 9567   | 95.1     | 665 0433    | 345 3565   | 99.7     | 654 6435    | 3998       | 4.6   | 6158 40       |
| 30  | 335 0517   | 95.0     | 664 9483    | 345 4562   | 99.7     | 654 5438    | 4045       | 4.7   | 6112 30       |
| 40  | 335 1468   | 95.0     | 664 8532    | 345 5559   | 99.7     | 654 4441    | 4092       | 4.6   | 6066 20       |
| 50  | 335 2418   | 95.0     | 664 7582    | 345 6556   | 99.7     | 654 3444    | 4138       | 4.7   | 6020 10       |
| 30' | 9.335 3368 | 95.0     | 10.664 6632 | 9.345 7552 | 99.6     | 10.654 2448 | 10.0104185 | 4.7   | 9.9895815 30' |



12°

167°

|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |     |
|-----|------------|-----------|-------------|------------|-----------|-------------|-------------|-------|------------|-----|
| 30' | 9.335 3368 | 94.9      | 10.664 6632 | 9.345 7552 | 99.7      | 10.654 2448 | 10.010 4185 | 4.7   | 9.989 5815 | 30' |
| 10  | 335 4317   | 95.0      | 664 5683    | 345 8549   | 99.6      | 654 1451    | 4232        | 4.6   | 5768       | 50  |
| 20  | 335 5267   | 94.9      | 664 4733    | 345 9545   | 99.6      | 654 0455    | 4278        | 4.6   | 5722       | 40  |
| 30  | 335 6216   | 94.9      | 664 3784    | 346 0541   | 99.5      | 653 9459    | 4325        | 4.7   | 5675       | 30  |
| 40  | 335 7165   | 94.8      | 664 2835    | 346 1536   | 99.6      | 653 8464    | 4372        | 4.6   | 5628       | 20  |
| 50  | 335 8113   | 94.8      | 664 1887    | 346 2532   | 99.5      | 653 7468    | 4418        | 4.7   | 5582       | 10  |
| 31' | 9.335 9062 | 94.9      | 10.664 0938 | 9.346 3527 | 99.5      | 10.653 6473 | 10.010 4465 | 4.7   | 9.989 5535 | 29' |
| 10  | 336 0010   | 94.8      | 663 9990    | 346 4522   | 99.5      | 653 5478    | 4512        | 4.7   | 5488       | 50  |
| 20  | 336 0958   | 94.8      | 663 9042    | 346 5517   | 99.5      | 653 4483    | 4559        | 4.7   | 5441       | 40  |
| 30  | 336 1906   | 94.8      | 663 8094    | 346 6512   | 99.4      | 653 3488    | 4605        | 4.7   | 5395       | 30  |
| 40  | 336 2854   | 94.8      | 663 7146    | 346 7506   | 99.4      | 653 2494    | 4652        | 4.7   | 5348       | 20  |
| 50  | 336 3801   | 94.7      | 663 6199    | 346 8500   | 99.4      | 653 1500    | 4699        | 4.7   | 5301       | 10  |
| 32' | 9.336 4749 | 94.7      | 10.663 5251 | 9.346 9494 | 99.4      | 10.653 0506 | 10.010 4746 | 4.7   | 9.989 5254 | 28' |
| 10  | 336 5696   | 94.6      | 663 4304    | 347 0488   | 99.4      | 652 9512    | 4793        | 4.6   | 5207       | 50  |
| 20  | 336 6643   | 94.6      | 663 3357    | 347 1482   | 99.3      | 652 8518    | 4839        | 4.7   | 5161       | 40  |
| 30  | 336 7589   | 94.6      | 663 2411    | 347 2475   | 99.4      | 652 7525    | 4886        | 4.7   | 5114       | 30  |
| 40  | 336 8535   | 94.6      | 663 1465    | 347 3469   | 99.3      | 652 6531    | 4933        | 4.7   | 5067       | 20  |
| 50  | 336 9482   | 94.7      | 663 0518    | 347 4462   | 99.2      | 652 5538    | 4980        | 4.7   | 5020       | 10  |
| 33' | 9.337 0428 | 94.6      | 10.662 9572 | 9.347 5454 | 99.3      | 10.652 4546 | 10.010 5027 | 4.7   | 9.989 4973 | 27' |
| 10  | 337 1373   | 94.5      | 662 8627    | 347 6447   | 99.3      | 652 3553    | 5074        | 4.7   | 4926       | 50  |
| 20  | 337 2319   | 94.5      | 662 7681    | 347 7439   | 99.3      | 652 2561    | 5121        | 4.7   | 4879       | 40  |
| 30  | 337 3264   | 94.5      | 662 6736    | 347 8432   | 99.2      | 652 1568    | 5167        | 4.6   | 4833       | 30  |
| 40  | 337 4209   | 94.5      | 662 5791    | 347 9424   | 99.1      | 652 0576    | 5214        | 4.7   | 4786       | 20  |
| 50  | 337 5154   | 94.5      | 662 4846    | 348 0415   | 99.1      | 651 9585    | 5261        | 4.7   | 4739       | 10  |
| 34' | 9.337 6099 | 94.4      | 10.662 3901 | 9.348 1407 | 99.1      | 10.651 8593 | 10.010 5308 | 4.7   | 9.989 4699 | 26' |
| 10  | 337 7043   | 94.4      | 662 2957    | 348 2398   | 99.1      | 651 7602    | 5355        | 4.7   | 4654       | 50  |
| 20  | 337 7987   | 94.4      | 662 2013    | 348 3389   | 99.1      | 651 6611    | 5402        | 4.7   | 4608       | 40  |
| 30  | 337 8931   | 94.4      | 662 1069    | 348 4380   | 99.1      | 651 5620    | 5449        | 4.7   | 4561       | 30  |
| 40  | 337 9875   | 94.4      | 662 0125    | 348 5371   | 99.1      | 651 4629    | 5496        | 4.7   | 4514       | 20  |
| 50  | 338 0819   | 94.4      | 661 9181    | 348 6362   | 99.0      | 651 3638    | 5543        | 4.7   | 4467       | 10  |
| 35' | 9.338 1762 | 94.3      | 10.661 8238 | 9.348 7352 | 99.0      | 10.651 2648 | 10.010 5590 | 4.7   | 9.989 4410 | 25' |
| 10  | 338 2705   | 94.3      | 661 7295    | 348 8342   | 99.0      | 651 1658    | 5637        | 4.7   | 4363       | 50  |
| 20  | 338 3648   | 94.3      | 661 6352    | 348 9332   | 99.0      | 651 0668    | 5684        | 4.7   | 4316       | 40  |
| 30  | 338 4591   | 94.2      | 661 5409    | 349 0322   | 98.9      | 650 9678    | 5731        | 4.7   | 4269       | 30  |
| 40  | 338 5533   | 94.2      | 661 4467    | 349 1311   | 98.9      | 650 8689    | 5778        | 4.7   | 4222       | 20  |
| 50  | 338 6476   | 94.3      | 661 3524    | 349 2301   | 98.9      | 650 7699    | 5825        | 4.7   | 4175       | 10  |
| 36' | 9.338 7418 | 94.1      | 10.661 2582 | 9.349 3290 | 98.9      | 10.650 6710 | 10.010 5872 | 4.7   | 9.989 4128 | 24' |
| 10  | 338 8359   | 94.2      | 661 1641    | 349 4279   | 98.8      | 650 5721    | 5919        | 4.7   | 4081       | 50  |
| 20  | 338 9301   | 94.2      | 661 0699    | 349 5267   | 98.9      | 650 4733    | 5966        | 4.7   | 4034       | 40  |
| 30  | 339 0243   | 94.1      | 660 9757    | 349 6256   | 98.9      | 650 3744    | 6013        | 4.8   | 3987       | 30  |
| 40  | 339 1184   | 94.1      | 660 8816    | 349 7244   | 98.8      | 650 2756    | 6061        | 4.8   | 3939       | 20  |
| 50  | 339 2125   | 94.0      | 660 7875    | 349 8232   | 98.8      | 650 1768    | 6108        | 4.7   | 3892       | 10  |
| 37' | 9.339 3065 | 94.0      | 10.660 6935 | 9.349 9220 | 98.8      | 10.650 0780 | 10.010 6155 | 4.7   | 9.989 3845 | 23' |
| 10  | 339 4006   | 94.0      | 660 5994    | 350 0208   | 98.8      | 649 9792    | 6202        | 4.7   | 3798       | 50  |
| 20  | 339 4946   | 94.1      | 660 5054    | 350 1195   | 98.7      | 649 8805    | 6249        | 4.7   | 3751       | 40  |
| 30  | 339 5887   | 93.9      | 660 4113    | 350 2183   | 98.8      | 649 7817    | 6296        | 4.7   | 3704       | 30  |
| 40  | 339 6826   | 93.9      | 660 3174    | 350 3170   | 98.7      | 649 6830    | 6343        | 4.8   | 3657       | 20  |
| 50  | 339 7766   | 94.0      | 660 2234    | 350 4157   | 98.6      | 649 5843    | 6391        | 4.7   | 3609       | 10  |
| 38' | 9.339 8706 | 93.9      | 10.660 1294 | 9.350 5143 | 98.6      | 10.649 4857 | 10.010 6438 | 4.7   | 9.989 3562 | 22' |
| 10  | 339 9645   | 93.9      | 660 0355    | 350 6130   | 98.6      | 649 3870    | 6485        | 4.7   | 3515       | 50  |
| 20  | 340 0584   | 93.9      | 659 9416    | 350 7116   | 98.6      | 649 2884    | 6532        | 4.7   | 3468       | 40  |
| 30  | 340 1523   | 93.9      | 659 8477    | 350 8102   | 98.6      | 649 1898    | 6579        | 4.8   | 3421       | 30  |
| 40  | 340 2462   | 93.8      | 659 7538    | 350 9088   | 98.6      | 649 0912    | 6627        | 4.7   | 3373       | 20  |
| 50  | 340 3400   | 93.8      | 659 6600    | 351 0074   | 98.5      | 648 9926    | 6674        | 4.7   | 3326       | 10  |
| 39' | 9.340 4338 | 93.8      | 10.659 5662 | 9.351 1059 | 98.6      | 10.648 8941 | 10.010 6721 | 4.7   | 9.989 3279 | 21' |
| 10  | 340 5276   | 93.8      | 659 4724    | 351 2045   | 98.6      | 648 7955    | 6768        | 4.8   | 3232       | 50  |
| 20  | 340 6214   | 93.8      | 659 3786    | 351 3030   | 98.5      | 648 6970    | 6816        | 4.7   | 3184       | 40  |
| 30  | 340 7152   | 93.7      | 659 2848    | 351 4014   | 98.5      | 648 5986    | 6863        | 4.7   | 3137       | 30  |
| 40  | 340 8089   | 93.7      | 659 1911    | 351 4999   | 98.5      | 648 5001    | 6910        | 4.8   | 3090       | 20  |
| 50  | 340 9026   | 93.7      | 659 0974    | 351 5984   | 98.4      | 648 4016    | 6958        | 4.7   | 3042       | 10  |
| 40' | 9.340 9963 | 93.7      | 10.659 0037 | 9.351 6968 | 98.4      | 10.648 3032 | 10.010 7005 | 4.7   | 9.989 2995 | 20' |

102°

77°

12°

167°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d.1" | co-sin.   |    |
|----|------------|----------|-------------|------------|----------|-------------|------------|------|-----------|----|
| 40 | 9.340 9963 | 93.7     | 10.659 0037 | 9.351 6968 | 98.4     | 10.648 3032 | 10.0107005 | 4.7  | 9.9892995 | 27 |
| 10 | 341 0900   | 93.6     | 658 9100    | 351 7952   | 98.4     | 648 2048    | 7052       | 4.8  | 2948      | 5c |
| 20 | 341 1836   | 93.6     | 658 8164    | 351 8936   | 98.3     | 648 1064    | 7100       | 4.7  | 2900      | 4c |
| 30 | 341 2773   | 93.7     | 658 7227    | 351 9919   | 98.4     | 648 0081    | 7147       | 4.7  | 2853      | 3c |
| 40 | 341 3709   | 93.5     | 658 6291    | 352 0903   | 98.3     | 647 9097    | 7194       | 4.8  | 2806      | 2c |
| 50 | 341 4644   | 93.6     | 658 5356    | 352 1886   | 98.3     | 647 8114    | 7242       | 4.7  | 2758      | 1c |
| 41 | 9.341 5580 | 93.6     | 10.658 4420 | 9.352 2869 | 98.3     | 10.647 7131 | 10.0107289 | 4.7  | 9.9892711 | 19 |
| 10 | 341 6516   | 93.6     | 658 3484    | 352 3852   | 98.3     | 647 6148    | 7336       | 4.7  | 2664      | 5c |
| 20 | 341 7451   | 93.5     | 658 2549    | 352 4835   | 98.2     | 647 5165    | 7384       | 4.8  | 2616      | 4c |
| 30 | 341 8386   | 93.5     | 658 1614    | 352 5817   | 98.2     | 647 4183    | 7431       | 4.8  | 2569      | 3c |
| 40 | 341 9321   | 93.5     | 658 0679    | 352 6799   | 98.2     | 647 3201    | 7479       | 4.7  | 2521      | 2c |
| 50 | 342 0255   | 93.4     | 657 9745    | 352 7781   | 98.2     | 647 2219    | 7526       | 4.7  | 2474      | 1c |
| 42 | 9.342 1199 | 93.4     | 10.657 8810 | 9.352 8763 | 98.2     | 10.647 1237 | 10.0107573 | 4.8  | 9.9892427 | 18 |
| 10 | 342 2124   | 93.4     | 657 7876    | 352 9745   | 98.1     | 647 0255    | 7621       | 4.7  | 2379      | 5c |
| 20 | 342 3058   | 93.4     | 657 6942    | 353 0726   | 98.1     | 646 9274    | 7668       | 4.8  | 2332      | 4c |
| 30 | 342 3992   | 93.4     | 657 6008    | 353 1708   | 98.2     | 646 8292    | 7716       | 4.7  | 2284      | 3c |
| 40 | 342 4925   | 93.3     | 657 5075    | 353 2689   | 98.1     | 646 7311    | 7763       | 4.7  | 2237      | 2c |
| 50 | 342 5859   | 93.3     | 657 4141    | 353 3669   | 98.0     | 646 6331    | 7811       | 4.8  | 2189      | 1c |
| 43 | 9.342 6792 | 93.3     | 10.657 3208 | 9.353 4650 | 98.1     | 10.646 5350 | 10.0107858 | 4.7  | 9.9892142 | 17 |
| 10 | 342 7725   | 93.3     | 657 2275    | 353 5630   | 98.0     | 646 4370    | 7906       | 4.8  | 2094      | 5c |
| 20 | 342 8657   | 93.2     | 657 1343    | 353 6611   | 98.1     | 646 3389    | 7953       | 4.8  | 2047      | 4c |
| 30 | 342 9590   | 93.3     | 657 0410    | 353 7591   | 98.0     | 646 2409    | 8001       | 4.8  | 1999      | 3c |
| 40 | 343 0522   | 93.2     | 656 9478    | 353 8571   | 98.0     | 646 1429    | 8049       | 4.8  | 1951      | 2c |
| 50 | 343 1454   | 93.2     | 656 8546    | 353 9550   | 97.9     | 646 0450    | 8096       | 4.7  | 1904      | 1c |
| 44 | 9.343 2386 | 93.2     | 10.656 7614 | 9.354 0530 | 98.0     | 10.645 9470 | 10.0108144 | 4.8  | 9.9891856 | 16 |
| 10 | 343 3318   | 93.1     | 656 6682    | 354 1509   | 97.9     | 645 8491    | 8191       | 4.8  | 1809      | 5c |
| 20 | 343 4249   | 93.1     | 656 5751    | 354 2488   | 97.9     | 645 7512    | 8239       | 4.8  | 1761      | 4c |
| 30 | 343 5180   | 93.1     | 656 4820    | 354 3467   | 97.9     | 645 6533    | 8286       | 4.7  | 1714      | 3c |
| 40 | 343 6111   | 93.1     | 656 3889    | 354 4445   | 97.8     | 645 5555    | 8334       | 4.8  | 1666      | 2c |
| 50 | 343 7042   | 93.1     | 656 2958    | 354 5424   | 97.8     | 645 4576    | 8382       | 4.7  | 1618      | 1c |
| 45 | 9.343 7973 | 93.1     | 10.656 2027 | 9.354 6402 | 97.8     | 10.645 3598 | 10.0108429 | 4.8  | 9.9891571 | 15 |
| 10 | 343 8903   | 93.0     | 656 1097    | 354 7380   | 97.8     | 645 2620    | 8477       | 4.8  | 1523      | 5c |
| 20 | 343 9833   | 93.0     | 656 0167    | 354 8358   | 97.8     | 645 1642    | 8525       | 4.7  | 1475      | 4c |
| 30 | 344 0763   | 93.0     | 655 9237    | 354 9336   | 97.7     | 645 0664    | 8572       | 4.8  | 1428      | 3c |
| 40 | 344 1693   | 93.0     | 655 8307    | 355 0313   | 97.7     | 644 9687    | 8620       | 4.8  | 1380      | 2c |
| 50 | 344 2623   | 93.0     | 655 7377    | 355 1290   | 97.7     | 644 8710    | 8668       | 4.8  | 1332      | 1c |
| 46 | 9.344 3552 | 92.9     | 10.655 6448 | 9.355 2267 | 97.7     | 10.644 7733 | 10.0108715 | 4.7  | 9.9891285 | 14 |
| 10 | 344 4481   | 92.9     | 655 5519    | 355 3244   | 97.7     | 644 6756    | 8763       | 4.8  | 1237      | 5c |
| 20 | 344 5410   | 92.9     | 655 4590    | 355 4221   | 97.7     | 644 5779    | 8811       | 4.8  | 1189      | 4c |
| 30 | 344 6339   | 92.9     | 655 3661    | 355 5197   | 97.6     | 644 4803    | 8859       | 4.8  | 1141      | 3c |
| 40 | 344 7267   | 92.8     | 655 2733    | 355 6174   | 97.7     | 644 3826    | 8906       | 4.7  | 1094      | 2c |
| 50 | 344 8196   | 92.8     | 655 1804    | 355 7150   | 97.6     | 644 2850    | 8954       | 4.8  | 1046      | 1c |
| 47 | 9.344 9124 | 92.8     | 10.655 0876 | 9.355 8126 | 97.6     | 10.644 1874 | 10.0109002 | 4.8  | 9.9890998 | 13 |
| 10 | 345 0052   | 92.8     | 654 9948    | 355 9101   | 97.5     | 644 0899    | 9050       | 4.8  | 0950      | 5c |
| 20 | 345 0979   | 92.7     | 654 9021    | 356 0077   | 97.6     | 643 9923    | 9097       | 4.7  | 0903      | 4c |
| 30 | 345 1907   | 92.8     | 654 8093    | 356 1052   | 97.5     | 643 8948    | 9145       | 4.8  | 0855      | 3c |
| 40 | 345 2834   | 92.7     | 654 7166    | 356 2027   | 97.5     | 643 7973    | 9193       | 4.8  | 0807      | 2c |
| 50 | 345 3761   | 92.7     | 654 6239    | 356 3002   | 97.5     | 643 6998    | 9241       | 4.8  | 0759      | 1c |
| 48 | 9.345 4688 | 92.7     | 10.654 5312 | 9.356 3977 | 97.5     | 10.643 6023 | 10.0109289 | 4.7  | 9.9890711 | 12 |
| 10 | 345 5615   | 92.6     | 654 4385    | 356 4951   | 97.4     | 643 5049    | 9336       | 4.8  | 0664      | 5c |
| 20 | 345 6541   | 92.6     | 654 3459    | 356 5925   | 97.4     | 643 4075    | 9384       | 4.8  | 0616      | 4c |
| 30 | 345 7467   | 92.6     | 654 2533    | 356 6900   | 97.5     | 643 3100    | 9432       | 4.8  | 0568      | 3c |
| 40 | 345 8393   | 92.6     | 654 1607    | 356 7873   | 97.4     | 643 2127    | 9480       | 4.8  | 0520      | 2c |
| 50 | 345 9319   | 92.6     | 654 0681    | 356 8847   | 97.4     | 643 1153    | 9528       | 4.8  | 0472      | 1c |
| 49 | 9.346 0245 | 92.5     | 10.653 9755 | 9.356 9821 | 97.3     | 10.643 0179 | 10.0109576 | 4.8  | 9.9890424 | 11 |
| 10 | 346 0270   | 92.5     | 653 8830    | 357 0794   | 97.3     | 642 9206    | 9624       | 4.8  | 0376      | 5c |
| 20 | 346 2095   | 92.5     | 653 7905    | 357 1767   | 97.3     | 642 8233    | 9672       | 4.8  | 0328      | 4c |
| 30 | 346 3020   | 92.5     | 653 6980    | 357 2740   | 97.3     | 642 7260    | 9720       | 4.8  | 0280      | 3c |
| 40 | 346 3945   | 92.5     | 653 6055    | 357 3713   | 97.3     | 642 6287    | 9768       | 4.8  | 0232      | 2c |
| 50 | 346 4870   | 92.5     | 653 5130    | 357 4685   | 97.2     | 642 5315    | 9815       | 4.8  | 0185      | 1c |
| 50 | 9.346 5794 | 92.4     | 10.653 4206 | 9.357 5658 | 97.3     | 10.642 4342 | 10.0109863 | 4.7  | 9.9890137 | 10 |

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co sec. | d.1" | sin. |
|--|---------|----------|------|----------|----------|-------|---------|------|------|
|--|---------|----------|------|----------|----------|-------|---------|------|------|

102°

77°

| 12° |            |          |             |            | 167°     |             |            |       |           |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |
| 50' | 9.346 5794 |          | 10.653 4206 | 9.357 5658 |          | 10.642 4342 | 10.0109863 | 4.8   | 9.9890137 |
| 10  | 346 6718   | 92.4     | 653 3282    | 357 6630   | 97.2     | 642 3370    | 9911       | 4.8   | 0089      |
| 20  | 346 7642   | 92.4     | 653 2358    | 357 7602   | 97.1     | 642 2398    | 10.0109959 | 4.8   | 9.9890041 |
| 30  | 346 8566   | 92.4     | 653 1434    | 357 8573   | 97.1     | 642 1427    | 10.0110007 | 4.8   | 9.9889993 |
| 40  | 346 9489   | 92.3     | 653 0511    | 357 9545   | 97.2     | 642 0455    | 0055       | 4.8   | 9945      |
| 50  | 347 0413   | 92.4     | 652 9587    | 358 0516   | 97.1     | 641 9484    | 0103       | 4.8   | 9997      |
| 51' | 9.347 1336 |          | 10.652 8664 | 9.358 1487 |          | 10.641 8513 | 10.0110151 | 4.8   | 9.9889849 |
| 10  | 347 2259   | 92.3     | 652 7741    | 358 2458   | 97.1     | 641 7542    | 0199       | 4.8   | 9801      |
| 20  | 347 3182   | 92.3     | 652 6818    | 358 3429   | 97.1     | 641 6571    | 0247       | 4.8   | 9753      |
| 30  | 347 4104   | 92.2     | 652 5896    | 358 4400   | 97.1     | 641 5600    | 0296       | 4.9   | 9704      |
| 40  | 347 5026   | 92.2     | 652 4974    | 358 5370   | 97.0     | 641 4630    | 0344       | 4.8   | 9656      |
| 50  | 347 5948   | 92.2     | 652 4052    | 358 6340   | 97.0     | 641 3660    | 0392       | 4.8   | 9608      |
| 52' | 9.347 6870 |          | 10.652 3130 | 9.358 7310 |          | 10.641 2690 | 10.0110440 | 4.8   | 9.9889560 |
| 10  | 347 7792   | 92.2     | 652 2208    | 358 8280   | 97.0     | 641 1720    | 0488       | 4.8   | 9512      |
| 20  | 347 8713   | 92.1     | 652 1287    | 358 9249   | 96.9     | 641 0751    | 0536       | 4.8   | 9464      |
| 30  | 347 9635   | 92.2     | 652 0365    | 359 0219   | 97.0     | 640 9781    | 0584       | 4.8   | 9416      |
| 40  | 348 0556   | 92.1     | 651 9444    | 359 1188   | 96.9     | 640 8812    | 0632       | 4.8   | 9368      |
| 50  | 348 1477   | 92.1     | 651 8523    | 359 2157   | 96.9     | 640 7843    | 0680       | 4.8   | 9320      |
| 53' | 9.348 2397 |          | 10.651 7603 | 9.359 3126 |          | 10.640 6874 | 10.0110729 | 4.8   | 9.9889271 |
| 10  | 348 3318   | 92.1     | 651 6682    | 359 4094   | 96.8     | 640 5906    | 0777       | 4.8   | 9223      |
| 20  | 348 4238   | 92.0     | 651 5762    | 359 5063   | 96.9     | 640 4937    | 0825       | 4.8   | 9175      |
| 30  | 348 5158   | 92.0     | 651 4842    | 359 6031   | 96.8     | 640 3969    | 0873       | 4.8   | 9127      |
| 40  | 348 6078   | 92.0     | 651 3922    | 359 6999   | 96.8     | 640 3001    | 0921       | 4.8   | 9079      |
| 50  | 348 6998   | 92.0     | 651 3002    | 359 7967   | 96.8     | 640 2033    | 0969       | 4.9   | 9031      |
| 54' | 9.348 7917 |          | 10.651 2083 | 9.359 8935 |          | 10.640 1065 | 10.0111018 | 4.8   | 9.9889982 |
| 10  | 348 8836   | 91.9     | 651 1164    | 359 9902   | 96.7     | 640 0098    | 1066       | 4.8   | 8934      |
| 20  | 348 9755   | 91.9     | 651 0245    | 360 0869   | 96.7     | 639 9131    | 1114       | 4.8   | 8886      |
| 30  | 349 0674   | 91.9     | 650 9326    | 360 1836   | 96.7     | 639 8164    | 1162       | 4.8   | 8838      |
| 40  | 349 1593   | 91.9     | 650 8407    | 360 2803   | 96.7     | 639 7197    | 1211       | 4.8   | 8790      |
| 50  | 349 2511   | 91.8     | 650 7489    | 360 3770   | 96.7     | 639 6230    | 1259       | 4.8   | 8741      |
| 55' | 9.349 3429 |          | 10.650 6571 | 9.360 4736 |          | 10.639 5264 | 10.0111307 | 4.9   | 9.9888693 |
| 10  | 349 4347   | 91.8     | 650 5653    | 360 5703   | 96.6     | 639 4297    | 1356       | 4.8   | 8644      |
| 20  | 349 5265   | 91.8     | 650 4735    | 360 6669   | 96.6     | 639 3331    | 1404       | 4.8   | 8596      |
| 30  | 349 6183   | 91.8     | 650 3817    | 360 7635   | 96.5     | 639 2365    | 1452       | 4.8   | 8548      |
| 40  | 349 7100   | 91.7     | 650 2900    | 360 8600   | 96.6     | 639 1400    | 1500       | 4.9   | 8500      |
| 50  | 349 8017   | 91.7     | 650 1983    | 360 9566   | 96.6     | 639 0434    | 1549       | 4.8   | 8451      |
| 56' | 9.349 8934 |          | 10.650 1066 | 9.361 0531 |          | 10.638 9469 | 10.0111597 | 4.8   | 9.9888403 |
| 10  | 349 9851   | 91.7     | 650 0149    | 361 1496   | 96.5     | 638 8504    | 1645       | 4.8   | 8355      |
| 20  | 350 0767   | 91.6     | 649 9233    | 361 2461   | 96.5     | 638 7539    | 1694       | 4.9   | 8306      |
| 30  | 350 1684   | 91.7     | 649 8316    | 361 3426   | 96.4     | 638 6574    | 1742       | 4.9   | 8258      |
| 40  | 350 2600   | 91.6     | 649 7400    | 361 4390   | 96.4     | 638 5610    | 1791       | 4.9   | 8209      |
| 50  | 350 3516   | 91.6     | 649 6484    | 361 5355   | 96.5     | 638 4645    | 1839       | 4.8   | 8161      |
| 57' | 9.350 4432 |          | 10.649 5568 | 9.361 6319 |          | 10.638 3681 | 10.0111887 | 4.9   | 9.9888113 |
| 10  | 350 5347   | 91.5     | 649 4653    | 361 7283   | 96.4     | 638 2717    | 1936       | 4.8   | 8064      |
| 20  | 350 6262   | 91.5     | 649 3738    | 361 8247   | 96.4     | 638 1753    | 1984       | 4.9   | 8016      |
| 30  | 350 7178   | 91.6     | 649 2822    | 361 9210   | 96.3     | 638 0790    | 2033       | 4.9   | 7967      |
| 40  | 350 8093   | 91.5     | 649 1907    | 362 0174   | 96.4     | 637 9826    | 2081       | 4.9   | 7919      |
| 50  | 350 9007   | 91.4     | 649 0993    | 362 1137   | 96.3     | 637 8863    | 2130       | 4.8   | 7870      |
| 58' | 9.350 9922 |          | 10.649 0078 | 9.362 2100 |          | 10.637 7900 | 10.0112178 | 4.9   | 9.9887822 |
| 10  | 351 0836   | 91.4     | 648 9164    | 362 3063   | 96.3     | 637 6937    | 2227       | 4.8   | 7773      |
| 20  | 351 1750   | 91.4     | 648 8250    | 362 4025   | 96.2     | 637 5975    | 2275       | 4.9   | 7725      |
| 30  | 351 2664   | 91.4     | 648 7336    | 362 4988   | 96.3     | 637 5012    | 2324       | 4.8   | 7676      |
| 40  | 351 3578   | 91.4     | 648 6422    | 362 5950   | 96.2     | 637 4050    | 2372       | 4.9   | 7628      |
| 50  | 351 4491   | 91.3     | 648 5509    | 362 6912   | 96.2     | 637 3088    | 2421       | 4.9   | 7579      |
| 59' | 9.351 5405 |          | 10.648 4595 | 9.362 7874 |          | 10.637 2126 | 10.0112460 | 4.9   | 9.9887531 |
| 10  | 351 6318   | 91.3     | 648 3682    | 362 8836   | 96.1     | 637 1164    | 2518       | 4.8   | 7482      |
| 20  | 351 7231   | 91.3     | 648 2769    | 362 9797   | 96.1     | 637 0203    | 2566       | 4.9   | 7434      |
| 30  | 351 8143   | 91.2     | 648 1857    | 363 0758   | 96.1     | 636 9242    | 2615       | 4.9   | 7385      |
| 40  | 351 9056   | 91.3     | 648 0944    | 363 1719   | 96.1     | 636 8281    | 2663       | 4.8   | 7337      |
| 50  | 351 9968   | 91.2     | 648 0032    | 363 2680   | 96.1     | 636 7320    | 2712       | 4.9   | 7288      |
| 60' | 9.352 0880 |          | 10.647 9120 | 9.363 3641 |          | 10.636 6359 | 10.0112761 | 4.9   | 9.9887239 |

|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|
| 0'  | 9.352 0880 |          | 10.647 9120 | 9.363 3641 |          | 10.636 6359 | 10.011 2761 |       | 9.988 7239 |
| 10  | 352 1792   | 91.2     | 647 8208    | 363 4602   | 96.1     | 636 5308    | 2809        | 4.8   | 7191       |
| 20  | 352 2704   | 91.2     | 647 7296    | 363 5562   | 96.0     | 636 4438    | 2858        | 4.9   | 7142       |
| 30  | 352 3615   | 91.1     | 647 6385    | 363 6522   | 96.0     | 636 3478    | 2907        | 4.8   | 7093       |
| 40  | 352 4527   | 91.2     | 647 5473    | 363 7482   | 96.0     | 636 2518    | 2955        | 4.8   | 7045       |
| 50  | 352 5438   | 91.1     | 647 4562    | 363 8442   | 96.0     | 636 1558    | 3004        | 4.9   | 6996       |
| 1'  | 9.352 6349 |          | 10.647 3651 | 9.363 9401 |          | 10.636 0599 | 10.011 3053 |       | 9.988 6947 |
| 10  | 352 7259   | 91.0     | 647 2741    | 364 0361   | 96.0     | 635 9639    | 3101        | 4.9   | 6899       |
| 20  | 352 8170   | 91.1     | 647 1830    | 364 1320   | 95.9     | 635 8680    | 3150        | 4.9   | 6850       |
| 30  | 352 9080   | 91.0     | 647 0920    | 364 2279   | 95.9     | 635 7721    | 3199        | 4.8   | 6801       |
| 40  | 352 9990   | 91.0     | 647 0010    | 364 3238   | 95.8     | 635 6762    | 3247        | 4.9   | 6753       |
| 50  | 353 0900   | 91.0     | 646 9100    | 364 4196   | 95.8     | 635 5804    | 3296        | 4.9   | 6704       |
| 2'  | 9.353 1810 |          | 10.646 8190 | 9.364 5155 |          | 10.635 4845 | 10.011 3345 |       | 9.988 6655 |
| 10  | 353 2719   | 91.0     | 646 7281    | 364 6113   | 95.8     | 635 3887    | 3344        | 4.8   | 6666       |
| 20  | 353 3629   | 91.0     | 646 6371    | 364 7071   | 95.8     | 635 2929    | 3392        | 4.9   | 6558       |
| 30  | 353 4538   | 90.9     | 646 5462    | 364 8029   | 95.7     | 635 1971    | 3491        | 4.9   | 6509       |
| 40  | 353 5447   | 90.9     | 646 4553    | 364 8986   | 95.7     | 635 1014    | 3540        | 4.9   | 6460       |
| 50  | 353 6355   | 90.9     | 646 3645    | 364 9944   | 95.7     | 635 0056    | 3589        | 4.8   | 6411       |
| 3'  | 9.353 7264 |          | 10.646 2736 | 9.365 0901 |          | 10.634 9099 | 10.011 3637 |       | 9.988 6363 |
| 10  | 353 8172   | 90.8     | 646 1828    | 365 1858   | 95.7     | 634 8142    | 3686        | 4.9   | 6314       |
| 20  | 353 9080   | 90.8     | 646 0920    | 365 2815   | 95.7     | 634 7185    | 3735        | 4.9   | 6265       |
| 30  | 353 9988   | 90.8     | 646 0012    | 365 3772   | 95.7     | 634 6228    | 3784        | 4.9   | 6216       |
| 40  | 354 0896   | 90.8     | 645 9104    | 365 4728   | 95.6     | 634 5272    | 3833        | 4.9   | 6167       |
| 50  | 354 1804   | 90.7     | 645 8197    | 365 5685   | 95.6     | 634 4315    | 3882        | 4.8   | 6118       |
| 4'  | 9.354 2710 |          | 10.645 7290 | 9.365 6641 |          | 10.634 3359 | 10.011 3930 |       | 9.988 6070 |
| 10  | 354 3618   | 90.6     | 645 6382    | 365 7597   | 95.6     | 634 2403    | 3979        | 4.9   | 6021       |
| 20  | 354 4524   | 90.6     | 645 5476    | 365 8553   | 95.6     | 634 1447    | 4028        | 4.9   | 5972       |
| 30  | 354 5431   | 90.7     | 645 4569    | 365 9508   | 95.5     | 634 0492    | 4077        | 4.9   | 5923       |
| 40  | 354 6338   | 90.7     | 645 3662    | 366 0464   | 95.6     | 633 9536    | 4126        | 4.9   | 5874       |
| 50  | 354 7244   | 90.6     | 645 2756    | 366 1419   | 95.5     | 633 8581    | 4175        | 4.9   | 5825       |
| 5'  | 9.354 8150 |          | 10.645 1850 | 9.366 2374 |          | 10.633 7626 | 10.011 4224 |       | 9.988 5776 |
| 10  | 354 9056   | 90.6     | 645 0944    | 366 3329   | 95.5     | 633 6671    | 4273        | 4.9   | 5727       |
| 20  | 354 9962   | 90.6     | 645 0038    | 366 4283   | 95.4     | 633 5717    | 4322        | 4.9   | 5678       |
| 30  | 355 0867   | 90.5     | 644 9133    | 366 5238   | 95.5     | 633 4762    | 4371        | 4.9   | 5629       |
| 40  | 355 1772   | 90.5     | 644 8228    | 366 6192   | 95.4     | 633 3808    | 4420        | 4.9   | 5580       |
| 50  | 355 2677   | 90.5     | 644 7323    | 366 7146   | 95.4     | 633 2854    | 4469        | 4.9   | 5531       |
| 6'  | 9.355 3582 |          | 10.644 6418 | 9.366 8100 |          | 10.633 1900 | 10.011 4518 |       | 9.988 5482 |
| 10  | 355 4487   | 90.5     | 644 5513    | 366 8054   | 95.4     | 633 0946    | 4567        | 4.9   | 5433       |
| 20  | 355 5391   | 90.4     | 644 4609    | 367 0007   | 95.3     | 632 9993    | 4616        | 4.9   | 5384       |
| 30  | 355 6296   | 90.5     | 644 3704    | 367 0960   | 95.4     | 632 9040    | 4665        | 4.9   | 5335       |
| 40  | 355 7200   | 90.4     | 644 2800    | 367 1914   | 95.4     | 632 8086    | 4714        | 4.9   | 5286       |
| 50  | 355 8104   | 90.4     | 644 1896    | 367 2866   | 95.3     | 632 7134    | 4763        | 4.9   | 5237       |
| 7'  | 9.355 9007 |          | 10.644 0993 | 9.367 3819 |          | 10.632 6181 | 10.011 4812 |       | 9.988 5188 |
| 10  | 355 9911   | 90.4     | 644 0089    | 367 4772   | 95.3     | 632 5228    | 4861        | 4.9   | 5139       |
| 20  | 356 0814   | 90.3     | 643 9186    | 367 5724   | 95.2     | 632 4276    | 4910        | 4.9   | 5090       |
| 30  | 356 1717   | 90.3     | 643 8283    | 367 6676   | 95.2     | 632 3324    | 4959        | 4.9   | 5041       |
| 40  | 356 2620   | 90.3     | 643 7380    | 367 7628   | 95.2     | 632 2372    | 5008        | 4.9   | 4992       |
| 50  | 356 3523   | 90.3     | 643 6477    | 367 8580   | 95.2     | 632 1420    | 5057        | 4.9   | 4943       |
| 8'  | 9.356 4426 |          | 10.643 5574 | 9.367 9532 |          | 10.632 0468 | 10.011 5106 |       | 9.988 4894 |
| 10  | 356 5328   | 90.2     | 643 4672    | 368 0483   | 95.1     | 631 9517    | 5155        | 5.0   | 4845       |
| 20  | 356 6230   | 90.2     | 643 3770    | 368 1435   | 95.2     | 631 8565    | 5205        | 4.9   | 4795       |
| 30  | 356 7132   | 90.2     | 643 2868    | 368 2386   | 95.1     | 631 7614    | 5254        | 4.9   | 4746       |
| 40  | 356 8034   | 90.2     | 643 1966    | 368 3337   | 95.1     | 631 6663    | 5303        | 4.9   | 4697       |
| 50  | 356 8935   | 90.1     | 643 1065    | 368 4287   | 95.0     | 631 5713    | 5352        | 4.9   | 4648       |
| 9'  | 9.356 9836 |          | 10.643 0164 | 9.368 5238 |          | 10.631 4762 | 10.011 5401 |       | 9.988 4599 |
| 10  | 357 0738   | 90.2     | 642 9262    | 368 6188   | 95.0     | 631 3812    | 5450        | 5.0   | 4550       |
| 20  | 357 1639   | 90.1     | 642 8361    | 368 7138   | 95.0     | 631 2862    | 5500        | 5.0   | 4500       |
| 30  | 357 2539   | 90.0     | 642 7461    | 368 8088   | 95.0     | 631 1912    | 5549        | 4.9   | 4451       |
| 40  | 357 3440   | 90.1     | 642 6560    | 368 9038   | 95.0     | 631 0962    | 5598        | 4.9   | 4402       |
| 50  | 357 4340   | 90.0     | 642 5660    | 368 9988   | 95.0     | 631 0012    | 5647        | 4.9   | 4353       |
| 10' | 9.357 5240 |          | 10.642 4760 | 9.369 0937 |          | 10.630 9063 | 10.011 5697 |       | 9.988 4303 |
|     | co-sin.    | diff. 1" | sec.        | co-tang.   | diff. 1" | tang.       | co-sec.     | d. 1" | sin.       |



13°

100°

|    | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | d.1" | co-sin.       |
|----|------------|---------|-------------|------------|---------|-------------|-------------|------|---------------|
| 10 | 9.357 5240 |         | 10.642 4760 | 9.369 0917 |         | 10.630 9063 | 10.011 5697 |      | 9.9884303 50' |
| 10 | 357 6140   | 90.0    | 642 3860    | 369 1886   | 94.9    | 630 8114    | 5746        | 4.9  | 4254 50       |
| 20 | 357 7040   | 90.0    | 642 2960    | 369 2815   | 94.9    | 630 7165    | 5795        | 4.9  | 4205 40       |
| 30 | 357 7940   | 90.0    | 642 2060    | 369 3784   | 94.9    | 630 6216    | 5844        | 4.9  | 4156 30       |
| 40 | 357 8839   | 89.9    | 642 1161    | 369 4713   | 94.9    | 630 5267    | 5894        | 5.0  | 4106 20       |
| 50 | 357 9738   | 89.9    | 642 0262    | 369 5681   | 94.8    | 630 4319    | 5943        | 4.9  | 4057 10       |
| 11 | 9.358 0637 | 89.9    | 10.641 9363 | 9.369 6629 | 94.8    | 10.630 3371 | 10.011 5992 | 5.0  | 9.9884008 49' |
| 10 | 358 1536   | 89.8    | 641 8464    | 369 7577   | 94.8    | 630 2423    | 6042        | 4.9  | 3958 50       |
| 20 | 358 2434   | 89.8    | 641 7566    | 369 8525   | 94.8    | 630 1475    | 6091        | 4.9  | 3909 40       |
| 30 | 358 3333   | 89.9    | 641 6667    | 369 9473   | 94.8    | 630 0527    | 6140        | 4.9  | 3860 30       |
| 40 | 358 4231   | 89.8    | 641 5769    | 370 0421   | 94.8    | 629 9579    | 6190        | 5.0  | 3810 20       |
| 50 | 358 5129   | 89.8    | 641 4871    | 370 1368   | 94.7    | 629 8632    | 6239        | 4.9  | 3761 10       |
| 12 | 9.358 6027 | 89.8    | 10.641 3973 | 9.370 2315 | 94.7    | 10.629 7685 | 10.011 6218 | 4.9  | 9.9883712 48' |
| 10 | 358 6924   | 89.7    | 641 3076    | 370 2262   | 94.7    | 629 6738    | 6338        | 5.0  | 3662 50       |
| 20 | 358 7822   | 89.7    | 641 2178    | 370 3209   | 94.7    | 629 5791    | 6337        | 4.9  | 3613 40       |
| 30 | 358 8719   | 89.7    | 641 1281    | 370 5156   | 94.7    | 629 4844    | 6437        | 4.9  | 3563 30       |
| 40 | 358 9616   | 89.7    | 641 0384    | 370 6102   | 94.6    | 629 3898    | 6436        | 4.9  | 3514 20       |
| 50 | 359 0513   | 89.7    | 640 9487    | 370 7048   | 94.6    | 629 2952    | 6536        | 5.0  | 3464 10       |
| 13 | 9.359 1409 | 89.6    | 10.640 8591 | 9.370 7994 | 94.6    | 10.629 2006 | 10.011 6515 | 4.9  | 9.9883415 47' |
| 10 | 359 2306   | 89.6    | 640 7694    | 370 8940   | 94.6    | 629 1060    | 6634        | 4.9  | 3366 50       |
| 20 | 359 3202   | 89.6    | 640 6798    | 370 9886   | 94.6    | 629 0114    | 6634        | 4.9  | 3316 40       |
| 30 | 359 4098   | 89.6    | 640 5902    | 371 0831   | 94.5    | 628 9169    | 6733        | 4.9  | 3267 30       |
| 40 | 359 4994   | 89.6    | 640 5006    | 371 1777   | 94.5    | 628 8223    | 6733        | 4.9  | 3217 20       |
| 50 | 359 5890   | 89.6    | 640 4110    | 371 2722   | 94.5    | 628 7278    | 6832        | 5.0  | 3168 10       |
| 14 | 9.359 6785 | 89.5    | 10.640 3215 | 9.371 3667 | 94.5    | 10.628 6333 | 10.011 6812 | 4.9  | 9.9883118 46' |
| 10 | 359 7680   | 89.5    | 640 2320    | 371 4612   | 94.5    | 628 5388    | 6931        | 4.9  | 3069 50       |
| 20 | 359 8575   | 89.5    | 640 1425    | 371 5556   | 94.4    | 628 4444    | 6931        | 5.0  | 3019 40       |
| 30 | 359 9470   | 89.5    | 640 0530    | 371 6501   | 94.5    | 628 3499    | 7030        | 4.9  | 2970 30       |
| 40 | 360 0365   | 89.5    | 639 9635    | 371 7445   | 94.4    | 628 2555    | 7030        | 5.0  | 2920 20       |
| 50 | 360 1259   | 89.4    | 639 8741    | 371 8389   | 94.4    | 628 1611    | 7130        | 5.0  | 2870 10       |
| 15 | 9.360 2154 | 89.5    | 10.639 7846 | 9.371 9313 | 94.4    | 10.628 0667 | 10.011 7119 | 4.9  | 9.9882821 45' |
| 10 | 360 3048   | 89.4    | 639 6952    | 372 0276   | 94.4    | 627 9724    | 7219        | 4.9  | 2771 50       |
| 20 | 360 3942   | 89.4    | 639 6058    | 372 1220   | 94.4    | 627 8780    | 7218        | 4.9  | 2722 40       |
| 30 | 360 4835   | 89.3    | 639 5165    | 372 2163   | 94.3    | 627 7837    | 7318        | 5.0  | 2672 30       |
| 40 | 360 5729   | 89.4    | 639 4271    | 372 3106   | 94.3    | 627 6894    | 7318        | 4.9  | 2622 20       |
| 50 | 360 6622   | 89.3    | 639 3378    | 372 4049   | 94.3    | 627 5951    | 7417        | 4.9  | 2573 10       |
| 16 | 9.360 7515 | 89.3    | 10.639 2485 | 9.372 4992 | 94.3    | 10.627 5008 | 10.011 7417 | 5.0  | 9.9882523 44' |
| 10 | 360 8408   | 89.3    | 639 1592    | 372 5934   | 94.2    | 627 4066    | 7516        | 4.9  | 2474 50       |
| 20 | 360 9301   | 89.3    | 639 0699    | 372 6877   | 94.3    | 627 3123    | 7516        | 5.0  | 2424 40       |
| 30 | 361 0193   | 89.3    | 638 9807    | 372 7819   | 94.2    | 627 2181    | 7616        | 4.9  | 2374 30       |
| 40 | 361 1086   | 89.3    | 638 8914    | 372 8761   | 94.2    | 627 1239    | 7615        | 4.9  | 2325 20       |
| 50 | 361 1978   | 89.2    | 638 8022    | 372 9703   | 94.2    | 627 0297    | 7725        | 5.0  | 2275 10       |
| 17 | 9.361 2870 | 89.2    | 10.638 7130 | 9.373 0645 | 94.1    | 10.626 9355 | 10.011 7775 | 4.9  | 9.9882225 43' |
| 10 | 361 3762   | 89.2    | 638 6238    | 373 1586   | 94.1    | 626 8414    | 7825        | 5.0  | 2175 50       |
| 20 | 361 4653   | 89.1    | 638 5347    | 373 2527   | 94.1    | 626 7473    | 7874        | 4.9  | 2126 40       |
| 30 | 361 5544   | 89.1    | 638 4456    | 373 3468   | 94.1    | 626 6532    | 7924        | 5.0  | 2076 30       |
| 40 | 361 6436   | 89.2    | 638 3564    | 373 4409   | 94.1    | 626 5591    | 7974        | 5.0  | 2026 20       |
| 50 | 361 7327   | 89.1    | 638 2673    | 373 5350   | 94.1    | 626 4650    | 8024        | 4.9  | 1976 10       |
| 18 | 9.361 8217 | 89.0    | 10.638 1783 | 9.373 6291 | 94.1    | 10.626 3709 | 10.011 8073 | 4.9  | 9.9881927 42' |
| 10 | 361 9108   | 89.0    | 638 0892    | 373 7231   | 94.0    | 626 2769    | 8123        | 5.0  | 1877 50       |
| 20 | 361 9999   | 89.0    | 638 0002    | 373 8171   | 94.0    | 626 1829    | 8173        | 5.0  | 1827 40       |
| 30 | 362 0889   | 89.1    | 637 9111    | 373 9111   | 94.0    | 626 0889    | 8223        | 5.0  | 1777 30       |
| 40 | 362 1779   | 89.0    | 637 8221    | 374 0051   | 94.0    | 625 9949    | 8272        | 4.9  | 1728 20       |
| 50 | 362 2668   | 88.9    | 637 7332    | 374 0991   | 93.9    | 625 9009    | 8322        | 5.0  | 1678 10       |
| 19 | 9.362 3558 | 89.0    | 10.637 6442 | 9.374 1930 | 94.0    | 10.625 8070 | 10.011 8372 | 4.9  | 9.9881628 41' |
| 10 | 362 4448   | 88.9    | 637 5552    | 374 2870   | 94.0    | 625 7130    | 8422        | 5.0  | 1578 50       |
| 20 | 362 5337   | 88.9    | 637 4663    | 374 3809   | 93.9    | 625 6191    | 8472        | 5.0  | 1528 40       |
| 30 | 362 6226   | 88.9    | 637 3774    | 374 4748   | 93.9    | 625 5252    | 8522        | 5.0  | 1478 30       |
| 40 | 362 7115   | 88.8    | 637 2885    | 374 5686   | 93.8    | 625 4314    | 8572        | 5.0  | 1428 20       |
| 50 | 362 8003   | 88.8    | 637 1997    | 374 6625   | 93.8    | 625 3375    | 8621        | 4.9  | 1379 10       |
| 20 | 9.362 8892 | 88.9    | 10.637 1108 | 9.374 7563 | 93.8    | 10.625 2437 | 10.011 8671 | 5.0  | 9.9881329 40' |

|  | co-sin. | dif. 1" | sec. | co-tang. | dif. 1" | tang. | co-sec. | d.1" | sin. |
|--|---------|---------|------|----------|---------|-------|---------|------|------|
|--|---------|---------|------|----------|---------|-------|---------|------|------|

103°

76°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.       |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|--------|---------------|
| 20' | 9.362 8892 | 88.8     | 10.637 1108 | 9.374 7563 | 93.8     | 10.625 2437 | 10.011 8671 | 5.0    | 9.9881329 40' |
| 10  | 362 9760   | 88.8     | 637 0220    | 374 8501   | 93.8     | 625 1499    | 8721        | 5.0    | 1279 50       |
| 20  | 363 0668   | 88.8     | 636 9332    | 374 9439   | 93.8     | 625 0561    | 8771        | 5.0    | 1229 40       |
| 30  | 363 1566   | 88.8     | 636 8444    | 375 0377   | 93.8     | 624 9623    | 8821        | 5.0    | 1179 30       |
| 40  | 363 2444   | 88.7     | 636 7556    | 375 1315   | 93.7     | 624 8685    | 8871        | 5.0    | 1129 20       |
| 50  | 363 3331   | 88.8     | 636 6669    | 375 2252   | 93.8     | 624 7748    | 8921        | 5.0    | 1079 10       |
| 21' | 9.363 4219 | 88.7     | 10.636 5781 | 9.375 3190 | 93.7     | 10.624 6810 | 10.011 8971 | 5.0    | 9.9881029 30' |
| 10  | 363 5106   | 88.7     | 636 4894    | 375 4127   | 93.7     | 624 5873    | 9021        | 5.0    | 9979 50       |
| 20  | 363 5993   | 88.7     | 636 4007    | 375 5064   | 93.7     | 624 4936    | 9071        | 5.0    | 9929 40       |
| 30  | 363 6880   | 88.6     | 636 3120    | 375 6001   | 93.6     | 624 3999    | 9121        | 5.0    | 9879 30       |
| 40  | 363 7766   | 88.7     | 636 2234    | 375 6937   | 93.6     | 624 3063    | 9171        | 5.0    | 9829 20       |
| 50  | 363 8653   | 88.6     | 636 1347    | 375 7873   | 93.7     | 624 2127    | 9221        | 5.0    | 9779 10       |
| 22' | 9.363 9539 | 88.6     | 10.636 0461 | 9.375 8810 | 93.6     | 10.624 1199 | 10.011 9271 | 5.0    | 9.9880729 30' |
| 10  | 364 0425   | 88.6     | 635 9575    | 375 9746   | 93.6     | 624 0254    | 9321        | 5.0    | 9679 50       |
| 20  | 364 1311   | 88.5     | 635 8689    | 376 0682   | 93.5     | 623 9318    | 9371        | 5.0    | 9629 40       |
| 30  | 364 2196   | 88.6     | 635 7804    | 376 1617   | 93.6     | 623 8383    | 9421        | 5.0    | 9579 30       |
| 40  | 364 3082   | 88.5     | 635 6918    | 376 2553   | 93.5     | 623 7447    | 9471        | 5.0    | 9529 20       |
| 50  | 364 3967   | 88.5     | 635 6033    | 376 3488   | 93.5     | 623 6512    | 9521        | 5.0    | 9479 10       |
| 23' | 9.364 4852 | 88.5     | 10.635 5148 | 9.376 4423 | 93.5     | 10.623 5577 | 10.011 9571 | 5.0    | 9.9880429 30' |
| 10  | 364 5737   | 88.4     | 635 4263    | 376 5358   | 93.5     | 623 4642    | 9621        | 5.1    | 9379 50       |
| 20  | 364 6621   | 88.5     | 635 3379    | 376 6293   | 93.5     | 623 3707    | 9672        | 5.0    | 9328 40       |
| 30  | 364 7506   | 88.4     | 635 2494    | 376 7228   | 93.4     | 623 2772    | 9722        | 5.0    | 9278 30       |
| 40  | 364 8390   | 88.4     | 635 1610    | 376 8162   | 93.4     | 623 1838    | 9772        | 5.0    | 9228 20       |
| 50  | 364 9274   | 88.4     | 635 0726    | 376 9096   | 93.4     | 623 0904    | 9822        | 5.0    | 9178 10       |
| 24' | 9.365 0158 | 88.4     | 10.634 9842 | 9.377 0010 | 93.4     | 10.622 9970 | 10.011 9872 | 5.0    | 9.9880128 30' |
| 10  | 365 1042   | 88.3     | 634 8958    | 377 0944   | 93.4     | 622 9036    | 9922        | 5.0    | 9078 50       |
| 20  | 365 1925   | 88.4     | 634 8075    | 377 1878   | 93.3     | 622 8101    | 10.011 9972 | 5.1    | 9.9880028 40  |
| 30  | 365 2809   | 88.3     | 634 7191    | 377 2811   | 93.4     | 622 7166    | 10.012 0023 | 5.0    | 9.9879977 30  |
| 40  | 365 3692   | 88.3     | 634 6308    | 377 3745   | 93.3     | 622 6235    | 0073        | 5.0    | 9929 20       |
| 50  | 365 4575   | 88.3     | 634 5425    | 377 4678   | 93.3     | 622 5302    | 0123        | 5.0    | 9877 10       |
| 25' | 9.365 5458 | 88.2     | 10.634 4542 | 9.377 5611 | 93.3     | 10.622 4366 | 10.012 0173 | 5.0    | 9.9879827 35' |
| 10  | 365 6340   | 88.2     | 634 3660    | 377 6544   | 93.2     | 622 3436    | 0223        | 5.1    | 9777 50       |
| 20  | 365 7222   | 88.3     | 634 2778    | 377 7476   | 93.2     | 622 2504    | 0274        | 5.0    | 9726 40       |
| 30  | 365 8105   | 88.2     | 634 1895    | 377 8409   | 93.2     | 622 1571    | 0324        | 5.0    | 9676 30       |
| 40  | 365 8987   | 88.2     | 634 1013    | 377 9341   | 93.2     | 622 0639    | 0374        | 5.0    | 9626 20       |
| 50  | 365 9869   | 88.1     | 634 0131    | 378 0273   | 93.2     | 621 9707    | 0424        | 5.1    | 9576 10       |
| 26' | 9.366 0750 | 88.2     | 10.633 9250 | 9.378 1215 | 93.2     | 10.621 8775 | 10.012 0475 | 5.0    | 9.9879525 34' |
| 10  | 366 1632   | 88.1     | 633 8368    | 378 2147   | 93.1     | 621 7843    | 0525        | 5.0    | 9475 50       |
| 20  | 366 2513   | 88.1     | 633 7487    | 378 3088   | 93.1     | 621 6912    | 0575        | 5.1    | 9425 40       |
| 30  | 366 3394   | 88.1     | 633 6606    | 378 4020   | 93.1     | 621 5980    | 0626        | 5.0    | 9374 30       |
| 40  | 366 4275   | 88.0     | 633 5725    | 378 4951   | 93.1     | 621 5049    | 0676        | 5.0    | 9324 20       |
| 50  | 366 5155   | 88.1     | 633 4845    | 378 5882   | 93.1     | 621 4118    | 0726        | 5.1    | 9274 10       |
| 27' | 9.366 6036 | 88.0     | 10.633 3964 | 9.378 6813 | 93.1     | 10.621 3187 | 10.012 0777 | 5.0    | 9.9879223 33' |
| 10  | 366 6916   | 88.0     | 633 3084    | 378 7743   | 93.0     | 621 2257    | 0827        | 5.0    | 9173 50       |
| 20  | 366 7796   | 88.0     | 633 2204    | 378 8674   | 93.0     | 621 1326    | 0877        | 5.1    | 9123 40       |
| 30  | 366 8676   | 88.0     | 633 1324    | 378 9604   | 93.0     | 621 0395    | 0928        | 5.0    | 9072 30       |
| 40  | 366 9556   | 88.0     | 633 0444    | 379 0534   | 93.0     | 620 9466    | 0978        | 5.0    | 9022 20       |
| 50  | 367 0436   | 87.9     | 632 9564    | 379 1464   | 93.0     | 620 8536    | 1029        | 5.0    | 8971 10       |
| 28' | 9.367 1315 | 87.9     | 10.632 8685 | 9.379 2394 | 93.0     | 10.620 7606 | 10.012 1079 | 5.0    | 9.9878921 32' |
| 10  | 367 2194   | 87.9     | 632 7806    | 379 3324   | 92.9     | 620 6676    | 1129        | 5.1    | 8871 50       |
| 20  | 367 3073   | 87.9     | 632 6927    | 379 4253   | 92.9     | 620 5747    | 1180        | 5.0    | 8820 40       |
| 30  | 367 3952   | 87.8     | 632 6048    | 379 5182   | 92.9     | 620 4818    | 1230        | 5.1    | 8770 30       |
| 40  | 367 4830   | 87.9     | 632 5170    | 379 6111   | 92.9     | 620 3889    | 1281        | 5.0    | 8719 20       |
| 50  | 367 5709   | 87.8     | 632 4291    | 379 7040   | 92.9     | 620 2960    | 1331        | 5.0    | 8669 10       |
| 29' | 9.367 6587 | 87.8     | 10.632 3413 | 9.379 7969 | 92.8     | 10.620 2031 | 10.012 1382 | 5.0    | 9.9878618 31' |
| 10  | 367 7465   | 87.8     | 632 2535    | 379 8897   | 92.9     | 620 1103    | 1432        | 5.1    | 8618 50       |
| 20  | 367 8343   | 87.8     | 632 1657    | 379 9826   | 92.8     | 620 0174    | 1483        | 5.0    | 8567 40       |
| 30  | 367 9221   | 87.7     | 632 0779    | 380 0754   | 92.8     | 619 9246    | 1533        | 5.0    | 8517 30       |
| 40  | 368 0098   | 87.7     | 631 9902    | 380 1682   | 92.8     | 619 8318    | 1584        | 5.1    | 8467 20       |
| 50  | 368 0975   | 87.8     | 631 9025    | 380 2610   | 92.8     | 619 7390    | 1634        | 5.0    | 8416 10       |
| 30' | 9.368 1853 | 87.8     | 10.631 8147 | 9.380 3537 | 92.7     | 10.619 6463 | 10.012 1685 | 5.1    | 9.9878315 30' |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d. 1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|--------|------|
|--|---------|----------|------|----------|----------|-------|---------|--------|------|

13°

166°

|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |     |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|-----|
| 30' | 0.368 1853 | 87.6     | 10.631 8147 | 9.380 3537 | 92.8     | 10.619 6463 | 10.012 1685 | 5.0   | 9.987 8315 | 30' |
| 10  | 368 2729   | 87.7     | 631 7271    | 380 4465   | 92.7     | 619 5535    | 1735        | 5.1   | 8265       | 50  |
| 20  | 368 3606   | 87.7     | 631 6394    | 380 5392   | 92.7     | 619 4608    | 1786        | 5.1   | 8214       | 40  |
| 30  | 368 4483   | 87.6     | 631 5517    | 380 6319   | 92.7     | 619 3681    | 1837        | 5.0   | 8163       | 30  |
| 40  | 368 5359   | 87.6     | 631 4641    | 380 7246   | 92.7     | 619 2754    | 1887        | 5.1   | 8113       | 20  |
| 50  | 368 6235   | 87.6     | 631 3765    | 380 8173   | 92.7     | 619 1827    | 1938        | 5.1   | 8062       | 10  |
| 31' | 368 7111   | 87.6     | 10.631 2889 | 380 9100   | 92.7     | 10.619 0900 | 10.012 1958 | 5.0   | 9.987 8012 | 29' |
| 10  | 368 7987   | 87.6     | 631 2013    | 381 0026   | 92.6     | 618 9974    | 2039        | 5.1   | 7961       | 50  |
| 20  | 368 8863   | 87.5     | 631 1137    | 381 0952   | 92.6     | 618 9048    | 2090        | 5.0   | 7910       | 40  |
| 30  | 368 9738   | 87.5     | 631 0262    | 381 1878   | 92.6     | 618 8122    | 2140        | 5.1   | 7860       | 30  |
| 40  | 369 0613   | 87.5     | 630 9387    | 381 2804   | 92.6     | 618 7196    | 2191        | 5.1   | 7809       | 20  |
| 50  | 369 1488   | 87.5     | 630 8512    | 381 3730   | 92.5     | 618 6270    | 2242        | 5.0   | 7758       | 10  |
| 32' | 369 2363   | 87.5     | 10.630 7637 | 381 4655   | 92.6     | 10.618 5345 | 10.012 2292 | 5.1   | 9.987 7708 | 28' |
| 10  | 369 3238   | 87.4     | 630 6762    | 381 5581   | 92.5     | 618 4419    | 2343        | 5.1   | 7657       | 50  |
| 20  | 369 4112   | 87.4     | 630 5888    | 381 6506   | 92.5     | 618 3494    | 2394        | 5.0   | 7606       | 40  |
| 30  | 369 4987   | 87.4     | 630 5013    | 381 7431   | 92.5     | 618 2569    | 2444        | 5.1   | 7556       | 30  |
| 40  | 369 5861   | 87.4     | 630 4139    | 381 8356   | 92.4     | 618 1644    | 2495        | 5.1   | 7505       | 20  |
| 50  | 369 6735   | 87.3     | 630 3265    | 381 9280   | 92.5     | 618 0720    | 2546        | 5.0   | 7454       | 10  |
| 33' | 369 7608   | 87.4     | 10.630 2391 | 382 0205   | 92.4     | 10.617 9795 | 10.012 2596 | 5.1   | 9.987 7404 | 27' |
| 10  | 369 8482   | 87.3     | 630 1518    | 382 1129   | 92.4     | 617 8871    | 2647        | 5.1   | 7353       | 50  |
| 20  | 369 9355   | 87.4     | 630 0645    | 382 2053   | 92.4     | 617 7947    | 2698        | 5.1   | 7302       | 40  |
| 30  | 370 0229   | 87.3     | 629 9771    | 382 2977   | 92.4     | 617 7023    | 2749        | 5.1   | 7251       | 30  |
| 40  | 370 1102   | 87.2     | 629 8898    | 382 3901   | 92.4     | 617 6099    | 2800        | 5.0   | 7200       | 20  |
| 50  | 370 1974   | 87.3     | 629 8026    | 382 4825   | 92.3     | 617 5175    | 2850        | 5.1   | 7150       | 10  |
| 34' | 370 2847   | 87.2     | 10.629 7153 | 382 5748   | 92.3     | 10.617 4252 | 10.012 2901 | 5.1   | 9.987 7099 | 26' |
| 10  | 370 3719   | 87.3     | 629 6281    | 382 6671   | 92.4     | 617 3329    | 2952        | 5.1   | 7048       | 50  |
| 20  | 370 4592   | 87.2     | 629 5408    | 382 7595   | 92.2     | 617 2405    | 3003        | 5.1   | 6997       | 40  |
| 30  | 370 5464   | 87.2     | 629 4536    | 382 8517   | 92.3     | 617 1483    | 3054        | 5.0   | 6946       | 30  |
| 40  | 370 6336   | 87.1     | 629 3664    | 382 9440   | 92.3     | 617 0560    | 3104        | 5.1   | 6896       | 20  |
| 50  | 370 7207   | 87.1     | 629 2793    | 383 0363   | 92.3     | 616 9637    | 3155        | 5.1   | 6845       | 10  |
| 35' | 370 8079   | 87.2     | 10.629 1921 | 383 1285   | 92.2     | 10.616 8715 | 10.012 3206 | 5.1   | 9.987 6794 | 25' |
| 10  | 370 8950   | 87.1     | 629 1050    | 383 2207   | 92.2     | 616 7793    | 3257        | 5.1   | 6743       | 50  |
| 20  | 370 9821   | 87.1     | 629 0179    | 383 3129   | 92.2     | 616 6871    | 3308        | 5.1   | 6692       | 40  |
| 30  | 371 0692   | 87.1     | 628 9308    | 383 4051   | 92.2     | 616 5949    | 3359        | 5.1   | 6641       | 30  |
| 40  | 371 1563   | 87.1     | 628 8437    | 383 4973   | 92.2     | 616 5027    | 3410        | 5.1   | 6590       | 20  |
| 50  | 371 2434   | 87.0     | 628 7566    | 383 5894   | 92.1     | 616 4106    | 3461        | 5.1   | 6539       | 10  |
| 36' | 371 3304   | 87.0     | 10.628 6699 | 383 6816   | 92.1     | 10.616 3184 | 10.012 3512 | 5.1   | 9.987 6488 | 24' |
| 10  | 371 4174   | 87.0     | 628 5826    | 383 7737   | 92.1     | 616 2263    | 3563        | 5.1   | 6437       | 50  |
| 20  | 371 5044   | 87.0     | 628 4956    | 383 8658   | 92.1     | 616 1342    | 3614        | 5.0   | 6386       | 40  |
| 30  | 371 5914   | 87.0     | 628 4086    | 383 9579   | 92.0     | 616 0421    | 3664        | 5.1   | 6336       | 30  |
| 40  | 371 6784   | 86.9     | 628 3216    | 384 0499   | 92.1     | 615 9501    | 3715        | 5.1   | 6285       | 20  |
| 50  | 371 7653   | 87.0     | 628 2347    | 384 1420   | 92.0     | 615 8580    | 3766        | 5.1   | 6234       | 10  |
| 37' | 371 8523   | 86.9     | 10.628 1477 | 384 2340   | 92.0     | 10.615 7660 | 10.012 3817 | 5.1   | 9.987 6183 | 23' |
| 10  | 371 9392   | 86.9     | 628 0608    | 384 3260   | 92.0     | 615 6740    | 3868        | 5.1   | 6132       | 50  |
| 20  | 372 0261   | 86.9     | 627 9739    | 384 4180   | 92.0     | 615 5820    | 3919        | 5.1   | 6081       | 40  |
| 30  | 372 1130   | 86.8     | 627 8870    | 384 5100   | 92.0     | 615 4900    | 3970        | 5.2   | 6030       | 30  |
| 40  | 372 1998   | 86.9     | 627 8002    | 384 6020   | 92.0     | 615 3980    | 3022        | 5.1   | 5979       | 20  |
| 50  | 372 2867   | 86.8     | 627 7133    | 384 6939   | 91.9     | 615 3061    | 4073        | 5.1   | 5927       | 10  |
| 38' | 372 3735   | 86.8     | 10.627 6265 | 384 7858   | 91.9     | 10.615 2142 | 10.012 4124 | 5.1   | 9.987 5876 | 22' |
| 10  | 372 4603   | 86.8     | 627 5397    | 384 8777   | 91.9     | 615 1223    | 4175        | 5.1   | 5825       | 50  |
| 20  | 372 5471   | 86.7     | 627 4529    | 384 9696   | 91.9     | 615 0304    | 4226        | 5.1   | 5774       | 40  |
| 30  | 372 6338   | 86.8     | 627 3662    | 385 0615   | 91.9     | 614 9385    | 4277        | 5.1   | 5723       | 30  |
| 40  | 372 7206   | 86.7     | 627 2794    | 385 1534   | 91.8     | 614 8466    | 4328        | 5.1   | 5672       | 20  |
| 50  | 372 8073   | 86.7     | 627 1927    | 385 2452   | 91.8     | 614 7548    | 4379        | 5.1   | 5621       | 10  |
| 39' | 372 8940   | 86.7     | 10.627 1060 | 385 3370   | 91.8     | 10.614 6630 | 10.012 4430 | 5.1   | 9.987 5570 | 21' |
| 10  | 372 9807   | 86.7     | 627 0193    | 385 4288   | 91.8     | 614 5712    | 4481        | 5.2   | 5519       | 50  |
| 20  | 373 0674   | 86.6     | 626 9326    | 385 5206   | 91.8     | 614 4794    | 4533        | 5.1   | 5467       | 40  |
| 30  | 373 1540   | 86.7     | 626 8460    | 385 6124   | 91.7     | 614 3876    | 4584        | 5.1   | 5416       | 30  |
| 40  | 373 2407   | 86.6     | 626 7593    | 385 7041   | 91.8     | 614 2959    | 4635        | 5.1   | 5365       | 20  |
| 50  | 373 3273   | 86.6     | 626 6727    | 385 7959   | 91.7     | 614 2041    | 4686        | 5.1   | 5314       | 10  |
| 40' | 373 4139   | 86.6     | 10.626 5861 | 385 8876   | 91.7     | 10.614 1124 | 10.012 4737 | 5.1   | 9.987 5263 | 20' |

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|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|--|



13°

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|     | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |
|-----|------------|-----------|-------------|------------|-----------|-------------|-------------|-------|------------|
| 40' | 9.373 4130 | 86.6      | 10.626 5861 | 9.385 8876 | 91.7      | 10.614 1124 | 10.012 4737 | 5.1   | 9.987 5263 |
| 10  | 373 5005   | 86.5      | 626 4995    | 385 9793   | 91.7      | 614 0207    | 4788        | 5.2   | 5212 50    |
| 20  | 373 5870   | 86.6      | 626 4130    | 386 0710   | 91.7      | 613 9290    | 4840        | 5.1   | 5160 40    |
| 30  | 373 6736   | 86.5      | 626 3264    | 386 1627   | 91.6      | 613 8373    | 4891        | 5.1   | 5109 30    |
| 40  | 373 7601   | 86.5      | 626 2399    | 386 2543   | 91.6      | 613 7457    | 4942        | 5.1   | 5058 20    |
| 50  | 373 8466   | 86.5      | 626 1534    | 386 3459   | 91.6      | 613 6541    | 4993        | 5.1   | 5007 10    |
| 41' | 9.373 9331 | 86.5      | 10.626 0669 | 9.386 4376 | 91.6      | 10.613 5624 | 10.012 5045 | 5.1   | 9.987 4955 |
| 10  | 374 0196   | 86.4      | 625 9804    | 386 5292   | 91.5      | 613 4708    | 5096        | 5.1   | 4904 50    |
| 20  | 374 1060   | 86.5      | 625 8940    | 386 6207   | 91.5      | 613 3793    | 5147        | 5.1   | 4853 40    |
| 30  | 374 1925   | 86.4      | 625 8075    | 386 7123   | 91.5      | 613 2877    | 5198        | 5.2   | 4802 30    |
| 40  | 374 2789   | 86.4      | 625 7211    | 386 8038   | 91.5      | 613 1962    | 5250        | 5.1   | 4750 20    |
| 50  | 374 3653   | 86.4      | 625 6347    | 386 8954   | 91.5      | 613 1046    | 5301        | 5.1   | 4699 10    |
| 42' | 9.374 4517 | 86.3      | 10.625 5483 | 9.386 9869 | 91.5      | 10.613 0131 | 10.012 5352 | 5.1   | 9.987 4648 |
| 10  | 374 5380   | 86.4      | 625 4620    | 387 0784   | 91.5      | 612 9216    | 5404        | 5.2   | 4596 50    |
| 20  | 374 6244   | 86.3      | 625 3756    | 387 1699   | 91.4      | 612 8301    | 5455        | 5.1   | 4545 40    |
| 30  | 374 7107   | 86.3      | 625 2893    | 387 2613   | 91.4      | 612 7387    | 5506        | 5.1   | 4494 30    |
| 40  | 374 7970   | 86.3      | 625 2030    | 387 3528   | 91.4      | 612 6472    | 5558        | 5.2   | 4443 20    |
| 50  | 374 8833   | 86.3      | 625 1167    | 387 4442   | 91.4      | 612 5558    | 5609        | 5.2   | 4391 10    |
| 43' | 9.374 9696 | 86.2      | 10.625 0304 | 9.387 5356 | 91.4      | 10.612 4644 | 10.012 5661 | 5.1   | 9.987 4339 |
| 10  | 375 0558   | 86.2      | 624 9442    | 387 6270   | 91.4      | 612 3730    | 5712        | 5.1   | 4288 50    |
| 20  | 375 1420   | 86.2      | 624 8580    | 387 7184   | 91.4      | 612 2816    | 5763        | 5.1   | 4237 40    |
| 30  | 375 2283   | 86.2      | 624 7717    | 387 8097   | 91.3      | 612 1903    | 5815        | 5.2   | 4185 30    |
| 40  | 375 3145   | 86.1      | 624 6855    | 387 9011   | 91.3      | 612 0989    | 5866        | 5.2   | 4134 20    |
| 50  | 375 4006   | 86.2      | 624 5994    | 387 9924   | 91.3      | 612 0076    | 5918        | 5.2   | 4082 10    |
| 44' | 9.375 4868 | 86.2      | 10.624 5132 | 9.388 0837 | 91.3      | 10.611 9163 | 10.012 5969 | 5.1   | 9.987 4031 |
| 10  | 375 5730   | 86.1      | 624 4270    | 388 1750   | 91.3      | 611 8250    | 6021        | 5.1   | 3979 50    |
| 20  | 375 6591   | 86.1      | 624 3409    | 388 2663   | 91.2      | 611 7337    | 6072        | 5.1   | 3928 40    |
| 30  | 375 7452   | 86.1      | 624 2548    | 388 3575   | 91.2      | 611 6425    | 6123        | 5.2   | 3877 30    |
| 40  | 375 8313   | 86.1      | 624 1687    | 388 4488   | 91.2      | 611 5512    | 6175        | 5.2   | 3825 20    |
| 50  | 375 9174   | 86.0      | 624 0826    | 388 5400   | 91.2      | 611 4600    | 6226        | 5.2   | 3774 10    |
| 45' | 9.376 0034 | 86.0      | 10.623 9966 | 9.388 6312 | 91.2      | 10.611 3688 | 10.012 6278 | 5.1   | 9.987 3722 |
| 10  | 376 0894   | 86.1      | 623 9106    | 388 7224   | 91.2      | 611 2776    | 6330        | 5.2   | 3670 50    |
| 20  | 376 1755   | 86.0      | 623 8245    | 388 8136   | 91.2      | 611 1864    | 6381        | 5.1   | 3619 40    |
| 30  | 376 2615   | 85.9      | 623 7385    | 388 9047   | 91.1      | 611 0953    | 6433        | 5.2   | 3567 30    |
| 40  | 376 3474   | 86.0      | 623 6526    | 388 9959   | 91.2      | 611 0041    | 6484        | 5.1   | 3516 20    |
| 50  | 376 4334   | 86.0      | 623 5666    | 389 0870   | 91.1      | 610 9130    | 6536        | 5.1   | 3464 10    |
| 46' | 9.376 5194 | 85.9      | 10.623 4806 | 9.389 1781 | 91.1      | 10.610 8219 | 10.012 6587 | 5.1   | 9.987 3413 |
| 10  | 376 6053   | 85.9      | 623 3947    | 389 2692   | 91.1      | 610 7308    | 6639        | 5.2   | 3361 50    |
| 20  | 376 6912   | 85.9      | 623 3088    | 389 3602   | 91.0      | 610 6398    | 6691        | 5.2   | 3309 40    |
| 30  | 376 7771   | 85.9      | 623 2229    | 389 4513   | 91.1      | 610 5487    | 6742        | 5.1   | 3258 30    |
| 40  | 376 8630   | 85.8      | 623 1370    | 389 5423   | 91.0      | 610 4577    | 6794        | 5.2   | 3206 20    |
| 50  | 376 9488   | 85.9      | 623 0512    | 389 6334   | 91.0      | 610 3666    | 6845        | 5.1   | 3155 10    |
| 47' | 9.377 0347 | 85.8      | 10.622 9653 | 9.389 7244 | 91.0      | 10.610 2756 | 10.012 6897 | 5.2   | 9.987 3103 |
| 10  | 377 1205   | 85.8      | 622 8795    | 389 8153   | 90.9      | 610 1847    | 6949        | 5.1   | 3051 50    |
| 20  | 377 2063   | 85.8      | 622 7937    | 389 9063   | 91.0      | 610 0937    | 7000        | 5.1   | 3000 40    |
| 30  | 377 2921   | 85.7      | 622 7079    | 389 9973   | 91.0      | 610 0027    | 7052        | 5.2   | 2948 30    |
| 40  | 377 3778   | 85.8      | 622 6222    | 390 0882   | 90.9      | 609 9118    | 7104        | 5.1   | 2896 20    |
| 50  | 377 4636   | 85.7      | 622 5364    | 390 1791   | 90.9      | 609 8209    | 7155        | 5.2   | 2845 10    |
| 48' | 9.377 5493 | 85.7      | 10.622 4507 | 9.390 2700 | 90.9      | 10.609 7300 | 10.012 7207 | 5.2   | 9.987 2793 |
| 10  | 377 6350   | 85.7      | 622 3650    | 390 3609   | 90.9      | 609 6391    | 7259        | 5.2   | 2741 50    |
| 20  | 377 7207   | 85.7      | 622 2793    | 390 4518   | 90.9      | 609 5482    | 7311        | 5.1   | 2689 40    |
| 30  | 377 8064   | 85.6      | 622 1936    | 390 5426   | 90.8      | 609 4574    | 7362        | 5.2   | 2638 30    |
| 40  | 377 8920   | 85.7      | 622 1080    | 390 6335   | 90.9      | 609 3665    | 7414        | 5.2   | 2586 20    |
| 50  | 377 9777   | 85.6      | 622 0223    | 390 7243   | 90.8      | 609 2757    | 7466        | 5.2   | 2534 10    |
| 49' | 9.378 0633 | 85.6      | 10.621 9367 | 9.390 8151 | 90.8      | 10.609 1849 | 10.012 7518 | 5.1   | 9.987 2487 |
| 10  | 378 1489   | 85.6      | 621 8511    | 390 9059   | 90.8      | 609 0941    | 7569        | 5.1   | 2431 50    |
| 20  | 378 2345   | 85.6      | 621 7655    | 390 9966   | 90.7      | 609 0034    | 7621        | 5.2   | 2379 40    |
| 30  | 378 3201   | 85.5      | 621 6799    | 391 0874   | 90.8      | 608 9126    | 7673        | 5.2   | 2327 30    |
| 40  | 378 4056   | 85.6      | 621 5944    | 391 1781   | 90.7      | 608 8219    | 7725        | 5.2   | 2275 20    |
| 50  | 378 4912   | 85.5      | 621 5088    | 391 2688   | 90.7      | 608 7312    | 7777        | 5.2   | 2223 10    |
| 50' | 9.378 5767 | 85.5      | 10.621 4233 | 9.391 3595 | 90.7      | 10.608 6405 | 10.012 7829 | 5.1   | 9.987 2171 |

103°

76°

| 13° |             |          |             |            | 166°     |             |             |       |            |
|-----|-------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|
|     | sin.        | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d.1'' | co-sin.    |
| 50' | 9.378 5767  | 85.5     | 10.621 4233 | 9.391 3595 | 90.7     | 10.608 6405 | 10.012 829  | 5.1   | 9.987 2171 |
| 10  | 378 6622    | 85.4     | 621 3378    | 391 4502   | 90.7     | 608 5498    | 7880        | 5.2   | 2120 50    |
| 20  | 378 7476    | 85.5     | 621 5524    | 391 5409   | 90.6     | 608 4591    | 7932        | 5.2   | 2068 40    |
| 30  | 378 8331    | 85.5     | 621 1669    | 391 6315   | 90.7     | 608 3685    | 7984        | 5.2   | 2016 30    |
| 40  | 378 9186    | 85.4     | 621 0814    | 391 7222   | 90.6     | 608 2778    | 8036        | 5.2   | 1964 20    |
| 50  | 379 0040    | 85.4     | 620 9960    | 391 8128   | 90.6     | 608 1872    | 8088        | 5.2   | 1912 10    |
| 51' | 9.379 0894  | 85.4     | 10.620 9106 | 9.391 9034 | 90.6     | 10.608 0966 | 10.012 8140 | 5.2   | 9.987 1860 |
| 10  | 379 1748    | 85.4     | 620 8252    | 391 9940   | 90.5     | 608 0060    | 8192        | 5.2   | 1808 50    |
| 20  | 379 2602    | 85.3     | 620 7398    | 392 0845   | 90.6     | 607 9155    | 8244        | 5.2   | 1756 40    |
| 30  | 379 3455    | 85.3     | 620 6545    | 392 1751   | 90.5     | 607 8249    | 8296        | 5.2   | 1704 30    |
| 40  | 379 43 08   | 85.3     | 620 5692    | 392 2656   | 90.5     | 607 7344    | 8348        | 5.2   | 1652 20    |
| 50  | 379 51 32   | 85.4     | 620 4838    | 392 3561   | 90.5     | 607 6439    | 8399        | 5.2   | 1601 10    |
| 52' | 9.379 60 15 | 85.2     | 10.620 3985 | 9.392 4466 | 90.5     | 10.607 5534 | 10.012 8451 | 5.2   | 9.987 1549 |
| 10  | 379 68 37   | 85.3     | 620 3133    | 392 5371   | 90.5     | 607 4629    | 8503        | 5.2   | 1497 50    |
| 20  | 379 77 10   | 85.3     | 620 2280    | 392 6276   | 90.4     | 607 3724    | 8555        | 5.2   | 1445 40    |
| 30  | 379 85 33   | 85.2     | 620 1427    | 392 7180   | 90.4     | 607 2820    | 8607        | 5.2   | 1393 30    |
| 40  | 379 94 15   | 85.2     | 620 0575    | 392 8084   | 90.5     | 607 1916    | 8659        | 5.2   | 1341 20    |
| 50  | 380 02 77   | 85.2     | 619 9723    | 392 8989   | 90.4     | 607 1011    | 8711        | 5.3   | 1289 10    |
| 53' | 9.380 11 39 | 85.2     | 10.619 8871 | 9.392 9893 | 90.3     | 10.607 0107 | 10.012 8764 | 5.2   | 9.987 1236 |
| 10  | 380 19 31   | 85.1     | 619 8019    | 393 0796   | 90.3     | 606 9204    | 8816        | 5.2   | 1184 50    |
| 20  | 380 28 32   | 85.2     | 619 7166    | 393 1700   | 90.4     | 606 8300    | 8868        | 5.2   | 1132 40    |
| 30  | 380 36 34   | 85.1     | 619 6316    | 393 2604   | 90.3     | 606 7396    | 8920        | 5.2   | 1080 30    |
| 40  | 380 44 35   | 85.1     | 619 5465    | 393 3507   | 90.3     | 606 6493    | 8972        | 5.2   | 1028 20    |
| 50  | 380 52 36   | 85.1     | 619 4614    | 393 4410   | 90.3     | 606 5590    | 9024        | 5.2   | 976 10     |
| 54' | 9.380 60 37 | 85.1     | 10.619 3763 | 9.393 5313 | 90.3     | 10.606 4687 | 10.012 9076 | 5.2   | 9.987 0924 |
| 10  | 380 70 38   | 85.0     | 619 2912    | 393 6216   | 90.2     | 606 3784    | 9128        | 5.2   | 0872 50    |
| 20  | 380 79 38   | 85.0     | 619 2062    | 393 7118   | 90.2     | 606 2882    | 9180        | 5.2   | 0820 40    |
| 30  | 380 88 39   | 85.1     | 619 1211    | 393 8021   | 90.3     | 606 1979    | 9232        | 5.2   | 0768 30    |
| 40  | 380 97 39   | 85.0     | 619 0361    | 393 8923   | 90.2     | 606 1077    | 9284        | 5.2   | 0716 20    |
| 50  | 381 06 39   | 85.0     | 618 9511    | 393 9825   | 90.2     | 606 0175    | 9337        | 5.2   | 0663 10    |
| 55' | 9.381 15 39 | 85.0     | 10.618 8661 | 9.394 0727 | 90.2     | 10.605 9273 | 10.012 9389 | 5.2   | 9.987 0611 |
| 10  | 381 24 38   | 84.9     | 618 7812    | 394 1629   | 90.2     | 605 8371    | 9441        | 5.2   | 0559 50    |
| 20  | 381 33 38   | 84.9     | 618 6962    | 394 2531   | 90.1     | 605 7469    | 9493        | 5.2   | 0507 40    |
| 30  | 381 32 37   | 84.9     | 618 6113    | 394 3432   | 90.2     | 605 6568    | 9545        | 5.3   | 0455 30    |
| 40  | 381 41 36   | 84.9     | 618 5264    | 394 4334   | 90.1     | 605 5666    | 9598        | 5.2   | 0402 20    |
| 50  | 381 50 35   | 84.9     | 618 4415    | 394 5235   | 90.1     | 605 4765    | 9650        | 5.2   | 0350 10    |
| 56' | 9.381 59 34 | 84.9     | 10.618 3566 | 9.394 6136 | 90.1     | 10.605 3864 | 10.012 9702 | 5.2   | 9.987 0298 |
| 10  | 381 7 33    | 84.8     | 618 2717    | 394 7037   | 90.0     | 605 2963    | 9754        | 5.3   | 0246 50    |
| 20  | 381 16 31   | 84.8     | 618 1869    | 394 7937   | 90.1     | 605 2063    | 9807        | 5.2   | 0193 40    |
| 30  | 381 25 30   | 84.8     | 618 1021    | 394 8838   | 90.0     | 605 1162    | 9859        | 5.2   | 0141 30    |
| 40  | 381 34 29   | 84.8     | 618 0173    | 394 9738   | 90.0     | 605 0262    | 9911        | 5.2   | 0089 20    |
| 50  | 381 43 28   | 84.8     | 617 9325    | 395 0638   | 90.0     | 604 9362    | 10.012 9963 | 5.3   | 9.987 0037 |
| 57' | 9.382 15 23 | 84.7     | 10.617 8477 | 9.395 1538 | 90.0     | 10.604 8462 | 10.013 0016 | 5.2   | 9.986 9984 |
| 10  | 382 23 70   | 84.8     | 617 7630    | 395 2438   | 90.0     | 604 7562    | 0068        | 5.2   | 992 50     |
| 20  | 382 32 18   | 84.7     | 617 6782    | 395 3338   | 90.0     | 604 6662    | 0120        | 5.3   | 9880 40    |
| 30  | 382 40 65   | 84.7     | 617 5935    | 395 4238   | 89.9     | 604 5762    | 0173        | 5.2   | 9827 30    |
| 40  | 382 49 12   | 84.7     | 617 5088    | 395 5137   | 89.9     | 604 4863    | 0225        | 5.2   | 9775 20    |
| 50  | 382 57 59   | 84.6     | 617 4241    | 395 6036   | 89.9     | 604 3964    | 0277        | 5.3   | 9723 10    |
| 58' | 9.382 66 05 | 84.7     | 10.617 3395 | 9.395 6935 | 89.9     | 10.604 3065 | 10.013 0330 | 5.2   | 9.986 9670 |
| 10  | 382 74 52   | 84.6     | 617 2548    | 395 7834   | 89.9     | 604 2166    | 0382        | 5.2   | 9618 50    |
| 20  | 382 82 98   | 84.6     | 617 1702    | 395 8733   | 89.9     | 604 1267    | 0434        | 5.3   | 9566 40    |
| 30  | 382 91 44   | 84.6     | 617 0856    | 395 9631   | 89.9     | 604 0369    | 0487        | 5.2   | 9513 30    |
| 40  | 382 99 90   | 84.6     | 617 0010    | 396 0530   | 89.9     | 603 9470    | 0539        | 5.3   | 9461 20    |
| 50  | 383 08 36   | 84.6     | 616 9164    | 396 1428   | 89.8     | 603 8572    | 0592        | 5.2   | 9408 10    |
| 59' | 9.383 16 82 | 84.5     | 10.616 8318 | 9.396 2326 | 89.8     | 10.603 7674 | 10.013 0644 | 5.2   | 9.986 9356 |
| 10  | 383 25 27   | 84.5     | 616 7473    | 396 3224   | 89.7     | 603 6776    | 0646        | 5.3   | 9304 50    |
| 20  | 383 33 72   | 84.5     | 616 6628    | 396 4121   | 89.8     | 603 5879    | 0749        | 5.2   | 9251 40    |
| 30  | 383 42 18   | 84.4     | 616 5782    | 396 5019   | 89.7     | 603 4981    | 0801        | 5.3   | 9199 30    |
| 40  | 383 50 62   | 84.5     | 616 4938    | 396 5916   | 89.8     | 603 4084    | 0854        | 5.2   | 9146 20    |
| 50  | 383 59 07   | 84.5     | 616 4093    | 396 6814   | 89.7     | 603 3186    | 0906        | 5.3   | 9094 10    |
| 60' | 9.383 67 52 | 84.5     | 10.616 3248 | 9.396 7711 | 89.7     | 10.603 2289 | 10.013 0959 | 5.2   | 9.986 9041 |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d.1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|

|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |      |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|------|
| 0'  | 9.383 6752 | 84.4     | 10.616 3248 | 9.396 7711 | 89.6     | 10.603 2289 | 10.013 0959 | 5.2   | 9.986 9041 | 60'  |
| 10  | 383 7566   | 84.4     | 616 2404    | 396 8607   | 89.7     | 603 1393    | 1011        | 5.3   | 8989       | 50   |
| 20  | 383 8440   | 84.4     | 616 1560    | 396 9504   | 89.7     | 603 0496    | 1064        | 5.2   | 8936       | 40   |
| 30  | 383 9284   | 84.4     | 616 0716    | 397 0401   | 89.6     | 602 9599    | 1116        | 5.3   | 8884       | 30   |
| 40  | 384 0128   | 84.4     | 615 9872    | 397 1297   | 89.6     | 602 8703    | 1169        | 5.2   | 8831       | 20   |
| 50  | 384 0972   | 84.4     | 615 9028    | 397 2193   | 89.6     | 602 7807    | 1221        | 5.3   | 8779       | 10   |
| 1'  | 9.384 1815 | 84.4     | 10.615 8185 | 9.397 3089 | 89.6     | 10.602 6911 | 10.013 1274 | 5.3   | 9.986 8726 | 59'  |
| 10  | 384 2659   | 84.4     | 615 7341    | 397 3985   | 89.6     | 602 6015    | 1327        | 5.2   | 8673       | 50   |
| 20  | 384 3502   | 84.3     | 615 6498    | 397 4881   | 89.6     | 602 5119    | 1379        | 5.3   | 8621       | 40   |
| 30  | 384 4345   | 84.3     | 615 5655    | 397 5777   | 89.5     | 602 4223    | 1432        | 5.2   | 8568       | 30   |
| 40  | 384 5188   | 84.2     | 615 4812    | 397 6672   | 89.5     | 602 3328    | 1484        | 5.3   | 8516       | 20   |
| 50  | 384 6030   | 84.3     | 615 3970    | 397 7567   | 89.6     | 602 2433    | 1537        | 5.3   | 8463       | 10   |
| 2'  | 9.384 6873 | 84.2     | 10.615 3127 | 9.397 8463 | 89.4     | 10.602 1537 | 10.013 1590 | 5.2   | 9.986 8410 | 58'  |
| 10  | 384 7715   | 84.2     | 615 2285    | 397 9357   | 89.4     | 602 0643    | 1642        | 5.3   | 8358       | 50   |
| 20  | 384 8557   | 84.2     | 615 1443    | 398 0252   | 89.5     | 601 9748    | 1695        | 5.2   | 8305       | 40   |
| 30  | 384 9399   | 84.2     | 615 0601    | 398 1147   | 89.4     | 601 8853    | 1747        | 5.3   | 8253       | 30   |
| 40  | 385 0241   | 84.2     | 614 9759    | 398 2041   | 89.4     | 601 7959    | 1800        | 5.3   | 8200       | 20   |
| 50  | 385 1083   | 84.2     | 614 8917    | 398 2936   | 89.5     | 601 7064    | 1853        | 5.3   | 8147       | 10   |
| 3'  | 9.385 1924 | 84.1     | 10.614 8076 | 9.398 3830 | 89.4     | 10.601 6170 | 10.013 1906 | 5.3   | 9.986 8094 | 57'  |
| 10  | 385 2765   | 84.2     | 614 7235    | 398 4724   | 89.4     | 601 5276    | 1958        | 5.2   | 8042       | 50   |
| 20  | 385 3607   | 84.0     | 614 6393    | 398 5617   | 89.4     | 601 4383    | 2011        | 5.3   | 7989       | 40   |
| 30  | 385 4447   | 84.1     | 614 5553    | 398 6511   | 89.4     | 601 3489    | 2064        | 5.2   | 7936       | 30   |
| 40  | 385 5288   | 84.1     | 614 4712    | 398 7405   | 89.3     | 601 2595    | 2116        | 5.3   | 7884       | 20   |
| 50  | 385 6129   | 84.0     | 614 3871    | 398 8298   | 89.3     | 601 1702    | 2169        | 5.3   | 7831       | 10   |
| 4'  | 9.385 6969 | 84.0     | 10.614 3031 | 9.398 9191 | 89.3     | 10.601 0809 | 10.013 2222 | 5.3   | 9.986 7778 | 56'  |
| 10  | 385 7809   | 84.0     | 614 2191    | 399 0084   | 89.3     | 600 9916    | 2275        | 5.2   | 7725       | 50   |
| 20  | 385 8649   | 84.0     | 614 1351    | 399 0977   | 89.2     | 600 9023    | 2327        | 5.3   | 7673       | 40   |
| 30  | 385 9489   | 84.0     | 614 0511    | 399 1869   | 89.3     | 600 8131    | 2380        | 5.3   | 7620       | 30   |
| 40  | 386 0329   | 84.0     | 613 9671    | 399 2762   | 89.2     | 600 7238    | 2433        | 5.3   | 7567       | 20   |
| 50  | 386 1166   | 83.9     | 613 8831    | 399 3654   | 89.3     | 600 6346    | 2486        | 5.2   | 7514       | 10   |
| 5'  | 9.386 2008 | 83.9     | 10.613 7992 | 9.399 4547 | 89.2     | 10.600 5453 | 10.013 2539 | 5.3   | 9.986 7461 | 55'  |
| 10  | 386 2847   | 83.9     | 613 7153    | 399 5439   | 89.1     | 600 4561    | 2591        | 5.3   | 7409       | 50   |
| 20  | 386 3686   | 83.9     | 613 6314    | 399 6330   | 89.2     | 600 3670    | 2644        | 5.3   | 7356       | 40   |
| 30  | 386 4525   | 83.9     | 613 5475    | 399 7222   | 89.2     | 600 2778    | 2697        | 5.3   | 7303       | 30   |
| 40  | 386 5364   | 83.8     | 613 4636    | 399 8114   | 89.1     | 600 1886    | 2750        | 5.3   | 7250       | 20   |
| 50  | 386 6202   | 83.8     | 613 3798    | 399 9005   | 89.1     | 600 0995    | 2803        | 5.3   | 7197       | 10   |
| 6'  | 9.386 7040 | 83.9     | 10.613 2960 | 9.399 9896 | 89.1     | 10.600 0104 | 10.013 2856 | 5.3   | 9.986 7144 | 54'  |
| 10  | 386 7879   | 83.8     | 613 2121    | 400 0787   | 89.1     | 599 9213    | 2909        | 5.3   | 7091       | 50   |
| 20  | 386 8717   | 83.7     | 613 1283    | 400 1678   | 89.1     | 599 8322    | 2962        | 5.2   | 7038       | 40   |
| 30  | 386 9554   | 83.8     | 613 0446    | 400 2569   | 89.0     | 599 7431    | 3014        | 5.3   | 6986       | 30   |
| 40  | 387 0392   | 83.8     | 612 9608    | 400 3459   | 89.1     | 599 6541    | 3067        | 5.3   | 6933       | 20   |
| 50  | 387 1230   | 83.7     | 612 8770    | 400 4350   | 89.0     | 599 5650    | 3120        | 5.3   | 6880       | 10   |
| 7'  | 9.387 2067 | 83.7     | 10.612 7933 | 9.400 5240 | 89.0     | 10.599 4760 | 10.013 3173 | 5.3   | 9.986 6682 | 753' |
| 10  | 387 2904   | 83.7     | 612 7096    | 400 6130   | 89.0     | 599 3870    | 3226        | 5.3   | 6774       | 50   |
| 20  | 387 3741   | 83.7     | 612 6259    | 400 7020   | 89.0     | 599 2980    | 3279        | 5.3   | 6721       | 40   |
| 30  | 387 4578   | 83.6     | 612 5422    | 400 7910   | 88.9     | 599 2090    | 3332        | 5.3   | 6668       | 30   |
| 40  | 387 5414   | 83.7     | 612 4586    | 400 8799   | 89.0     | 599 1201    | 3385        | 5.3   | 6615       | 20   |
| 50  | 387 6251   | 83.6     | 612 3749    | 400 9689   | 88.9     | 599 0311    | 3438        | 5.3   | 6562       | 10   |
| 8'  | 9.387 7087 | 83.6     | 10.612 2913 | 9.401 0578 | 88.9     | 10.598 9422 | 10.013 3491 | 5.3   | 9.986 6509 | 52'  |
| 10  | 387 7923   | 83.6     | 612 2077    | 401 1467   | 88.9     | 598 8533    | 3544        | 5.3   | 6456       | 50   |
| 20  | 387 8759   | 83.6     | 612 1241    | 401 2356   | 88.9     | 598 7644    | 3597        | 5.3   | 6403       | 40   |
| 30  | 387 9595   | 83.5     | 612 0405    | 401 3245   | 88.9     | 598 6755    | 3650        | 5.3   | 6350       | 30   |
| 40  | 388 0430   | 83.6     | 611 9570    | 401 4134   | 88.8     | 598 5866    | 3703        | 5.3   | 6297       | 20   |
| 50  | 388 1266   | 83.5     | 611 8734    | 401 5022   | 88.8     | 598 4978    | 3756        | 5.3   | 6244       | 10   |
| 9'  | 9.388 2101 | 83.5     | 10.611 7899 | 9.401 5910 | 88.8     | 10.598 4090 | 10.013 3809 | 5.4   | 9.986 6191 | 51'  |
| 10  | 388 2936   | 83.5     | 611 7064    | 401 6799   | 88.9     | 598 3201    | 3863        | 5.3   | 6137       | 50   |
| 20  | 388 3771   | 83.5     | 611 6229    | 401 7687   | 88.8     | 598 2313    | 3916        | 5.3   | 6084       | 40   |
| 30  | 388 4606   | 83.4     | 611 5394    | 401 8574   | 88.8     | 598 1426    | 3969        | 5.3   | 6031       | 30   |
| 40  | 388 5440   | 83.5     | 611 4560    | 401 9462   | 88.8     | 598 0538    | 4022        | 5.3   | 5978       | 20   |
| 50  | 388 6275   | 83.4     | 611 3725    | 402 0350   | 88.7     | 597 9650    | 4075        | 5.3   | 5925       | 10   |
| 10' | 9.388 7109 | 83.4     | 10.611 2891 | 9.402 1237 | 88.7     | 10.597 8763 | 10.013 4128 | 5.3   | 9.986 5873 | 50'  |

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|



14°

165°

|     | sin.        | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d. 1" | co-sin.   |     |
|-----|-------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|-----|
| 10' | 0.388 7109  | 83.4     | 10.611 2891 | 9.402 1237 | 88.7     | 10.597 8763 | 10.0134128 | 5.3   | 9.9865872 | 50' |
| 10  | 388 7943    | 83.4     | 611 2057    | 402 2124   | 88.7     | 597 7876    | 4181       | 5.3   | 5819      | 50  |
| 20  | 388 8777    | 83.4     | 611 1223    | 402 3011   | 88.7     | 597 6989    | 4234       | 5.4   | 5766      | 40  |
| 30  | 388 9611    | 83.3     | 611 0389    | 402 3898   | 88.7     | 597 6102    | 4288       | 5.3   | 5712      | 30  |
| 40  | 389 0444    | 83.3     | 610 9556    | 402 4785   | 88.6     | 597 5215    | 4341       | 5.3   | 5659      | 20  |
| 50  | 389 1277    | 83.4     | 610 8723    | 402 5671   | 88.7     | 597 4329    | 4394       | 5.3   | 5606      | 10  |
| 11' | 9.389 2111  | 83.3     | 10.610 7889 | 9.402 6558 | 88.6     | 10.597 3442 | 10.0134447 | 5.3   | 9.9865553 | 49' |
| 10  | 389 2944    | 83.3     | 610 7056    | 402 7444   | 88.6     | 597 2556    | 4500       | 5.4   | 5500      | 50  |
| 20  | 389 3777    | 83.2     | 610 6223    | 402 8330   | 88.6     | 597 1670    | 4554       | 5.3   | 5446      | 40  |
| 30  | 389 4609    | 83.3     | 610 5391    | 402 9216   | 88.6     | 597 0784    | 4607       | 5.3   | 5393      | 30  |
| 40  | 389 5442    | 83.2     | 610 4558    | 403 0102   | 88.6     | 596 9898    | 4660       | 5.3   | 5340      | 20  |
| 50  | 389 6274    | 83.2     | 610 3726    | 403 0987   | 88.6     | 596 9013    | 4713       | 5.4   | 5287      | 10  |
| 12' | 9.389 7106  | 83.2     | 10.610 2894 | 9.403 1873 | 88.5     | 10.596 8127 | 10.0134767 | 5.3   | 9.9865233 | 48' |
| 10  | 389 7938    | 83.2     | 610 2062    | 403 2758   | 88.5     | 596 7242    | 4820       | 5.3   | 5180      | 50  |
| 20  | 389 8770    | 83.2     | 610 1230    | 403 3643   | 88.5     | 596 6357    | 4873       | 5.4   | 5127      | 40  |
| 30  | 389 9602    | 83.1     | 610 0398    | 403 4528   | 88.5     | 596 5472    | 4927       | 5.3   | 5073      | 30  |
| 40  | 390 0433    | 83.1     | 609 9567    | 403 5413   | 88.5     | 596 4587    | 4980       | 5.3   | 5020      | 20  |
| 50  | 390 1255    | 83.2     | 609 8735    | 403 6298   | 88.5     | 596 3702    | 5033       | 5.4   | 4967      | 10  |
| 13' | 9.390 26 76 | 83.1     | 10.609 7904 | 9.403 7182 | 88.5     | 10.596 2818 | 10.0135087 | 5.3   | 9.9864913 | 47' |
| 10  | 390 25 17   | 83.1     | 609 7073    | 403 8067   | 88.4     | 596 1933    | 5140       | 5.3   | 4860      | 50  |
| 20  | 390 33 38   | 83.1     | 609 6242    | 403 8951   | 88.4     | 596 1049    | 5193       | 5.4   | 4807      | 40  |
| 30  | 390 41 38   | 83.1     | 609 5412    | 403 9835   | 88.4     | 596 0165    | 5247       | 5.4   | 4753      | 30  |
| 40  | 390 52 19   | 83.1     | 609 4581    | 404 0719   | 88.4     | 595 9281    | 5300       | 5.3   | 4700      | 20  |
| 50  | 390 61 19   | 83.0     | 609 3751    | 404 1602   | 88.4     | 595 8398    | 5353       | 5.4   | 4647      | 10  |
| 14' | 9.390 76 79 | 83.0     | 10.609 2921 | 9.404 2486 | 88.3     | 10.595 7514 | 10.0135407 | 5.3   | 9.9864593 | 46' |
| 10  | 390 75 29   | 83.0     | 609 2091    | 404 3369   | 88.3     | 595 6631    | 5406       | 5.4   | 4540      | 50  |
| 20  | 390 83 29   | 83.0     | 609 1261    | 404 4253   | 88.3     | 595 5747    | 5514       | 5.4   | 4486      | 40  |
| 30  | 390 91 29   | 83.0     | 609 0431    | 404 5136   | 88.3     | 595 4864    | 5567       | 5.4   | 4433      | 30  |
| 40  | 391 01 28   | 82.9     | 608 9602    | 404 6019   | 88.2     | 595 3981    | 5621       | 5.3   | 4379      | 20  |
| 50  | 391 11 17   | 83.0     | 608 8773    | 404 6901   | 88.3     | 595 3099    | 5674       | 5.3   | 4326      | 10  |
| 15' | 9.391 26 37 | 82.8     | 10.608 7943 | 9.404 7784 | 88.2     | 10.595 2216 | 10.0135727 | 5.4   | 9.9864273 | 45' |
| 10  | 391 25 35   | 82.9     | 608 7115    | 404 8666   | 88.3     | 595 1334    | 5781       | 5.3   | 4219      | 50  |
| 20  | 391 33 14   | 82.9     | 608 6286    | 404 9549   | 88.2     | 595 0451    | 5834       | 5.4   | 4166      | 40  |
| 30  | 391 41 43   | 82.9     | 608 5457    | 405 0431   | 88.2     | 594 9569    | 5888       | 5.3   | 4112      | 30  |
| 40  | 391 51 71   | 82.8     | 608 4629    | 405 1313   | 88.2     | 594 8687    | 5941       | 5.4   | 4059      | 20  |
| 50  | 391 61 20   | 82.9     | 608 3800    | 405 2195   | 88.1     | 594 7805    | 5995       | 5.3   | 4005      | 10  |
| 16' | 9.391 76 28 | 82.8     | 10.608 2972 | 9.405 3076 | 88.2     | 10.594 6924 | 10.0136048 | 5.4   | 9.9863952 | 44' |
| 10  | 391 74 56   | 82.8     | 608 2144    | 405 3958   | 88.1     | 594 6042    | 6102       | 5.4   | 3898      | 50  |
| 20  | 391 82 34   | 82.7     | 608 1316    | 405 4839   | 88.1     | 594 5161    | 6156       | 5.3   | 3844      | 40  |
| 30  | 391 91 11   | 82.8     | 608 0489    | 405 5720   | 88.1     | 594 4280    | 6209       | 5.4   | 3791      | 30  |
| 40  | 392 00 39   | 82.8     | 607 9661    | 405 6601   | 88.1     | 594 3399    | 6263       | 5.3   | 3737      | 20  |
| 50  | 392 11 56   | 82.7     | 607 8834    | 405 7482   | 88.1     | 594 2518    | 6316       | 5.4   | 3684      | 10  |
| 17' | 9.392 14 23 | 82.7     | 10.607 8007 | 9.405 8363 | 88.0     | 10.594 1637 | 10.0136370 | 5.4   | 9.9863630 | 43' |
| 10  | 392 21 20   | 82.7     | 607 7180    | 405 9243   | 88.1     | 594 0757    | 6424       | 5.3   | 3576      | 50  |
| 20  | 392 31 47   | 82.6     | 607 6353    | 406 0124   | 88.0     | 593 9876    | 6477       | 5.4   | 3523      | 40  |
| 30  | 392 44 73   | 82.7     | 607 5527    | 406 1004   | 88.0     | 593 8996    | 6531       | 5.3   | 3469      | 30  |
| 40  | 392 53 00   | 82.6     | 607 4700    | 406 1884   | 88.0     | 593 8116    | 6584       | 5.4   | 3416      | 20  |
| 50  | 392 61 26   | 82.6     | 607 3874    | 406 2764   | 88.0     | 593 7236    | 6638       | 5.4   | 3362      | 10  |
| 18' | 9.392 66 52 | 82.6     | 10.607 3048 | 9.406 3644 | 88.0     | 10.593 6356 | 10.0136692 | 5.3   | 9.9863308 | 42' |
| 10  | 392 77 78   | 82.6     | 607 2222    | 406 4524   | 87.9     | 593 5476    | 6745       | 5.4   | 3255      | 50  |
| 20  | 392 86 24   | 82.6     | 607 1396    | 406 5403   | 87.9     | 593 4597    | 6799       | 5.4   | 3201      | 40  |
| 30  | 392 94 30   | 82.5     | 607 0570    | 406 6282   | 87.9     | 593 3718    | 6853       | 5.3   | 3147      | 30  |
| 40  | 393 02 55   | 82.5     | 606 9745    | 406 7161   | 87.9     | 593 2839    | 6906       | 5.4   | 3094      | 20  |
| 50  | 393 11 30   | 82.5     | 606 8920    | 406 8040   | 87.9     | 593 1960    | 6960       | 5.4   | 3040      | 10  |
| 19' | 9.393 14 25 | 82.5     | 10.606 8095 | 9.406 8919 | 87.9     | 10.593 1081 | 10.0137014 | 5.4   | 9.9862986 | 41' |
| 10  | 393 27 30   | 82.5     | 606 7270    | 406 9798   | 87.8     | 593 0202    | 7068       | 5.3   | 2932      | 50  |
| 20  | 393 35 50   | 82.5     | 606 6445    | 407 0676   | 87.8     | 592 9324    | 7121       | 5.4   | 2879      | 40  |
| 30  | 393 4380    | 82.4     | 606 5620    | 407 1555   | 87.8     | 592 8445    | 7175       | 5.4   | 2825      | 30  |
| 40  | 393 5204    | 82.4     | 606 4796    | 407 2433   | 87.8     | 592 7567    | 7229       | 5.4   | 2771      | 20  |
| 50  | 393 6028    | 82.4     | 606 3972    | 407 3311   | 87.8     | 592 6689    | 7283       | 5.4   | 2717      | 10  |
| 20' | 9.393 6852  | 82.4     | 10.606 3148 | 9.407 4189 | 87.8     | 10.592 5811 | 10.0137337 | 5.4   | 9.9862663 | 40' |

104°

75°

| 14° |          |          |         |             |            |          |             |             |         | 165°       |     |  |  |  |  |  |  |  |  |
|-----|----------|----------|---------|-------------|------------|----------|-------------|-------------|---------|------------|-----|--|--|--|--|--|--|--|--|
|     | sin.     | dif. 1'' | co-sec. | tang.       | dif. 1''   | co-tang. | sec.        | d.1''       | co-sin. |            |     |  |  |  |  |  |  |  |  |
| 20' | 9.393 68 | 32       | 82.4    | 10.606 3148 | 9.407 4189 | 87.8     | 10.592 5811 | 10.013 7337 | 5.3     | 9.986 2663 | 40' |  |  |  |  |  |  |  |  |
| 10  | 393 76   | 36       | 82.4    | 606 2324    | 407 5067   | 87.7     | 592 4933    | 7390        | 5.4     | 2610       | 50  |  |  |  |  |  |  |  |  |
| 20  | 393 85   | 30       | 82.4    | 606 1500    | 407 5944   | 87.8     | 592 4056    | 7444        | 5.4     | 2556       | 40  |  |  |  |  |  |  |  |  |
| 30  | 393 93   | 24       | 82.3    | 606 0676    | 407 6822   | 87.7     | 592 3178    | 7498        | 5.4     | 2502       | 30  |  |  |  |  |  |  |  |  |
| 40  | 394 01   | 17       | 82.4    | 605 9853    | 407 7699   | 87.7     | 592 2301    | 7552        | 5.4     | 2448       | 20  |  |  |  |  |  |  |  |  |
| 50  | 394 09   | 11       | 82.3    | 605 9029    | 407 8576   | 87.7     | 592 1424    | 7606        | 5.4     | 2394       | 10  |  |  |  |  |  |  |  |  |
| 21' | 9.394 17 | 34       | 82.3    | 10.605 8206 | 9.407 9453 | 87.7     | 10.592 0547 | 10.013 7660 | 5.3     | 9.986 2340 | 39' |  |  |  |  |  |  |  |  |
| 10  | 394 26   | 17       | 82.2    | 605 7383    | 408 0330   | 87.7     | 591 9670    | 7713        | 5.4     | 2287       | 50  |  |  |  |  |  |  |  |  |
| 20  | 394 34   | 39       | 82.3    | 605 6561    | 408 1207   | 87.6     | 591 8793    | 7767        | 5.4     | 2233       | 40  |  |  |  |  |  |  |  |  |
| 30  | 394 42   | 32       | 82.2    | 605 5738    | 408 2083   | 87.6     | 591 7917    | 7821        | 5.4     | 2179       | 30  |  |  |  |  |  |  |  |  |
| 40  | 394 50   | 34       | 82.3    | 605 4916    | 408 2959   | 87.7     | 591 7041    | 7875        | 5.4     | 2125       | 20  |  |  |  |  |  |  |  |  |
| 50  | 394 58   | 37       | 82.2    | 605 4093    | 408 3836   | 87.6     | 591 6164    | 7929        | 5.4     | 2071       | 10  |  |  |  |  |  |  |  |  |
| 22' | 9.394 67 | 19       | 82.2    | 10.605 3271 | 9.408 4712 | 87.6     | 10.591 5288 | 10.013 7983 | 5.4     | 9.986 2017 | 38' |  |  |  |  |  |  |  |  |
| 10  | 394 75   | 11       | 82.2    | 605 2449    | 408 5588   | 87.5     | 591 4412    | 8037        | 5.4     | 1963       | 50  |  |  |  |  |  |  |  |  |
| 20  | 394 83   | 13       | 82.1    | 605 1627    | 408 6463   | 87.6     | 591 3537    | 8091        | 5.4     | 1909       | 40  |  |  |  |  |  |  |  |  |
| 30  | 394 91   | 24       | 82.2    | 605 0806    | 408 7339   | 87.5     | 591 2661    | 8145        | 5.4     | 1855       | 30  |  |  |  |  |  |  |  |  |
| 40  | 394 99   | 16       | 82.1    | 604 9984    | 408 8214   | 87.6     | 591 1786    | 8199        | 5.4     | 1801       | 20  |  |  |  |  |  |  |  |  |
| 50  | 395 08   | 17       | 82.1    | 604 9163    | 408 9090   | 87.5     | 591 0910    | 8253        | 5.4     | 1747       | 10  |  |  |  |  |  |  |  |  |
| 23' | 9.395 16 | 18       | 82.1    | 10.604 8342 | 9.408 9965 | 87.5     | 10.591 0035 | 10.013 8307 | 5.4     | 9.986 1693 | 37' |  |  |  |  |  |  |  |  |
| 10  | 395 24   | 19       | 82.1    | 604 7521    | 409 0840   | 87.4     | 590 9160    | 8361        | 5.4     | 1693       | 50  |  |  |  |  |  |  |  |  |
| 20  | 395 33   | 30       | 82.0    | 604 6700    | 409 1714   | 87.5     | 590 8286    | 8415        | 5.4     | 1585       | 40  |  |  |  |  |  |  |  |  |
| 30  | 395 41   | 10       | 82.1    | 604 5880    | 409 2589   | 87.5     | 590 7411    | 8469        | 5.4     | 1531       | 30  |  |  |  |  |  |  |  |  |
| 40  | 395 49   | 11       | 82.0    | 604 5059    | 409 3464   | 87.4     | 590 6536    | 8523        | 5.4     | 1477       | 20  |  |  |  |  |  |  |  |  |
| 50  | 395 57   | 11       | 82.0    | 604 4239    | 409 4338   | 87.4     | 590 5662    | 8577        | 5.4     | 1423       | 10  |  |  |  |  |  |  |  |  |
| 24' | 9.395 65 | 11       | 82.0    | 10.604 3419 | 9.409 5212 | 87.4     | 10.590 4788 | 10.013 8631 | 5.4     | 9.986 1369 | 36' |  |  |  |  |  |  |  |  |
| 10  | 395 74   | 11       | 82.0    | 604 2599    | 409 6086   | 87.4     | 590 3914    | 8685        | 5.4     | 1315       | 50  |  |  |  |  |  |  |  |  |
| 20  | 395 82   | 11       | 82.0    | 604 1779    | 409 6960   | 87.4     | 590 3040    | 8739        | 5.4     | 1261       | 40  |  |  |  |  |  |  |  |  |
| 30  | 395 90   | 11       | 81.9    | 604 0959    | 409 7834   | 87.3     | 590 2166    | 8793        | 5.4     | 1207       | 30  |  |  |  |  |  |  |  |  |
| 40  | 395 98   | 30       | 81.9    | 604 0140    | 409 8707   | 87.4     | 590 1293    | 8847        | 5.4     | 1153       | 20  |  |  |  |  |  |  |  |  |
| 50  | 396 06   | 19       | 82.0    | 603 9321    | 409 9581   | 87.3     | 590 0419    | 8901        | 5.4     | 1099       | 10  |  |  |  |  |  |  |  |  |
| 25' | 9.396 14 | 19       | 81.9    | 10.603 8501 | 9.410 0454 | 87.3     | 10.589 9546 | 10.013 9055 | 5.5     | 9.986 1045 | 35' |  |  |  |  |  |  |  |  |
| 10  | 396 23   | 18       | 81.8    | 603 7682    | 410 1327   | 87.3     | 589 8673    | 9010        | 5.4     | 9990       | 50  |  |  |  |  |  |  |  |  |
| 20  | 396 31   | 16       | 81.9    | 603 6864    | 410 2200   | 87.3     | 589 7800    | 9064        | 5.4     | 9936       | 40  |  |  |  |  |  |  |  |  |
| 30  | 396 39   | 15       | 81.8    | 603 6045    | 410 3073   | 87.2     | 589 6927    | 9118        | 5.4     | 9882       | 30  |  |  |  |  |  |  |  |  |
| 40  | 396 47   | 13       | 81.8    | 603 5227    | 410 3945   | 87.3     | 589 6055    | 9172        | 5.4     | 9828       | 20  |  |  |  |  |  |  |  |  |
| 50  | 396 55   | 12       | 81.8    | 603 4408    | 410 4818   | 87.2     | 589 5182    | 9226        | 5.4     | 9774       | 10  |  |  |  |  |  |  |  |  |
| 26' | 9.396 64 | 10       | 81.8    | 10.603 3590 | 9.410 5690 | 87.2     | 10.589 4310 | 10.013 9280 | 5.5     | 9.986 0720 | 34' |  |  |  |  |  |  |  |  |
| 10  | 396 72   | 18       | 81.8    | 603 2772    | 410 6562   | 87.3     | 589 3338    | 9335        | 5.4     | 9665       | 50  |  |  |  |  |  |  |  |  |
| 20  | 396 80   | 16       | 81.7    | 603 1954    | 410 7435   | 87.1     | 589 2565    | 9389        | 5.4     | 9611       | 40  |  |  |  |  |  |  |  |  |
| 30  | 396 88   | 33       | 81.8    | 603 1137    | 410 8306   | 87.2     | 589 1694    | 9443        | 5.4     | 9557       | 30  |  |  |  |  |  |  |  |  |
| 40  | 396 96   | 11       | 81.7    | 603 0319    | 410 9178   | 87.2     | 589 0822    | 9497        | 5.4     | 9503       | 20  |  |  |  |  |  |  |  |  |
| 50  | 397 04   | 18       | 81.7    | 602 9502    | 411 0050   | 87.1     | 588 9950    | 9551        | 5.5     | 9449       | 10  |  |  |  |  |  |  |  |  |
| 27' | 9.397 13 | 15       | 81.7    | 10.602 8685 | 9.411 0921 | 87.1     | 10.588 9079 | 10.013 9606 | 5.4     | 9.986 0394 | 33' |  |  |  |  |  |  |  |  |
| 10  | 397 21   | 12       | 81.7    | 602 7868    | 411 1792   | 87.1     | 588 8208    | 9660        | 5.4     | 9340       | 50  |  |  |  |  |  |  |  |  |
| 20  | 397 29   | 19       | 81.7    | 602 7051    | 411 2663   | 87.1     | 588 7337    | 9714        | 5.5     | 9286       | 40  |  |  |  |  |  |  |  |  |
| 30  | 397 37   | 36       | 81.6    | 602 6234    | 411 3534   | 87.1     | 588 6466    | 9769        | 5.4     | 9231       | 30  |  |  |  |  |  |  |  |  |
| 40  | 397 45   | 12       | 81.7    | 602 5418    | 411 4405   | 87.1     | 588 5595    | 9823        | 5.4     | 9177       | 20  |  |  |  |  |  |  |  |  |
| 50  | 397 53   | 39       | 81.6    | 602 4601    | 411 5276   | 87.0     | 588 4724    | 9877        | 5.4     | 9123       | 10  |  |  |  |  |  |  |  |  |
| 28' | 9.397 62 | 15       | 81.6    | 10.602 3785 | 9.411 6146 | 87.1     | 10.588 3854 | 10.013 9931 | 5.5     | 9.986 0069 | 32' |  |  |  |  |  |  |  |  |
| 10  | 397 70   | 11       | 81.6    | 602 2969    | 411 7017   | 87.0     | 588 2983    | 10.013 9986 | 5.4     | 9.986 0014 | 50  |  |  |  |  |  |  |  |  |
| 20  | 397 78   | 17       | 81.6    | 602 2153    | 411 7887   | 87.0     | 588 2113    | 10.014 0040 | 5.4     | 9.985 9960 | 40  |  |  |  |  |  |  |  |  |
| 30  | 397 86   | 33       | 81.5    | 602 1337    | 411 8757   | 87.0     | 588 1243    | 0094        | 5.4     | 9906       | 30  |  |  |  |  |  |  |  |  |
| 40  | 397 94   | 18       | 81.5    | 602 0522    | 411 9627   | 87.0     | 588 0373    | 0149        | 5.4     | 9851       | 20  |  |  |  |  |  |  |  |  |
| 50  | 398 02   | 33       | 81.6    | 601 9707    | 412 0497   | 86.9     | 587 9503    | 0203        | 5.5     | 9797       | 10  |  |  |  |  |  |  |  |  |
| 29' | 9.398 11 | 39       | 81.5    | 10.601 8891 | 9.412 1366 | 87.0     | 10.587 8634 | 10.014 0258 | 5.4     | 9.985 9742 | 31' |  |  |  |  |  |  |  |  |
| 10  | 398 19   | 24       | 81.5    | 601 8076    | 412 2236   | 86.9     | 587 7764    | 0312        | 5.4     | 9688       | 50  |  |  |  |  |  |  |  |  |
| 20  | 398 27   | 39       | 81.4    | 601 7261    | 412 3105   | 86.9     | 587 6895    | 0366        | 5.5     | 9634       | 40  |  |  |  |  |  |  |  |  |
| 30  | 398 35   | 33       | 81.5    | 601 6447    | 412 3974   | 86.9     | 587 6026    | 0421        | 5.4     | 9579       | 30  |  |  |  |  |  |  |  |  |
| 40  | 398 43   | 38       | 81.4    | 601 5632    | 412 4843   | 86.9     | 587 5157    | 0475        | 5.5     | 9525       | 20  |  |  |  |  |  |  |  |  |
| 50  | 398 51   | 32       | 81.4    | 601 4818    | 412 5712   | 86.9     | 587 4288    | 0530        | 5.4     | 9470       | 10  |  |  |  |  |  |  |  |  |
| 30' | 9.398 59 | 36       | 81.4    | 10.601 4004 | 9.412 6581 | 86.9     | 10.587 3419 | 10.014 0584 | 5.4     | 9.985 9416 | 30' |  |  |  |  |  |  |  |  |

14°

165°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |     |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|-----|
| 30' | 9.398 5996 | 81.4     | 10.601 4004 | 9.412 6581 | 86.8     | 10.587 3419 | 10.0140584 | 5.5   | 9.9859416 | 30' |
| 10  | 398 6610   | 81.4     | 601 3190    | 412 7449   | 86.8     | 587 2551    | 0639       | 5.4   | 9361      | 50  |
| 20  | 398 7624   | 81.4     | 601 2376    | 412 8317   | 86.8     | 587 1683    | 0693       | 5.4   | 9307      | 40  |
| 30  | 398 8438   | 81.4     | 601 1562    | 412 9186   | 86.8     | 587 0814    | 0747       | 5.4   | 9253      | 30  |
| 40  | 398 9252   | 81.3     | 601 0748    | 413 0054   | 86.8     | 586 9946    | 0802       | 5.4   | 9198      | 20  |
| 50  | 399 0065   | 81.3     | 600 9935    | 413 0922   | 86.8     | 586 9078    | 0856       | 5.4   | 9144      | 10  |
| 31' | 399 0878   | 81.3     | 10.600 9123 | 9.413 1789 | 86.7     | 10.586 8211 | 10.0140911 | 5.5   | 9.9859689 | 29' |
| 10  | 399 1691   | 81.3     | 600 8309    | 413 2657   | 86.7     | 586 7343    | 0906       | 5.4   | 9034      | 50  |
| 20  | 399 2504   | 81.3     | 600 7496    | 413 3524   | 86.8     | 586 6476    | 1020       | 5.5   | 8980      | 40  |
| 30  | 399 3317   | 81.3     | 600 6683    | 413 4392   | 86.7     | 586 5608    | 1075       | 5.4   | 8925      | 30  |
| 40  | 399 4130   | 81.2     | 600 5870    | 413 5259   | 86.7     | 586 4741    | 1129       | 5.4   | 8871      | 20  |
| 50  | 399 4942   | 81.2     | 600 5058    | 413 6126   | 86.7     | 586 3874    | 1184       | 5.4   | 8816      | 10  |
| 32' | 399 5754   | 81.3     | 10.600 4246 | 9.413 6993 | 86.6     | 10.586 3007 | 10.0141238 | 5.5   | 9.9858762 | 28' |
| 10  | 399 6567   | 81.2     | 600 3433    | 413 7859   | 86.6     | 586 2141    | 1293       | 5.4   | 8707      | 50  |
| 20  | 399 7379   | 81.1     | 600 2621    | 413 8726   | 86.6     | 586 1274    | 1347       | 5.5   | 8653      | 40  |
| 30  | 399 8190   | 81.2     | 600 1810    | 413 9592   | 86.7     | 586 0408    | 1402       | 5.5   | 8598      | 30  |
| 40  | 399 9002   | 81.1     | 600 0998    | 414 0459   | 86.6     | 585 9541    | 1457       | 5.4   | 8543      | 20  |
| 50  | 399 9813   | 81.2     | 600 0187    | 414 1325   | 86.6     | 585 8675    | 1511       | 5.5   | 8489      | 10  |
| 33' | 9.400 0625 | 81.1     | 10.599 9375 | 9.414 2191 | 86.5     | 10.585 7809 | 10.0141566 | 5.5   | 9.9858434 | 27' |
| 10  | 400 1436   | 81.1     | 599 8564    | 414 3056   | 86.5     | 585 6944    | 1621       | 5.4   | 8379      | 50  |
| 20  | 400 2247   | 81.1     | 599 7753    | 414 3922   | 86.6     | 585 6078    | 1675       | 5.5   | 8325      | 40  |
| 30  | 400 3058   | 81.0     | 599 6942    | 414 4788   | 86.5     | 585 5212    | 1730       | 5.5   | 8270      | 30  |
| 40  | 400 3868   | 81.1     | 599 6132    | 414 5653   | 86.5     | 585 4347    | 1785       | 5.4   | 8215      | 20  |
| 50  | 400 4679   | 81.0     | 599 5321    | 414 6518   | 86.5     | 585 3482    | 1839       | 5.5   | 8161      | 10  |
| 34' | 9.400 5489 | 81.0     | 10.599 4511 | 9.414 7383 | 86.5     | 10.585 2617 | 10.0141894 | 5.5   | 9.9858106 | 26' |
| 10  | 400 6299   | 81.0     | 599 3701    | 414 8248   | 86.5     | 585 1752    | 1949       | 5.5   | 8051      | 50  |
| 20  | 400 7109   | 81.0     | 599 2891    | 414 9113   | 86.4     | 585 0887    | 2004       | 5.4   | 7996      | 40  |
| 30  | 400 7919   | 81.0     | 599 2081    | 414 9977   | 86.5     | 585 0023    | 2058       | 5.5   | 7942      | 30  |
| 40  | 400 8729   | 80.9     | 599 1271    | 415 0842   | 86.4     | 584 9158    | 2113       | 5.5   | 7887      | 20  |
| 50  | 400 9538   | 81.0     | 599 0462    | 415 1706   | 86.4     | 584 8294    | 2168       | 5.5   | 7832      | 10  |
| 35' | 9.401 0348 | 80.9     | 10.598 9652 | 9.415 2570 | 86.4     | 10.584 7430 | 10.0142223 | 5.5   | 9.9857777 | 25' |
| 10  | 401 1157   | 80.9     | 598 8843    | 415 3434   | 86.4     | 584 6566    | 2277       | 5.4   | 7723      | 50  |
| 20  | 401 1966   | 80.9     | 598 8034    | 415 4298   | 86.4     | 584 5702    | 2332       | 5.5   | 7668      | 40  |
| 30  | 401 2775   | 80.9     | 598 7225    | 415 5162   | 86.3     | 584 4838    | 2387       | 5.5   | 7613      | 30  |
| 40  | 401 3584   | 80.8     | 598 6416    | 415 6025   | 86.4     | 584 3975    | 2442       | 5.5   | 7558      | 20  |
| 50  | 401 4392   | 80.9     | 598 5608    | 415 6889   | 86.3     | 584 3111    | 2497       | 5.4   | 7503      | 10  |
| 36' | 9.401 5201 | 80.8     | 10.598 4799 | 9.415 7752 | 86.3     | 10.584 2248 | 10.0142551 | 5.5   | 9.9857449 | 24' |
| 10  | 401 6009   | 80.8     | 598 3991    | 415 8615   | 86.3     | 584 1385    | 2606       | 5.5   | 7394      | 50  |
| 20  | 401 6817   | 80.8     | 598 3183    | 415 9478   | 86.3     | 584 0522    | 2661       | 5.5   | 7339      | 40  |
| 30  | 401 7625   | 80.8     | 598 2375    | 416 0341   | 86.2     | 583 9659    | 2716       | 5.5   | 7284      | 30  |
| 40  | 401 8433   | 80.7     | 598 1567    | 416 1203   | 86.3     | 583 8797    | 2771       | 5.5   | 7229      | 20  |
| 50  | 401 9240   | 80.8     | 598 0760    | 416 2066   | 86.2     | 583 7934    | 2826       | 5.5   | 7174      | 10  |
| 37' | 9.402 0048 | 80.7     | 10.597 9952 | 9.416 2928 | 86.2     | 10.583 7072 | 10.0142881 | 5.5   | 9.9857119 | 23' |
| 10  | 402 0855   | 80.7     | 597 9145    | 416 3790   | 86.2     | 583 6210    | 2936       | 5.5   | 7064      | 50  |
| 20  | 402 1662   | 80.7     | 597 8338    | 416 4653   | 86.1     | 583 5347    | 2991       | 5.4   | 7009      | 40  |
| 30  | 402 2469   | 80.7     | 597 7531    | 416 5514   | 86.2     | 583 4486    | 3045       | 5.5   | 6955      | 30  |
| 40  | 402 3276   | 80.6     | 597 6724    | 416 6376   | 86.2     | 583 3624    | 3100       | 5.5   | 6900      | 20  |
| 50  | 402 4082   | 80.7     | 597 5918    | 416 7238   | 86.1     | 583 2762    | 3155       | 5.5   | 6845      | 10  |
| 38' | 9.402 4889 | 80.6     | 10.597 5111 | 9.416 8099 | 86.2     | 10.583 1901 | 10.0143210 | 5.5   | 9.9856790 | 22' |
| 10  | 402 5695   | 80.6     | 597 4305    | 416 8961   | 86.1     | 583 1039    | 3265       | 5.5   | 6735      | 50  |
| 20  | 402 6501   | 80.6     | 597 3499    | 416 9822   | 86.1     | 583 0178    | 3320       | 5.5   | 6680      | 40  |
| 30  | 402 7307   | 80.6     | 597 2693    | 417 0683   | 86.1     | 582 9317    | 3375       | 5.5   | 6625      | 30  |
| 40  | 402 8113   | 80.6     | 597 1887    | 417 1544   | 86.0     | 582 8456    | 3430       | 5.5   | 6570      | 20  |
| 50  | 402 8919   | 80.5     | 597 1081    | 417 2404   | 86.1     | 582 7596    | 3485       | 5.5   | 6515      | 10  |
| 39' | 9.402 9724 | 80.6     | 10.597 0276 | 9.417 3265 | 86.0     | 10.582 6735 | 10.0143540 | 5.5   | 9.9856460 | 21' |
| 10  | 403 0530   | 80.5     | 596 9470    | 417 4125   | 86.0     | 582 5875    | 3595       | 5.5   | 6405      | 50  |
| 20  | 403 1335   | 80.5     | 596 8665    | 417 4985   | 86.1     | 582 5015    | 3651       | 5.5   | 6349      | 40  |
| 30  | 403 2140   | 80.5     | 596 7860    | 417 5846   | 86.0     | 582 4154    | 3706       | 5.5   | 6294      | 30  |
| 40  | 403 2945   | 80.5     | 596 7055    | 417 6706   | 85.9     | 582 3294    | 3761       | 5.5   | 6239      | 20  |
| 50  | 403 3750   | 80.4     | 596 6250    | 417 7565   | 86.0     | 582 2435    | 3816       | 5.5   | 6184      | 10  |
| 40' | 9.403 4554 |          | 10.596 5446 | 9.417 8425 |          | 10 582 1575 | 10.0143871 |       | 9.9856129 | 20' |

104°

75°



14°

165°

|     | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | d.1'' | co-sin.   |     |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|-----|
| 40' | 9.403 4554 | 80.5     | 10.596 5446 | 9.417 8425 | 85.9     | 10.582 1575 | 10.0143871 | 5.5   | 9.9856129 | 20' |
| 10  | 403 5359   | 80.4     | 596 4641    | 417 9284   | 86.0     | 582 0716    | 3926       | 5.5   | 6074      | 50  |
| 20  | 403 6163   | 80.4     | 596 3837    | 418 0144   | 85.9     | 581 9856    | 3981       | 5.5   | 6019      | 40  |
| 30  | 403 6977   | 80.4     | 596 3033    | 418 1003   | 85.9     | 581 8997    | 4036       | 5.5   | 5964      | 30  |
| 40  | 403 7771   | 80.4     | 596 2229    | 418 1862   | 85.9     | 581 8138    | 4091       | 5.6   | 5909      | 20  |
| 50  | 403 8575   | 80.4     | 596 1425    | 418 2721   | 85.9     | 581 7279    | 4147       | 5.5   | 5853      | 10  |
| 41' | 9.403 9378 | 80.3     | 10.596 0622 | 9.418 3580 | 85.8     | 10.581 6420 | 10.0144202 | 5.5   | 9.9855798 | 15' |
| 10  | 404 0182   | 80.3     | 595 9818    | 418 4438   | 85.9     | 581 5562    | 4257       | 5.5   | 5743      | 50  |
| 20  | 404 0985   | 80.3     | 595 9015    | 418 5297   | 85.8     | 581 4703    | 4312       | 5.5   | 5688      | 40  |
| 30  | 404 1788   | 80.3     | 595 8212    | 418 6155   | 85.8     | 581 3845    | 4367       | 5.5   | 5633      | 30  |
| 40  | 404 2591   | 80.3     | 595 7409    | 418 7013   | 85.8     | 581 2987    | 4422       | 5.5   | 5578      | 20  |
| 50  | 404 3394   | 80.3     | 595 6606    | 418 7871   | 85.8     | 581 2129    | 4478       | 5.6   | 5522      | 10  |
| 42' | 9.404 4196 | 80.3     | 10.595 5804 | 9.418 8729 | 85.8     | 10.581 1271 | 10.0144533 | 5.5   | 9.9855467 | 18' |
| 10  | 404 4999   | 80.2     | 595 5001    | 418 9587   | 85.8     | 581 0413    | 4538       | 5.5   | 5412      | 50  |
| 20  | 404 5801   | 80.2     | 595 4199    | 419 0445   | 85.7     | 580 9555    | 4643       | 5.5   | 5357      | 40  |
| 30  | 404 6603   | 80.2     | 595 3397    | 419 1302   | 85.7     | 580 8698    | 4699       | 5.6   | 5301      | 30  |
| 40  | 404 7406   | 80.3     | 595 2594    | 419 2159   | 85.8     | 580 7841    | 4754       | 5.5   | 5246      | 20  |
| 50  | 404 8207   | 80.1     | 595 1793    | 419 3017   | 85.7     | 580 6983    | 4809       | 5.6   | 5191      | 10  |
| 43' | 9.404 9009 | 80.2     | 10.595 0991 | 9.419 3874 | 85.6     | 10.580 6126 | 10.0144865 | 5.5   | 9.9855135 | 17' |
| 10  | 404 9811   | 80.1     | 595 0189    | 419 4730   | 85.7     | 580 5270    | 4920       | 5.5   | 5080      | 50  |
| 20  | 405 0612   | 80.1     | 594 9388    | 419 5587   | 85.7     | 580 4413    | 4975       | 5.5   | 5025      | 40  |
| 30  | 405 1413   | 80.1     | 594 8587    | 419 6444   | 85.6     | 580 3556    | 5030       | 5.5   | 4970      | 30  |
| 40  | 405 2214   | 80.1     | 594 7786    | 419 7300   | 85.6     | 580 2700    | 5086       | 5.5   | 4914      | 20  |
| 50  | 405 3015   | 80.1     | 594 6985    | 419 8156   | 85.7     | 580 1844    | 5141       | 5.6   | 4859      | 10  |
| 44' | 9.405 3816 | 80.1     | 10.594 6184 | 9.419 9013 | 85.6     | 10.580 0987 | 10.0145197 | 5.5   | 9.9854803 | 16' |
| 10  | 405 4617   | 80.0     | 594 5383    | 419 9869   | 85.5     | 580 0131    | 5252       | 5.5   | 4748      | 50  |
| 20  | 405 5417   | 80.0     | 594 4583    | 420 0724   | 85.6     | 579 9276    | 5307       | 5.6   | 4693      | 40  |
| 30  | 405 6217   | 80.0     | 594 3783    | 420 1580   | 85.6     | 579 8420    | 5363       | 5.5   | 4637      | 30  |
| 40  | 405 7017   | 80.0     | 594 2983    | 420 2436   | 85.5     | 579 7564    | 5418       | 5.6   | 4582      | 20  |
| 50  | 405 7817   | 80.0     | 594 2183    | 420 3291   | 85.5     | 579 6709    | 5474       | 5.5   | 4526      | 10  |
| 45' | 9.405 8617 | 80.0     | 10.594 1383 | 9.420 4146 | 85.5     | 10.579 5854 | 10.0145529 | 5.5   | 9.9854471 | 15' |
| 10  | 405 9417   | 79.9     | 594 0583    | 420 5001   | 85.5     | 579 4999    | 5528       | 5.6   | 4416      | 50  |
| 20  | 406 0216   | 80.0     | 593 9784    | 420 5856   | 85.5     | 579 4144    | 5640       | 5.5   | 4360      | 40  |
| 30  | 406 1016   | 80.0     | 593 8984    | 420 6711   | 85.5     | 579 3289    | 5695       | 5.6   | 4305      | 30  |
| 40  | 406 1815   | 79.9     | 593 8185    | 420 7566   | 85.4     | 579 2434    | 5751       | 5.5   | 4249      | 20  |
| 50  | 406 2614   | 79.9     | 593 7386    | 420 8420   | 85.5     | 579 1580    | 5806       | 5.6   | 4194      | 10  |
| 46' | 9.406 3413 | 79.8     | 10.593 6587 | 9.420 9275 | 85.4     | 10.579 0725 | 10.0145862 | 5.5   | 9.9854138 | 14' |
| 10  | 406 4211   | 79.8     | 593 5789    | 421 0129   | 85.4     | 578 9871    | 5917       | 5.5   | 4083      | 50  |
| 20  | 406 5010   | 79.9     | 593 4990    | 421 0983   | 85.4     | 578 9017    | 5973       | 5.6   | 4027      | 40  |
| 30  | 406 5808   | 79.8     | 593 4192    | 421 1837   | 85.4     | 578 8163    | 6028       | 5.5   | 3972      | 30  |
| 40  | 406 6607   | 79.9     | 593 3393    | 421 2691   | 85.3     | 578 7309    | 6084       | 5.5   | 3916      | 20  |
| 50  | 406 7405   | 79.8     | 593 2595    | 421 3544   | 85.4     | 578 6456    | 6139       | 5.6   | 3861      | 10  |
| 47' | 9.406 8203 | 79.8     | 10.593 1797 | 9.421 4398 | 85.3     | 10.578 5602 | 10.0146195 | 5.5   | 9.9853805 | 13' |
| 10  | 406 9000   | 79.7     | 593 1000    | 421 5251   | 85.3     | 578 4749    | 6251       | 5.5   | 3749      | 50  |
| 20  | 406 9798   | 79.8     | 593 0202    | 421 6104   | 85.3     | 578 3896    | 6306       | 5.6   | 3694      | 40  |
| 30  | 407 0596   | 79.8     | 592 9404    | 421 6957   | 85.3     | 578 3043    | 6362       | 5.5   | 3638      | 30  |
| 40  | 407 1393   | 79.7     | 592 8607    | 421 7810   | 85.3     | 578 2190    | 6417       | 5.5   | 3583      | 20  |
| 50  | 407 2190   | 79.7     | 592 7810    | 421 8663   | 85.2     | 578 1337    | 6473       | 5.6   | 3527      | 10  |
| 48' | 9.407 2987 | 79.7     | 10.592 7013 | 9.421 9515 | 85.3     | 10.578 0485 | 10.0146529 | 5.5   | 9.9853471 | 12' |
| 10  | 407 3784   | 79.6     | 592 6216    | 422 0368   | 85.2     | 577 9632    | 6528       | 5.6   | 3416      | 50  |
| 20  | 407 4580   | 79.6     | 592 5420    | 422 1220   | 85.2     | 577 8780    | 6640       | 5.5   | 3360      | 40  |
| 30  | 407 5377   | 79.7     | 592 4623    | 422 2072   | 85.2     | 577 7928    | 6695       | 5.5   | 3305      | 30  |
| 40  | 407 6173   | 79.6     | 592 3827    | 422 2924   | 85.2     | 577 7076    | 6751       | 5.6   | 3249      | 20  |
| 50  | 407 6970   | 79.7     | 592 3030    | 422 3776   | 85.2     | 577 6224    | 6807       | 5.5   | 3193      | 10  |
| 49' | 9.407 7766 | 79.6     | 10.592 2234 | 9.422 4628 | 85.2     | 10.577 5372 | 10.0146862 | 5.5   | 9.9853138 | 11' |
| 10  | 407 8561   | 79.5     | 592 1439    | 422 5480   | 85.1     | 577 4520    | 6918       | 5.6   | 3082      | 50  |
| 20  | 407 9357   | 79.6     | 592 0643    | 422 6331   | 85.1     | 577 3669    | 6974       | 5.6   | 3026      | 40  |
| 30  | 408 0153   | 79.6     | 591 9847    | 422 7182   | 85.1     | 577 2818    | 7030       | 5.5   | 2970      | 30  |
| 40  | 408 0948   | 79.5     | 591 9052    | 422 8034   | 85.2     | 577 1966    | 7085       | 5.5   | 2915      | 20  |
| 50  | 408 1743   | 79.5     | 591 8257    | 422 8885   | 85.1     | 577 1115    | 7141       | 5.6   | 2859      | 10  |
| 50' | 9.408 2539 | 79.6     | 10.591 7461 | 9.422 9735 | 85.0     | 10.577 0265 | 10.0147197 | 5.5   | 9.9852803 | 10' |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | d.1'' | sin. |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|

104°

75°

LOGARITHMIC SINES, TANGENTS, & C.

247

| 14° |            |          |             |            | 165°     |             |            |       |           |
|-----|------------|----------|-------------|------------|----------|-------------|------------|-------|-----------|
|     | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | d. 1" | co-sin.   |
| 50  | 9.408 2539 | 79.5     | 10.591 7461 | 9.422 9735 | 85.1     | 10.577 0265 | 10.0147197 | 5.6   | 9.9852803 |
| 10  | 408 3334   | 79.4     | 591 6666    | 423 0506   | 85.1     | 576 9414    | 7253       | 5.5   | 2747 50   |
| 20  | 408 4128   | 79.4     | 591 5872    | 423 1437   | 85.0     | 576 8563    | 7308       | 5.6   | 2692 40   |
| 30  | 408 4923   | 79.5     | 591 5077    | 423 2287   | 85.0     | 576 7713    | 7364       | 5.6   | 2636 30   |
| 40  | 408 5717   | 79.4     | 591 4283    | 423 3137   | 85.1     | 576 6863    | 7420       | 5.6   | 2580 20   |
| 50  | 408 6512   | 79.5     | 591 3488    | 423 3988   | 85.0     | 576 6012    | 7476       | 5.6   | 2524 10   |
| 51  | 9.408 7306 | 79.4     | 10.591 2694 | 9.423 4838 | 85.0     | 10.576 5162 | 10.0147532 | 5.6   | 9.9852468 |
| 10  | 408 8100   | 79.4     | 591 1900    | 423 5687   | 84.9     | 576 4313    | 7587       | 5.6   | 2413 50   |
| 20  | 408 8894   | 79.4     | 591 1106    | 423 6537   | 85.0     | 576 3463    | 7643       | 5.6   | 2357 40   |
| 30  | 408 9688   | 79.4     | 591 0312    | 423 7387   | 85.0     | 576 2613    | 7699       | 5.6   | 2301 30   |
| 40  | 409 0481   | 79.3     | 590 9519    | 423 8236   | 84.9     | 576 1764    | 7755       | 5.6   | 2245 20   |
| 50  | 409 1275   | 79.4     | 590 8725    | 423 9085   | 84.9     | 576 0915    | 7811       | 5.6   | 2189 10   |
| 52  | 9.409 2066 | 79.3     | 10.590 7932 | 9.423 9935 | 85.0     | 10.576 0065 | 10.0147867 | 5.6   | 9.9852133 |
| 10  | 409 2861   | 79.3     | 590 7139    | 424 0784   | 84.9     | 575 9216    | 7923       | 5.6   | 2077 50   |
| 20  | 409 3654   | 79.3     | 590 6346    | 424 1632   | 84.8     | 575 8368    | 7979       | 5.6   | 2021 40   |
| 30  | 409 4447   | 79.3     | 590 5553    | 424 2481   | 84.9     | 575 7519    | 8035       | 5.5   | 1965 30   |
| 40  | 409 5239   | 79.2     | 590 4761    | 424 3330   | 84.8     | 575 6670    | 8090       | 5.6   | 1910 20   |
| 50  | 409 6032   | 79.3     | 590 3968    | 424 4178   | 84.8     | 575 5822    | 8146       | 5.6   | 1854 10   |
| 53  | 9.409 6824 | 79.2     | 10.590 3176 | 9.424 5026 | 84.8     | 10.575 4974 | 10.0148202 | 5.6   | 9.9851798 |
| 10  | 409 7616   | 79.2     | 590 2384    | 424 5874   | 84.8     | 575 4126    | 8258       | 5.6   | 1742 50   |
| 20  | 409 8408   | 79.2     | 590 1592    | 424 6722   | 84.8     | 575 3278    | 8314       | 5.6   | 1686 40   |
| 30  | 409 9200   | 79.2     | 590 0800    | 424 7570   | 84.8     | 575 2430    | 8370       | 5.6   | 1630 30   |
| 40  | 409 9992   | 79.2     | 590 0008    | 424 8418   | 84.8     | 575 1582    | 8426       | 5.6   | 1574 20   |
| 50  | 410 0783   | 79.1     | 589 9217    | 424 9266   | 84.7     | 575 0734    | 8482       | 5.6   | 1518 10   |
| 54  | 9.410 1575 | 79.2     | 10.589 8425 | 9.425 0113 | 84.7     | 10.574 9887 | 10.0148538 | 5.6   | 9.9851462 |
| 10  | 410 2366   | 79.1     | 589 7634    | 425 0960   | 84.7     | 574 9040    | 8544       | 5.6   | 1466 50   |
| 20  | 410 3157   | 79.1     | 589 6843    | 425 1807   | 84.7     | 574 8193    | 8600       | 5.6   | 1350 40   |
| 30  | 410 3948   | 79.1     | 589 6052    | 425 2654   | 84.7     | 574 7346    | 8706       | 5.6   | 1294 30   |
| 40  | 410 4739   | 79.1     | 589 5261    | 425 3501   | 84.7     | 574 6499    | 8762       | 5.7   | 1238 20   |
| 50  | 410 5529   | 79.0     | 589 4471    | 425 4348   | 84.7     | 574 5652    | 8819       | 5.6   | 1181 10   |
| 55  | 9.410 6320 | 79.1     | 10.589 3680 | 9.425 5194 | 84.6     | 10.574 4806 | 10.0148875 | 5.6   | 9.9851125 |
| 10  | 410 7110   | 79.0     | 589 2890    | 425 6041   | 84.6     | 574 3959    | 8931       | 5.6   | 1069 50   |
| 20  | 410 7900   | 79.0     | 589 2100    | 425 6887   | 84.6     | 574 3113    | 8987       | 5.6   | 1013 40   |
| 30  | 410 8690   | 79.0     | 589 1310    | 425 7733   | 84.6     | 574 2267    | 9043       | 5.6   | 9957 30   |
| 40  | 410 9480   | 79.0     | 589 0520    | 425 8579   | 84.6     | 574 1421    | 9099       | 5.6   | 9901 20   |
| 50  | 411 0270   | 79.0     | 588 9730    | 425 9425   | 84.6     | 574 0575    | 9155       | 5.6   | 9845 10   |
| 56  | 9.411 1059 | 78.9     | 10.588 8941 | 9.426 0271 | 84.5     | 10.573 9729 | 10.0149211 | 5.7   | 9.9850789 |
| 10  | 411 1849   | 79.0     | 588 8151    | 426 1116   | 84.5     | 573 8884    | 9268       | 5.6   | 9732 50   |
| 20  | 411 2638   | 78.9     | 588 7362    | 426 1962   | 84.5     | 573 8038    | 9324       | 5.6   | 9676 40   |
| 30  | 411 3427   | 78.9     | 588 6573    | 426 2807   | 84.5     | 573 7193    | 9380       | 5.6   | 9620 30   |
| 40  | 411 4216   | 78.9     | 588 5784    | 426 3652   | 84.5     | 573 6348    | 9436       | 5.6   | 9564 20   |
| 50  | 411 5005   | 78.9     | 588 4995    | 426 4497   | 84.5     | 573 5503    | 9492       | 5.6   | 9508 10   |
| 57  | 9.411 5793 | 78.8     | 10.588 4207 | 9.426 5342 | 84.5     | 10.573 4658 | 10.0149548 | 5.7   | 9.9850452 |
| 10  | 411 6582   | 78.8     | 588 3418    | 426 6187   | 84.4     | 573 3813    | 9605       | 5.6   | 9395 50   |
| 20  | 411 7370   | 78.8     | 588 2630    | 426 7031   | 84.4     | 573 2969    | 9661       | 5.6   | 9339 40   |
| 30  | 411 8158   | 78.8     | 588 1842    | 426 7875   | 84.4     | 573 2125    | 9717       | 5.6   | 9283 30   |
| 40  | 411 8946   | 78.8     | 588 1054    | 426 8720   | 84.4     | 573 1280    | 9773       | 5.7   | 9227 20   |
| 50  | 411 9734   | 78.8     | 588 0266    | 426 9564   | 84.4     | 573 0436    | 9830       | 5.6   | 9170 10   |
| 58  | 9.412 0522 | 78.7     | 10.587 9478 | 9.427 0408 | 84.4     | 10.572 9592 | 10.0149886 | 5.6   | 9.9850114 |
| 10  | 412 1309   | 78.7     | 587 8691    | 427 1252   | 84.3     | 572 8748    | 9942       | 5.7   | 9058 50   |
| 20  | 412 2097   | 78.7     | 587 7903    | 427 2095   | 84.4     | 572 7905    | 10.0149900 | 5.6   | 9.9850001 |
| 30  | 412 2884   | 78.7     | 587 7116    | 427 2939   | 84.3     | 572 7061    | 10.0150035 | 5.6   | 9.9849945 |
| 40  | 412 3671   | 78.7     | 587 6329    | 427 3782   | 84.4     | 572 6218    | 0111       | 5.7   | 9889 20   |
| 50  | 412 4458   | 78.7     | 587 5542    | 427 4626   | 84.3     | 572 5374    | 0168       | 5.6   | 9832 10   |
| 59  | 9.412 5245 | 78.6     | 10.587 4755 | 9.427 5469 | 84.3     | 10.572 4531 | 10.0150224 | 5.6   | 9.9849776 |
| 10  | 412 6031   | 78.7     | 587 3969    | 427 6312   | 84.3     | 572 3688    | 0280       | 5.7   | 9720 50   |
| 20  | 412 6818   | 78.6     | 587 3182    | 427 7155   | 84.2     | 572 2845    | 0337       | 5.6   | 9663 40   |
| 30  | 412 7604   | 78.6     | 587 2396    | 427 7997   | 84.3     | 572 2003    | 0393       | 5.6   | 9607 30   |
| 40  | 412 8390   | 78.6     | 587 1610    | 427 8840   | 84.2     | 572 1160    | 0449       | 5.7   | 9551 20   |
| 50  | 412 9176   | 78.6     | 587 0824    | 427 9682   | 84.3     | 572 0318    | 0506       | 5.6   | 9494 10   |
| 60  | 9.412 9962 | 78.6     | 10.587 0038 | 9.428 0525 | 84.3     | 10.571 9475 | 10.0150562 | 5.6   | 9.9849438 |

104°

75°

15°

164°

| '  | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    | '  |
|----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|----|
| 0  | 9.412 9962 | 78.53    | 10.587 0038 | 9.428 0525 | 84.17    | 10.571 9475 | 10.015 0562 | 5.65  | 9.984 9438 | 60 |
| 1  | 413 4674   | 78.45    | 586 5326    | 428 5575   | 84.10    | 571 4425    | 015 1901    | 5.65  | 984 9099   | 59 |
| 2  | 413 9381   | 78.35    | 586 0619    | 429 0621   | 84.00    | 570 9379    | 015 1240    | 5.67  | 984 8760   | 58 |
| 3  | 414 4088   | 78.27    | 585 5918    | 429 5661   | 83.93    | 570 4339    | 015 1580    | 5.65  | 984 8420   | 57 |
| 4  | 414 8778   | 78.17    | 585 1222    | 430 0697   | 83.83    | 569 9303    | 015 1919    | 5.68  | 984 8081   | 56 |
| 5  | 415 3468   | 78.07    | 584 6532    | 430 5727   | 83.70    | 569 4273    | 015 2260    | 5.67  | 984 7740   | 55 |
| 6  | 9.415 8152 | 78.00    | 10.584 1848 | 9.431 0753 | 83.67    | 10.568 9247 | 10.015 2600 | 5.68  | 9.984 7400 | 54 |
| 7  | 416 2832   | 77.90    | 583 7168    | 431 5773   | 83.50    | 568 4227    | 015 2941    | 5.70  | 984 7059   | 53 |
| 8  | 416 7506   | 77.80    | 583 2494    | 432 0789   | 83.40    | 567 9211    | 015 3283    | 5.70  | 984 6717   | 52 |
| 9  | 417 2174   | 77.72    | 582 7826    | 432 5799   | 83.32    | 567 4201    | 015 3625    | 5.70  | 984 6375   | 51 |
| 10 | 417 6837   | 77.63    | 582 3163    | 433 0804   | 83.25    | 566 9196    | 015 3967    | 5.72  | 984 6033   | 50 |
| 11 | 418 1495   | 77.55    | 581 8505    | 433 5805   | 83.25    | 566 4195    | 015 4310    | 5.72  | 984 5690   | 49 |
| 12 | 9.418 6148 | 77.45    | 10.581 3852 | 9.434 0800 | 83.18    | 10.565 9200 | 10.015 4653 | 5.73  | 9.984 5347 | 48 |
| 13 | 419 0797   | 77.35    | 580 9205    | 434 5791   | 83.08    | 565 4209    | 015 4996    | 5.72  | 984 5004   | 47 |
| 14 | 419 5436   | 77.28    | 580 4564    | 435 0776   | 83.02    | 564 9224    | 015 5340    | 5.73  | 984 4660   | 46 |
| 15 | 420 0073   | 77.18    | 579 9927    | 435 5757   | 82.93    | 564 4243    | 015 5684    | 5.75  | 984 4316   | 45 |
| 16 | 420 4704   | 77.10    | 579 5296    | 436 0733   | 82.85    | 563 9267    | 015 6029    | 5.75  | 984 3971   | 44 |
| 17 | 9.420 9330 | 77.00    | 10.579 0670 | 9.437 0670 | 82.77    | 10.562 9230 | 10.015 6374 | 5.75  | 9.984 3626 | 43 |
| 18 | 421 3950   | 76.93    | 578 6050    | 437 0670   | 82.68    | 562 4369    | 015 6719    | 5.77  | 984 3281   | 42 |
| 19 | 421 8566   | 76.83    | 578 1434    | 437 5631   | 82.60    | 561 9413    | 015 7065    | 5.77  | 984 2935   | 41 |
| 20 | 422 3176   | 76.73    | 577 6824    | 438 0587   | 82.52    | 561 4462    | 015 7411    | 5.78  | 984 2589   | 40 |
| 21 | 422 7780   | 76.67    | 577 2220    | 438 5538   | 82.45    | 560 9515    | 015 7758    | 5.78  | 984 2242   | 39 |
| 22 | 423 2380   | 76.57    | 576 7620    | 439 0485   | 82.35    | 560 4574    | 015 8105    | 5.78  | 984 1895   | 38 |
| 23 | 423 6974   | 76.48    | 576 3026    | 439 5426   | 82.28    | 560 4574    | 015 8452    | 5.80  | 984 1548   | 37 |
| 24 | 9.424 1563 | 76.40    | 10.575 8437 | 9.440 0363 | 82.20    | 10.559 9637 | 10.015 8800 | 5.80  | 9.984 1200 | 36 |
| 25 | 424 6147   | 76.32    | 575 3853    | 440 5295   | 82.12    | 559 4705    | 015 9148    | 5.82  | 984 0852   | 35 |
| 26 | 425 0726   | 76.22    | 574 9274    | 441 0222   | 82.05    | 558 9778    | 015 9497    | 5.82  | 984 0503   | 34 |
| 27 | 425 5299   | 76.12    | 574 4701    | 441 5145   | 81.95    | 558 4855    | 015 9846    | 5.82  | 984 0154   | 33 |
| 28 | 425 9867   | 76.03    | 574 0133    | 442 0062   | 81.88    | 557 9938    | 016 0195    | 5.83  | 983 9805   | 32 |
| 29 | 426 4430   | 75.97    | 573 5570    | 442 4975   | 81.80    | 557 5025    | 016 0545    | 5.83  | 983 9455   | 31 |
| 30 | 9.426 8988 | 75.86    | 10.573 1012 | 9.442 9883 | 81.72    | 10.557 0117 | 10.016 0895 | 5.83  | 9.983 9105 | 30 |
| 31 | 427 3541   | 75.80    | 572 6459    | 443 4786   | 81.65    | 556 5214    | 016 1245    | 5.85  | 983 8755   | 29 |
| 32 | 427 8089   | 75.70    | 572 1911    | 443 9685   | 81.57    | 556 0315    | 016 1596    | 5.85  | 983 8404   | 28 |
| 33 | 428 2631   | 75.60    | 571 7369    | 444 4579   | 81.48    | 555 5421    | 016 1948    | 5.85  | 983 8052   | 27 |
| 34 | 428 7169   | 75.53    | 571 2831    | 444 9468   | 81.40    | 555 0532    | 016 2299    | 5.85  | 983 7701   | 26 |
| 35 | 429 1701   | 75.45    | 570 8299    | 445 4352   | 81.33    | 554 5648    | 016 2652    | 5.87  | 983 7348   | 25 |
| 36 | 9.429 6228 | 75.37    | 10.570 3772 | 9.445 9232 | 81.25    | 10.554 0768 | 10.016 3004 | 5.87  | 9.983 6996 | 24 |
| 37 | 430 0750   | 75.28    | 569 9250    | 446 4107   | 81.18    | 553 5893    | 016 3357    | 5.88  | 983 6643   | 23 |
| 38 | 430 5267   | 75.20    | 569 4733    | 446 8978   | 81.10    | 553 1022    | 016 3710    | 5.90  | 983 6290   | 22 |
| 39 | 430 9779   | 75.12    | 569 0221    | 447 3843   | 81.02    | 552 6157    | 016 4064    | 5.90  | 983 5936   | 21 |
| 40 | 431 4286   | 75.03    | 568 5714    | 447 8704   | 80.95    | 552 1296    | 016 4418    | 5.92  | 983 5582   | 20 |
| 41 | 431 8788   | 74.95    | 568 1212    | 448 3561   | 80.87    | 551 6439    | 016 4773    | 5.92  | 983 5227   | 19 |
| 42 | 9.432 3285 | 74.87    | 10.567 6715 | 9.448 8413 | 80.80    | 10.551 1587 | 10.016 5128 | 5.92  | 9.983 4872 | 18 |
| 43 | 432 7777   | 74.78    | 567 2223    | 449 3260   | 80.70    | 550 6740    | 016 5483    | 5.93  | 983 4517   | 17 |
| 44 | 433 2264   | 74.70    | 566 7736    | 449 8102   | 80.63    | 550 1898    | 016 5839    | 5.93  | 983 4161   | 16 |
| 45 | 433 6746   | 74.62    | 566 3254    | 450 2940   | 80.57    | 549 7060    | 016 6195    | 5.93  | 983 3805   | 15 |
| 46 | 434 1223   | 74.52    | 565 8777    | 450 7774   | 80.47    | 549 2226    | 016 6551    | 5.95  | 983 3449   | 14 |
| 47 | 434 5694   | 74.45    | 565 4306    | 451 2602   | 80.42    | 548 7398    | 016 6908    | 5.95  | 983 3092   | 13 |
| 48 | 9.435 0161 | 74.37    | 10.564 9839 | 9.451 7427 | 80.32    | 10.548 2573 | 10.016 7265 | 5.95  | 9.983 2735 | 12 |
| 49 | 435 4623   | 74.28    | 564 5377    | 452 2246   | 80.25    | 547 7754    | 016 7623    | 5.97  | 983 2377   | 11 |
| 50 | 435 9080   | 74.20    | 564 0920    | 452 7061   | 80.18    | 547 2939    | 016 7981    | 5.97  | 983 2019   | 10 |
| 51 | 436 3532   | 74.13    | 563 6468    | 453 1872   | 80.10    | 546 8122    | 016 8339    | 5.98  | 983 1661   | 9  |
| 52 | 436 7980   | 74.03    | 563 2020    | 453 6678   | 80.02    | 546 3322    | 016 8698    | 6.00  | 983 1302   | 8  |
| 53 | 437 2427   | 73.95    | 562 7578    | 454 1479   | 79.95    | 545 8521    | 016 9058    | 5.98  | 983 0942   | 7  |
| 54 | 9.437 6859 | 73.88    | 10.562 3141 | 9.454 6276 | 79.88    | 10.545 3724 | 10.016 9417 | 6.00  | 9.983 0583 | 6  |
| 55 | 438 1299   | 73.80    | 561 8708    | 455 1069   | 79.80    | 544 8931    | 016 9777    | 6.02  | 983 0223   | 5  |
| 56 | 438 5719   | 73.72    | 561 4281    | 455 5857   | 79.73    | 544 4143    | 017 0138    | 6.02  | 982 9862   | 4  |
| 57 | 439 0142   | 73.63    | 560 9858    | 456 0641   | 79.65    | 543 9359    | 017 0499    | 6.02  | 982 9501   | 3  |
| 58 | 439 4560   | 73.55    | 560 5440    | 456 5420   | 79.57    | 543 4580    | 017 0860    | 6.03  | 982 9140   | 2  |
| 59 | 439 8973   | 73.47    | 560 1027    | 457 0194   | 79.50    | 542 9806    | 017 1222    | 6.03  | 982 8778   | 1  |
| 60 | 9.440 3381 |          | 10.559 6619 | 9.457 4964 |          | 10.542 5036 | 10.017 1584 |       | 9.982 8416 | 0  |

105°

74°

| ' | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. | ' |
|---|---------|----------|------|----------|----------|-------|---------|-------|------|---|
|---|---------|----------|------|----------|----------|-------|---------|-------|------|---|



| 16° |            |          |             |            |          |             |             |       |            | 103° |   |         |          |     |       |          |          |      |   |
|-----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|------|---|---------|----------|-----|-------|----------|----------|------|---|
| '   | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec         | d. 1" | co-sin.    | '    | ' | co-sin. | diff. 1" | sec | tang. | diff. 1" | co-tang. | sin. | ' |
| 0   | 9.440 3381 | 73.38    | 10.559 6619 | 9.457 4964 | 79.43    | 10.542 5036 | 10.017 1584 | 6.03  | 9.982 8416 | 61   |   |         |          |     |       |          |          |      |   |
| 1   | 440 7784   | 73.30    | 559 2216    | 457 9730   | 79.35    | 542 0270    | 017 1940    | 6.05  | 982 8054   | 59   |   |         |          |     |       |          |          |      |   |
| 2   | 441 2182   | 73.23    | 558 7818    | 458 4491   | 79.28    | 541 5509    | 017 2309    | 6.05  | 982 7691   | 58   |   |         |          |     |       |          |          |      |   |
| 3   | 441 6576   | 73.15    | 558 3424    | 458 9248   | 79.22    | 541 0752    | 017 2672    | 6.07  | 982 7328   | 57   |   |         |          |     |       |          |          |      |   |
| 4   | 442 0965   | 73.07    | 557 9035    | 459 4001   | 79.13    | 540 5999    | 017 3036    | 6.07  | 982 6964   | 56   |   |         |          |     |       |          |          |      |   |
| 5   | 442 5349   | 72.98    | 557 4651    | 459 8749   | 79.05    | 540 1251    | 017 3400    | 6.07  | 982 6600   | 55   |   |         |          |     |       |          |          |      |   |
| 6   | 442 9728   | 72.92    | 10.557 0272 | 9.460 3492 | 79.00    | 10.539 6508 | 10.017 3764 | 6.08  | 982 6236   | 54   |   |         |          |     |       |          |          |      |   |
| 7   | 443 4103   | 72.82    | 556 5897    | 460 8232   | 78.92    | 539 1768    | 017 4129    | 6.08  | 982 5871   | 53   |   |         |          |     |       |          |          |      |   |
| 8   | 443 8472   | 72.75    | 556 1528    | 461 2967   | 78.83    | 538 7033    | 017 4494    | 6.10  | 982 5506   | 52   |   |         |          |     |       |          |          |      |   |
| 9   | 444 2837   | 72.67    | 555 7163    | 461 7697   | 78.77    | 538 2303    | 017 4860    | 6.10  | 982 5140   | 51   |   |         |          |     |       |          |          |      |   |
| 10  | 444 7197   | 72.60    | 555 2803    | 462 2423   | 78.70    | 537 7577    | 017 5226    | 6.10  | 982 4774   | 50   |   |         |          |     |       |          |          |      |   |
| 11  | 445 1553   | 72.52    | 554 8447    | 462 7145   | 78.63    | 537 2855    | 017 5592    | 6.12  | 982 4408   | 49   |   |         |          |     |       |          |          |      |   |
| 12  | 9.445 5904 | 72.43    | 10.554 4096 | 9.463 1863 | 78.55    | 10.536 8137 | 10.017 5959 | 6.12  | 982 4041   | 48   |   |         |          |     |       |          |          |      |   |
| 13  | 446 0250   | 72.35    | 553 9750    | 463 6576   | 78.48    | 536 3424    | 017 6326    | 6.13  | 982 3674   | 47   |   |         |          |     |       |          |          |      |   |
| 14  | 446 4591   | 72.27    | 553 5409    | 464 1285   | 78.42    | 535 8715    | 017 6694    | 6.13  | 982 3306   | 46   |   |         |          |     |       |          |          |      |   |
| 15  | 446 8927   | 72.20    | 553 1073    | 464 5990   | 78.33    | 535 4010    | 017 7062    | 6.15  | 982 2938   | 45   |   |         |          |     |       |          |          |      |   |
| 16  | 447 3259   | 72.12    | 552 6741    | 465 0690   | 78.27    | 534 9310    | 017 7431    | 6.13  | 982 2569   | 44   |   |         |          |     |       |          |          |      |   |
| 17  | 447 7586   | 72.05    | 552 2414    | 465 5386   | 78.20    | 534 4614    | 017 7799    | 6.17  | 982 2201   | 43   |   |         |          |     |       |          |          |      |   |
| 18  | 9.448 1909 | 71.97    | 10.551 8091 | 9.466 0078 | 78.12    | 10.533 9922 | 10.017 8169 | 6.15  | 982 1831   | 42   |   |         |          |     |       |          |          |      |   |
| 19  | 448 6227   | 71.88    | 551 3773    | 466 4765   | 78.05    | 533 5235    | 017 8538    | 6.17  | 982 1462   | 41   |   |         |          |     |       |          |          |      |   |
| 20  | 449 0540   | 71.82    | 550 9430    | 466 9448   | 77.98    | 533 0552    | 017 8908    | 6.18  | 982 1092   | 40   |   |         |          |     |       |          |          |      |   |
| 21  | 449 4849   | 71.73    | 550 5151    | 467 4127   | 77.92    | 532 5873    | 017 9279    | 6.17  | 982 0721   | 39   |   |         |          |     |       |          |          |      |   |
| 22  | 449 9153   | 71.65    | 550 0847    | 467 8802   | 77.85    | 532 1198    | 017 9649    | 6.20  | 982 0351   | 38   |   |         |          |     |       |          |          |      |   |
| 23  | 450 3452   | 71.58    | 549 6548    | 468 3473   | 77.77    | 531 6527    | 018 0021    | 6.20  | 981 9979   | 37   |   |         |          |     |       |          |          |      |   |
| 24  | 9.450 7747 | 71.50    | 10.549 2253 | 9.468 8139 | 77.70    | 10.531 1861 | 10.018 0392 | 6.20  | 981 9608   | 36   |   |         |          |     |       |          |          |      |   |
| 25  | 451 2037   | 71.42    | 548 7963    | 469 2801   | 77.63    | 530 7199    | 018 0764    | 6.22  | 981 9236   | 35   |   |         |          |     |       |          |          |      |   |
| 26  | 451 6322   | 71.35    | 548 3678    | 469 7459   | 77.55    | 530 2541    | 018 1137    | 6.22  | 981 8863   | 34   |   |         |          |     |       |          |          |      |   |
| 27  | 452 0603   | 71.27    | 547 9397    | 470 2112   | 77.50    | 529 7888    | 018 1510    | 6.22  | 981 8490   | 33   |   |         |          |     |       |          |          |      |   |
| 28  | 452 4879   | 71.20    | 547 5121    | 470 6762   | 77.42    | 529 3238    | 018 1883    | 6.22  | 981 8117   | 32   |   |         |          |     |       |          |          |      |   |
| 29  | 452 9151   | 71.12    | 547 0849    | 471 1407   | 77.35    | 528 8593    | 018 2256    | 6.23  | 981 7744   | 31   |   |         |          |     |       |          |          |      |   |
| 30  | 9.453 3418 | 71.05    | 10.546 6582 | 9.471 6048 | 77.28    | 10.528 3952 | 10.018 2630 | 6.25  | 981 7370   | 30   |   |         |          |     |       |          |          |      |   |
| 31  | 453 7681   | 70.97    | 546 2319    | 472 0685   | 77.22    | 527 9315    | 018 3005    | 6.25  | 981 6995   | 29   |   |         |          |     |       |          |          |      |   |
| 32  | 454 1939   | 70.88    | 545 8061    | 472 5318   | 77.15    | 527 4682    | 018 3380    | 6.25  | 981 6620   | 28   |   |         |          |     |       |          |          |      |   |
| 33  | 454 6192   | 70.82    | 545 3808    | 472 9947   | 77.08    | 527 0053    | 018 3755    | 6.25  | 981 6245   | 27   |   |         |          |     |       |          |          |      |   |
| 34  | 455 0441   | 70.75    | 544 9559    | 473 4572   | 77.00    | 526 5428    | 018 4130    | 6.27  | 981 5870   | 26   |   |         |          |     |       |          |          |      |   |
| 35  | 455 4686   | 70.67    | 544 5314    | 473 9192   | 76.93    | 526 0808    | 018 4506    | 6.28  | 981 5494   | 25   |   |         |          |     |       |          |          |      |   |
| 36  | 9.455 8926 | 70.58    | 10.544 1074 | 9.474 3808 | 76.88    | 10.525 6192 | 10.018 4883 | 6.28  | 981 5117   | 24   |   |         |          |     |       |          |          |      |   |
| 37  | 456 3161   | 70.52    | 543 6830    | 474 8421   | 76.80    | 525 1579    | 018 5260    | 6.28  | 981 4740   | 23   |   |         |          |     |       |          |          |      |   |
| 38  | 456 7392   | 70.43    | 543 2608    | 475 3029   | 76.73    | 524 6971    | 018 5637    | 6.28  | 981 4363   | 22   |   |         |          |     |       |          |          |      |   |
| 39  | 457 1618   | 70.37    | 542 8382    | 475 7633   | 76.67    | 524 2367    | 018 6014    | 6.30  | 981 3986   | 21   |   |         |          |     |       |          |          |      |   |
| 40  | 457 5840   | 70.30    | 542 4160    | 476 2233   | 76.60    | 523 7767    | 018 6392    | 6.32  | 981 3608   | 20   |   |         |          |     |       |          |          |      |   |
| 41  | 458 0058   | 70.22    | 541 9942    | 476 6829   | 76.53    | 523 3171    | 018 6771    | 6.32  | 981 3229   | 19   |   |         |          |     |       |          |          |      |   |
| 42  | 9.458 4271 | 70.15    | 10.541 5729 | 9.477 1421 | 76.47    | 10.522 8579 | 10.018 7150 | 6.32  | 981 2850   | 18   |   |         |          |     |       |          |          |      |   |
| 43  | 458 8480   | 70.07    | 541 1520    | 477 6009   | 76.40    | 522 3991    | 018 7529    | 6.33  | 981 2471   | 17   |   |         |          |     |       |          |          |      |   |
| 44  | 459 2684   | 70.00    | 540 7316    | 478 0592   | 76.38    | 521 9408    | 018 7909    | 6.33  | 981 2091   | 16   |   |         |          |     |       |          |          |      |   |
| 45  | 459 6884   | 69.92    | 540 3116    | 478 5172   | 76.33    | 521 4828    | 018 8289    | 6.33  | 981 1711   | 15   |   |         |          |     |       |          |          |      |   |
| 46  | 460 1079   | 69.85    | 539 8921    | 478 9748   | 76.27    | 521 0252    | 018 8669    | 6.35  | 981 1331   | 14   |   |         |          |     |       |          |          |      |   |
| 47  | 460 5270   | 69.77    | 539 4730    | 479 4319   | 76.20    | 520 5681    | 018 9050    | 6.35  | 981 0950   | 13   |   |         |          |     |       |          |          |      |   |
| 48  | 9.460 9456 | 69.70    | 10.539 0544 | 9.479 8887 | 76.13    | 10.520 1113 | 10.018 9431 | 6.37  | 981 0569   | 12   |   |         |          |     |       |          |          |      |   |
| 49  | 461 3638   | 69.63    | 538 6362    | 480 3451   | 76.07    | 519 6549    | 018 9813    | 6.37  | 981 0187   | 11   |   |         |          |     |       |          |          |      |   |
| 50  | 461 7816   | 69.55    | 538 2184    | 480 8011   | 76.00    | 519 1989    | 019 0195    | 6.37  | 980 9805   | 10   |   |         |          |     |       |          |          |      |   |
| 51  | 462 1989   | 69.48    | 537 8011    | 481 2566   | 75.92    | 518 7434    | 019 0577    | 6.38  | 980 9423   | 9    |   |         |          |     |       |          |          |      |   |
| 52  | 462 6158   | 69.42    | 537 3842    | 481 7118   | 75.87    | 518 2882    | 019 0960    | 6.38  | 980 9040   | 8    |   |         |          |     |       |          |          |      |   |
| 53  | 463 0323   | 69.33    | 536 9677    | 482 1666   | 75.80    | 517 8334    | 019 1343    | 6.40  | 980 8657   | 7    |   |         |          |     |       |          |          |      |   |
| 54  | 9.463 4483 | 69.27    | 10.536 5517 | 9.482 6210 | 75.67    | 10.517 3790 | 10.019 1727 | 6.40  | 980 8273   | 6    |   |         |          |     |       |          |          |      |   |
| 55  | 463 8639   | 69.20    | 536 1361    | 483 0750   | 75.60    | 516 9250    | 019 2111    | 6.40  | 980 7889   | 5    |   |         |          |     |       |          |          |      |   |
| 56  | 464 2790   | 69.13    | 535 7210    | 483 5286   | 75.53    | 516 4714    | 019 2495    | 6.42  | 980 7505   | 4    |   |         |          |     |       |          |          |      |   |
| 57  | 464 6938   | 69.05    | 535 3062    | 483 9818   | 75.47    | 516 0182    | 019 2880    | 6.42  | 980 7120   | 3    |   |         |          |     |       |          |          |      |   |
| 58  | 465 1081   | 68.97    | 534 8919    | 484 4346   | 75.40    | 515 5654    | 019 3265    | 6.43  | 980 6735   | 2    |   |         |          |     |       |          |          |      |   |
| 59  | 465 5219   | 68.90    | 534 4781    | 484 8870   | 75.33    | 515 1130    | 019 3651    | 6.43  | 980 6349   | 1    |   |         |          |     |       |          |          |      |   |
| 60  | 9.465 9353 |          | 10.534 0647 | 9.485 3390 |          | 10.514 6610 | 10.019 4037 |       | 980 5963   | 0    |   |         |          |     |       |          |          |      |   |

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |    |
|----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|----|
| 0  | 9.465 9353 | 68.83    | 10.534 0647 | 9.485 3390 | 75.18    | 10.514 6610 | 10.019 4037 | 6.43  | 9.980 5663 | 60 |
| 1  | 466 3483   | 68.77    | 533 6517    | 485 7907   | 75.20    | 514 2093    | 019 4423    | 6.45  | 980 5577   | 59 |
| 2  | 466 7609   | 68.68    | 533 2391    | 486 2419   | 75.15    | 513 7581    | 019 4810    | 6.45  | 980 5190   | 58 |
| 3  | 467 1730   | 68.63    | 532 8270    | 486 6928   | 75.08    | 513 3072    | 019 5197    | 6.45  | 980 4803   | 57 |
| 4  | 467 5848   | 68.53    | 532 4152    | 487 1433   | 75.00    | 512 8567    | 019 5585    | 6.47  | 980 4415   | 56 |
| 5  | 467 9960   | 68.48    | 532 0040    | 487 5933   | 74.95    | 512 4067    | 019 5973    | 6.47  | 980 4027   | 55 |
| 6  | 468 4069   | 68.40    | 10.531 5931 | 9.488 0430 | 74.90    | 10.511 9570 | 10.019 6361 | 6.48  | 9.980 3639 | 54 |
| 7  | 468 8173   | 68.33    | 531 1827    | 488 4924   | 74.82    | 511 5076    | 019 6750    | 6.50  | 980 3250   | 53 |
| 8  | 469 2273   | 68.27    | 530 7727    | 488 9413   | 74.75    | 511 0587    | 019 7140    | 6.48  | 980 2860   | 52 |
| 9  | 469 6369   | 68.20    | 530 3631    | 489 3898   | 74.70    | 510 6102    | 019 7529    | 6.50  | 980 2471   | 51 |
| 10 | 470 0461   | 68.12    | 529 9539    | 489 8380   | 74.63    | 510 1620    | 019 7919    | 6.52  | 980 2081   | 50 |
| 11 | 470 4548   | 68.05    | 529 5452    | 490 2858   | 74.57    | 509 7142    | 019 8310    | 6.52  | 980 1690   | 49 |
| 12 | 470 8631   | 67.98    | 10.529 1369 | 9.490 7332 | 74.50    | 10.509 2668 | 10.019 8701 | 6.53  | 9.980 1299 | 48 |
| 13 | 471 2710   | 67.92    | 528 7290    | 491 1802   | 74.45    | 508 8198    | 019 9092    | 6.52  | 980 0908   | 47 |
| 14 | 471 6785   | 67.85    | 528 3215    | 491 6269   | 74.40    | 508 3731    | 019 9484    | 6.53  | 980 0516   | 46 |
| 15 | 472 0856   | 67.77    | 527 9144    | 492 0731   | 74.37    | 507 9269    | 019 9876    | 6.53  | 980 0124   | 45 |
| 16 | 472 4922   | 67.72    | 527 5078    | 492 5190   | 74.32    | 507 4810    | 020 0268    | 6.55  | 979 9732   | 44 |
| 17 | 472 8985   | 67.63    | 527 1015    | 492 9646   | 74.28    | 507 0354    | 020 0661    | 6.55  | 979 9340   | 43 |
| 18 | 9.473 3043 | 67.57    | 10.526 6957 | 9.493 4007 | 74.23    | 10.506 5903 | 10.020 1054 | 6.57  | 9.979 8946 | 42 |
| 19 | 473 7097   | 67.48    | 526 2903    | 493 8545   | 74.19    | 506 1455    | 020 1448    | 6.57  | 979 8552   | 41 |
| 20 | 474 1146   | 67.43    | 525 8854    | 494 2988   | 74.05    | 505 7012    | 020 1842    | 6.57  | 979 8158   | 40 |
| 21 | 474 5192   | 67.37    | 525 4808    | 494 7429   | 74.02    | 505 2571    | 020 2236    | 6.58  | 979 7764   | 39 |
| 22 | 474 9234   | 67.31    | 525 0766    | 495 1865   | 73.93    | 504 8135    | 020 2631    | 6.58  | 979 7369   | 38 |
| 23 | 475 3271   | 67.28    | 524 6729    | 495 6298   | 73.88    | 504 3702    | 020 3027    | 6.60  | 979 6973   | 37 |
| 24 | 9.475 7304 | 67.22    | 10.524 2695 | 9.496 0727 | 73.82    | 10.503 9273 | 10.020 3422 | 6.60  | 9.979 6578 | 36 |
| 25 | 476 1334   | 67.17    | 523 8666    | 496 5152   | 73.75    | 503 4848    | 020 3818    | 6.62  | 979 6182   | 35 |
| 26 | 476 5359   | 67.08    | 523 4641    | 496 9574   | 73.70    | 503 0426    | 020 4215    | 6.62  | 979 5785   | 34 |
| 27 | 476 9380   | 67.02    | 523 0620    | 497 3991   | 73.62    | 502 6009    | 020 4611    | 6.62  | 979 5388   | 33 |
| 28 | 477 3396   | 66.93    | 522 6604    | 497 8406   | 73.58    | 502 1594    | 020 5009    | 6.62  | 979 4991   | 32 |
| 29 | 477 7409   | 66.88    | 522 2591    | 498 2816   | 73.50    | 501 7184    | 020 5407    | 6.63  | 979 4593   | 31 |
| 30 | 9.478 1418 | 66.75    | 10.521 8582 | 9.498 7223 | 73.45    | 10.501 2777 | 10.020 5805 | 6.65  | 9.979 4195 | 30 |
| 31 | 478 5423   | 66.67    | 521 4577    | 499 1626   | 73.38    | 500 8374    | 020 6202    | 6.65  | 979 3796   | 29 |
| 32 | 478 9423   | 66.62    | 521 0577    | 499 6026   | 73.33    | 500 3974    | 020 6602    | 6.63  | 979 3398   | 28 |
| 33 | 479 3420   | 66.62    | 520 6580    | 500 0422   | 73.27    | 499 9578    | 020 7002    | 6.65  | 979 2998   | 27 |
| 34 | 479 7412   | 66.53    | 520 2588    | 500 4814   | 73.20    | 499 5186    | 020 7401    | 6.65  | 979 2599   | 26 |
| 35 | 480 1401   | 66.48    | 519 8599    | 500 9203   | 73.15    | 499 0797    | 020 7802    | 6.68  | 979 2198   | 25 |
| 36 | 9.480 5385 | 66.40    | 10.519 4615 | 9.501 3588 | 73.08    | 10.498 6412 | 10.020 8202 | 6.67  | 9.979 1798 | 24 |
| 37 | 480 9366   | 66.35    | 519 0634    | 501 7969   | 73.02    | 498 2031    | 020 8603    | 6.68  | 979 1397   | 23 |
| 38 | 481 3342   | 66.27    | 518 6658    | 502 2347   | 72.97    | 497 7653    | 020 9004    | 6.68  | 979 0996   | 22 |
| 39 | 481 7315   | 66.22    | 518 2685    | 502 6721   | 72.90    | 497 3279    | 020 9406    | 6.70  | 979 0594   | 21 |
| 40 | 482 1283   | 66.13    | 517 8717    | 503 1092   | 72.85    | 496 8908    | 020 9808    | 6.70  | 979 0192   | 20 |
| 41 | 482 5248   | 66.08    | 517 4752    | 503 5459   | 72.78    | 496 4541    | 021 0211    | 6.72  | 978 9789   | 19 |
| 42 | 9.482 9208 | 66.00    | 10.517 0792 | 9.503 9822 | 72.72    | 10.496 0178 | 10.021 0614 | 6.72  | 9.978 9386 | 18 |
| 43 | 483 3165   | 65.95    | 516 6835    | 504 4182   | 72.67    | 495 5818    | 021 1017    | 6.72  | 978 8983   | 17 |
| 44 | 483 7117   | 65.87    | 516 2883    | 504 8538   | 72.60    | 495 1462    | 021 1421    | 6.73  | 978 8579   | 16 |
| 45 | 484 1066   | 65.82    | 515 8934    | 505 2891   | 72.55    | 494 7109    | 021 1825    | 6.73  | 978 8175   | 15 |
| 46 | 484 5010   | 65.73    | 515 4990    | 505 7240   | 72.48    | 494 2760    | 021 2230    | 6.75  | 978 7770   | 14 |
| 47 | 484 8951   | 65.68    | 515 1049    | 506 1586   | 72.43    | 493 8414    | 021 2635    | 6.75  | 978 7365   | 13 |
| 48 | 9.485 2888 | 65.62    | 10.514 7112 | 9.506 5928 | 72.37    | 10.493 4072 | 10.021 3040 | 6.75  | 9.978 6960 | 12 |
| 49 | 485 6820   | 65.53    | 514 3180    | 507 0267   | 72.32    | 492 9733    | 021 3446    | 6.77  | 978 6554   | 11 |
| 50 | 486 0749   | 65.48    | 513 9251    | 507 4602   | 72.25    | 492 5398    | 021 3852    | 6.77  | 978 6148   | 10 |
| 51 | 486 4674   | 65.42    | 513 5326    | 507 8933   | 72.18    | 492 1067    | 021 4259    | 6.78  | 978 5741   | 9  |
| 52 | 486 8595   | 65.35    | 513 1405    | 508 3261   | 72.13    | 491 6739    | 021 4666    | 6.78  | 978 5334   | 8  |
| 53 | 487 2512   | 65.28    | 512 7488    | 508 7586   | 72.08    | 491 2414    | 021 5073    | 6.78  | 978 4927   | 7  |
| 54 | 9.487 6426 | 65.23    | 10.512 3574 | 9.509 1907 | 72.02    | 10.490 8093 | 10.021 5481 | 6.80  | 9.978 4519 | 6  |
| 55 | 488 0335   | 65.15    | 511 9665    | 509 6224   | 71.95    | 490 3776    | 021 5886    | 6.80  | 978 4111   | 5  |
| 56 | 488 4240   | 65.08    | 511 5760    | 510 0539   | 71.92    | 489 9461    | 021 6298    | 6.82  | 978 3702   | 4  |
| 57 | 488 8142   | 65.03    | 511 1858    | 510 4849   | 71.83    | 489 5151    | 021 6707    | 6.82  | 978 3293   | 3  |
| 58 | 489 2040   | 64.97    | 510 7960    | 510 9156   | 71.8     | 489 0844    | 021 7117    | 6.83  | 978 2883   | 2  |
| 59 | 489 5934   | 64.90    | 510 4066    | 511 3460   | 71.73    | 488 6540    | 021 7526    | 6.82  | 978 2474   | 1  |
| 60 | 9.489 9824 | 64.83    | 10.510 0176 | 9.511 7760 | 71.67    | 10.488 2240 | 10.021 7937 | 6.85  | 9.978 2063 | 0  |
|    | co-sin.    | diff. 1" | sec.        | co-tang.   | diff. 1" | tang.       | co-sec.     | d. 1" | sin.       |    |

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101°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |    |
|----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|----|
| 0  | 9.489 9824 |          | 10.510 0176 | 9.511 7760 |          | 10.488 2241 | 10.021 7937 | 6.83  | 9.978 2063 | 60 |
| 1  | 490 3710   | 64.77    | 509 6291    | 512 2057   | 71.62    | 487 7943    | 021 8347    | 6.87  | 978 1653   | 59 |
| 2  | 490 7592   | 64.70    | 509 2408    | 512 6351   | 71.57    | 487 3649    | 021 8759    | 6.85  | 978 1241   | 58 |
| 3  | 491 1471   | 64.65    | 508 8529    | 513 0641   | 71.50    | 486 9359    | 021 9170    | 6.87  | 978 0830   | 57 |
| 4  | 491 5345   | 64.57    | 508 4655    | 513 4927   | 71.43    | 486 5073    | 021 9582    | 6.87  | 978 0418   | 56 |
| 5  | 491 9216   | 64.52    | 508 0784    | 513 9210   | 71.38    | 486 0790    | 021 9994    | 6.87  | 978 0006   | 55 |
| 6  | 9.492 3083 | 64.45    | 10.507 6917 | 9.514 3490 | 71.27    | 10.485 6510 | 10.022 0407 | 6.88  | 9.977 9593 | 54 |
| 7  | 492 6946   | 64.33    | 507 3054    | 514 7766   | 71.22    | 485 2234    | 022 0820    | 6.90  | 977 9180   | 53 |
| 8  | 493 0806   | 64.25    | 506 9194    | 515 2039   | 71.17    | 484 7961    | 022 1234    | 6.88  | 977 8766   | 52 |
| 9  | 493 4661   | 64.20    | 506 5339    | 515 6309   | 71.17    | 484 3691    | 022 1647    | 6.92  | 977 8353   | 51 |
| 10 | 493 8513   | 64.13    | 506 1487    | 516 0575   | 71.10    | 483 9425    | 022 2062    | 6.92  | 977 7938   | 50 |
| 11 | 494 2361   | 64.07    | 505 7639    | 516 4838   | 71.05    | 483 5162    | 022 2477    | 6.92  | 977 7523   | 49 |
| 12 | 9.494 6205 | 64.02    | 10.505 3795 | 9.516 9097 | 70.98    | 10.483 0903 | 10.022 2892 | 6.92  | 9.977 7108 | 48 |
| 13 | 495 0046   | 63.95    | 504 9954    | 517 3353   | 70.93    | 482 6647    | 022 3307    | 6.93  | 977 6693   | 47 |
| 14 | 495 3883   | 63.88    | 504 6117    | 517 7606   | 70.88    | 482 2394    | 022 3723    | 6.95  | 977 6277   | 46 |
| 15 | 495 7716   | 63.82    | 504 2284    | 518 1855   | 70.82    | 481 8145    | 022 4140    | 6.95  | 977 5860   | 45 |
| 16 | 496 1545   | 63.75    | 503 8455    | 518 6101   | 70.77    | 481 3899    | 022 4556    | 6.97  | 977 5444   | 44 |
| 17 | 496 5370   | 63.70    | 503 4630    | 519 0344   | 70.72    | 480 9656    | 022 4974    | 6.95  | 977 5026   | 43 |
| 18 | 9.496 9192 | 63.63    | 10.503 0808 | 9.519 4583 | 70.65    | 10.480 5417 | 10.022 5391 | 6.97  | 9.977 4609 | 42 |
| 19 | 497 3010   | 63.57    | 502 6990    | 519 8819   | 70.60    | 480 1181    | 022 5809    | 6.97  | 977 4191   | 41 |
| 20 | 497 6824   | 63.52    | 502 3176    | 520 3052   | 70.55    | 479 6948    | 022 6228    | 6.98  | 977 3772   | 40 |
| 21 | 498 0635   | 63.45    | 501 9352    | 520 7282   | 70.50    | 479 2718    | 022 6646    | 6.97  | 977 3354   | 39 |
| 22 | 498 4442   | 63.45    | 501 5558    | 521 1508   | 70.43    | 478 8492    | 022 7066    | 7.00  | 977 2934   | 38 |
| 23 | 498 8245   | 63.38    | 501 1755    | 521 5730   | 70.37    | 478 4270    | 022 7485    | 6.98  | 977 2515   | 37 |
| 24 | 9.499 2045 | 63.33    | 10.500 7955 | 9.521 9950 | 70.33    | 10.478 0050 | 10.022 7905 | 7.00  | 9.977 2095 | 36 |
| 25 | 499 5840   | 63.25    | 500 4160    | 522 4166   | 70.27    | 477 5834    | 022 8326    | 7.02  | 977 1674   | 35 |
| 26 | 499 9633   | 63.22    | 500 0367    | 522 8379   | 70.22    | 477 1621    | 022 8747    | 7.02  | 977 1253   | 34 |
| 27 | 500 3421   | 63.13    | 499 6579    | 523 2589   | 70.17    | 476 7411    | 022 9168    | 7.02  | 977 0833   | 33 |
| 28 | 500 7206   | 63.08    | 499 2794    | 523 6795   | 70.10    | 476 3205    | 022 9590    | 7.03  | 977 0410   | 32 |
| 29 | 501 0987   | 63.02    | 498 9013    | 524 0999   | 70.07    | 475 9001    | 023 0012    | 7.03  | 976 9988   | 31 |
| 30 | 9.501 4764 | 62.95    | 10.498 5236 | 9.524 5199 | 70.00    | 10.475 4801 | 10.023 0434 | 7.05  | 9.976 9566 | 30 |
| 31 | 501 8538   | 62.90    | 498 1462    | 524 9395   | 69.93    | 475 0605    | 023 0857    | 7.05  | 976 9143   | 29 |
| 32 | 502 2308   | 62.83    | 497 7692    | 525 3589   | 69.90    | 474 6411    | 023 1280    | 7.05  | 976 8720   | 28 |
| 33 | 502 6075   | 62.78    | 497 3925    | 525 7779   | 69.83    | 474 2221    | 023 1704    | 7.07  | 976 8296   | 27 |
| 34 | 502 9838   | 62.72    | 497 0162    | 526 1966   | 69.78    | 473 8034    | 023 2128    | 7.07  | 976 7872   | 26 |
| 35 | 503 3597   | 62.65    | 496 6403    | 526 6150   | 69.73    | 473 3850    | 023 2553    | 7.08  | 976 7447   | 25 |
| 36 | 9.503 7353 | 62.60    | 10.496 2647 | 9.527 0331 | 69.68    | 10.472 9669 | 10.023 2978 | 7.08  | 9.976 7022 | 24 |
| 37 | 504 1105   | 62.53    | 495 8895    | 527 4508   | 69.62    | 472 5492    | 023 3403    | 7.08  | 976 6597   | 23 |
| 38 | 504 4853   | 62.47    | 495 5147    | 527 8682   | 69.57    | 472 1318    | 023 3829    | 7.10  | 976 6171   | 22 |
| 39 | 504 8598   | 62.35    | 495 1402    | 528 2853   | 69.52    | 471 7147    | 023 4255    | 7.10  | 976 5745   | 21 |
| 40 | 505 2339   | 62.30    | 494 7661    | 528 7021   | 69.47    | 471 2979    | 023 4682    | 7.12  | 976 5318   | 20 |
| 41 | 505 6077   | 62.23    | 494 3923    | 529 1186   | 69.42    | 470 8814    | 023 5109    | 7.12  | 976 4891   | 19 |
| 42 | 9.505 9811 | 62.18    | 10.494 0189 | 9.529 5347 | 69.35    | 10.470 4653 | 10.023 5536 | 7.12  | 9.976 4464 | 18 |
| 43 | 506 3542   | 62.12    | 493 6458    | 529 9505   | 69.30    | 470 0495    | 023 5964    | 7.13  | 976 4036   | 17 |
| 44 | 506 7269   | 62.05    | 493 2731    | 530 3661   | 69.27    | 469 6339    | 023 6392    | 7.13  | 976 3608   | 16 |
| 45 | 507 0992   | 62.00    | 492 9008    | 530 7813   | 69.20    | 469 2187    | 023 6821    | 7.15  | 976 3179   | 15 |
| 46 | 507 4712   | 61.93    | 492 5288    | 531 1961   | 69.13    | 468 8039    | 023 7250    | 7.15  | 976 2750   | 14 |
| 47 | 507 8428   | 61.88    | 492 1572    | 531 6107   | 69.10    | 468 3893    | 023 7679    | 7.15  | 976 2321   | 13 |
| 48 | 9.508 2141 | 61.82    | 10.491 7859 | 9.532 0250 | 69.05    | 10.467 9750 | 10.023 8109 | 7.17  | 9.976 1891 | 12 |
| 49 | 508 5850   | 61.77    | 491 4150    | 532 4389   | 68.98    | 467 5611    | 023 8539    | 7.17  | 976 1461   | 11 |
| 50 | 508 9550   | 61.70    | 491 0444    | 532 8526   | 68.95    | 467 1474    | 023 8970    | 7.18  | 976 1030   | 10 |
| 51 | 509 3258   | 61.63    | 490 6742    | 533 2659   | 68.88    | 466 7341    | 023 9401    | 7.18  | 976 0599   | 9  |
| 52 | 509 6956   | 61.58    | 490 3044    | 533 6789   | 68.83    | 466 3211    | 023 9833    | 7.20  | 976 0167   | 8  |
| 53 | 510 0651   | 61.53    | 489 9349    | 534 0916   | 68.78    | 465 9084    | 024 0264    | 7.18  | 975 9736   | 7  |
| 54 | 9.510 4343 | 61.47    | 10.489 5657 | 9.534 5040 | 68.73    | 10.465 4960 | 10.024 0697 | 7.22  | 9.975 9303 | 6  |
| 55 | 510 8031   | 61.42    | 489 1969    | 534 9161   | 68.68    | 465 0839    | 024 1130    | 7.22  | 975 8870   | 5  |
| 56 | 511 1716   | 61.35    | 488 8284    | 535 3278   | 68.62    | 464 6722    | 024 1563    | 7.22  | 975 8437   | 4  |
| 57 | 511 5397   | 61.28    | 488 4603    | 535 7393   | 68.58    | 464 2607    | 024 1996    | 7.22  | 975 8004   | 3  |
| 58 | 511 9074   | 61.25    | 488 0926    | 536 1505   | 68.53    | 463 8495    | 024 2430    | 7.23  | 975 7570   | 2  |
| 59 | 512 2749   | 61.17    | 487 7251    | 536 5613   | 68.47    | 463 4387    | 024 2865    | 7.25  | 975 7135   | 1  |
| 60 | 9.512 6419 |          | 10.487 3581 | 9.536 9719 | 68.43    | 10.463 0281 | 10.024 3299 | 7.23  | 9.975 6701 | 0  |

108°

71°

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|--|



| '  | sin.     | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    | '  |
|----|----------|----------|-------------|------------|----------|-------------|-------------|-------|------------|----|
| 0  | 512 6419 | 61.12    | 10.487 3581 | 9.536 9719 | 68.37    | 10.463 0281 | 10.024 3299 | 7.27  | 9.975 6701 | 60 |
| 1  | 513 0086 | 61.07    | 486 9914    | 537 3821   | 68.32    | 462 6179    | 024 3735    | 7.25  | 975 6265   | 59 |
| 2  | 513 3750 | 61.00    | 486 6250    | 537 7920   | 68.28    | 462 2080    | 024 4170    | 7.27  | 975 5830   | 58 |
| 3  | 513 7410 | 60.95    | 486 2590    | 538 2017   | 68.22    | 461 7983    | 024 4606    | 7.28  | 975 5394   | 57 |
| 4  | 514 1077 | 60.90    | 485 8933    | 538 6110   | 68.17    | 461 3890    | 024 5043    | 7.27  | 975 4957   | 56 |
| 5  | 514 4721 | 60.83    | 485 5279    | 539 0200   | 68.12    | 460 9800    | 024 5479    | 7.28  | 975 4521   | 55 |
| 6  | 514 8371 | 60.77    | 10.485 1629 | 9.539 4287 | 68.07    | 10.460 5713 | 10.024 5917 | 7.30  | 9.975 4083 | 54 |
| 7  | 515 2017 | 60.72    | 484 7983    | 539 8371   | 68.03    | 460 1629    | 024 6354    | 7.30  | 975 3647   | 53 |
| 8  | 515 5660 | 60.66    | 484 4340    | 540 2453   | 67.97    | 459 7547    | 024 6792    | 7.31  | 975 3208   | 52 |
| 9  | 515 9300 | 60.60    | 484 0700    | 540 6531   | 67.92    | 459 3469    | 024 7231    | 7.32  | 975 2769   | 51 |
| 10 | 516 2936 | 60.55    | 483 7064    | 541 0606   | 67.87    | 458 9394    | 024 7670    | 7.33  | 975 2330   | 50 |
| 11 | 516 6569 | 60.48    | 483 3431    | 541 4678   | 67.82    | 458 5322    | 024 8109    | 7.33  | 975 1891   | 49 |
| 12 | 517 0199 | 60.43    | 10.482 9802 | 9.541 8747 | 67.77    | 10.458 1253 | 10.024 8549 | 7.33  | 9.975 1451 | 48 |
| 13 | 517 3824 | 60.38    | 482 6176    | 542 2813   | 67.73    | 457 7187    | 024 8989    | 7.35  | 975 1011   | 47 |
| 14 | 517 7447 | 60.32    | 482 2553    | 542 6877   | 67.67    | 457 3123    | 024 9430    | 7.35  | 975 0570   | 46 |
| 15 | 518 1060 | 60.27    | 481 8934    | 543 0937   | 67.62    | 456 9063    | 024 9871    | 7.35  | 975 0129   | 45 |
| 16 | 518 4682 | 60.22    | 481 5318    | 543 4994   | 67.57    | 456 5006    | 025 0312    | 7.36  | 974 9688   | 44 |
| 17 | 518 8295 | 60.15    | 481 1705    | 543 9048   | 67.53    | 456 0952    | 025 0754    | 7.37  | 974 9246   | 43 |
| 18 | 519 1904 | 60.10    | 10.480 8066 | 9.544 3100 | 67.47    | 10.455 6900 | 10.025 1196 | 7.37  | 9.974 8804 | 42 |
| 19 | 519 5510 | 60.03    | 480 4490    | 544 7148   | 67.42    | 455 2852    | 025 1639    | 7.38  | 974 8361   | 41 |
| 20 | 519 9112 | 60.00    | 480 0888    | 545 1193   | 67.38    | 454 8807    | 025 2082    | 7.38  | 974 7918   | 40 |
| 21 | 520 2711 | 59.98    | 479 7289    | 545 5236   | 67.33    | 454 4764    | 025 2525    | 7.40  | 974 7475   | 39 |
| 22 | 520 6307 | 59.93    | 479 3693    | 545 9276   | 67.27    | 454 0724    | 025 2969    | 7.40  | 974 7031   | 38 |
| 23 | 520 9899 | 59.87    | 479 0101    | 546 3312   | 67.23    | 453 6688    | 025 3413    | 7.42  | 974 6587   | 37 |
| 24 | 521 3488 | 59.82    | 10.478 6512 | 9.546 7346 | 67.18    | 10.453 2654 | 10.025 3858 | 7.42  | 9.974 6142 | 36 |
| 25 | 521 7074 | 59.77    | 478 2926    | 547 1377   | 67.13    | 452 8623    | 025 4303    | 7.42  | 974 5697   | 35 |
| 26 | 522 0656 | 59.70    | 477 9344    | 547 5405   | 67.08    | 452 4595    | 025 4748    | 7.42  | 974 5252   | 34 |
| 27 | 522 4235 | 59.65    | 477 5765    | 547 9430   | 67.03    | 452 0570    | 025 5194    | 7.43  | 974 4806   | 33 |
| 28 | 522 7811 | 59.60    | 477 2189    | 548 3452   | 66.98    | 451 6548    | 025 5641    | 7.43  | 974 4359   | 32 |
| 29 | 523 1383 | 59.53    | 476 8617    | 548 7471   | 66.93    | 451 2529    | 025 6087    | 7.45  | 974 3913   | 31 |
| 30 | 523 4953 | 59.50    | 10.476 5047 | 9.549 1487 | 66.88    | 10.450 8513 | 10.025 6534 | 7.45  | 9.974 3466 | 30 |
| 31 | 523 8518 | 59.42    | 476 1482    | 549 5500   | 66.85    | 450 4500    | 025 6982    | 7.47  | 974 3018   | 29 |
| 32 | 524 2081 | 59.38    | 475 7919    | 549 9511   | 66.80    | 450 0489    | 025 7430    | 7.47  | 974 2570   | 28 |
| 33 | 524 5640 | 59.32    | 475 4360    | 550 3519   | 66.73    | 449 6481    | 025 7878    | 7.48  | 974 2122   | 27 |
| 34 | 524 9195 | 59.27    | 475 0804    | 550 7523   | 66.70    | 449 2477    | 025 8327    | 7.48  | 974 1673   | 26 |
| 35 | 525 2749 | 59.22    | 474 7251    | 551 1525   | 66.65    | 448 8475    | 025 8776    | 7.48  | 974 1224   | 25 |
| 36 | 525 6298 | 59.15    | 10.474 3702 | 9.551 5524 | 66.62    | 10.448 4476 | 10.025 9226 | 7.50  | 9.974 0774 | 24 |
| 37 | 525 9844 | 59.10    | 474 0156    | 551 9521   | 66.55    | 448 0479    | 025 9676    | 7.50  | 974 0324   | 23 |
| 38 | 526 3387 | 59.03    | 473 6613    | 552 3514   | 66.55    | 447 6486    | 026 0127    | 7.52  | 973 9873   | 22 |
| 39 | 526 6927 | 59.00    | 473 3073    | 552 7504   | 66.47    | 447 2496    | 026 0578    | 7.52  | 973 9422   | 21 |
| 40 | 527 0463 | 58.93    | 472 9537    | 553 1492   | 66.42    | 446 8508    | 026 1029    | 7.53  | 973 8971   | 20 |
| 41 | 527 3997 | 58.82    | 472 6003    | 553 5477   | 66.37    | 446 4523    | 026 1481    | 7.53  | 973 8519   | 19 |
| 42 | 527 7526 | 58.82    | 10.472 2474 | 9.553 9459 | 66.32    | 10.446 0541 | 10.026 1933 | 7.53  | 9.973 8067 | 18 |
| 43 | 528 1053 | 58.8     | 471 8947    | 554 3438   | 66.28    | 445 6562    | 026 2385    | 7.55  | 973 7615   | 17 |
| 44 | 528 4577 | 58.8     | 471 5423    | 554 7415   | 66.22    | 445 2585    | 026 2838    | 7.55  | 973 7162   | 16 |
| 45 | 528 8097 | 58.77    | 471 1903    | 555 1388   | 66.18    | 444 8612    | 026 3291    | 7.55  | 973 6709   | 15 |
| 46 | 529 1614 | 58.7     | 470 8386    | 555 5359   | 66.13    | 444 4641    | 026 3745    | 7.57  | 973 6255   | 14 |
| 47 | 529 5128 | 58.59    | 470 4872    | 555 9327   | 66.08    | 444 0673    | 026 4199    | 7.58  | 973 5801   | 13 |
| 48 | 529 8638 | 58.5     | 10.470 1362 | 9.556 3292 | 66.05    | 10.443 6708 | 10.026 4654 | 7.58  | 9.973 5346 | 12 |
| 49 | 530 2146 | 58.4     | 469 7854    | 556 7255   | 65.98    | 443 2745    | 026 5109    | 7.58  | 973 4891   | 11 |
| 50 | 530 5650 | 58.35    | 469 4350    | 557 1214   | 65.95    | 442 8786    | 026 5565    | 7.58  | 973 4435   | 10 |
| 51 | 530 9151 | 58.3     | 469 0849    | 557 5171   | 65.90    | 442 4829    | 026 6020    | 7.62  | 973 3980   | 9  |
| 52 | 531 2649 | 58.3     | 468 7351    | 557 9125   | 65.87    | 442 0875    | 026 6477    | 7.60  | 973 3523   | 8  |
| 53 | 531 6143 | 58.20    | 468 3857    | 558 3077   | 65.80    | 441 6923    | 026 6933    | 7.62  | 973 3067   | 7  |
| 54 | 531 9635 | 58.13    | 10.468 0365 | 9.558 7025 | 65.77    | 10.441 2975 | 10.026 7390 | 7.63  | 9.973 2610 | 6  |
| 55 | 532 3123 | 58.1     | 467 6877    | 559 0971   | 65.72    | 440 9029    | 026 7843    | 7.63  | 973 2152   | 5  |
| 56 | 532 6608 | 58.08    | 467 3392    | 559 4914   | 65.67    | 440 5086    | 026 8306    | 7.63  | 973 1694   | 4  |
| 57 | 533 0090 | 58.03    | 466 9910    | 559 8854   | 65.63    | 440 1146    | 026 8764    | 7.65  | 973 1236   | 3  |
| 58 | 533 3569 | 57.98    | 466 6431    | 560 2792   | 65.58    | 439 7208    | 026 9223    | 7.65  | 973 0777   | 2  |
| 59 | 533 7044 | 57.92    | 466 2956    | 560 6727   | 65.53    | 439 3273    | 026 9682    | 7.67  | 973 0318   | 1  |
| 60 | 534 0517 | 57.88    | 10.465 9483 | 9.561 0659 | 65.53    | 10.438 9341 | 10.027 0142 | 7.67  | 9.972 9858 | 0  |

| ' | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec | d. 1" | sin. | ' |
|---|---------|----------|------|----------|----------|-------|--------|-------|------|---|
|---|---------|----------|------|----------|----------|-------|--------|-------|------|---|

20°

159°

|    | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |    |
|----|------------|---------|-------------|------------|---------|-------------|-------------|-------|------------|----|
| 0  | 9.534 0517 |         | 10.465 9483 | 9.561 0659 | 65.48   | 10.438 9341 | 10.027 0142 | 7.67  | 9.972 9858 | 60 |
| 1  | 534 3986   | 57.82   | 465 6014    | 561 4588   | 65.45   | 438 5412    | 027 0602    | 7.67  | 972 9398   | 59 |
| 2  | 534 7452   | 57.77   | 465 2548    | 561 8515   | 65.40   | 438 1485    | 027 1062    | 7.68  | 972 8938   | 58 |
| 3  | 535 0915   | 57.72   | 464 9085    | 562 2439   | 65.35   | 437 7561    | 027 1523    | 7.68  | 972 8477   | 57 |
| 4  | 535 4375   | 57.67   | 464 5625    | 562 6360   | 65.30   | 437 3640    | 027 1984    | 7.68  | 972 8016   | 56 |
| 5  | 535 7832   | 57.62   | 464 2168    | 563 0278   | 65.27   | 436 9722    | 027 2446    | 7.70  | 972 7554   | 55 |
| 6  | 536 1286   | 57.52   | 10.463 8714 | 9.563 4194 | 65.22   | 10.436 5806 | 10.027 2908 | 7.72  | 9.972 7092 | 54 |
| 7  | 536 4737   | 57.45   | 463 5263    | 563 8107   | 65.18   | 436 1893    | 027 3371    | 7.72  | 972 6629   | 53 |
| 8  | 536 8184   | 57.40   | 463 1816    | 564 2018   | 65.12   | 435 7982    | 027 3834    | 7.72  | 972 6166   | 52 |
| 9  | 537 1628   | 57.37   | 462 8372    | 564 5925   | 65.10   | 435 4075    | 027 4297    | 7.73  | 972 5703   | 51 |
| 10 | 537 5070   | 57.30   | 462 4930    | 564 9831   | 65.03   | 435 0169    | 027 4761    | 7.73  | 972 5239   | 50 |
| 11 | 537 8508   | 57.30   | 462 1492    | 565 3733   | 65.00   | 434 6267    | 027 5225    | 7.73  | 972 4775   | 49 |
| 12 | 9.538 1943 | 57.20   | 10.461 8057 | 9.565 7633 | 64.95   | 10.434 2367 | 10.027 5690 | 7.75  | 9.972 4310 | 48 |
| 13 | 538 5375   | 57.15   | 461 4625    | 566 1530   | 64.90   | 433 8470    | 027 6155    | 7.75  | 972 3845   | 47 |
| 14 | 538 8804   | 57.10   | 461 1196    | 566 5424   | 64.87   | 433 4576    | 027 6620    | 7.77  | 972 3380   | 46 |
| 15 | 539 2230   | 57.05   | 460 7770    | 566 9316   | 64.82   | 433 0684    | 027 7086    | 7.77  | 972 2914   | 45 |
| 16 | 539 5653   | 57.00   | 460 4347    | 567 3205   | 64.77   | 432 6795    | 027 7552    | 7.78  | 972 2448   | 44 |
| 17 | 539 9073   | 56.93   | 460 0927    | 567 7091   | 64.73   | 432 2909    | 027 8019    | 7.78  | 972 1981   | 43 |
| 18 | 9.540 2489 | 56.90   | 10.459 7511 | 9.568 0975 | 64.68   | 10.431 9025 | 10.027 8486 | 7.78  | 9.972 1514 | 42 |
| 19 | 540 5903   | 56.85   | 459 4097    | 568 4856   | 64.65   | 431 5144    | 027 8953    | 7.80  | 972 1047   | 41 |
| 20 | 540 9314   | 56.78   | 459 0686    | 568 8735   | 64.60   | 431 1265    | 027 9421    | 7.80  | 972 0579   | 40 |
| 21 | 541 2721   | 56.75   | 458 7279    | 569 2611   | 64.55   | 430 7389    | 027 9890    | 7.80  | 972 0110   | 39 |
| 22 | 541 6126   | 56.68   | 458 3874    | 569 6484   | 64.52   | 430 3516    | 028 0358    | 7.83  | 972 9642   | 38 |
| 23 | 541 9527   | 56.65   | 458 0473    | 570 0355   | 64.47   | 429 9645    | 028 0828    | 7.82  | 972 9172   | 37 |
| 24 | 9.542 2926 | 56.58   | 10.457 7074 | 9.570 4223 | 64.42   | 10.429 5777 | 10.028 1297 | 7.83  | 9.971 8703 | 36 |
| 25 | 542 6321   | 56.53   | 457 3679    | 570 8088   | 64.38   | 429 1912    | 028 1767    | 7.85  | 971 8233   | 35 |
| 26 | 542 9713   | 56.50   | 457 0287    | 571 1951   | 64.33   | 428 8049    | 028 2238    | 7.85  | 971 7762   | 34 |
| 27 | 543 3103   | 56.43   | 456 6897    | 571 5811   | 64.30   | 428 4189    | 028 2709    | 7.85  | 971 7291   | 33 |
| 28 | 543 6489   | 56.40   | 456 3511    | 571 9669   | 64.25   | 428 0331    | 028 3180    | 7.85  | 971 6820   | 32 |
| 29 | 543 9873   | 56.33   | 456 0127    | 572 3524   | 64.22   | 427 6476    | 028 3652    | 7.87  | 971 6348   | 31 |
| 30 | 9.544 3253 | 56.28   | 10.455 6747 | 9.572 7377 | 64.17   | 10.427 2623 | 10.028 4124 | 7.87  | 9.971 5876 | 30 |
| 31 | 544 6630   | 56.25   | 455 3370    | 573 1227   | 64.12   | 426 8773    | 028 4596    | 7.88  | 971 5403   | 29 |
| 32 | 545 0005   | 56.18   | 454 9995    | 573 5074   | 64.08   | 426 4926    | 028 5069    | 7.90  | 971 4931   | 28 |
| 33 | 545 3376   | 56.15   | 454 6624    | 573 8919   | 64.03   | 426 1081    | 028 5543    | 7.88  | 971 4457   | 27 |
| 34 | 545 6745   | 56.08   | 454 3255    | 574 2761   | 64.00   | 425 7239    | 028 6016    | 7.92  | 971 3984   | 26 |
| 35 | 546 0110   | 56.03   | 453 9890    | 574 6601   | 63.95   | 425 3399    | 028 6491    | 7.92  | 971 3509   | 25 |
| 36 | 9.546 3472 | 56.00   | 10.453 6528 | 9.575 0488 | 63.90   | 10.424 9562 | 10.028 6965 | 7.92  | 9.971 3035 | 24 |
| 37 | 546 6832   | 55.95   | 453 3168    | 575 4272   | 63.87   | 424 5728    | 028 7440    | 7.93  | 971 2560   | 23 |
| 38 | 547 0189   | 55.88   | 452 9811    | 575 8104   | 63.83   | 424 1896    | 028 7916    | 7.93  | 971 2084   | 22 |
| 39 | 547 3545   | 55.85   | 452 6458    | 576 1934   | 63.78   | 423 8066    | 028 8392    | 7.93  | 971 1608   | 21 |
| 40 | 547 6899   | 55.78   | 452 3107    | 576 5761   | 63.73   | 423 4230    | 028 8868    | 7.93  | 971 1132   | 20 |
| 41 | 548 0246   | 55.75   | 451 9760    | 576 9585   | 63.70   | 423 0415    | 028 9345    | 7.95  | 971 0655   | 19 |
| 42 | 9.548 3585 | 55.70   | 10.451 6415 | 9.577 3407 | 63.65   | 10.422 6593 | 10.028 9822 | 7.95  | 9.971 0178 | 18 |
| 43 | 548 6927   | 55.65   | 451 3073    | 577 7226   | 63.62   | 422 2774    | 029 0299    | 7.97  | 970 9701   | 17 |
| 44 | 549 0266   | 55.60   | 450 9734    | 578 1043   | 63.58   | 421 8957    | 029 0777    | 7.97  | 970 9223   | 16 |
| 45 | 549 3602   | 55.55   | 450 6398    | 578 4858   | 63.52   | 421 5142    | 029 1256    | 7.98  | 970 8744   | 15 |
| 46 | 549 6935   | 55.50   | 450 3065    | 578 8669   | 63.50   | 421 1331    | 029 1735    | 7.98  | 970 8265   | 14 |
| 47 | 550 0265   | 55.45   | 449 9735    | 579 2479   | 63.45   | 420 7521    | 029 2214    | 8.00  | 970 7786   | 13 |
| 48 | 9.550 3592 | 55.40   | 10.449 6408 | 9.579 6286 | 63.40   | 10.420 3714 | 10.029 2694 | 8.00  | 9.970 7306 | 12 |
| 49 | 550 6916   | 55.35   | 449 3084    | 580 0090   | 63.37   | 419 9919    | 029 3174    | 8.00  | 970 6826   | 11 |
| 50 | 551 0237   | 55.32   | 448 9763    | 580 3892   | 63.32   | 419 6108    | 029 3654    | 8.02  | 970 6346   | 10 |
| 51 | 551 3556   | 55.25   | 448 6444    | 580 7691   | 63.28   | 419 2309    | 029 4135    | 8.03  | 970 5865   | 9  |
| 52 | 551 6871   | 55.22   | 448 3129    | 581 1488   | 63.23   | 418 8512    | 029 4617    | 8.03  | 970 5383   | 8  |
| 53 | 552 0184   | 55.17   | 447 9816    | 581 5282   | 63.20   | 418 4718    | 029 5098    | 8.05  | 970 4902   | 7  |
| 54 | 9.552 3494 | 55.12   | 10.447 6506 | 9.581 9074 | 63.17   | 10.418 0926 | 10.029 5581 | 8.05  | 9.970 4419 | 6  |
| 55 | 552 6801   | 55.12   | 447 3199    | 582 2864   | 63.12   | 417 7136    | 029 6063    | 8.05  | 970 3937   | 5  |
| 56 | 553 0105   | 55.07   | 446 9895    | 582 6651   | 63.07   | 417 3349    | 029 6546    | 8.07  | 970 3454   | 4  |
| 57 | 553 3406   | 55.02   | 446 6594    | 583 0435   | 63.03   | 416 9565    | 029 7030    | 8.07  | 970 2970   | 3  |
| 58 | 553 6704   | 54.97   | 446 3296    | 583 4217   | 63.00   | 416 5783    | 029 7514    | 8.07  | 970 2486   | 2  |
| 59 | 553 9999   | 54.92   | 446 0001    | 583 7997   | 62.95   | 416 2003    | 029 7998    | 8.08  | 970 2002   | 1  |
| 60 | 9.554 3292 | 54.88   | 10.445 6708 | 9.584 1774 | 62.90   | 10.415 8226 | 10.029 8483 | 8.08  | 9.970 1517 | 0  |

110°

69°

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158°

| '  | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    | '  |
|----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|----|
| 0  | 9.554 3292 |          | 10.445 6708 | 9.584 1774 |          | 10.415 8226 | 10.029 8483 | 8.08  | 9.970 1517 | 60 |
| 1  | 554 6581   | 54.82    | 445 3419    | 584 5549   | 62.92    | 415 4451    | 029 8968    | 8.08  | 970 1032   | 59 |
| 2  | 554 9868   | 54.78    | 445 0132    | 584 9321   | 62.87    | 415 0679    | 029 9453    | 8.10  | 970 0547   | 58 |
| 3  | 555 3152   | 54.73    | 444 6848    | 585 3091   | 62.83    | 414 6909    | 029 9939    | 8.12  | 970 0061   | 57 |
| 4  | 555 6433   | 54.68    | 444 3567    | 585 6859   | 62.80    | 414 3141    | 030 0426    | 8.12  | 969 9574   | 56 |
| 5  | 555 9711   | 54.63    | 444 0289    | 586 0624   | 62.75    | 413 9376    | 030 0913    | 8.12  | 969 9087   | 55 |
| 6  | 556 2987   | 54.60    | 10.443 7013 | 9.586 4386 | 62.70    | 10.413 5614 | 10.030 1400 | 8.12  | 9.969 8600 | 54 |
| 7  | 556 6259   | 54.53    | 443 3741    | 586 8147   | 62.68    | 413 1853    | 030 1888    | 8.13  | 969 8112   | 53 |
| 8  | 556 9529   | 54.50    | 443 0471    | 587 1904   | 62.62    | 412 8096    | 030 2376    | 8.13  | 969 7624   | 52 |
| 9  | 557 2797   | 54.45    | 442 7204    | 587 5660   | 62.60    | 412 4340    | 030 2864    | 8.13  | 969 7136   | 51 |
| 10 | 557 6060   | 54.40    | 442 3940    | 587 9413   | 62.55    | 412 0587    | 030 3353    | 8.15  | 969 6647   | 50 |
| 11 | 557 9321   | 54.35    | 442 0679    | 588 3163   | 62.50    | 411 6837    | 030 3842    | 8.15  | 969 6158   | 49 |
| 12 | 558 2579   | 54.30    | 10.441 7421 | 9.588 6912 | 62.48    | 10.411 3088 | 10.030 4332 | 8.17  | 9.969 5668 | 48 |
| 13 | 558 5835   | 54.27    | 441 4165    | 589 0657   | 62.42    | 410 9343    | 030 4823    | 8.18  | 969 5177   | 47 |
| 14 | 558 9088   | 54.22    | 441 0912    | 589 4401   | 62.40    | 410 5599    | 030 5313    | 8.17  | 969 4687   | 46 |
| 15 | 559 2338   | 54.17    | 440 7662    | 589 8142   | 62.35    | 410 1858    | 030 5804    | 8.18  | 969 4196   | 45 |
| 16 | 559 5585   | 54.12    | 440 4415    | 590 1881   | 62.32    | 409 8119    | 030 6296    | 8.20  | 969 3704   | 44 |
| 17 | 559 8829   | 54.07    | 440 1171    | 590 5617   | 62.27    | 409 4383    | 030 6788    | 8.20  | 969 3212   | 43 |
| 18 | 560 2071   | 54.03    | 10.439 7929 | 9.590 9351 | 62.23    | 10.409 0649 | 10.030 7280 | 8.22  | 9.969 2720 | 42 |
| 19 | 560 5310   | 53.98    | 439 4690    | 591 3082   | 62.18    | 408 6918    | 030 7773    | 8.22  | 969 2227   | 41 |
| 20 | 560 8546   | 53.93    | 439 1454    | 591 6812   | 62.17    | 408 3188    | 030 8266    | 8.22  | 969 1734   | 40 |
| 21 | 561 1779   | 53.88    | 438 8221    | 592 0539   | 62.12    | 407 9461    | 030 8759    | 8.22  | 969 1241   | 39 |
| 22 | 561 5010   | 53.85    | 438 4990    | 592 4263   | 62.07    | 407 5737    | 030 9254    | 8.25  | 969 0746   | 38 |
| 23 | 561 8237   | 53.78    | 438 1763    | 592 7985   | 62.03    | 407 2015    | 030 9748    | 8.25  | 969 0251   | 37 |
| 24 | 562 1462   | 53.75    | 10.437 8538 | 9.593 1705 | 62.00    | 10.406 8295 | 10.031 0243 | 8.25  | 9.968 9757 | 36 |
| 25 | 562 4685   | 53.72    | 437 5315    | 593 5423   | 61.97    | 406 4577    | 031 0738    | 8.25  | 968 9262   | 35 |
| 26 | 562 7904   | 53.65    | 437 2096    | 593 9138   | 61.92    | 406 0862    | 031 1234    | 8.27  | 968 8766   | 34 |
| 27 | 563 1121   | 53.62    | 436 8879    | 594 2851   | 61.88    | 405 7149    | 031 1730    | 8.27  | 968 8270   | 33 |
| 28 | 563 4335   | 53.57    | 436 5665    | 594 6561   | 61.83    | 405 3439    | 031 2227    | 8.28  | 968 7773   | 32 |
| 29 | 563 7546   | 53.52    | 436 2454    | 595 0269   | 61.80    | 404 9731    | 031 2724    | 8.28  | 968 7276   | 31 |
| 30 | 564 0754   | 53.47    | 10.435 9246 | 9.595 3975 | 61.77    | 10.404 6025 | 10.031 3221 | 8.30  | 9.968 6779 | 30 |
| 31 | 564 3960   | 53.43    | 435 6040    | 595 7679   | 61.73    | 404 2321    | 031 3719    | 8.30  | 968 6281   | 29 |
| 32 | 564 7163   | 53.38    | 435 2837    | 596 1380   | 61.68    | 403 8620    | 031 4217    | 8.30  | 968 5783   | 28 |
| 33 | 565 0363   | 53.33    | 434 9637    | 596 5079   | 61.65    | 403 4921    | 031 4716    | 8.32  | 968 5284   | 27 |
| 34 | 565 3561   | 53.30    | 434 6439    | 596 8776   | 61.62    | 403 1224    | 031 5215    | 8.32  | 968 4785   | 26 |
| 35 | 565 6756   | 53.25    | 434 3244    | 597 2470   | 61.57    | 402 7530    | 031 5714    | 8.32  | 968 4286   | 25 |
| 36 | 565 9948   | 53.20    | 10.434 0052 | 9.597 6162 | 61.53    | 10.402 3838 | 10.031 6214 | 8.35  | 9.968 3786 | 24 |
| 37 | 566 3137   | 53.15    | 433 6863    | 597 9852   | 61.50    | 402 0148    | 031 6715    | 8.35  | 968 3285   | 23 |
| 38 | 566 6324   | 53.12    | 433 3676    | 598 3540   | 61.47    | 401 6460    | 031 7216    | 8.35  | 968 2784   | 22 |
| 39 | 566 9508   | 53.07    | 433 0492    | 598 7225   | 61.42    | 401 2775    | 031 7717    | 8.37  | 968 2283   | 21 |
| 40 | 567 2689   | 53.02    | 432 7311    | 599 0908   | 61.38    | 400 9092    | 031 8219    | 8.37  | 968 1781   | 20 |
| 41 | 567 5868   | 52.98    | 432 4132    | 599 4588   | 61.33    | 400 5412    | 031 8721    | 8.37  | 968 1279   | 19 |
| 42 | 567 9044   | 52.93    | 10.432 0956 | 9.599 8267 | 61.32    | 10.400 1733 | 10.031 9223 | 8.38  | 9.968 0777 | 18 |
| 43 | 568 2217   | 52.88    | 431 7783    | 600 1943   | 61.27    | 399 8057    | 031 9726    | 8.38  | 968 0274   | 17 |
| 44 | 568 5387   | 52.83    | 431 4613    | 600 5617   | 61.23    | 399 4383    | 032 0229    | 8.38  | 967 9771   | 16 |
| 45 | 568 8555   | 52.80    | 431 1445    | 600 9280   | 61.20    | 399 0711    | 032 0733    | 8.40  | 967 9267   | 15 |
| 46 | 569 1721   | 52.77    | 430 8279    | 601 2958   | 61.15    | 398 7042    | 032 1237    | 8.40  | 967 8763   | 14 |
| 47 | 569 4883   | 52.70    | 430 5117    | 601 6625   | 61.12    | 398 3375    | 032 1742    | 8.42  | 967 8258   | 13 |
| 48 | 569 8043   | 52.67    | 10.430 1957 | 9.602 0290 | 61.08    | 10.397 9710 | 10.032 2247 | 8.42  | 9.967 7753 | 12 |
| 49 | 570 1200   | 52.62    | 429 8800    | 602 3953   | 61.05    | 397 6047    | 032 2753    | 8.43  | 967 7247   | 11 |
| 50 | 570 4355   | 52.58    | 429 5645    | 602 7613   | 61.00    | 397 2387    | 032 3259    | 8.43  | 967 6741   | 10 |
| 51 | 570 7506   | 52.52    | 429 2494    | 603 1271   | 60.97    | 396 8729    | 032 3765    | 8.45  | 967 6235   | 9  |
| 52 | 571 0656   | 52.46    | 428 9344    | 603 4927   | 60.93    | 396 5073    | 032 4272    | 8.45  | 967 5728   | 8  |
| 53 | 571 3802   | 52.43    | 428 6198    | 603 8581   | 60.90    | 396 1419    | 032 4779    | 8.47  | 967 5221   | 7  |
| 54 | 571 6946   | 52.40    | 10.428 3054 | 9.604 2233 | 60.87    | 10.395 7767 | 10.032 5287 | 8.47  | 9.967 4713 | 6  |
| 55 | 572 0087   | 52.35    | 427 9913    | 604 5882   | 60.82    | 395 4118    | 032 5795    | 8.47  | 967 4205   | 5  |
| 56 | 572 3226   | 52.32    | 427 6774    | 604 9529   | 60.78    | 395 0471    | 032 6303    | 8.47  | 967 3697   | 4  |
| 57 | 572 6362   | 52.27    | 427 3638    | 605 3174   | 60.75    | 394 6826    | 032 6812    | 8.48  | 967 3188   | 3  |
| 58 | 572 9495   | 52.22    | 427 0505    | 605 6817   | 60.72    | 394 3183    | 032 7321    | 8.48  | 967 2679   | 2  |
| 59 | 573 2626   | 52.18    | 426 7374    | 606 0457   | 60.67    | 393 9543    | 032 7831    | 8.50  | 967 2169   | 1  |
| 60 | 573 5754   | 52.13    | 10.426 4246 | 9.606 4096 | 60.65    | 10.393 5904 | 10.032 8341 | 8.50  | 9.967 1659 | 0  |



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157°

|    | sin.     | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |    |
|----|----------|----------|-------------|------------|----------|-------------|-------------|--------|------------|----|
| 0  | 573 5754 | 52.10    | 10.426 4246 | 9.606 4096 | 60.60    | 10.393 5904 | 10.032 8341 | 8.52   | 9.967 1659 | 60 |
| 1  | 573 8880 | 52.05    | 426 1120    | 606 7732   | 60.57    | 393 2268    | 032 8852    | 8.52   | 967 1148   | 59 |
| 2  | 574 2003 | 52.00    | 425 7997    | 607 1366   | 60.52    | 392 8634    | 032 9363    | 8.53   | 967 0637   | 58 |
| 3  | 574 5123 | 51.95    | 425 4877    | 607 4997   | 60.50    | 392 5003    | 032 9875    | 8.53   | 967 0125   | 57 |
| 4  | 574 8240 | 51.93    | 425 1760    | 607 8627   | 60.45    | 392 1373    | 033 0386    | 8.55   | 966 9614   | 56 |
| 5  | 575 1356 | 51.87    | 424 8644    | 608 2254   | 60.43    | 391 7746    | 033 0899    | 8.55   | 966 9101   | 55 |
| 6  | 575 4468 | 51.83    | 10.424 5532 | 9.608 5880 | 60.38    | 10.391 4120 | 10.033 1412 | 8.55   | 9.966 8588 | 54 |
| 7  | 575 7578 | 51.78    | 424 2422    | 608 9503   | 60.35    | 391 0497    | 033 1925    | 8.55   | 966 8075   | 53 |
| 8  | 576 0685 | 51.75    | 423 9315    | 609 3124   | 60.30    | 390 6876    | 033 2438    | 8.57   | 966 7562   | 52 |
| 9  | 576 3790 | 51.70    | 423 6210    | 609 6742   | 60.28    | 390 3258    | 033 2952    | 8.58   | 966 7048   | 51 |
| 10 | 576 6892 | 51.65    | 423 3108    | 610 0359   | 60.23    | 389 9641    | 033 3467    | 8.58   | 966 6533   | 50 |
| 11 | 576 9991 | 51.62    | 423 0009    | 610 3973   | 60.22    | 389 6027    | 033 3982    | 8.58   | 966 6018   | 49 |
| 12 | 577 3088 | 51.58    | 10.422 6912 | 9.610 7586 | 60.17    | 10.389 2414 | 10.033 4497 | 8.60   | 9.966 5503 | 48 |
| 13 | 577 6183 | 51.53    | 422 3817    | 611 1196   | 60.13    | 388 8804    | 033 5013    | 8.60   | 966 4987   | 47 |
| 14 | 577 9275 | 51.48    | 422 0725    | 611 4804   | 60.08    | 388 5196    | 033 5529    | 8.62   | 966 4471   | 46 |
| 15 | 578 2364 | 51.43    | 421 7636    | 611 8409   | 60.07    | 388 1591    | 033 6046    | 8.62   | 966 3954   | 45 |
| 16 | 578 5450 | 51.42    | 421 4550    | 612 2013   | 60.03    | 387 7987    | 033 6563    | 8.62   | 966 3437   | 44 |
| 17 | 578 8535 | 51.35    | 421 1465    | 612 5615   | 59.98    | 387 4385    | 033 7080    | 8.62   | 966 2920   | 43 |
| 18 | 579 1616 | 51.32    | 10.420 8384 | 9.612 9214 | 59.97    | 10.387 0786 | 10.033 7598 | 8.63   | 9.966 2402 | 42 |
| 19 | 579 4695 | 51.28    | 420 5305    | 613 2812   | 59.92    | 386 7188    | 033 8116    | 8.65   | 966 1884   | 41 |
| 20 | 579 7772 | 51.22    | 420 2228    | 613 6407   | 59.88    | 386 3593    | 033 8633    | 8.65   | 966 1365   | 40 |
| 21 | 580 0845 | 51.20    | 419 9155    | 614 0000   | 59.85    | 386 0000    | 033 9154    | 8.67   | 966 0846   | 39 |
| 22 | 580 3917 | 51.15    | 419 6083    | 614 3591   | 59.82    | 385 6409    | 033 9674    | 8.67   | 966 0326   | 38 |
| 23 | 580 6986 | 51.10    | 419 3014    | 614 7180   | 59.77    | 385 2820    | 034 0194    | 8.68   | 965 9806   | 37 |
| 24 | 581 0052 | 51.07    | 10.418 9948 | 9.615 0766 | 59.75    | 10.384 9234 | 10.034 0715 | 8.68   | 9.965 9285 | 36 |
| 25 | 581 3116 | 51.02    | 418 6884    | 615 4351   | 59.72    | 384 5649    | 034 1236    | 8.68   | 965 8764   | 35 |
| 26 | 581 6177 | 50.98    | 418 3823    | 615 7934   | 59.67    | 384 2066    | 034 1757    | 8.70   | 965 8243   | 34 |
| 27 | 581 9236 | 50.93    | 418 0764    | 616 1514   | 59.65    | 383 8486    | 034 2279    | 8.70   | 965 7721   | 33 |
| 28 | 582 2292 | 50.88    | 417 7708    | 616 5093   | 59.60    | 383 4907    | 034 2801    | 8.70   | 965 7199   | 32 |
| 29 | 582 5345 | 50.87    | 417 4655    | 616 8669   | 59.56    | 383 1331    | 034 3323    | 8.73   | 965 6677   | 31 |
| 30 | 582 8397 | 50.80    | 10.417 1603 | 9.617 2243 | 59.57    | 10.382 7757 | 10.034 3847 | 8.72   | 9.965 6153 | 30 |
| 31 | 583 1445 | 50.77    | 416 8555    | 617 5815   | 59.50    | 382 4185    | 034 4370    | 8.73   | 965 5630   | 29 |
| 32 | 583 4491 | 50.73    | 416 5509    | 617 9385   | 59.47    | 382 0615    | 034 4894    | 8.73   | 965 5106   | 28 |
| 33 | 583 7535 | 50.68    | 416 2465    | 618 2953   | 59.43    | 381 7047    | 034 5418    | 8.75   | 965 4582   | 27 |
| 34 | 584 0576 | 50.65    | 415 9424    | 618 6519   | 59.40    | 381 3481    | 034 5943    | 8.75   | 965 4057   | 26 |
| 35 | 584 3615 | 50.60    | 415 6385    | 619 0083   | 59.37    | 380 9917    | 034 6468    | 8.77   | 965 3532   | 25 |
| 36 | 584 6651 | 50.57    | 10.415 3349 | 9.619 3645 | 59.33    | 10.380 6355 | 10.034 6994 | 8.77   | 9.965 3006 | 24 |
| 37 | 584 9685 | 50.52    | 415 0315    | 619 7205   | 59.33    | 380 2795    | 034 7520    | 8.77   | 965 2480   | 23 |
| 38 | 585 2716 | 50.48    | 414 7284    | 620 0762   | 59.28    | 379 9238    | 034 8047    | 8.78   | 965 1953   | 22 |
| 39 | 585 5745 | 50.43    | 414 4255    | 620 4318   | 59.23    | 379 5682    | 034 8574    | 8.78   | 965 1426   | 21 |
| 40 | 585 8771 | 50.40    | 414 1229    | 620 7872   | 59.23    | 379 2128    | 034 9101    | 8.80   | 965 0899   | 20 |
| 41 | 586 1795 | 50.35    | 413 8205    | 621 1423   | 59.17    | 378 8577    | 034 9629    | 8.80   | 965 0371   | 19 |
| 42 | 586 4816 | 50.32    | 10.413 5184 | 9.621 4973 | 59.12    | 10.378 5027 | 10.035 0157 | 8.82   | 9.964 9843 | 18 |
| 43 | 586 7835 | 50.27    | 413 2165    | 621 8520   | 59.10    | 378 1480    | 035 0686    | 8.82   | 964 9314   | 17 |
| 44 | 587 0851 | 50.23    | 412 9149    | 622 2066   | 59.05    | 377 7934    | 035 1215    | 8.82   | 964 8785   | 16 |
| 45 | 587 3865 | 50.18    | 412 6135    | 622 5609   | 59.05    | 377 4391    | 035 1744    | 8.83   | 964 8256   | 15 |
| 46 | 587 6876 | 50.15    | 412 3124    | 622 9150   | 59.02    | 377 0850    | 035 2274    | 8.83   | 964 7726   | 14 |
| 47 | 587 9885 | 50.12    | 412 0115    | 623 2690   | 58.95    | 376 7310    | 035 2805    | 8.83   | 964 7195   | 13 |
| 48 | 588 2892 | 50.07    | 10.411 7108 | 9.623 6227 | 58.93    | 10.376 3773 | 10.035 3335 | 8.87   | 9.964 6665 | 12 |
| 49 | 588 5896 | 50.02    | 411 4104    | 623 9763   | 58.88    | 376 0237    | 035 3867    | 8.85   | 964 6133   | 11 |
| 50 | 588 8897 | 50.00    | 411 1103    | 624 3296   | 58.85    | 375 6704    | 035 4398    | 8.88   | 964 5600   | 10 |
| 51 | 589 1897 | 49.93    | 410 8103    | 624 6827   | 58.82    | 375 3173    | 035 4931    | 8.87   | 964 5069   | 9  |
| 52 | 589 4893 | 49.92    | 410 5107    | 625 0356   | 58.80    | 374 9644    | 035 5463    | 8.87   | 964 4537   | 8  |
| 53 | 589 7888 | 49.87    | 410 2112    | 625 3884   | 58.75    | 374 6116    | 035 5995    | 8.80   | 964 4004   | 7  |
| 54 | 590 0880 | 49.82    | 10.409 9120 | 9.625 7409 | 58.72    | 10.374 2591 | 10.035 6530 | 8.80   | 9.964 3470 | 6  |
| 55 | 590 3869 | 49.78    | 409 6131    | 626 0932   | 58.70    | 373 9068    | 035 7063    | 8.82   | 964 2937   | 5  |
| 56 | 590 6856 | 49.75    | 409 3144    | 626 4454   | 58.65    | 373 5546    | 035 7598    | 8.92   | 964 2402   | 4  |
| 57 | 590 9841 | 49.70    | 409 0159    | 626 7973   | 58.63    | 373 2027    | 035 8132    | 8.93   | 964 1868   | 3  |
| 58 | 591 2823 | 49.70    | 408 7177    | 627 1491   | 58.58    | 372 8509    | 035 8668    | 8.92   | 964 1332   | 2  |
| 59 | 591 5803 | 49.67    | 408 4197    | 627 5006   | 58.55    | 372 4994    | 035 9203    | 8.93   | 964 0797   | 1  |
| 60 | 591 8780 | 49.62    | 10.408 1220 | 9.627 8519 | 58.55    | 10.372 1481 | 10.035 9739 | 8.93   | 9.964 0261 | 0  |

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67°

23°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |    |
|----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|----|
| 0  | 9.591 8780 | 49.58    | 10.408 1220 | 9.627 8519 | 58.53    | 10.372 1481 | 10.035 9739 | 8.95  | 9.964 0261 | 60 |
| 1  | 592 1755   | 49.55    | 407 8245    | 628 2031   | 58.48    | 371 7969    | 036 0276    | 8.95  | 9.963 9724 | 59 |
| 2  | 592 4728   | 49.50    | 407 5272    | 628 5540   | 58.47    | 371 4460    | 036 1813    | 8.95  | 9.963 9187 | 58 |
| 3  | 592 7598   | 49.50    | 407 2302    | 628 9048   | 58.42    | 371 0952    | 036 1350    | 8.97  | 9.963 8650 | 57 |
| 4  | 593 0606   | 49.47    | 406 9334    | 629 2553   | 58.40    | 370 7447    | 036 1888    | 8.97  | 9.963 8112 | 56 |
| 5  | 593 3631   | 49.42    | 406 6366    | 629 6057   | 58.35    | 370 3943    | 036 2426    | 8.97  | 9.963 7574 | 55 |
| 6  | 593 6504   | 49.38    | 10.406 3406 | 9.629 9558 | 58.33    | 10.370 0442 | 10.036 2964 | 8.97  | 9.963 7036 | 54 |
| 7  | 593 9515   | 49.35    | 406 0445    | 630 3058   | 58.30    | 369 6942    | 036 3504    | 8.98  | 9.963 6496 | 53 |
| 8  | 594 2513   | 49.30    | 405 7487    | 630 6556   | 58.30    | 369 3444    | 036 4043    | 9.00  | 9.963 5957 | 52 |
| 9  | 594 5469   | 49.27    | 405 4531    | 631 0052   | 58.22    | 368 9948    | 036 4583    | 9.00  | 9.963 5417 | 51 |
| 10 | 594 8422   | 49.22    | 405 1578    | 631 3545   | 58.20    | 368 6455    | 036 5123    | 9.02  | 9.963 4877 | 50 |
| 11 | 595 1373   | 49.18    | 404 8627    | 631 7037   | 58.17    | 368 2963    | 036 5664    | 9.02  | 9.963 4336 | 49 |
| 12 | 595 4322   | 49.15    | 10.404 5678 | 9.632 0527 | 58.17    | 10.367 9473 | 10.036 6205 | 9.02  | 9.963 3795 | 48 |
| 13 | 595 7268   | 49.10    | 404 2732    | 632 4015   | 58.13    | 367 5985    | 036 6741    | 9.03  | 9.963 3253 | 47 |
| 14 | 596 0212   | 49.07    | 403 9788    | 632 7501   | 58.10    | 367 2499    | 036 7280    | 9.03  | 9.963 2711 | 46 |
| 15 | 596 3154   | 49.03    | 403 6846    | 633 0985   | 58.07    | 366 9015    | 036 7819    | 9.05  | 9.963 2168 | 45 |
| 16 | 596 6093   | 48.98    | 403 3907    | 633 4468   | 58.05    | 366 5532    | 036 8357    | 9.05  | 9.963 1625 | 44 |
| 17 | 596 9030   | 48.95    | 403 0970    | 633 7948   | 58.00    | 366 2052    | 036 8898    | 9.05  | 9.963 1082 | 43 |
| 18 | 597 1965   | 48.92    | 10.402 8035 | 9.634 1426 | 57.97    | 10.365 8574 | 10.036 9462 | 9.07  | 9.963 0538 | 42 |
| 19 | 597 4897   | 48.87    | 402 5103    | 634 4903   | 57.95    | 365 5097    | 037 0006    | 9.08  | 9.962 9994 | 41 |
| 20 | 597 7827   | 48.83    | 402 2173    | 634 8378   | 57.92    | 365 1622    | 037 0551    | 9.08  | 9.962 9449 | 40 |
| 21 | 598 0754   | 48.78    | 401 9246    | 635 1850   | 57.87    | 364 8150    | 037 1096    | 9.10  | 9.962 8904 | 39 |
| 22 | 598 3679   | 48.75    | 401 6321    | 635 5321   | 57.85    | 364 4679    | 037 1642    | 9.10  | 9.962 8358 | 38 |
| 23 | 598 6602   | 48.72    | 401 3398    | 635 8799   | 57.82    | 364 1210    | 037 2188    | 9.10  | 9.962 7812 | 37 |
| 24 | 598 9523   | 48.68    | 10.401 0477 | 9.636 2257 | 57.78    | 10.363 7743 | 10.037 2734 | 9.12  | 9.962 7266 | 36 |
| 25 | 599 2441   | 48.63    | 400 7559    | 636 5722   | 57.75    | 363 4278    | 037 3281    | 9.12  | 9.962 6719 | 35 |
| 26 | 599 5357   | 48.60    | 400 4643    | 636 9185   | 57.72    | 363 0815    | 037 3828    | 9.12  | 9.962 6172 | 34 |
| 27 | 599 8270   | 48.55    | 400 1730    | 637 2646   | 57.68    | 362 7354    | 037 4376    | 9.13  | 9.962 5624 | 33 |
| 28 | 600 1181   | 48.52    | 399 8819    | 637 6106   | 57.67    | 362 3894    | 037 4924    | 9.13  | 9.962 5076 | 32 |
| 29 | 600 4090   | 48.48    | 399 5910    | 637 9563   | 57.62    | 362 0437    | 037 5473    | 9.15  | 9.962 4527 | 31 |
| 30 | 600 6997   | 48.45    | 10.399 3003 | 9.638 3019 | 57.57    | 10.361 6981 | 10.037 6022 | 9.17  | 9.962 3978 | 30 |
| 31 | 600 9901   | 48.40    | 399 0099    | 638 6473   | 57.57    | 361 3527    | 037 6572    | 9.17  | 9.962 3428 | 29 |
| 32 | 601 2803   | 48.37    | 398 7197    | 638 9925   | 57.53    | 361 0075    | 037 7122    | 9.17  | 9.962 2878 | 28 |
| 33 | 601 5703   | 48.33    | 398 4297    | 639 3375   | 57.50    | 360 6625    | 037 7672    | 9.17  | 9.962 2328 | 27 |
| 34 | 601 8600   | 48.28    | 398 1400    | 639 6823   | 57.47    | 360 3177    | 037 8223    | 9.18  | 9.962 1777 | 26 |
| 35 | 602 1495   | 48.25    | 397 8505    | 640 0269   | 57.43    | 359 9731    | 037 8774    | 9.20  | 9.962 1226 | 25 |
| 36 | 602 4388   | 48.22    | 10.397 5612 | 9.640 3714 | 57.42    | 10.359 6286 | 10.037 9326 | 9.20  | 9.962 0674 | 24 |
| 37 | 602 7278   | 48.17    | 397 2722    | 640 7156   | 57.37    | 359 2844    | 037 9878    | 9.22  | 9.962 0122 | 23 |
| 38 | 603 0166   | 48.13    | 396 9834    | 641 0597   | 57.35    | 358 9403    | 038 0431    | 9.22  | 9.961 9569 | 22 |
| 39 | 603 3052   | 48.10    | 396 6948    | 641 4036   | 57.32    | 358 5964    | 038 0984    | 9.22  | 9.961 9016 | 21 |
| 40 | 603 5936   | 48.07    | 396 4064    | 641 7473   | 57.28    | 358 2527    | 038 1537    | 9.23  | 9.961 8463 | 20 |
| 41 | 603 8817   | 48.02    | 396 1183    | 642 0908   | 57.25    | 357 9092    | 038 2091    | 9.23  | 9.961 7909 | 19 |
| 42 | 604 1696   | 47.98    | 10.395 8304 | 9.642 4342 | 57.23    | 10.357 5658 | 10.038 2645 | 9.25  | 9.961 7355 | 18 |
| 43 | 604 4573   | 47.95    | 395 5427    | 642 7773   | 57.18    | 357 2227    | 038 3200    | 9.25  | 9.961 6800 | 17 |
| 44 | 604 7448   | 47.92    | 395 2552    | 643 1203   | 57.17    | 356 8797    | 038 3755    | 9.25  | 9.961 6245 | 16 |
| 45 | 605 0320   | 47.87    | 394 9680    | 643 4631   | 57.13    | 356 5369    | 038 4311    | 9.27  | 9.961 5689 | 15 |
| 46 | 605 3190   | 47.83    | 394 6810    | 643 8057   | 57.10    | 356 1943    | 038 4867    | 9.28  | 9.961 5133 | 14 |
| 47 | 605 6057   | 47.78    | 394 3943    | 644 1481   | 57.07    | 355 8519    | 038 5424    | 9.28  | 9.961 4576 | 13 |
| 48 | 605 8923   | 47.77    | 10.394 1077 | 9.644 4903 | 57.03    | 10.355 5097 | 10.038 5980 | 9.27  | 9.961 4020 | 12 |
| 49 | 606 1786   | 47.72    | 393 8214    | 644 8324   | 57.02    | 355 1676    | 038 6538    | 9.30  | 9.961 3462 | 11 |
| 50 | 606 4647   | 47.68    | 393 5353    | 645 1743   | 56.98    | 354 8257    | 038 7096    | 9.30  | 9.961 2904 | 10 |
| 51 | 606 7506   | 47.65    | 393 2494    | 645 5160   | 56.95    | 354 4840    | 038 7654    | 9.32  | 9.961 2346 | 9  |
| 52 | 607 0362   | 47.60    | 392 9638    | 645 8575   | 56.92    | 354 1425    | 038 8213    | 9.32  | 9.961 1787 | 8  |
| 53 | 607 3216   | 47.57    | 392 6784    | 646 1988   | 56.88    | 353 8012    | 038 8772    | 9.33  | 9.961 1228 | 7  |
| 54 | 607 6068   | 47.53    | 10.392 3932 | 9.646 5400 | 56.83    | 10.353 4600 | 10.038 9332 | 9.33  | 9.961 0668 | 6  |
| 55 | 607 8918   | 47.50    | 392 1082    | 646 8810   | 56.80    | 353 1190    | 038 9892    | 9.33  | 9.961 0108 | 5  |
| 56 | 608 1765   | 47.45    | 391 8235    | 647 2217   | 56.78    | 352 7783    | 039 0452    | 9.35  | 9.960 9548 | 4  |
| 57 | 608 4611   | 47.43    | 391 5389    | 647 5624   | 56.73    | 352 4376    | 039 1013    | 9.35  | 9.960 8987 | 3  |
| 58 | 608 7454   | 47.38    | 391 2546    | 647 9028   | 56.72    | 352 0972    | 039 1574    | 9.37  | 9.960 8426 | 2  |
| 59 | 609 0294   | 47.33    | 390 9706    | 648 2431   | 56.72    | 351 7569    | 039 2136    | 9.37  | 9.960 7864 | 1  |
| 60 | 609 3133   | 47.32    | 10.390 6867 | 9.648 5831 | 56.67    | 10.351 4169 | 10.039 2698 | 9.37  | 9.960 7302 | 0  |



LOGARITHMIC SINES, TANGENTS, &C.

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24°

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|    | sin.        | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |    |
|----|-------------|---------|-------------|------------|---------|-------------|-------------|-------|------------|----|
| 0  | 0.4069 3133 |         | 10.390 6867 | 9.648 5831 | 56.65   | 10.351 4169 | 10.039 2698 | 9.38  | 9.960 7302 | 60 |
| 1  | 609 5960    | 47.27   | 390 4031    | 648 9230   | 56.63   | 351 0770    | 039 3261    | 9.38  | 960 6739   | 59 |
| 2  | 609 8803    | 47.23   | 390 1197    | 649 2628   | 56.58   | 350 7372    | 039 3824    | 9.40  | 960 6176   | 58 |
| 3  | 610 1635    | 47.20   | 389 8365    | 649 6023   | 56.57   | 350 3977    | 039 4388    | 9.40  | 960 5612   | 57 |
| 4  | 610 4465    | 47.17   | 389 5535    | 649 9417   | 56.53   | 350 0583    | 039 4952    | 9.40  | 960 5048   | 56 |
| 5  | 610 7293    | 47.13   | 389 2707    | 650 2809   | 56.50   | 349 7191    | 039 5516    | 9.40  | 960 4484   | 55 |
| 6  | 611 0118    | 47.08   | 10.388 9882 | 9.650 6199 | 56.47   | 10.349 3801 | 10.039 6081 | 9.42  | 9.960 3919 | 54 |
| 7  | 611 2941    | 47.05   | 388 7059    | 650 9587   | 56.45   | 349 0413    | 039 6646    | 9.43  | 960 3354   | 53 |
| 8  | 611 5762    | 47.02   | 388 4238    | 651 2974   | 56.42   | 348 7026    | 039 7212    | 9.43  | 960 2788   | 52 |
| 9  | 611 8580    | 46.97   | 388 1420    | 651 6359   | 56.42   | 348 3641    | 039 7778    | 9.43  | 960 2222   | 51 |
| 10 | 612 1397    | 46.95   | 387 8603    | 651 9742   | 56.38   | 348 0258    | 039 8345    | 9.45  | 960 1655   | 50 |
| 11 | 612 4211    | 46.90   | 387 5789    | 652 3123   | 56.35   | 347 6877    | 039 8912    | 9.45  | 960 1088   | 49 |
| 12 | 612 7023    | 46.87   | 10.387 2977 | 9.652 6503 | 56.33   | 10.347 3497 | 10.039 9480 | 9.47  | 9.960 0520 | 48 |
| 13 | 612 9833    | 46.83   | 387 0167    | 652 9881   | 56.30   | 347 0119    | 040 0048    | 9.47  | 959 9952   | 47 |
| 14 | 613 2641    | 46.80   | 386 7359    | 653 3257   | 56.27   | 346 6743    | 040 0616    | 9.47  | 959 9384   | 46 |
| 15 | 613 5446    | 46.75   | 386 4554    | 653 6631   | 56.23   | 346 3369    | 040 1185    | 9.48  | 959 8815   | 45 |
| 16 | 613 8250    | 46.73   | 386 1750    | 654 0004   | 56.22   | 345 9996    | 040 1754    | 9.48  | 959 8246   | 44 |
| 17 | 614 1051    | 46.68   | 385 8949    | 654 3375   | 56.18   | 345 6625    | 040 2324    | 9.50  | 959 7676   | 43 |
| 18 | 614 3850    | 46.65   | 10.385 6150 | 9.654 6744 | 56.15   | 10.345 3256 | 10.040 2894 | 9.50  | 9.959 7106 | 42 |
| 19 | 614 6647    | 46.62   | 385 3353    | 655 0112   | 56.13   | 344 9888    | 040 3465    | 9.52  | 959 6535   | 41 |
| 20 | 614 9441    | 46.57   | 385 0559    | 655 3477   | 56.08   | 344 6523    | 040 4036    | 9.52  | 959 5964   | 40 |
| 21 | 615 2234    | 46.55   | 384 7766    | 655 6841   | 56.07   | 344 3159    | 040 4607    | 9.52  | 959 5393   | 39 |
| 22 | 615 5024    | 46.50   | 384 4976    | 656 0204   | 56.05   | 343 9796    | 040 5179    | 9.53  | 959 4821   | 38 |
| 23 | 615 7812    | 46.47   | 384 2188    | 656 3564   | 55.98   | 343 6436    | 040 5752    | 9.55  | 959 4248   | 37 |
| 24 | 616 0599    | 46.45   | 10.383 0401 | 9.656 6923 | 55.95   | 10.343 3077 | 10.040 6325 | 9.55  | 9.959 3675 | 36 |
| 25 | 616 3382    | 46.38   | 383 6618    | 657 0280   | 55.93   | 342 9720    | 040 6898    | 9.55  | 959 3102   | 35 |
| 26 | 616 6164    | 46.37   | 383 3836    | 657 3636   | 55.88   | 342 6364    | 040 7472    | 9.57  | 959 2528   | 34 |
| 27 | 616 8944    | 46.33   | 383 1056    | 657 6989   | 55.87   | 342 3011    | 040 8046    | 9.57  | 959 1954   | 33 |
| 28 | 617 1721    | 46.28   | 382 8279    | 658 0341   | 55.85   | 341 9659    | 040 8620    | 9.58  | 959 1380   | 32 |
| 29 | 617 4496    | 46.25   | 382 5504    | 658 3692   | 55.82   | 341 6308    | 040 9195    | 9.58  | 959 0805   | 31 |
| 30 | 617 7270    | 46.23   | 10.382 2730 | 9.658 7041 | 55.77   | 10.341 2959 | 10.040 9771 | 9.60  | 9.959 0229 | 30 |
| 31 | 618 0041    | 46.18   | 381 9959    | 659 0387   | 55.77   | 340 9613    | 041 0347    | 9.60  | 958 9653   | 29 |
| 32 | 618 2809    | 46.13   | 381 7191    | 659 3733   | 55.72   | 340 6267    | 041 0923    | 9.60  | 958 9077   | 28 |
| 33 | 618 5576    | 46.12   | 381 4424    | 659 7076   | 55.70   | 340 2924    | 041 1500    | 9.62  | 958 8500   | 27 |
| 34 | 618 8341    | 46.08   | 381 1659    | 660 0418   | 55.67   | 339 9582    | 041 2077    | 9.62  | 958 7923   | 26 |
| 35 | 619 1103    | 46.03   | 380 8897    | 660 3758   | 55.65   | 339 6242    | 041 2655    | 9.63  | 958 7345   | 25 |
| 36 | 619 3864    | 46.02   | 10.380 6136 | 9.660 7097 | 55.62   | 10.339 2903 | 10.041 3233 | 9.65  | 9.958 6767 | 24 |
| 37 | 619 6622    | 45.97   | 380 3378    | 661 0434   | 55.58   | 338 9566    | 041 3812    | 9.65  | 958 6188   | 23 |
| 38 | 619 9378    | 45.93   | 380 0622    | 661 3769   | 55.57   | 338 6231    | 041 4391    | 9.65  | 958 5609   | 22 |
| 39 | 620 2132    | 45.90   | 379 7868    | 661 7103   | 55.52   | 338 2897    | 041 4970    | 9.67  | 958 5030   | 21 |
| 40 | 620 4884    | 45.87   | 379 5116    | 662 0434   | 55.52   | 337 9566    | 041 5550    | 9.67  | 958 4450   | 20 |
| 41 | 620 7634    | 45.83   | 379 2366    | 662 3765   | 55.52   | 337 6235    | 041 6131    | 9.68  | 958 3869   | 19 |
| 42 | 621 0382    | 45.80   | 10.378 9618 | 9.662 7093 | 55.45   | 10.337 2907 | 10.041 6712 | 9.68  | 9.958 3288 | 18 |
| 43 | 621 3127    | 45.75   | 378 6873    | 663 0420   | 55.42   | 336 9580    | 041 7293    | 9.70  | 958 2707   | 17 |
| 44 | 621 5871    | 45.73   | 378 4129    | 663 3745   | 55.40   | 336 6255    | 041 7875    | 9.70  | 958 2125   | 16 |
| 45 | 621 8612    | 45.68   | 378 1388    | 663 7069   | 55.37   | 336 2931    | 041 8457    | 9.70  | 958 1543   | 15 |
| 46 | 622 1351    | 45.65   | 377 8649    | 664 0391   | 55.33   | 335 9609    | 041 9039    | 9.70  | 958 0961   | 14 |
| 47 | 622 4088    | 45.62   | 377 5912    | 664 3711   | 55.32   | 335 6289    | 041 9622    | 9.72  | 958 0378   | 13 |
| 48 | 622 6824    | 45.60   | 10.377 3176 | 9.664 7030 | 55.27   | 10.335 2970 | 10.042 0206 | 9.73  | 9.957 9794 | 12 |
| 49 | 622 9557    | 45.55   | 377 0443    | 665 0346   | 55.27   | 334 9654    | 042 0790    | 9.73  | 957 9210   | 11 |
| 50 | 623 2287    | 45.50   | 376 7713    | 665 3662   | 55.22   | 334 6338    | 042 1374    | 9.75  | 957 8626   | 10 |
| 51 | 623 5016    | 45.48   | 376 4984    | 665 6979   | 55.22   | 334 3025    | 042 1959    | 9.75  | 957 8041   | 9  |
| 52 | 623 7743    | 45.45   | 376 2257    | 666 0288   | 55.17   | 333 9712    | 042 2544    | 9.77  | 957 7456   | 8  |
| 53 | 624 0468    | 45.42   | 375 9532    | 666 3598   | 55.15   | 333 6402    | 042 3130    | 9.77  | 957 6870   | 7  |
| 54 | 624 3190    | 45.37   | 10.375 6810 | 9.666 6907 | 55.12   | 10.333 3093 | 10.042 3716 | 9.78  | 9.957 6284 | 6  |
| 55 | 624 5911    | 45.35   | 375 4089    | 667 0214   | 55.08   | 332 9786    | 042 4303    | 9.78  | 957 5697   | 5  |
| 56 | 624 8630    | 45.30   | 375 1371    | 667 3519   | 55.07   | 332 6481    | 042 4890    | 9.80  | 957 5110   | 4  |
| 57 | 625 1346    | 45.28   | 374 8654    | 667 6823   | 55.05   | 332 3177    | 042 5478    | 9.80  | 957 4522   | 3  |
| 58 | 625 4060    | 45.23   | 374 5940    | 668 0126   | 55.00   | 331 9874    | 042 6066    | 9.80  | 957 3934   | 2  |
| 59 | 625 6772    | 45.20   | 374 3228    | 668 3426   | 54.98   | 331 6574    | 042 6654    | 9.82  | 957 3346   | 1  |
| 60 | 625 9483    | 45.18   | 10.374 0517 | 9.668 6725 | 54.98   | 10.331 3275 | 10.042 7243 | 9.82  | 9.957 2757 | 0  |

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65°

|    | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | diff. 1'' | co-sin.   |    |
|----|------------|-----------|-------------|------------|-----------|-------------|------------|-----------|-----------|----|
| 0  | 9.625 9483 | 45.13     | 10.374 0517 | 9.668 6725 | 54.97     | 10.331 3275 | 10.0427243 | 9.82      | 9.9572757 | 60 |
| 1  | 626 2191   | 45.10     | 373 7890    | 669 0023   | 54.93     | 330 9977    | 0427832    | 9.83      | 9572168   | 59 |
| 2  | 626 4897   | 45.07     | 373 5103    | 669 3319   | 54.90     | 330 6681    | 0428422    | 9.83      | 9571578   | 58 |
| 3  | 626 7601   | 45.03     | 373 2399    | 669 6613   | 54.88     | 330 3387    | 0429012    | 9.83      | 9570988   | 57 |
| 4  | 627 0303   | 45.00     | 372 9697    | 669 9906   | 54.85     | 330 0094    | 0429603    | 9.85      | 9570397   | 56 |
| 5  | 627 3003   | 44.97     | 372 6997    | 670 3197   | 54.82     | 329 6803    | 0430194    | 9.85      | 9569806   | 55 |
| 6  | 627 5701   | 44.93     | 10.372 4209 | 9.670 6486 | 54.80     | 10.329 3514 | 10.0430785 | 9.87      | 9.9569215 | 54 |
| 7  | 627 8397   | 44.88     | 372 1603    | 670 9774   | 54.77     | 329 0226    | 0431377    | 9.87      | 9568623   | 53 |
| 8  | 628 1090   | 44.87     | 371 8910    | 671 3060   | 54.75     | 328 6940    | 0431970    | 9.88      | 9568030   | 52 |
| 9  | 628 3782   | 44.83     | 371 6218    | 671 6345   | 54.72     | 328 3655    | 0432563    | 9.88      | 9567437   | 51 |
| 10 | 628 6472   | 44.80     | 371 3528    | 671 9628   | 54.70     | 328 0372    | 0433156    | 9.88      | 9566844   | 50 |
| 11 | 628 9160   | 44.75     | 371 0840    | 672 2910   | 54.67     | 327 7090    | 0433750    | 9.90      | 9566250   | 49 |
| 12 | 9.629 1845 | 44.73     | 10.370 8155 | 9.672 6190 | 54.63     | 10.327 3810 | 10.0434344 | 9.92      | 9.9565656 | 48 |
| 13 | 629 4529   | 44.70     | 370 5471    | 672 9468   | 54.62     | 327 0532    | 0434939    | 9.92      | 9565061   | 47 |
| 14 | 629 7211   | 44.65     | 370 2789    | 673 2745   | 54.58     | 326 7255    | 0435534    | 9.92      | 9564466   | 46 |
| 15 | 629 9890   | 44.63     | 370 0110    | 673 6020   | 54.58     | 326 3980    | 0436130    | 9.93      | 9563873   | 45 |
| 16 | 630 2568   | 44.63     | 369 7432    | 673 9294   | 54.57     | 326 0706    | 0436726    | 9.93      | 9563274   | 44 |
| 17 | 630 5243   | 44.58     | 369 4757    | 674 2566   | 54.53     | 325 7434    | 0437322    | 9.95      | 9562678   | 43 |
| 18 | 9.630 7917 | 44.57     | 10.369 2083 | 9.674 5836 | 54.50     | 10.325 4164 | 10.0437919 | 9.95      | 9.9562081 | 42 |
| 19 | 631 0589   | 44.53     | 368 9411    | 674 9105   | 54.48     | 325 0895    | 0438517    | 9.97      | 9561483   | 41 |
| 20 | 631 3258   | 44.48     | 368 6742    | 675 2372   | 54.45     | 324 7628    | 0439114    | 9.95      | 9560886   | 40 |
| 21 | 631 5926   | 44.47     | 368 4074    | 675 5638   | 54.43     | 324 4362    | 0439713    | 9.98      | 9560287   | 39 |
| 22 | 631 8591   | 44.42     | 368 1409    | 675 8903   | 54.42     | 324 1097    | 0440311    | 9.97      | 9559689   | 38 |
| 23 | 632 1255   | 44.40     | 367 8745    | 676 2165   | 54.37     | 323 7835    | 0440911    | 10.00     | 9.9559093 | 37 |
| 24 | 9.632 3916 | 44.35     | 10.367 6084 | 9.676 5426 | 54.35     | 10.323 4574 | 10.0441510 | 9.98      | 9.9558490 | 36 |
| 25 | 632 6576   | 44.33     | 367 3424    | 676 8686   | 54.33     | 323 1314    | 0442110    | 10.00     | 9557890   | 35 |
| 26 | 632 9233   | 44.28     | 367 0767    | 677 1944   | 54.30     | 322 8056    | 0442711    | 10.02     | 9557289   | 34 |
| 27 | 633 1889   | 44.27     | 366 8111    | 677 5201   | 54.28     | 322 4799    | 0443312    | 10.02     | 9556688   | 33 |
| 28 | 633 4542   | 44.22     | 366 5458    | 677 8456   | 54.25     | 322 1544    | 0443913    | 10.02     | 9556087   | 32 |
| 29 | 633 7194   | 44.20     | 366 2806    | 678 1709   | 54.22     | 321 8291    | 0444515    | 10.03     | 9555485   | 31 |
| 30 | 9.633 9844 | 44.17     | 10.366 0156 | 9.678 4961 | 54.20     | 10.321 5039 | 10.0445120 | 9.95      | 9.9554883 | 30 |
| 31 | 634 2491   | 44.12     | 365 7509    | 678 8211   | 54.17     | 321 1789    | 0445728    | 10.03     | 9554280   | 29 |
| 32 | 634 5137   | 44.10     | 365 4863    | 679 1460   | 54.15     | 320 8540    | 0446324    | 10.07     | 9553676   | 28 |
| 33 | 634 7780   | 44.05     | 365 2220    | 679 4708   | 54.13     | 320 5292    | 0446927    | 10.05     | 9553073   | 27 |
| 34 | 635 0422   | 44.03     | 364 9578    | 679 7953   | 54.08     | 320 2047    | 0447531    | 10.07     | 9552469   | 26 |
| 35 | 635 3062   | 44.00     | 364 6938    | 680 1198   | 54.08     | 319 8802    | 0448136    | 10.08     | 9551864   | 25 |
| 36 | 9.635 5699 | 43.95     | 10.364 4301 | 9.680 4440 | 54.03     | 10.319 5560 | 10.0448741 | 10.08     | 9.9551259 | 24 |
| 37 | 635 8335   | 43.93     | 364 1665    | 680 7682   | 54.03     | 319 2318    | 0449347    | 10.10     | 9550653   | 23 |
| 38 | 636 0969   | 43.90     | 363 9031    | 681 0921   | 53.98     | 318 9079    | 0449953    | 10.10     | 9550047   | 22 |
| 39 | 636 3601   | 43.87     | 363 6399    | 681 4160   | 53.98     | 318 5840    | 0450559    | 10.10     | 9549441   | 21 |
| 40 | 636 6231   | 43.83     | 363 3769    | 681 7396   | 53.93     | 318 2604    | 0451166    | 10.12     | 9548834   | 20 |
| 41 | 636 8859   | 43.80     | 363 1141    | 682 0632   | 53.93     | 317 9368    | 0451773    | 10.12     | 9548227   | 19 |
| 42 | 9.637 1484 | 43.75     | 10.362 8516 | 9.682 3865 | 53.88     | 10.317 6135 | 10.0452381 | 10.13     | 9.9547619 | 18 |
| 43 | 637 4108   | 43.73     | 362 5892    | 682 7098   | 53.88     | 317 2902    | 0452989    | 10.15     | 9547011   | 17 |
| 44 | 637 6731   | 43.72     | 362 3269    | 683 0328   | 53.83     | 316 9672    | 0453598    | 10.15     | 9546402   | 16 |
| 45 | 637 9351   | 43.67     | 362 0649    | 683 3557   | 53.82     | 316 6443    | 0454207    | 10.15     | 9545793   | 15 |
| 46 | 638 1969   | 43.63     | 361 8031    | 683 6785   | 53.80     | 316 3215    | 0454816    | 10.15     | 9545184   | 14 |
| 47 | 638 4585   | 43.60     | 361 5415    | 684 0011   | 53.77     | 315 9989    | 0455426    | 10.17     | 9544574   | 13 |
| 48 | 9.638 7199 | 43.55     | 10.361 2801 | 9.684 3236 | 53.75     | 10.315 6764 | 10.0456037 | 10.18     | 9.9543963 | 12 |
| 49 | 638 9812   | 43.55     | 361 0188    | 684 6459   | 53.72     | 315 3541    | 0456648    | 10.18     | 9543352   | 11 |
| 50 | 639 2422   | 43.50     | 360 7578    | 684 9681   | 53.70     | 315 0319    | 0457259    | 10.18     | 9542741   | 10 |
| 51 | 639 5030   | 43.47     | 360 4970    | 685 2901   | 53.67     | 314 7099    | 0457871    | 10.20     | 9542129   | 9  |
| 52 | 639 7637   | 43.45     | 360 2363    | 685 6120   | 53.65     | 314 3880    | 0458483    | 10.20     | 9541517   | 8  |
| 53 | 640 0241   | 43.40     | 359 9759    | 685 9338   | 53.63     | 314 0662    | 0459096    | 10.22     | 9540904   | 7  |
| 54 | 9.640 2844 | 43.35     | 10.359 7156 | 9.686 2553 | 53.58     | 10.313 7447 | 10.0459709 | 9.95      | 9.9540291 | 6  |
| 55 | 640 5445   | 43.38     | 359 4555    | 686 5768   | 53.58     | 313 4232    | 0460323    | 10.23     | 9539677   | 5  |
| 56 | 640 8044   | 43.32     | 359 1956    | 686 8981   | 53.55     | 313 1019    | 0460937    | 10.23     | 9539063   | 4  |
| 57 | 641 0640   | 43.27     | 358 9360    | 687 2192   | 53.52     | 312 7808    | 0461552    | 10.25     | 9538448   | 3  |
| 58 | 641 3235   | 43.25     | 358 6765    | 687 5402   | 53.50     | 312 4598    | 0462167    | 10.25     | 9537833   | 2  |
| 59 | 641 5828   | 43.22     | 358 4172    | 687 8611   | 53.48     | 312 1389    | 0462782    | 10.27     | 9537218   | 1  |
| 60 | 9.641 8420 | 43.20     | 10.358 1580 | 9.688 1818 | 53.45     | 10.311 8182 | 10.0463398 | 9.95      | 9.9536602 | 0  |

|  | co-sin. | diff. 1'' | sec. | co-tang. | diff. 1'' | tang. | co-sec. | diff. 1'' | sin. |  |
|--|---------|-----------|------|----------|-----------|-------|---------|-----------|------|--|
|--|---------|-----------|------|----------|-----------|-------|---------|-----------|------|--|

LOGARITHMIC SINES, TANGENTS, &c.

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| '  | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | diff. 1" | co-sin.    | '  |
|----|------------|----------|-------------|------------|----------|-------------|-------------|----------|------------|----|
| 0  | 9.641 8420 | 43.15    | 10.358 1580 | 9.688 1818 | 53.42    | 10.311 8182 | 10.046 1398 | 10.28    | 9.953 6602 | 60 |
| 1  | 642 1000   | 43.12    | 357 8991    | 688 5023   | 53.40    | 311 4977    | 0461015     | 10.27    | 9535985    | 59 |
| 2  | 642 3596   | 43.10    | 357 6404    | 688 8227   | 53.38    | 311 1773    | 0464631     | 10.30    | 9535369    | 58 |
| 3  | 642 6182   | 43.05    | 357 3818    | 689 1430   | 53.35    | 310 8570    | 0465249     | 10.28    | 9534751    | 57 |
| 4  | 642 8765   | 43.03    | 357 1235    | 689 4631   | 53.33    | 310 5369    | 0465866     | 10.32    | 9534134    | 56 |
| 5  | 643 1347   | 42.98    | 356 8653    | 689 7831   | 53.32    | 310 2169    | 0466485     | 10.30    | 9533515    | 55 |
| 6  | 643 3926   | 42.97    | 10.356 6074 | 9.690 1030 | 53.27    | 10.309 8970 | 10.046 7103 | 10.30    | 9.953 2897 | 54 |
| 7  | 643 6504   | 42.93    | 356 3496    | 690 4226   | 53.27    | 309 5774    | 0467722     | 10.33    | 9532278    | 53 |
| 8  | 643 9080   | 42.90    | 356 0920    | 690 7422   | 53.23    | 309 2578    | 0468342     | 10.33    | 9531658    | 52 |
| 9  | 644 1654   | 42.87    | 355 8346    | 691 0616   | 53.22    | 308 9384    | 0468962     | 10.33    | 9531038    | 51 |
| 10 | 644 4226   | 42.83    | 355 5774    | 691 3809   | 53.18    | 308 6191    | 0469582     | 10.35    | 9530418    | 50 |
| 11 | 644 6799   | 42.82    | 355 3204    | 691 7000   | 53.15    | 308 3000    | 0470203     | 10.37    | 9529797    | 49 |
| 12 | 644 9365   | 42.77    | 10.355 0635 | 9.692 0189 | 53.15    | 10.307 9811 | 10.047 0825 | 10.37    | 9.952 9175 | 48 |
| 13 | 645 1931   | 42.75    | 354 8069    | 692 3378   | 53.12    | 307 6622    | 0471447     | 10.37    | 9528553    | 47 |
| 14 | 645 4496   | 42.70    | 354 5504    | 692 6565   | 53.08    | 307 3435    | 0472069     | 10.38    | 9527931    | 46 |
| 15 | 645 7058   | 42.68    | 354 2942    | 692 9750   | 53.07    | 307 0250    | 0472692     | 10.38    | 9527308    | 45 |
| 16 | 645 9619   | 42.65    | 354 0381    | 693 2934   | 53.05    | 306 7066    | 0473315     | 10.40    | 9526685    | 44 |
| 17 | 646 2178   | 42.62    | 353 7822    | 693 6117   | 53.02    | 306 3883    | 0473939     | 10.40    | 9526061    | 43 |
| 18 | 646 4735   | 42.58    | 10.353 5265 | 9.693 9298 | 53.00    | 10.306 0702 | 10.047 4563 | 10.40    | 9.952 5437 | 42 |
| 19 | 646 7290   | 42.57    | 353 2710    | 694 2478   | 52.97    | 305 7522    | 0475187     | 10.40    | 9524813    | 41 |
| 20 | 646 9844   | 42.52    | 353 0156    | 694 5656   | 52.95    | 305 4344    | 0475812     | 10.43    | 9524188    | 40 |
| 21 | 647 2395   | 42.50    | 352 7605    | 694 8833   | 52.93    | 305 1167    | 0476438     | 10.43    | 9523562    | 39 |
| 22 | 647 4945   | 42.45    | 352 5055    | 695 2009   | 52.90    | 304 7991    | 0477064     | 10.43    | 9522936    | 38 |
| 23 | 647 7492   | 42.43    | 352 2508    | 695 5183   | 52.87    | 304 4817    | 0477690     | 10.45    | 9522310    | 37 |
| 24 | 648 0038   | 42.40    | 10.351 9962 | 9.695 8355 | 52.87    | 10.304 1645 | 10.047 8317 | 10.47    | 9.952 1683 | 36 |
| 25 | 648 2582   | 42.37    | 351 7418    | 696 1527   | 52.83    | 303 8473    | 0478945     | 10.45    | 9521055    | 35 |
| 26 | 648 5124   | 42.35    | 351 4876    | 696 4697   | 52.80    | 303 5303    | 0479572     | 10.48    | 9520428    | 34 |
| 27 | 648 7665   | 42.30    | 351 2335    | 696 7865   | 52.78    | 303 2135    | 0480201     | 10.47    | 9519799    | 33 |
| 28 | 649 0203   | 42.28    | 350 9797    | 697 1032   | 52.77    | 302 8968    | 0480829     | 10.50    | 9519171    | 32 |
| 29 | 649 2740   | 42.23    | 350 7260    | 697 4198   | 52.75    | 302 5802    | 0481459     | 10.48    | 9518541    | 31 |
| 30 | 649 5274   | 42.22    | 10.350 4726 | 9.697 7363 | 52.72    | 10.302 2637 | 10.048 2088 | 10.50    | 9.951 7912 | 30 |
| 31 | 649 7807   | 42.18    | 350 2193    | 698 0526   | 52.68    | 301 9474    | 0482718     | 10.52    | 9517282    | 29 |
| 32 | 650 0338   | 42.12    | 349 9662    | 698 3687   | 52.67    | 301 6313    | 0483349     | 10.52    | 9516651    | 28 |
| 33 | 650 2868   | 42.12    | 349 7132    | 698 6847   | 52.65    | 301 3153    | 0483980     | 10.52    | 9516020    | 27 |
| 34 | 650 5395   | 42.08    | 349 4605    | 699 0006   | 52.63    | 300 9994    | 0484611     | 10.53    | 9515389    | 26 |
| 35 | 650 7920   | 42.07    | 349 2080    | 699 3164   | 52.60    | 300 6836    | 0485243     | 10.55    | 9514757    | 25 |
| 36 | 651 0444   | 42.03    | 10.348 9556 | 9.699 6320 | 52.57    | 10.300 3680 | 10.048 5876 | 10.53    | 9.951 4124 | 24 |
| 37 | 651 2966   | 42.00    | 348 7034    | 699 9474   | 52.57    | 300 0526    | 0486508     | 10.57    | 9513492    | 33 |
| 38 | 651 5486   | 41.97    | 348 4514    | 700 2628   | 52.53    | 299 7372    | 0487142     | 10.57    | 9512858    | 22 |
| 39 | 651 8004   | 41.95    | 348 1996    | 700 5780   | 52.50    | 299 4220    | 0487776     | 10.57    | 9512224    | 21 |
| 40 | 652 0521   | 41.90    | 347 9479    | 700 8930   | 52.50    | 299 1070    | 0488410     | 10.57    | 9511590    | 20 |
| 41 | 652 3035   | 41.88    | 347 6965    | 701 2080   | 52.45    | 298 7920    | 0489044     | 10.60    | 9510956    | 19 |
| 42 | 652 5548   | 41.85    | 10.347 4452 | 9.701 5227 | 52.45    | 10.298 4773 | 10.048 9680 | 10.58    | 9.951 0320 | 18 |
| 43 | 652 8059   | 41.82    | 347 1941    | 701 8374   | 52.42    | 298 1626    | 0490315     | 10.60    | 9509685    | 17 |
| 44 | 653 0568   | 41.78    | 346 9432    | 702 1519   | 52.40    | 297 8481    | 0490951     | 10.62    | 9509049    | 16 |
| 45 | 653 3075   | 41.77    | 346 6925    | 702 4663   | 52.37    | 297 5337    | 0491588     | 10.62    | 9508412    | 15 |
| 46 | 653 5581   | 41.72    | 346 4419    | 702 7805   | 52.35    | 297 2195    | 0492225     | 10.62    | 9507775    | 14 |
| 47 | 653 8084   | 41.70    | 346 1916    | 703 0946   | 52.33    | 296 9054    | 0492862     | 10.63    | 9507138    | 13 |
| 48 | 654 0586   | 41.67    | 10.345 9414 | 9.703 4086 | 52.32    | 10.296 5914 | 10.049 3500 | 10.65    | 9.950 6500 | 12 |
| 49 | 654 3086   | 41.63    | 345 6914    | 703 7225   | 52.28    | 296 2775    | 0494139     | 10.63    | 9505861    | 11 |
| 50 | 654 5584   | 41.62    | 345 4416    | 704 0362   | 52.25    | 295 9638    | 0494777     | 10.67    | 9505223    | 10 |
| 51 | 654 8081   | 41.57    | 345 1919    | 704 3497   | 52.25    | 295 6503    | 0495417     | 10.65    | 9504583    | 9  |
| 52 | 655 0575   | 41.55    | 344 9425    | 704 6632   | 52.22    | 295 3368    | 0496056     | 10.68    | 9503944    | 8  |
| 53 | 655 3068   | 41.52    | 344 6932    | 704 9765   | 52.20    | 295 0235    | 0496697     | 10.67    | 9503303    | 7  |
| 54 | 655 5559   | 41.48    | 10.344 4441 | 9.705 2897 | 52.17    | 10.294 7103 | 10.049 7337 | 10.68    | 9.950 2663 | 6  |
| 55 | 655 8048   | 41.47    | 344 1952    | 705 6027   | 52.15    | 294 3973    | 0497978     | 10.70    | 9502022    | 5  |
| 56 | 656 0536   | 41.42    | 343 9464    | 705 9156   | 52.13    | 294 0844    | 0498620     | 10.72    | 9501380    | 4  |
| 57 | 656 3021   | 41.40    | 343 6979    | 706 2284   | 52.10    | 293 7716    | 0499262     | 10.70    | 9500738    | 3  |
| 58 | 656 5505   | 41.37    | 343 4495    | 706 5410   | 52.08    | 293 4590    | 0499905     | 10.72    | 9500095    | 2  |
| 59 | 656 7987   | 41.35    | 343 2013    | 706 8535   | 52.07    | 293 1465    | 0500548     | 10.72    | 9499452    | 1  |
| 60 | 657 0468   | 41.35    | 10.342 9532 | 9.707 1659 | 52.07    | 10.292 8341 | 10.050 1191 | 10.72    | 9.949 8809 | 0  |

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|    | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | dif. 1" | co-sin.    |
|----|------------|---------|-------------|------------|---------|-------------|-------------|---------|------------|
| 0  | 9.657 0468 | 41.30   | 10.342 9532 | 9.707 1659 | 52.03   | 10.292 8341 | 10.050 1191 | 10.73   | 9.949 8809 |
| 1  | 657 2946   | 41.28   | 342 7054    | 707 4781   | 52.02   | 292 5219    | 0501835     | 10.73   | 9498165    |
| 2  | 657 5423   | 41.25   | 342 4577    | 707 7902   | 52.00   | 292 2098    | 0502479     | 10.75   | 9497521    |
| 3  | 657 7898   | 41.22   | 342 2102    | 708 1022   | 51.98   | 291 8978    | 0503124     | 10.77   | 9496876    |
| 4  | 658 0371   | 41.18   | 341 9629    | 708 4141   | 51.95   | 291 5859    | 0503770     | 10.75   | 9496230    |
| 5  | 658 2842   | 41.17   | 341 7158    | 708 7258   | 51.93   | 291 2742    | 0504415     | 10.78   | 9495585    |
| 6  | 9.658 5312 | 41.13   | 10.341 4688 | 9.709 0374 | 51.90   | 10.290 9626 | 10.0505062  | 10.77   | 9.9494938  |
| 7  | 658 7780   | 41.10   | 341 2220    | 709 3488   | 51.88   | 290 6512    | 0505708     | 10.78   | 9494292    |
| 8  | 659 0246   | 41.07   | 340 9754    | 709 6601   | 51.87   | 290 3399    | 0506355     | 10.80   | 9493646    |
| 9  | 659 2710   | 41.05   | 340 7290    | 709 9713   | 51.85   | 290 0287    | 0507003     | 10.80   | 9492997    |
| 10 | 659 5173   | 41.00   | 340 4827    | 710 2824   | 51.82   | 289 7176    | 0507651     | 10.82   | 9492349    |
| 11 | 659 7633   | 41.00   | 340 2367    | 710 5933   | 51.80   | 289 4067    | 0508300     | 10.82   | 9491700    |
| 12 | 9.660 0093 | 40.95   | 10.339 9907 | 9.710 9041 | 51.80   | 10.289 0959 | 10.0508949  | 10.82   | 9.9491051  |
| 13 | 660 2550   | 40.92   | 339 7450    | 711 2148   | 51.77   | 288 7852    | 0509598     | 10.83   | 9490402    |
| 14 | 660 5005   | 40.90   | 339 4995    | 711 5254   | 51.73   | 288 4746    | 0510248     | 10.85   | 9489752    |
| 15 | 660 7459   | 40.87   | 339 2541    | 711 8358   | 51.72   | 288 1642    | 0510899     | 10.85   | 9489101    |
| 16 | 660 9911   | 40.83   | 339 0089    | 712 1461   | 51.68   | 287 8539    | 0511552     | 10.85   | 9488450    |
| 17 | 661 2361   | 40.82   | 338 7639    | 712 4562   | 51.67   | 287 5438    | 0512201     | 10.87   | 9487799    |
| 18 | 9.661 4810 | 40.78   | 10.338 5190 | 9.712 7662 | 51.65   | 10.287 2338 | 10.0512853  | 10.87   | 9.9487147  |
| 19 | 661 7257   | 40.75   | 338 2743    | 713 0761   | 51.63   | 286 9239    | 0513505     | 10.87   | 9486495    |
| 20 | 661 9702   | 40.72   | 338 0298    | 713 3859   | 51.62   | 286 6141    | 0514158     | 10.88   | 9485842    |
| 21 | 662 2145   | 40.68   | 337 7855    | 713 6956   | 51.58   | 286 3044    | 0514811     | 10.88   | 9485189    |
| 22 | 662 4586   | 40.67   | 337 5414    | 714 0051   | 51.57   | 285 9949    | 0515465     | 10.90   | 9484535    |
| 23 | 662 7026   | 40.63   | 337 2974    | 714 3145   | 51.55   | 285 6855    | 0516119     | 10.90   | 9483881    |
| 24 | 9.662 9464 | 40.60   | 10.337 0536 | 9.714 6237 | 51.53   | 10.285 3763 | 10.0516773  | 10.92   | 9.9483227  |
| 25 | 663 1900   | 40.58   | 336 8100    | 714 9329   | 51.50   | 285 0671    | 0517428     | 10.93   | 9482572    |
| 26 | 663 4335   | 40.55   | 336 5655    | 715 2419   | 51.48   | 284 7581    | 0518084     | 10.93   | 9481916    |
| 27 | 663 6768   | 40.52   | 336 3212    | 715 5508   | 51.45   | 284 4492    | 0518740     | 10.93   | 9481260    |
| 28 | 663 9199   | 40.48   | 336 0801    | 715 8595   | 51.45   | 284 1405    | 0519396     | 10.95   | 9480604    |
| 29 | 664 1628   | 40.47   | 335 8372    | 716 1682   | 51.42   | 283 8318    | 0520053     | 10.97   | 9479947    |
| 30 | 9.664 4056 | 40.43   | 10.335 5944 | 9.716 4767 | 51.40   | 10.283 5233 | 10.0520711  | 10.97   | 9.9479289  |
| 31 | 664 6482   | 40.40   | 335 3518    | 716 7851   | 51.37   | 283 2199    | 0521369     | 10.97   | 9478631    |
| 32 | 664 8906   | 40.38   | 335 1094    | 717 0933   | 51.35   | 282 9067    | 0522027     | 10.97   | 9477972    |
| 33 | 665 1329   | 40.33   | 334 8671    | 717 4014   | 51.33   | 282 5986    | 0522686     | 10.98   | 9477314    |
| 34 | 665 3749   | 40.32   | 334 6251    | 717 7094   | 51.32   | 282 2906    | 0523345     | 11.00   | 9476655    |
| 35 | 665 6168   | 40.30   | 334 3832    | 718 0173   | 51.32   | 281 9827    | 0524005     | 11.00   | 9475995    |
| 36 | 9.665 8586 | 40.25   | 10.334 1414 | 9.718 3251 | 51.30   | 10.281 6749 | 10.0524665  | 11.00   | 9.9475335  |
| 37 | 666 1001   | 40.23   | 333 8999    | 718 6327   | 51.27   | 281 3673    | 0525326     | 11.02   | 9474674    |
| 38 | 666 3415   | 40.22   | 333 6585    | 718 9402   | 51.25   | 281 0598    | 0525987     | 11.02   | 9474013    |
| 39 | 666 5828   | 40.22   | 333 4172    | 719 2476   | 51.23   | 280 7524    | 0526648     | 11.02   | 9473352    |
| 40 | 666 8238   | 40.17   | 333 1762    | 719 5549   | 51.22   | 280 4451    | 0527311     | 11.05   | 9472690    |
| 41 | 667 0647   | 40.15   | 332 9353    | 719 8620   | 51.18   | 280 1380    | 0527973     | 11.03   | 9472027    |
| 42 | 9.667 3054 | 40.12   | 10.332 6946 | 9.720 1699 | 51.17   | 10.279 8310 | 10.0528636  | 11.05   | 9.9471364  |
| 43 | 667 5459   | 40.08   | 332 4541    | 720 4759   | 51.15   | 279 5241    | 0529300     | 11.07   | 9470700    |
| 44 | 667 7863   | 40.07   | 332 2137    | 720 7827   | 51.13   | 279 2173    | 0529964     | 11.07   | 9470036    |
| 45 | 668 0265   | 40.03   | 331 9735    | 721 0893   | 51.10   | 278 9107    | 0530628     | 11.07   | 9469372    |
| 46 | 668 2665   | 40.00   | 331 7335    | 721 3958   | 51.08   | 278 6042    | 0531293     | 11.08   | 9468707    |
| 47 | 668 5064   | 39.98   | 331 4936    | 721 7022   | 51.07   | 278 2978    | 0531958     | 11.08   | 9468042    |
| 48 | 9.668 7461 | 39.95   | 10.331 2539 | 9.722 0085 | 51.05   | 10.277 9915 | 10.0532624  | 11.10   | 9.9467376  |
| 49 | 668 9856   | 39.92   | 331 0144    | 722 3147   | 51.03   | 277 6853    | 0533290     | 11.10   | 9466710    |
| 50 | 669 2250   | 39.90   | 330 7750    | 722 6207   | 51.00   | 277 3793    | 0533957     | 11.12   | 9466043    |
| 51 | 669 4642   | 39.87   | 330 5358    | 722 9266   | 50.98   | 277 0734    | 0534624     | 11.12   | 9465376    |
| 52 | 669 7032   | 39.83   | 330 2968    | 723 2324   | 50.97   | 276 7676    | 0535292     | 11.13   | 9464708    |
| 53 | 669 9420   | 39.80   | 330 0580    | 723 5381   | 50.95   | 276 4619    | 0535960     | 11.13   | 9464040    |
| 54 | 9.670 1807 | 39.78   | 10.329 8193 | 9.723 8436 | 50.92   | 10.276 1564 | 10.0536629  | 11.15   | 9.9463371  |
| 55 | 670 4192   | 39.75   | 329 5808    | 724 1490   | 50.90   | 275 8510    | 0537298     | 11.15   | 9462702    |
| 56 | 670 6576   | 39.73   | 329 3424    | 724 4543   | 50.88   | 275 5457    | 0537968     | 11.17   | 9462032    |
| 57 | 670 8958   | 39.70   | 329 1042    | 724 7595   | 50.87   | 275 2405    | 0538638     | 11.17   | 9461362    |
| 58 | 671 1338   | 39.67   | 328 8662    | 725 0646   | 50.85   | 274 9354    | 0539308     | 11.17   | 9460692    |
| 59 | 671 3716   | 39.63   | 328 6284    | 725 3695   | 50.82   | 274 6305    | 0539979     | 11.18   | 9460021    |
| 60 | 9.671 6093 | 39.62   | 10.328 3907 | 9.725 6744 | 50.82   | 10.274 3256 | 10.0540651  | 11.20   | 9.9459349  |

|  | co-sin. | dif. 1" | sec. | co-tang. | dif. 1" | tang. | co-sec. | dif. 1" | sin. |
|--|---------|---------|------|----------|---------|-------|---------|---------|------|
|--|---------|---------|------|----------|---------|-------|---------|---------|------|



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|    | sin.     | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | diff. 1" | co-sin.    |    |
|----|----------|----------|-------------|------------|----------|-------------|-------------|----------|------------|----|
| 0  | 671 6093 | 39.58    | 10.328 3997 | 9.725 6744 | 50.78    | 10.274 3256 | 10.054 9651 | 11.20    | 9.945 9349 | 60 |
| 1  | 671 8468 | 39.55    | 328 1532    | 725 9791   | 50.77    | 274 0209    | 0541 323    | 11.20    | 9.945 8677 | 59 |
| 2  | 672 0841 | 39.53    | 327 9159    | 726 2837   | 50.73    | 273 7163    | 0541 995    | 11.22    | 9.945 8005 | 58 |
| 3  | 672 3213 | 39.50    | 327 6787    | 726 5881   | 50.73    | 273 4119    | 0542 668    | 11.22    | 9.945 7332 | 57 |
| 4  | 672 5583 | 39.48    | 327 4417    | 726 8925   | 50.70    | 273 1075    | 0543 341    | 11.23    | 9.945 6659 | 56 |
| 5  | 672 7952 | 39.45    | 327 2048    | 727 1967   | 50.68    | 272 8033    | 0544 015    | 11.25    | 9.945 5985 | 55 |
| 6  | 673 0319 | 39.42    | 10.326 9681 | 9.727 5008 | 50.67    | 10.272 4992 | 10.054 4690 | 11.25    | 9.945 5310 | 54 |
| 7  | 673 2684 | 39.38    | 326 7316    | 727 8048   | 50.65    | 272 1952    | 0545 364    | 11.23    | 9.945 4636 | 53 |
| 8  | 673 5047 | 39.37    | 326 4953    | 728 1087   | 50.62    | 271 8913    | 0546 040    | 11.25    | 9.945 3960 | 52 |
| 9  | 673 7409 | 39.33    | 326 2591    | 728 4124   | 50.62    | 271 5876    | 0546 715    | 11.25    | 9.945 3285 | 51 |
| 10 | 673 9769 | 39.32    | 326 0231    | 728 7161   | 50.62    | 271 2839    | 0547 391    | 11.27    | 9.945 2609 | 50 |
| 11 | 674 2128 | 39.28    | 325 7872    | 729 0196   | 50.58    | 270 9804    | 0548 068    | 11.28    | 9.945 1932 | 49 |
| 12 | 674 4485 | 39.25    | 10.325 5515 | 9.729 2330 | 50.55    | 10.270 6770 | 10.054 8745 | 11.30    | 9.945 1255 | 48 |
| 13 | 674 6840 | 39.23    | 325 3160    | 729 6263   | 50.53    | 270 3737    | 0549 423    | 11.30    | 9.945 0577 | 47 |
| 14 | 674 9194 | 39.20    | 325 0806    | 729 9295   | 50.50    | 270 0705    | 0550 101    | 11.32    | 9.944 9899 | 46 |
| 15 | 675 1546 | 39.17    | 324 8454    | 730 2325   | 50.48    | 269 7675    | 0550 780    | 11.32    | 9.944 9220 | 45 |
| 16 | 675 3896 | 39.15    | 324 6104    | 730 5354   | 50.48    | 269 4646    | 0551 459    | 11.32    | 9.944 8541 | 44 |
| 17 | 675 6245 | 39.12    | 324 3755    | 730 8383   | 50.45    | 269 1617    | 0552 138    | 11.33    | 9.944 7862 | 43 |
| 18 | 675 8592 | 39.08    | 10.324 1408 | 9.731 1410 | 50.43    | 10.268 8590 | 10.055 2818 | 11.35    | 9.944 7182 | 42 |
| 19 | 676 0937 | 39.07    | 323 9063    | 731 4436   | 50.40    | 268 5564    | 0553 499    | 11.33    | 9.944 6501 | 41 |
| 20 | 676 3281 | 39.03    | 323 6719    | 731 7460   | 50.40    | 268 2540    | 0554 179    | 11.37    | 9.944 5821 | 40 |
| 21 | 676 5623 | 39.00    | 323 4377    | 732 0484   | 50.37    | 267 9516    | 0554 861    | 11.37    | 9.944 5139 | 39 |
| 22 | 676 7963 | 39.00    | 323 2037    | 732 3506   | 50.35    | 267 6494    | 0555 543    | 11.37    | 9.944 4457 | 38 |
| 23 | 677 0302 | 38.98    | 322 9698    | 732 6527   | 50.33    | 267 3473    | 0556 225    | 11.38    | 9.944 3775 | 37 |
| 24 | 677 2640 | 38.92    | 10.322 7360 | 9.732 9547 | 50.32    | 10.267 0453 | 10.055 6908 | 11.38    | 9.944 3092 | 36 |
| 25 | 677 4975 | 38.92    | 322 5025    | 733 2566   | 50.30    | 266 7434    | 0557 591    | 11.40    | 9.944 2409 | 35 |
| 26 | 677 7309 | 38.88    | 322 2661    | 733 5584   | 50.28    | 266 4416    | 0558 275    | 11.40    | 9.944 1725 | 34 |
| 27 | 677 9642 | 38.83    | 322 0358    | 733 8601   | 50.25    | 266 1399    | 0558 959    | 11.42    | 9.944 1041 | 33 |
| 28 | 678 1972 | 38.82    | 321 8028    | 734 1616   | 50.25    | 265 8384    | 0559 644    | 11.42    | 9.944 0356 | 32 |
| 29 | 678 4301 | 38.80    | 321 5699    | 734 4631   | 50.22    | 265 5369    | 0560 329    | 11.43    | 9.943 9671 | 31 |
| 30 | 678 6629 | 38.80    | 10.321 3371 | 9.734 7644 | 50.20    | 10.265 2356 | 10.056 1015 | 11.43    | 9.943 8985 | 30 |
| 31 | 678 8955 | 38.77    | 321 1045    | 735 0656   | 50.18    | 264 9344    | 0561 701    | 11.43    | 9.943 8299 | 29 |
| 32 | 679 1279 | 38.72    | 320 8721    | 735 3667   | 50.17    | 264 6333    | 0562 388    | 11.45    | 9.943 7612 | 28 |
| 33 | 679 3602 | 38.68    | 320 6398    | 735 6677   | 50.13    | 264 3323    | 0563 075    | 11.45    | 9.943 6925 | 27 |
| 34 | 679 5923 | 38.68    | 320 4077    | 735 9685   | 50.13    | 264 0315    | 0563 762    | 11.45    | 9.943 6238 | 26 |
| 35 | 679 8243 | 38.62    | 320 1757    | 736 2693   | 50.10    | 263 7307    | 0564 445    | 11.48    | 9.943 5554 | 25 |
| 36 | 680 0560 | 38.62    | 10.319 9440 | 9.736 5699 | 50.10    | 10.263 4301 | 10.056 5139 | 11.47    | 9.943 4861 | 24 |
| 37 | 680 2877 | 38.57    | 319 7123    | 736 8705   | 50.10    | 263 1295    | 0565 828    | 11.50    | 9.943 4172 | 23 |
| 38 | 680 5191 | 38.55    | 319 4809    | 737 1709   | 50.05    | 262 8291    | 0566 518    | 11.50    | 9.943 3482 | 22 |
| 39 | 680 7504 | 38.53    | 319 2496    | 737 4712   | 50.03    | 262 5288    | 0567 208    | 11.50    | 9.943 2792 | 21 |
| 40 | 680 9816 | 38.50    | 319 0184    | 737 7714   | 50.02    | 262 2286    | 0567 898    | 11.52    | 9.943 2102 | 20 |
| 41 | 681 2126 | 38.47    | 318 7874    | 738 0715   | 49.98    | 261 9285    | 0568 589    | 11.52    | 9.943 1411 | 19 |
| 42 | 681 4434 | 38.47    | 10.318 5566 | 9.738 3714 | 49.98    | 10.261 6286 | 10.056 9280 | 11.53    | 9.943 0720 | 18 |
| 43 | 681 6741 | 38.42    | 318 3259    | 738 6713   | 49.95    | 261 3287    | 0569 972    | 11.55    | 9.943 0028 | 17 |
| 44 | 681 9046 | 38.38    | 318 0954    | 738 9710   | 49.95    | 261 0290    | 0570 665    | 11.53    | 9.942 9335 | 16 |
| 45 | 682 1349 | 38.37    | 317 8651    | 739 2707   | 49.92    | 260 7293    | 0571 357    | 11.57    | 9.942 8643 | 15 |
| 46 | 682 3651 | 38.35    | 317 6349    | 739 5702   | 49.90    | 260 4298    | 0572 051    | 11.57    | 9.942 7949 | 14 |
| 47 | 682 5952 | 38.30    | 317 4048    | 739 8696   | 49.88    | 260 1304    | 0572 745    | 11.57    | 9.942 7255 | 13 |
| 48 | 682 8252 | 38.30    | 10.317 1750 | 9.740 1689 | 49.87    | 10.259 8311 | 10.057 3439 | 11.58    | 9.942 6561 | 12 |
| 49 | 683 0548 | 38.25    | 316 9452    | 740 4681   | 49.85    | 259 5319    | 0574 134    | 11.58    | 9.942 5866 | 11 |
| 50 | 683 2843 | 38.23    | 316 7157    | 740 7672   | 49.83    | 259 2328    | 0574 829    | 11.58    | 9.942 5171 | 10 |
| 51 | 683 5137 | 38.22    | 316 4863    | 741 0662   | 49.80    | 258 9338    | 0575 524    | 11.62    | 9.942 4476 | 9  |
| 52 | 683 7430 | 38.23    | 316 2570    | 741 3650   | 49.80    | 258 6350    | 0576 221    | 11.60    | 9.942 3779 | 8  |
| 53 | 683 9720 | 38.17    | 316 0280    | 741 6638   | 49.80    | 258 3362    | 0576 917    | 11.62    | 9.942 3083 | 7  |
| 54 | 684 2010 | 38.12    | 10.315 7999 | 9.742 9624 | 49.75    | 10.258 0376 | 10.057 7614 | 11.63    | 9.942 2386 | 6  |
| 55 | 684 4297 | 38.10    | 315 5703    | 742 2609   | 49.75    | 257 7391    | 0578 312    | 11.63    | 9.942 1688 | 5  |
| 56 | 684 6583 | 38.08    | 315 3417    | 742 5594   | 49.72    | 257 4406    | 0579 010    | 11.65    | 9.942 0990 | 4  |
| 57 | 684 8868 | 38.05    | 315 1132    | 742 8577   | 49.70    | 257 1423    | 0579 709    | 11.65    | 9.942 0291 | 3  |
| 58 | 685 1151 | 38.02    | 314 8849    | 743 1559   | 49.68    | 256 8441    | 0580 408    | 11.65    | 9.941 9592 | 2  |
| 59 | 685 3432 | 38.00    | 314 6568    | 743 4540   | 49.67    | 256 5460    | 0581 107    | 11.67    | 9.941 8893 | 1  |
| 60 | 685 5712 | 38.00    | 10.314 4288 | 9.743 7520 | 49.67    | 10.256 2480 | 10.058 1807 | 11.67    | 9.941 8193 | 0  |

118°

61°

21°

158°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |    |
|----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|----|
| 0  | 9.554 3292 | 54.82    | 10.445 6708 | 9.584 1774 | 62.92    | 10.415 8226 | 10.029 8483 | 8.08  | 9.970 1517 | 60 |
| 1  | 554 6581   | 54.78    | 445 3419    | 584 5549   | 62.87    | 415 4451    | 029 8068    | 8.08  | 970 1032   | 59 |
| 2  | 554 9868   | 54.73    | 445 0132    | 584 9321   | 62.83    | 415 0679    | 029 9453    | 8.10  | 970 0547   | 58 |
| 3  | 555 3152   | 54.68    | 444 6848    | 585 3091   | 62.80    | 414 6909    | 029 9939    | 8.12  | 970 0061   | 57 |
| 4  | 555 6433   | 54.63    | 444 3567    | 585 6859   | 62.75    | 414 3141    | 030 0426    | 8.12  | 969 9574   | 56 |
| 5  | 555 9711   | 54.60    | 444 0289    | 586 0624   | 62.70    | 413 9376    | 030 0913    | 8.12  | 969 9087   | 55 |
| 6  | 9.556 2987 | 54.53    | 10.443 7013 | 9.586 4386 | 62.68    | 10.413 5614 | 10.030 1400 | 8.12  | 9.969 8600 | 54 |
| 7  | 556 6259   | 54.50    | 443 3741    | 586 8147   | 62.62    | 413 1853    | 030 1888    | 8.13  | 969 8112   | 53 |
| 8  | 556 9529   | 54.45    | 443 0471    | 587 1904   | 62.60    | 412 8096    | 030 2376    | 8.13  | 969 7624   | 52 |
| 9  | 557 2795   | 54.40    | 442 7204    | 587 5660   | 62.55    | 412 4340    | 030 2864    | 8.15  | 969 7136   | 51 |
| 10 | 557 6060   | 54.35    | 442 3940    | 587 9413   | 62.50    | 412 0587    | 030 3353    | 8.15  | 969 6647   | 50 |
| 11 | 557 9321   | 54.30    | 442 0679    | 588 3163   | 62.48    | 411 6837    | 030 3842    | 8.17  | 969 6158   | 49 |
| 12 | 9.558 2579 | 54.27    | 10.441 7421 | 9.588 6912 | 62.42    | 10.411 3088 | 10.030 4332 | 8.18  | 9.969 5668 | 48 |
| 13 | 558 5835   | 54.22    | 441 4165    | 589 0657   | 62.40    | 410 9343    | 030 4823    | 8.17  | 969 5177   | 47 |
| 14 | 558 9088   | 54.17    | 441 0912    | 589 4401   | 62.35    | 410 5599    | 030 5313    | 8.18  | 969 4687   | 46 |
| 15 | 559 2338   | 54.12    | 440 7662    | 589 8142   | 62.32    | 410 1858    | 030 5804    | 8.20  | 969 4196   | 45 |
| 16 | 559 5585   | 54.07    | 440 4415    | 590 1881   | 62.27    | 409 8119    | 030 6296    | 8.20  | 969 3704   | 44 |
| 17 | 559 8829   | 54.03    | 440 1171    | 590 5617   | 62.23    | 409 4383    | 030 6788    | 8.20  | 969 3211   | 43 |
| 18 | 9.560 2071 | 53.98    | 10.439 7929 | 9.590 9351 | 62.18    | 10.409 0649 | 10.030 7280 | 8.22  | 9.969 2720 | 42 |
| 19 | 560 5310   | 53.93    | 439 4690    | 591 3089   | 62.17    | 408 6918    | 030 7773    | 8.22  | 969 2227   | 41 |
| 20 | 560 8546   | 53.88    | 439 1454    | 591 6812   | 62.12    | 408 3188    | 030 8266    | 8.22  | 969 1734   | 40 |
| 21 | 561 1779   | 53.85    | 438 8221    | 592 0530   | 62.07    | 407 9461    | 030 8759    | 8.25  | 969 1241   | 39 |
| 22 | 561 5010   | 53.78    | 438 4990    | 592 4263   | 62.03    | 407 5737    | 030 9254    | 8.25  | 969 0746   | 38 |
| 23 | 561 8237   | 53.75    | 438 1763    | 592 7985   | 62.00    | 407 2015    | 030 9748    | 8.25  | 969 0252   | 37 |
| 24 | 9.562 1462 | 53.72    | 10.437 8538 | 9.593 1705 | 61.97    | 10.406 8265 | 10.031 0243 | 8.25  | 9.968 9757 | 36 |
| 25 | 562 4685   | 53.65    | 437 5315    | 593 5423   | 61.92    | 406 4577    | 031 0738    | 8.27  | 968 9263   | 35 |
| 26 | 562 7904   | 53.62    | 437 2096    | 593 9138   | 61.88    | 406 0862    | 031 1234    | 8.27  | 968 8766   | 34 |
| 27 | 563 1121   | 53.57    | 436 8879    | 594 2851   | 61.83    | 405 7149    | 031 1730    | 8.28  | 968 8270   | 33 |
| 28 | 563 4335   | 53.52    | 436 5665    | 594 6561   | 61.80    | 405 3439    | 031 2227    | 8.28  | 968 7773   | 32 |
| 29 | 563 7546   | 53.47    | 436 2454    | 595 0269   | 61.77    | 404 9731    | 031 2724    | 8.28  | 968 7276   | 31 |
| 30 | 9.564 0754 | 53.43    | 10.435 9246 | 9.595 3975 | 61.73    | 10.404 6025 | 10.031 3221 | 8.30  | 9.968 6779 | 30 |
| 31 | 564 3960   | 53.38    | 435 6040    | 595 7679   | 61.68    | 404 2321    | 031 3719    | 8.30  | 968 6281   | 29 |
| 32 | 564 7163   | 53.33    | 435 2837    | 596 1380   | 61.65    | 403 8620    | 031 4217    | 8.32  | 968 5783   | 28 |
| 33 | 565 0363   | 53.30    | 434 9637    | 596 5079   | 61.62    | 403 4921    | 031 4716    | 8.32  | 968 5284   | 27 |
| 34 | 565 3561   | 53.25    | 434 6439    | 596 8776   | 61.57    | 403 1224    | 031 5215    | 8.32  | 968 4785   | 26 |
| 35 | 565 6756   | 53.20    | 434 3244    | 597 2470   | 61.53    | 402 7530    | 031 5714    | 8.33  | 968 4286   | 25 |
| 36 | 9.565 9948 | 53.15    | 10.434 0059 | 9.597 6169 | 61.50    | 10.402 3838 | 10.031 6214 | 8.35  | 9.968 3786 | 24 |
| 37 | 566 3137   | 53.12    | 433 6863    | 597 9855   | 61.47    | 402 0148    | 031 6715    | 8.35  | 968 3285   | 23 |
| 38 | 566 6324   | 53.07    | 433 3676    | 598 3540   | 61.42    | 401 6460    | 031 7216    | 8.35  | 968 2784   | 22 |
| 39 | 566 9508   | 53.02    | 433 0492    | 598 7225   | 61.38    | 401 2775    | 031 7717    | 8.37  | 968 2283   | 21 |
| 40 | 567 2689   | 52.98    | 432 7311    | 599 0908   | 61.33    | 400 9092    | 031 8219    | 8.37  | 968 1781   | 20 |
| 41 | 567 5868   | 52.93    | 432 4132    | 599 4588   | 61.32    | 400 5412    | 031 8721    | 8.37  | 968 1279   | 19 |
| 42 | 9.567 9044 | 52.88    | 10.432 0956 | 9.599 8266 | 61.27    | 10.400 1733 | 10.031 9223 | 8.38  | 9.968 0777 | 18 |
| 43 | 568 2217   | 52.83    | 431 7783    | 600 1943   | 61.23    | 399 8057    | 031 9726    | 8.38  | 968 0274   | 17 |
| 44 | 568 5387   | 52.80    | 431 4613    | 600 5619   | 61.20    | 399 4383    | 032 0229    | 8.40  | 967 9771   | 16 |
| 45 | 568 8555   | 52.77    | 431 1445    | 600 9280   | 61.15    | 399 0711    | 032 0733    | 8.40  | 967 9267   | 15 |
| 46 | 569 1721   | 52.70    | 430 8279    | 601 2958   | 61.12    | 398 7042    | 032 1237    | 8.42  | 967 8763   | 14 |
| 47 | 569 4883   | 52.67    | 430 5117    | 601 6625   | 61.08    | 398 3375    | 032 1742    | 8.42  | 967 8258   | 13 |
| 48 | 9.569 8043 | 52.62    | 10.430 1957 | 9.602 0299 | 61.05    | 10.397 9710 | 10.032 2247 | 8.43  | 9.967 7753 | 12 |
| 49 | 570 1200   | 52.58    | 429 8800    | 602 3953   | 61.00    | 397 6047    | 032 2753    | 8.43  | 967 7247   | 11 |
| 50 | 570 4355   | 52.52    | 429 5645    | 602 7613   | 60.97    | 397 2387    | 032 3259    | 8.43  | 967 6741   | 10 |
| 51 | 570 7506   | 52.50    | 429 2494    | 603 1271   | 60.93    | 396 8729    | 032 3765    | 8.45  | 967 6235   | 9  |
| 52 | 571 0650   | 52.43    | 428 9344    | 603 4927   | 60.90    | 396 5073    | 032 4272    | 8.45  | 967 5728   | 8  |
| 53 | 571 3802   | 52.40    | 428 6198    | 603 8581   | 60.87    | 396 1419    | 032 4779    | 8.47  | 967 5221   | 7  |
| 54 | 9.571 6946 | 52.35    | 10.428 3054 | 9.604 2233 | 60.82    | 10.395 7707 | 10.032 5287 | 8.47  | 9.967 4713 | 6  |
| 55 | 572 0087   | 52.32    | 427 9913    | 604 5882   | 60.78    | 395 4118    | 032 5795    | 8.47  | 967 4205   | 5  |
| 56 | 572 3226   | 52.27    | 427 6774    | 604 9529   | 60.75    | 395 0471    | 032 6303    | 8.48  | 967 3697   | 4  |
| 57 | 572 6362   | 52.22    | 427 3638    | 605 3174   | 60.72    | 394 6826    | 032 6812    | 8.48  | 967 3188   | 3  |
| 58 | 572 9495   | 52.18    | 427 0505    | 605 6817   | 60.67    | 394 3183    | 032 7321    | 8.50  | 967 2679   | 2  |
| 59 | 573 2626   | 52.13    | 426 7374    | 606 0457   | 60.65    | 393 9543    | 032 7831    | 8.50  | 967 2169   | 1  |
| 6  | 9.573 5754 | 52.13    | 10.426 4246 | 9.606 4096 | 60.65    | 10.393 5904 | 10.032 8341 |       | 9.967 1659 | 0  |

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | d. 1" | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|-------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|-------|------|--|



220

157°

|    | sin.     | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | d. 1'' | co-sin.    |    |
|----|----------|----------|-------------|------------|----------|-------------|-------------|--------|------------|----|
| 1  | 573 5754 | 52.10    | 10.426 4246 | 9.606 4096 | 60.60    | 10.393 5904 | 10.032 8341 | 8.52   | 9.967 1659 | 60 |
| 2  | 573 8880 | 52.05    | 426 1120    | 606 7732   | 60.57    | 393 2268    | 032 8852    | 8.52   | 967 1148   | 59 |
| 3  | 574 2003 | 52.00    | 425 7997    | 607 1366   | 60.52    | 392 8634    | 032 9363    | 8.53   | 967 0637   | 58 |
| 4  | 574 5123 | 51.95    | 425 4877    | 607 4097   | 60.50    | 392 5003    | 032 9875    | 8.52   | 967 0125   | 57 |
| 5  | 574 8240 | 51.93    | 425 1760    | 607 8627   | 60.45    | 392 1373    | 033 0386    | 8.55   | 966 9614   | 56 |
| 6  | 575 1356 | 51.87    | 424 8644    | 608 2254   | 60.43    | 391 7746    | 033 0899    | 8.55   | 966 9101   | 55 |
| 7  | 575 4468 | 51.83    | 10.424 5532 | 9.608 5880 | 60.38    | 10.391 4120 | 10.033 1412 | 8.55   | 9.966 8588 | 54 |
| 8  | 575 7578 | 51.78    | 424 2422    | 608 9503   | 60.35    | 391 0497    | 033 1925    | 8.55   | 966 8075   | 53 |
| 9  | 576 0685 | 51.75    | 423 9315    | 609 3124   | 60.30    | 390 6876    | 033 2438    | 8.57   | 966 7562   | 52 |
| 10 | 576 3790 | 51.70    | 423 6210    | 609 6742   | 60.28    | 390 3258    | 033 2952    | 8.58   | 966 7048   | 51 |
| 11 | 576 6892 | 51.65    | 423 3108    | 610 0359   | 60.25    | 389 9641    | 033 3467    | 8.58   | 966 6533   | 50 |
| 12 | 576 9991 | 51.62    | 423 0009    | 610 3973   | 60.22    | 389 6027    | 033 3982    | 8.58   | 966 6018   | 49 |
| 13 | 577 3088 | 51.58    | 10.422 6912 | 9.610 7586 | 60.17    | 10.389 2414 | 10.033 4497 | 8.60   | 9.966 5503 | 48 |
| 14 | 577 6183 | 51.53    | 422 3817    | 611 1196   | 60.13    | 388 8804    | 033 5013    | 8.60   | 966 4987   | 47 |
| 15 | 577 9275 | 51.48    | 422 0725    | 611 4804   | 60.08    | 388 5196    | 033 5529    | 8.62   | 966 4471   | 46 |
| 16 | 578 2364 | 51.43    | 421 7636    | 611 8409   | 60.07    | 388 1591    | 033 6046    | 8.62   | 966 3954   | 45 |
| 17 | 578 5450 | 51.42    | 421 4550    | 612 2013   | 60.03    | 387 7987    | 033 6563    | 8.62   | 966 3437   | 44 |
| 18 | 578 8535 | 51.35    | 421 1465    | 612 5615   | 59.98    | 387 4385    | 033 7080    | 8.63   | 966 2920   | 43 |
| 19 | 579 1616 | 51.32    | 10.420 8384 | 9.612 9214 | 59.92    | 10.387 0786 | 10.033 7598 | 8.63   | 9.966 2402 | 42 |
| 20 | 579 4695 | 51.28    | 420 5305    | 613 2812   | 59.97    | 386 7188    | 033 8116    | 8.63   | 966 1884   | 41 |
| 21 | 579 7772 | 51.22    | 420 2228    | 613 6407   | 59.92    | 386 3593    | 033 8635    | 8.65   | 966 1365   | 40 |
| 22 | 580 0845 | 51.20    | 419 9155    | 614 0000   | 59.88    | 386 0000    | 033 9154    | 8.67   | 966 0846   | 39 |
| 23 | 580 3917 | 51.15    | 419 6083    | 614 3591   | 59.85    | 385 6409    | 033 9674    | 8.67   | 966 0326   | 38 |
| 24 | 580 6986 | 51.10    | 419 3014    | 614 7180   | 59.82    | 385 2820    | 034 0194    | 8.68   | 965 9806   | 37 |
| 25 | 581 0052 | 51.07    | 10.418 9948 | 9.615 0766 | 59.77    | 10.384 9234 | 10.034 0715 | 8.68   | 9.965 9285 | 36 |
| 26 | 581 3116 | 51.02    | 418 6884    | 615 4351   | 59.75    | 384 5649    | 034 1236    | 8.68   | 965 8764   | 35 |
| 27 | 581 6177 | 51.00    | 418 3823    | 615 7934   | 59.72    | 384 2066    | 034 1757    | 8.70   | 965 8243   | 34 |
| 28 | 581 9236 | 50.98    | 418 0764    | 616 1514   | 59.67    | 383 8486    | 034 2279    | 8.70   | 965 7721   | 33 |
| 29 | 582 2292 | 50.93    | 417 7708    | 616 5093   | 59.65    | 383 4907    | 034 2801    | 8.70   | 965 7199   | 32 |
| 30 | 582 5345 | 50.88    | 417 4655    | 616 8669   | 59.60    | 383 1331    | 034 3323    | 8.73   | 965 6677   | 31 |
| 31 | 582 8397 | 50.87    | 10.417 1603 | 9.617 2243 | 59.57    | 10.382 7757 | 10.034 3847 | 8.72   | 9.965 6153 | 30 |
| 32 | 583 1445 | 50.80    | 416 8555    | 617 5815   | 59.53    | 382 4185    | 034 4370    | 8.72   | 965 5630   | 29 |
| 33 | 583 4491 | 50.77    | 416 5509    | 617 9385   | 59.50    | 382 0615    | 034 4894    | 8.73   | 965 5106   | 28 |
| 34 | 583 7535 | 50.73    | 416 2465    | 618 2953   | 59.47    | 381 7047    | 034 5418    | 8.73   | 965 4582   | 27 |
| 35 | 584 0576 | 50.68    | 415 9424    | 618 6519   | 59.43    | 381 3481    | 034 5943    | 8.75   | 965 4057   | 26 |
| 36 | 584 3615 | 50.65    | 415 6385    | 619 0083   | 59.40    | 380 9917    | 034 6468    | 8.77   | 965 3532   | 25 |
| 37 | 584 6651 | 50.60    | 415 3349    | 619 3645   | 59.37    | 10.380 6355 | 10.034 6994 | 8.77   | 9.965 3006 | 24 |
| 38 | 584 9685 | 50.57    | 415 0315    | 619 7205   | 59.33    | 380 2795    | 034 7520    | 8.77   | 965 2480   | 23 |
| 39 | 585 2716 | 50.52    | 414 7284    | 620 0762   | 59.28    | 379 9238    | 034 8047    | 8.78   | 965 1953   | 22 |
| 40 | 585 5745 | 50.48    | 414 4255    | 620 4318   | 59.27    | 379 5682    | 034 8574    | 8.78   | 965 1426   | 21 |
| 41 | 585 8771 | 50.43    | 414 1229    | 620 7872   | 59.23    | 379 2128    | 034 9101    | 8.80   | 965 0899   | 20 |
| 42 | 586 1795 | 50.40    | 413 8205    | 621 1423   | 59.18    | 378 8577    | 034 9629    | 8.80   | 965 0371   | 19 |
| 43 | 586 4816 | 50.35    | 10.413 5184 | 9.621 4973 | 59.17    | 10.378 5027 | 10.035 0157 | 8.82   | 9.964 9843 | 18 |
| 44 | 586 7835 | 50.32    | 413 2165    | 621 8520   | 59.12    | 378 1480    | 035 0686    | 8.82   | 964 9314   | 17 |
| 45 | 587 0851 | 50.27    | 412 9149    | 622 2066   | 59.10    | 377 7934    | 035 1215    | 8.82   | 964 8785   | 16 |
| 46 | 587 3865 | 50.23    | 412 6135    | 622 5609   | 59.05    | 377 4391    | 035 1744    | 8.82   | 964 8256   | 15 |
| 47 | 587 6876 | 50.18    | 412 3124    | 622 9150   | 59.02    | 377 0850    | 035 2274    | 8.83   | 964 7726   | 14 |
| 48 | 587 9885 | 50.15    | 412 0115    | 623 2690   | 59.00    | 376 7310    | 035 2805    | 8.85   | 964 7195   | 13 |
| 49 | 588 2892 | 50.12    | 10.411 7108 | 9.623 6227 | 58.95    | 10.376 3773 | 10.035 3335 | 8.87   | 9.964 6665 | 12 |
| 50 | 588 5897 | 50.07    | 411 4104    | 623 9763   | 58.93    | 376 0237    | 035 3867    | 8.87   | 964 6133   | 11 |
| 51 | 588 8897 | 50.02    | 411 1103    | 624 3296   | 58.88    | 375 6704    | 035 4398    | 8.88   | 964 5600   | 10 |
| 52 | 589 1897 | 50.00    | 410 8103    | 624 6827   | 58.85    | 375 3173    | 035 4931    | 8.88   | 964 5069   | 9  |
| 53 | 589 4893 | 49.93    | 410 5107    | 625 0356   | 58.82    | 374 9644    | 035 5463    | 8.87   | 964 4537   | 8  |
| 54 | 589 7888 | 49.92    | 410 2112    | 625 3884   | 58.80    | 374 6116    | 035 5996    | 8.88   | 964 4004   | 7  |
| 55 | 590 0880 | 49.87    | 10.409 9120 | 9.625 7409 | 58.75    | 10.374 2591 | 10.035 6530 | 8.90   | 9.964 3470 | 6  |
| 56 | 590 3869 | 49.82    | 409 6131    | 626 0932   | 58.72    | 373 9068    | 035 7063    | 8.88   | 964 2937   | 5  |
| 57 | 590 6856 | 49.78    | 409 3144    | 626 4454   | 58.65    | 373 5546    | 035 7598    | 8.92   | 964 2409   | 4  |
| 58 | 590 9841 | 49.75    | 409 0159    | 626 7973   | 58.63    | 373 2027    | 035 8132    | 8.90   | 964 1884   | 3  |
| 59 | 591 2823 | 49.70    | 408 7177    | 627 1491   | 58.63    | 372 8509    | 035 8668    | 8.93   | 964 1352   | 2  |
| 60 | 591 5803 | 49.67    | 408 4197    | 627 5006   | 58.58    | 372 4994    | 035 9203    | 8.92   | 964 0797   | 1  |
| 61 | 591 8780 | 49.62    | 10.408 1220 | 9.627 8519 | 58.55    | 10.372 1481 | 10.035 9739 | 8.93   | 9.964 0261 | 0  |

112°

67°

23°

156°

|    | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | d. 1" | co-sin.    |    |
|----|------------|---------|-------------|------------|---------|-------------|-------------|-------|------------|----|
| 0  | 9.591 8780 |         | 10.408 1220 | 9.627 8519 |         | 10.372 1481 | 10.035 9739 |       | 9.964 0261 | 60 |
| 1  | 592 1755   | 49.58   | 407 8245    | 628 2031   | 58.53   | 371 7969    | 036 0276    | 8.95  | 9.963 9724 | 59 |
| 2  | 592 4728   | 49.55   | 407 5272    | 628 5540   | 58.48   | 371 4460    | 036 0813    | 8.95  | 9.963 9187 | 58 |
| 3  | 592 7698   | 49.50   | 407 2302    | 628 9048   | 58.47   | 371 0952    | 036 1350    | 8.97  | 9.963 8650 | 57 |
| 4  | 593 0666   | 49.47   | 406 9334    | 629 2553   | 58.42   | 370 7447    | 036 1888    | 8.97  | 9.963 8112 | 56 |
| 5  | 593 3631   | 49.42   | 406 6369    | 629 6057   | 58.40   | 370 3943    | 036 2426    | 8.97  | 9.963 7574 | 55 |
| 6  | 9.593 6594 | 49.38   | 10.406 3406 | 9.629 9558 | 58.35   | 10.370 0442 | 10.036 2964 | 9.00  | 9.963 7036 | 54 |
| 7  | 593 9555   | 49.15   | 406 0445    | 630 3058   | 58.33   | 369 6942    | 036 3504    | 8.97  | 9.963 6496 | 53 |
| 8  | 594 2513   | 49.10   | 405 7487    | 630 6556   | 58.30   | 369 3444    | 036 4043    | 8.98  | 9.963 5957 | 52 |
| 9  | 594 5469   | 49.07   | 405 4531    | 631 0052   | 58.27   | 368 9948    | 036 4583    | 9.00  | 9.963 5417 | 51 |
| 10 | 594 8422   | 49.02   | 405 1578    | 631 3545   | 58.22   | 368 6455    | 036 5123    | 9.00  | 9.963 4877 | 50 |
| 11 | 595 1373   | 49.18   | 404 8627    | 631 7037   | 58.20   | 368 2963    | 036 5664    | 9.02  | 9.963 4336 | 49 |
| 12 | 9.595 4322 | 49.15   | 10.404 5678 | 9.632 0527 | 58.17   | 10.367 9473 | 10.036 6205 | 9.02  | 9.963 3795 | 48 |
| 13 | 595 7268   | 49.10   | 404 2732    | 632 4015   | 58.13   | 367 5985    | 036 6747    | 9.03  | 9.963 3253 | 47 |
| 14 | 596 0212   | 49.03   | 403 9788    | 632 7501   | 58.07   | 367 2499    | 036 7289    | 9.05  | 9.963 2711 | 46 |
| 15 | 596 3154   | 48.98   | 403 6846    | 633 0985   | 58.05   | 366 9015    | 036 7832    | 9.05  | 9.963 2168 | 45 |
| 16 | 596 6093   | 48.95   | 403 3907    | 633 4468   | 58.00   | 366 5531    | 036 8375    | 9.05  | 9.963 1625 | 44 |
| 17 | 596 9030   | 48.92   | 403 0970    | 633 7948   | 57.97   | 366 2052    | 036 8918    | 9.07  | 9.963 1082 | 43 |
| 18 | 9.597 1965 | 48.87   | 10.402 8035 | 9.634 1426 | 57.95   | 10.365 8574 | 10.036 9462 | 9.07  | 9.963 0538 | 42 |
| 19 | 597 4897   | 48.83   | 402 5103    | 634 4903   | 57.92   | 365 5097    | 037 0006    | 9.08  | 9.962 9994 | 41 |
| 20 | 597 7847   | 48.78   | 402 2173    | 634 8378   | 57.92   | 365 1622    | 037 0551    | 9.08  | 9.962 9449 | 40 |
| 21 | 598 0794   | 48.75   | 401 9246    | 635 1850   | 57.87   | 364 8150    | 037 1096    | 9.08  | 9.962 8904 | 39 |
| 22 | 598 3739   | 48.72   | 401 6321    | 635 5321   | 57.85   | 364 4679    | 037 1642    | 9.10  | 9.962 8358 | 38 |
| 23 | 598 6682   | 48.68   | 401 3398    | 635 8790   | 57.82   | 364 1210    | 037 2188    | 9.10  | 9.962 7812 | 37 |
| 24 | 9.598 9623 | 48.63   | 10.401 0477 | 9.636 2257 | 57.78   | 10.363 7743 | 10.037 2734 | 9.10  | 9.962 7266 | 36 |
| 25 | 599 2561   | 48.60   | 400 7559    | 636 5722   | 57.75   | 363 4278    | 037 3281    | 9.12  | 9.962 6719 | 35 |
| 26 | 599 5505   | 48.55   | 400 4643    | 636 9185   | 57.72   | 363 0815    | 037 3828    | 9.13  | 9.962 6172 | 34 |
| 27 | 599 8447   | 48.52   | 400 1730    | 637 2646   | 57.68   | 362 7354    | 037 4376    | 9.13  | 9.962 5624 | 33 |
| 28 | 600 1181   | 48.48   | 399 8819    | 637 6106   | 57.67   | 362 3894    | 037 4924    | 9.15  | 9.962 5076 | 32 |
| 29 | 600 4090   | 48.45   | 399 5910    | 637 9563   | 57.62   | 362 0437    | 037 5473    | 9.15  | 9.962 4527 | 31 |
| 30 | 9.600 6997 | 48.40   | 10.399 3003 | 9.638 3019 | 57.57   | 10.361 6981 | 10.037 6022 | 9.17  | 9.962 3978 | 30 |
| 31 | 600 9901   | 48.37   | 399 0099    | 638 6473   | 57.57   | 361 3527    | 037 6572    | 9.17  | 9.962 3428 | 29 |
| 32 | 601 2803   | 48.33   | 398 7197    | 638 9925   | 57.53   | 361 0075    | 037 7122    | 9.17  | 9.962 2878 | 28 |
| 33 | 601 5703   | 48.28   | 398 4297    | 639 3375   | 57.50   | 360 6625    | 037 7672    | 9.17  | 9.962 2328 | 27 |
| 34 | 601 8600   | 48.25   | 398 1400    | 639 6823   | 57.47   | 360 3177    | 037 8223    | 9.18  | 9.962 1777 | 26 |
| 35 | 602 1495   | 48.22   | 397 8505    | 640 0269   | 57.43   | 359 9731    | 037 8774    | 9.18  | 9.962 1226 | 25 |
| 36 | 9.602 4388 | 48.17   | 10.397 5612 | 9.640 3714 | 57.42   | 10.359 6286 | 10.037 9326 | 9.20  | 9.962 0674 | 24 |
| 37 | 602 7278   | 48.13   | 397 2722    | 640 7156   | 57.37   | 359 2844    | 037 9878    | 9.20  | 9.962 0122 | 23 |
| 38 | 603 0166   | 48.10   | 396 9834    | 641 0597   | 57.35   | 358 9403    | 038 0431    | 9.22  | 9.961 9569 | 22 |
| 39 | 603 3052   | 48.07   | 396 6948    | 641 4036   | 57.32   | 358 5964    | 038 0984    | 9.22  | 9.961 9016 | 21 |
| 40 | 603 5936   | 48.02   | 396 4064    | 641 7473   | 57.28   | 358 2527    | 038 1537    | 9.22  | 9.961 8463 | 20 |
| 41 | 603 8817   | 47.98   | 396 1183    | 642 0908   | 57.25   | 357 9092    | 038 2091    | 9.23  | 9.961 7909 | 19 |
| 42 | 9.604 1696 | 47.95   | 10.395 8304 | 9.642 4342 | 57.23   | 10.357 5658 | 10.038 2645 | 9.25  | 9.961 7355 | 18 |
| 43 | 604 4573   | 47.92   | 395 5427    | 642 7773   | 57.18   | 357 2227    | 038 3200    | 9.25  | 9.961 6800 | 17 |
| 44 | 604 7448   | 47.87   | 395 2552    | 643 1203   | 57.17   | 356 8797    | 038 3755    | 9.25  | 9.961 6245 | 16 |
| 45 | 605 0320   | 47.83   | 394 9680    | 643 4631   | 57.13   | 356 5369    | 038 4311    | 9.27  | 9.961 5689 | 15 |
| 46 | 605 3190   | 47.83   | 394 6810    | 643 8057   | 57.10   | 356 1943    | 038 4867    | 9.27  | 9.961 5133 | 14 |
| 47 | 605 6057   | 47.78   | 394 3943    | 644 1481   | 57.07   | 355 8519    | 038 5424    | 9.28  | 9.961 4576 | 13 |
| 48 | 9.605 8923 | 47.77   | 10.394 1077 | 9.644 4903 | 57.03   | 10.355 5097 | 10.038 5980 | 9.27  | 9.961 4020 | 12 |
| 49 | 606 1786   | 47.72   | 393 8214    | 644 8324   | 57.02   | 355 5076    | 038 6538    | 9.30  | 9.961 3462 | 11 |
| 50 | 606 4647   | 47.68   | 393 5353    | 645 1743   | 56.98   | 354 8257    | 038 7096    | 9.30  | 9.961 2904 | 10 |
| 51 | 606 7506   | 47.65   | 393 2494    | 645 5160   | 56.95   | 354 4840    | 038 7654    | 9.30  | 9.961 2346 | 9  |
| 52 | 607 0362   | 47.62   | 392 9638    | 645 8575   | 56.92   | 354 1425    | 038 8213    | 9.32  | 9.961 1787 | 8  |
| 53 | 607 3216   | 47.57   | 392 6784    | 646 1988   | 56.88   | 353 8012    | 038 8772    | 9.33  | 9.961 1228 | 7  |
| 54 | 9.607 6068 | 47.50   | 10.392 3932 | 9.646 5400 | 56.87   | 10.353 4600 | 10.038 9332 | 9.33  | 9.961 0668 | 6  |
| 55 | 607 8918   | 47.45   | 392 1082    | 646 8810   | 56.83   | 353 1190    | 038 9892    | 9.33  | 9.961 0108 | 5  |
| 56 | 608 1765   | 47.43   | 391 8235    | 647 2217   | 56.78   | 352 7783    | 039 0452    | 9.33  | 9.960 9548 | 4  |
| 57 | 608 4611   | 47.43   | 391 5389    | 647 5624   | 56.78   | 352 4376    | 039 1013    | 9.35  | 9.960 8987 | 3  |
| 58 | 608 7454   | 47.38   | 391 2546    | 647 9028   | 56.73   | 352 0972    | 039 1574    | 9.35  | 9.960 8426 | 2  |
| 59 | 609 0294   | 47.33   | 390 9706    | 648 2431   | 56.72   | 351 7569    | 039 2136    | 9.37  | 9.960 7864 | 1  |
| 60 | 9.609 3133 | 47.32   | 10.390 6867 | 9.648 5831 | 56.67   | 10.351 4169 | 10.039 2698 | 9.37  | 9.960 7302 | 0  |



LOGARITHMIC SINES, TANGENTS, &c.

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24°

156°

| '  | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | d. 1" | co-sin.    | '  |
|----|------------|----------|-------------|------------|----------|-------------|-------------|-------|------------|----|
| 0  | 9.609 3133 | 47.27    | 10.390 6867 | 9.648 5831 | 56.65    | 10.351 4169 | 10.039 2698 | 9.38  | 9.960 7302 | 60 |
| 1  | 609 5669   | 47.23    | 390 4031    | 648 9230   | 56.63    | 351 0770    | 039 3261    | 9.38  | 960 6739   | 59 |
| 2  | 609 8603   | 47.20    | 390 1197    | 649 2628   | 56.63    | 350 7372    | 039 3824    | 9.40  | 960 6176   | 58 |
| 3  | 610 1635   | 47.17    | 389 8365    | 649 6023   | 56.58    | 350 3977    | 039 4388    | 9.40  | 960 5612   | 57 |
| 4  | 610 4465   | 47.13    | 389 5535    | 649 9417   | 56.57    | 350 0583    | 039 4952    | 9.41  | 960 5048   | 56 |
| 5  | 610 7293   | 47.10    | 389 2707    | 650 2809   | 56.53    | 349 7191    | 039 5516    | 9.41  | 960 4484   | 55 |
| 6  | 611 0118   | 47.08    | 10.388 9882 | 9.650 6199 | 56.50    | 10.349 3801 | 10.039 6081 | 9.42  | 960 3919   | 54 |
| 7  | 611 2941   | 47.05    | 388 7059    | 650 9587   | 56.47    | 349 0413    | 039 6646    | 9.42  | 960 3354   | 53 |
| 8  | 611 5762   | 47.02    | 388 4238    | 651 2974   | 56.45    | 348 7026    | 039 7212    | 9.43  | 960 2788   | 52 |
| 9  | 611 8580   | 46.97    | 388 1420    | 651 6359   | 56.42    | 348 3641    | 039 7778    | 9.43  | 960 2222   | 51 |
| 10 | 612 1397   | 46.95    | 387 8603    | 651 9742   | 56.38    | 348 0258    | 039 8345    | 9.45  | 960 1655   | 50 |
| 11 | 612 4211   | 46.90    | 387 5789    | 652 3123   | 56.35    | 347 6877    | 039 8912    | 9.45  | 960 1088   | 49 |
| 12 | 612 7023   | 46.87    | 10.387 2977 | 9.652 6503 | 56.33    | 10.347 3497 | 10.039 9488 | 9.47  | 960 0520   | 48 |
| 13 | 612 9833   | 46.83    | 387 0167    | 652 9881   | 56.30    | 347 0119    | 040 0058    | 9.47  | 959 9952   | 47 |
| 14 | 613 2641   | 46.80    | 386 7359    | 653 3257   | 56.27    | 346 6743    | 040 0616    | 9.47  | 959 9384   | 46 |
| 15 | 613 5446   | 46.75    | 386 4554    | 653 6631   | 56.23    | 346 3369    | 040 1185    | 9.48  | 959 8815   | 45 |
| 16 | 613 8250   | 46.73    | 386 1750    | 654 0004   | 56.12    | 345 9996    | 040 1754    | 9.48  | 959 8246   | 44 |
| 17 | 614 1051   | 46.68    | 385 8949    | 654 3375   | 56.18    | 345 6625    | 040 2324    | 9.50  | 959 7676   | 43 |
| 18 | 614 3850   | 46.65    | 10.385 6159 | 9.654 6744 | 56.15    | 10.345 3256 | 10.040 2894 | 9.50  | 959 7106   | 42 |
| 19 | 614 6647   | 46.62    | 385 3353    | 655 0112   | 56.13    | 344 9888    | 040 3465    | 9.52  | 959 6535   | 41 |
| 20 | 614 9441   | 46.57    | 385 0559    | 655 3477   | 56.10    | 344 6523    | 040 4036    | 9.52  | 959 5964   | 40 |
| 21 | 615 2234   | 46.55    | 384 7766    | 655 6841   | 56.07    | 344 3159    | 040 4607    | 9.52  | 959 5393   | 39 |
| 22 | 615 5024   | 46.50    | 384 4976    | 656 0204   | 56.05    | 343 9796    | 040 5179    | 9.53  | 959 4821   | 38 |
| 23 | 615 7812   | 46.47    | 384 2188    | 656 3564   | 56.00    | 343 6436    | 040 5752    | 9.55  | 959 4248   | 37 |
| 24 | 616 0599   | 46.45    | 10.383 9401 | 9.656 6923 | 55.98    | 10.343 3077 | 10.040 6325 | 9.55  | 959 3675   | 36 |
| 25 | 616 3382   | 46.38    | 383 6618    | 657 0280   | 55.95    | 342 9720    | 040 6898    | 9.55  | 959 3102   | 35 |
| 26 | 616 6164   | 46.37    | 383 3836    | 657 3636   | 55.93    | 342 6364    | 040 7472    | 9.57  | 959 2528   | 34 |
| 27 | 616 8944   | 46.33    | 383 1056    | 657 6989   | 55.88    | 342 3011    | 040 8046    | 9.57  | 959 1954   | 33 |
| 28 | 617 1721   | 46.28    | 382 8279    | 658 0341   | 55.87    | 341 9659    | 040 8620    | 9.58  | 959 1380   | 32 |
| 29 | 617 4496   | 46.25    | 382 5504    | 658 3692   | 55.85    | 341 6308    | 040 9195    | 9.58  | 959 0805   | 31 |
| 30 | 617 7270   | 46.23    | 10.382 2730 | 9.658 7041 | 55.82    | 10.341 2959 | 10.040 9771 | 9.60  | 959 0229   | 30 |
| 31 | 618 0041   | 46.18    | 381 9959    | 659 0387   | 55.77    | 340 9613    | 041 0347    | 9.60  | 958 9653   | 29 |
| 32 | 618 2809   | 46.13    | 381 7191    | 659 3733   | 55.77    | 340 6267    | 041 0923    | 9.60  | 958 9077   | 28 |
| 33 | 618 5576   | 46.12    | 381 4424    | 659 7076   | 55.72    | 340 2924    | 041 1500    | 9.62  | 958 8500   | 27 |
| 34 | 618 8341   | 46.08    | 381 1659    | 660 0418   | 55.70    | 339 9582    | 041 2077    | 9.62  | 958 7923   | 26 |
| 35 | 619 1103   | 46.03    | 380 8897    | 660 3758   | 55.67    | 339 6242    | 041 2655    | 9.63  | 958 7345   | 25 |
| 36 | 619 3864   | 46.02    | 10.380 6136 | 9.660 7097 | 55.65    | 10.339 2903 | 10.041 3233 | 9.65  | 958 6767   | 24 |
| 37 | 619 6622   | 45.97    | 380 3378    | 661 0434   | 55.62    | 338 9566    | 041 3812    | 9.65  | 958 6188   | 23 |
| 38 | 619 9378   | 45.93    | 380 0622    | 661 3769   | 55.58    | 338 6231    | 041 4391    | 9.65  | 958 5609   | 22 |
| 39 | 620 2132   | 45.90    | 379 7868    | 661 7103   | 55.57    | 338 2897    | 041 4970    | 9.67  | 958 5030   | 21 |
| 40 | 620 4884   | 45.87    | 379 5116    | 662 0434   | 55.52    | 337 9566    | 041 5550    | 9.67  | 958 4450   | 20 |
| 41 | 620 7634   | 45.83    | 379 2366    | 662 3765   | 55.52    | 337 6235    | 041 6131    | 9.68  | 958 3869   | 19 |
| 42 | 621 0382   | 45.80    | 10.378 9618 | 9.662 7093 | 55.47    | 10.337 2907 | 10.041 6719 | 9.68  | 958 3288   | 18 |
| 43 | 621 3127   | 45.75    | 378 6873    | 663 0420   | 55.45    | 336 9580    | 041 7293    | 9.68  | 958 2707   | 17 |
| 44 | 621 5871   | 45.73    | 378 4129    | 663 3745   | 55.42    | 336 6255    | 041 7875    | 9.70  | 958 2125   | 16 |
| 45 | 621 8612   | 45.68    | 378 1388    | 663 7069   | 55.40    | 336 2931    | 041 8457    | 9.70  | 958 1543   | 15 |
| 46 | 622 1351   | 45.65    | 377 8649    | 664 0391   | 55.37    | 335 9609    | 041 9039    | 9.72  | 958 0961   | 14 |
| 47 | 622 4088   | 45.62    | 377 5912    | 664 3711   | 55.33    | 335 6289    | 041 9622    | 9.72  | 958 0378   | 13 |
| 48 | 622 6824   | 45.60    | 10.377 3176 | 9.664 7030 | 55.32    | 10.335 2970 | 10.042 0206 | 9.73  | 957 9794   | 12 |
| 49 | 622 9557   | 45.55    | 377 0443    | 665 0346   | 55.27    | 334 9554    | 042 0790    | 9.73  | 957 9210   | 11 |
| 50 | 623 2287   | 45.50    | 376 7713    | 665 3662   | 55.22    | 334 6338    | 042 1374    | 9.75  | 957 8626   | 10 |
| 51 | 623 5016   | 45.48    | 376 4984    | 665 6975   | 55.22    | 334 3025    | 042 1959    | 9.75  | 957 8041   | 9  |
| 52 | 623 7743   | 45.45    | 376 2257    | 666 0288   | 55.17    | 333 9712    | 042 2544    | 9.75  | 957 7456   | 8  |
| 53 | 624 0468   | 45.42    | 375 9532    | 666 3598   | 55.17    | 333 6402    | 042 3130    | 9.77  | 957 6870   | 7  |
| 54 | 624 3190   | 45.37    | 10.375 6810 | 9.666 6907 | 55.15    | 10.333 3093 | 10.042 3716 | 9.77  | 957 6284   | 6  |
| 55 | 624 5911   | 45.35    | 375 4089    | 667 0214   | 55.12    | 332 9786    | 042 4303    | 9.78  | 957 5697   | 5  |
| 56 | 624 8629   | 45.30    | 375 1371    | 667 3519   | 55.08    | 332 6481    | 042 4890    | 9.78  | 957 5110   | 4  |
| 57 | 625 1346   | 45.28    | 374 8654    | 667 6823   | 55.07    | 332 3177    | 042 5478    | 9.80  | 957 4522   | 3  |
| 58 | 625 4060   | 45.23    | 374 5940    | 668 0126   | 55.05    | 331 9874    | 042 6066    | 9.80  | 957 3934   | 2  |
| 59 | 625 6772   | 45.20    | 374 3228    | 668 3426   | 55.00    | 331 6574    | 042 6654    | 9.80  | 957 3346   | 1  |
| 60 | 625 9483   | 45.18    | 10.374 0517 | 9.668 6725 | 54.98    | 10.331 3275 | 10.042 7243 | 9.82  | 957 2757   | 0  |

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65°

| i  | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | diff. 1'' | co-sin.   | i  |
|----|------------|-----------|-------------|------------|-----------|-------------|------------|-----------|-----------|----|
| 0  | 9.625 9483 | 45.13     | 10.374 0517 | 9.668 6725 | 54.97     | 10.331 3275 | 10.0427243 | 9.82      | 9.9572757 | 60 |
| 1  | 626 2191   | 45.10     | 373 7899    | 669 0023   | 54.93     | 330 9977    | 0427832    | 9.83      | 9572168   | 59 |
| 2  | 626 4897   | 45.07     | 373 5103    | 669 3319   | 54.90     | 330 6681    | 0428422    | 9.85      | 9571578   | 58 |
| 3  | 626 7601   | 45.03     | 373 2399    | 669 6613   | 54.88     | 330 3387    | 0429012    | 9.83      | 9570988   | 57 |
| 4  | 627 0303   | 45.00     | 372 9697    | 669 9906   | 54.85     | 330 0094    | 0429603    | 9.85      | 9570397   | 56 |
| 5  | 627 3003   | 44.97     | 372 6997    | 670 3197   | 54.82     | 329 6803    | 0430194    | 9.85      | 9569806   | 55 |
| 6  | 627 5701   | 44.93     | 10.372 4299 | 9.670 6486 | 54.80     | 10.329 3514 | 10.0430785 | 9.87      | 9.9569215 | 54 |
| 7  | 627 8397   | 44.88     | 372 1603    | 670 9774   | 54.77     | 329 0226    | 0431377    | 9.85      | 9568623   | 53 |
| 8  | 628 1090   | 44.87     | 371 8910    | 671 3060   | 54.75     | 328 6940    | 0431970    | 9.88      | 9568030   | 52 |
| 9  | 628 3782   | 44.83     | 371 6218    | 671 6345   | 54.72     | 328 3655    | 0432563    | 9.88      | 9567437   | 51 |
| 10 | 628 6472   | 44.80     | 371 3528    | 671 9628   | 54.70     | 328 0372    | 0433156    | 9.85      | 9566844   | 50 |
| 11 | 628 9160   | 44.75     | 371 0840    | 672 2910   | 54.67     | 327 7090    | 0433750    | 9.90      | 9566250   | 49 |
| 12 | 9.629 1845 | 44.73     | 10.370 8155 | 9.672 6190 | 54.63     | 10.327 3810 | 10.0434344 | 9.90      | 9.9565656 | 48 |
| 13 | 629 4529   | 44.70     | 370 5471    | 672 9468   | 54.62     | 327 0532    | 0434939    | 9.92      | 9565061   | 47 |
| 14 | 629 7211   | 44.65     | 370 2789    | 673 2745   | 54.58     | 326 7255    | 0435534    | 9.92      | 9564466   | 46 |
| 15 | 629 9890   | 44.63     | 370 0110    | 673 6020   | 54.57     | 326 3980    | 0436130    | 9.93      | 9563873   | 45 |
| 16 | 630 2568   | 44.63     | 369 7432    | 673 9294   | 54.57     | 326 0706    | 0436726    | 9.93      | 9563274   | 44 |
| 17 | 630 5243   | 44.57     | 369 4757    | 674 2566   | 54.50     | 325 7434    | 0437322    | 9.95      | 9562678   | 43 |
| 18 | 9.630 7917 | 44.53     | 10.369 2083 | 9.674 5836 | 54.48     | 10.325 4164 | 10.0437919 | 9.95      | 9.9562081 | 42 |
| 19 | 631 0580   | 44.48     | 368 9411    | 674 9105   | 54.45     | 325 0895    | 0438517    | 9.97      | 9561483   | 41 |
| 20 | 631 3258   | 44.48     | 368 6742    | 675 2372   | 54.43     | 324 7628    | 0439114    | 9.95      | 9560886   | 40 |
| 21 | 631 5920   | 44.47     | 368 4074    | 675 5638   | 54.42     | 324 4362    | 0439713    | 9.98      | 9560287   | 39 |
| 22 | 631 8591   | 44.42     | 368 1409    | 675 8903   | 54.42     | 324 1097    | 0440311    | 9.97      | 9559689   | 38 |
| 23 | 632 1255   | 44.40     | 367 8745    | 676 2165   | 54.37     | 323 7835    | 0440911    | 10.00     | 9559089   | 37 |
| 24 | 9.632 3916 | 44.35     | 10.367 6084 | 9.676 5426 | 54.35     | 10.323 4574 | 10.0441510 | 9.98      | 9.9558490 | 36 |
| 25 | 632 6576   | 44.33     | 367 3424    | 676 8686   | 54.33     | 323 1314    | 0442110    | 10.00     | 9557890   | 35 |
| 26 | 632 9233   | 44.28     | 367 0767    | 677 1944   | 54.30     | 322 8056    | 0442711    | 10.02     | 9557289   | 34 |
| 27 | 633 1889   | 44.27     | 366 8111    | 677 5201   | 54.28     | 322 4799    | 0443312    | 10.02     | 9556688   | 33 |
| 28 | 633 4542   | 44.22     | 366 5458    | 677 8456   | 54.25     | 322 1544    | 0443913    | 10.02     | 9556087   | 32 |
| 29 | 633 7194   | 44.20     | 366 2806    | 678 1709   | 54.20     | 321 8291    | 0444515    | 10.03     | 9555485   | 31 |
| 30 | 9.633 9844 | 44.17     | 10.366 0156 | 9.678 4961 | 54.17     | 10.321 5039 | 10.0445118 | 10.03     | 9.9554882 | 30 |
| 31 | 634 2491   | 44.12     | 365 7509    | 678 8211   | 54.15     | 321 1789    | 0445720    | 10.07     | 9554280   | 29 |
| 32 | 634 5137   | 44.10     | 365 4863    | 679 1460   | 54.13     | 320 8540    | 0446324    | 10.05     | 9553676   | 28 |
| 33 | 634 7780   | 44.05     | 365 2220    | 679 4708   | 54.08     | 320 5292    | 0446927    | 10.07     | 9553073   | 27 |
| 34 | 635 0422   | 44.03     | 364 9578    | 679 7953   | 54.08     | 320 2047    | 0447531    | 10.07     | 9552469   | 26 |
| 35 | 635 3062   | 44.00     | 364 6938    | 680 1198   | 54.08     | 319 8802    | 0448136    | 10.08     | 9551864   | 25 |
| 36 | 9.635 5699 | 43.95     | 10.364 4301 | 9.680 4440 | 54.03     | 10.319 5560 | 10.0448741 | 10.10     | 9.9551259 | 24 |
| 37 | 635 8335   | 43.93     | 364 1665    | 680 7682   | 53.98     | 319 2318    | 0449347    | 10.10     | 9550653   | 23 |
| 38 | 636 0969   | 43.90     | 363 9031    | 681 0921   | 53.98     | 318 9079    | 0449953    | 10.10     | 9550047   | 22 |
| 39 | 636 3601   | 43.87     | 363 6399    | 681 4160   | 53.93     | 318 5840    | 0450559    | 10.10     | 9549441   | 21 |
| 40 | 636 6231   | 43.83     | 363 3769    | 681 7396   | 53.93     | 318 2604    | 0451166    | 10.12     | 9548834   | 20 |
| 41 | 636 8859   | 43.80     | 363 1141    | 682 0632   | 53.88     | 317 9368    | 0451773    | 10.12     | 9548227   | 19 |
| 42 | 9.637 1484 | 43.75     | 10.362 8516 | 9.682 3865 | 53.88     | 10.317 6135 | 10.0452381 | 10.13     | 9.9547619 | 18 |
| 43 | 637 4108   | 43.72     | 362 5892    | 682 7098   | 53.83     | 317 2902    | 0452989    | 10.15     | 9547011   | 17 |
| 44 | 637 6731   | 43.67     | 362 3269    | 683 0328   | 53.83     | 316 9672    | 0453598    | 10.15     | 9546402   | 16 |
| 45 | 637 9351   | 43.63     | 362 0649    | 683 3557   | 53.82     | 316 6443    | 0454207    | 10.15     | 9545793   | 15 |
| 46 | 638 1969   | 43.63     | 361 8031    | 683 6785   | 53.80     | 316 3215    | 0454816    | 10.15     | 9545184   | 14 |
| 47 | 638 4585   | 43.60     | 361 5415    | 684 0011   | 53.77     | 315 9989    | 0455426    | 10.17     | 9544574   | 13 |
| 48 | 9.638 7199 | 43.57     | 10.361 2801 | 9.684 3236 | 53.75     | 10.315 6764 | 10.0456037 | 10.18     | 9.9543963 | 12 |
| 49 | 638 9812   | 43.55     | 361 0188    | 684 6459   | 53.72     | 315 3541    | 0456648    | 10.18     | 9543352   | 11 |
| 50 | 639 2422   | 43.50     | 360 7578    | 684 9681   | 53.67     | 315 0319    | 0457259    | 10.18     | 9542741   | 10 |
| 51 | 639 5030   | 43.47     | 360 4970    | 685 2901   | 53.67     | 314 7099    | 0457871    | 10.20     | 9542129   | 9  |
| 52 | 639 7637   | 43.45     | 360 2363    | 685 6120   | 53.65     | 314 3880    | 0458483    | 10.20     | 9541517   | 8  |
| 53 | 640 0241   | 43.40     | 359 9759    | 685 9338   | 53.63     | 314 0662    | 0459096    | 10.22     | 9540904   | 7  |
| 54 | 9.640 2844 | 43.35     | 10.359 7156 | 9.686 2553 | 53.58     | 10.313 7447 | 10.0459709 | 10.22     | 9.9540291 | 6  |
| 55 | 640 5445   | 43.35     | 359 4555    | 686 5768   | 53.58     | 313 4232    | 0460323    | 10.23     | 9539677   | 5  |
| 56 | 640 8044   | 43.32     | 359 1956    | 686 8981   | 53.55     | 313 1019    | 0460937    | 10.23     | 9539063   | 4  |
| 57 | 641 0640   | 43.27     | 358 9360    | 687 2192   | 53.52     | 312 7808    | 0461552    | 10.25     | 9538448   | 3  |
| 58 | 641 3235   | 43.25     | 358 6765    | 687 5402   | 53.48     | 312 4598    | 0462167    | 10.25     | 9537833   | 2  |
| 59 | 641 5828   | 43.22     | 358 4172    | 687 8611   | 53.45     | 312 1389    | 0462782    | 10.25     | 9537218   | 1  |
| 60 | 9.641 8420 | 43.20     | 10.358 1580 | 9.688 1818 | 53.45     | 10.311 8182 | 10.0463398 | 10.27     | 9.9536602 | 0  |



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|    | sin.     | diff. 1" | co-sec.    | tang.     | diff. 1" | co-tang.   | sec.       | diff. 1" | co-sin.   |    |
|----|----------|----------|------------|-----------|----------|------------|------------|----------|-----------|----|
| 0  | 0.418420 |          | 10.3581580 | 0.6881818 |          | 10.3118182 | 10.0463398 |          | 0.9536602 | 60 |
| 1  | 0.421009 | 43.15    | 3578991    | 6885023   | 53.42    | 3114977    | 0464015    | 10.28    | 0.9535985 | 59 |
| 2  | 0.423596 | 43.12    | 3576404    | 6888227   | 53.40    | 3111773    | 0464631    | 10.27    | 0.9535369 | 58 |
| 3  | 0.426182 | 43.10    | 3573818    | 6891430   | 53.38    | 3108570    | 0465249    | 10.26    | 0.9534751 | 57 |
| 4  | 0.428765 | 43.05    | 3571235    | 6894631   | 53.35    | 3105369    | 0465866    | 10.28    | 0.9534134 | 56 |
| 5  | 0.431347 | 43.03    | 3568653    | 6897831   | 53.33    | 3102169    | 0466485    | 10.32    | 0.9533515 | 55 |
| 6  | 0.433926 | 42.98    | 10.3566074 | 0.6901030 | 53.32    | 10.3098970 | 10.0467103 | 10.30    | 0.9532897 | 54 |
| 7  | 0.436504 | 42.97    | 3563496    | 6904226   | 53.27    | 3095774    | 0467722    | 10.33    | 0.9532278 | 53 |
| 8  | 0.439080 | 42.93    | 3560920    | 6907422   | 53.27    | 3092578    | 0468342    | 10.33    | 0.9531658 | 52 |
| 9  | 0.441654 | 42.90    | 3558346    | 6910616   | 53.23    | 3089384    | 0468962    | 10.33    | 0.9531038 | 51 |
| 10 | 0.444226 | 42.87    | 3555774    | 6913809   | 53.22    | 3086191    | 0469582    | 10.33    | 0.9530418 | 50 |
| 11 | 0.446796 | 42.83    | 3553204    | 6917000   | 53.18    | 3083000    | 0470203    | 10.35    | 0.9529797 | 49 |
| 12 | 0.449365 | 42.82    | 10.3550635 | 0.6920189 | 53.15    | 10.3079811 | 10.0470825 | 10.37    | 0.9529175 | 48 |
| 13 | 0.451931 | 42.77    | 3548069    | 6923377   | 53.15    | 3076622    | 0471447    | 10.37    | 0.9528553 | 47 |
| 14 | 0.454496 | 42.75    | 3545504    | 6926565   | 53.12    | 3073435    | 0472069    | 10.38    | 0.9527931 | 46 |
| 15 | 0.457058 | 42.70    | 3542942    | 6929750   | 53.08    | 3070250    | 0472692    | 10.38    | 0.9527308 | 45 |
| 16 | 0.459619 | 42.68    | 3540381    | 6932934   | 53.07    | 3067066    | 0473315    | 10.38    | 0.9526685 | 44 |
| 17 | 0.462178 | 42.65    | 3537822    | 6936117   | 53.05    | 3063883    | 0473939    | 10.40    | 0.9526061 | 43 |
| 18 | 0.464735 | 42.62    | 10.3535265 | 0.6939298 | 53.02    | 10.3060702 | 10.0474563 | 10.40    | 0.9525437 | 42 |
| 19 | 0.467290 | 42.58    | 3532710    | 6942478   | 53.00    | 3057522    | 0475187    | 10.40    | 0.9524813 | 41 |
| 20 | 0.469844 | 42.57    | 3530156    | 6945656   | 52.97    | 3054344    | 0475812    | 10.42    | 0.9524188 | 40 |
| 21 | 0.472395 | 42.52    | 3527605    | 6948833   | 52.95    | 3051167    | 0476438    | 10.43    | 0.9523562 | 39 |
| 22 | 0.474945 | 42.50    | 3525055    | 6952009   | 52.93    | 3047991    | 0477064    | 10.43    | 0.9522936 | 38 |
| 23 | 0.477492 | 42.45    | 3522508    | 6955183   | 52.90    | 3044817    | 0477690    | 10.43    | 0.9522310 | 37 |
| 24 | 0.480038 | 42.43    | 10.3519962 | 0.6958355 | 52.87    | 10.3041645 | 10.0478317 | 10.45    | 0.9521683 | 36 |
| 25 | 0.482582 | 42.40    | 3517418    | 6961527   | 52.87    | 3038473    | 0478945    | 10.47    | 0.9521055 | 35 |
| 26 | 0.485124 | 42.37    | 3514876    | 6964697   | 52.83    | 3035303    | 0479572    | 10.45    | 0.9520428 | 34 |
| 27 | 0.487665 | 42.35    | 3512335    | 6967865   | 52.80    | 3032135    | 0480201    | 10.48    | 0.9519799 | 33 |
| 28 | 0.490203 | 42.30    | 3509797    | 6971031   | 52.78    | 3028968    | 0480829    | 10.47    | 0.9519171 | 32 |
| 29 | 0.492740 | 42.28    | 3507260    | 6974198   | 52.77    | 3025802    | 0481459    | 10.50    | 0.9518541 | 31 |
| 30 | 0.495274 | 42.23    | 10.3504726 | 0.6977363 | 52.75    | 10.3022637 | 10.0482088 | 10.48    | 0.9517912 | 30 |
| 31 | 0.497807 | 42.22    | 3502193    | 6980520   | 52.72    | 3019474    | 0482718    | 10.52    | 0.9517282 | 29 |
| 32 | 0.500338 | 42.18    | 3499662    | 6983687   | 52.68    | 3016313    | 0483349    | 10.52    | 0.9516651 | 28 |
| 33 | 0.502868 | 42.17    | 3497132    | 6986847   | 52.67    | 3013153    | 0483980    | 10.52    | 0.9516020 | 27 |
| 34 | 0.505395 | 42.12    | 3494605    | 6990006   | 52.65    | 3009994    | 0484611    | 10.55    | 0.9515389 | 26 |
| 35 | 0.507920 | 42.08    | 3492080    | 6993164   | 52.63    | 3006836    | 0485243    | 10.53    | 0.9514757 | 25 |
| 36 | 0.510444 | 42.07    | 10.3480556 | 0.6996320 | 52.60    | 10.3003680 | 10.0485876 | 10.55    | 0.9514124 | 24 |
| 37 | 0.512966 | 42.03    | 3487034    | 6999474   | 52.57    | 3000526    | 0486508    | 10.53    | 0.9513492 | 23 |
| 38 | 0.515486 | 42.00    | 3484514    | 7002628   | 52.57    | 2997372    | 0487142    | 10.57    | 0.9512858 | 22 |
| 39 | 0.518004 | 41.97    | 3481996    | 7005780   | 52.54    | 2994220    | 0487776    | 10.57    | 0.9512224 | 21 |
| 40 | 0.520521 | 41.95    | 3479479    | 7008930   | 52.50    | 2991070    | 0488410    | 10.57    | 0.9511590 | 20 |
| 41 | 0.523035 | 41.90    | 3476965    | 7012080   | 52.50    | 2987920    | 0489044    | 10.60    | 0.9510956 | 19 |
| 42 | 0.525548 | 41.88    | 10.3474459 | 0.7015227 | 52.45    | 10.2984773 | 10.0489680 | 10.58    | 0.9510320 | 18 |
| 43 | 0.528059 | 41.85    | 3471941    | 7018374   | 52.45    | 2981626    | 0490315    | 10.58    | 0.9509685 | 17 |
| 44 | 0.530568 | 41.82    | 3469432    | 7021519   | 52.42    | 2978481    | 0490951    | 10.60    | 0.9509049 | 16 |
| 45 | 0.533075 | 41.78    | 3466925    | 7024663   | 52.40    | 2975337    | 0491588    | 10.62    | 0.9508412 | 15 |
| 46 | 0.535581 | 41.77    | 3464419    | 7027805   | 52.37    | 2972195    | 0492225    | 10.62    | 0.9507775 | 14 |
| 47 | 0.538084 | 41.72    | 3461916    | 7030946   | 52.35    | 2969054    | 0492862    | 10.62    | 0.9507138 | 13 |
| 48 | 0.540586 | 41.70    | 10.3459414 | 0.7034086 | 52.33    | 10.2955914 | 10.0493500 | 10.63    | 0.9506500 | 12 |
| 49 | 0.543086 | 41.67    | 3456914    | 7037225   | 52.32    | 2962775    | 0494139    | 10.65    | 0.9505861 | 11 |
| 50 | 0.545584 | 41.63    | 3454416    | 7040362   | 52.28    | 2959638    | 0494777    | 10.63    | 0.9505223 | 10 |
| 51 | 0.548081 | 41.62    | 3451919    | 7043497   | 52.25    | 2956503    | 0495417    | 10.67    | 0.9504583 | 9  |
| 52 | 0.550575 | 41.57    | 3449425    | 7046632   | 52.25    | 2953368    | 0496056    | 10.65    | 0.9503944 | 8  |
| 53 | 0.553068 | 41.55    | 3446932    | 7049765   | 52.22    | 2950235    | 0496697    | 10.68    | 0.9503303 | 7  |
| 54 | 0.555559 | 41.52    | 10.3444441 | 0.7052897 | 52.20    | 10.2947103 | 10.0497337 | 10.67    | 0.9502663 | 6  |
| 55 | 0.558048 | 41.48    | 3441952    | 7056027   | 52.17    | 2943973    | 0497978    | 10.68    | 0.9502022 | 5  |
| 56 | 0.560536 | 41.47    | 3439464    | 7059156   | 52.15    | 2940844    | 0498618    | 10.70    | 0.9501380 | 4  |
| 57 | 0.563021 | 41.42    | 3436979    | 7062284   | 52.13    | 2937716    | 0499262    | 10.70    | 0.9500738 | 3  |
| 58 | 0.565505 | 41.40    | 3434495    | 7065410   | 52.10    | 2934590    | 0499905    | 10.72    | 0.9500095 | 2  |
| 59 | 0.567987 | 41.37    | 3432013    | 7068535   | 52.08    | 2931465    | 0500548    | 10.72    | 0.9499452 | 1  |
| 60 | 0.570468 | 41.35    | 10.3420532 | 0.7071659 | 52.07    | 10.2928341 | 10.0501191 | 10.72    | 0.9498809 | 0  |

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|    | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | dif. 1'' | co-sin.    |    |
|----|------------|----------|-------------|------------|----------|-------------|-------------|----------|------------|----|
| 0  | 9.657 0468 | 41.30    | 10.342 9532 | 9.707 1659 | 52.03    | 10.292 8341 | 10.050 1191 | 10.73    | 9.949 8809 | 60 |
| 1  | 657 2946   | 41.28    | 342 7054    | 707 4781   | 52.02    | 292 5219    | 050 1835    | 10.73    | 9498165    | 59 |
| 2  | 657 5423   | 41.25    | 342 4577    | 707 7902   | 52.00    | 292 2098    | 050 2479    | 10.75    | 9497521    | 58 |
| 3  | 657 7899   | 41.22    | 342 2102    | 708 1022   | 51.98    | 291 8978    | 050 3124    | 10.77    | 9496876    | 57 |
| 4  | 658 0371   | 41.18    | 341 9629    | 708 4141   | 51.95    | 291 5859    | 050 3770    | 10.77    | 9496230    | 56 |
| 5  | 658 2842   | 41.17    | 341 7158    | 708 7258   | 51.93    | 291 2742    | 050 4415    | 10.78    | 9495585    | 55 |
| 6  | 9.658 5312 | 41.13    | 10.341 4688 | 9.709 0374 | 51.90    | 10.290 9526 | 10.050 5062 | 10.77    | 9.949 4938 | 54 |
| 7  | 658 7780   | 41.10    | 341 2220    | 709 3488   | 51.88    | 290 6512    | 050 5708    | 10.78    | 9494292    | 53 |
| 8  | 659 0246   | 41.07    | 340 9754    | 709 6601   | 51.87    | 290 3399    | 050 6355    | 10.80    | 9493645    | 52 |
| 9  | 659 2710   | 41.05    | 340 7290    | 709 9713   | 51.85    | 290 0287    | 050 7003    | 10.80    | 9492997    | 51 |
| 10 | 659 5173   | 41.00    | 340 4827    | 710 2824   | 51.82    | 289 7176    | 050 7651    | 10.82    | 9492349    | 50 |
| 11 | 659 7633   | 41.00    | 340 2367    | 710 5933   | 51.80    | 289 4067    | 050 8300    | 10.82    | 9491701    | 49 |
| 12 | 9.660 0093 | 40.95    | 10.339 9907 | 9.710 9041 | 51.80    | 10.289 0959 | 10.050 8949 | 10.82    | 9.949 1051 | 48 |
| 13 | 660 2550   | 40.92    | 339 7450    | 711 2148   | 51.77    | 288 7852    | 050 9598    | 10.83    | 9490402    | 47 |
| 14 | 660 5005   | 40.90    | 339 4995    | 711 5254   | 51.73    | 288 4740    | 051 0248    | 10.85    | 9489752    | 46 |
| 15 | 660 7459   | 40.87    | 339 2541    | 711 8358   | 51.72    | 288 1642    | 051 0899    | 10.85    | 9489101    | 45 |
| 16 | 660 9911   | 40.83    | 339 0089    | 712 1461   | 51.68    | 287 8539    | 051 1550    | 10.85    | 9488450    | 44 |
| 17 | 661 2361   | 40.82    | 338 7639    | 712 4562   | 51.67    | 287 5438    | 051 2201    | 10.87    | 9487799    | 43 |
| 18 | 9.661 4810 | 40.78    | 10.338 5190 | 9.712 7662 | 51.65    | 10.287 2338 | 10.051 2853 | 10.87    | 9.948 7147 | 42 |
| 19 | 661 7257   | 40.75    | 338 2743    | 713 0761   | 51.63    | 286 9239    | 051 3505    | 10.88    | 9486465    | 41 |
| 20 | 661 9702   | 40.72    | 338 0298    | 713 3859   | 51.62    | 286 6141    | 051 4158    | 10.88    | 9485812    | 40 |
| 21 | 662 2145   | 40.68    | 337 7855    | 713 6956   | 51.58    | 286 3044    | 051 4811    | 10.90    | 9485159    | 39 |
| 22 | 662 4586   | 40.67    | 337 5414    | 714 0051   | 51.57    | 285 9949    | 051 5465    | 10.90    | 9484505    | 38 |
| 23 | 662 7026   | 40.63    | 337 2974    | 714 3145   | 51.53    | 285 6855    | 051 6119    | 10.90    | 9483851    | 37 |
| 24 | 9.662 9464 | 40.60    | 10.337 0536 | 9.714 6237 | 51.53    | 10.285 3763 | 10.051 6773 | 10.92    | 9.948 3227 | 36 |
| 25 | 663 1900   | 40.58    | 336 8100    | 714 9329   | 51.50    | 285 0671    | 051 7428    | 10.93    | 9482572    | 35 |
| 26 | 663 4335   | 40.55    | 336 5655    | 715 2419   | 51.48    | 284 7581    | 051 8084    | 10.93    | 9481916    | 34 |
| 27 | 663 6768   | 40.52    | 336 3232    | 715 5508   | 51.45    | 284 4492    | 051 8740    | 10.93    | 9481260    | 33 |
| 28 | 663 9192   | 40.48    | 336 0801    | 715 8595   | 51.45    | 284 1405    | 051 9396    | 10.95    | 9480604    | 32 |
| 29 | 664 1628   | 40.47    | 335 8372    | 716 1682   | 51.42    | 283 8318    | 052 0053    | 10.97    | 9479947    | 31 |
| 30 | 9.664 4056 | 40.43    | 10.335 5944 | 9.716 4767 | 51.40    | 10.283 5233 | 10.052 0711 | 10.97    | 9.947 9289 | 30 |
| 31 | 664 6482   | 40.40    | 335 3518    | 716 7851   | 51.37    | 283 2149    | 052 1369    | 10.97    | 9478663    | 29 |
| 32 | 664 8906   | 40.38    | 335 1094    | 717 0933   | 51.35    | 282 9067    | 052 2027    | 10.97    | 9477973    | 28 |
| 33 | 665 1329   | 40.33    | 334 8671    | 717 4014   | 51.33    | 282 5986    | 052 2686    | 10.98    | 9477314    | 27 |
| 34 | 665 3749   | 40.32    | 334 6251    | 717 7094   | 51.32    | 282 2906    | 052 3345    | 11.00    | 9476655    | 26 |
| 35 | 665 6168   | 40.30    | 334 3832    | 718 0173   | 51.30    | 281 9827    | 052 4005    | 11.00    | 9475995    | 25 |
| 36 | 9.665 8586 | 40.25    | 10.334 1414 | 9.718 3251 | 51.27    | 10.281 6749 | 10.052 4665 | 11.02    | 9.947 5335 | 24 |
| 37 | 666 1001   | 40.23    | 333 8999    | 718 6327   | 51.25    | 281 3673    | 052 5326    | 11.02    | 9474674    | 23 |
| 38 | 666 3415   | 40.22    | 333 6585    | 718 9402   | 51.23    | 281 0598    | 052 5987    | 11.02    | 9474013    | 22 |
| 39 | 666 5828   | 40.17    | 333 4172    | 719 2476   | 51.22    | 280 7524    | 052 6648    | 11.05    | 9473352    | 21 |
| 40 | 666 8238   | 40.15    | 333 1762    | 719 5549   | 51.18    | 280 4451    | 052 7311    | 11.03    | 9472699    | 20 |
| 41 | 667 0647   | 40.12    | 332 9353    | 719 8620   | 51.17    | 280 1380    | 052 7973    | 11.05    | 9472037    | 19 |
| 42 | 9.667 3054 | 40.08    | 10.332 6946 | 9.720 1690 | 51.15    | 10.279 8310 | 10.052 8636 | 11.07    | 9.947 1364 | 18 |
| 43 | 667 5459   | 40.07    | 332 4541    | 720 4759   | 51.13    | 279 5241    | 052 9300    | 11.07    | 9470700    | 17 |
| 44 | 667 7863   | 40.03    | 332 2137    | 720 7827   | 51.10    | 279 2173    | 052 9964    | 11.07    | 9470036    | 16 |
| 45 | 668 0265   | 40.00    | 331 9735    | 721 0893   | 51.08    | 278 9107    | 053 0628    | 11.08    | 9469372    | 15 |
| 46 | 668 2665   | 39.98    | 331 7335    | 721 3958   | 51.07    | 278 6042    | 053 1293    | 11.08    | 9468707    | 14 |
| 47 | 668 5064   | 39.95    | 331 4936    | 721 7022   | 51.05    | 278 2978    | 053 1958    | 11.10    | 9468042    | 13 |
| 48 | 9.668 7461 | 39.92    | 10.331 2539 | 9.722 0085 | 51.03    | 10.277 9915 | 10.053 2624 | 11.10    | 9.946 7376 | 12 |
| 49 | 668 9856   | 39.90    | 331 0144    | 722 3147   | 51.00    | 277 6853    | 053 3290    | 11.12    | 9467101    | 11 |
| 50 | 669 2250   | 39.87    | 330 7750    | 722 6207   | 50.98    | 277 3793    | 053 3957    | 11.12    | 9466434    | 10 |
| 51 | 669 4642   | 39.83    | 330 5358    | 722 9266   | 50.97    | 277 0734    | 053 4624    | 11.13    | 9465769    | 9  |
| 52 | 669 7032   | 39.80    | 330 2968    | 723 2324   | 50.95    | 276 7676    | 053 5292    | 11.13    | 9465108    | 8  |
| 53 | 9.669 9420 | 39.78    | 10.330 0580 | 9.723 5381 | 50.92    | 276 4619    | 053 5960    | 11.15    | 9.946 1040 | 7  |
| 54 | 670 1807   | 39.75    | 329 8193    | 723 8436   | 50.90    | 10.276 1564 | 10.053 6629 | 11.15    | 9.946 3371 | 6  |
| 55 | 670 4192   | 39.73    | 329 5808    | 724 1490   | 50.88    | 275 8510    | 053 7298    | 11.17    | 9462702    | 5  |
| 56 | 670 6576   | 39.70    | 329 3424    | 724 4543   | 50.87    | 275 5457    | 053 7968    | 11.17    | 9462032    | 4  |
| 57 | 670 8958   | 39.67    | 329 1042    | 724 7595   | 50.85    | 275 2405    | 053 8638    | 11.17    | 9461362    | 3  |
| 58 | 671 1338   | 39.63    | 328 8662    | 725 0646   | 50.82    | 274 9354    | 053 9308    | 11.18    | 9460692    | 2  |
| 59 | 671 3716   | 39.62    | 328 6284    | 725 3697   | 50.82    | 274 6305    | 053 9979    | 11.20    | 9460021    | 1  |
| 60 | 9.671 6093 | 39.62    | 10.328 3907 | 9.725 6744 | 50.82    | 10.274 3256 | 10.054 0651 | 11.20    | 9.945 9349 | 0  |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | dif. 1'' | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|



28°

151°

| '  | sin.     | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | dif. 1'' | co-sin.    | '  |
|----|----------|----------|-------------|------------|----------|-------------|-------------|----------|------------|----|
| 0  | 671 6093 |          | 10.328 3097 | 9.725 6744 | 50.78    | 10.274 3256 | 10.054 0651 | 11.20    | 9.945 9349 | 60 |
| 1  | 671 8468 | 39.58    | 328 1532    | 725 9791   | 50.77    | 274 0209    | 0541 323    | 11.20    | 9458677    | 59 |
| 2  | 672 0841 | 39.55    | 327 9159    | 726 2837   | 50.73    | 273 7163    | 0541 995    | 11.22    | 9458005    | 58 |
| 3  | 672 3213 | 39.53    | 327 6787    | 726 5881   | 50.73    | 273 4119    | 0542 668    | 11.22    | 9457332    | 57 |
| 4  | 672 5583 | 39.50    | 327 4417    | 726 8925   | 50.73    | 273 1075    | 0543 341    | 11.22    | 9456659    | 56 |
| 5  | 672 7952 | 39.48    | 327 2048    | 727 1967   | 50.70    | 272 8033    | 0544 015    | 11.23    | 9455985    | 55 |
| 6  | 673 0319 | 39.45    | 10.326 9681 | 9.727 5008 | 50.68    | 10.272 4992 | 10.054 4690 | 11.25    | 9.945 5310 | 54 |
| 7  | 673 2684 | 39.42    | 326 7316    | 727 8048   | 50.67    | 272 1952    | 0545 364    | 11.27    | 9454636    | 53 |
| 8  | 673 5047 | 39.38    | 326 4953    | 728 1087   | 50.65    | 271 8913    | 0546 040    | 11.27    | 9453960    | 52 |
| 9  | 673 7409 | 39.37    | 326 2591    | 728 4124   | 50.62    | 271 5876    | 0546 715    | 11.25    | 9453285    | 51 |
| 10 | 673 9769 | 39.33    | 326 0231    | 728 7161   | 50.62    | 271 2839    | 0547 391    | 11.27    | 9452609    | 50 |
| 11 | 674 2128 | 39.32    | 325 7872    | 729 0196   | 50.58    | 270 9804    | 0548 068    | 11.28    | 9451932    | 49 |
| 12 | 674 4485 | 39.28    | 10.325 5515 | 9.729 3230 | 50.57    | 10.270 6770 | 10.054 8745 | 11.28    | 9.945 1255 | 48 |
| 13 | 674 6840 | 39.25    | 325 3160    | 729 6263   | 50.55    | 270 3737    | 0549 423    | 11.30    | 9450577    | 47 |
| 14 | 674 9194 | 39.23    | 325 0806    | 729 9295   | 50.53    | 270 0705    | 0550 101    | 11.30    | 9449899    | 46 |
| 15 | 675 1546 | 39.20    | 324 8454    | 730 2325   | 50.50    | 269 7675    | 0550 780    | 11.32    | 9449220    | 45 |
| 16 | 675 3896 | 39.17    | 324 6104    | 730 5354   | 50.48    | 269 4646    | 0551 459    | 11.32    | 9448541    | 44 |
| 17 | 675 6245 | 39.15    | 324 3755    | 730 8383   | 50.48    | 269 1617    | 0552 138    | 11.33    | 9447862    | 43 |
| 18 | 675 8592 | 39.12    | 10.324 1468 | 9.731 1410 | 50.45    | 10.268 8590 | 10.055 2818 | 11.35    | 9.944 7182 | 42 |
| 19 | 676 0937 | 39.08    | 323 9063    | 731 4436   | 50.43    | 268 5564    | 0553 499    | 11.35    | 9446501    | 41 |
| 20 | 676 3281 | 39.07    | 323 6719    | 731 7460   | 50.40    | 268 2540    | 0554 179    | 11.33    | 9445821    | 40 |
| 21 | 676 5623 | 39.00    | 323 4377    | 732 0484   | 50.40    | 267 9516    | 0554 861    | 11.37    | 9445139    | 39 |
| 22 | 676 7963 | 39.03    | 323 2037    | 732 3506   | 50.37    | 267 6494    | 0555 543    | 11.37    | 9444457    | 38 |
| 23 | 677 0302 | 38.98    | 322 9698    | 732 6527   | 50.35    | 267 3473    | 0556 225    | 11.37    | 9443775    | 37 |
| 24 | 677 2640 | 38.97    | 10.322 7360 | 9.732 9547 | 50.33    | 10.267 0453 | 10.055 6908 | 11.38    | 9.944 3092 | 36 |
| 25 | 677 4975 | 38.92    | 322 5025    | 733 2566   | 50.32    | 266 7434    | 0557 391    | 11.38    | 9442409    | 35 |
| 26 | 677 7309 | 38.88    | 322 2691    | 733 5584   | 50.30    | 266 4416    | 0558 075    | 11.40    | 9441725    | 34 |
| 27 | 677 9642 | 38.83    | 322 0358    | 733 8601   | 50.28    | 266 1399    | 0558 759    | 11.40    | 9441041    | 33 |
| 28 | 678 1972 | 38.83    | 321 8028    | 734 1616   | 50.25    | 265 8384    | 0559 444    | 11.42    | 9440356    | 32 |
| 29 | 678 4301 | 38.82    | 321 5699    | 734 4631   | 50.25    | 265 5369    | 0560 329    | 11.42    | 9439671    | 31 |
| 30 | 678 6629 | 38.80    | 10.321 3371 | 9.734 7644 | 50.22    | 10.265 2356 | 10.056 1015 | 11.43    | 9.943 8875 | 30 |
| 31 | 678 8955 | 38.77    | 321 1045    | 735 0656   | 50.20    | 264 9344    | 0561 701    | 11.43    | 9438299    | 29 |
| 32 | 679 1279 | 38.73    | 320 8721    | 735 3667   | 50.18    | 264 6333    | 0562 388    | 11.45    | 9437612    | 28 |
| 33 | 679 3602 | 38.72    | 320 6398    | 735 6677   | 50.17    | 264 3323    | 0563 075    | 11.45    | 9436925    | 27 |
| 34 | 679 5923 | 38.68    | 320 4077    | 735 9685   | 50.13    | 264 0315    | 0563 762    | 11.45    | 9436238    | 26 |
| 35 | 679 8243 | 38.67    | 320 1757    | 736 2693   | 50.13    | 263 7307    | 0564 451    | 11.48    | 9435549    | 25 |
| 36 | 680 0560 | 38.62    | 10.319 9440 | 9.736 5699 | 50.10    | 10.263 4301 | 10.056 5139 | 11.47    | 9.943 4861 | 24 |
| 37 | 680 2877 | 38.62    | 319 7123    | 736 8705   | 50.10    | 263 1295    | 0565 288    | 11.48    | 9434172    | 23 |
| 38 | 680 5191 | 38.57    | 319 4809    | 737 1709   | 50.07    | 262 8291    | 0566 018    | 11.50    | 9433482    | 22 |
| 39 | 680 7504 | 38.55    | 319 2496    | 737 4712   | 50.05    | 262 5288    | 0566 708    | 11.50    | 9432792    | 21 |
| 40 | 680 9816 | 38.53    | 319 0184    | 737 7714   | 50.03    | 262 2286    | 0567 408    | 11.50    | 9432102    | 20 |
| 41 | 681 2126 | 38.50    | 318 7874    | 738 0715   | 50.02    | 261 9285    | 0568 108    | 11.52    | 9431411    | 19 |
| 42 | 681 4434 | 38.47    | 10.318 5566 | 9.738 3714 | 49.98    | 10.261 6286 | 10.056 9280 | 11.52    | 9.943 0720 | 18 |
| 43 | 681 6741 | 38.45    | 318 3259    | 738 6713   | 49.98    | 261 3287    | 0569 772    | 11.53    | 9430028    | 17 |
| 44 | 681 9046 | 38.42    | 318 0954    | 738 9710   | 49.95    | 261 0290    | 0570 665    | 11.55    | 9429335    | 16 |
| 45 | 682 1349 | 38.38    | 317 8651    | 739 2707   | 49.95    | 260 7293    | 0571 357    | 11.53    | 9428643    | 15 |
| 46 | 682 3651 | 38.37    | 317 6349    | 739 5702   | 49.92    | 260 4298    | 0572 051    | 11.57    | 9427949    | 14 |
| 47 | 682 5952 | 38.35    | 317 4048    | 739 8696   | 49.90    | 260 1304    | 0572 745    | 11.57    | 9427255    | 13 |
| 48 | 682 8250 | 38.30    | 10.317 1750 | 9.740 1689 | 49.88    | 10.259 8311 | 10.057 3439 | 11.57    | 9.942 6561 | 12 |
| 49 | 683 0548 | 38.30    | 316 9452    | 740 4681   | 49.87    | 259 5319    | 0574 134    | 11.58    | 9425866    | 11 |
| 50 | 683 2843 | 38.25    | 316 7157    | 740 7672   | 49.85    | 259 2328    | 0574 829    | 11.58    | 9425171    | 10 |
| 51 | 683 5137 | 38.23    | 316 4863    | 741 0662   | 49.83    | 258 9338    | 0575 524    | 11.58    | 9424476    | 9  |
| 52 | 683 7430 | 38.22    | 316 2570    | 741 3650   | 49.80    | 258 6350    | 0576 221    | 11.62    | 9423779    | 8  |
| 53 | 683 9720 | 38.17    | 316 0280    | 741 6638   | 49.80    | 258 3362    | 0576 917    | 11.60    | 9423083    | 7  |
| 54 | 684 2010 | 38.17    | 10.315 7990 | 9.741 9624 | 49.77    | 10.258 0376 | 10.057 7614 | 11.62    | 9.942 2386 | 6  |
| 55 | 684 4297 | 38.12    | 315 5703    | 742 2609   | 49.75    | 257 7391    | 0578 312    | 11.63    | 9421688    | 5  |
| 56 | 684 6583 | 38.10    | 315 3417    | 742 5594   | 49.75    | 257 4406    | 0579 010    | 11.63    | 9420990    | 4  |
| 57 | 684 8868 | 38.08    | 315 1132    | 742 8577   | 49.72    | 257 1423    | 0579 709    | 11.65    | 9420291    | 3  |
| 58 | 685 1151 | 38.05    | 314 8849    | 743 1559   | 49.70    | 256 8441    | 0580 408    | 11.65    | 9419592    | 2  |
| 59 | 685 3432 | 38.02    | 314 6568    | 743 4540   | 49.68    | 256 5460    | 0581 107    | 11.65    | 9418893    | 1  |
| 60 | 685 5712 | 38.00    | 10.314 4288 | 9.743 7520 | 49.67    | 10.256 2480 | 10.058 1807 | 11.67    | 9.941 8193 | 0  |

| ' | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | dif. 1'' | sin. | ' |
|---|---------|----------|------|----------|----------|-------|---------|----------|------|---|
|---|---------|----------|------|----------|----------|-------|---------|----------|------|---|

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61°

| '  | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | diff. 1" | co-sin.    | '  |
|----|------------|----------|-------------|------------|----------|-------------|-------------|----------|------------|----|
| 0  | 9.685 5712 | 37.98    | 10.314 4288 | 9.743 7520 | 49.65    | 10.256 2480 | 10.058 1807 | 11.68    | 9.941 8193 | 60 |
| 1  | 685 7991   | 37.93    | 314 2009    | 744 0499   | 49.62    | 255 9501    | 0582508     | 11.68    | 9417492    | 59 |
| 2  | 686 0267   | 37.92    | 313 9733    | 744 3476   | 49.62    | 255 6524    | 0583209     | 11.68    | 9416791    | 58 |
| 3  | 686 2542   | 37.90    | 313 7458    | 744 6453   | 49.58    | 255 3547    | 0583910     | 11.70    | 9416090    | 57 |
| 4  | 686 4816   | 37.87    | 313 5184    | 744 9428   | 49.58    | 255 0572    | 0584612     | 11.72    | 9415388    | 56 |
| 5  | 686 7088   | 37.85    | 313 2912    | 745 2403   | 49.55    | 254 7597    | 0585315     | 11.72    | 9414685    | 55 |
| 6  | 686 9359   | 37.82    | 10.313 0641 | 9.745 5376 | 49.55    | 10.254 4624 | 10.0586018  | 11.72    | 9.941 3982 | 54 |
| 7  | 687 1628   | 37.78    | 312 8372    | 745 8349   | 49.55    | 254 1651    | 0586721     | 11.73    | 9413279    | 53 |
| 8  | 687 3895   | 37.77    | 312 6105    | 746 1320   | 49.52    | 253 8680    | 0587425     | 11.73    | 9412575    | 52 |
| 9  | 687 6161   | 37.77    | 312 3839    | 746 4290   | 49.50    | 253 5710    | 0588129     | 11.73    | 9411871    | 51 |
| 10 | 687 8425   | 37.73    | 312 1575    | 746 7259   | 49.48    | 253 2741    | 0588834     | 11.75    | 9411166    | 50 |
| 11 | 688 0688   | 37.72    | 311 9312    | 747 0227   | 49.47    | 252 9773    | 0589539     | 11.77    | 9410461    | 49 |
| 12 | 688 2949   | 37.68    | 10.311 7051 | 9.747 3194 | 49.45    | 10.252 6806 | 10.0590245  | 11.78    | 9.940 9755 | 48 |
| 13 | 688 5209   | 37.67    | 311 4791    | 747 6160   | 49.43    | 252 3840    | 0590952     | 11.78    | 9409048    | 47 |
| 14 | 688 7467   | 37.60    | 311 2533    | 747 9125   | 49.42    | 252 0875    | 0591658     | 11.77    | 9408342    | 46 |
| 15 | 688 9723   | 37.58    | 311 0277    | 748 2089   | 49.40    | 251 7911    | 0592366     | 11.78    | 9407634    | 45 |
| 16 | 689 1978   | 37.57    | 310 8022    | 748 5052   | 49.38    | 251 4948    | 0593073     | 11.78    | 9406927    | 44 |
| 17 | 689 4232   | 37.53    | 310 5768    | 748 8013   | 49.35    | 251 1987    | 0593781     | 11.80    | 9406219    | 43 |
| 18 | 689 6484   | 37.50    | 10.310 3516 | 9.749 0974 | 49.33    | 10.250 9026 | 10.0594490  | 11.82    | 9.940 5510 | 42 |
| 19 | 689 8734   | 37.48    | 310 1266    | 749 3934   | 49.30    | 250 6066    | 0595199     | 11.83    | 9404801    | 41 |
| 20 | 690 0983   | 37.47    | 309 9017    | 749 6897   | 49.30    | 250 3108    | 0595909     | 11.83    | 9404091    | 40 |
| 21 | 690 3231   | 37.42    | 309 6769    | 749 9850   | 49.30    | 250 0150    | 0596619     | 11.83    | 9403381    | 39 |
| 22 | 690 5476   | 37.42    | 309 4524    | 750 2806   | 49.27    | 249 7194    | 0597330     | 11.85    | 9402670    | 38 |
| 23 | 690 7721   | 37.38    | 309 2279    | 750 5762   | 49.23    | 249 4238    | 0598041     | 11.85    | 9401959    | 37 |
| 24 | 690 9964   | 37.35    | 10.309 0036 | 9.750 8716 | 49.22    | 10.249 1284 | 10.0598752  | 11.88    | 9.940 1248 | 36 |
| 25 | 691 2205   | 37.33    | 308 7795    | 751 1679   | 49.22    | 248 8331    | 0599465     | 11.88    | 9400535    | 35 |
| 26 | 691 4445   | 37.30    | 308 5555    | 751 4622   | 49.18    | 248 5378    | 0600177     | 11.87    | 9399823    | 34 |
| 27 | 691 6683   | 37.27    | 308 3317    | 751 7573   | 49.18    | 248 2427    | 0600890     | 11.88    | 9399110    | 33 |
| 28 | 691 8919   | 37.27    | 308 1081    | 752 0533   | 49.17    | 247 9477    | 0601604     | 11.90    | 9398396    | 32 |
| 29 | 692 1155   | 37.22    | 307 8845    | 752 3472   | 49.15    | 247 6528    | 0602318     | 11.90    | 9397682    | 31 |
| 30 | 692 3388   | 37.20    | 10.307 6612 | 9.752 6420 | 49.13    | 10.247 3580 | 10.0603032  | 11.92    | 9.939 6688 | 30 |
| 31 | 692 5620   | 37.18    | 307 4380    | 752 9368   | 49.10    | 247 0632    | 0603747     | 11.93    | 9396953    | 29 |
| 32 | 692 7851   | 37.15    | 307 2149    | 753 2314   | 49.10    | 246 7686    | 0604463     | 11.93    | 9396237    | 28 |
| 33 | 693 0080   | 37.13    | 306 9920    | 753 5259   | 49.08    | 246 4741    | 0605179     | 11.93    | 9395521    | 27 |
| 34 | 693 2308   | 37.10    | 306 7692    | 753 8203   | 49.07    | 246 1797    | 0605895     | 11.93    | 9394805    | 26 |
| 35 | 693 4534   | 37.10    | 306 5466    | 754 1146   | 49.05    | 245 8854    | 0606612     | 11.95    | 9394088    | 25 |
| 36 | 693 6758   | 37.07    | 10.306 3242 | 9.754 4088 | 49.03    | 10.245 5912 | 10.0607329  | 11.95    | 9.939 2671 | 24 |
| 37 | 693 8981   | 37.05    | 306 1019    | 754 7029   | 49.02    | 245 2971    | 0608047     | 11.97    | 9391953    | 23 |
| 38 | 694 1203   | 37.03    | 305 8797    | 754 9969   | 49.00    | 245 0031    | 0608766     | 11.98    | 9391234    | 22 |
| 39 | 694 3423   | 36.98    | 305 6577    | 755 2908   | 48.98    | 244 7092    | 0609485     | 11.98    | 9390515    | 21 |
| 40 | 694 5642   | 36.95    | 305 4358    | 755 5846   | 48.97    | 244 4154    | 0610204     | 11.98    | 9389796    | 20 |
| 41 | 694 7859   | 36.92    | 305 2141    | 755 8783   | 48.95    | 244 1217    | 0610924     | 12.00    | 9389076    | 19 |
| 42 | 694 9974   | 36.92    | 10.304 9926 | 9.756 1718 | 48.92    | 10.243 8282 | 10.0611644  | 12.00    | 9.938 8356 | 18 |
| 43 | 695 2288   | 36.90    | 304 7712    | 756 4653   | 48.92    | 243 5347    | 0612365     | 12.02    | 9387635    | 17 |
| 44 | 695 4501   | 36.88    | 304 5499    | 756 7587   | 48.90    | 243 2413    | 0613086     | 12.02    | 9386914    | 16 |
| 45 | 695 6712   | 36.85    | 304 3288    | 757 0520   | 48.88    | 242 9480    | 0613808     | 12.03    | 9386192    | 15 |
| 46 | 695 8922   | 36.83    | 304 1078    | 757 3452   | 48.87    | 242 6548    | 0614530     | 12.03    | 9385470    | 14 |
| 47 | 696 1130   | 36.80    | 303 8870    | 757 6383   | 48.85    | 242 3617    | 0615253     | 12.05    | 9384747    | 13 |
| 48 | 696 3336   | 36.77    | 10.303 6664 | 9.757 9313 | 48.83    | 10.242 0687 | 10.0615976  | 12.05    | 9.938 4024 | 12 |
| 49 | 696 5541   | 36.75    | 303 4459    | 758 2242   | 48.82    | 241 7758    | 0616700     | 12.07    | 9383330    | 11 |
| 50 | 696 7745   | 36.73    | 303 2255    | 758 5170   | 48.80    | 241 4830    | 0617424     | 12.08    | 9382506    | 10 |
| 51 | 696 9947   | 36.70    | 303 0053    | 758 8096   | 48.77    | 241 1904    | 0618149     | 12.08    | 9381681    | 9  |
| 52 | 697 2148   | 36.68    | 302 7852    | 759 1022   | 48.77    | 240 8978    | 0618874     | 12.10    | 9380856    | 8  |
| 53 | 697 4347   | 36.65    | 302 5653    | 759 3947   | 48.75    | 240 6053    | 0619600     | 12.10    | 9380030    | 7  |
| 54 | 697 6545   | 36.63    | 10.302 3455 | 9.759 6871 | 48.73    | 10.240 3129 | 10.0620326  | 12.12    | 9.937 9674 | 6  |
| 55 | 697 8741   | 36.60    | 302 1259    | 759 9794   | 48.72    | 240 0206    | 0621053     | 12.12    | 9378944    | 5  |
| 56 | 698 0936   | 36.58    | 301 9064    | 760 2716   | 48.70    | 239 7284    | 0621780     | 12.12    | 9378220    | 4  |
| 57 | 698 3129   | 36.55    | 301 6871    | 760 5637   | 48.68    | 239 4363    | 0622508     | 12.13    | 9377492    | 3  |
| 58 | 698 5321   | 36.53    | 301 4679    | 760 8557   | 48.67    | 239 1443    | 0623236     | 12.13    | 9376764    | 2  |
| 59 | 698 7511   | 36.50    | 301 2489    | 761 1476   | 48.65    | 238 8524    | 0623965     | 12.15    | 9376035    | 1  |
| 60 | 698 9700   | 36.48    | 10.301 0300 | 9.761 4394 | 48.63    | 10.238 5606 | 10.0624694  | 12.15    | 9.937 5306 | 0  |



30°

149°

|    | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.        | dif. 1'' | co-sin.    |    |
|----|------------|----------|-------------|------------|----------|-------------|-------------|----------|------------|----|
| 0  | 9.698 9700 |          | 10.301 0300 | 9.761 4394 |          | 10.238 5606 | 10.062 4694 |          | 9.937 5306 | 60 |
| 1  | 699 1887   | 36.45    | 300 8113    | 761 7311   | 48.62    | 238 2689    | 062 5423    | 12.15    | 9374577    | 59 |
| 2  | 699 4073   | 36.43    | 300 5927    | 762 0227   | 48.60    | 237 9773    | 062 6153    | 12.17    | 9373847    | 58 |
| 3  | 699 6258   | 36.42    | 300 3742    | 762 3142   | 48.58    | 237 6858    | 062 6884    | 12.18    | 9373116    | 57 |
| 4  | 699 8441   | 36.38    | 300 1559    | 762 6056   | 48.57    | 237 3944    | 062 7615    | 12.18    | 9372385    | 56 |
| 5  | 700 0622   | 36.35    | 299 9378    | 762 8969   | 48.55    | 237 1031    | 062 8347    | 12.20    | 9371653    | 55 |
| 6  | 9.700 2802 | 36.33    | 10.299 7198 | 9.763 1881 | 48.53    | 10.236 8119 | 10.062 9079 | 12.20    | 9.937 0921 | 54 |
| 7  | 700 4981   | 36.32    | 299 5019    | 763 4792   | 48.52    | 236 5208    | 062 9811    | 12.20    | 9370189    | 53 |
| 8  | 700 7158   | 36.28    | 299 2842    | 763 7702   | 48.50    | 236 2298    | 063 0544    | 12.22    | 9369456    | 52 |
| 9  | 700 9334   | 36.27    | 299 0666    | 764 0612   | 48.50    | 235 9388    | 063 1278    | 12.23    | 9368722    | 51 |
| 10 | 701 1508   | 36.23    | 298 8492    | 764 3520   | 48.47    | 235 6480    | 063 2012    | 12.23    | 9367988    | 50 |
| 11 | 701 3681   | 36.22    | 298 6319    | 764 6427   | 48.45    | 235 3573    | 063 2746    | 12.23    | 9367254    | 49 |
| 12 | 9.701 5852 | 36.18    | 10.298 4148 | 9.764 9334 | 48.45    | 10.235 0666 | 10.063 3481 | 12.25    | 9.936 6519 | 48 |
| 13 | 701 8022   | 36.17    | 298 1978    | 765 2239   | 48.42    | 234 7761    | 063 4217    | 12.27    | 9365983    | 47 |
| 14 | 701 8022   | 36.13    | 297 9810    | 765 5143   | 48.40    | 234 4857    | 063 4953    | 12.27    | 9365247    | 46 |
| 15 | 702 2357   | 36.12    | 297 7643    | 765 8047   | 48.40    | 234 1953    | 063 5689    | 12.27    | 9364511    | 45 |
| 16 | 702 4523   | 36.10    | 297 5477    | 766 0949   | 48.37    | 233 9051    | 063 6426    | 12.28    | 9363774    | 44 |
| 17 | 702 6687   | 36.07    | 297 3313    | 766 3851   | 48.37    | 233 6149    | 063 7164    | 12.30    | 9363036    | 43 |
| 18 | 9.702 8849 | 36.03    | 10.297 1151 | 9.766 6751 | 48.33    | 10.233 3249 | 10.063 7902 | 12.30    | 9.936 298  | 42 |
| 19 | 703 1011   | 35.98    | 296 8989    | 766 9651   | 48.33    | 233 0349    | 063 8640    | 12.32    | 9361360    | 41 |
| 20 | 703 3170   | 35.98    | 296 6830    | 767 2550   | 48.32    | 232 7450    | 063 9379    | 12.33    | 9360621    | 40 |
| 21 | 703 5329   | 35.95    | 296 4671    | 767 5448   | 48.30    | 232 4552    | 064 0119    | 12.33    | 9359881    | 39 |
| 22 | 703 7486   | 35.92    | 296 2514    | 767 8344   | 48.27    | 232 1656    | 064 0859    | 12.33    | 9359141    | 38 |
| 23 | 703 9641   | 35.92    | 296 0359    | 768 1240   | 48.27    | 231 8760    | 064 1599    | 12.33    | 9358401    | 37 |
| 24 | 9.704 1795 | 35.90    | 10.295 8205 | 9.768 4135 | 48.25    | 10.231 5865 | 10.064 3240 | 12.35    | 9.935 7660 | 36 |
| 25 | 704 3947   | 35.87    | 295 6053    | 768 7029   | 48.23    | 231 2971    | 064 3982    | 12.37    | 9356918    | 35 |
| 26 | 704 6099   | 35.87    | 295 3901    | 768 9922   | 48.22    | 231 0078    | 064 4723    | 12.35    | 9356177    | 34 |
| 27 | 704 8248   | 35.82    | 295 1752    | 769 2814   | 48.20    | 230 7186    | 064 5466    | 12.38    | 9355434    | 33 |
| 28 | 705 0397   | 35.82    | 294 9603    | 769 5705   | 48.18    | 230 4295    | 064 6209    | 12.38    | 9354691    | 32 |
| 29 | 705 2543   | 35.77    | 294 7457    | 769 8596   | 48.18    | 230 1404    | 064 6952    | 12.38    | 9353948    | 31 |
| 30 | 9.705 4689 | 35.77    | 10.294 5311 | 9.770 1485 | 48.15    | 10.229 8515 | 10.064 6796 | 12.40    | 9.935 304  | 30 |
| 31 | 705 6833   | 35.73    | 294 3167    | 770 4373   | 48.13    | 229 5627    | 064 7541    | 12.42    | 9352569    | 29 |
| 32 | 705 8975   | 35.70    | 294 1025    | 770 7261   | 48.13    | 229 2739    | 064 8285    | 12.40    | 9351725    | 28 |
| 33 | 706 1116   | 35.68    | 293 8884    | 771 0147   | 48.10    | 228 9853    | 064 9031    | 12.43    | 9350969    | 27 |
| 34 | 706 3256   | 35.67    | 293 6744    | 771 3033   | 48.10    | 228 6967    | 064 9777    | 12.43    | 9350223    | 26 |
| 35 | 706 5394   | 35.63    | 293 4606    | 771 5917   | 48.07    | 228 4083    | 065 0523    | 12.43    | 9349477    | 25 |
| 36 | 9.706 7531 | 35.62    | 10.293 2469 | 9.771 8801 | 48.07    | 10.228 1199 | 10.065 1270 | 12.45    | 9.934 8730 | 24 |
| 37 | 706 9667   | 35.60    | 293 0333    | 772 1684   | 48.05    | 227 8316    | 065 2017    | 12.45    | 9347983    | 23 |
| 38 | 707 1801   | 35.57    | 292 8199    | 772 4566   | 48.03    | 227 5434    | 065 2765    | 12.47    | 9347235    | 22 |
| 39 | 707 3933   | 35.53    | 292 6067    | 772 7447   | 48.02    | 227 2553    | 065 3514    | 12.48    | 9346486    | 21 |
| 40 | 707 6064   | 35.52    | 292 3936    | 773 0327   | 48.00    | 226 9673    | 065 4262    | 12.47    | 9345738    | 20 |
| 41 | 707 8194   | 35.50    | 292 1806    | 773 3206   | 47.98    | 226 6794    | 065 5012    | 12.50    | 9344988    | 19 |
| 42 | 9.708 0323 | 35.48    | 10.291 9577 | 9.773 6084 | 47.97    | 10.226 3916 | 10.065 5762 | 12.50    | 9.934 4238 | 18 |
| 43 | 708 2450   | 35.45    | 291 7550    | 773 8961   | 47.95    | 226 1039    | 065 6512    | 12.50    | 9343488    | 17 |
| 44 | 708 4575   | 35.42    | 291 5425    | 774 1838   | 47.95    | 225 8162    | 065 7263    | 12.52    | 9342737    | 16 |
| 45 | 708 6699   | 35.40    | 291 3301    | 774 4713   | 47.92    | 225 5287    | 065 8014    | 12.53    | 9341985    | 15 |
| 46 | 708 8822   | 35.38    | 291 1178    | 774 7588   | 47.92    | 225 2412    | 065 8766    | 12.53    | 9341234    | 14 |
| 47 | 709 0943   | 35.35    | 290 9057    | 775 0462   | 47.90    | 224 9538    | 065 9518    | 12.53    | 9340482    | 13 |
| 48 | 9.709 3063 | 35.33    | 10.290 6937 | 9.775 3334 | 47.87    | 10.224 6666 | 10.066 0271 | 12.55    | 9.933 9729 | 12 |
| 49 | 709 5182   | 35.32    | 290 4818    | 775 6206   | 47.87    | 224 3794    | 066 1024    | 12.55    | 9338976    | 11 |
| 50 | 709 7299   | 35.28    | 290 2701    | 775 9077   | 47.85    | 224 0923    | 066 1778    | 12.57    | 9338222    | 10 |
| 51 | 709 9415   | 35.27    | 290 0585    | 776 1947   | 47.83    | 223 8053    | 066 2533    | 12.58    | 9337469    | 9  |
| 52 | 710 1529   | 35.23    | 289 8471    | 776 4816   | 47.82    | 223 5184    | 066 3288    | 12.57    | 9336713    | 8  |
| 53 | 710 3642   | 35.22    | 289 6358    | 776 7685   | 47.82    | 223 2315    | 066 4043    | 12.60    | 9335957    | 7  |
| 54 | 9.710 5753 | 35.18    | 10.289 4247 | 9.777 0552 | 47.78    | 10.222 9448 | 10.066 4799 | 12.60    | 9.933 5201 | 6  |
| 55 | 710 7863   | 35.17    | 289 2137    | 777 3418   | 47.77    | 222 6582    | 066 5555    | 12.60    | 9334445    | 5  |
| 56 | 710 9972   | 35.15    | 289 0028    | 777 6284   | 47.77    | 222 3716    | 066 6312    | 12.62    | 9333688    | 4  |
| 57 | 711 2080   | 35.13    | 288 7920    | 777 9149   | 47.75    | 222 0851    | 066 7069    | 12.62    | 9332931    | 3  |
| 58 | 711 4186   | 35.10    | 288 5814    | 778 2012   | 47.72    | 221 7988    | 066 7827    | 12.63    | 9332173    | 2  |
| 59 | 711 6290   | 35.07    | 288 3710    | 778 4875   | 47.72    | 221 5125    | 066 8585    | 12.63    | 9331415    | 1  |
| 60 | 9.711 8393 | 35.05    | 10.288 1679 | 9.778 7737 | 47.70    | 10.221 2263 | 10.066 9344 | 12.65    | 9.933 0656 | 0  |

120°

59°

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | dif. 1'' | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|

31°

148°

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | diff. 1" | co-sin.   |    |
|----|------------|----------|-------------|------------|----------|-------------|------------|----------|-----------|----|
| 0  | 9.711 8393 | 35.03    | 10.288 1607 | 9.778 7737 | 47.70    | 10.221 2263 | 10.0669344 | 12.65    | 9.9330656 | 60 |
| 1  | 712 0495   | 35.02    | 287 9505    | 779 0599   | 47.67    | 220 9401    | 0670103    | 12.67    | 9329897   | 59 |
| 2  | 712 2596   | 34.98    | 287 7404    | 779 3459   | 47.65    | 220 6541    | 0670863    | 12.68    | 9329137   | 58 |
| 3  | 712 4695   | 34.95    | 287 5305    | 779 6318   | 47.65    | 220 3682    | 0671624    | 12.67    | 9328376   | 57 |
| 4  | 712 6792   | 34.95    | 287 3208    | 779 9177   | 47.62    | 220 0823    | 0672384    | 12.70    | 9327616   | 56 |
| 5  | 712 8889   | 34.95    | 287 1111    | 780 2034   | 47.62    | 219 7966    | 0673146    | 12.70    | 9326854   | 55 |
| 6  | 9.713 0983 | 34.90    | 10.286 9017 | 9.780 4891 | 47.62    | 10.219 5109 | 10.0673908 | 12.70    | 9.9326092 | 54 |
| 7  | 713 3077   | 34.90    | 286 6923    | 780 7747   | 47.60    | 219 2253    | 0674670    | 12.72    | 9325330   | 53 |
| 8  | 713 5169   | 34.87    | 286 4831    | 781 0602   | 47.57    | 218 9398    | 0675433    | 12.72    | 9324567   | 52 |
| 9  | 713 7260   | 34.85    | 286 2740    | 781 3456   | 47.55    | 218 6544    | 0676196    | 12.73    | 9323804   | 51 |
| 10 | 713 9349   | 34.82    | 286 0651    | 781 6309   | 47.55    | 218 3691    | 0676959    | 12.73    | 9323040   | 50 |
| 11 | 714 1437   | 34.78    | 285 8563    | 781 9162   | 47.52    | 218 0838    | 0677724    | 12.75    | 9322276   | 49 |
| 12 | 9.714 3524 | 34.75    | 10.285 6476 | 9.782 2013 | 47.52    | 10.217 7987 | 10.0678489 | 12.75    | 9.9321511 | 48 |
| 13 | 714 5609   | 34.73    | 285 4391    | 782 4864   | 47.52    | 217 5136    | 0679254    | 12.77    | 9320746   | 47 |
| 14 | 714 7693   | 34.73    | 285 2307    | 782 7713   | 47.48    | 217 2287    | 0680010    | 12.78    | 9319980   | 46 |
| 15 | 714 9776   | 34.72    | 285 0224    | 783 0562   | 47.48    | 216 9438    | 0680767    | 12.77    | 9319213   | 45 |
| 16 | 715 1857   | 34.68    | 284 8143    | 783 3410   | 47.47    | 216 6590    | 0681523    | 12.80    | 9318447   | 44 |
| 17 | 715 3937   | 34.67    | 284 6063    | 783 6258   | 47.47    | 216 3742    | 0682281    | 12.80    | 9317679   | 43 |
| 18 | 9.715 6015 | 34.62    | 10.284 3985 | 9.783 9104 | 47.43    | 10.216 0866 | 10.0683039 | 12.80    | 9.9316911 | 42 |
| 19 | 715 8092   | 34.62    | 284 1908    | 784 1949   | 47.42    | 215 8051    | 0683817    | 12.82    | 9316143   | 41 |
| 20 | 716 0168   | 34.58    | 283 9832    | 784 4794   | 47.40    | 215 5206    | 0684616    | 12.82    | 9315374   | 40 |
| 21 | 716 2243   | 34.58    | 283 7757    | 784 7638   | 47.40    | 215 2362    | 0685335    | 12.83    | 9314605   | 39 |
| 22 | 716 4316   | 34.55    | 283 5684    | 785 0481   | 47.38    | 214 9519    | 0686115    | 12.83    | 9313835   | 38 |
| 23 | 9.716 6387 | 34.52    | 10.283 3613 | 9.785 3323 | 47.35    | 10.214 3836 | 10.0686915 | 12.85    | 9.9313065 | 37 |
| 24 | 716 8458   | 34.47    | 283 1542    | 785 6164   | 47.33    | 214 6677    | 0687706    | 12.87    | 9312294   | 36 |
| 25 | 717 0526   | 34.47    | 282 9474    | 785 9004   | 47.33    | 214 0966    | 0688448    | 12.87    | 9311522   | 35 |
| 26 | 717 2594   | 34.43    | 282 7406    | 786 1844   | 47.30    | 213 8156    | 0689210    | 12.87    | 9310750   | 34 |
| 27 | 717 4660   | 34.42    | 282 5340    | 786 4682   | 47.30    | 213 5318    | 0690022    | 12.88    | 9309978   | 33 |
| 28 | 717 6725   | 34.40    | 282 3275    | 786 7520   | 47.28    | 213 2480    | 0690795    | 12.88    | 9309205   | 32 |
| 29 | 717 8789   | 34.37    | 282 1211    | 787 0357   | 47.27    | 212 9643    | 0691568    | 12.90    | 9308432   | 31 |
| 30 | 9.718 0851 | 34.35    | 10.281 9140 | 9.787 3193 | 47.25    | 10.212 6807 | 10.0692342 | 12.90    | 9.9307658 | 30 |
| 31 | 718 2912   | 34.32    | 281 7088    | 787 6028   | 47.25    | 212 3972    | 0693117    | 12.92    | 9306883   | 29 |
| 32 | 718 4971   | 34.32    | 281 5029    | 787 8863   | 47.22    | 212 1137    | 0693891    | 12.93    | 9306109   | 28 |
| 33 | 718 7030   | 34.32    | 281 2970    | 788 1696   | 47.22    | 211 8304    | 0694667    | 12.93    | 9305332   | 27 |
| 34 | 718 9086   | 34.27    | 281 0914    | 788 4529   | 47.22    | 211 5471    | 0695443    | 12.93    | 9304555   | 26 |
| 35 | 719 1142   | 34.23    | 280 8858    | 788 7361   | 47.20    | 211 2639    | 0696219    | 12.95    | 9303781   | 25 |
| 36 | 9.719 3196 | 34.22    | 10.280 6804 | 9.789 0192 | 47.18    | 10.210 9808 | 10.0696966 | 12.97    | 9.9303004 | 24 |
| 37 | 719 5249   | 34.18    | 280 4751    | 789 3023   | 47.18    | 210 6977    | 0697774    | 12.97    | 9302226   | 23 |
| 38 | 719 7300   | 34.17    | 280 2700    | 789 5852   | 47.15    | 210 4148    | 0698552    | 12.97    | 9301448   | 22 |
| 39 | 719 9350   | 34.15    | 280 0650    | 789 8681   | 47.12    | 210 1319    | 0699330    | 12.98    | 9300670   | 21 |
| 40 | 720 1399   | 34.13    | 279 8601    | 790 1508   | 47.12    | 209 8492    | 0700109    | 12.98    | 9299891   | 20 |
| 41 | 720 3447   | 34.10    | 279 6553    | 790 4335   | 47.10    | 209 5665    | 0700888    | 13.00    | 9299112   | 19 |
| 42 | 9.720 5493 | 34.08    | 10.279 4507 | 9.790 7161 | 47.10    | 10.209 2839 | 10.0701668 | 13.02    | 9.9298333 | 18 |
| 43 | 720 7538   | 34.05    | 279 2462    | 790 9987   | 47.07    | 209 0013    | 0702449    | 13.02    | 9297551   | 17 |
| 44 | 720 9581   | 34.03    | 279 0419    | 791 2811   | 47.07    | 208 7189    | 0703230    | 13.02    | 9296770   | 16 |
| 45 | 721 1623   | 34.02    | 278 8377    | 791 5635   | 47.05    | 208 4365    | 0704011    | 13.03    | 9295989   | 15 |
| 46 | 721 3664   | 34.00    | 278 6336    | 791 8458   | 47.03    | 208 1542    | 0704793    | 13.05    | 9295207   | 14 |
| 47 | 721 5704   | 33.97    | 278 4296    | 792 1280   | 47.02    | 207 8720    | 0705576    | 13.05    | 9294424   | 13 |
| 48 | 9.721 7742 | 33.95    | 10.278 2258 | 9.792 4101 | 47.00    | 10.207 5899 | 10.0706359 | 13.07    | 9.9293641 | 12 |
| 49 | 721 9779   | 33.92    | 278 0221    | 792 6921   | 47.00    | 207 3079    | 0707143    | 13.07    | 9292857   | 11 |
| 50 | 722 1814   | 33.90    | 277 8186    | 792 9741   | 46.98    | 207 0259    | 0707927    | 13.07    | 9292073   | 10 |
| 51 | 722 3848   | 33.88    | 277 6152    | 793 2560   | 46.97    | 206 7440    | 0708711    | 13.08    | 9291289   | 9  |
| 52 | 722 5881   | 33.87    | 277 4119    | 793 5378   | 46.95    | 206 4622    | 0709496    | 13.10    | 9290504   | 8  |
| 53 | 722 7913   | 33.83    | 277 2087    | 793 8195   | 46.93    | 206 1805    | 0710282    | 13.10    | 9289718   | 7  |
| 54 | 9.722 9943 | 33.82    | 10.277 0057 | 9.794 1011 | 46.93    | 10.205 8989 | 10.0711068 | 13.10    | 9.9288932 | 6  |
| 55 | 723 1972   | 33.80    | 276 8028    | 794 3827   | 46.90    | 205 6173    | 0711855    | 13.12    | 9288145   | 5  |
| 56 | 723 4000   | 33.77    | 276 6000    | 794 6641   | 46.90    | 205 3359    | 0712642    | 13.12    | 9287358   | 4  |
| 57 | 723 6026   | 33.75    | 276 3974    | 794 9455   | 46.88    | 205 0545    | 0713429    | 13.13    | 9286571   | 3  |
| 58 | 723 8051   | 33.73    | 276 1949    | 795 2268   | 46.88    | 204 7732    | 0714217    | 13.15    | 9285783   | 2  |
| 59 | 724 0075   | 33.70    | 275 9925    | 795 5081   | 46.85    | 204 4919    | 0715006    | 13.15    | 9284994   | 1  |
| 60 | 9.724 2097 |          | 10.275 7903 | 9.795 7892 |          | 10.204 2108 | 10.0715795 |          | 9.9284203 | 0  |

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | diff. 1" | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|

121°

38°



LOGARITHMIC SINES, TANGENTS, &c.

265

32°

147°

|    | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | dif. 1" | co-sin.    |    |
|----|------------|---------|-------------|------------|---------|-------------|-------------|---------|------------|----|
| 0  | 9.724 2097 | 33.68   | 10.275 7903 | 9.795 7892 | 46.85   | 10.204 2108 | 10.071 5795 | 13.17   | 9.928 4205 | 60 |
| 1  | 724 4118   | 33.67   | 275 5882    | 796 0703   | 46.83   | 203 9297    | 071 6585    | 13.17   | 928 3415   | 59 |
| 2  | 724 6138   | 33.63   | 275 3862    | 796 3513   | 46.82   | 203 6487    | 071 7375    | 13.18   | 928 2625   | 58 |
| 3  | 724 8156   | 33.63   | 275 1844    | 796 6322   | 46.80   | 203 3678    | 071 8166    | 13.18   | 928 1834   | 57 |
| 4  | 725 0174   | 33.58   | 274 9826    | 796 9130   | 46.80   | 203 0870    | 071 8957    | 13.20   | 928 1043   | 56 |
| 5  | 725 2189   | 33.58   | 274 7811    | 797 1938   | 46.80   | 202 8062    | 071 9749    | 13.20   | 928 0251   | 55 |
| 6  | 725 4204   | 33.55   | 10.274 5796 | 9.797 4745 | 46.77   | 10.202 5255 | 10.072 0541 | 13.22   | 9.927 9459 | 54 |
| 7  | 725 6217   | 33.53   | 274 3783    | 797 7551   | 46.75   | 202 2449    | 072 1334    | 13.22   | 927 8666   | 53 |
| 8  | 725 8229   | 33.52   | 274 1771    | 798 0356   | 46.73   | 201 9644    | 072 2127    | 13.23   | 927 7873   | 52 |
| 9  | 726 0240   | 33.48   | 273 9760    | 798 3160   | 46.73   | 201 6840    | 072 2921    | 13.23   | 927 7079   | 51 |
| 10 | 726 2249   | 33.47   | 273 7751    | 798 5964   | 46.72   | 201 4036    | 072 3715    | 13.25   | 927 6285   | 50 |
| 11 | 726 4257   | 33.45   | 273 5743    | 798 8767   | 46.70   | 201 1233    | 072 4510    | 13.25   | 927 5490   | 49 |
| 12 | 726 6264   | 33.42   | 10.273 3736 | 9.799 1569 | 46.68   | 10.200 8431 | 10.072 5305 | 13.27   | 9.927 4695 | 48 |
| 13 | 726 8269   | 33.40   | 273 1731    | 799 4379   | 46.67   | 200 5630    | 072 6101    | 13.27   | 927 3899   | 47 |
| 14 | 727 0273   | 33.38   | 272 9727    | 799 7179   | 46.67   | 200 2830    | 072 6897    | 13.28   | 927 3103   | 46 |
| 15 | 727 2276   | 33.37   | 272 7724    | 799 9970   | 46.65   | 200 0030    | 072 7694    | 13.28   | 927 2306   | 45 |
| 16 | 727 4278   | 33.33   | 272 5722    | 800 2769   | 46.63   | 199 7231    | 072 8491    | 13.30   | 927 1509   | 44 |
| 17 | 727 6278   | 33.32   | 272 3722    | 800 5567   | 46.63   | 199 4433    | 072 9299    | 13.30   | 927 0711   | 43 |
| 18 | 727 8277   | 33.30   | 10.272 1723 | 9.800 8365 | 46.60   | 10.199 1635 | 10.073 0067 | 13.32   | 9.926 9913 | 42 |
| 19 | 728 0275   | 33.27   | 271 9725    | 801 1161   | 46.60   | 198 8839    | 073 0886    | 13.33   | 926 9114   | 41 |
| 20 | 728 2271   | 33.27   | 271 7729    | 801 3957   | 46.58   | 198 6043    | 073 1686    | 13.33   | 926 8314   | 40 |
| 21 | 728 4267   | 33.22   | 271 5733    | 801 6752   | 46.57   | 198 3248    | 073 2486    | 13.33   | 926 7514   | 39 |
| 22 | 728 6260   | 33.22   | 271 3740    | 801 9546   | 46.57   | 198 0454    | 073 3286    | 13.35   | 926 6714   | 38 |
| 23 | 728 8253   | 33.18   | 271 1747    | 802 2340   | 46.55   | 197 7660    | 073 4087    | 13.35   | 926 5913   | 37 |
| 24 | 9.729 0244 | 33.17   | 10.270 9756 | 9.802 5133 | 46.53   | 10.197 4867 | 10.073 4888 | 13.37   | 9.926 5112 | 36 |
| 25 | 729 2234   | 33.15   | 270 7766    | 802 7925   | 46.52   | 197 2075    | 073 5690    | 13.38   | 926 4310   | 35 |
| 26 | 729 4223   | 33.13   | 270 5777    | 803 0716   | 46.50   | 196 9284    | 073 6493    | 13.38   | 926 3507   | 34 |
| 27 | 729 6211   | 33.10   | 270 3789    | 803 3506   | 46.50   | 196 6494    | 073 7296    | 13.38   | 926 2704   | 33 |
| 28 | 729 8197   | 33.08   | 270 1803    | 803 6296   | 46.48   | 196 3704    | 073 8099    | 13.42   | 926 1901   | 32 |
| 29 | 730 0182   | 33.05   | 269 9818    | 803 9085   | 46.47   | 196 0915    | 073 8904    | 13.40   | 926 1096   | 31 |
| 30 | 9.730 2165 | 33.05   | 10.269 7835 | 9.804 1873 | 46.47   | 10.195 8127 | 10.073 9788 | 13.42   | 9.926 0292 | 30 |
| 31 | 730 4148   | 33.02   | 269 5852    | 804 4661   | 46.47   | 195 5339    | 074 0513    | 13.43   | 925 9487   | 29 |
| 32 | 730 6129   | 33.00   | 269 3871    | 804 7447   | 46.43   | 195 2553    | 074 1319    | 13.43   | 925 8681   | 28 |
| 33 | 730 8109   | 32.97   | 269 1891    | 805 0233   | 46.43   | 194 9767    | 074 2125    | 13.43   | 925 7875   | 27 |
| 34 | 731 0087   | 32.95   | 268 9913    | 805 3019   | 46.40   | 194 6981    | 074 2931    | 13.47   | 925 7069   | 26 |
| 35 | 731 2064   | 32.92   | 268 7936    | 805 5803   | 46.40   | 194 4197    | 074 3739    | 13.45   | 925 6261   | 25 |
| 36 | 9.731 4040 | 32.93   | 10.268 5960 | 9.805 8587 | 46.40   | 10.194 1413 | 10.074 4516 | 13.47   | 9.925 5454 | 24 |
| 37 | 731 6015   | 32.90   | 268 3985    | 806 1370   | 46.37   | 193 8630    | 074 5354    | 13.48   | 925 4646   | 23 |
| 38 | 731 7989   | 32.87   | 268 2011    | 806 4152   | 46.35   | 193 5848    | 074 6163    | 13.48   | 925 3837   | 22 |
| 39 | 731 9961   | 32.85   | 268 0039    | 806 6933   | 46.35   | 193 3067    | 074 6972    | 13.50   | 925 3028   | 21 |
| 40 | 732 1932   | 32.83   | 267 8068    | 806 9714   | 46.33   | 193 0286    | 074 7782    | 13.50   | 925 2218   | 20 |
| 41 | 732 3902   | 32.80   | 267 6098    | 807 2494   | 46.32   | 192 7506    | 074 8592    | 13.52   | 925 1408   | 19 |
| 42 | 9.732 5870 | 32.78   | 10.267 4130 | 9.807 5273 | 46.32   | 10.192 4727 | 10.074 9403 | 13.52   | 9.925 0597 | 18 |
| 43 | 732 7837   | 32.77   | 267 2163    | 807 8052   | 46.28   | 192 1948    | 075 0214    | 13.53   | 924 9786   | 17 |
| 44 | 732 9803   | 32.75   | 267 0197    | 808 0829   | 46.28   | 191 9171    | 075 1026    | 13.55   | 924 8974   | 16 |
| 45 | 733 1768   | 32.72   | 266 8232    | 808 3606   | 46.28   | 191 6394    | 075 1839    | 13.53   | 924 8161   | 15 |
| 46 | 733 3731   | 32.70   | 266 6269    | 808 6383   | 46.25   | 191 3617    | 075 2651    | 13.57   | 924 7349   | 14 |
| 47 | 733 5693   | 32.68   | 266 4307    | 808 9158   | 46.25   | 191 0842    | 075 3465    | 13.57   | 924 6535   | 13 |
| 48 | 9.733 7654 | 32.67   | 10.266 2346 | 9.809 1933 | 46.23   | 10.190 8067 | 10.075 4279 | 13.57   | 9.924 5721 | 12 |
| 49 | 733 9614   | 32.63   | 266 0386    | 809 4707   | 46.22   | 190 5293    | 075 5093    | 13.58   | 924 4907   | 11 |
| 50 | 734 1572   | 32.62   | 265 8428    | 809 7480   | 46.22   | 190 2520    | 075 5908    | 13.58   | 924 4092   | 10 |
| 51 | 734 3529   | 32.60   | 265 6471    | 810 0253   | 46.20   | 189 9747    | 075 6723    | 13.60   | 924 3277   | 9  |
| 52 | 734 5485   | 32.58   | 265 4515    | 810 3025   | 46.18   | 189 6975    | 075 7539    | 13.62   | 924 2461   | 8  |
| 53 | 734 7440   | 32.55   | 265 2560    | 810 5796   | 46.17   | 189 4204    | 075 8356    | 13.62   | 924 1644   | 7  |
| 54 | 9.734 9393 | 32.53   | 10.265 0607 | 9.810 8566 | 46.17   | 10.189 1434 | 10.075 9173 | 13.62   | 9.924 0827 | 6  |
| 55 | 735 1345   | 32.52   | 264 8655    | 811 1336   | 46.15   | 188 8664    | 075 9999    | 13.65   | 924 0010   | 5  |
| 56 | 735 3295   | 32.50   | 264 6704    | 811 4105   | 46.13   | 188 5895    | 076 0809    | 13.65   | 923 9191   | 4  |
| 57 | 735 5246   | 32.48   | 264 4754    | 811 6873   | 46.13   | 188 3127    | 076 1627    | 13.65   | 923 8373   | 3  |
| 58 | 735 7195   | 32.45   | 264 2805    | 811 9641   | 46.12   | 188 0359    | 076 2446    | 13.67   | 923 7554   | 2  |
| 59 | 735 9142   | 32.43   | 264 0858    | 812 2408   | 46.10   | 187 7592    | 076 3266    | 13.67   | 923 6734   | 1  |
| 60 | 9.736 1088 | 32.43   | 10.263 8912 | 9.812 5174 | 46.10   | 10.187 4826 | 10.076 4086 | 13.67   | 9.923 5914 | 0  |

122°

57°

33°

146°

|    | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | dif. 1'' | co-sin.   |    |
|----|------------|----------|-------------|------------|----------|-------------|------------|----------|-----------|----|
| 0  | 9.736 1088 |          | 10.263 8912 | 9.812 5174 | 46.08    | 10.187 4826 | 10.0764086 | 13.66    | 9.9235914 | 60 |
| 1  | 736 3032   | 32.40    | 263 6968    | 812 7939   | 46.08    | 187 2061    | 0764907    | 13.68    | 9.9235033 | 59 |
| 2  | 736 4976   | 32.37    | 263 5024    | 813 0704   | 46.07    | 186 9296    | 0765728    | 13.70    | 9.9234272 | 58 |
| 3  | 736 6918   | 32.35    | 263 3082    | 813 3468   | 46.05    | 186 6532    | 0766550    | 13.70    | 9.9233450 | 57 |
| 4  | 736 8859   | 32.33    | 263 1141    | 813 6231   | 46.03    | 186 3769    | 0767372    | 13.72    | 9.9232628 | 56 |
| 5  | 737 0799   | 32.30    | 262 9201    | 813 8993   | 46.03    | 186 1007    | 0768195    | 13.72    | 9.9231805 | 55 |
| 6  | 737 2737   | 32.30    | 10.262 7263 | 9.814 1753 | 46.02    | 10.185 8245 | 10.0769018 | 13.73    | 9.9230982 | 54 |
| 7  | 737 4675   | 32.27    | 262 5325    | 814 4516   | 46.02    | 185 5484    | 0769842    | 13.73    | 9.9230158 | 53 |
| 8  | 737 6611   | 32.25    | 262 3389    | 814 7277   | 45.98    | 185 2723    | 0770666    | 13.75    | 9.9229334 | 52 |
| 9  | 737 8546   | 32.22    | 262 1454    | 815 0036   | 45.98    | 184 9964    | 0771491    | 13.75    | 9.9228509 | 51 |
| 10 | 738 0479   | 32.22    | 261 9521    | 815 2795   | 45.98    | 184 7205    | 0772316    | 13.77    | 9.9227684 | 50 |
| 11 | 738 2412   | 32.18    | 261 7588    | 815 5554   | 45.95    | 184 4446    | 0773142    | 13.77    | 9.9226858 | 49 |
| 12 | 738 4343   | 32.17    | 10.261 5657 | 9.815 8311 | 45.95    | 10.184 1689 | 10.0773968 | 13.77    | 9.9226032 | 48 |
| 13 | 738 6273   | 32.13    | 261 3727    | 816 1068   | 45.93    | 183 8932    | 0774795    | 13.80    | 9.9225205 | 47 |
| 14 | 738 8201   | 32.13    | 261 1799    | 816 3824   | 45.93    | 183 6176    | 0775623    | 13.80    | 9.9224377 | 46 |
| 15 | 739 0129   | 32.10    | 260 9871    | 816 6580   | 45.92    | 183 3420    | 0776451    | 13.80    | 9.9223549 | 45 |
| 16 | 739 2055   | 32.08    | 260 7945    | 816 9335   | 45.90    | 183 0665    | 0777279    | 13.83    | 9.9222721 | 44 |
| 17 | 739 3980   | 32.07    | 260 6020    | 817 2089   | 45.88    | 182 7911    | 0778109    | 13.82    | 9.9221891 | 43 |
| 18 | 739 5904   | 32.05    | 10.260 4097 | 9.817 4842 | 45.88    | 10.182 5158 | 10.0778938 | 13.83    | 9.9221062 | 42 |
| 19 | 739 7827   | 32.02    | 260 2173    | 817 7595   | 45.87    | 182 2405    | 0779768    | 13.85    | 9.9220232 | 41 |
| 20 | 739 9748   | 32.00    | 260 0252    | 818 0347   | 45.85    | 181 9653    | 0780599    | 13.85    | 9.9219401 | 40 |
| 21 | 740 1668   | 31.98    | 259 8332    | 818 3098   | 45.85    | 181 6902    | 0781430    | 13.87    | 9.9218570 | 39 |
| 22 | 740 3587   | 31.97    | 259 6413    | 818 5849   | 45.83    | 181 4151    | 0782262    | 13.87    | 9.9217738 | 38 |
| 23 | 740 5505   | 31.93    | 259 4495    | 818 8599   | 45.82    | 181 1401    | 0783094    | 13.88    | 9.9216906 | 37 |
| 24 | 740 7421   | 31.93    | 10.259 2579 | 9.819 1348 | 45.80    | 10.180 8652 | 10.0783927 | 13.88    | 9.9216073 | 36 |
| 25 | 740 9337   | 31.90    | 259 0663    | 819 4096   | 45.80    | 180 5904    | 0784760    | 13.90    | 9.9215240 | 35 |
| 26 | 741 1251   | 31.88    | 258 8749    | 819 6844   | 45.80    | 180 3156    | 0785594    | 13.90    | 9.9214406 | 34 |
| 27 | 741 3164   | 31.85    | 258 6836    | 819 9592   | 45.77    | 180 0408    | 0786428    | 13.92    | 9.9213572 | 33 |
| 28 | 741 5075   | 31.85    | 258 4925    | 820 2338   | 45.77    | 179 7662    | 0787263    | 13.92    | 9.9212737 | 32 |
| 29 | 741 6986   | 31.82    | 258 3014    | 820 5084   | 45.75    | 179 4916    | 0788098    | 13.93    | 9.9211902 | 31 |
| 30 | 741 8895   | 31.80    | 10.258 1105 | 9.820 7829 | 45.75    | 10.179 2171 | 10.0788934 | 13.95    | 9.9211066 | 30 |
| 31 | 742 0803   | 31.78    | 257 9197    | 821 0574   | 45.72    | 178 9426    | 0789771    | 13.93    | 9.9210229 | 29 |
| 32 | 742 2710   | 31.77    | 257 7290    | 821 3317   | 45.72    | 178 6683    | 0790607    | 13.93    | 9.9209393 | 28 |
| 33 | 742 4616   | 31.73    | 257 5384    | 821 6060   | 45.72    | 178 3940    | 0791445    | 13.97    | 9.9208555 | 27 |
| 34 | 742 6520   | 31.72    | 257 3480    | 821 8803   | 45.70    | 178 1197    | 0792283    | 13.98    | 9.9207717 | 26 |
| 35 | 742 8423   | 31.70    | 257 1577    | 822 1545   | 45.68    | 177 8455    | 0793122    | 13.98    | 9.9206878 | 25 |
| 36 | 743 0325   | 31.68    | 10.256 9675 | 9.822 4286 | 45.67    | 10.177 5714 | 10.0793961 | 13.98    | 9.9206039 | 24 |
| 37 | 743 2226   | 31.67    | 256 7774    | 822 7026   | 45.67    | 177 2974    | 0794800    | 14.00    | 9.9205200 | 23 |
| 38 | 743 4126   | 31.63    | 256 5874    | 822 9766   | 45.65    | 177 0234    | 0795640    | 14.02    | 9.9204359 | 22 |
| 39 | 743 6024   | 31.62    | 256 3976    | 823 2505   | 45.65    | 176 7495    | 0796481    | 14.02    | 9.9203519 | 21 |
| 40 | 743 7921   | 31.60    | 256 2079    | 823 5244   | 45.62    | 176 4756    | 0797322    | 14.03    | 9.9202678 | 20 |
| 41 | 743 9817   | 31.58    | 256 0183    | 823 7981   | 45.63    | 176 2019    | 0798164    | 14.03    | 9.9201836 | 19 |
| 42 | 744 1712   | 31.57    | 10.255 8288 | 9.824 0719 | 45.60    | 10.175 9281 | 10.0799006 | 14.05    | 9.9200994 | 18 |
| 43 | 744 3606   | 31.53    | 255 6394    | 824 3455   | 45.60    | 175 6545    | 0799849    | 14.05    | 9.9200151 | 17 |
| 44 | 744 5498   | 31.53    | 255 4502    | 824 6191   | 45.58    | 175 3809    | 0800692    | 14.07    | 9.9199308 | 16 |
| 45 | 744 7390   | 31.50    | 255 2610    | 824 8926   | 45.57    | 175 1074    | 0801536    | 14.08    | 9.9198464 | 15 |
| 46 | 744 9280   | 31.48    | 255 0720    | 825 1660   | 45.57    | 174 8340    | 0802381    | 14.07    | 9.9197619 | 14 |
| 47 | 745 1169   | 31.45    | 254 8831    | 825 4394   | 45.55    | 174 5606    | 0803225    | 14.10    | 9.9196775 | 13 |
| 48 | 745 3056   | 31.45    | 10.254 6944 | 9.825 7127 | 45.55    | 10.174 2873 | 10.0804071 | 14.10    | 9.9195929 | 12 |
| 49 | 745 4943   | 31.42    | 254 5057    | 825 9860   | 45.53    | 174 0140    | 0804917    | 14.10    | 9.9195083 | 11 |
| 50 | 745 6828   | 31.40    | 254 3172    | 826 2592   | 45.52    | 173 7408    | 0805763    | 14.12    | 9.9194237 | 10 |
| 51 | 745 8712   | 31.38    | 254 1288    | 826 5323   | 45.50    | 173 4677    | 0806610    | 14.13    | 9.9193390 | 9  |
| 52 | 746 0595   | 31.37    | 253 9405    | 826 8053   | 45.50    | 173 1947    | 0807458    | 14.13    | 9.9192542 | 8  |
| 53 | 746 2477   | 31.35    | 253 7523    | 827 0783   | 45.50    | 172 9217    | 0808306    | 14.15    | 9.9191694 | 7  |
| 54 | 746 4358   | 31.32    | 10.253 5647 | 9.827 3513 | 45.47    | 10.172 6487 | 10.0809155 | 14.15    | 9.9190845 | 6  |
| 55 | 746 6237   | 31.30    | 253 3763    | 827 6241   | 45.47    | 172 3759    | 0810004    | 14.17    | 9.9189996 | 5  |
| 56 | 746 8115   | 31.28    | 253 1885    | 827 8969   | 45.45    | 172 1031    | 0810854    | 14.17    | 9.9189146 | 4  |
| 57 | 746 9992   | 31.27    | 253 0008    | 828 1696   | 45.45    | 171 8304    | 0811704    | 14.18    | 9.9188296 | 3  |
| 58 | 747 1868   | 31.25    | 252 8132    | 828 4423   | 45.43    | 171 5577    | 0812555    | 14.18    | 9.9187445 | 2  |
| 59 | 747 3743   | 31.23    | 252 6257    | 828 7149   | 45.42    | 171 2851    | 0813406    | 14.20    | 9.9186594 | 1  |
| 60 | 747 5617   |          | 10.252 4383 | 9.828 9874 |          | 10.171 0126 | 10.0814258 |          | 9.9185743 | 0  |

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | dif. 1'' | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|

123°

56°



34°

145°

|    | sin.     | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.        | diff. 1" | co-sin.   |    |
|----|----------|----------|-------------|------------|----------|-------------|-------------|----------|-----------|----|
| 0  | 747 5617 | 31.20    | 10.252 4383 | 9.828 9874 | 45.42    | 10.171 0126 | 10.081 4258 | 14.20    | 9.9185742 | 60 |
| 1  | 747 7489 | 31.16    | 252 2511    | 829 2599   | 45.40    | 170 7401    | 081 5110    | 14.22    | 9.9184890 | 59 |
| 2  | 747 9360 | 31.12    | 252 0640    | 829 5323   | 45.40    | 170 4677    | 081 5963    | 14.22    | 9.9184037 | 58 |
| 3  | 748 1230 | 31.17    | 251 8770    | 829 8047   | 45.40    | 170 1953    | 081 6817    | 14.23    | 9.9183183 | 57 |
| 4  | 748 3099 | 31.15    | 251 6901    | 830 0769   | 45.37    | 169 9231    | 081 7671    | 14.23    | 9.9182329 | 56 |
| 5  | 748 4967 | 31.13    | 251 5033    | 830 3492   | 45.38    | 169 6508    | 081 8525    | 14.23    | 9.9181475 | 55 |
| 6  | 748 6833 | 31.10    | 10.251 3167 | 9.830 6213 | 45.35    | 10.169 3787 | 10.081 9380 | 14.25    | 9.9180620 | 54 |
| 7  | 748 8698 | 31.08    | 251 1302    | 830 8934   | 45.35    | 169 1066    | 082 0236    | 14.27    | 9.9179764 | 53 |
| 8  | 749 0502 | 31.07    | 250 9438    | 831 1654   | 45.33    | 168 8346    | 082 1092    | 14.27    | 9.9178908 | 52 |
| 9  | 749 2425 | 31.05    | 250 7575    | 831 4374   | 45.33    | 168 5626    | 082 1949    | 14.28    | 9.9178051 | 51 |
| 10 | 749 4287 | 31.03    | 250 5713    | 831 7093   | 45.32    | 168 2907    | 082 2806    | 14.28    | 9.9177194 | 50 |
| 11 | 749 6148 | 31.02    | 250 3852    | 831 9811   | 45.30    | 168 0189    | 082 3664    | 14.30    | 9.9176336 | 49 |
| 12 | 749 8007 | 30.98    | 10.250 1993 | 9.832 2529 | 45.30    | 10.167 7471 | 10.082 4522 | 14.32    | 9.9175478 | 48 |
| 13 | 749 9866 | 30.97    | 250 0134    | 832 5246   | 45.28    | 167 4754    | 082 5381    | 14.32    | 9.9174619 | 47 |
| 14 | 750 1723 | 30.95    | 249 8277    | 832 7963   | 45.28    | 167 2037    | 082 6240    | 14.33    | 9.9173760 | 46 |
| 15 | 750 3579 | 30.93    | 249 6421    | 833 0679   | 45.27    | 166 9321    | 082 7100    | 14.33    | 9.9172900 | 45 |
| 16 | 750 5434 | 30.92    | 249 4566    | 833 3394   | 45.25    | 166 6606    | 082 7960    | 14.33    | 9.9172040 | 44 |
| 17 | 750 7287 | 30.88    | 249 2713    | 833 6109   | 45.23    | 166 3891    | 082 8821    | 14.37    | 9.9171179 | 43 |
| 18 | 750 9140 | 30.88    | 10.249 0860 | 9.833 8823 | 45.22    | 10.166 1177 | 10.082 9683 | 14.37    | 9.9170317 | 42 |
| 19 | 751 0991 | 30.85    | 248 9009    | 834 1536   | 45.22    | 165 8464    | 083 0545    | 14.37    | 9.9169455 | 41 |
| 20 | 751 2847 | 30.82    | 248 7158    | 834 4249   | 45.20    | 165 5751    | 083 1407    | 14.38    | 9.9168593 | 40 |
| 21 | 751 4691 | 30.78    | 248 5309    | 834 6961   | 45.20    | 165 3039    | 083 2270    | 14.40    | 9.9167730 | 39 |
| 22 | 751 6538 | 30.78    | 248 3462    | 834 9673   | 45.18    | 165 0327    | 083 3134    | 14.40    | 9.9166866 | 38 |
| 23 | 751 8385 | 30.78    | 248 1615    | 835 2384   | 45.18    | 164 7616    | 083 3998    | 14.42    | 9.9166002 | 37 |
| 24 | 752 0231 | 30.77    | 10.247 9769 | 9.835 5094 | 45.17    | 10.164 4906 | 10.083 4863 | 14.42    | 9.9165137 | 36 |
| 25 | 752 2075 | 30.73    | 247 7925    | 835 7804   | 45.15    | 164 2196    | 083 5728    | 14.43    | 9.9164272 | 35 |
| 26 | 752 3919 | 30.73    | 247 6081    | 836 0513   | 45.15    | 163 9487    | 083 6594    | 14.43    | 9.9163406 | 34 |
| 27 | 752 5761 | 30.70    | 247 4239    | 836 3221   | 45.13    | 163 6779    | 083 7461    | 14.45    | 9.9162539 | 33 |
| 28 | 752 7602 | 30.68    | 247 2398    | 836 5929   | 45.13    | 163 4071    | 083 8327    | 14.43    | 9.9161673 | 32 |
| 29 | 752 9442 | 30.67    | 247 0558    | 836 8636   | 45.12    | 163 1364    | 083 9195    | 14.47    | 9.9160805 | 31 |
| 30 | 753 1280 | 30.63    | 10.246 8720 | 9.837 1343 | 45.12    | 10.162 8657 | 10.084 0063 | 14.47    | 9.9159937 | 30 |
| 31 | 753 3118 | 30.63    | 246 6882    | 837 4049   | 45.10    | 162 5951    | 084 0931    | 14.47    | 9.9159069 | 29 |
| 32 | 753 4954 | 30.60    | 246 5046    | 837 6755   | 45.08    | 162 3245    | 084 1800    | 14.48    | 9.9158200 | 28 |
| 33 | 753 6790 | 30.57    | 246 3210    | 837 9460   | 45.07    | 162 0540    | 084 2670    | 14.50    | 9.9157330 | 27 |
| 34 | 753 8624 | 30.55    | 246 1376    | 838 2164   | 45.07    | 161 7836    | 084 3540    | 14.52    | 9.9156460 | 26 |
| 35 | 754 0457 | 30.52    | 245 9543    | 838 4867   | 45.05    | 161 5133    | 084 4411    | 14.52    | 9.9155589 | 25 |
| 36 | 754 2288 | 30.52    | 10.245 7712 | 9.838 7571 | 45.03    | 10.161 2429 | 10.084 5282 | 14.52    | 9.9154718 | 24 |
| 37 | 754 4119 | 30.50    | 245 5881    | 839 0273   | 45.03    | 160 9727    | 084 6154    | 14.53    | 9.9153846 | 23 |
| 38 | 754 5949 | 30.47    | 245 4051    | 839 2975   | 45.02    | 160 7025    | 084 7026    | 14.55    | 9.9152974 | 22 |
| 39 | 754 7777 | 30.45    | 245 2223    | 839 5676   | 45.02    | 160 4324    | 084 7899    | 14.55    | 9.9152101 | 21 |
| 40 | 754 9604 | 30.45    | 245 0396    | 839 8377   | 45.00    | 160 1623    | 084 8772    | 14.57    | 9.9151228 | 20 |
| 41 | 755 1431 | 30.42    | 244 8569    | 840 1077   | 44.98    | 159 8923    | 084 9646    | 14.58    | 9.9150354 | 19 |
| 42 | 755 3256 | 30.40    | 10.244 6744 | 9.840 3776 | 44.98    | 10.159 6224 | 10.085 0503 | 14.58    | 9.9149479 | 18 |
| 43 | 755 5080 | 30.37    | 244 4920    | 840 6475   | 44.98    | 159 3525    | 085 1396    | 14.58    | 9.9148604 | 17 |
| 44 | 755 6902 | 30.37    | 244 3098    | 840 9174   | 44.95    | 159 0826    | 085 2271    | 14.62    | 9.9147729 | 16 |
| 45 | 755 8724 | 30.33    | 244 1276    | 841 1871   | 44.97    | 158 8129    | 085 3148    | 14.60    | 9.9146852 | 15 |
| 46 | 756 0544 | 30.33    | 243 9456    | 841 4569   | 44.97    | 158 5431    | 085 4024    | 14.62    | 9.9145976 | 14 |
| 47 | 756 2364 | 30.33    | 243 7636    | 841 7265   | 44.93    | 158 2735    | 085 4904    | 14.63    | 9.9145099 | 13 |
| 48 | 756 4182 | 30.30    | 10.243 5818 | 9.841 9961 | 44.93    | 10.158 0039 | 10.085 5779 | 14.65    | 9.9144221 | 12 |
| 49 | 756 5999 | 30.27    | 243 4001    | 842 2657   | 44.90    | 157 7343    | 085 6658    | 14.63    | 9.9143344 | 11 |
| 50 | 756 7815 | 30.25    | 243 2185    | 842 5351   | 44.92    | 157 4649    | 085 7536    | 14.67    | 9.9142464 | 10 |
| 51 | 756 9631 | 30.23    | 243 0370    | 842 8046   | 44.88    | 157 1954    | 085 8416    | 14.67    | 9.9141584 | 9  |
| 52 | 757 1444 | 30.20    | 242 8556    | 843 0739   | 44.88    | 156 9261    | 085 9296    | 14.67    | 9.9140704 | 8  |
| 53 | 757 3256 | 30.20    | 242 6744    | 843 3432   | 44.86    | 156 6568    | 086 0176    | 14.68    | 9.9139824 | 7  |
| 54 | 757 5068 | 30.17    | 10.242 4932 | 9.843 6125 | 44.87    | 10.156 3875 | 10.086 1057 | 14.70    | 9.9138943 | 6  |
| 55 | 757 6878 | 30.15    | 242 3122    | 843 8817   | 44.85    | 156 1183    | 086 1939    | 14.70    | 9.9138061 | 5  |
| 56 | 757 8687 | 30.15    | 242 1313    | 844 1508   | 44.85    | 155 8492    | 086 2821    | 14.72    | 9.9137179 | 4  |
| 57 | 758 0495 | 30.12    | 241 9505    | 844 4199   | 44.83    | 155 5801    | 086 3704    | 14.72    | 9.9136296 | 3  |
| 58 | 758 2302 | 30.12    | 241 7698    | 844 6889   | 44.83    | 155 3111    | 086 4587    | 14.72    | 9.9135413 | 2  |
| 59 | 758 4108 | 30.10    | 241 5892    | 844 9579   | 44.82    | 155 0421    | 086 5470    | 14.75    | 9.9134530 | 1  |
| 60 | 758 5913 | 30.08    | 10.241 4087 | 9.845 2268 | 44.82    | 10.154 7732 | 10.086 6355 | 14.75    | 9.9133645 | 0  |

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55°

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | diff. 1" | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|

|    | sin.       | diff. 1" | co-sec.     | tang.      | diff. 1" | co-tang.    | sec.       | diff. 1" | co-sin.    |
|----|------------|----------|-------------|------------|----------|-------------|------------|----------|------------|
| 0  | 9.758 5913 | 30.07    | 10.241 4087 | 9.845 2268 | 44.80    | 10.154 7732 | 10.0866355 | 14.75    | 9.91 33645 |
| 1  | 758 7717   | 30.03    | 241 2283    | 845 4956   | 44.80    | 154 5044    | 0867240    | 14.75    | 91 32760   |
| 2  | 758 9519   | 30.03    | 241 0481    | 845 7644   | 44.80    | 154 2356    | 0868125    | 14.77    | 91 31875   |
| 3  | 759 1321   | 29.98    | 240 8679    | 846 0332   | 44.77    | 153 9668    | 0869011    | 14.78    | 91 30990   |
| 4  | 759 3121   | 29.98    | 240 6879    | 846 3018   | 44.78    | 153 6982    | 0869898    | 14.78    | 91 30105   |
| 5  | 759 4920   | 29.97    | 240 5080    | 846 5705   | 44.75    | 153 4295    | 0870785    | 14.78    | 91 29215   |
| 6  | 759 6718   | 29.95    | 10.240 3282 | 9.846 8390 | 44.75    | 10.153 1610 | 10.0871672 | 14.80    | 9.91 28328 |
| 7  | 759 8515   | 29.93    | 240 1485    | 847 1075   | 44.75    | 152 8925    | 0872560    | 14.82    | 91 27440   |
| 8  | 760 0311   | 29.92    | 239 9689    | 847 3760   | 44.73    | 152 6240    | 0873449    | 14.82    | 91 26551   |
| 9  | 760 2106   | 29.88    | 239 7894    | 847 6444   | 44.72    | 152 3556    | 0874338    | 14.83    | 91 25666   |
| 10 | 760 3899   | 29.85    | 239 6101    | 847 9127   | 44.72    | 152 0873    | 0875228    | 14.83    | 91 24772   |
| 11 | 760 5692   | 29.85    | 239 4308    | 848 1810   | 44.70    | 151 8190    | 0876118    | 14.85    | 91 23882   |
| 12 | 760 7483   | 29.85    | 10.239 2517 | 9.848 4492 | 44.70    | 10.151 5508 | 10.0877009 | 14.87    | 9.91 22991 |
| 13 | 760 9274   | 29.82    | 239 0726    | 848 7174   | 44.68    | 151 2826    | 0877901    | 14.87    | 91 22099   |
| 14 | 761 1063   | 29.82    | 238 8937    | 848 9855   | 44.68    | 151 0145    | 0878793    | 14.87    | 91 21207   |
| 15 | 761 2851   | 29.80    | 238 7149    | 849 2536   | 44.67    | 150 7464    | 0879685    | 14.88    | 91 20315   |
| 16 | 761 4638   | 29.78    | 238 5362    | 849 5216   | 44.67    | 150 4784    | 0880578    | 14.90    | 91 19422   |
| 17 | 761 6424   | 29.77    | 238 3576    | 849 7896   | 44.65    | 150 2104    | 0881472    | 14.90    | 91 18528   |
| 18 | 761 8208   | 29.73    | 10.238 1792 | 9.850 0575 | 44.63    | 10.149 0425 | 10.0882366 | 14.92    | 9.91 17634 |
| 19 | 761 9992   | 29.72    | 238 0008    | 850 3253   | 44.63    | 149 6747    | 0883261    | 14.92    | 91 16739   |
| 20 | 762 1775   | 29.68    | 237 8225    | 850 5931   | 44.62    | 149 4069    | 0884156    | 14.93    | 91 15844   |
| 21 | 762 3556   | 29.68    | 237 6444    | 850 8608   | 44.62    | 149 1392    | 0885052    | 14.95    | 91 14948   |
| 22 | 762 5333   | 29.65    | 237 4663    | 851 1285   | 44.60    | 148 8715    | 0885949    | 14.93    | 91 14051   |
| 23 | 762 7116   | 29.63    | 237 2884    | 851 3961   | 44.60    | 148 6039    | 0886845    | 14.97    | 91 13155   |
| 24 | 762 8894   | 29.62    | 10.237 1106 | 9.851 6637 | 44.58    | 10.148 3363 | 10.0887743 | 14.97    | 9.91 12257 |
| 25 | 763 0671   | 29.60    | 236 9329    | 851 9312   | 44.58    | 148 0688    | 0888641    | 14.98    | 91 11359   |
| 26 | 763 2447   | 29.58    | 236 7553    | 852 1987   | 44.57    | 147 8013    | 0889540    | 14.98    | 91 10460   |
| 27 | 763 4222   | 29.57    | 236 5778    | 852 4661   | 44.57    | 147 5339    | 0890439    | 15.00    | 91 09561   |
| 28 | 763 5996   | 29.55    | 236 4004    | 852 7335   | 44.55    | 147 2665    | 0891339    | 15.00    | 91 08661   |
| 29 | 763 7769   | 29.52    | 236 2231    | 853 0008   | 44.55    | 146 9992    | 0892239    | 15.02    | 91 07761   |
| 30 | 763 9540   | 29.52    | 10.236 0460 | 9.853 2680 | 44.53    | 10.146 7320 | 10.0893140 | 15.02    | 9.91 06860 |
| 31 | 764 1311   | 29.48    | 235 8689    | 853 5352   | 44.52    | 146 4648    | 0894041    | 15.03    | 91 05959   |
| 32 | 764 3080   | 29.48    | 235 6920    | 853 8023   | 44.52    | 146 1977    | 0894943    | 15.03    | 91 05057   |
| 33 | 764 4849   | 29.45    | 235 5151    | 854 0694   | 44.52    | 145 9306    | 0895845    | 15.07    | 91 04152   |
| 34 | 764 6616   | 29.45    | 235 3384    | 854 3365   | 44.52    | 145 6635    | 0896749    | 15.05    | 91 03251   |
| 35 | 764 8382   | 29.42    | 235 1618    | 854 6034   | 44.48    | 145 3966    | 0897652    | 15.07    | 91 02348   |
| 36 | 765 0147   | 29.40    | 10.234 9853 | 9.854 8704 | 44.47    | 10.145 1296 | 10.0898556 | 15.08    | 9.91 01444 |
| 37 | 765 1911   | 29.38    | 234 8089    | 855 1372   | 44.48    | 144 8628    | 0899461    | 15.08    | 91 00539   |
| 38 | 765 3674   | 29.37    | 234 6326    | 855 4041   | 44.45    | 144 5959    | 0900366    | 15.10    | 9099634    |
| 39 | 765 5436   | 29.35    | 234 4564    | 855 6708   | 44.45    | 144 3292    | 0901272    | 15.10    | 9098728    |
| 40 | 765 7197   | 29.33    | 234 2803    | 855 9376   | 44.43    | 144 0624    | 0902179    | 15.12    | 9097821    |
| 41 | 765 8957   | 29.33    | 234 1043    | 856 2042   | 44.43    | 143 7958    | 0903085    | 15.12    | 9096915    |
| 42 | 766 0715   | 29.30    | 10.233 9285 | 9.856 4708 | 44.43    | 10.143 5292 | 10.0903993 | 15.13    | 9.9096007  |
| 43 | 766 2473   | 29.30    | 233 7527    | 856 7374   | 44.42    | 143 2626    | 0904901    | 15.13    | 9095099    |
| 44 | 766 4229   | 29.27    | 233 5771    | 857 0039   | 44.42    | 142 9961    | 0905810    | 15.15    | 9094190    |
| 45 | 766 5985   | 29.23    | 233 4015    | 857 2704   | 44.42    | 142 7296    | 0906719    | 15.17    | 9093281    |
| 46 | 766 7739   | 29.23    | 233 2261    | 857 5368   | 44.40    | 142 4632    | 0907629    | 15.17    | 9092371    |
| 47 | 766 9492   | 29.22    | 233 0508    | 857 8031   | 44.38    | 142 1966    | 0908539    | 15.18    | 9091461    |
| 48 | 767 1244   | 29.20    | 10.232 8756 | 9.858 0694 | 44.38    | 10.141 9306 | 10.0909450 | 15.18    | 9.9090550  |
| 49 | 767 2996   | 29.17    | 232 7004    | 858 3357   | 44.37    | 141 6643    | 0910361    | 15.20    | 9089639    |
| 50 | 767 4746   | 29.13    | 232 5254    | 858 6019   | 44.35    | 141 3981    | 0911273    | 15.22    | 9088727    |
| 51 | 767 6494   | 29.13    | 232 3506    | 858 8680   | 44.35    | 141 1320    | 0912186    | 15.22    | 9087814    |
| 52 | 767 8242   | 29.13    | 232 1758    | 859 1341   | 44.35    | 140 8659    | 0913099    | 15.22    | 9086901    |
| 53 | 767 9989   | 29.12    | 232 0011    | 859 4002   | 44.32    | 140 5998    | 0914012    | 15.25    | 9085988    |
| 54 | 768 1735   | 29.10    | 10.231 8265 | 9.859 6661 | 44.32    | 10.140 3339 | 10.0914927 | 15.23    | 9.9085075  |
| 55 | 768 3480   | 29.05    | 231 6520    | 859 9321   | 44.32    | 140 0679    | 0915841    | 15.27    | 9084159    |
| 56 | 768 5223   | 29.05    | 231 4777    | 860 1980   | 44.30    | 139 8020    | 0916757    | 15.27    | 9083243    |
| 57 | 768 6966   | 29.02    | 231 3034    | 860 4638   | 44.30    | 139 5362    | 0917673    | 15.27    | 9082327    |
| 58 | 768 8707   | 28.98    | 231 1293    | 860 7296   | 44.30    | 139 2704    | 0918589    | 15.28    | 9081411    |
| 59 | 769 0448   | 28.98    | 230 9552    | 860 9954   | 44.27    | 139 0046    | 0919506    | 15.30    | 9080494    |
| 60 | 769 2187   |          | 10.230 7813 | 9.861 2610 |          | 10.138 7390 | 10.0920424 |          | 9.9079576  |

|  | co-sin. | diff. 1" | sec. | co-tang. | diff. 1" | tang. | co-sec. | diff. 1" | sin. |
|--|---------|----------|------|----------|----------|-------|---------|----------|------|
|--|---------|----------|------|----------|----------|-------|---------|----------|------|

LOGARITHMIC SINES, TANGENTS, & C.

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|    | sin.       | dif 1" | co-sec.     | tang.      | dif 1" | co-tang.    | sec.       | dif 1" | co-sin.   |    |
|----|------------|--------|-------------|------------|--------|-------------|------------|--------|-----------|----|
| 0  | 9.769 2187 | 28.97  | 10.230 7813 | 9.861 2610 | 44.28  | 10.138 7390 | 10.0920424 | 15.30  | 9.9079576 | 60 |
| 1  | 769 3925   | 28.95  | 230 6075    | 861 5267   | 44.28  | 138 4733    | 0921342    | 15.30  | 9078658   | 59 |
| 2  | 769 5662   | 28.93  | 230 4338    | 861 7923   | 44.25  | 138 4077    | 0922260    | 15.33  | 9077740   | 58 |
| 3  | 769 7398   | 28.93  | 230 2602    | 862 0578   | 44.25  | 137 9422    | 0923180    | 15.32  | 9076820   | 57 |
| 4  | 769 9134   | 28.90  | 230 0866    | 862 3233   | 44.23  | 137 6767    | 0924099    | 15.35  | 9075901   | 56 |
| 5  | 770 0868   | 28.88  | 229 9132    | 862 5887   | 44.23  | 137 4113    | 0925020    | 15.35  | 9074980   | 55 |
| 6  | 770 2601   | 28.85  | 10.229 7399 | 9.862 8541 | 44.23  | 10.137 1459 | 10.0925941 | 15.35  | 9.9074059 | 54 |
| 7  | 770 4332   | 28.85  | 229 5668    | 863 1195   | 44.22  | 136 8805    | 0926862    | 15.37  | 9073138   | 53 |
| 8  | 770 6063   | 28.83  | 229 3937    | 863 3848   | 44.20  | 136 6152    | 0927784    | 15.38  | 9072216   | 52 |
| 9  | 770 7793   | 28.82  | 229 2207    | 863 6500   | 44.20  | 136 3500    | 0928707    | 15.38  | 9071293   | 51 |
| 10 | 770 9522   | 28.78  | 229 0478    | 863 9152   | 44.18  | 136 0848    | 0929630    | 15.40  | 9070370   | 50 |
| 11 | 771 1249   | 28.78  | 228 8751    | 864 1803   | 44.18  | 135 8197    | 0930554    | 15.40  | 9069440   | 49 |
| 12 | 771 2976   | 28.77  | 10.228 7024 | 9.864 4454 | 44.18  | 10.135 5546 | 10.0931478 | 15.42  | 9.9068522 | 48 |
| 13 | 771 4702   | 28.73  | 228 5298    | 864 7105   | 44.17  | 135 2895    | 0932403    | 15.43  | 9067597   | 47 |
| 14 | 771 6426   | 28.73  | 228 3574    | 864 9755   | 44.15  | 135 0245    | 0933329    | 15.43  | 9066671   | 46 |
| 15 | 771 8150   | 28.70  | 228 1850    | 865 2404   | 44.15  | 134 7596    | 0934255    | 15.43  | 9065745   | 45 |
| 16 | 771 9872   | 28.68  | 228 0128    | 865 5053   | 44.15  | 134 4947    | 0935181    | 15.45  | 9064819   | 44 |
| 17 | 772 1593   | 28.68  | 227 8407    | 865 7702   | 44.15  | 134 2298    | 0936108    | 15.47  | 9063892   | 43 |
| 18 | 772 3314   | 28.65  | 10.227 6686 | 9.866 0350 | 44.12  | 10.133 9650 | 10.0937036 | 15.47  | 9.9062964 | 42 |
| 19 | 772 5033   | 28.63  | 227 4967    | 866 2997   | 44.12  | 133 7003    | 0937964    | 15.48  | 9062036   | 41 |
| 20 | 772 6751   | 28.62  | 227 3249    | 866 5644   | 44.12  | 133 4356    | 0938890    | 15.50  | 9061107   | 40 |
| 21 | 772 8468   | 28.62  | 227 1532    | 866 8291   | 44.10  | 133 1709    | 0939813    | 15.50  | 9060177   | 39 |
| 22 | 773 0185   | 28.58  | 226 9815    | 867 0937   | 44.10  | 132 9063    | 0940733    | 15.50  | 9059247   | 38 |
| 23 | 773 1900   | 28.57  | 226 8100    | 867 3583   | 44.08  | 132 6417    | 0941653    | 15.52  | 9058317   | 37 |
| 24 | 773 3614   | 28.55  | 10.226 6386 | 9.867 6228 | 44.08  | 10.132 3772 | 10.0942614 | 15.53  | 9.9057386 | 36 |
| 25 | 773 5327   | 28.53  | 226 4673    | 867 8873   | 44.07  | 132 1127    | 0943540    | 15.53  | 9056454   | 35 |
| 26 | 773 7039   | 28.50  | 226 2961    | 868 1517   | 44.05  | 131 8483    | 0944478    | 15.55  | 9055522   | 34 |
| 27 | 773 8749   | 28.50  | 226 1251    | 868 4160   | 44.05  | 131 5840    | 0945411    | 15.55  | 9054589   | 33 |
| 28 | 774 0459   | 28.48  | 225 9541    | 868 6804   | 44.03  | 131 3196    | 0946344    | 15.57  | 9053656   | 32 |
| 29 | 774 2168   | 28.47  | 225 7832    | 868 9446   | 44.05  | 131 0554    | 0947278    | 15.58  | 9052722   | 31 |
| 30 | 774 3876   | 28.45  | 10.225 6124 | 9.869 2089 | 44.03  | 10.130 7911 | 10.0948213 | 15.58  | 9.9051787 | 30 |
| 31 | 774 5583   | 28.42  | 225 4417    | 869 4731   | 44.02  | 130 5269    | 0949148    | 15.60  | 9050852   | 29 |
| 32 | 774 7288   | 28.42  | 225 2712    | 869 7372   | 44.02  | 130 2628    | 0950084    | 15.60  | 9049916   | 28 |
| 33 | 774 8993   | 28.40  | 225 1007    | 870 0013   | 44.00  | 129 9987    | 0951020    | 15.62  | 9048980   | 27 |
| 34 | 775 0697   | 28.37  | 224 9303    | 870 2653   | 44.00  | 129 7347    | 0951957    | 15.62  | 9048043   | 26 |
| 35 | 775 2399   | 28.37  | 224 7601    | 870 5293   | 44.00  | 129 4707    | 0952894    | 15.63  | 9047106   | 25 |
| 36 | 775 4101   | 28.33  | 10.224 5899 | 9.870 7933 | 43.98  | 10.129 2067 | 10.0953832 | 15.63  | 9.9046168 | 24 |
| 37 | 775 5801   | 28.33  | 224 4199    | 871 0572   | 43.98  | 128 9428    | 0954770    | 15.65  | 9045230   | 23 |
| 38 | 775 7501   | 28.30  | 224 2499    | 871 3210   | 43.97  | 128 6790    | 0955709    | 15.67  | 9044291   | 22 |
| 39 | 775 9199   | 28.30  | 224 0801    | 871 5848   | 43.97  | 128 4152    | 0956649    | 15.67  | 9043351   | 21 |
| 40 | 776 0897   | 28.27  | 223 9103    | 871 8486   | 43.95  | 128 1514    | 0957589    | 15.68  | 9042411   | 20 |
| 41 | 776 2593   | 28.27  | 223 7407    | 872 1123   | 43.95  | 127 8877    | 0958530    | 15.68  | 9041470   | 19 |
| 42 | 776 4289   | 28.23  | 10.223 5711 | 9.872 3760 | 43.93  | 10.127 6240 | 10.0959471 | 15.70  | 9.9040539 | 18 |
| 43 | 776 5983   | 28.22  | 223 4017    | 872 6396   | 43.93  | 127 3604    | 0960413    | 15.72  | 9039587   | 17 |
| 44 | 776 7676   | 28.22  | 223 2324    | 872 9032   | 43.93  | 127 0968    | 0961356    | 15.72  | 9038644   | 16 |
| 45 | 776 9369   | 28.18  | 223 0631    | 873 1668   | 43.90  | 126 8332    | 0962299    | 15.73  | 9037701   | 15 |
| 46 | 777 1060   | 28.17  | 222 8940    | 873 4302   | 43.92  | 126 5698    | 0963243    | 15.73  | 9036757   | 14 |
| 47 | 777 2750   | 28.15  | 222 7250    | 873 6937   | 43.90  | 126 3063    | 0964187    | 15.75  | 9035813   | 13 |
| 48 | 777 4439   | 28.15  | 10.222 5561 | 9.873 9571 | 43.88  | 10.126 0429 | 10.0965132 | 15.75  | 9.9034868 | 12 |
| 49 | 777 6128   | 28.12  | 222 3872    | 874 2204   | 43.90  | 125 7796    | 0966077    | 15.77  | 9033923   | 11 |
| 50 | 777 7815   | 28.10  | 222 2185    | 874 4838   | 43.87  | 125 5162    | 0967023    | 15.77  | 9032977   | 10 |
| 51 | 777 9501   | 28.08  | 222 0499    | 874 7470   | 43.87  | 125 2530    | 0967969    | 15.78  | 9032031   | 9  |
| 52 | 778 1186   | 28.07  | 221 8814    | 875 0102   | 43.87  | 124 9898    | 0968916    | 15.80  | 9031084   | 8  |
| 53 | 778 2870   | 28.05  | 221 7130    | 875 2734   | 43.85  | 124 7266    | 0969864    | 15.80  | 9030136   | 7  |
| 54 | 778 4553   | 28.03  | 10.221 5447 | 9.875 5365 | 43.85  | 10.124 4635 | 10.0970812 | 15.82  | 9.9029188 | 6  |
| 55 | 778 6235   | 28.02  | 221 3765    | 875 7996   | 43.85  | 124 2004    | 0971761    | 15.83  | 9028239   | 5  |
| 56 | 778 7916   | 28.00  | 221 2084    | 876 0627   | 43.83  | 123 9373    | 0972711    | 15.83  | 9027289   | 4  |
| 57 | 778 9596   | 27.98  | 221 0404    | 876 3257   | 43.82  | 123 6743    | 0973661    | 15.83  | 9026339   | 3  |
| 58 | 779 1275   | 27.97  | 220 8725    | 876 5886   | 43.82  | 123 4114    | 0974611    | 15.85  | 9025389   | 2  |
| 59 | 779 2953   | 27.95  | 220 7047    | 876 8515   | 43.82  | 123 1485    | 0975562    | 15.87  | 9024438   | 1  |
| 60 | 779 4630   |        | 10.220 5370 | 9.877 1144 |        | 10.122 8856 | 10.0976514 |        | 9.9023486 | 0  |

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| <i>i</i> | sin.       | diff. 1'' | co-sec.     | tang.      | diff. 1'' | co-tang.    | sec.       | diff. 1'' | co-sin.   | <i>i</i> |
|----------|------------|-----------|-------------|------------|-----------|-------------|------------|-----------|-----------|----------|
| 0        | 9.779 4630 | 27.93     | 10.220 5370 | 9.877 1144 | 43.80     | 10.122 8856 | 10.0976514 | 15.87     | 9.9023486 | 60       |
| 1        | 779 6306   | 27.92     | 220 3694    | 877 3772   | 43.80     | 122 6228    | 0977466    | 15.88     | 9022534   | 59       |
| 2        | 779 7981   | 27.90     | 220 2019    | 877 6400   | 43.78     | 122 3600    | 0978419    | 15.88     | 9021581   | 58       |
| 3        | 779 9655   | 27.88     | 220 0345    | 877 9027   | 43.78     | 122 0973    | 0979372    | 15.90     | 9020628   | 57       |
| 4        | 780 1328   | 27.87     | 219 8672    | 878 1654   | 43.78     | 121 8346    | 0980326    | 15.92     | 9019674   | 56       |
| 5        | 780 3000   | 27.85     | 219 7000    | 878 4281   | 43.77     | 121 5719    | 0981281    | 15.92     | 9018719   | 55       |
| 6        | 780 4671   | 27.83     | 10.219 5339 | 9.878 6907 | 43.77     | 10.121 3093 | 10.0982236 | 15.93     | 9.9017764 | 54       |
| 7        | 780 6341   | 27.82     | 219 3659    | 878 9533   | 43.75     | 121 0467    | 0983192    | 15.93     | 9016808   | 53       |
| 8        | 780 8010   | 27.82     | 219 1990    | 879 2158   | 43.73     | 120 7842    | 0984148    | 15.95     | 9015852   | 52       |
| 9        | 780 9677   | 27.78     | 219 0323    | 879 4782   | 43.75     | 120 5218    | 0985105    | 15.95     | 9014895   | 51       |
| 10       | 781 1344   | 27.77     | 218 8656    | 879 7407   | 43.73     | 120 2593    | 0986062    | 15.97     | 9013938   | 50       |
| 11       | 781 3010   | 27.75     | 218 6990    | 880 0031   | 43.72     | 119 9969    | 0987020    | 15.98     | 9012980   | 49       |
| 12       | 781 4675   | 27.73     | 10.218 5325 | 9.880 2654 | 43.72     | 10.119 7340 | 10.0987979 | 15.98     | 9.9012021 | 48       |
| 13       | 781 6339   | 27.72     | 218 3661    | 880 5277   | 43.72     | 119 4723    | 0988938    | 16.00     | 9011062   | 47       |
| 14       | 781 8002   | 27.70     | 218 1998    | 880 7900   | 43.70     | 119 2100    | 0989898    | 16.00     | 9010102   | 46       |
| 15       | 781 9664   | 27.67     | 218 0336    | 881 0522   | 43.70     | 118 9478    | 0990858    | 16.02     | 9009142   | 45       |
| 16       | 782 1324   | 27.67     | 217 8676    | 881 3144   | 43.68     | 118 6856    | 0991819    | 16.03     | 9008181   | 44       |
| 17       | 782 2984   | 27.65     | 217 7016    | 881 5765   | 43.68     | 118 4235    | 0992781    | 16.03     | 9007219   | 43       |
| 18       | 782 4643   | 27.63     | 10.217 5357 | 9.881 8386 | 43.68     | 10.118 1614 | 10.0993743 | 16.05     | 9.9006257 | 42       |
| 19       | 782 6301   | 27.62     | 217 3699    | 882 1007   | 43.67     | 117 8993    | 0994706    | 16.05     | 9005294   | 41       |
| 20       | 782 7958   | 27.60     | 217 2042    | 882 3627   | 43.65     | 117 6373    | 0995669    | 16.07     | 9004331   | 40       |
| 21       | 782 9614   | 27.57     | 217 0386    | 882 6246   | 43.67     | 117 3754    | 0996633    | 16.07     | 9003367   | 39       |
| 22       | 783 1268   | 27.57     | 216 8732    | 882 8866   | 43.67     | 117 1134    | 0997597    | 16.08     | 9002403   | 38       |
| 23       | 783 2922   | 27.55     | 216 7078    | 883 1484   | 43.65     | 116 8516    | 0998562    | 16.10     | 9001438   | 37       |
| 24       | 783 4575   | 27.53     | 10.216 5425 | 9.883 4103 | 43.63     | 10.116 5897 | 10.0999528 | 16.10     | 9.9000472 | 36       |
| 25       | 783 6227   | 27.52     | 216 3773    | 883 6721   | 43.62     | 116 3279    | 1000494    | 16.12     | 8999506   | 35       |
| 26       | 783 7878   | 27.52     | 216 2122    | 883 9338   | 43.62     | 116 0662    | 1001461    | 16.12     | 8998539   | 34       |
| 27       | 783 9528   | 27.48     | 216 0472    | 884 1956   | 43.60     | 115 8044    | 1002428    | 16.13     | 8997572   | 33       |
| 28       | 784 1177   | 27.45     | 215 8823    | 884 4572   | 43.62     | 115 5428    | 1003396    | 16.13     | 8996604   | 32       |
| 29       | 784 2824   | 27.45     | 215 7176    | 884 7189   | 43.60     | 115 2811    | 1004364    | 16.15     | 8995636   | 31       |
| 30       | 784 4471   | 27.43     | 10.215 5529 | 9.884 9805 | 43.58     | 10.115 0195 | 10.1005333 | 16.17     | 9.9994667 | 30       |
| 31       | 784 6117   | 27.42     | 215 3883    | 885 2420   | 43.58     | 114 7580    | 1006303    | 16.17     | 8993697   | 29       |
| 32       | 784 7762   | 27.40     | 215 2238    | 885 5035   | 43.58     | 114 4965    | 1007273    | 16.18     | 8992727   | 28       |
| 33       | 784 9406   | 27.38     | 215 0594    | 885 7650   | 43.57     | 114 2350    | 1008244    | 16.20     | 8991756   | 27       |
| 34       | 785 1049   | 27.38     | 214 8951    | 886 0264   | 43.57     | 113 9736    | 1009216    | 16.20     | 8990784   | 26       |
| 35       | 785 2691   | 27.35     | 214 7309    | 886 2878   | 43.57     | 113 7122    | 1010188    | 16.20     | 8989812   | 25       |
| 36       | 785 4332   | 27.33     | 10.214 5668 | 9.886 5492 | 43.55     | 10.113 4508 | 10.1011160 | 16.22     | 9.9888440 | 24       |
| 37       | 785 5972   | 27.32     | 214 4028    | 886 8105   | 43.55     | 113 1895    | 1012133    | 16.23     | 8987867   | 23       |
| 38       | 785 7611   | 27.30     | 214 2389    | 887 0718   | 43.53     | 112 9282    | 1013107    | 16.23     | 8986893   | 22       |
| 39       | 785 9249   | 27.28     | 214 0751    | 887 3330   | 43.53     | 112 6670    | 1014081    | 16.25     | 8985919   | 21       |
| 40       | 786 0886   | 27.27     | 213 9114    | 887 5942   | 43.53     | 112 4058    | 1015056    | 16.27     | 8984944   | 20       |
| 41       | 786 2522   | 27.25     | 10.213 5843 | 9.888 1165 | 43.52     | 112 1446    | 1016032    | 16.27     | 8983968   | 19       |
| 42       | 786 4157   | 27.23     | 213 4209    | 888 3775   | 43.52     | 111 8835    | 10.1017008 | 16.28     | 9.9882992 | 18       |
| 43       | 786 5791   | 27.22     | 213 2576    | 888 6386   | 43.52     | 111 6225    | 1017985    | 16.28     | 8982015   | 17       |
| 44       | 786 7424   | 27.20     | 213 0944    | 888 8996   | 43.50     | 111 3614    | 1018962    | 16.30     | 8981038   | 16       |
| 45       | 786 9056   | 27.18     | 212 9313    | 889 1605   | 43.48     | 111 1004    | 1019940    | 16.30     | 8980060   | 15       |
| 46       | 787 0687   | 27.17     | 212 7683    | 889 4214   | 43.48     | 110 8395    | 1020918    | 16.32     | 8979082   | 14       |
| 47       | 787 2317   | 27.15     | 10.212 6054 | 9.889 6823 | 43.48     | 110 5786    | 1021897    | 16.33     | 8978103   | 13       |
| 48       | 787 3946   | 27.13     | 212 4426    | 889 9432   | 43.47     | 110 3177    | 10.1022877 | 16.33     | 9.9877123 | 12       |
| 49       | 787 5574   | 27.13     | 212 2798    | 890 2040   | 43.47     | 110 0568    | 1023857    | 16.35     | 8976143   | 11       |
| 50       | 787 7202   | 27.10     | 212 1172    | 890 4647   | 43.45     | 109 7960    | 1024838    | 16.35     | 8975162   | 10       |
| 51       | 787 8828   | 27.08     | 211 9547    | 890 7254   | 43.45     | 109 5353    | 1025819    | 16.37     | 8974181   | 9        |
| 52       | 788 0453   | 27.07     | 211 7923    | 890 9861   | 43.45     | 109 2746    | 1026801    | 16.38     | 8973199   | 8        |
| 53       | 788 2077   | 27.07     | 10.211 6299 | 9.891 2468 | 43.43     | 109 0139    | 1027784    | 16.38     | 8972216   | 7        |
| 54       | 788 3701   | 27.03     | 211 4677    | 891 5074   | 43.42     | 108 7532    | 10.1028767 | 16.40     | 9.9871233 | 6        |
| 55       | 788 5323   | 27.02     | 211 3056    | 891 7679   | 43.42     | 108 4926    | 1029751    | 16.40     | 8970239   | 5        |
| 56       | 788 6944   | 27.02     | 211 1435    | 892 0285   | 43.42     | 108 2321    | 1030735    | 16.42     | 8969254   | 4        |
| 57       | 788 8565   | 26.98     | 210 9816    | 892 2890   | 43.40     | 107 9715    | 1031720    | 16.43     | 8968268   | 3        |
| 58       | 789 0184   | 26.97     | 10.210 8198 | 9.892 5494 | 43.40     | 107 7110    | 1032706    | 16.43     | 8967294   | 2        |
| 59       | 789 1802   | 26.97     | 210 6580    | 892 8098   | 43.40     | 107 4506    | 1033692    | 16.45     | 8966308   | 1        |
| 60       | 9.789 3420 |           | 10.210 6580 | 9.892 8098 |           | 10.107 1902 | 10.1034679 |           | 9.8965321 | 0        |



LOGARITHMIC SINES, TANGENTS, &c.

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|    | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.        | dif. 1" | co-sin.    |    |
|----|------------|---------|-------------|------------|---------|-------------|-------------|---------|------------|----|
| 0  | 9.789 3420 |         | 10.210 6580 | 9.892 8098 |         | 10.107 1902 | 10.103 4679 | 16.45   | 9.896 5321 | 60 |
| 1  | 789 5036   | 26.93   | 210 4964    | 893 0702   | 43.40   | 106 9298    | 1035666     | 16.47   | 896 4334   | 59 |
| 2  | 789 6652   | 26.90   | 210 3348    | 893 3306   | 43.38   | 106 6694    | 1036654     | 16.47   | 896 3346   | 58 |
| 3  | 789 8266   | 26.86   | 210 1734    | 893 5909   | 43.37   | 106 4091    | 1037642     | 16.48   | 896 2358   | 57 |
| 4  | 789 9880   | 26.88   | 210 0120    | 893 8511   | 43.38   | 106 1489    | 1038631     | 16.48   | 896 1369   | 56 |
| 5  | 790 1493   | 26.85   | 209 8507    | 894 1114   | 43.35   | 105 8886    | 1039621     | 16.50   | 896 0379   | 55 |
| 6  | 790 3104   | 26.85   | 10.209 6896 | 9.894 3715 | 43.37   | 10.105 6285 | 10.104 0611 | 16.52   | 9.895 9389 | 54 |
| 7  | 790 4715   | 26.83   | 209 5285    | 894 6317   | 43.35   | 105 3683    | 1041602     | 16.53   | 895 8398   | 53 |
| 8  | 790 6325   | 26.80   | 209 3675    | 894 8918   | 43.35   | 105 1082    | 1042594     | 16.53   | 895 7406   | 52 |
| 9  | 790 7933   | 26.80   | 209 2067    | 895 1519   | 43.33   | 104 8481    | 1043586     | 16.53   | 895 6414   | 51 |
| 10 | 790 9541   | 26.78   | 209 0459    | 895 4119   | 43.33   | 104 5881    | 1044578     | 16.53   | 895 5422   | 50 |
| 11 | 791 1148   | 26.77   | 208 8852    | 895 6719   | 43.33   | 104 3281    | 1045571     | 16.55   | 895 4429   | 49 |
| 12 | 791 2754   | 26.75   | 10.208 7246 | 9.895 9319 | 43.33   | 10.104 0681 | 10.104 6565 | 16.57   | 9.895 3435 | 48 |
| 13 | 791 4359   | 26.73   | 208 5641    | 896 1918   | 43.32   | 103 8082    | 1047560     | 16.58   | 895 2440   | 47 |
| 14 | 791 5963   | 26.72   | 208 4037    | 896 4517   | 43.32   | 103 5483    | 1048555     | 16.58   | 895 1445   | 46 |
| 15 | 791 7566   | 26.70   | 208 2434    | 896 7116   | 43.30   | 103 2884    | 1049550     | 16.62   | 895 0450   | 45 |
| 16 | 791 9168   | 26.68   | 208 0832    | 896 9714   | 43.30   | 103 0286    | 1050547     | 16.60   | 894 9453   | 44 |
| 17 | 792 0769   | 26.67   | 207 9231    | 897 2312   | 43.30   | 102 7688    | 1051543     | 16.63   | 894 8457   | 43 |
| 18 | 792 2369   | 26.65   | 10.207 7631 | 9.897 4910 | 43.32   | 10.102 5090 | 10.105 2541 | 16.63   | 9.894 7459 | 42 |
| 19 | 792 3968   | 26.63   | 207 6032    | 897 7507   | 43.32   | 102 2493    | 1053539     | 16.63   | 894 6461   | 41 |
| 20 | 792 5566   | 26.62   | 207 4434    | 898 0104   | 43.32   | 101 9896    | 1054537     | 16.67   | 894 5463   | 40 |
| 21 | 792 7163   | 26.62   | 207 2837    | 898 2700   | 43.32   | 101 7300    | 1055537     | 16.65   | 894 4463   | 39 |
| 22 | 792 8760   | 26.68   | 207 1240    | 898 5296   | 43.32   | 101 4704    | 1056536     | 16.68   | 894 3464   | 38 |
| 23 | 793 0355   | 26.67   | 206 9645    | 898 7892   | 43.32   | 101 2108    | 1057537     | 16.68   | 894 2463   | 37 |
| 24 | 9.793 1949 | 26.57   | 10.206 8051 | 9.899 0487 | 43.35   | 10.100 9513 | 10.105 8538 | 16.68   | 9.894 1462 | 36 |
| 25 | 793 3543   | 26.53   | 206 6457    | 899 3082   | 43.35   | 100 6918    | 1059539     | 16.72   | 894 0461   | 35 |
| 26 | 793 5135   | 26.53   | 206 4865    | 899 5677   | 43.33   | 100 4323    | 1060542     | 16.70   | 893 9458   | 34 |
| 27 | 793 6727   | 26.50   | 206 3273    | 899 8271   | 43.33   | 100 1729    | 1061544     | 16.73   | 893 8456   | 33 |
| 28 | 793 8317   | 26.50   | 206 1683    | 900 0865   | 43.33   | 999 9135    | 1062548     | 16.73   | 893 7452   | 32 |
| 29 | 793 9907   | 26.48   | 206 0093    | 900 3459   | 43.32   | 999 6541    | 1063552     | 16.73   | 893 6448   | 31 |
| 30 | 9.794 1495 | 26.45   | 10.205 8504 | 9.900 6052 | 43.32   | 10.099 3948 | 10.106 4556 | 16.75   | 9.893 5444 | 30 |
| 31 | 794 3083   | 26.45   | 205 6917    | 900 8645   | 43.32   | 999 1355    | 1065561     | 16.77   | 893 4439   | 29 |
| 32 | 794 4670   | 26.43   | 205 5330    | 901 1237   | 43.30   | 998 8763    | 1066567     | 16.78   | 893 3433   | 28 |
| 33 | 794 6256   | 26.42   | 205 3744    | 901 3830   | 43.32   | 998 6170    | 1067574     | 16.78   | 893 2426   | 27 |
| 34 | 794 7841   | 26.40   | 205 2159    | 901 6422   | 43.32   | 998 3578    | 1068581     | 16.78   | 893 1419   | 26 |
| 35 | 794 9425   | 26.40   | 205 0575    | 901 9013   | 43.32   | 998 0987    | 1069588     | 16.80   | 893 0412   | 25 |
| 36 | 9.795 1008 | 26.38   | 10.204 8992 | 9.902 1604 | 43.38   | 10.097 8396 | 10.107 0596 | 16.82   | 9.892 9404 | 24 |
| 37 | 795 2590   | 26.37   | 204 7410    | 902 4195   | 43.38   | 997 5805    | 1071065     | 16.83   | 892 8395   | 23 |
| 38 | 795 4171   | 26.35   | 204 5829    | 902 6786   | 43.38   | 997 3214    | 1072071     | 16.83   | 892 7385   | 22 |
| 39 | 795 5751   | 26.33   | 204 4249    | 902 9376   | 43.37   | 997 0624    | 1073076     | 16.83   | 892 6375   | 21 |
| 40 | 795 7330   | 26.32   | 204 2670    | 903 1966   | 43.37   | 996 8034    | 1074083     | 16.85   | 892 5365   | 20 |
| 41 | 795 8909   | 26.32   | 204 1091    | 903 4555   | 43.35   | 996 5445    | 1075086     | 16.85   | 892 4354   | 19 |
| 42 | 9.796 0486 | 26.28   | 10.203 9514 | 9.903 7144 | 43.35   | 10.096 2856 | 10.107 6658 | 16.87   | 9.892 3342 | 18 |
| 43 | 796 2062   | 26.27   | 203 7938    | 903 9733   | 43.33   | 996 0267    | 1076671     | 16.88   | 892 2329   | 17 |
| 44 | 796 3638   | 26.23   | 203 6362    | 904 2321   | 43.35   | 995 7679    | 1077684     | 16.88   | 892 1316   | 16 |
| 45 | 796 5212   | 26.23   | 203 4788    | 904 4910   | 43.32   | 995 5090    | 1078697     | 16.90   | 892 0303   | 15 |
| 46 | 796 6786   | 26.22   | 203 3214    | 904 7497   | 43.33   | 995 2503    | 1080711     | 16.92   | 891 9289   | 14 |
| 47 | 796 8359   | 26.22   | 203 1641    | 905 0085   | 43.32   | 994 9915    | 1081726     | 16.93   | 891 8274   | 13 |
| 48 | 9.796 9930 | 26.18   | 10.203 0070 | 9.905 2672 | 43.32   | 10.094 7328 | 10.108 2742 | 16.93   | 9.891 7258 | 12 |
| 49 | 797 1501   | 26.17   | 202 8499    | 905 5259   | 43.32   | 994 4741    | 1083758     | 16.93   | 891 6242   | 11 |
| 50 | 797 3071   | 26.15   | 202 6929    | 905 7845   | 43.30   | 994 2155    | 1084774     | 16.97   | 891 5226   | 10 |
| 51 | 797 4640   | 26.13   | 202 5360    | 906 0431   | 43.30   | 993 9569    | 1085792     | 16.95   | 891 4208   | 9  |
| 52 | 797 6208   | 26.12   | 202 3792    | 906 3017   | 43.30   | 993 6983    | 1086809     | 16.98   | 891 3191   | 8  |
| 53 | 797 7775   | 26.10   | 202 2225    | 906 5603   | 43.30   | 993 4397    | 1087828     | 16.98   | 891 2172   | 7  |
| 54 | 9.797 9341 | 26.08   | 10.202 0659 | 9.906 8188 | 43.08   | 10.093 1812 | 10.108 8847 | 17.00   | 9.891 1153 | 6  |
| 55 | 798 0906   | 26.07   | 201 9094    | 907 0773   | 43.07   | 992 9227    | 1088867     | 17.00   | 891 0133   | 5  |
| 56 | 798 2470   | 26.07   | 201 7530    | 907 3357   | 43.07   | 992 6643    | 1090887     | 17.02   | 890 9113   | 4  |
| 57 | 798 4034   | 26.03   | 201 5966    | 907 5941   | 43.07   | 992 4059    | 1091908     | 17.02   | 890 8092   | 3  |
| 58 | 798 5599   | 26.03   | 201 4404    | 907 8525   | 43.07   | 992 1475    | 1092929     | 17.03   | 890 7071   | 2  |
| 59 | 798 7158   | 26.00   | 201 2842    | 908 1109   | 43.05   | 991 8891    | 1093951     | 17.05   | 890 6049   | 1  |
| 60 | 9.798 8718 |         | 10.201 1282 | 9.908 3692 |         | 10.091 6308 | 10.109 4974 |         | 9.890 5026 | 0  |

128°

51°

39°

| '  | sin.       | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.       | dif. 1" | co-sin.   | '  |
|----|------------|---------|-------------|------------|---------|-------------|------------|---------|-----------|----|
| 0  | 9.798 8718 | 26.00   | 10.201 1282 | 9.908 3692 | 43.05   | 10.091 6308 | 10.1094974 | 17.05   | 9.8905026 | 60 |
| 1  | 799 0288   | 25.97   | 200 9722    | 908 6275   | 43.05   | 091 3725    | 1095997    | 17.07   | 8904003   | 56 |
| 2  | 799 1836   | 25.97   | 200 8164    | 908 8858   | 43.03   | 091 1142    | 1097021    | 17.08   | 8902979   | 52 |
| 3  | 799 3391   | 25.95   | 200 6606    | 909 1440   | 43.03   | 090 8560    | 1098046    | 17.08   | 8901954   | 55 |
| 4  | 799 4951   | 25.93   | 200 5049    | 909 4022   | 43.02   | 090 5978    | 1099071    | 17.10   | 8900929   | 56 |
| 5  | 799 6507   | 25.92   | 200 3493    | 909 6603   | 43.02   | 090 3397    | 1100097    | 17.10   | 8899903   | 55 |
| 6  | 799 8062   | 25.90   | 10.200 1938 | 9.909 9185 | 43.02   | 10.090 0815 | 10.1101123 | 17.12   | 9.8898877 | 54 |
| 7  | 799 9616   | 25.88   | 200 0384    | 910 1766   | 43.02   | 089 8234    | 1102150    | 17.13   | 8897850   | 53 |
| 8  | 800 1169   | 25.87   | 199 8831    | 910 4347   | 43.02   | 089 5653    | 1103178    | 17.13   | 8896822   | 52 |
| 9  | 800 2721   | 25.85   | 199 7279    | 910 6927   | 43.00   | 089 3073    | 1104206    | 17.15   | 8895794   | 51 |
| 10 | 800 4272   | 25.85   | 199 5728    | 910 9507   | 43.00   | 089 0493    | 1105235    | 17.15   | 8894765   | 50 |
| 11 | 800 5823   | 25.82   | 199 4177    | 911 2087   | 42.98   | 088 7913    | 1106264    | 17.17   | 8893736   | 49 |
| 12 | 9.800 7372 | 25.82   | 10.199 2628 | 9.911 4666 | 42.98   | 10.088 5334 | 10.1107294 | 17.18   | 8892706   | 48 |
| 13 | 800 8921   | 25.78   | 199 1079    | 911 7245   | 42.98   | 088 2755    | 1108355    | 17.18   | 8891675   | 47 |
| 14 | 801 0468   | 25.78   | 198 9532    | 911 9824   | 42.98   | 088 0176    | 1109356    | 17.20   | 8890644   | 46 |
| 15 | 801 2015   | 25.77   | 198 7985    | 912 2403   | 42.98   | 087 7597    | 1110388    | 17.20   | 8889612   | 45 |
| 16 | 801 3561   | 25.75   | 198 6439    | 912 4981   | 42.97   | 087 5019    | 1111420    | 17.22   | 8888580   | 44 |
| 17 | 801 5106   | 25.72   | 198 4894    | 912 7559   | 42.97   | 087 2441    | 1112453    | 17.23   | 8887547   | 43 |
| 18 | 801 6649   | 25.72   | 10.198 3351 | 9.913 0137 | 42.95   | 10.086 9863 | 10.1113487 | 17.23   | 9.8886513 | 42 |
| 19 | 801 8192   | 25.72   | 198 1808    | 913 2714   | 42.95   | 086 7286    | 1114521    | 17.25   | 8885479   | 41 |
| 20 | 801 9735   | 25.68   | 198 0265    | 913 5291   | 42.95   | 086 4709    | 1115556    | 17.27   | 8884444   | 40 |
| 21 | 802 1276   | 25.67   | 197 8724    | 913 7868   | 42.93   | 086 2132    | 1116592    | 17.27   | 8883408   | 39 |
| 22 | 802 2816   | 25.65   | 197 7184    | 914 0444   | 42.93   | 085 9556    | 1117628    | 17.27   | 8882372   | 38 |
| 23 | 802 4355   | 25.65   | 197 5645    | 914 3020   | 42.93   | 085 6980    | 1118665    | 17.28   | 8881335   | 37 |
| 24 | 9.802 5894 | 25.62   | 10.197 4106 | 9.914 5596 | 42.92   | 10.085 4404 | 10.1119702 | 17.30   | 9.8880298 | 36 |
| 25 | 802 7431   | 25.62   | 197 2569    | 914 8171   | 42.92   | 085 1829    | 1120740    | 17.32   | 8879260   | 35 |
| 26 | 802 8968   | 25.60   | 197 1032    | 915 0747   | 42.92   | 084 9253    | 1121779    | 17.32   | 8878221   | 34 |
| 27 | 803 0504   | 25.57   | 196 9496    | 915 3322   | 42.92   | 084 6678    | 1122818    | 17.33   | 8877183   | 33 |
| 28 | 803 2038   | 25.57   | 196 7962    | 915 5896   | 42.90   | 084 4104    | 1123858    | 17.33   | 8876142   | 32 |
| 29 | 803 3572   | 25.55   | 196 6428    | 915 8471   | 42.92   | 084 1529    | 1124898    | 17.35   | 8875102   | 31 |
| 30 | 9.803 5105 | 25.53   | 10.196 4895 | 9.916 1045 | 42.88   | 10.083 8955 | 10.1125939 | 17.37   | 9.8874061 | 30 |
| 31 | 803 6637   | 25.52   | 196 3363    | 916 3618   | 42.90   | 083 6382    | 1126981    | 17.37   | 8873019   | 29 |
| 32 | 803 8168   | 25.52   | 196 1832    | 916 6192   | 42.88   | 083 3808    | 1128023    | 17.37   | 8871977   | 28 |
| 33 | 803 9699   | 25.48   | 196 0301    | 916 8765   | 42.88   | 083 1235    | 1129066    | 17.38   | 8870934   | 27 |
| 34 | 804 1228   | 25.48   | 195 8772    | 917 1338   | 42.88   | 082 8662    | 1130110    | 17.40   | 8869890   | 26 |
| 35 | 804 2757   | 25.45   | 195 7243    | 917 3911   | 42.87   | 082 6089    | 1131154    | 17.42   | 8868846   | 25 |
| 36 | 9.804 4284 | 25.45   | 10.195 5716 | 9.917 6483 | 42.87   | 10.082 3517 | 10.1132199 | 17.42   | 9.8867801 | 24 |
| 37 | 804 5811   | 25.42   | 195 4189    | 917 9055   | 42.87   | 082 0945    | 1133244    | 17.42   | 8866756   | 23 |
| 38 | 804 7336   | 25.42   | 195 2664    | 918 1627   | 42.87   | 081 8373    | 1134290    | 17.43   | 8865712   | 22 |
| 39 | 804 8861   | 25.42   | 195 1139    | 918 4198   | 42.85   | 081 5802    | 1135337    | 17.45   | 8864668   | 21 |
| 40 | 805 0385   | 25.40   | 194 9615    | 918 6769   | 42.85   | 081 3231    | 1136383    | 17.45   | 8863624   | 20 |
| 41 | 805 1908   | 25.38   | 194 8092    | 918 9340   | 42.85   | 081 0660    | 1137432    | 17.47   | 8862580   | 19 |
| 42 | 9.805 3431 | 25.35   | 10.194 6570 | 9.919 1911 | 42.83   | 10.080 8089 | 10.1138481 | 17.48   | 9.8861539 | 18 |
| 43 | 805 4951   | 25.35   | 194 5049    | 919 4481   | 42.83   | 080 5519    | 1139530    | 17.50   | 8860497   | 17 |
| 44 | 805 6472   | 25.32   | 194 3528    | 919 7051   | 42.83   | 080 2949    | 1140580    | 17.50   | 8859420   | 16 |
| 45 | 805 7991   | 25.32   | 194 2009    | 919 9621   | 42.83   | 080 0379    | 1141630    | 17.52   | 8858370   | 15 |
| 46 | 805 9510   | 25.28   | 194 0490    | 920 2191   | 42.82   | 079 7809    | 1142681    | 17.53   | 8857319   | 14 |
| 47 | 806 1027   | 25.28   | 193 8973    | 920 4760   | 42.82   | 079 5240    | 1143733    | 17.53   | 8856267   | 13 |
| 48 | 9.806 2544 | 25.27   | 10.193 7456 | 9.920 7329 | 42.82   | 10.079 2671 | 10.1144785 | 17.55   | 9.8855215 | 12 |
| 49 | 806 4060   | 25.25   | 193 5940    | 920 9898   | 42.80   | 079 0102    | 1145838    | 17.55   | 8854162   | 11 |
| 50 | 806 5575   | 25.23   | 193 4425    | 921 2466   | 42.80   | 078 7534    | 1146891    | 17.55   | 8853109   | 10 |
| 51 | 806 7089   | 25.22   | 193 2911    | 921 5034   | 42.80   | 078 4966    | 1147945    | 17.58   | 8852055   | 9  |
| 52 | 806 8602   | 25.20   | 193 1398    | 921 7602   | 42.80   | 078 2398    | 1149000    | 17.58   | 8851000   | 8  |
| 53 | 807 0114   | 25.20   | 192 9886    | 922 0170   | 42.80   | 077 9830    | 1150055    | 17.58   | 8849945   | 7  |
| 54 | 9.807 1626 | 25.17   | 10.192 8374 | 9.922 2737 | 42.78   | 10.077 7263 | 10.1151111 | 17.62   | 9.8848889 | 6  |
| 55 | 807 3136   | 25.17   | 192 6864    | 922 5304   | 42.78   | 077 4696    | 1152168    | 17.62   | 8847832   | 5  |
| 56 | 807 4646   | 25.13   | 192 5354    | 922 7871   | 42.78   | 077 2129    | 1153225    | 17.63   | 8846775   | 4  |
| 57 | 807 6154   | 25.13   | 192 3846    | 923 0437   | 42.77   | 076 9563    | 1154283    | 17.63   | 8845717   | 3  |
| 58 | 807 7662   | 25.12   | 192 2338    | 923 3004   | 42.78   | 076 6996    | 1155341    | 17.63   | 8844659   | 2  |
| 59 | 807 9169   | 25.10   | 192 0831    | 923 5570   | 42.77   | 076 4430    | 1156400    | 17.67   | 8843599   | 1  |
| 60 | 9.808 0675 | 25.10   | 10.191 9325 | 9.923 8135 | 42.75   | 10.076 1865 | 10.1157460 | 17.65   | 9.8842540 | 0  |

120°

50°

LOGARITHMIC SINES, TANGENTS, & C.

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40°

130°

|    | sin.       | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | dif. 1'' | co-sin.   |    |
|----|------------|----------|-------------|------------|----------|-------------|------------|----------|-----------|----|
| 0  | 9.808 0675 | 25.08    | 10.191 9325 | 9.923 8135 | 42.77    | 10.076 1865 | 10.1157460 | 17.68    | 9.8842540 | 60 |
| 1  | 808 2180   | 25.07    | 191 7820    | 924 0701   | 42.75    | 075 9299    | 1158521    | 17.68    | 8841479   | 59 |
| 2  | 808 3684   | 25.07    | 191 6316    | 924 3266   | 42.75    | 075 6734    | 1159582    | 17.68    | 8840418   | 58 |
| 3  | 808 5188   | 25.07    | 191 4812    | 924 5831   | 42.75    | 075 4169    | 1160643    | 17.68    | 8839357   | 57 |
| 4  | 808 6690   | 25.03    | 191 3310    | 924 8396   | 42.73    | 075 1604    | 1161706    | 17.70    | 8838294   | 56 |
| 5  | 808 8192   | 25.03    | 191 1808    | 925 0960   | 42.73    | 074 9049    | 1162768    | 17.70    | 8837232   | 55 |
| 6  | 808 9692   | 25.00    | 10.191 0308 | 9.925 3524 | 42.73    | 10.074 6476 | 10.1163832 | 17.73    | 9.8836168 | 54 |
| 7  | 809 1192   | 24.98    | 190 8808    | 925 6088   | 42.73    | 074 3912    | 1164896    | 17.75    | 8835104   | 53 |
| 8  | 809 2691   | 24.97    | 190 7309    | 925 8652   | 42.72    | 074 1348    | 1165961    | 17.75    | 8834039   | 52 |
| 9  | 809 4189   | 24.95    | 190 5811    | 926 1215   | 42.72    | 073 8785    | 1167026    | 17.75    | 8832974   | 51 |
| 10 | 809 5686   | 24.93    | 190 4314    | 926 3778   | 42.72    | 073 6222    | 1168092    | 17.77    | 8831908   | 50 |
| 11 | 809 7182   | 24.93    | 190 2818    | 926 6341   | 42.72    | 073 3659    | 1169159    | 17.78    | 8830841   | 49 |
| 12 | 809 8678   | 24.90    | 10.190 1322 | 9.926 8904 | 42.70    | 10.073 1096 | 10.1170226 | 17.80    | 9.8829774 | 48 |
| 13 | 809 0172   | 24.90    | 189 9828    | 927 1466   | 42.70    | 072 8534    | 1171294    | 17.80    | 8828706   | 47 |
| 14 | 810 1666   | 24.88    | 189 8334    | 927 4028   | 42.70    | 072 5972    | 1172362    | 17.83    | 8827638   | 46 |
| 15 | 810 3159   | 24.85    | 189 6841    | 927 6590   | 42.70    | 072 3410    | 1173432    | 17.82    | 8826568   | 45 |
| 16 | 810 4650   | 24.85    | 189 5350    | 927 9152   | 42.68    | 072 0848    | 1174501    | 17.85    | 8825499   | 44 |
| 17 | 810 6141   | 24.83    | 189 3859    | 928 1713   | 42.68    | 071 8287    | 1175572    | 17.85    | 8824428   | 43 |
| 18 | 810 7631   | 24.83    | 10.189 2369 | 9.928 4274 | 42.68    | 10.071 5726 | 10.1176643 | 17.87    | 9.8823357 | 42 |
| 19 | 810 9121   | 24.80    | 189 0879    | 928 6835   | 42.68    | 071 3165    | 1177715    | 17.87    | 8822285   | 41 |
| 20 | 811 0609   | 24.78    | 188 9391    | 928 9396   | 42.67    | 071 0604    | 1178787    | 17.88    | 8821213   | 40 |
| 21 | 811 2096   | 24.78    | 188 7904    | 929 1956   | 42.67    | 070 8044    | 1179860    | 17.88    | 8820140   | 39 |
| 22 | 811 3583   | 24.77    | 188 6417    | 929 4516   | 42.67    | 070 5484    | 1180933    | 17.92    | 8819067   | 38 |
| 23 | 811 5069   | 24.75    | 188 4931    | 929 7076   | 42.67    | 070 2924    | 1182008    | 17.90    | 8817992   | 37 |
| 24 | 811 6554   | 24.72    | 10.188 3446 | 9.929 9636 | 42.65    | 10.070 0364 | 10.1183082 | 17.93    | 9.8816918 | 36 |
| 25 | 811 8038   | 24.72    | 188 1962    | 930 2195   | 42.67    | 069 7805    | 1184158    | 17.93    | 8815842   | 35 |
| 26 | 811 9521   | 24.70    | 188 0479    | 930 4755   | 42.65    | 069 5245    | 1185234    | 17.95    | 8814766   | 34 |
| 27 | 812 1003   | 24.68    | 187 8997    | 930 7314   | 42.63    | 069 2686    | 1186311    | 17.95    | 8813689   | 33 |
| 28 | 812 2484   | 24.68    | 187 7516    | 930 9872   | 42.65    | 069 0128    | 1187388    | 17.97    | 8812612   | 32 |
| 29 | 812 3965   | 24.65    | 187 6035    | 931 2431   | 42.63    | 068 7569    | 1188466    | 17.98    | 8811534   | 31 |
| 30 | 812 5444   | 24.65    | 10.187 4556 | 9.931 4989 | 42.63    | 10.068 5011 | 10.1189545 | 17.98    | 9.8810455 | 30 |
| 31 | 812 6923   | 24.63    | 187 3077    | 931 7547   | 42.63    | 068 2453    | 1190624    | 18.00    | 8809376   | 29 |
| 32 | 812 8401   | 24.62    | 187 1599    | 932 0105   | 42.62    | 067 9895    | 1191704    | 18.02    | 8808296   | 28 |
| 33 | 812 9878   | 24.60    | 187 0122    | 932 2662   | 42.63    | 067 7338    | 1192785    | 18.02    | 8807215   | 27 |
| 34 | 813 1354   | 24.58    | 186 8646    | 932 5220   | 42.62    | 067 4780    | 1193866    | 18.03    | 8806134   | 26 |
| 35 | 813 2829   | 24.57    | 186 7171    | 932 7777   | 42.62    | 067 2223    | 1194948    | 18.03    | 8805052   | 25 |
| 36 | 813 4303   | 24.57    | 10.186 5697 | 9.933 0334 | 42.60    | 10.066 9666 | 10.1196030 | 18.05    | 9.8803970 | 24 |
| 37 | 813 5777   | 24.55    | 186 4223    | 933 2890   | 42.60    | 066 7110    | 1197113    | 18.07    | 8802887   | 23 |
| 38 | 813 7250   | 24.52    | 186 2750    | 933 5446   | 42.62    | 066 4554    | 1198197    | 18.07    | 8801803   | 22 |
| 39 | 813 8721   | 24.52    | 186 1279    | 933 8003   | 42.60    | 066 1997    | 1199281    | 18.08    | 8800719   | 21 |
| 40 | 814 0192   | 24.50    | 185 9808    | 934 0559   | 42.58    | 065 9441    | 1200366    | 18.10    | 8799634   | 20 |
| 41 | 814 1662   | 24.50    | 185 8338    | 934 3114   | 42.60    | 065 6886    | 1201452    | 18.10    | 8798548   | 19 |
| 42 | 814 3131   | 24.48    | 10.185 6869 | 9.934 5670 | 42.58    | 10.065 4330 | 10.1202538 | 18.12    | 9.8797462 | 18 |
| 43 | 814 4600   | 24.45    | 185 5400    | 934 8225   | 42.58    | 065 1775    | 1202625    | 18.13    | 8796375   | 17 |
| 44 | 814 6067   | 24.45    | 185 3933    | 935 0780   | 42.58    | 064 9220    | 1204713    | 18.13    | 8795287   | 16 |
| 45 | 814 7534   | 24.42    | 185 2466    | 935 3335   | 42.57    | 064 6665    | 1205801    | 18.15    | 8794199   | 15 |
| 46 | 814 8999   | 24.42    | 185 1001    | 935 5889   | 42.58    | 064 4111    | 1206890    | 18.15    | 8793110   | 14 |
| 47 | 815 0464   | 24.40    | 184 9536    | 935 8444   | 42.57    | 064 1556    | 1207979    | 18.18    | 8792021   | 13 |
| 48 | 815 1928   | 24.38    | 10.184 8072 | 9.936 0998 | 42.57    | 10.063 9002 | 10.1209070 | 18.17    | 9.8790930 | 12 |
| 49 | 815 3391   | 24.38    | 184 6609    | 936 3552   | 42.55    | 063 6448    | 1210160    | 18.20    | 8789840   | 11 |
| 50 | 815 4854   | 24.35    | 184 5146    | 936 6105   | 42.57    | 063 3895    | 1211252    | 18.20    | 8788748   | 10 |
| 51 | 815 6315   | 24.35    | 184 3685    | 936 8659   | 42.55    | 063 1341    | 1212344    | 18.22    | 8787656   | 9  |
| 52 | 815 7776   | 24.32    | 184 2224    | 937 1212   | 42.55    | 062 8788    | 1213437    | 18.22    | 8786563   | 8  |
| 53 | 815 9235   | 24.32    | 184 0765    | 937 3765   | 42.55    | 062 6235    | 1214530    | 18.23    | 8785470   | 7  |
| 54 | 816 0694   | 24.30    | 10.183 9306 | 9.937 6318 | 42.55    | 10.062 3682 | 10.1215624 | 18.25    | 9.8784376 | 6  |
| 55 | 816 2152   | 24.28    | 183 7848    | 937 8871   | 42.53    | 062 1129    | 1216719    | 18.25    | 8783281   | 5  |
| 56 | 816 3609   | 24.28    | 183 6391    | 938 1423   | 42.53    | 061 8577    | 1217814    | 18.27    | 8782186   | 4  |
| 57 | 816 5066   | 24.25    | 183 4934    | 938 3975   | 42.53    | 061 6025    | 1218910    | 18.27    | 8781090   | 3  |
| 58 | 816 6521   | 24.23    | 183 3479    | 938 6527   | 42.53    | 061 3473    | 1220006    | 18.30    | 8779994   | 2  |
| 59 | 816 7975   | 24.23    | 183 2025    | 938 9079   | 42.53    | 061 0921    | 1221104    | 18.28    | 8778896   | 1  |
| 60 | 816 9429   | 24.23    | 10.183 0571 | 9.939 1631 | 42.53    | 10.060 8369 | 10.1222201 | 18.28    | 9.8777799 | 0  |

130°

49°



41°

138°

|    | sin.     | dif. 1'' | co-sec.     | tang.      | dif. 1'' | co-tang.    | sec.       | dif. 1'' | co-sin.   |    |
|----|----------|----------|-------------|------------|----------|-------------|------------|----------|-----------|----|
| 0  | 816 9429 | 24.22    | 10.183 0571 | 9.939 1631 | 42.52    | 10.060 8369 | 10.1222201 | 18.32    | 9.8777799 | 60 |
| 1  | 817 0882 | 24.20    | 182 9118    | 939 4182   | 42.52    | 060 5818    | 1223300    | 18.32    | 8776700   | 56 |
| 2  | 817 2334 | 24.18    | 182 7666    | 939 6733   | 42.52    | 060 3267    | 1224399    | 18.33    | 8775601   | 52 |
| 3  | 817 3785 | 24.17    | 182 6215    | 939 9284   | 42.52    | 060 0716    | 1225499    | 18.33    | 8774501   | 57 |
| 4  | 817 5235 | 24.17    | 182 4765    | 940 1835   | 42.50    | 059 8165    | 1226599    | 18.35    | 8773401   | 56 |
| 5  | 817 6685 | 24.13    | 182 3315    | 940 4385   | 42.52    | 059 5615    | 1227700    | 18.37    | 8772300   | 55 |
| 6  | 817 8133 | 24.13    | 10.182 1867 | 9.940 6936 | 42.50    | 10.059 3064 | 10.1228802 | 18.37    | 9.8771198 | 54 |
| 7  | 817 9581 | 24.12    | 182 0419    | 940 9486   | 42.50    | 059 0514    | 1229904    | 18.38    | 8770096   | 53 |
| 8  | 818 1028 | 24.10    | 181 8972    | 941 2036   | 42.48    | 058 7964    | 1231007    | 18.40    | 8768993   | 52 |
| 9  | 818 2474 | 24.08    | 181 7526    | 941 4585   | 42.50    | 058 5415    | 1232111    | 18.40    | 8767889   | 51 |
| 10 | 818 3919 | 24.08    | 181 6081    | 941 7135   | 42.50    | 058 2865    | 1233215    | 18.42    | 8766785   | 50 |
| 11 | 818 5365 | 24.05    | 181 4636    | 941 9684   | 42.48    | 058 0316    | 1234320    | 18.42    | 8765680   | 49 |
| 12 | 818 6807 | 24.05    | 10.181 3193 | 9.942 2233 | 42.48    | 10.057 7767 | 10.1235326 | 18.43    | 9.8764574 | 48 |
| 13 | 818 8250 | 24.03    | 181 1750    | 942 4782   | 42.48    | 057 5218    | 1236432    | 18.45    | 8763468   | 47 |
| 14 | 818 9692 | 24.02    | 181 0308    | 942 7331   | 42.48    | 057 2669    | 1237539    | 18.47    | 8762361   | 46 |
| 15 | 819 1133 | 24.00    | 180 8867    | 942 9879   | 42.47    | 057 0121    | 1238747    | 18.47    | 8761253   | 45 |
| 16 | 819 2573 | 23.98    | 180 7427    | 943 2428   | 42.47    | 056 7572    | 1239855    | 18.48    | 8760145   | 44 |
| 17 | 819 4012 | 23.97    | 180 5988    | 943 4976   | 42.47    | 056 5024    | 1240964    | 18.48    | 8759036   | 43 |
| 18 | 819 5450 | 23.97    | 10.180 4550 | 9.943 7524 | 42.47    | 10.056 2476 | 10.1242073 | 18.52    | 9.8757927 | 42 |
| 19 | 819 6888 | 23.95    | 180 3112    | 944 0072   | 42.47    | 055 9928    | 1243184    | 18.50    | 8756816   | 41 |
| 20 | 819 8325 | 23.93    | 180 1675    | 944 2619   | 42.45    | 055 7381    | 1244294    | 18.53    | 8755704   | 40 |
| 21 | 819 9761 | 23.93    | 180 0239    | 944 5166   | 42.45    | 055 4834    | 1245406    | 18.53    | 8754594   | 39 |
| 22 | 820 1196 | 23.92    | 179 8804    | 944 7714   | 42.47    | 055 2286    | 1246518    | 18.55    | 8753482   | 38 |
| 23 | 820 2630 | 23.90    | 179 7370    | 945 0261   | 42.45    | 054 9739    | 1247631    | 18.55    | 8752369   | 37 |
| 24 | 820 4063 | 23.88    | 10.179 5937 | 9.945 2807 | 42.43    | 10.054 7193 | 10.1248744 | 18.57    | 9.8751256 | 36 |
| 25 | 820 5496 | 23.85    | 179 4504    | 945 5354   | 42.43    | 054 4646    | 1249858    | 18.58    | 8750142   | 35 |
| 26 | 820 6929 | 23.85    | 179 3073    | 945 7900   | 42.43    | 054 2100    | 1250973    | 18.58    | 8749027   | 34 |
| 27 | 820 8358 | 23.83    | 179 1642    | 946 0447   | 42.43    | 053 9553    | 1252088    | 18.62    | 8747912   | 33 |
| 28 | 820 9788 | 23.82    | 179 0212    | 946 2993   | 42.43    | 053 7007    | 1253205    | 18.60    | 8746797   | 32 |
| 29 | 821 1217 | 23.82    | 178 8783    | 946 5539   | 42.43    | 053 4461    | 1254321    | 18.63    | 8745682   | 31 |
| 30 | 821 2646 | 23.82    | 10.178 7354 | 9.946 8084 | 42.42    | 10.053 1916 | 10.1255439 | 18.63    | 9.8744561 | 30 |
| 31 | 821 4073 | 23.78    | 178 5927    | 947 0630   | 42.42    | 052 9370    | 1256557    | 18.63    | 8743443   | 29 |
| 32 | 821 5500 | 23.77    | 178 4500    | 947 3175   | 42.42    | 052 6825    | 1257675    | 18.63    | 8742325   | 28 |
| 33 | 821 6926 | 23.77    | 178 3074    | 947 5720   | 42.42    | 052 4280    | 1258795    | 18.67    | 8741205   | 27 |
| 34 | 821 8351 | 23.75    | 178 1649    | 947 8265   | 42.42    | 052 1735    | 1259915    | 18.67    | 8740085   | 26 |
| 35 | 821 9775 | 23.73    | 178 0225    | 948 0810   | 42.42    | 051 9190    | 1261035    | 18.67    | 8738965   | 25 |
| 36 | 822 1198 | 23.72    | 10.177 8802 | 9.948 3355 | 42.42    | 10.051 6645 | 10.1262156 | 18.68    | 9.8737844 | 24 |
| 37 | 822 2621 | 23.72    | 177 7379    | 948 5899   | 42.40    | 051 4101    | 1263278    | 18.70    | 8736722   | 23 |
| 38 | 822 4045 | 23.68    | 177 5958    | 948 8443   | 42.40    | 051 1557    | 1264401    | 18.72    | 8735602   | 22 |
| 39 | 822 5465 | 23.68    | 177 4537    | 949 0987   | 42.40    | 050 9013    | 1265524    | 18.72    | 8734476   | 21 |
| 40 | 822 6883 | 23.65    | 177 3117    | 949 3531   | 42.40    | 050 6469    | 1266648    | 18.73    | 8733352   | 20 |
| 41 | 822 8302 | 23.65    | 177 1698    | 949 6075   | 42.40    | 050 3925    | 1267773    | 18.75    | 8732227   | 19 |
| 42 | 822 9721 | 23.62    | 10.177 0279 | 9.949 8619 | 42.40    | 10.050 1381 | 10.1268898 | 18.77    | 9.8731102 | 18 |
| 43 | 823 1138 | 23.62    | 176 8862    | 950 1162   | 42.38    | 049 8838    | 1270024    | 18.78    | 8729976   | 17 |
| 44 | 823 2555 | 23.60    | 176 7445    | 950 3705   | 42.38    | 049 6295    | 1271151    | 18.78    | 8728849   | 16 |
| 45 | 823 3971 | 23.58    | 176 6029    | 950 6248   | 42.38    | 049 3752    | 1272278    | 18.80    | 8727722   | 15 |
| 46 | 823 5386 | 23.57    | 176 4614    | 950 8791   | 42.38    | 049 1209    | 1273406    | 18.80    | 8726594   | 14 |
| 47 | 823 6800 | 23.55    | 176 3200    | 951 1334   | 42.37    | 048 8666    | 1274534    | 18.82    | 8725466   | 13 |
| 48 | 823 8213 | 23.55    | 10.176 1787 | 9.951 3876 | 42.38    | 10.048 6124 | 10.1275663 | 18.83    | 9.8724337 | 12 |
| 49 | 823 9626 | 23.52    | 176 0374    | 951 6419   | 42.37    | 048 3581    | 1276793    | 18.85    | 8723207   | 11 |
| 50 | 824 1033 | 23.52    | 175 8963    | 951 8961   | 42.37    | 048 1039    | 1277924    | 18.85    | 8722076   | 10 |
| 51 | 824 2448 | 23.50    | 175 7552    | 952 1503   | 42.37    | 047 8497    | 1279055    | 18.87    | 8720945   | 9  |
| 52 | 824 3858 | 23.48    | 175 6142    | 952 4045   | 42.37    | 047 5955    | 1280187    | 18.87    | 8719813   | 8  |
| 53 | 824 5265 | 23.48    | 175 4733    | 952 6587   | 42.35    | 047 3413    | 1281319    | 18.88    | 8718681   | 7  |
| 54 | 824 6676 | 23.45    | 10.175 3324 | 9.952 9128 | 42.35    | 10.047 0872 | 10.1282452 | 18.90    | 9.8717548 | 6  |
| 55 | 824 8083 | 23.45    | 175 1917    | 953 1670   | 42.35    | 046 8330    | 1283586    | 18.92    | 8716414   | 5  |
| 56 | 824 9490 | 23.43    | 175 0510    | 953 4211   | 42.35    | 046 5789    | 1284721    | 18.92    | 8715279   | 4  |
| 57 | 825 0896 | 23.42    | 174 9104    | 953 6752   | 42.35    | 046 3248    | 1285856    | 18.93    | 8714144   | 3  |
| 58 | 825 2301 | 23.40    | 174 7699    | 953 9293   | 42.35    | 046 0707    | 1286992    | 18.93    | 8713008   | 2  |
| 59 | 825 3705 | 23.40    | 10.174 6291 | 9.954 1834 | 42.33    | 10.045 5262 | 10.1289265 | 18.95    | 9.8711872 | 1  |
| 60 | 825 5109 |          |             |            |          |             |            |          | 8710735   | 0  |

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48°

|  | co-sin. | dif. 1'' | sec. | co-tang. | dif. 1'' | tang. | co-sec. | dif. 1'' | sin. |  |
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|
|--|---------|----------|------|----------|----------|-------|---------|----------|------|--|

42°

137°

|    | sin.       | diff 1" | co-sec.     | tang.      | diff 1" | co-tang.    | sec.       | diff 1" | co-sin.   |    |
|----|------------|---------|-------------|------------|---------|-------------|------------|---------|-----------|----|
| 0  | 9.825 5109 |         | 10.174 4891 | 9.954 4374 | 42.35   | 10.045 5626 | 10.1289265 | 18.97   | 9.8710735 | 60 |
| 1  | 825 6512   | 23.38   | 174 3488    | 954 6915   | 42.33   | 045 3085    | 1290403    | 18.98   | 8709597   | 59 |
| 2  | 825 7913   | 23.35   | 174 2087    | 954 9455   | 42.33   | 045 0545    | 1291542    | 18.98   | 8708458   | 58 |
| 3  | 825 9314   | 23.35   | 174 0686    | 955 1995   | 42.33   | 044 8005    | 1292681    | 18.98   | 8707319   | 57 |
| 4  | 826 0715   | 23.35   | 173 9285    | 955 4535   | 42.33   | 044 5465    | 1293821    | 19.00   | 8706179   | 56 |
| 5  | 826 2114   | 23.30   | 173 7886    | 955 7075   | 42.33   | 044 2925    | 1294961    | 19.02   | 8705039   | 55 |
| 6  | 826 3512   | 23.30   | 10.173 6488 | 9.955 9615 | 42.32   | 10.044 0385 | 10.1296102 | 19.03   | 9.8703898 | 54 |
| 7  | 826 4910   | 23.28   | 173 5090    | 956 2154   | 42.32   | 043 7846    | 1297244    | 19.05   | 8702758   | 53 |
| 8  | 826 6307   | 23.27   | 173 3693    | 956 4694   | 42.32   | 043 5306    | 1298387    | 19.05   | 8701613   | 52 |
| 9  | 826 7703   | 23.25   | 173 2297    | 956 7233   | 42.32   | 043 2767    | 1299530    | 19.07   | 8700470   | 51 |
| 10 | 826 9098   | 23.25   | 173 0902    | 956 9772   | 42.32   | 043 0228    | 1300674    | 19.07   | 8699326   | 50 |
| 11 | 827 0493   | 23.23   | 172 9507    | 957 2311   | 42.32   | 042 7689    | 1301818    | 19.07   | 8698182   | 49 |
| 12 | 827 1887   | 23.20   | 10.172 8113 | 9.957 4850 | 42.32   | 10.042 5150 | 10.1302963 | 19.08   | 9.8697037 | 48 |
| 13 | 827 3279   | 23.20   | 172 6721    | 957 7389   | 42.30   | 042 2611    | 1304109    | 19.12   | 8695891   | 47 |
| 14 | 827 4671   | 23.20   | 172 5329    | 957 9927   | 42.30   | 042 0073    | 1305256    | 19.12   | 8694744   | 46 |
| 15 | 827 6063   | 23.17   | 172 3937    | 958 2465   | 42.30   | 041 7535    | 1306403    | 19.12   | 8693597   | 45 |
| 16 | 827 7453   | 23.17   | 172 2547    | 958 5004   | 42.30   | 041 4996    | 1307551    | 19.13   | 8692449   | 44 |
| 17 | 827 8843   | 23.13   | 172 1157    | 958 7542   | 42.30   | 041 2458    | 1308699    | 19.15   | 8691301   | 43 |
| 18 | 828 0231   | 23.13   | 10.171 9769 | 9.959 0080 | 42.30   | 10.040 9920 | 10.1309848 | 19.17   | 9.8690152 | 42 |
| 19 | 828 1619   | 23.12   | 171 8381    | 959 2618   | 42.28   | 040 7382    | 1310998    | 19.18   | 8689002   | 41 |
| 20 | 828 3006   | 23.12   | 171 6994    | 959 5155   | 42.28   | 040 4845    | 1312149    | 19.18   | 8687851   | 40 |
| 21 | 828 4393   | 23.08   | 171 5607    | 959 7693   | 42.28   | 040 2307    | 1313300    | 19.20   | 8686700   | 39 |
| 22 | 828 5778   | 23.08   | 171 4222    | 960 0230   | 42.28   | 039 9770    | 1314452    | 19.20   | 8685548   | 38 |
| 23 | 828 7163   | 23.07   | 171 2837    | 960 2767   | 42.28   | 039 7233    | 1315604    | 19.23   | 8684396   | 37 |
| 24 | 828 8547   | 23.05   | 10.171 1453 | 9.960 5305 | 42.28   | 10.039 4695 | 10.1316758 | 19.23   | 9.8683242 | 36 |
| 25 | 828 9930   | 23.03   | 171 0070    | 960 7842   | 42.27   | 039 2158    | 1317912    | 19.23   | 8682088   | 35 |
| 26 | 829 1312   | 23.03   | 170 8688    | 961 0378   | 42.27   | 038 9622    | 1319066    | 19.25   | 8680934   | 34 |
| 27 | 829 2694   | 23.02   | 170 7306    | 961 2915   | 42.27   | 038 7085    | 1320221    | 19.25   | 8679779   | 33 |
| 28 | 829 4075   | 22.98   | 170 5925    | 961 5452   | 42.27   | 038 4548    | 1321377    | 19.27   | 8678623   | 32 |
| 29 | 829 5454   | 22.98   | 170 4546    | 961 7988   | 42.27   | 038 2012    | 1322534    | 19.28   | 8677466   | 31 |
| 30 | 829 6833   | 22.98   | 10.170 3167 | 9.962 0525 | 42.27   | 10.037 9475 | 10.1323691 | 19.28   | 9.8676309 | 30 |
| 31 | 829 8212   | 22.95   | 170 1788    | 962 3061   | 42.27   | 037 6939    | 1324849    | 19.30   | 8675151   | 29 |
| 32 | 829 9599   | 22.95   | 170 0411    | 962 5597   | 42.27   | 037 4403    | 1326008    | 19.32   | 8673992   | 28 |
| 33 | 830 0986   | 22.93   | 169 9034    | 962 8133   | 42.27   | 037 1867    | 1327167    | 19.33   | 8672833   | 27 |
| 34 | 830 2372   | 22.92   | 169 7658    | 963 0669   | 42.27   | 036 9331    | 1328327    | 19.35   | 8671673   | 26 |
| 35 | 830 3757   | 22.90   | 169 6283    | 963 3204   | 42.27   | 036 6796    | 1329488    | 19.35   | 8670512   | 25 |
| 36 | 830 5141   | 22.88   | 10.169 4909 | 9.963 5740 | 42.25   | 10.036 4260 | 10.1330649 | 19.35   | 9.8669351 | 24 |
| 37 | 830 6524   | 22.88   | 169 3536    | 963 8275   | 42.27   | 036 1725    | 1331811    | 19.37   | 8668192   | 23 |
| 38 | 830 7907   | 22.87   | 169 2163    | 964 0811   | 42.25   | 035 9189    | 1332974    | 19.38   | 8667026   | 22 |
| 39 | 830 9290   | 22.85   | 169 0791    | 964 3346   | 42.25   | 035 6654    | 1334137    | 19.38   | 8665863   | 21 |
| 40 | 831 0670   | 22.83   | 168 9420    | 964 5881   | 42.25   | 035 4119    | 1335301    | 19.42   | 8664699   | 20 |
| 41 | 831 2050   | 22.83   | 168 8050    | 964 8416   | 42.25   | 035 1584    | 1336466    | 19.42   | 8663534   | 19 |
| 42 | 831 3429   | 22.80   | 10.168 6680 | 9.965 0951 | 42.25   | 10.034 9049 | 10.1337631 | 19.43   | 9.8662369 | 18 |
| 43 | 831 4808   | 22.80   | 168 5312    | 965 3486   | 42.23   | 034 6514    | 1338797    | 19.45   | 8661203   | 17 |
| 44 | 831 6186   | 22.78   | 168 3944    | 965 6020   | 42.25   | 034 3980    | 1339964    | 19.47   | 8660036   | 16 |
| 45 | 831 7563   | 22.77   | 168 2577    | 965 8555   | 42.23   | 034 1445    | 1341132    | 19.47   | 8658868   | 15 |
| 46 | 831 8939   | 22.77   | 168 1211    | 966 1089   | 42.23   | 033 8911    | 1342300    | 19.47   | 8657700   | 14 |
| 47 | 832 0315   | 22.77   | 167 9845    | 966 3623   | 42.23   | 033 6377    | 1343469    | 19.48   | 8656531   | 13 |
| 48 | 832 1691   | 22.73   | 10.167 8481 | 9.966 6157 | 42.25   | 10.033 3843 | 10.1344638 | 19.48   | 9.8655362 | 12 |
| 49 | 832 3066   | 22.72   | 167 7117    | 966 8692   | 42.22   | 033 1308    | 1345808    | 19.50   | 8654192   | 11 |
| 50 | 832 4440   | 22.72   | 167 5754    | 967 1225   | 42.23   | 032 8775    | 1346979    | 19.53   | 8653021   | 10 |
| 51 | 832 5813   | 22.68   | 167 4391    | 967 3759   | 42.23   | 032 6241    | 1348151    | 19.53   | 8651849   | 9  |
| 52 | 832 7186   | 22.68   | 167 3030    | 967 6293   | 42.23   | 032 3707    | 1349323    | 19.55   | 8650677   | 8  |
| 53 | 832 8558   | 22.67   | 167 1669    | 967 8827   | 42.22   | 032 1173    | 1350496    | 19.55   | 8649504   | 7  |
| 54 | 832 9929   | 22.65   | 10.167 0309 | 9.968 1360 | 42.22   | 10.031 8640 | 10.1351669 | 19.58   | 9.8648331 | 6  |
| 55 | 833 1300   | 22.63   | 166 8950    | 968 3893   | 42.22   | 031 6107    | 1352844    | 19.58   | 8647156   | 5  |
| 56 | 833 2670   | 22.63   | 166 7592    | 968 6427   | 42.22   | 031 3573    | 1354019    | 19.58   | 8645981   | 4  |
| 57 | 833 4039   | 22.60   | 166 6234    | 968 8960   | 42.22   | 031 1040    | 1355194    | 19.58   | 8644806   | 3  |
| 58 | 833 5408   | 22.60   | 166 4878    | 969 1493   | 42.22   | 030 8507    | 1356371    | 19.62   | 8643629   | 2  |
| 59 | 833 6776   | 22.58   | 166 3522    | 969 4026   | 42.22   | 030 5974    | 1357548    | 19.62   | 8642452   | 1  |
| 60 | 833 8143   |         | 10.166 2167 | 9.969 6559 | 42.22   | 10.030 3441 | 10.1358725 |         | 9.8641275 | 0  |

132°

47°



43°

136°

|    | sin.     | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.       | dif. 1" | co-sin.   |    |
|----|----------|---------|-------------|------------|---------|-------------|------------|---------|-----------|----|
| 0  | 833 7833 | 22.58   | 10.166 2167 | 9.969 6559 | 42.20   | 10.030 3441 | 10.1358725 | 19.65   | 9.8641275 | 60 |
| 1  | 833 9188 | 22.55   | 166 0812    | 969 9091   | 42.22   | 030 0909    | 1359904    | 19.65   | 8640096   | 59 |
| 2  | 834 0541 | 22.55   | 165 9459    | 970 1624   | 42.22   | 029 8376    | 1361083    | 19.67   | 8638917   | 58 |
| 3  | 834 1894 | 22.53   | 165 8106    | 970 4157   | 42.20   | 029 5843    | 1362263    | 19.67   | 8637737   | 57 |
| 4  | 834 3246 | 22.52   | 165 6754    | 970 6689   | 42.20   | 029 3311    | 1363443    | 19.68   | 8636557   | 56 |
| 5  | 834 4597 | 22.52   | 165 5403    | 970 9221   | 42.22   | 029 0779    | 1364624    | 19.70   | 8635376   | 55 |
| 6  | 834 5948 | 22.48   | 10.165 4052 | 9.971 1754 | 42.22   | 10.028 8246 | 10.1365806 | 19.72   | 9.8634196 | 54 |
| 7  | 834 7297 | 22.48   | 165 2703    | 971 4286   | 42.20   | 028 5714    | 1366989    | 19.72   | 8633011   | 53 |
| 8  | 834 8646 | 22.47   | 165 1354    | 971 6818   | 42.20   | 028 3182    | 1368172    | 19.73   | 8631828   | 52 |
| 9  | 834 9994 | 22.45   | 165 0006    | 971 9350   | 42.20   | 028 0650    | 1369356    | 19.73   | 8630644   | 51 |
| 10 | 835 1341 | 22.45   | 164 8659    | 972 1882   | 42.20   | 027 8118    | 1370540    | 19.73   | 8629460   | 50 |
| 11 | 835 2688 | 22.42   | 164 7312    | 972 4413   | 42.18   | 027 5587    | 1371726    | 19.77   | 8628274   | 49 |
| 12 | 835 4033 | 22.42   | 10.164 5967 | 9.972 6945 | 42.20   | 10.027 3055 | 10.1372912 | 19.77   | 9.8627088 | 48 |
| 13 | 835 5378 | 22.40   | 164 4622    | 972 9477   | 42.18   | 027 0523    | 1374098    | 19.77   | 8625902   | 47 |
| 14 | 835 6722 | 22.40   | 164 3278    | 973 2008   | 42.18   | 026 7992    | 1375286    | 19.80   | 8624714   | 46 |
| 15 | 835 8066 | 22.37   | 164 1934    | 973 4539   | 42.20   | 026 5461    | 1376474    | 19.80   | 8623526   | 45 |
| 16 | 835 9408 | 22.37   | 164 0592    | 973 7071   | 42.18   | 026 2929    | 1377662    | 19.83   | 8622338   | 44 |
| 17 | 836 0750 | 22.35   | 163 9250    | 973 9602   | 42.18   | 026 0398    | 1378850    | 19.83   | 8621148   | 43 |
| 18 | 836 2091 | 22.33   | 10.163 7909 | 9.974 2133 | 42.18   | 10.025 7867 | 10.1380042 | 19.85   | 9.8619958 | 42 |
| 19 | 836 3431 | 22.33   | 163 6569    | 974 4664   | 42.18   | 025 5336    | 1381233    | 19.85   | 8618767   | 41 |
| 20 | 836 4771 | 22.30   | 163 5229    | 974 7195   | 42.18   | 025 2805    | 1382424    | 19.88   | 8617576   | 40 |
| 21 | 836 6109 | 22.30   | 163 3891    | 974 9726   | 42.18   | 025 0274    | 1383617    | 19.88   | 8616383   | 39 |
| 22 | 836 7447 | 22.28   | 163 2553    | 975 2257   | 42.18   | 024 7743    | 1384810    | 19.88   | 8615190   | 38 |
| 23 | 836 8784 | 22.28   | 163 1216    | 975 4787   | 42.18   | 024 5213    | 1386003    | 19.88   | 8613997   | 37 |
| 24 | 837 0121 | 22.25   | 10.162 9879 | 9.975 7318 | 42.18   | 10.024 2682 | 10.1387197 | 19.90   | 9.8612803 | 36 |
| 25 | 837 1456 | 22.25   | 162 8544    | 975 9849   | 42.18   | 024 0151    | 1388392    | 19.92   | 8611608   | 35 |
| 26 | 837 2791 | 22.25   | 162 7209    | 976 2379   | 42.17   | 023 7621    | 1389588    | 19.93   | 8610412   | 34 |
| 27 | 837 4125 | 22.23   | 162 5875    | 976 4909   | 42.17   | 023 5091    | 1390785    | 19.95   | 8609215   | 33 |
| 28 | 837 5458 | 22.22   | 162 4542    | 976 7440   | 42.18   | 023 2560    | 1391982    | 19.95   | 8608018   | 32 |
| 29 | 837 6790 | 22.20   | 162 3210    | 976 9970   | 42.17   | 023 0030    | 1393179    | 19.95   | 8606821   | 31 |
| 30 | 837 8122 | 22.20   | 10.162 1878 | 9.977 2500 | 42.17   | 10.022 7500 | 10.1394378 | 19.98   | 9.8605622 | 30 |
| 31 | 837 9453 | 22.18   | 162 0547    | 977 5030   | 42.17   | 022 4970    | 1395577    | 19.98   | 8604423   | 29 |
| 32 | 838 0783 | 22.15   | 161 9217    | 977 7560   | 42.17   | 022 2440    | 1396777    | 20.00   | 8603223   | 28 |
| 33 | 838 2112 | 22.15   | 161 7888    | 978 0090   | 42.17   | 021 9910    | 1397978    | 20.02   | 8602022   | 27 |
| 34 | 838 3441 | 22.15   | 161 6559    | 978 2620   | 42.17   | 021 7380    | 1399179    | 20.02   | 8600821   | 26 |
| 35 | 838 4769 | 22.13   | 161 5231    | 978 5149   | 42.15   | 021 4851    | 1400381    | 20.03   | 8599619   | 25 |
| 36 | 838 6096 | 22.12   | 10.161 3904 | 9.978 7679 | 42.17   | 10.021 2321 | 10.1401584 | 20.05   | 9.8598416 | 24 |
| 37 | 838 7422 | 22.10   | 161 2578    | 979 0209   | 42.17   | 020 9791    | 1402787    | 20.05   | 8597213   | 23 |
| 38 | 838 8747 | 22.08   | 161 1253    | 979 2738   | 42.15   | 020 7262    | 1403991    | 20.07   | 8596009   | 22 |
| 39 | 839 0072 | 22.08   | 160 9928    | 979 5268   | 42.17   | 020 4732    | 1405196    | 20.08   | 8594804   | 21 |
| 40 | 839 1396 | 22.05   | 160 8604    | 979 7797   | 42.15   | 020 2203    | 1406401    | 20.08   | 8593599   | 20 |
| 41 | 839 2719 | 22.03   | 160 7281    | 980 0326   | 42.17   | 019 9674    | 1407607    | 20.10   | 8592393   | 19 |
| 42 | 839 4041 | 22.03   | 10.160 5959 | 9.980 2856 | 42.17   | 10.019 7144 | 10.1408814 | 20.12   | 9.8591186 | 18 |
| 43 | 839 5363 | 22.02   | 160 4637    | 980 5385   | 42.15   | 019 4615    | 1410022    | 20.13   | 8589978   | 17 |
| 44 | 839 6684 | 22.00   | 160 3316    | 980 7914   | 42.15   | 019 2086    | 1411230    | 20.15   | 8588770   | 16 |
| 45 | 839 8004 | 21.98   | 160 1996    | 981 0443   | 42.15   | 018 9557    | 1412439    | 20.15   | 8587561   | 15 |
| 46 | 839 9323 | 21.98   | 160 0677    | 981 2972   | 42.15   | 018 7028    | 1413649    | 20.17   | 8586351   | 14 |
| 47 | 840 0642 | 21.95   | 159 9358    | 981 5501   | 42.15   | 018 4499    | 1414859    | 20.20   | 8585141   | 13 |
| 48 | 840 1959 | 21.95   | 10.159 8041 | 9.981 8030 | 42.15   | 10.018 1970 | 10.1416071 | 20.22   | 9.8583929 | 12 |
| 49 | 840 3276 | 21.95   | 159 6724    | 982 0559   | 42.13   | 017 9441    | 1417282    | 20.22   | 8582718   | 11 |
| 50 | 840 4593 | 21.92   | 159 5407    | 982 3087   | 42.13   | 017 6913    | 1418495    | 20.22   | 8581505   | 10 |
| 51 | 840 5908 | 21.92   | 159 4092    | 982 5616   | 42.15   | 017 4384    | 1419708    | 20.23   | 8580292   | 9  |
| 52 | 840 7223 | 21.92   | 159 2777    | 982 8145   | 42.13   | 017 1855    | 1420922    | 20.25   | 8579078   | 8  |
| 53 | 840 8537 | 21.90   | 159 1463    | 983 0673   | 42.13   | 016 9327    | 1422137    | 20.25   | 8577863   | 7  |
| 54 | 840 9850 | 21.88   | 10.159 0150 | 9.983 3202 | 42.13   | 10.016 6798 | 10.1423352 | 20.27   | 9.8576648 | 6  |
| 55 | 841 1162 | 21.87   | 158 8838    | 983 5730   | 42.13   | 016 4270    | 1424568    | 20.28   | 8575432   | 5  |
| 56 | 841 2474 | 21.85   | 158 7526    | 983 8259   | 42.13   | 016 1741    | 1425785    | 20.32   | 8574215   | 4  |
| 57 | 841 3785 | 21.83   | 158 6215    | 984 0787   | 42.13   | 015 9213    | 1427002    | 20.32   | 8572998   | 3  |
| 58 | 841 5095 | 21.83   | 158 4905    | 984 3315   | 42.13   | 015 6685    | 1428221    | 20.32   | 8571779   | 2  |
| 59 | 841 6404 | 21.82   | 158 3596    | 984 5844   | 42.13   | 015 4156    | 1429439    | 20.30   | 8570561   | 1  |
| 60 | 841 7713 |         | 10.158 2287 | 9.984 8372 | 42.13   | 10.015 1628 | 10.1430659 | 20.33   | 9.8569341 | 0  |

133°

46°



44°

135°

|    | sin.     | dif. 1" | co-sec.     | tang.      | dif. 1" | co-tang.    | sec.       | dif. 1" | co-sin.   |    |
|----|----------|---------|-------------|------------|---------|-------------|------------|---------|-----------|----|
| 0  | 841 7713 |         | 10.158 2287 | 9.984 8372 |         | 10.015 1628 | 10.1430659 |         | 9.8569341 | 60 |
| 1  | 841 9021 | 21.80   | 158 0979    | 985 0900   | 42.13   | 014 9100    | 1431879    | 20.33   | 8568121   | 59 |
| 2  | 842 0388 | 21.78   | 157 0972    | 985 3428   | 42.13   | 014 6572    | 1433100    | 20.37   | 8566900   | 58 |
| 3  | 842 1634 | 21.77   | 157 8366    | 985 5956   | 42.13   | 014 4044    | 1434322    | 20.38   | 8565678   | 57 |
| 4  | 842 2939 | 21.75   | 157 7061    | 985 8484   | 42.13   | 014 1516    | 1435545    | 20.38   | 8564455   | 56 |
| 5  | 842 4244 | 21.73   | 157 5756    | 986 1012   | 42.13   | 013 8988    | 1436768    | 20.38   | 8563233   | 55 |
| 6  | 842 5548 | 21.72   | 10.157 4452 | 9.986 3540 | 42.13   | 10.013 6460 | 10.1437992 | 20.40   | 9.8562008 | 54 |
| 7  | 842 6851 | 21.72   | 157 3149    | 986 6068   | 42.13   | 013 3932    | 1439216    | 20.40   | 8560784   | 53 |
| 8  | 842 8154 | 21.70   | 157 1846    | 986 8596   | 42.13   | 013 1404    | 1440442    | 20.43   | 8559558   | 52 |
| 9  | 842 9456 | 21.68   | 157 0544    | 987 1123   | 42.12   | 012 8877    | 1441668    | 20.43   | 8558332   | 51 |
| 10 | 843 0757 | 21.67   | 156 9243    | 987 3651   | 42.13   | 012 6349    | 1442894    | 20.43   | 8557106   | 50 |
| 11 | 843 2057 | 21.65   | 156 7943    | 987 6179   | 42.13   | 012 3821    | 1444122    | 20.47   | 8555878   | 49 |
| 12 | 843 3356 | 21.65   | 10.156 6644 | 9.987 8706 | 42.12   | 10.012 1294 | 10.1445350 | 20.47   | 9.8554650 | 48 |
| 13 | 843 4655 | 21.65   | 156 5345    | 988 1234   | 42.13   | 011 8766    | 1446576    | 20.48   | 8553421   | 47 |
| 14 | 843 5953 | 21.63   | 156 4047    | 988 3761   | 42.12   | 011 6239    | 1447808    | 20.48   | 8552192   | 46 |
| 15 | 843 7250 | 21.62   | 156 2750    | 988 6289   | 42.13   | 011 3711    | 1449039    | 20.52   | 8550961   | 45 |
| 16 | 843 8547 | 21.62   | 156 1453    | 988 8816   | 42.12   | 011 1184    | 1450270    | 20.52   | 8549730   | 44 |
| 17 | 843 9844 | 21.58   | 156 0158    | 989 1344   | 42.13   | 010 8656    | 1451501    | 20.52   | 8548499   | 43 |
| 18 | 844 1137 | 21.58   | 10.155 8863 | 9.989 3871 | 42.12   | 10.010 6129 | 10.1452734 | 20.55   | 9.8547266 | 42 |
| 19 | 844 2439 | 21.55   | 155 7568    | 989 6399   | 42.13   | 010 3601    | 1453967    | 20.55   | 8546033   | 41 |
| 20 | 844 3725 | 21.55   | 155 6275    | 989 8926   | 42.12   | 010 1074    | 1455201    | 20.57   | 8544799   | 40 |
| 21 | 844 5018 | 21.55   | 155 4982    | 990 1453   | 42.12   | 009 8547    | 1456436    | 20.58   | 8543564   | 39 |
| 22 | 844 6310 | 21.53   | 155 3690    | 990 3981   | 42.13   | 009 6019    | 1457671    | 20.58   | 8542329   | 38 |
| 23 | 844 7601 | 21.52   | 155 2399    | 990 6508   | 42.12   | 009 3492    | 1458907    | 20.60   | 8541093   | 37 |
| 24 | 844 8891 | 21.50   | 10.155 1109 | 9.990 9035 | 42.12   | 10.009 0965 | 10.1460144 | 20.62   | 9.8539856 | 36 |
| 25 | 845 0181 | 21.50   | 154 9819    | 991 1562   | 42.12   | 008 8438    | 1461381    | 20.62   | 8538619   | 35 |
| 26 | 845 1470 | 21.48   | 154 8530    | 991 4089   | 42.12   | 008 5911    | 1462619    | 20.63   | 8537381   | 34 |
| 27 | 845 2758 | 21.47   | 154 7242    | 991 6616   | 42.12   | 008 3384    | 1463858    | 20.65   | 8536142   | 33 |
| 28 | 845 4045 | 21.45   | 154 5955    | 991 9143   | 42.12   | 008 0857    | 1465098    | 20.67   | 8534902   | 32 |
| 29 | 845 5332 | 21.45   | 154 4668    | 992 1670   | 42.12   | 007 8330    | 1466338    | 20.67   | 8533663   | 31 |
| 30 | 845 6618 | 21.43   | 10.154 3382 | 9.992 4197 | 42.12   | 10.007 5803 | 10.1467579 | 20.68   | 9.8532421 | 30 |
| 31 | 845 7903 | 21.42   | 154 2097    | 992 6724   | 42.12   | 007 3276    | 1468821    | 20.70   | 8531179   | 29 |
| 32 | 845 9188 | 21.42   | 154 0812    | 992 9251   | 42.12   | 007 0749    | 1470064    | 20.72   | 8529936   | 28 |
| 33 | 846 0471 | 21.38   | 153 9529    | 993 1778   | 42.12   | 006 8222    | 1471307    | 20.72   | 8528693   | 27 |
| 34 | 846 1754 | 21.38   | 153 8246    | 993 4305   | 42.12   | 006 5695    | 1472551    | 20.73   | 8527449   | 26 |
| 35 | 846 3036 | 21.37   | 153 6964    | 993 6832   | 42.12   | 006 3168    | 1473796    | 20.75   | 8526204   | 25 |
| 36 | 846 4318 | 21.37   | 10.153 5682 | 9.993 9359 | 42.12   | 10.006 0641 | 10.1475041 | 20.75   | 9.8524959 | 24 |
| 37 | 846 5599 | 21.35   | 153 4401    | 994 1886   | 42.12   | 005 8114    | 1476287    | 20.77   | 8523713   | 23 |
| 38 | 846 6879 | 21.33   | 153 3121    | 994 4413   | 42.12   | 005 5587    | 1477534    | 20.78   | 8522466   | 22 |
| 39 | 846 8158 | 21.32   | 153 1842    | 994 6940   | 42.12   | 005 3060    | 1478782    | 20.80   | 8521218   | 21 |
| 40 | 846 9436 | 21.30   | 153 0564    | 994 9466   | 42.10   | 005 0534    | 1480030    | 20.80   | 8519970   | 20 |
| 41 | 847 0714 | 21.30   | 152 9286    | 995 1993   | 42.12   | 004 8007    | 1481279    | 20.82   | 8518721   | 19 |
| 42 | 847 1991 | 21.28   | 10.152 8009 | 9.995 4520 | 42.12   | 10.004 5480 | 10.1482529 | 20.83   | 9.8517471 | 18 |
| 43 | 847 3267 | 21.27   | 152 6733    | 995 7047   | 42.12   | 004 2953    | 1483780    | 20.85   | 8516220   | 17 |
| 44 | 847 4543 | 21.27   | 152 5457    | 995 9573   | 42.10   | 004 0427    | 1485031    | 20.85   | 8514969   | 16 |
| 45 | 847 5817 | 21.23   | 152 4183    | 996 2100   | 42.12   | 003 7900    | 1486283    | 20.87   | 8513717   | 15 |
| 46 | 847 7091 | 21.23   | 152 2909    | 996 4627   | 42.12   | 003 5373    | 1487535    | 20.87   | 8512465   | 14 |
| 47 | 847 8365 | 21.23   | 152 1635    | 996 7154   | 42.12   | 003 2846    | 1488789    | 20.90   | 8511211   | 13 |
| 48 | 847 9637 | 21.20   | 10.152 0363 | 9.996 9680 | 42.10   | 10.003 0320 | 10.1490043 | 20.90   | 9.8509957 | 12 |
| 49 | 848 0909 | 21.20   | 151 9091    | 997 2207   | 42.12   | 002 7793    | 1491298    | 20.92   | 8508702   | 11 |
| 50 | 848 2180 | 21.18   | 151 7820    | 997 4734   | 42.12   | 002 5266    | 1492554    | 20.93   | 8507446   | 10 |
| 51 | 848 3450 | 21.17   | 151 6550    | 997 7260   | 42.10   | 002 2740    | 1493810    | 20.95   | 8506190   | 9  |
| 52 | 848 4720 | 21.17   | 151 5280    | 997 9787   | 42.12   | 002 0213    | 1495067    | 20.95   | 8504933   | 8  |
| 53 | 848 5989 | 21.15   | 151 4011    | 998 2314   | 42.12   | 001 7686    | 1496325    | 20.97   | 8503675   | 7  |
| 54 | 848 7257 | 21.13   | 10.151 2743 | 9.998 4840 | 42.10   | 10.001 5160 | 10.1497583 | 20.97   | 9.8502417 | 6  |
| 55 | 848 8524 | 21.12   | 151 1476    | 998 7367   | 42.12   | 001 2633    | 1498843    | 21.00   | 8501157   | 5  |
| 56 | 848 9791 | 21.11   | 151 0209    | 998 9893   | 42.10   | 001 0107    | 1500103    | 21.00   | 8499897   | 4  |
| 57 | 849 1057 | 21.10   | 150 8943    | 999 2420   | 42.12   | 000 7580    | 1501363    | 21.00   | 8498637   | 3  |
| 58 | 849 2322 | 21.08   | 150 7678    | 999 4947   | 42.12   | 000 5053    | 1502625    | 21.03   | 8497375   | 2  |
| 59 | 849 3586 | 21.07   | 150 6414    | 9.999 7473 | 42.10   | 000 2527    | 1503887    | 21.03   | 8496113   | 1  |
| 60 | 849 4850 | 21.07   | 10.150 5150 | ten        | 42.12   | 10.000 0000 | 10.1505150 | 21.05   | 9.8494850 | 0  |

134°

45°



NATURAL SINES AND COSINES.

| Diff. | 20 | 29 | r  | 0°    |       | 1°    |       | 2°    |       | 3°    |       | 4°    |       | r  | 1 | 2 | 3 |
|-------|----|----|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|---|---|---|
|       |    |    |    | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  |    |   |   |   |
| 0     | 0  | 0  | 0  | 00000 | one   | 01745 | 99985 | 03490 | 99939 | 05234 | 99863 | 06976 | 99756 | 60 | 1 | 2 | 3 |
| 1     | 0  | 1  | 0  | 00029 | one   | 01774 | 99984 | 03519 | 99938 | 05263 | 99861 | 07005 | 99754 | 59 | 1 | 2 | 3 |
| 1     | 1  | 1  | 2  | 00058 | one   | 01803 | 99984 | 03548 | 99937 | 05292 | 99860 | 07034 | 99752 | 58 | 1 | 2 | 3 |
| 2     | 1  | 3  | 3  | 00087 | one   | 01832 | 99983 | 03577 | 99936 | 05321 | 99858 | 07063 | 99750 | 57 | 1 | 2 | 3 |
| 2     | 2  | 4  | 4  | 00116 | one   | 01862 | 99983 | 03606 | 99935 | 05350 | 99857 | 07092 | 99748 | 56 | 1 | 2 | 3 |
| 3     | 2  | 5  | 5  | 00145 | one   | 01891 | 99982 | 03635 | 99934 | 05379 | 99855 | 07121 | 99746 | 55 | 1 | 2 | 3 |
| 3     | 3  | 6  | 6  | 00175 | one   | 01920 | 99982 | 03664 | 99933 | 05408 | 99854 | 07150 | 99744 | 54 | 1 | 2 | 3 |
| 4     | 3  | 7  | 7  | 00204 | one   | 01949 | 99981 | 03693 | 99932 | 05437 | 99852 | 07179 | 99742 | 53 | 1 | 2 | 3 |
| 4     | 4  | 8  | 8  | 00233 | one   | 01978 | 99980 | 03722 | 99931 | 05466 | 99851 | 07208 | 99740 | 52 | 1 | 2 | 3 |
| 5     | 4  | 9  | 9  | 00262 | one   | 02007 | 99980 | 03752 | 99930 | 05495 | 99849 | 07237 | 99738 | 51 | 1 | 2 | 3 |
| 5     | 5  | 10 | 10 | 00291 | one   | 02036 | 99979 | 03781 | 99929 | 05524 | 99847 | 07266 | 99736 | 50 | 1 | 2 | 3 |
| 6     | 5  | 11 | 11 | 00320 | 99999 | 02065 | 99979 | 03810 | 99927 | 05553 | 99846 | 07295 | 99734 | 49 | 1 | 2 | 2 |
| 6     | 6  | 12 | 12 | 00349 | 99999 | 02094 | 99978 | 03839 | 99926 | 05582 | 99844 | 07324 | 99731 | 48 | 1 | 2 | 2 |
| 7     | 6  | 13 | 13 | 00378 | 99999 | 02123 | 99977 | 03868 | 99925 | 05611 | 99842 | 07353 | 99729 | 47 | 1 | 2 | 2 |
| 7     | 7  | 14 | 14 | 00407 | 99999 | 02152 | 99977 | 03897 | 99924 | 05640 | 99841 | 07382 | 99727 | 46 | 1 | 2 | 2 |
| 8     | 7  | 15 | 15 | 00436 | 99999 | 02181 | 99976 | 03926 | 99923 | 05669 | 99839 | 07411 | 99725 | 45 | 1 | 2 | 2 |
| 8     | 8  | 16 | 16 | 00465 | 99999 | 02211 | 99976 | 03955 | 99922 | 05698 | 99838 | 07440 | 99723 | 44 | 1 | 1 | 2 |
| 9     | 8  | 17 | 17 | 00495 | 99999 | 02240 | 99975 | 03984 | 99921 | 05727 | 99836 | 07469 | 99721 | 43 | 1 | 1 | 2 |
| 9     | 9  | 18 | 18 | 00524 | 99999 | 02269 | 99974 | 04013 | 99919 | 05756 | 99834 | 07498 | 99719 | 42 | 1 | 1 | 2 |
| 10    | 9  | 19 | 19 | 00553 | 99998 | 02298 | 99974 | 04042 | 99918 | 05785 | 99833 | 07527 | 99716 | 41 | 1 | 1 | 2 |
| 10    | 10 | 20 | 20 | 00582 | 99998 | 02327 | 99973 | 04071 | 99917 | 05814 | 99831 | 07556 | 99714 | 40 | 1 | 1 | 2 |
| 11    | 10 | 21 | 21 | 00611 | 99998 | 02356 | 99972 | 04100 | 99916 | 05844 | 99829 | 07585 | 99712 | 39 | 1 | 1 | 2 |
| 11    | 11 | 22 | 22 | 00640 | 99998 | 02385 | 99972 | 04129 | 99915 | 05873 | 99827 | 07614 | 99710 | 38 | 1 | 1 | 2 |
| 12    | 11 | 23 | 23 | 00669 | 99998 | 02414 | 99971 | 04159 | 99913 | 05902 | 99826 | 07643 | 99708 | 37 | 1 | 1 | 2 |
| 12    | 12 | 24 | 24 | 00698 | 99998 | 02443 | 99970 | 04188 | 99912 | 05931 | 99824 | 07672 | 99705 | 36 | 1 | 1 | 2 |
| 13    | 12 | 25 | 25 | 00727 | 99997 | 02472 | 99969 | 04217 | 99911 | 05960 | 99822 | 07701 | 99703 | 35 | 1 | 1 | 2 |
| 13    | 13 | 26 | 26 | 00756 | 99997 | 02501 | 99969 | 04246 | 99910 | 05989 | 99821 | 07730 | 99701 | 34 | 1 | 1 | 2 |
| 14    | 13 | 27 | 27 | 00785 | 99997 | 02530 | 99968 | 04275 | 99909 | 06018 | 99819 | 07759 | 99699 | 33 | 1 | 1 | 2 |
| 14    | 14 | 28 | 28 | 00814 | 99997 | 02560 | 99967 | 04304 | 99907 | 06047 | 99817 | 07788 | 99696 | 32 | 1 | 1 | 2 |
| 15    | 14 | 29 | 29 | 00844 | 99996 | 02589 | 99966 | 04333 | 99906 | 06076 | 99815 | 07817 | 99694 | 31 | 1 | 1 | 2 |
| 15    | 15 | 30 | 30 | 00873 | 99996 | 02618 | 99966 | 04362 | 99905 | 06105 | 99813 | 07846 | 99692 | 30 | 1 | 1 | 2 |
| 16    | 15 | 31 | 31 | 00902 | 99996 | 02647 | 99965 | 04391 | 99904 | 06134 | 99812 | 07875 | 99689 | 29 | 0 | 1 | 1 |
| 16    | 15 | 32 | 32 | 00931 | 99996 | 02676 | 99964 | 04420 | 99902 | 06163 | 99810 | 07904 | 99687 | 28 | 0 | 1 | 1 |
| 17    | 16 | 33 | 33 | 00960 | 99995 | 02705 | 99963 | 04449 | 99901 | 06192 | 99808 | 07933 | 99685 | 27 | 0 | 1 | 1 |
| 17    | 16 | 34 | 34 | 00989 | 99995 | 02734 | 99963 | 04478 | 99900 | 06221 | 99806 | 07962 | 99683 | 26 | 0 | 1 | 1 |
| 18    | 17 | 35 | 35 | 01018 | 99995 | 02763 | 99962 | 04507 | 99898 | 06250 | 99804 | 07991 | 99680 | 25 | 0 | 1 | 1 |
| 18    | 17 | 36 | 36 | 01047 | 99995 | 02792 | 99961 | 04536 | 99897 | 06279 | 99803 | 08020 | 99678 | 24 | 0 | 1 | 1 |
| 19    | 18 | 37 | 37 | 01076 | 99994 | 02821 | 99960 | 04565 | 99896 | 06308 | 99801 | 08049 | 99676 | 23 | 0 | 1 | 1 |
| 19    | 18 | 38 | 38 | 01105 | 99994 | 02850 | 99959 | 04594 | 99894 | 06337 | 99799 | 08078 | 99673 | 22 | 0 | 1 | 1 |
| 20    | 19 | 39 | 39 | 01134 | 99994 | 02879 | 99959 | 04623 | 99893 | 06366 | 99797 | 08107 | 99671 | 21 | 0 | 1 | 1 |
| 20    | 19 | 40 | 40 | 01163 | 99993 | 02908 | 99958 | 04652 | 99892 | 06395 | 99795 | 08136 | 99668 | 20 | 0 | 1 | 1 |
| 21    | 20 | 41 | 41 | 01192 | 99993 | 02937 | 99957 | 04681 | 99890 | 06424 | 99793 | 08165 | 99666 | 19 | 0 | 1 | 1 |
| 21    | 20 | 42 | 42 | 01222 | 99993 | 02967 | 99956 | 04711 | 99889 | 06453 | 99792 | 08194 | 99664 | 18 | 0 | 1 | 1 |
| 22    | 21 | 43 | 43 | 01251 | 99992 | 02996 | 99955 | 04740 | 99888 | 06482 | 99790 | 08223 | 99661 | 17 | 0 | 1 | 1 |
| 22    | 21 | 44 | 44 | 01280 | 99992 | 03025 | 99954 | 04769 | 99886 | 06511 | 99788 | 08252 | 99659 | 16 | 0 | 1 | 1 |
| 23    | 22 | 45 | 45 | 01309 | 99991 | 03054 | 99953 | 04798 | 99885 | 06540 | 99786 | 08281 | 99657 | 15 | 0 | 1 | 1 |
| 23    | 22 | 46 | 46 | 01338 | 99991 | 03083 | 99952 | 04827 | 99883 | 06569 | 99784 | 08310 | 99654 | 14 | 0 | 0 | 1 |
| 24    | 23 | 47 | 47 | 01367 | 99991 | 03112 | 99952 | 04856 | 99882 | 06598 | 99782 | 08339 | 99652 | 13 | 0 | 0 | 1 |
| 24    | 23 | 48 | 48 | 01396 | 99990 | 03141 | 99951 | 04885 | 99881 | 06627 | 99780 | 08368 | 99649 | 12 | 0 | 0 | 1 |
| 25    | 24 | 49 | 49 | 01425 | 99990 | 03170 | 99950 | 04914 | 99879 | 06656 | 99778 | 08397 | 99647 | 11 | 0 | 0 | 1 |
| 25    | 24 | 50 | 50 | 01454 | 99989 | 03199 | 99949 | 04943 | 99878 | 06685 | 99776 | 08426 | 99644 | 10 | 0 | 0 | 1 |
| 26    | 25 | 51 | 51 | 01483 | 99989 | 03228 | 99948 | 04972 | 99876 | 06714 | 99774 | 08455 | 99642 | 9  | 0 | 0 | 0 |
| 26    | 25 | 52 | 52 | 01512 | 99989 | 03257 | 99947 | 05001 | 99875 | 06743 | 99772 | 08484 | 99639 | 8  | 0 | 0 | 0 |
| 27    | 26 | 53 | 53 | 01542 | 99988 | 03286 | 99946 | 05030 | 99873 | 06772 | 99770 | 08513 | 99637 | 7  | 0 | 0 | 0 |
| 27    | 26 | 54 | 54 | 01571 | 99988 | 03316 | 99945 | 05059 | 99872 | 06802 | 99768 | 08542 | 99635 | 6  | 0 | 0 | 0 |
| 28    | 27 | 55 | 55 | 01600 | 99987 | 03345 | 99944 | 05088 | 99870 | 06831 | 99766 | 08571 | 99632 | 5  | 0 | 0 | 0 |
| 28    | 27 | 56 | 56 | 01629 | 99987 | 03374 | 99943 | 05117 | 99869 | 06860 | 99764 | 08600 | 99630 | 4  | 0 | 0 | 0 |
| 29    | 28 | 57 | 57 | 01658 | 99986 | 03403 | 99942 | 05146 | 99867 | 06889 | 99762 | 08629 | 99627 | 3  | 0 | 0 | 0 |
| 29    | 28 | 58 | 58 | 01687 | 99986 | 03432 | 99941 | 05175 | 99866 | 06918 | 99760 | 08658 | 99625 | 2  | 0 | 0 | 0 |
| 30    | 29 | 59 | 59 | 01716 | 99985 | 03461 | 99940 | 05204 | 99864 | 06947 | 99758 | 08687 | 99622 | 1  | 0 | 0 | 0 |
| 30    | 29 | 60 | 60 | 01745 | 99985 | 03490 | 99939 | 05233 | 99863 | 06976 | 99756 | 08716 | 99619 | 0  | 0 | 0 | 0 |

Diff. 1 2 3

cos. sin. cos. sin. cos. sin. cos. sin. cos. sin.

89° 88° 87° 86° 85°







NATURAL SINES AND COSINES.

281

| Diff. |    | 10°   |       | 11°   |       | 12°   |       | 13°   |       | 14°   |       | i  |
|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| 29    | 28 | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  |    |
| 0     | 0  | 17305 | 98481 | 19081 | 98163 | 20791 | 97815 | 22495 | 97437 | 24192 | 97030 | 60 |
| 0     | 1  | 17393 | 98476 | 19109 | 98157 | 20820 | 97809 | 22523 | 97430 | 24220 | 97023 | 59 |
| 1     | 1  | 17422 | 98471 | 19138 | 98152 | 20848 | 97803 | 22552 | 97424 | 24249 | 97015 | 58 |
| 1     | 1  | 17451 | 98466 | 19167 | 98146 | 20877 | 97797 | 22580 | 97417 | 24277 | 97008 | 57 |
| 2     | 2  | 17479 | 98461 | 19195 | 98140 | 20905 | 97791 | 22608 | 97411 | 24305 | 97001 | 56 |
| 2     | 2  | 17508 | 98455 | 19224 | 98135 | 20933 | 97784 | 22637 | 97404 | 24333 | 96994 | 55 |
| 3     | 3  | 17537 | 98450 | 19252 | 98129 | 20962 | 97778 | 22665 | 97398 | 24362 | 96987 | 54 |
| 3     | 3  | 17565 | 98445 | 19281 | 98124 | 20990 | 97772 | 22693 | 97391 | 24390 | 96980 | 53 |
| 4     | 4  | 17594 | 98440 | 19309 | 98118 | 21019 | 97766 | 22722 | 97384 | 24418 | 96973 | 52 |
| 4     | 4  | 17623 | 98435 | 19338 | 98112 | 21047 | 97760 | 22750 | 97378 | 24446 | 96966 | 51 |
| 5     | 5  | 17651 | 98430 | 19366 | 98107 | 21076 | 97754 | 22778 | 97371 | 24474 | 96959 | 50 |
| 5     | 5  | 17680 | 98425 | 19395 | 98101 | 21104 | 97748 | 22807 | 97365 | 24502 | 96952 | 49 |
| 6     | 6  | 17708 | 98420 | 19423 | 98096 | 21133 | 97742 | 22835 | 97358 | 24531 | 96945 | 48 |
| 6     | 6  | 17737 | 98414 | 19452 | 98090 | 21161 | 97735 | 22863 | 97351 | 24559 | 96937 | 47 |
| 7     | 7  | 17766 | 98409 | 19481 | 98084 | 21189 | 97729 | 22892 | 97345 | 24587 | 96930 | 46 |
| 7     | 7  | 17794 | 98404 | 19509 | 98079 | 21218 | 97723 | 22920 | 97338 | 24615 | 96923 | 45 |
| 8     | 8  | 17823 | 98399 | 19538 | 98073 | 21246 | 97717 | 22948 | 97331 | 24644 | 96916 | 44 |
| 8     | 8  | 17852 | 98394 | 19566 | 98067 | 21275 | 97711 | 22977 | 97325 | 24672 | 96909 | 43 |
| 9     | 9  | 17880 | 98389 | 19595 | 98061 | 21303 | 97705 | 23005 | 97318 | 24700 | 96902 | 42 |
| 9     | 9  | 17909 | 98383 | 19623 | 98056 | 21331 | 97698 | 23033 | 97311 | 24728 | 96894 | 41 |
| 10    | 10 | 17937 | 98378 | 19652 | 98050 | 21360 | 97692 | 23062 | 97304 | 24756 | 96887 | 40 |
| 10    | 10 | 17966 | 98373 | 19680 | 98044 | 21388 | 97686 | 23090 | 97298 | 24784 | 96880 | 39 |
| 11    | 11 | 17995 | 98368 | 19709 | 98039 | 21417 | 97680 | 23118 | 97291 | 24813 | 96873 | 38 |
| 11    | 11 | 18023 | 98362 | 19737 | 98033 | 21445 | 97673 | 23146 | 97284 | 24841 | 96866 | 37 |
| 12    | 12 | 18052 | 98357 | 19766 | 98027 | 21474 | 97667 | 23175 | 97278 | 24869 | 96858 | 36 |
| 12    | 12 | 18081 | 98352 | 19794 | 98021 | 21502 | 97661 | 23203 | 97271 | 24897 | 96851 | 35 |
| 13    | 13 | 18109 | 98347 | 19823 | 98016 | 21530 | 97655 | 23231 | 97264 | 24925 | 96844 | 34 |
| 13    | 13 | 18138 | 98341 | 19851 | 98010 | 21559 | 97648 | 23260 | 97257 | 24954 | 96837 | 33 |
| 14    | 14 | 18167 | 98336 | 19880 | 98004 | 21587 | 97642 | 23288 | 97251 | 24982 | 96829 | 32 |
| 14    | 14 | 18195 | 98331 | 19908 | 97998 | 21616 | 97636 | 23316 | 97244 | 25010 | 96822 | 31 |
| 15    | 15 | 18224 | 98325 | 19937 | 97992 | 21644 | 97630 | 23345 | 97237 | 25038 | 96815 | 30 |
| 15    | 15 | 18252 | 98320 | 19965 | 97987 | 21672 | 97623 | 23373 | 97230 | 25066 | 96807 | 29 |
| 16    | 16 | 18281 | 98315 | 19994 | 97981 | 21701 | 97617 | 23401 | 97223 | 25094 | 96800 | 28 |
| 16    | 16 | 18309 | 98310 | 20022 | 97975 | 21729 | 97611 | 23429 | 97217 | 25122 | 96793 | 27 |
| 17    | 17 | 18338 | 98304 | 20051 | 97969 | 21758 | 97604 | 23458 | 97210 | 25151 | 96786 | 26 |
| 17    | 17 | 18367 | 98299 | 20079 | 97963 | 21786 | 97598 | 23486 | 97203 | 25179 | 96778 | 25 |
| 17    | 17 | 18395 | 98294 | 20108 | 97958 | 21814 | 97592 | 23514 | 97196 | 25207 | 96771 | 24 |
| 18    | 18 | 18424 | 98288 | 20136 | 97952 | 21843 | 97585 | 23542 | 97189 | 25235 | 96764 | 23 |
| 18    | 18 | 18452 | 98283 | 20165 | 97946 | 21871 | 97579 | 23571 | 97182 | 25263 | 96756 | 22 |
| 19    | 19 | 18481 | 98277 | 20193 | 97940 | 21899 | 97573 | 23599 | 97176 | 25291 | 96749 | 21 |
| 19    | 19 | 18509 | 98272 | 20222 | 97934 | 21928 | 97566 | 23627 | 97169 | 25320 | 96742 | 20 |
| 20    | 20 | 18538 | 98267 | 20250 | 97928 | 21956 | 97560 | 23656 | 97162 | 25348 | 96734 | 19 |
| 20    | 20 | 18567 | 98261 | 20279 | 97922 | 21985 | 97553 | 23684 | 97155 | 25376 | 96727 | 18 |
| 21    | 21 | 18595 | 98256 | 20307 | 97916 | 22013 | 97547 | 23712 | 97148 | 25404 | 96719 | 17 |
| 21    | 21 | 18624 | 98250 | 20336 | 97910 | 22041 | 97541 | 23740 | 97141 | 25432 | 96712 | 16 |
| 22    | 22 | 18652 | 98245 | 20364 | 97905 | 22070 | 97534 | 23769 | 97134 | 25460 | 96705 | 15 |
| 22    | 22 | 18681 | 98240 | 20393 | 97899 | 22098 | 97528 | 23797 | 97127 | 25488 | 96697 | 14 |
| 23    | 23 | 18710 | 98234 | 20421 | 97893 | 22126 | 97521 | 23825 | 97120 | 25516 | 96690 | 13 |
| 23    | 23 | 18738 | 98229 | 20450 | 97887 | 22155 | 97515 | 23853 | 97113 | 25545 | 96682 | 12 |
| 24    | 24 | 18767 | 98223 | 20478 | 97881 | 22183 | 97508 | 23882 | 97106 | 25573 | 96675 | 11 |
| 24    | 24 | 18795 | 98218 | 20507 | 97875 | 22212 | 97502 | 23910 | 97100 | 25601 | 96667 | 10 |
| 25    | 25 | 18824 | 98212 | 20535 | 97869 | 22240 | 97496 | 23938 | 97093 | 25629 | 96660 | 9  |
| 25    | 25 | 18852 | 98207 | 20563 | 97863 | 22268 | 97489 | 23966 | 97086 | 25657 | 96653 | 8  |
| 26    | 26 | 18881 | 98201 | 20592 | 97857 | 22297 | 97483 | 23995 | 97079 | 25685 | 96645 | 7  |
| 26    | 26 | 18910 | 98196 | 20620 | 97851 | 22325 | 97476 | 24023 | 97072 | 25713 | 96638 | 6  |
| 27    | 27 | 18938 | 98190 | 20649 | 97845 | 22353 | 97470 | 24051 | 97065 | 25741 | 96630 | 5  |
| 27    | 27 | 18967 | 98185 | 20677 | 97839 | 22382 | 97463 | 24079 | 97058 | 25769 | 96623 | 4  |
| 28    | 28 | 18995 | 98179 | 20706 | 97833 | 22410 | 97457 | 24108 | 97051 | 25798 | 96615 | 3  |
| 28    | 28 | 19024 | 98174 | 20734 | 97827 | 22438 | 97450 | 24136 | 97044 | 25826 | 96608 | 2  |
| 29    | 29 | 19052 | 98168 | 20763 | 97821 | 22467 | 97444 | 24164 | 97037 | 25854 | 96600 | 1  |
| 29    | 29 | 19081 | 98163 | 20791 | 97815 | 22495 | 97437 | 24192 | 97030 | 25882 | 96593 | 0  |
| i     |    | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | i  |







NATURAL SINES AND COSINES.

| Diff. |    |    | 20°   |       | 21°   |       | 22°   |       | 23°   |       | 24°   |       | r  |    |    |    |
|-------|----|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|----|----|----|
| 28    | 27 | 26 | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  |    | 11 | 12 | 13 |
| 0     | 0  | 0  | 34202 | 93669 | 35837 | 93358 | 37461 | 92718 | 39073 | 92050 | 40674 | 91355 | 60 | 11 | 12 | 13 |
| 0     | 0  | 1  | 34229 | 93659 | 35864 | 93348 | 37488 | 92707 | 39100 | 92039 | 40700 | 91343 | 59 | 11 | 12 | 13 |
| 1     | 1  | 1  | 34257 | 93649 | 35891 | 93337 | 37515 | 92697 | 39127 | 92028 | 40727 | 91331 | 58 | 11 | 12 | 13 |
| 1     | 1  | 1  | 34284 | 93639 | 35918 | 93327 | 37542 | 92686 | 39153 | 92016 | 40753 | 91319 | 57 | 10 | 11 | 12 |
| 2     | 2  | 2  | 34311 | 93629 | 35945 | 93316 | 37569 | 92675 | 39180 | 92005 | 40780 | 91307 | 56 | 10 | 11 | 12 |
| 2     | 2  | 2  | 34339 | 93619 | 35973 | 93306 | 37595 | 92664 | 39207 | 91994 | 40806 | 91295 | 55 | 10 | 11 | 12 |
| 3     | 3  | 3  | 34366 | 93609 | 36000 | 93295 | 37622 | 92653 | 39234 | 91982 | 40833 | 91283 | 54 | 10 | 11 | 12 |
| 3     | 3  | 3  | 34393 | 93599 | 36027 | 93285 | 37649 | 92642 | 39260 | 91971 | 40860 | 91272 | 53 | 10 | 11 | 11 |
| 4     | 4  | 4  | 34421 | 93589 | 36054 | 93274 | 37676 | 92631 | 39287 | 91959 | 40886 | 91260 | 52 | 10 | 10 | 11 |
| 4     | 4  | 4  | 34448 | 93579 | 36081 | 93264 | 37703 | 92620 | 39314 | 91948 | 40913 | 91248 | 51 | 9  | 10 | 11 |
| 5     | 5  | 4  | 34475 | 93569 | 36108 | 93253 | 37730 | 92609 | 39341 | 91936 | 40939 | 91236 | 50 | 9  | 10 | 11 |
| 5     | 5  | 5  | 34503 | 93559 | 36135 | 93243 | 37757 | 92598 | 39367 | 91925 | 40966 | 91224 | 49 | 9  | 10 | 11 |
| 6     | 5  | 5  | 34530 | 93549 | 36162 | 93232 | 37784 | 92587 | 39394 | 91914 | 40992 | 91212 | 48 | 9  | 10 | 10 |
| 6     | 6  | 6  | 34557 | 93539 | 36190 | 93222 | 37811 | 92576 | 39421 | 91902 | 41019 | 91200 | 47 | 8  | 9  | 10 |
| 7     | 6  | 6  | 34584 | 93529 | 36217 | 93211 | 37838 | 92565 | 39448 | 91891 | 41045 | 91188 | 46 | 8  | 9  | 10 |
| 7     | 7  | 7  | 34612 | 93519 | 36244 | 93201 | 37865 | 92554 | 39474 | 91879 | 41072 | 91176 | 45 | 8  | 9  | 10 |
| 7     | 7  | 7  | 34639 | 93509 | 36271 | 93190 | 37892 | 92543 | 39501 | 91868 | 41098 | 91164 | 44 | 8  | 9  | 10 |
| 8     | 8  | 7  | 34666 | 93499 | 36298 | 93180 | 37919 | 92532 | 39528 | 91856 | 41125 | 91152 | 43 | 8  | 9  | 9  |
| 8     | 8  | 8  | 34694 | 93489 | 36325 | 93169 | 37946 | 92521 | 39555 | 91845 | 41151 | 91140 | 42 | 8  | 8  | 9  |
| 9     | 9  | 8  | 34721 | 93479 | 36352 | 93159 | 37973 | 92510 | 39581 | 91833 | 41178 | 91128 | 41 | 8  | 8  | 9  |
| 9     | 9  | 9  | 34748 | 93469 | 36379 | 93148 | 37999 | 92499 | 39608 | 91822 | 41204 | 91116 | 40 | 7  | 8  | 9  |
| 10    | 9  | 9  | 34775 | 93459 | 36406 | 93137 | 38026 | 92488 | 39635 | 91810 | 41231 | 91104 | 39 | 7  | 8  | 8  |
| 10    | 10 | 10 | 34803 | 93449 | 36434 | 93127 | 38053 | 92477 | 39661 | 91799 | 41257 | 91092 | 38 | 7  | 8  | 8  |
| 11    | 10 | 10 | 34830 | 93439 | 36461 | 93116 | 38080 | 92466 | 39688 | 91787 | 41284 | 91080 | 37 | 7  | 7  | 8  |
| 11    | 11 | 11 | 34857 | 93429 | 36488 | 93106 | 38107 | 92455 | 39715 | 91775 | 41310 | 91068 | 36 | 7  | 7  | 8  |
| 12    | 11 | 11 | 34884 | 93419 | 36515 | 93095 | 38134 | 92444 | 39741 | 91764 | 41337 | 91056 | 35 | 6  | 7  | 8  |
| 12    | 12 | 11 | 34912 | 93409 | 36542 | 93084 | 38161 | 92432 | 39768 | 91752 | 41363 | 91044 | 34 | 6  | 7  | 7  |
| 13    | 12 | 12 | 34939 | 93399 | 36569 | 93074 | 38188 | 92421 | 39795 | 91741 | 41390 | 91032 | 33 | 6  | 7  | 7  |
| 13    | 13 | 12 | 34966 | 93389 | 36596 | 93063 | 38215 | 92410 | 39822 | 91729 | 41416 | 91020 | 32 | 6  | 6  | 7  |
| 14    | 13 | 13 | 34993 | 93379 | 36623 | 93052 | 38241 | 92399 | 39848 | 91718 | 41443 | 91008 | 31 | 6  | 6  | 7  |
| 14    | 14 | 13 | 35021 | 93369 | 36650 | 93042 | 38268 | 92388 | 39875 | 91706 | 41469 | 90996 | 30 | 6  | 6  | 7  |
| 14    | 14 | 13 | 35048 | 93359 | 36677 | 93031 | 38295 | 92377 | 39902 | 91694 | 41496 | 90984 | 29 | 5  | 6  | 6  |
| 15    | 14 | 14 | 35075 | 93349 | 36704 | 93020 | 38322 | 92366 | 39928 | 91683 | 41522 | 90972 | 28 | 5  | 6  | 6  |
| 15    | 15 | 14 | 35102 | 93339 | 36731 | 93010 | 38349 | 92355 | 39955 | 91671 | 41549 | 90960 | 27 | 5  | 5  | 6  |
| 16    | 15 | 15 | 35130 | 93329 | 36758 | 92999 | 38376 | 92343 | 39982 | 91660 | 41575 | 90948 | 26 | 5  | 5  | 6  |
| 16    | 16 | 15 | 35157 | 93319 | 36785 | 92988 | 38403 | 92332 | 40008 | 91648 | 41602 | 90936 | 25 | 5  | 5  | 5  |
| 17    | 16 | 16 | 35184 | 93309 | 36812 | 92978 | 38430 | 92321 | 40035 | 91636 | 41628 | 90924 | 24 | 4  | 5  | 5  |
| 17    | 17 | 16 | 35211 | 93299 | 36839 | 92967 | 38456 | 92310 | 40062 | 91625 | 41655 | 90912 | 23 | 4  | 5  | 5  |
| 18    | 17 | 16 | 35239 | 93289 | 36866 | 92956 | 38483 | 92299 | 40088 | 91613 | 41681 | 90900 | 22 | 4  | 4  | 5  |
| 18    | 18 | 17 | 35266 | 93279 | 36894 | 92945 | 38510 | 92287 | 40115 | 91601 | 41707 | 90887 | 21 | 4  | 4  | 5  |
| 19    | 18 | 17 | 35293 | 93269 | 36921 | 92935 | 38537 | 92276 | 40141 | 91590 | 41734 | 90875 | 20 | 4  | 4  | 4  |
| 19    | 18 | 18 | 35320 | 93259 | 36948 | 92924 | 38564 | 92265 | 40168 | 91578 | 41760 | 90863 | 19 | 3  | 4  | 4  |
| 20    | 19 | 18 | 35347 | 93249 | 36975 | 92913 | 38591 | 92254 | 40195 | 91566 | 41787 | 90851 | 18 | 3  | 4  | 4  |
| 20    | 19 | 19 | 35375 | 93239 | 37002 | 92902 | 38617 | 92243 | 40221 | 91555 | 41813 | 90839 | 17 | 3  | 3  | 4  |
| 21    | 20 | 19 | 35402 | 93229 | 37029 | 92892 | 38644 | 92231 | 40248 | 91543 | 41840 | 90826 | 16 | 3  | 3  | 3  |
| 21    | 20 | 20 | 35429 | 93219 | 37056 | 92881 | 38671 | 92220 | 40275 | 91531 | 41866 | 90814 | 15 | 3  | 3  | 3  |
| 21    | 21 | 20 | 35456 | 93209 | 37083 | 92870 | 38698 | 92209 | 40301 | 91519 | 41892 | 90802 | 14 | 3  | 3  | 3  |
| 22    | 21 | 20 | 35484 | 93199 | 37110 | 92859 | 38725 | 92198 | 40328 | 91508 | 41919 | 90790 | 13 | 2  | 3  | 3  |
| 22    | 22 | 21 | 35511 | 93189 | 37137 | 92849 | 38752 | 92186 | 40355 | 91496 | 41945 | 90778 | 12 | 2  | 3  | 3  |
| 23    | 22 | 21 | 35538 | 93179 | 37164 | 92838 | 38778 | 92175 | 40381 | 91484 | 41972 | 90766 | 11 | 2  | 2  | 3  |
| 23    | 23 | 22 | 35565 | 93169 | 37191 | 92827 | 38805 | 92164 | 40408 | 91472 | 41998 | 90753 | 10 | 2  | 2  | 2  |
| 24    | 23 | 22 | 35592 | 93159 | 37218 | 92816 | 38832 | 92152 | 40434 | 91460 | 42024 | 90741 | 9  | 2  | 2  | 2  |
| 24    | 23 | 23 | 35619 | 93149 | 37245 | 92805 | 38859 | 92141 | 40461 | 91449 | 42051 | 90729 | 8  | 1  | 2  | 2  |
| 25    | 24 | 23 | 35647 | 93139 | 37272 | 92794 | 38886 | 92130 | 40488 | 91437 | 42077 | 90717 | 7  | 1  | 2  | 2  |
| 25    | 24 | 23 | 35674 | 93129 | 37299 | 92784 | 38912 | 92119 | 40514 | 91425 | 42104 | 90704 | 6  | 1  | 1  | 2  |
| 26    | 25 | 24 | 35701 | 93119 | 37326 | 92773 | 38939 | 92107 | 40541 | 91414 | 42130 | 90692 | 5  | 1  | 1  | 1  |
| 26    | 25 | 24 | 35728 | 93109 | 37353 | 92762 | 38966 | 92096 | 40567 | 91402 | 42156 | 90680 | 4  | 1  | 1  | 1  |
| 27    | 26 | 25 | 35755 | 93099 | 37380 | 92751 | 38993 | 92085 | 40594 | 91390 | 42183 | 90668 | 3  | 1  | 1  | 1  |
| 27    | 26 | 25 | 35782 | 93089 | 37407 | 92740 | 39020 | 92073 | 40621 | 91378 | 42209 | 90655 | 2  | 0  | 0  | 0  |
| 28    | 27 | 26 | 35810 | 93079 | 37434 | 92729 | 39046 | 92062 | 40647 | 91366 | 42235 | 90643 | 1  | 0  | 0  | 0  |
| 28    | 27 | 26 | 35837 | 93069 | 37461 | 92718 | 39073 | 92050 | 40674 | 91355 | 42262 | 90631 | 0  | 0  | 0  | 0  |
|       | r  |    | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | r  | 11 | 12 | 13 |

69°

68°

67°

66°

65°

Diff.



| Diff. |    | 25° |    | 26°   |       | 27°   |       | 28°   |       | 29°   |       | r     | 12    | 13   | 14 |      |      |  |
|-------|----|-----|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|----|------|------|--|
| 27    | 26 | 25  | 1  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  |       |       |      |    | sin. | cos. |  |
| 0     | 0  | 0   | 0  | 42262 | 90631 | 43837 | 89879 | 45399 | 89101 | 46947 | 88295 | 48481 | 87462 | 60   | 12 | 13   | 14   |  |
| 0     | 0  | 0   | 1  | 42288 | 90618 | 43863 | 89867 | 45425 | 89087 | 46973 | 88281 | 48506 | 87448 | 59   | 12 | 13   | 14   |  |
| 1     | 1  | 1   | 2  | 42315 | 90606 | 43889 | 89854 | 45451 | 89074 | 46999 | 88267 | 48532 | 87434 | 58   | 12 | 13   | 14   |  |
| 1     | 1  | 1   | 3  | 42341 | 90594 | 43916 | 89841 | 45477 | 89061 | 47024 | 88254 | 48557 | 87420 | 57   | 11 | 12   | 13   |  |
| 2     | 2  | 2   | 4  | 42367 | 90582 | 43942 | 89828 | 45503 | 89048 | 47050 | 88240 | 48583 | 87406 | 56   | 11 | 12   | 13   |  |
| 2     | 2  | 2   | 5  | 42394 | 90569 | 43968 | 89816 | 45529 | 89035 | 47076 | 88226 | 48608 | 87391 | 55   | 11 | 12   | 13   |  |
| 3     | 3  | 3   | 6  | 42420 | 90557 | 43994 | 89803 | 45554 | 89021 | 47101 | 88213 | 48634 | 87377 | 54   | 11 | 12   | 13   |  |
| 3     | 3  | 3   | 7  | 42446 | 90545 | 44020 | 89790 | 45580 | 89008 | 47127 | 88199 | 48659 | 87363 | 53   | 11 | 11   | 12   |  |
| 4     | 4  | 3   | 8  | 42473 | 90532 | 44046 | 89777 | 45606 | 88995 | 47153 | 88185 | 48684 | 87349 | 52   | 10 | 11   | 12   |  |
| 4     | 4  | 4   | 9  | 42499 | 90520 | 44072 | 89764 | 45632 | 88981 | 47178 | 88172 | 48710 | 87335 | 51   | 10 | 11   | 12   |  |
| 5     | 5  | 4   | 10 | 42525 | 90507 | 44098 | 89752 | 45658 | 88968 | 47204 | 88158 | 48735 | 87321 | 50   | 10 | 11   | 12   |  |
| 5     | 5  | 5   | 11 | 42552 | 90495 | 44124 | 89739 | 45684 | 88955 | 47229 | 88144 | 48761 | 87306 | 49   | 10 | 11   | 11   |  |
| 5     | 5  | 5   | 12 | 42578 | 90483 | 44151 | 89726 | 45710 | 88942 | 47255 | 88130 | 48786 | 87292 | 48   | 10 | 10   | 11   |  |
| 6     | 6  | 5   | 13 | 42604 | 90470 | 44177 | 89713 | 45736 | 88928 | 47281 | 88117 | 48811 | 87278 | 47   | 9  | 10   | 11   |  |
| 6     | 6  | 6   | 14 | 42631 | 90458 | 44203 | 89700 | 45762 | 88915 | 47306 | 88103 | 48837 | 87264 | 46   | 9  | 10   | 11   |  |
| 7     | 7  | 6   | 15 | 42657 | 90446 | 44229 | 89687 | 45787 | 88902 | 47332 | 88089 | 48862 | 87250 | 45   | 9  | 10   | 11   |  |
| 7     | 7  | 7   | 16 | 42683 | 90433 | 44255 | 89674 | 45813 | 88888 | 47358 | 88075 | 48888 | 87235 | 44   | 9  | 10   | 10   |  |
| 7     | 7  | 7   | 17 | 42709 | 90421 | 44281 | 89662 | 45839 | 88875 | 47383 | 88062 | 48913 | 87221 | 43   | 9  | 9    | 10   |  |
| 8     | 8  | 8   | 18 | 42736 | 90408 | 44307 | 89649 | 45865 | 88862 | 47409 | 88048 | 48938 | 87207 | 42   | 8  | 9    | 10   |  |
| 9     | 8  | 8   | 19 | 42762 | 90396 | 44333 | 89636 | 45891 | 88848 | 47434 | 88034 | 48964 | 87193 | 41   | 8  | 9    | 10   |  |
| 9     | 9  | 8   | 20 | 42788 | 90383 | 44359 | 89623 | 45917 | 88835 | 47460 | 88020 | 48989 | 87178 | 40   | 8  | 9    | 9    |  |
| 9     | 9  | 9   | 21 | 42815 | 90371 | 44385 | 89610 | 45942 | 88822 | 47486 | 88006 | 49014 | 87164 | 39   | 8  | 8    | 9    |  |
| 10    | 10 | 9   | 22 | 42841 | 90358 | 44411 | 89597 | 45968 | 88808 | 47511 | 87993 | 49040 | 87150 | 38   | 8  | 8    | 9    |  |
| 10    | 10 | 10  | 23 | 42867 | 90346 | 44437 | 89584 | 45994 | 88795 | 47537 | 87979 | 49065 | 87136 | 37   | 7  | 8    | 9    |  |
| 11    | 10 | 10  | 24 | 42894 | 90334 | 44464 | 89571 | 46020 | 88782 | 47562 | 87965 | 49090 | 87121 | 36   | 7  | 8    | 8    |  |
| 11    | 11 | 10  | 25 | 42920 | 90321 | 44490 | 89558 | 46046 | 88768 | 47588 | 87951 | 49116 | 87107 | 35   | 7  | 8    | 8    |  |
| 12    | 11 | 11  | 26 | 42946 | 90309 | 44516 | 89545 | 46072 | 88755 | 47614 | 87937 | 49141 | 87093 | 34   | 7  | 7    | 8    |  |
| 12    | 12 | 11  | 27 | 42972 | 90296 | 44542 | 89532 | 46097 | 88741 | 47639 | 87923 | 49166 | 87079 | 33   | 7  | 7    | 8    |  |
| 13    | 12 | 12  | 28 | 42999 | 90284 | 44568 | 89519 | 46123 | 88728 | 47665 | 87909 | 49191 | 87064 | 32   | 6  | 7    | 7    |  |
| 13    | 13 | 12  | 29 | 43025 | 90271 | 44594 | 89506 | 46149 | 88715 | 47690 | 87896 | 49217 | 87050 | 31   | 6  | 7    | 7    |  |
| 14    | 13 | 13  | 30 | 43051 | 90259 | 44620 | 89493 | 46175 | 88701 | 47716 | 87882 | 49242 | 87036 | 30   | 6  | 7    | 7    |  |
| 14    | 14 | 13  | 31 | 43077 | 90246 | 44646 | 89480 | 46201 | 88688 | 47741 | 87868 | 49268 | 87021 | 29   | 6  | 6    | 7    |  |
| 14    | 14 | 13  | 32 | 43104 | 90233 | 44672 | 89467 | 46226 | 88674 | 47767 | 87854 | 49293 | 87007 | 28   | 6  | 6    | 7    |  |
| 15    | 14 | 14  | 33 | 43130 | 90221 | 44698 | 89454 | 46252 | 88661 | 47793 | 87840 | 49318 | 86993 | 27   | 5  | 6    | 6    |  |
| 15    | 15 | 14  | 34 | 43156 | 90208 | 44724 | 89441 | 46278 | 88647 | 47818 | 87826 | 49344 | 86978 | 26   | 5  | 6    | 6    |  |
| 16    | 15 | 15  | 35 | 43182 | 90196 | 44750 | 89428 | 46304 | 88634 | 47844 | 87812 | 49369 | 86964 | 25   | 5  | 6    | 6    |  |
| 16    | 16 | 15  | 36 | 43209 | 90183 | 44776 | 89415 | 46330 | 88620 | 47869 | 87798 | 49394 | 86949 | 24   | 5  | 5    | 6    |  |
| 17    | 16 | 15  | 37 | 43235 | 90171 | 44802 | 89402 | 46355 | 88607 | 47895 | 87784 | 49419 | 86935 | 23   | 5  | 5    | 6    |  |
| 17    | 16 | 16  | 38 | 43261 | 90158 | 44828 | 89389 | 46381 | 88593 | 47920 | 87770 | 49445 | 86921 | 22   | 4  | 5    | 5    |  |
| 18    | 17 | 16  | 39 | 43287 | 90146 | 44854 | 89376 | 46407 | 88580 | 47946 | 87756 | 49470 | 86906 | 21   | 4  | 5    | 5    |  |
| 18    | 17 | 17  | 40 | 43313 | 90133 | 44880 | 89363 | 46433 | 88566 | 47971 | 87743 | 49495 | 86892 | 20   | 4  | 4    | 5    |  |
| 18    | 17 | 17  | 41 | 43340 | 90120 | 44906 | 89350 | 46458 | 88553 | 47997 | 87729 | 49521 | 86878 | 19   | 4  | 4    | 4    |  |
| 19    | 18 | 18  | 42 | 43366 | 90108 | 44932 | 89337 | 46484 | 88539 | 48022 | 87715 | 49546 | 86864 | 18   | 4  | 4    | 4    |  |
| 19    | 18 | 18  | 43 | 43392 | 90095 | 44958 | 89324 | 46510 | 88526 | 48048 | 87701 | 49571 | 86849 | 17   | 3  | 4    | 4    |  |
| 20    | 19 | 18  | 44 | 43418 | 90082 | 44984 | 89311 | 46536 | 88512 | 48073 | 87687 | 49596 | 86834 | 16   | 3  | 3    | 4    |  |
| 20    | 20 | 19  | 45 | 43445 | 90070 | 45010 | 89298 | 46561 | 88499 | 48099 | 87673 | 49622 | 86820 | 15   | 3  | 3    | 4    |  |
| 21    | 20 | 19  | 46 | 43471 | 90057 | 45036 | 89285 | 46587 | 88485 | 48124 | 87659 | 49647 | 86805 | 14   | 3  | 3    | 3    |  |
| 21    | 20 | 20  | 47 | 43497 | 90045 | 45062 | 89272 | 46613 | 88472 | 48150 | 87645 | 49672 | 86791 | 13   | 3  | 3    | 3    |  |
| 22    | 21 | 20  | 48 | 43523 | 90032 | 45088 | 89259 | 46639 | 88458 | 48175 | 87631 | 49697 | 86777 | 12   | 2  | 3    | 3    |  |
| 22    | 21 | 20  | 49 | 43549 | 90019 | 45114 | 89245 | 46664 | 88445 | 48201 | 87617 | 49723 | 86762 | 11   | 2  | 2    | 3    |  |
| 23    | 22 | 21  | 50 | 43575 | 90007 | 45140 | 89232 | 46690 | 88431 | 48226 | 87603 | 49748 | 86748 | 10   | 2  | 2    | 2    |  |
| 23    | 22 | 21  | 51 | 43602 | 89994 | 45166 | 89219 | 46716 | 88417 | 48252 | 87589 | 49773 | 86733 | 9    | 2  | 2    | 2    |  |
| 23    | 23 | 22  | 52 | 43628 | 89981 | 45192 | 89206 | 46742 | 88404 | 48277 | 87575 | 49798 | 86719 | 8    | 2  | 2    | 2    |  |
| 24    | 23 | 22  | 53 | 43654 | 89968 | 45218 | 89193 | 46767 | 88390 | 48303 | 87561 | 49824 | 86704 | 7    | 1  | 2    | 2    |  |
| 24    | 23 | 23  | 54 | 43680 | 89956 | 45243 | 89180 | 46793 | 88377 | 48328 | 87546 | 49849 | 86690 | 6    | 1  | 1    | 2    |  |
| 25    | 24 | 23  | 55 | 43706 | 89943 | 45269 | 89167 | 46819 | 88363 | 48354 | 87532 | 49874 | 86675 | 5    | 1  | 1    | 1    |  |
| 25    | 24 | 23  | 56 | 43733 | 89930 | 45295 | 89153 | 46844 | 88349 | 48379 | 87518 | 49899 | 86661 | 4    | 1  | 1    | 1    |  |
| 26    | 25 | 24  | 57 | 43759 | 89918 | 45321 | 89140 | 46870 | 88336 | 48405 | 87504 | 49924 | 86646 | 3    | 1  | 1    | 1    |  |
| 26    | 25 | 24  | 58 | 43785 | 89905 | 45347 | 89127 | 46896 | 88322 | 48430 | 87490 | 49950 | 86632 | 2    | 0  | 1    | 1    |  |
| 27    | 26 | 25  | 59 | 43811 | 89892 | 45373 | 89114 | 46921 | 88308 | 48456 | 87476 | 49975 | 86617 | 1    | 0  | 0    | 1    |  |
| 27    | 26 | 25  | 60 | 43837 | 89879 | 45399 | 89101 | 46947 | 88295 | 48481 | 87462 | 50000 | 86603 | 0    | 0  | 0    | 1    |  |
|       |    |     |    |       | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin. |    |      |      |  |

64°

63°

62°

61°

60°

Diff.



NATURAL SINES AND COSINES.

| Diff.    | 30°  |       | 31°   |       | 32°   |       | 33°   |       | 34°   |       | '     |    |
|----------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
|          | sin. | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  |       |    |
| 0 0 0    | 0    | 50000 | 86603 | 51504 | 85717 | 52992 | 84805 | 54464 | 83867 | 55919 | 82904 | 60 |
| 0 0 0    | 1    | 50025 | 86588 | 51529 | 85702 | 53017 | 84789 | 54488 | 83851 | 55943 | 82887 | 59 |
| 1 1 1    | 2    | 50050 | 86573 | 51554 | 85687 | 53041 | 84774 | 54513 | 83835 | 55968 | 82871 | 58 |
| 1 1 1    | 3    | 50076 | 86559 | 51579 | 85672 | 53066 | 84759 | 54537 | 83819 | 55992 | 82855 | 57 |
| 2 2 2    | 4    | 50101 | 86544 | 51604 | 85657 | 53091 | 84743 | 54561 | 83804 | 56016 | 82839 | 56 |
| 2 2 2    | 5    | 50126 | 86530 | 51628 | 85642 | 53115 | 84728 | 54586 | 83788 | 56040 | 82822 | 55 |
| 3 2 2    | 6    | 50151 | 86515 | 51653 | 85627 | 53140 | 84712 | 54610 | 83772 | 56064 | 82806 | 54 |
| 3 3 3    | 7    | 50176 | 86501 | 51678 | 85612 | 53164 | 84697 | 54635 | 83756 | 56088 | 82790 | 53 |
| 3 3 3    | 8    | 50201 | 86486 | 51703 | 85597 | 53189 | 84681 | 54659 | 83740 | 56112 | 82773 | 52 |
| 4 4 3    | 9    | 50227 | 86471 | 51728 | 85582 | 53214 | 84666 | 54683 | 83724 | 56136 | 82757 | 51 |
| 4 4 4    | 10   | 50252 | 86457 | 51753 | 85567 | 53238 | 84650 | 54708 | 83708 | 56160 | 82741 | 50 |
| 4 4 4    | 11   | 50277 | 86442 | 51778 | 85551 | 53263 | 84635 | 54732 | 83692 | 56184 | 82724 | 49 |
| 5 5 5    | 12   | 50302 | 86427 | 51803 | 85536 | 53288 | 84619 | 54756 | 83676 | 56208 | 82708 | 48 |
| 5 5 5    | 13   | 50327 | 86413 | 51828 | 85521 | 53312 | 84604 | 54781 | 83660 | 56232 | 82692 | 47 |
| 6 6 5    | 14   | 50352 | 86398 | 51852 | 85506 | 53337 | 84588 | 54805 | 83645 | 56256 | 82675 | 46 |
| 6 6 6    | 15   | 50377 | 86384 | 51877 | 85491 | 53361 | 84573 | 54829 | 83629 | 56280 | 82659 | 45 |
| 7 6 6    | 16   | 50403 | 86369 | 51902 | 85476 | 53386 | 84557 | 54854 | 83613 | 56305 | 82643 | 44 |
| 7 7 7    | 17   | 50428 | 86354 | 51927 | 85461 | 53411 | 84542 | 54878 | 83597 | 56329 | 82626 | 43 |
| 8 7 7    | 18   | 50453 | 86340 | 51952 | 85446 | 53435 | 84526 | 54902 | 83581 | 56353 | 82610 | 42 |
| 8 8 7    | 19   | 50478 | 86325 | 51977 | 85431 | 53460 | 84511 | 54927 | 83565 | 56377 | 82593 | 41 |
| 8 8 8    | 20   | 50503 | 86310 | 52002 | 85416 | 53484 | 84495 | 54951 | 83549 | 56401 | 82577 | 40 |
| 9 8 8    | 21   | 50528 | 86295 | 52026 | 85401 | 53509 | 84480 | 54975 | 83533 | 56425 | 82561 | 39 |
| 9 9 8    | 22   | 50553 | 86281 | 52051 | 85385 | 53534 | 84464 | 54999 | 83517 | 56449 | 82544 | 38 |
| 10 9 9   | 23   | 50578 | 86266 | 52076 | 85370 | 53558 | 84448 | 55024 | 83501 | 56473 | 82528 | 37 |
| 10 10 9  | 24   | 50603 | 86251 | 52101 | 85355 | 53583 | 84433 | 55048 | 83485 | 56497 | 82511 | 36 |
| 10 10 10 | 25   | 50628 | 86237 | 52126 | 85340 | 53607 | 84417 | 55072 | 83469 | 56521 | 82495 | 35 |
| 10 10 10 | 26   | 50654 | 86222 | 52151 | 85325 | 53632 | 84402 | 55097 | 83453 | 56545 | 82478 | 34 |
| 11 11 10 | 27   | 50679 | 86207 | 52175 | 85310 | 53656 | 84386 | 55121 | 83437 | 56569 | 82462 | 33 |
| 12 11 11 | 28   | 50704 | 86192 | 52200 | 85294 | 53681 | 84370 | 55145 | 83421 | 56593 | 82446 | 32 |
| 12 12 11 | 29   | 50729 | 86178 | 52225 | 85279 | 53705 | 84355 | 55169 | 83405 | 56617 | 82429 | 31 |
| 13 12 12 | 30   | 50754 | 86163 | 52250 | 85264 | 53730 | 84339 | 55194 | 83389 | 56641 | 82413 | 30 |
| 13 12 12 | 31   | 50779 | 86148 | 52275 | 85249 | 53754 | 84324 | 55218 | 83373 | 56665 | 82396 | 29 |
| 13 13 12 | 32   | 50804 | 86133 | 52299 | 85234 | 53779 | 84308 | 55242 | 83357 | 56689 | 82380 | 28 |
| 14 13 13 | 33   | 50829 | 86119 | 52324 | 85218 | 53804 | 84292 | 55266 | 83340 | 56713 | 82363 | 27 |
| 14 14 13 | 34   | 50854 | 86104 | 52349 | 85203 | 53828 | 84277 | 55291 | 83324 | 56736 | 82347 | 26 |
| 15 14 13 | 35   | 50879 | 86089 | 52374 | 85188 | 53853 | 84261 | 55315 | 83308 | 56760 | 82330 | 25 |
| 15 14 14 | 36   | 50904 | 86074 | 52399 | 85173 | 53877 | 84245 | 55339 | 83292 | 56784 | 82314 | 24 |
| 15 15 14 | 37   | 50929 | 86059 | 52423 | 85157 | 53902 | 84230 | 55363 | 83276 | 56808 | 82297 | 23 |
| 16 15 15 | 38   | 50954 | 86045 | 52448 | 85142 | 53926 | 84214 | 55388 | 83260 | 56832 | 82281 | 22 |
| 16 16 15 | 39   | 50979 | 86030 | 52473 | 85127 | 53951 | 84198 | 55412 | 83244 | 56856 | 82264 | 21 |
| 17 16 15 | 40   | 51004 | 86015 | 52498 | 85112 | 53975 | 84182 | 55436 | 83228 | 56880 | 82248 | 20 |
| 17 16 16 | 41   | 51029 | 86000 | 52522 | 85096 | 54000 | 84167 | 55460 | 83212 | 56904 | 82231 | 19 |
| 18 17 16 | 42   | 51054 | 85985 | 52547 | 85081 | 54024 | 84151 | 55484 | 83195 | 56928 | 82214 | 18 |
| 18 17 16 | 43   | 51079 | 85970 | 52572 | 85066 | 54049 | 84135 | 55509 | 83179 | 56952 | 82198 | 17 |
| 18 18 17 | 44   | 51104 | 85956 | 52597 | 85051 | 54073 | 84120 | 55533 | 83163 | 56976 | 82181 | 16 |
| 19 18 17 | 45   | 51129 | 85941 | 52621 | 85035 | 54097 | 84104 | 55557 | 83147 | 57000 | 82165 | 15 |
| 19 18 18 | 46   | 51154 | 85926 | 52646 | 85020 | 54122 | 84088 | 55581 | 83131 | 57024 | 82148 | 14 |
| 20 19 18 | 47   | 51179 | 85911 | 52671 | 85005 | 54146 | 84072 | 55605 | 83115 | 57047 | 82132 | 13 |
| 20 19 18 | 48   | 51204 | 85896 | 52696 | 84989 | 54171 | 84057 | 55630 | 83098 | 57071 | 82115 | 12 |
| 20 20 19 | 49   | 51229 | 85881 | 52720 | 84974 | 54195 | 84041 | 55654 | 83082 | 57095 | 82098 | 11 |
| 21 20 19 | 50   | 51254 | 85866 | 52745 | 84959 | 54220 | 84025 | 55678 | 83066 | 57119 | 82082 | 10 |
| 21 20 20 | 51   | 51279 | 85851 | 52770 | 84943 | 54244 | 84009 | 55702 | 83050 | 57143 | 82065 | 9  |
| 21 21 20 | 52   | 51304 | 85836 | 52794 | 84928 | 54269 | 83994 | 55726 | 83034 | 57167 | 82048 | 8  |
| 22 21 20 | 53   | 51329 | 85821 | 52819 | 84913 | 54293 | 83978 | 55750 | 83017 | 57191 | 82032 | 7  |
| 23 22 21 | 54   | 51354 | 85806 | 52844 | 84897 | 54317 | 83962 | 55775 | 83001 | 57215 | 82015 | 6  |
| 23 22 21 | 55   | 51379 | 85792 | 52868 | 84882 | 54342 | 83946 | 55799 | 82985 | 57238 | 81999 | 5  |
| 23 22 21 | 56   | 51404 | 85777 | 52893 | 84866 | 54366 | 83930 | 55823 | 82969 | 57262 | 81982 | 4  |
| 24 23 22 | 57   | 51429 | 85762 | 52918 | 84851 | 54391 | 83915 | 55847 | 82953 | 57286 | 81965 | 3  |
| 24 23 22 | 58   | 51454 | 85747 | 52943 | 84836 | 54415 | 83899 | 55871 | 82936 | 57310 | 81949 | 2  |
| 25 24 23 | 59   | 51479 | 85732 | 52967 | 84820 | 54440 | 83883 | 55895 | 82920 | 57334 | 81932 | 1  |
| 25 24 23 | 60   | 51504 | 85717 | 52992 | 84805 | 54464 | 83867 | 55919 | 82904 | 57358 | 81915 | 0  |



NATURAL SINES AND COSINES.

| Diff. |    |    | 54°   |       | 53°   |       | 52°   |       | 51°   |       | 50°   |       | 1  |
|-------|----|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| 24    | 23 | 22 | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  |    |
| 0     | 0  | 0  | 57358 | 81915 | 58779 | 80902 | 60182 | 79864 | 61566 | 78801 | 62932 | 77715 | 60 |
| 0     | 0  | 1  | 57381 | 81899 | 58802 | 80885 | 60205 | 79846 | 61589 | 78783 | 62955 | 77696 | 59 |
| 1     | 1  | 1  | 57405 | 81882 | 58826 | 80867 | 60228 | 79829 | 61612 | 78765 | 62977 | 77678 | 58 |
| 1     | 1  | 2  | 57429 | 81865 | 58849 | 80850 | 60251 | 79811 | 61635 | 78747 | 63000 | 77660 | 57 |
| 2     | 2  | 1  | 57453 | 81848 | 58873 | 80833 | 60274 | 79793 | 61658 | 78729 | 63022 | 77641 | 56 |
| 2     | 2  | 2  | 57477 | 81832 | 58896 | 80816 | 60298 | 79776 | 61681 | 78711 | 63045 | 77623 | 55 |
| 2     | 2  | 3  | 57501 | 81815 | 58920 | 80799 | 60321 | 79758 | 61704 | 78694 | 63068 | 77605 | 54 |
| 3     | 3  | 3  | 57524 | 81798 | 58943 | 80782 | 60344 | 79741 | 61726 | 78676 | 63090 | 77586 | 53 |
| 3     | 3  | 4  | 57548 | 81782 | 58967 | 80765 | 60367 | 79723 | 61749 | 78658 | 63113 | 77568 | 52 |
| 4     | 3  | 3  | 57572 | 81765 | 58990 | 80748 | 60390 | 79706 | 61772 | 78640 | 63135 | 77550 | 51 |
| 4     | 4  | 4  | 57596 | 81748 | 59014 | 80730 | 60414 | 79688 | 61795 | 78622 | 63158 | 77531 | 50 |
| 4     | 4  | 5  | 57619 | 81731 | 59037 | 80713 | 60437 | 79671 | 61818 | 78604 | 63180 | 77513 | 49 |
| 5     | 5  | 4  | 57643 | 81714 | 59061 | 80696 | 60460 | 79653 | 61841 | 78586 | 63203 | 77494 | 48 |
| 5     | 5  | 5  | 57667 | 81698 | 59084 | 80679 | 60483 | 79635 | 61864 | 78568 | 63225 | 77476 | 47 |
| 6     | 5  | 5  | 57691 | 81681 | 59108 | 80662 | 60506 | 79618 | 61887 | 78550 | 63248 | 77458 | 46 |
| 6     | 6  | 6  | 57715 | 81664 | 59131 | 80644 | 60529 | 79600 | 61909 | 78532 | 63271 | 77439 | 45 |
| 6     | 6  | 7  | 57738 | 81647 | 59154 | 80627 | 60553 | 79583 | 61932 | 78514 | 63293 | 77421 | 44 |
| 7     | 7  | 6  | 57762 | 81631 | 59178 | 80610 | 60576 | 79565 | 61955 | 78496 | 63316 | 77402 | 43 |
| 7     | 7  | 7  | 57786 | 81614 | 59201 | 80593 | 60599 | 79547 | 61978 | 78478 | 63338 | 77384 | 42 |
| 8     | 7  | 7  | 57810 | 81597 | 59225 | 80576 | 60622 | 79530 | 62001 | 78460 | 63361 | 77366 | 41 |
| 8     | 8  | 7  | 57833 | 81580 | 59248 | 80558 | 60645 | 79512 | 62024 | 78442 | 63383 | 77347 | 40 |
| 8     | 8  | 8  | 57857 | 81563 | 59272 | 80541 | 60668 | 79494 | 62046 | 78424 | 63406 | 77329 | 39 |
| 9     | 8  | 8  | 57881 | 81546 | 59295 | 80524 | 60691 | 79477 | 62069 | 78405 | 63428 | 77310 | 38 |
| 9     | 9  | 8  | 57904 | 81530 | 59318 | 80507 | 60714 | 79459 | 62092 | 78387 | 63451 | 77292 | 37 |
| 10    | 9  | 9  | 57928 | 81513 | 59342 | 80489 | 60738 | 79441 | 62115 | 78369 | 63473 | 77273 | 36 |
| 10    | 10 | 9  | 57952 | 81496 | 59365 | 80472 | 60761 | 79424 | 62138 | 78351 | 63496 | 77255 | 35 |
| 10    | 10 | 10 | 57976 | 81479 | 59389 | 80455 | 60784 | 79406 | 62160 | 78333 | 63518 | 77236 | 34 |
| 11    | 10 | 10 | 57999 | 81462 | 59412 | 80438 | 60807 | 79388 | 62183 | 78315 | 63540 | 77218 | 33 |
| 11    | 11 | 10 | 58023 | 81445 | 59436 | 80420 | 60830 | 79371 | 62206 | 78297 | 63563 | 77199 | 32 |
| 12    | 11 | 11 | 58047 | 81428 | 59459 | 80403 | 60853 | 79353 | 62229 | 78279 | 63585 | 77181 | 31 |
| 12    | 12 | 11 | 58070 | 81411 | 59482 | 80386 | 60876 | 79335 | 62251 | 78261 | 63608 | 77162 | 30 |
| 12    | 12 | 11 | 58094 | 81395 | 59506 | 80368 | 60899 | 79318 | 62274 | 78243 | 63630 | 77144 | 29 |
| 13    | 12 | 12 | 58118 | 81378 | 59529 | 80351 | 60922 | 79300 | 62297 | 78225 | 63653 | 77125 | 28 |
| 13    | 13 | 12 | 58141 | 81361 | 59552 | 80334 | 60945 | 79282 | 62320 | 78206 | 63675 | 77107 | 27 |
| 14    | 13 | 12 | 58165 | 81344 | 59576 | 80316 | 60968 | 79264 | 62342 | 78188 | 63698 | 77088 | 26 |
| 14    | 13 | 13 | 58189 | 81327 | 59599 | 80299 | 60991 | 79247 | 62365 | 78170 | 63720 | 77070 | 25 |
| 14    | 14 | 13 | 58212 | 81310 | 59622 | 80282 | 61015 | 79229 | 62388 | 78152 | 63742 | 77051 | 24 |
| 15    | 14 | 14 | 58236 | 81293 | 59646 | 80264 | 61038 | 79211 | 62411 | 78134 | 63765 | 77033 | 23 |
| 15    | 15 | 14 | 58260 | 81276 | 59669 | 80247 | 61061 | 79193 | 62433 | 78116 | 63787 | 77014 | 22 |
| 16    | 15 | 14 | 58283 | 81259 | 59693 | 80230 | 61084 | 79176 | 62456 | 78098 | 63810 | 76996 | 21 |
| 16    | 15 | 15 | 58307 | 81242 | 59716 | 80212 | 61107 | 79158 | 62479 | 78079 | 63832 | 76977 | 20 |
| 16    | 16 | 15 | 58330 | 81225 | 59739 | 80195 | 61130 | 79140 | 62502 | 78061 | 63854 | 76959 | 19 |
| 17    | 16 | 15 | 58354 | 81208 | 59763 | 80178 | 61153 | 79122 | 62524 | 78043 | 63877 | 76940 | 18 |
| 17    | 16 | 16 | 58378 | 81191 | 59786 | 80160 | 61176 | 79105 | 62547 | 78025 | 63899 | 76921 | 17 |
| 18    | 17 | 16 | 58401 | 81174 | 59809 | 80143 | 61199 | 79087 | 62570 | 78007 | 63922 | 76903 | 16 |
| 18    | 17 | 17 | 58425 | 81157 | 59832 | 80125 | 61222 | 79069 | 62592 | 77988 | 63944 | 76884 | 15 |
| 18    | 18 | 17 | 58449 | 81140 | 59856 | 80108 | 61245 | 79051 | 62615 | 77970 | 63966 | 76866 | 14 |
| 19    | 18 | 17 | 58472 | 81123 | 59879 | 80091 | 61268 | 79033 | 62638 | 77952 | 63989 | 76847 | 13 |
| 19    | 18 | 18 | 58496 | 81106 | 59902 | 80073 | 61291 | 79016 | 62660 | 77934 | 64011 | 76828 | 12 |
| 20    | 19 | 18 | 58519 | 81089 | 59926 | 80056 | 61314 | 78998 | 62683 | 77916 | 64033 | 76810 | 11 |
| 20    | 19 | 18 | 58543 | 81072 | 59949 | 80038 | 61337 | 78980 | 62706 | 77897 | 64056 | 76791 | 10 |
| 20    | 20 | 19 | 58567 | 81055 | 59972 | 80021 | 61360 | 78962 | 62728 | 77879 | 64078 | 76772 | 9  |
| 21    | 20 | 19 | 58590 | 81038 | 59995 | 80003 | 61383 | 78944 | 62751 | 77861 | 64100 | 76754 | 8  |
| 21    | 20 | 19 | 58614 | 81021 | 60019 | 79986 | 61406 | 78926 | 62774 | 77843 | 64123 | 76735 | 7  |
| 22    | 21 | 20 | 58637 | 81004 | 60042 | 79968 | 61429 | 78908 | 62796 | 77824 | 64145 | 76717 | 6  |
| 22    | 21 | 20 | 58661 | 80987 | 60065 | 79951 | 61451 | 78891 | 62819 | 77806 | 64167 | 76698 | 5  |
| 22    | 21 | 21 | 58684 | 80970 | 60089 | 79934 | 61474 | 78873 | 62842 | 77788 | 64190 | 76679 | 4  |
| 23    | 22 | 21 | 58708 | 80953 | 60112 | 79916 | 61497 | 78855 | 62864 | 77770 | 64212 | 76661 | 3  |
| 23    | 22 | 21 | 58731 | 80936 | 60135 | 79899 | 61520 | 78837 | 62887 | 77751 | 64234 | 76642 | 2  |
| 24    | 23 | 22 | 58755 | 80919 | 60158 | 79881 | 61543 | 78819 | 62909 | 77733 | 64256 | 76623 | 1  |
| 24    | 23 | 22 | 58779 | 80902 | 60182 | 79864 | 61566 | 78801 | 62932 | 77715 | 64279 | 76604 | 0  |



NATURAL SINES AND COSINES.

| Diff. |    | 40° |       | 41°   |       | 42°   |       | 43°   |       | 44°   |       | /     | /  |          |
|-------|----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|----------|
| 22    | 21 | 20  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  |       |    | cos.     |
| 0     | 0  | 0   | 64279 | 76604 | 65606 | 75471 | 66913 | 74314 | 68200 | 73135 | 69466 | 71934 | 60 | 19 20 21 |
| 0     | 0  | 0   | 64301 | 76586 | 65628 | 75452 | 66935 | 74295 | 68221 | 73116 | 69487 | 71914 | 59 | 19 20 21 |
| 1     | 1  | 1   | 64323 | 76567 | 65650 | 75433 | 66956 | 74276 | 68242 | 73096 | 69508 | 71894 | 58 | 18 19 20 |
| 1     | 1  | 1   | 64346 | 76548 | 65672 | 75414 | 66978 | 74256 | 68264 | 73076 | 69529 | 71873 | 57 | 18 19 20 |
| 1     | 1  | 1   | 64368 | 76530 | 65694 | 75395 | 66999 | 74237 | 68285 | 73056 | 69549 | 71853 | 56 | 18 19 20 |
| 2     | 2  | 2   | 64390 | 76511 | 65716 | 75375 | 67021 | 74217 | 68306 | 73036 | 69570 | 71833 | 55 | 17 18 19 |
| 2     | 2  | 2   | 64412 | 76492 | 65738 | 75356 | 67043 | 74198 | 68327 | 73016 | 69591 | 71813 | 54 | 17 18 19 |
| 3     | 2  | 2   | 64435 | 76473 | 65759 | 75337 | 67064 | 74178 | 68349 | 72996 | 69612 | 71792 | 53 | 17 18 19 |
| 3     | 3  | 3   | 64457 | 76455 | 65781 | 75318 | 67086 | 74159 | 68370 | 72976 | 69633 | 71772 | 52 | 16 17 18 |
| 3     | 3  | 3   | 64479 | 76436 | 65803 | 75299 | 67107 | 74139 | 68391 | 72957 | 69654 | 71752 | 51 | 16 17 18 |
| 4     | 4  | 3   | 64501 | 76417 | 65825 | 75280 | 67129 | 74120 | 68412 | 72937 | 69675 | 71732 | 50 | 16 17 18 |
| 4     | 4  | 4   | 64524 | 76398 | 65847 | 75261 | 67151 | 74100 | 68434 | 72917 | 69696 | 71711 | 49 | 16 16 17 |
| 4     | 4  | 4   | 64546 | 76380 | 65869 | 75241 | 67172 | 74080 | 68455 | 72897 | 69717 | 71691 | 48 | 15 16 17 |
| 5     | 5  | 4   | 64568 | 76361 | 65891 | 75222 | 67194 | 74061 | 68476 | 72877 | 69737 | 71671 | 47 | 15 16 16 |
| 5     | 5  | 5   | 64590 | 76342 | 65913 | 75203 | 67215 | 74041 | 68497 | 72857 | 69758 | 71650 | 46 | 15 15 16 |
| 6     | 5  | 5   | 64612 | 76323 | 65935 | 75184 | 67237 | 74022 | 68518 | 72837 | 69779 | 71630 | 45 | 14 15 16 |
| 6     | 6  | 5   | 64635 | 76304 | 65956 | 75165 | 67258 | 74002 | 68539 | 72817 | 69800 | 71610 | 44 | 14 15 15 |
| 6     | 6  | 6   | 64657 | 76286 | 65978 | 75146 | 67280 | 73983 | 68561 | 72797 | 69821 | 71590 | 43 | 14 14 15 |
| 7     | 6  | 6   | 64679 | 76267 | 66000 | 75126 | 67301 | 73963 | 68582 | 72777 | 69842 | 71569 | 42 | 13 14 15 |
| 7     | 7  | 6   | 64701 | 76248 | 66022 | 75107 | 67323 | 73944 | 68603 | 72757 | 69862 | 71549 | 41 | 13 14 14 |
| 7     | 7  | 7   | 64723 | 76229 | 66044 | 75088 | 67344 | 73924 | 68624 | 72737 | 69883 | 71529 | 40 | 13 13 14 |
| 8     | 7  | 7   | 64746 | 76210 | 66066 | 75069 | 67366 | 73904 | 68645 | 72717 | 69904 | 71508 | 39 | 12 13 14 |
| 8     | 8  | 7   | 64768 | 76192 | 66088 | 75050 | 67387 | 73885 | 68666 | 72697 | 69925 | 71488 | 38 | 12 13 13 |
| 8     | 8  | 8   | 64790 | 76173 | 66109 | 75030 | 67409 | 73865 | 68688 | 72677 | 69946 | 71468 | 37 | 12 12 13 |
| 9     | 8  | 8   | 64812 | 76154 | 66131 | 75011 | 67430 | 73846 | 68709 | 72657 | 69966 | 71447 | 36 | 11 12 13 |
| 9     | 9  | 8   | 64834 | 76135 | 66153 | 74992 | 67452 | 73826 | 68730 | 72637 | 69987 | 71427 | 35 | 11 12 12 |
| 10    | 9  | 9   | 64856 | 76116 | 66175 | 74973 | 67473 | 73806 | 68751 | 72617 | 70008 | 71407 | 34 | 11 11 12 |
| 10    | 9  | 9   | 64878 | 76097 | 66197 | 74953 | 67495 | 73787 | 68772 | 72597 | 70029 | 71386 | 33 | 10 11 12 |
| 10    | 10 | 9   | 64901 | 76078 | 66218 | 74934 | 67516 | 73767 | 68793 | 72577 | 70049 | 71366 | 32 | 10 11 11 |
| 11    | 10 | 10  | 64923 | 76059 | 66240 | 74915 | 67538 | 73747 | 68814 | 72557 | 70070 | 71345 | 31 | 10 10 11 |
| 11    | 11 | 10  | 64945 | 76041 | 66262 | 74896 | 67559 | 73728 | 68835 | 72537 | 70091 | 71325 | 30 | 10 10 10 |
| 11    | 11 | 10  | 64967 | 76022 | 66284 | 74876 | 67580 | 73708 | 68855 | 72517 | 70112 | 71305 | 29 | 9 10 10  |
| 12    | 11 | 11  | 64989 | 76003 | 66306 | 74857 | 67602 | 73688 | 68878 | 72497 | 70133 | 71284 | 28 | 9 9 10   |
| 12    | 12 | 11  | 65011 | 75984 | 66327 | 74838 | 67623 | 73669 | 68899 | 72477 | 70153 | 71264 | 27 | 9 9 9    |
| 12    | 12 | 11  | 65033 | 75965 | 66349 | 74818 | 67645 | 73649 | 68920 | 72457 | 70174 | 71243 | 26 | 8 9 9    |
| 13    | 12 | 12  | 65055 | 75946 | 66371 | 74799 | 67666 | 73629 | 68941 | 72437 | 70195 | 71223 | 25 | 8 8 9    |
| 13    | 13 | 12  | 65077 | 75927 | 66393 | 74780 | 67688 | 73610 | 68962 | 72417 | 70215 | 71202 | 24 | 8 8 8    |
| 14    | 13 | 12  | 65100 | 75908 | 66414 | 74760 | 67709 | 73590 | 68983 | 72397 | 70236 | 71182 | 23 | 7 8 8    |
| 14    | 13 | 13  | 65122 | 75889 | 66436 | 74741 | 67730 | 73570 | 69004 | 72377 | 70257 | 71162 | 22 | 7 7 8    |
| 14    | 14 | 13  | 65144 | 75870 | 66458 | 74722 | 67752 | 73551 | 69025 | 72357 | 70277 | 71141 | 21 | 7 7 7    |
| 15    | 14 | 13  | 65166 | 75851 | 66480 | 74703 | 67773 | 73531 | 69046 | 72337 | 70298 | 71121 | 20 | 6 7 7    |
| 15    | 14 | 14  | 65188 | 75832 | 66501 | 74683 | 67795 | 73511 | 69067 | 72317 | 70319 | 71100 | 19 | 6 6 7    |
| 15    | 15 | 14  | 65210 | 75813 | 66523 | 74664 | 67816 | 73491 | 69088 | 72297 | 70339 | 71080 | 18 | 6 6 6    |
| 16    | 15 | 14  | 65232 | 75794 | 66545 | 74644 | 67837 | 73472 | 69109 | 72277 | 70360 | 71059 | 17 | 5 6 6    |
| 16    | 15 | 15  | 65254 | 75775 | 66566 | 74625 | 67859 | 73452 | 69130 | 72257 | 70381 | 71039 | 16 | 5 5 6    |
| 17    | 16 | 15  | 65276 | 75756 | 66588 | 74606 | 67880 | 73432 | 69151 | 72236 | 70401 | 71019 | 15 | 5 5 5    |
| 17    | 16 | 15  | 65298 | 75738 | 66610 | 74586 | 67901 | 73413 | 69172 | 72216 | 70422 | 70998 | 14 | 4 5 5    |
| 17    | 16 | 16  | 65320 | 75719 | 66632 | 74567 | 67923 | 73393 | 69193 | 72196 | 70443 | 70978 | 13 | 4 4 5    |
| 18    | 17 | 16  | 65342 | 75700 | 66653 | 74548 | 67944 | 73373 | 69214 | 72176 | 70463 | 70957 | 12 | 4 4 4    |
| 18    | 17 | 16  | 65364 | 75680 | 66675 | 74528 | 67965 | 73353 | 69235 | 72156 | 70484 | 70937 | 11 | 3 4 4    |
| 18    | 18 | 17  | 65386 | 75661 | 66697 | 74509 | 67987 | 73333 | 69256 | 72136 | 70505 | 70916 | 10 | 3 3 4    |
| 19    | 18 | 17  | 65408 | 75642 | 66718 | 74489 | 68008 | 73314 | 69277 | 72116 | 70525 | 70896 | 9  | 3 3 3    |
| 19    | 18 | 17  | 65430 | 75623 | 66740 | 74470 | 68029 | 73294 | 69298 | 72095 | 70546 | 70875 | 8  | 3 3 3    |
| 19    | 19 | 18  | 65452 | 75604 | 66762 | 74451 | 68051 | 73274 | 69319 | 72075 | 70567 | 70855 | 7  | 2 2 2    |
| 20    | 19 | 18  | 65474 | 75585 | 66783 | 74431 | 68072 | 73254 | 69340 | 72055 | 70587 | 70834 | 6  | 2 2 2    |
| 20    | 19 | 18  | 65496 | 75566 | 66805 | 74412 | 68093 | 73234 | 69361 | 72035 | 70608 | 70813 | 5  | 2 2 2    |
| 21    | 20 | 19  | 65518 | 75547 | 66827 | 74392 | 68115 | 73215 | 69382 | 72015 | 70628 | 70793 | 4  | 1 1 1    |
| 21    | 20 | 19  | 65540 | 75528 | 66848 | 74373 | 68136 | 73195 | 69403 | 71995 | 70649 | 70772 | 3  | 1 1 1    |
| 21    | 20 | 19  | 65562 | 75509 | 66870 | 74353 | 68157 | 73175 | 69424 | 71974 | 70670 | 70752 | 2  | 1 1 1    |
| 22    | 21 | 20  | 65584 | 75490 | 66891 | 74334 | 68179 | 73155 | 69445 | 71954 | 70690 | 70731 | 1  | 0 0 0    |
| 22    | 21 | 20  | 65606 | 75471 | 66913 | 74314 | 68200 | 73135 | 69466 | 71934 | 70711 | 70711 | 0  | 0 0 0    |
|       |    |     | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  |    | Diff.    |



| Diff. |    |    | 35°   |       | 36°   |       | 37°   |       | 38°   |       | 39°   |       |    |    |    |    |
|-------|----|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|----|----|----|
| 24    | 23 | 22 | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  |    |    |    |    |
| 0     | 0  | 0  | 57358 | 81915 | 58779 | 80902 | 60182 | 79864 | 61566 | 78801 | 62932 | 77715 | 60 | 16 | 17 | 18 |
| 0     | 0  | 0  | 57381 | 81899 | 58802 | 80885 | 60205 | 79846 | 61589 | 78783 | 62955 | 77696 | 59 | 16 | 17 | 18 |
| 1     | 1  | 1  | 57405 | 81882 | 58826 | 80867 | 60228 | 79829 | 61612 | 78765 | 62977 | 77678 | 58 | 15 | 16 | 17 |
| 1     | 1  | 1  | 57429 | 81865 | 58849 | 80850 | 60251 | 79811 | 61635 | 78747 | 63000 | 77660 | 57 | 15 | 16 | 17 |
| 2     | 2  | 1  | 57453 | 81848 | 58873 | 80833 | 60274 | 79793 | 61658 | 78729 | 63022 | 77641 | 56 | 15 | 16 | 17 |
| 2     | 2  | 2  | 57477 | 81832 | 58896 | 80816 | 60298 | 79776 | 61681 | 78711 | 63045 | 77623 | 55 | 15 | 16 | 17 |
| 2     | 2  | 2  | 57501 | 81815 | 58920 | 80799 | 60321 | 79758 | 61704 | 78694 | 63068 | 77605 | 54 | 14 | 15 | 16 |
| 3     | 3  | 3  | 57524 | 81798 | 58943 | 80782 | 60344 | 79741 | 61726 | 78676 | 63090 | 77586 | 53 | 14 | 15 | 16 |
| 3     | 3  | 3  | 57548 | 81782 | 58967 | 80765 | 60367 | 79723 | 61749 | 78658 | 63113 | 77568 | 52 | 14 | 15 | 16 |
| 4     | 3  | 3  | 57572 | 81765 | 58990 | 80748 | 60390 | 79706 | 61772 | 78640 | 63135 | 77550 | 51 | 14 | 14 | 15 |
| 4     | 4  | 4  | 57596 | 81748 | 59014 | 80730 | 60414 | 79688 | 61795 | 78622 | 63158 | 77531 | 50 | 13 | 14 | 15 |
| 4     | 4  | 4  | 57620 | 81731 | 59037 | 80713 | 60437 | 79671 | 61818 | 78604 | 63180 | 77513 | 49 | 13 | 14 | 15 |
| 5     | 5  | 4  | 57643 | 81714 | 59061 | 80696 | 60460 | 79653 | 61841 | 78586 | 63203 | 77494 | 48 | 13 | 14 | 14 |
| 5     | 5  | 5  | 57667 | 81698 | 59084 | 80679 | 60483 | 79635 | 61864 | 78568 | 63225 | 77476 | 47 | 13 | 13 | 14 |
| 6     | 5  | 5  | 57691 | 81681 | 59108 | 80662 | 60506 | 79618 | 61887 | 78550 | 63248 | 77458 | 46 | 12 | 13 | 14 |
| 6     | 6  | 6  | 57715 | 81664 | 59131 | 80644 | 60529 | 79600 | 61909 | 78532 | 63271 | 77439 | 45 | 12 | 13 | 14 |
| 6     | 6  | 6  | 57738 | 81647 | 59154 | 80627 | 60553 | 79583 | 61932 | 78514 | 63293 | 77421 | 44 | 12 | 12 | 13 |
| 7     | 7  | 6  | 57762 | 81631 | 59178 | 80610 | 60576 | 79565 | 61955 | 78496 | 63316 | 77402 | 43 | 11 | 12 | 13 |
| 7     | 7  | 7  | 57786 | 81614 | 59201 | 80593 | 60599 | 79547 | 61978 | 78478 | 63338 | 77384 | 42 | 11 | 12 | 13 |
| 8     | 7  | 7  | 57810 | 81597 | 59225 | 80576 | 60622 | 79530 | 62001 | 78460 | 63361 | 77366 | 41 | 11 | 12 | 12 |
| 8     | 8  | 7  | 57833 | 81580 | 59248 | 80558 | 60645 | 79512 | 62024 | 78442 | 63383 | 77347 | 40 | 11 | 11 | 12 |
| 8     | 8  | 8  | 57857 | 81563 | 59272 | 80541 | 60668 | 79494 | 62046 | 78424 | 63406 | 77329 | 39 | 10 | 11 | 12 |
| 9     | 8  | 8  | 57881 | 81546 | 59295 | 80524 | 60691 | 79477 | 62069 | 78405 | 63428 | 77310 | 38 | 10 | 11 | 11 |
| 9     | 9  | 8  | 57904 | 81531 | 59318 | 80507 | 60714 | 79459 | 62092 | 78387 | 63451 | 77292 | 37 | 10 | 10 | 11 |
| 10    | 9  | 9  | 57928 | 81513 | 59342 | 80489 | 60738 | 79441 | 62115 | 78369 | 63473 | 77273 | 36 | 10 | 10 | 11 |
| 10    | 10 | 9  | 57952 | 81496 | 59365 | 80472 | 60761 | 79424 | 62138 | 78351 | 63496 | 77255 | 35 | 9  | 10 | 11 |
| 10    | 10 | 10 | 57976 | 81479 | 59389 | 80455 | 60784 | 79406 | 62160 | 78333 | 63518 | 77236 | 34 | 9  | 10 | 10 |
| 11    | 10 | 10 | 57999 | 81462 | 59412 | 80438 | 60807 | 79388 | 62183 | 78315 | 63540 | 77218 | 33 | 9  | 9  | 10 |
| 11    | 11 | 10 | 58023 | 81445 | 59436 | 80420 | 60830 | 79371 | 62206 | 78297 | 63563 | 77199 | 32 | 9  | 9  | 10 |
| 12    | 11 | 11 | 58047 | 81428 | 59459 | 80403 | 60853 | 79353 | 62229 | 78279 | 63585 | 77181 | 31 | 8  | 9  | 9  |
| 12    | 12 | 11 | 58070 | 81412 | 59482 | 80386 | 60876 | 79335 | 62251 | 78261 | 63608 | 77162 | 30 | 8  | 9  | 9  |
| 12    | 12 | 11 | 58094 | 81395 | 59505 | 80368 | 60899 | 79318 | 62274 | 78243 | 63630 | 77144 | 29 | 8  | 8  | 9  |
| 13    | 12 | 12 | 58118 | 81378 | 59529 | 80351 | 60922 | 79300 | 62297 | 78225 | 63653 | 77125 | 28 | 7  | 8  | 9  |
| 13    | 13 | 12 | 58141 | 81361 | 59552 | 80334 | 60945 | 79282 | 62320 | 78206 | 63675 | 77107 | 27 | 7  | 8  | 8  |
| 14    | 13 | 12 | 58165 | 81344 | 59576 | 80316 | 60968 | 79264 | 62342 | 78188 | 63698 | 77088 | 26 | 7  | 7  | 8  |
| 14    | 13 | 13 | 58189 | 81327 | 59599 | 80299 | 60991 | 79247 | 62365 | 78170 | 63720 | 77070 | 25 | 7  | 7  | 8  |
| 14    | 14 | 13 | 58212 | 81310 | 59622 | 80282 | 61015 | 79229 | 62388 | 78152 | 63742 | 77051 | 24 | 6  | 7  | 7  |
| 15    | 14 | 14 | 58236 | 81293 | 59646 | 80264 | 61038 | 79211 | 62411 | 78134 | 63765 | 77033 | 23 | 6  | 7  | 7  |
| 15    | 15 | 14 | 58260 | 81276 | 59669 | 80247 | 61061 | 79193 | 62433 | 78116 | 63787 | 77014 | 22 | 6  | 6  | 7  |
| 16    | 15 | 14 | 58283 | 81259 | 59693 | 80230 | 61084 | 79176 | 62456 | 78098 | 63810 | 76996 | 21 | 6  | 6  | 6  |
| 16    | 15 | 15 | 58307 | 81242 | 59716 | 80212 | 61107 | 79158 | 62479 | 78079 | 63832 | 76977 | 20 | 5  | 6  | 6  |
| 16    | 16 | 15 | 58330 | 81225 | 59739 | 80195 | 61130 | 79140 | 62502 | 78061 | 63854 | 76959 | 19 | 5  | 5  | 6  |
| 17    | 16 | 15 | 58354 | 81208 | 59763 | 80178 | 61153 | 79122 | 62524 | 78043 | 63877 | 76940 | 18 | 5  | 5  | 5  |
| 17    | 16 | 16 | 58378 | 81191 | 59786 | 80160 | 61176 | 79105 | 62547 | 78025 | 63899 | 76921 | 17 | 5  | 5  | 5  |
| 18    | 17 | 16 | 58401 | 81174 | 59809 | 80143 | 61199 | 79087 | 62570 | 78007 | 63922 | 76903 | 16 | 4  | 5  | 5  |
| 18    | 17 | 17 | 58425 | 81157 | 59832 | 80125 | 61222 | 79069 | 62592 | 77988 | 63944 | 76884 | 15 | 4  | 4  | 5  |
| 18    | 18 | 17 | 58449 | 81140 | 59856 | 80108 | 61245 | 79051 | 62615 | 77970 | 63966 | 76866 | 14 | 4  | 4  | 4  |
| 19    | 18 | 17 | 58472 | 81123 | 59879 | 80091 | 61268 | 79033 | 62638 | 77952 | 63989 | 76847 | 13 | 3  | 4  | 4  |
| 19    | 18 | 18 | 58496 | 81106 | 59902 | 80073 | 61291 | 79016 | 62660 | 77934 | 64011 | 76828 | 12 | 3  | 3  | 4  |
| 20    | 19 | 18 | 58519 | 81089 | 59926 | 80056 | 61314 | 78998 | 62683 | 77916 | 64033 | 76810 | 11 | 3  | 3  | 3  |
| 20    | 19 | 18 | 58543 | 81072 | 59949 | 80038 | 61337 | 78980 | 62706 | 77897 | 64056 | 76791 | 10 | 3  | 3  | 3  |
| 20    | 20 | 19 | 58567 | 81055 | 59972 | 80021 | 61360 | 78962 | 62728 | 77879 | 64078 | 76772 | 9  | 2  | 3  | 3  |
| 21    | 20 | 19 | 58590 | 81038 | 59995 | 80003 | 61383 | 78944 | 62751 | 77861 | 64100 | 76754 | 8  | 2  | 2  | 3  |
| 21    | 20 | 19 | 58614 | 81021 | 60019 | 79986 | 61406 | 78926 | 62774 | 77843 | 64123 | 76735 | 7  | 2  | 2  | 2  |
| 22    | 21 | 20 | 58637 | 81004 | 60042 | 79968 | 61429 | 78908 | 62796 | 77824 | 64145 | 76717 | 6  | 2  | 2  | 2  |
| 22    | 21 | 20 | 58661 | 80987 | 60065 | 79951 | 61451 | 78891 | 62819 | 77806 | 64167 | 76698 | 5  | 1  | 1  | 2  |
| 22    | 21 | 21 | 58684 | 80970 | 60089 | 79934 | 61474 | 78873 | 62842 | 77788 | 64190 | 76679 | 4  | 1  | 1  | 1  |
| 23    | 22 | 21 | 58708 | 80953 | 60112 | 79916 | 61497 | 78855 | 62864 | 77769 | 64212 | 76661 | 3  | 1  | 1  | 1  |
| 23    | 22 | 21 | 58731 | 80936 | 60135 | 79899 | 61520 | 78837 | 62887 | 77751 | 64234 | 76642 | 2  | 1  | 1  | 1  |
| 24    | 23 | 22 | 58755 | 80919 | 60158 | 79881 | 61543 | 78819 | 62909 | 77733 | 64256 | 76623 | 1  | 0  | 0  | 0  |
| 24    | 23 | 22 | 58779 | 80902 | 60182 | 79864 | 61566 | 78801 | 62932 | 77715 | 64279 | 76604 | 0  | 0  | 0  | 0  |



NATURAL SINES AND COSINES.

| Diff. |    | 40°  |       | 41°   |       | 42°   |       | 43°   |       | 44°   |       | r     | Diff. |    |    |    |
|-------|----|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|----|----|
| 22    | 21 | sin. | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  | sin.  | cos.  |       |       |    |    |    |
| 0     | 0  | 0    | 64279 | 76604 | 65606 | 75471 | 66913 | 74314 | 68200 | 73135 | 69466 | 71934 | 60    | 19 | 20 | 21 |
| 0     | 0  | 0    | 64301 | 76586 | 65628 | 75452 | 66935 | 74295 | 68221 | 73116 | 69487 | 71914 | 59    | 19 | 20 | 21 |
| 1     | 1  | 1    | 64323 | 76567 | 65650 | 75433 | 66956 | 74276 | 68242 | 73096 | 69508 | 71894 | 58    | 18 | 19 | 20 |
| 1     | 1  | 1    | 64346 | 76548 | 65672 | 75414 | 66978 | 74256 | 68264 | 73076 | 69529 | 71873 | 57    | 18 | 19 | 20 |
| 1     | 1  | 1    | 64368 | 76530 | 65694 | 75395 | 66999 | 74237 | 68285 | 73056 | 69549 | 71853 | 56    | 18 | 19 | 20 |
| 2     | 2  | 2    | 64390 | 76511 | 65716 | 75375 | 67021 | 74217 | 68306 | 73036 | 69570 | 71833 | 55    | 17 | 18 | 19 |
| 2     | 2  | 2    | 64412 | 76492 | 65738 | 75356 | 67043 | 74198 | 68327 | 73016 | 69591 | 71813 | 54    | 17 | 18 | 19 |
| 3     | 2  | 2    | 64435 | 76473 | 65759 | 75337 | 67064 | 74178 | 68349 | 72996 | 69612 | 71792 | 53    | 17 | 18 | 19 |
| 3     | 3  | 3    | 64457 | 76455 | 65781 | 75318 | 67086 | 74159 | 68370 | 72976 | 69633 | 71772 | 52    | 16 | 17 | 18 |
| 3     | 3  | 3    | 64479 | 76436 | 65803 | 75299 | 67107 | 74139 | 68391 | 72957 | 69654 | 71752 | 51    | 16 | 17 | 18 |
| 4     | 4  | 4    | 64501 | 76417 | 65825 | 75280 | 67129 | 74120 | 68412 | 72937 | 69675 | 71732 | 50    | 16 | 17 | 18 |
| 4     | 4  | 4    | 64523 | 76398 | 65847 | 75261 | 67151 | 74100 | 68434 | 72917 | 69696 | 71711 | 49    | 16 | 17 | 18 |
| 4     | 4  | 4    | 64546 | 76380 | 65869 | 75241 | 67172 | 74080 | 68455 | 72897 | 69717 | 71691 | 48    | 15 | 16 | 17 |
| 5     | 5  | 4    | 64568 | 76361 | 65891 | 75222 | 67194 | 74061 | 68476 | 72877 | 69737 | 71671 | 47    | 15 | 16 | 17 |
| 5     | 5  | 5    | 64590 | 76342 | 65913 | 75203 | 67215 | 74041 | 68497 | 72857 | 69758 | 71651 | 46    | 15 | 16 | 17 |
| 6     | 5  | 5    | 64612 | 76323 | 65935 | 75184 | 67237 | 74022 | 68518 | 72837 | 69779 | 71630 | 45    | 14 | 15 | 16 |
| 6     | 6  | 5    | 64635 | 76304 | 65956 | 75165 | 67258 | 74002 | 68539 | 72817 | 69800 | 71610 | 44    | 14 | 15 | 16 |
| 6     | 6  | 6    | 64657 | 76286 | 65978 | 75146 | 67280 | 73983 | 68561 | 72797 | 69821 | 71590 | 43    | 14 | 15 | 16 |
| 7     | 6  | 6    | 64679 | 76267 | 66000 | 75126 | 67301 | 73963 | 68582 | 72777 | 69842 | 71569 | 42    | 13 | 14 | 15 |
| 7     | 7  | 6    | 64701 | 76248 | 66022 | 75107 | 67323 | 73944 | 68603 | 72757 | 69862 | 71549 | 41    | 13 | 14 | 15 |
| 7     | 7  | 7    | 64723 | 76229 | 66044 | 75088 | 67344 | 73924 | 68624 | 72737 | 69883 | 71529 | 40    | 13 | 13 | 14 |
| 8     | 7  | 7    | 64746 | 76210 | 66066 | 75069 | 67366 | 73904 | 68645 | 72717 | 69904 | 71508 | 39    | 12 | 13 | 14 |
| 8     | 8  | 7    | 64768 | 76191 | 66088 | 75050 | 67387 | 73885 | 68666 | 72697 | 69925 | 71488 | 38    | 12 | 13 | 14 |
| 8     | 8  | 8    | 64790 | 76173 | 66109 | 75030 | 67409 | 73865 | 68688 | 72677 | 69946 | 71468 | 37    | 12 | 12 | 13 |
| 9     | 8  | 8    | 64812 | 76154 | 66131 | 75011 | 67430 | 73846 | 68709 | 72657 | 69966 | 71447 | 36    | 11 | 12 | 13 |
| 9     | 9  | 8    | 64834 | 76135 | 66153 | 74992 | 67452 | 73826 | 68730 | 72637 | 69987 | 71427 | 35    | 11 | 12 | 12 |
| 10    | 9  | 9    | 64856 | 76116 | 66175 | 74973 | 67473 | 73806 | 68751 | 72617 | 70008 | 71407 | 34    | 11 | 11 | 12 |
| 10    | 9  | 9    | 64878 | 76097 | 66197 | 74953 | 67495 | 73787 | 68772 | 72597 | 70029 | 71386 | 33    | 10 | 11 | 12 |
| 10    | 10 | 9    | 64901 | 76078 | 66218 | 74934 | 67516 | 73767 | 68793 | 72577 | 70049 | 71366 | 32    | 10 | 11 | 11 |
| 11    | 10 | 10   | 64923 | 76059 | 66240 | 74915 | 67538 | 73747 | 68814 | 72557 | 70070 | 71345 | 31    | 10 | 10 | 11 |
| 11    | 11 | 10   | 64945 | 76041 | 66262 | 74896 | 67559 | 73728 | 68835 | 72537 | 70091 | 71325 | 30    | 10 | 10 | 11 |
| 11    | 11 | 10   | 64967 | 76022 | 66284 | 74876 | 67580 | 73708 | 68857 | 72517 | 70112 | 71305 | 29    | 9  | 10 | 10 |
| 12    | 11 | 11   | 64989 | 76003 | 66306 | 74857 | 67602 | 73688 | 68878 | 72497 | 70132 | 71284 | 28    | 9  | 9  | 10 |
| 12    | 12 | 11   | 65011 | 75984 | 66327 | 74838 | 67623 | 73669 | 68899 | 72477 | 70153 | 71264 | 27    | 9  | 9  | 9  |
| 12    | 12 | 11   | 65033 | 75965 | 66349 | 74818 | 67645 | 73649 | 68920 | 72457 | 70174 | 71243 | 26    | 8  | 9  | 9  |
| 13    | 12 | 12   | 65055 | 75946 | 66371 | 74799 | 67666 | 73629 | 68941 | 72437 | 70195 | 71223 | 25    | 8  | 8  | 9  |
| 13    | 13 | 12   | 65077 | 75927 | 66393 | 74780 | 67688 | 73610 | 68962 | 72417 | 70215 | 71203 | 24    | 8  | 8  | 8  |
| 14    | 13 | 12   | 65100 | 75908 | 66414 | 74760 | 67709 | 73590 | 68983 | 72397 | 70236 | 71182 | 23    | 7  | 8  | 8  |
| 14    | 13 | 13   | 65122 | 75889 | 66436 | 74741 | 67730 | 73570 | 69004 | 72377 | 70257 | 71162 | 22    | 7  | 7  | 8  |
| 14    | 14 | 13   | 65144 | 75870 | 66458 | 74722 | 67752 | 73551 | 69025 | 72357 | 70277 | 71141 | 21    | 7  | 7  | 7  |
| 15    | 14 | 13   | 65166 | 75851 | 66480 | 74703 | 67773 | 73531 | 69046 | 72337 | 70298 | 71121 | 20    | 6  | 7  | 7  |
| 15    | 14 | 14   | 65188 | 75832 | 66501 | 74683 | 67795 | 73511 | 69067 | 72317 | 70319 | 71100 | 19    | 6  | 6  | 7  |
| 15    | 15 | 14   | 65210 | 75813 | 66523 | 74664 | 67816 | 73491 | 69088 | 72297 | 70339 | 71080 | 18    | 6  | 6  | 6  |
| 16    | 15 | 14   | 65232 | 75794 | 66545 | 74644 | 67837 | 73472 | 69109 | 72277 | 70360 | 71059 | 17    | 5  | 6  | 6  |
| 16    | 15 | 15   | 65254 | 75775 | 66566 | 74625 | 67859 | 73452 | 69130 | 72257 | 70381 | 71039 | 16    | 5  | 5  | 6  |
| 17    | 16 | 15   | 65276 | 75756 | 66588 | 74606 | 67880 | 73432 | 69151 | 72236 | 70401 | 71019 | 15    | 5  | 5  | 5  |
| 17    | 16 | 15   | 65298 | 75737 | 66610 | 74586 | 67901 | 73413 | 69172 | 72216 | 70422 | 70998 | 14    | 4  | 5  | 5  |
| 17    | 16 | 16   | 65320 | 75719 | 66632 | 74567 | 67923 | 73393 | 69193 | 72196 | 70443 | 70978 | 13    | 4  | 4  | 5  |
| 18    | 17 | 16   | 65342 | 75700 | 66653 | 74548 | 67944 | 73373 | 69214 | 72176 | 70463 | 70957 | 12    | 4  | 4  | 4  |
| 18    | 17 | 16   | 65364 | 75680 | 66675 | 74528 | 67965 | 73353 | 69235 | 72156 | 70484 | 70937 | 11    | 3  | 4  | 4  |
| 18    | 18 | 17   | 65386 | 75661 | 66697 | 74509 | 67987 | 73333 | 69256 | 72136 | 70505 | 70916 | 10    | 3  | 3  | 4  |
| 19    | 18 | 17   | 65408 | 75642 | 66718 | 74489 | 68008 | 73314 | 69277 | 72116 | 70525 | 70896 | 9     | 3  | 3  | 3  |
| 19    | 18 | 17   | 65430 | 75623 | 66740 | 74470 | 68029 | 73294 | 69298 | 72095 | 70546 | 70875 | 8     | 3  | 3  | 3  |
| 19    | 19 | 18   | 65452 | 75604 | 66762 | 74451 | 68051 | 73274 | 69319 | 72075 | 70567 | 70855 | 7     | 2  | 2  | 2  |
| 20    | 19 | 18   | 65474 | 75585 | 66783 | 74431 | 68072 | 73254 | 69340 | 72055 | 70587 | 70834 | 6     | 2  | 2  | 2  |
| 20    | 19 | 18   | 65496 | 75566 | 66805 | 74412 | 68093 | 73234 | 69361 | 72035 | 70608 | 70813 | 5     | 2  | 2  | 2  |
| 21    | 20 | 19   | 65518 | 75547 | 66827 | 74392 | 68115 | 73215 | 69382 | 72015 | 70628 | 70793 | 4     | 1  | 1  | 1  |
| 21    | 20 | 19   | 65540 | 75528 | 66848 | 74373 | 68136 | 73195 | 69403 | 71995 | 70649 | 70772 | 3     | 1  | 1  | 1  |
| 21    | 20 | 19   | 65562 | 75509 | 66870 | 74353 | 68157 | 73175 | 69424 | 71974 | 70670 | 70752 | 2     | 1  | 1  | 1  |
| 22    | 21 | 20   | 65584 | 75490 | 66891 | 74334 | 68179 | 73155 | 69445 | 71954 | 70690 | 70731 | 1     | 0  | 0  | 0  |
| 22    | 21 | 20   | 65606 | 75471 | 66913 | 74314 | 68200 | 73135 | 69466 | 71934 | 70711 | 70711 | 0     | 0  | 0  | 0  |

49°

48°

47°

46°

45°

Diff.



| N.  | Log.  | Proportional Parts. |    |     |     |     |     |     |     |     | N.  | Log.  | Proportional Parts. |    |    |     |     |     |     |     |     |     |
|-----|-------|---------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-------|---------------------|----|----|-----|-----|-----|-----|-----|-----|-----|
|     |       | 1                   | 2  | 3   | 4   | 5   | 6   | 7   | 8   | 9   |     |       | 1                   | 2  | 3  | 4   | 5   | 6   | 7   | 8   | 9   |     |
| 100 | 00000 | 43                  | 87 | 130 | 173 | 217 | 260 | 303 | 346 | 389 | 160 | 204   | 12                  | 27 | 54 | 81  | 108 | 136 | 163 | 190 | 217 | 244 |
| 101 | 00432 | 43                  | 86 | 129 | 172 | 215 | 257 | 300 | 343 | 385 | 161 | 20683 | 27                  | 54 | 80 | 107 | 134 | 161 | 188 | 215 | 242 |     |
| 102 | 00864 | 43                  | 85 | 128 | 170 | 212 | 255 | 297 | 339 | 382 | 162 | 20952 | 26                  | 53 | 80 | 107 | 133 | 160 | 187 | 213 | 240 |     |
| 103 | 01284 | 42                  | 84 | 126 | 168 | 210 | 252 | 294 | 336 | 378 | 163 | 21219 | 26                  | 53 | 80 | 106 | 133 | 159 | 186 | 212 | 239 |     |
| 104 | 01703 | 42                  | 84 | 125 | 167 | 209 | 250 | 292 | 333 | 375 | 164 | 21484 | 27                  | 53 | 80 | 106 | 133 | 159 | 185 | 212 | 238 |     |
| 105 | 02119 | 41                  | 83 | 124 | 165 | 206 | 247 | 288 | 330 | 371 | 165 | 21748 | 27                  | 53 | 79 | 106 | 132 | 158 | 184 | 210 | 237 |     |
| 106 | 02531 | 41                  | 81 | 122 | 163 | 204 | 245 | 285 | 326 | 367 | 166 | 22011 | 26                  | 52 | 78 | 104 | 130 | 156 | 183 | 209 | 235 |     |
| 107 | 02938 | 41                  | 81 | 122 | 162 | 203 | 243 | 284 | 324 | 364 | 167 | 22272 | 26                  | 52 | 78 | 104 | 129 | 155 | 181 | 207 | 233 |     |
| 108 | 03342 | 41                  | 81 | 121 | 161 | 201 | 241 | 281 | 321 | 361 | 168 | 22531 | 26                  | 52 | 77 | 103 | 129 | 155 | 181 | 206 | 232 |     |
| 109 | 03743 | 39                  | 79 | 119 | 159 | 198 | 238 | 278 | 317 | 357 | 169 | 22789 | 25                  | 51 | 77 | 102 | 128 | 154 | 179 | 205 | 230 |     |
| 110 | 04139 | 40                  | 79 | 119 | 158 | 197 | 237 | 276 | 315 | 354 | 170 | 23045 | 25                  | 51 | 76 | 102 | 127 | 153 | 178 | 204 | 229 |     |
| 111 | 04532 | 39                  | 78 | 118 | 157 | 195 | 234 | 273 | 312 | 351 | 171 | 23300 | 25                  | 50 | 76 | 101 | 126 | 152 | 177 | 202 | 228 |     |
| 112 | 04922 | 39                  | 77 | 116 | 155 | 193 | 232 | 270 | 309 | 347 | 172 | 23553 | 25                  | 50 | 76 | 101 | 126 | 151 | 176 | 201 | 226 |     |
| 113 | 05308 | 38                  | 77 | 115 | 153 | 192 | 230 | 268 | 306 | 344 | 173 | 23805 | 25                  | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 |     |
| 114 | 05690 | 39                  | 77 | 115 | 153 | 191 | 228 | 266 | 304 | 342 | 174 | 24055 | 25                  | 50 | 75 | 100 | 125 | 149 | 174 | 199 | 224 |     |
| 115 | 06070 | 38                  | 75 | 113 | 151 | 188 | 226 | 263 | 301 | 338 | 175 | 24304 | 25                  | 49 | 74 | 99  | 124 | 148 | 173 | 198 | 223 |     |
| 116 | 06446 | 37                  | 75 | 112 | 149 | 187 | 224 | 261 | 298 | 335 | 176 | 24551 | 25                  | 49 | 74 | 99  | 123 | 147 | 173 | 197 | 222 |     |
| 117 | 06819 | 37                  | 74 | 111 | 148 | 185 | 222 | 259 | 296 | 332 | 177 | 24797 | 25                  | 49 | 73 | 98  | 123 | 147 | 172 | 196 | 221 |     |
| 118 | 07188 | 37                  | 74 | 110 | 147 | 184 | 220 | 257 | 294 | 330 | 178 | 25042 | 24                  | 49 | 73 | 97  | 122 | 146 | 170 | 195 | 219 |     |
| 119 | 07555 | 36                  | 73 | 109 | 145 | 182 | 218 | 254 | 291 | 327 | 179 | 25285 | 25                  | 49 | 73 | 97  | 121 | 146 | 170 | 194 | 218 |     |
| 120 | 07918 | 36                  | 72 | 109 | 145 | 181 | 217 | 253 | 289 | 325 | 180 | 25527 | 24                  | 48 | 73 | 97  | 121 | 145 | 169 | 193 | 217 |     |
| 121 | 08279 | 35                  | 71 | 107 | 143 | 179 | 214 | 250 | 286 | 321 | 181 | 25768 | 24                  | 48 | 72 | 96  | 120 | 144 | 167 | 191 | 215 |     |
| 122 | 08636 | 36                  | 71 | 107 | 142 | 178 | 213 | 248 | 284 | 319 | 182 | 26007 | 24                  | 48 | 72 | 95  | 119 | 143 | 167 | 191 | 214 |     |
| 123 | 08989 | 35                  | 70 | 105 | 141 | 176 | 211 | 246 | 281 | 316 | 183 | 26245 | 24                  | 48 | 71 | 95  | 119 | 142 | 166 | 190 | 213 |     |
| 124 | 09342 | 35                  | 70 | 105 | 140 | 175 | 210 | 245 | 279 | 314 | 184 | 26482 | 23                  | 47 | 71 | 94  | 118 | 141 | 165 | 188 | 212 |     |
| 125 | 09692 | 35                  | 69 | 104 | 139 | 173 | 208 | 243 | 277 | 312 | 185 | 26717 | 24                  | 47 | 71 | 94  | 117 | 141 | 164 | 188 | 211 |     |
| 126 | 10039 | 35                  | 69 | 103 | 138 | 172 | 206 | 241 | 275 | 309 | 186 | 26951 | 24                  | 47 | 70 | 94  | 117 | 140 | 163 | 187 | 210 |     |
| 127 | 10380 | 35                  | 69 | 103 | 137 | 171 | 205 | 239 | 273 | 307 | 187 | 27184 | 23                  | 47 | 70 | 93  | 116 | 139 | 162 | 186 | 209 |     |
| 128 | 10721 | 34                  | 68 | 102 | 136 | 169 | 203 | 237 | 271 | 304 | 188 | 27416 | 23                  | 46 | 69 | 92  | 115 | 138 | 161 | 184 | 207 |     |
| 129 | 11059 | 34                  | 67 | 101 | 134 | 168 | 202 | 235 | 268 | 302 | 189 | 27646 | 23                  | 46 | 69 | 92  | 115 | 138 | 161 | 184 | 206 |     |
| 130 | 11394 | 34                  | 67 | 100 | 134 | 167 | 200 | 234 | 267 | 300 | 190 | 27875 | 23                  | 46 | 69 | 92  | 114 | 137 | 160 | 183 | 206 |     |
| 131 | 11727 | 33                  | 66 | 99  | 133 | 166 | 199 | 232 | 265 | 297 | 191 | 28103 | 23                  | 46 | 68 | 91  | 114 | 137 | 159 | 182 | 204 |     |
| 132 | 12057 | 33                  | 66 | 99  | 132 | 165 | 197 | 230 | 263 | 295 | 192 | 28330 | 23                  | 45 | 68 | 91  | 113 | 136 | 158 | 181 | 203 |     |
| 133 | 12385 | 33                  | 65 | 98  | 131 | 163 | 196 | 228 | 261 | 293 | 193 | 28556 | 22                  | 45 | 67 | 90  | 112 | 135 | 157 | 179 | 202 |     |
| 134 | 12710 | 33                  | 65 | 98  | 130 | 162 | 195 | 227 | 259 | 291 | 194 | 28780 | 23                  | 45 | 67 | 90  | 112 | 134 | 157 | 179 | 201 |     |
| 135 | 13033 | 33                  | 65 | 97  | 129 | 161 | 193 | 225 | 257 | 289 | 195 | 29003 | 23                  | 45 | 67 | 89  | 112 | 134 | 156 | 178 | 200 |     |
| 136 | 13354 | 32                  | 64 | 96  | 127 | 159 | 191 | 223 | 255 | 286 | 196 | 29226 | 22                  | 44 | 66 | 88  | 110 | 132 | 154 | 177 | 199 |     |
| 137 | 13672 | 32                  | 63 | 95  | 126 | 158 | 190 | 221 | 253 | 284 | 197 | 29447 | 22                  | 44 | 66 | 88  | 110 | 132 | 154 | 176 | 198 |     |
| 138 | 13988 | 31                  | 63 | 94  | 126 | 157 | 188 | 220 | 251 | 282 | 198 | 29667 | 21                  | 43 | 65 | 87  | 109 | 131 | 153 | 175 | 196 |     |
| 139 | 14301 | 32                  | 63 | 94  | 125 | 156 | 188 | 219 | 250 | 281 | 199 | 29885 | 22                  | 44 | 66 | 88  | 109 | 131 | 153 | 175 | 196 |     |
| 140 | 14613 | 31                  | 62 | 93  | 124 | 155 | 186 | 216 | 247 | 278 | 200 | 30103 | 22                  | 43 | 65 | 87  | 108 | 130 | 152 | 173 | 195 |     |
| 141 | 14922 | 31                  | 61 | 92  | 123 | 154 | 184 | 215 | 246 | 276 | 201 | 30320 | 21                  | 43 | 64 | 86  | 108 | 129 | 151 | 172 | 194 |     |
| 142 | 15229 | 30                  | 61 | 91  | 122 | 152 | 183 | 213 | 244 | 274 | 202 | 30535 | 22                  | 43 | 65 | 86  | 108 | 129 | 150 | 172 | 193 |     |
| 143 | 15534 | 30                  | 60 | 91  | 121 | 151 | 181 | 212 | 242 | 272 | 203 | 30750 | 21                  | 42 | 64 | 85  | 106 | 128 | 149 | 170 | 192 |     |
| 144 | 15836 | 30                  | 61 | 91  | 121 | 151 | 181 | 211 | 241 | 271 | 204 | 30963 | 21                  | 42 | 64 | 85  | 106 | 128 | 149 | 170 | 191 |     |
| 145 | 16137 | 30                  | 60 | 90  | 119 | 149 | 179 | 209 | 239 | 269 | 205 | 31175 | 22                  | 43 | 64 | 85  | 106 | 127 | 148 | 170 | 191 |     |
| 146 | 16435 | 30                  | 60 | 89  | 119 | 149 | 178 | 208 | 238 | 267 | 206 | 31387 | 21                  | 42 | 63 | 84  | 105 | 126 | 147 | 168 | 189 |     |
| 147 | 16732 | 29                  | 59 | 88  | 118 | 147 | 177 | 206 | 235 | 265 | 207 | 31597 | 21                  | 42 | 63 | 84  | 105 | 126 | 147 | 168 | 188 |     |
| 148 | 17026 | 30                  | 59 | 88  | 117 | 147 | 176 | 205 | 234 | 263 | 208 | 31806 | 21                  | 42 | 63 | 84  | 105 | 125 | 146 | 167 | 188 |     |
| 149 | 17319 | 29                  | 58 | 87  | 116 | 145 | 174 | 203 | 232 | 261 | 209 | 32015 | 20                  | 41 | 62 | 83  | 103 | 124 | 145 | 166 | 186 |     |
| 150 | 17609 | 29                  | 58 | 87  | 116 | 145 | 173 | 202 | 231 | 260 | 210 | 32222 | 21                  | 41 | 62 | 83  | 103 | 124 | 144 | 165 | 186 |     |
| 151 | 17898 | 28                  | 57 | 86  | 115 | 143 | 172 | 201 | 229 | 258 | 211 | 32428 | 21                  | 41 | 62 | 82  | 103 | 124 | 144 | 165 | 185 |     |
| 152 | 18184 | 29                  | 57 | 86  | 114 | 143 | 171 | 200 | 228 | 257 | 212 | 32634 | 20                  | 41 | 61 | 81  | 102 | 122 | 143 | 163 | 184 |     |
| 153 | 18469 | 27                  | 57 | 85  | 114 | 142 | 170 | 198 | 227 | 255 | 213 | 32838 | 20                  | 41 | 61 | 81  | 102 | 122 | 142 | 163 | 183 |     |
| 154 | 18752 | 26                  | 56 | 85  | 113 | 141 | 169 | 197 | 225 | 253 | 214 | 33041 | 21                  | 41 | 61 | 81  | 102 | 122 | 142 | 162 | 183 |     |
| 155 | 19033 | 28                  | 56 | 84  | 112 | 140 | 168 | 196 | 224 | 252 | 215 | 33244 | 20                  | 40 | 60 | 81  | 101 | 121 | 141 | 161 | 181 |     |
| 156 | 19312 | 28                  | 56 | 84  | 112 | 139 | 167 | 195 | 223 | 250 | 216 | 33445 | 20                  | 41 | 61 | 81  | 101 | 121 | 141 | 161 | 181 |     |
| 157 | 19590 | 28                  | 55 | 83  | 110 | 138 | 166 | 193 | 221 | 248 | 217 | 33646 | 20                  | 40 | 60 | 80  | 100 | 120 | 140 | 160 | 180 |     |
| 158 | 19866 | 27                  | 55 | 82  | 110 | 137 | 164 | 192 | 219 | 246 | 218 | 33846 | 20                  | 39 | 59 | 79  | 99  | 119 | 139 | 159 | 179 |     |
| 159 | 20140 | 27                  | 54 | 82  | 109 | 136 | 163 | 190 | 218 | 245 | 219 | 34044 | 20                  | 40 | 60 | 80  | 99  | 119 | 139 | 159 | 179 |     |



| N.  | Log.  | Proportional Parts. |    |    |    |    |     |     |     |     | N.  | Log.  | Proportional Parts. |    |    |    |    |    |     |     |     |
|-----|-------|---------------------|----|----|----|----|-----|-----|-----|-----|-----|-------|---------------------|----|----|----|----|----|-----|-----|-----|
|     |       | 1                   | 2  | 3  | 4  | 5  | 6   | 7   | 8   | 9   |     |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7   | 8   | 9   |
| 220 | 34242 | 20                  | 40 | 59 | 79 | 99 | 119 | 138 | 158 | 178 | 280 | 44716 | 15                  | 31 | 46 | 62 | 77 | 93 | 108 | 124 | 139 |
| 221 | 34439 | 20                  | 40 | 59 | 79 | 98 | 118 | 138 | 157 | 177 | 281 | 44871 | 15                  | 31 | 46 | 61 | 77 | 92 | 108 | 123 | 139 |
| 222 | 34635 | 20                  | 39 | 59 | 78 | 98 | 118 | 137 | 157 | 176 | 282 | 45025 | 15                  | 31 | 46 | 61 | 77 | 92 | 108 | 123 | 138 |
| 223 | 34830 | 20                  | 39 | 59 | 78 | 98 | 117 | 137 | 156 | 175 | 283 | 45179 | 15                  | 30 | 46 | 61 | 76 | 92 | 107 | 122 | 138 |
| 224 | 35025 | 19                  | 39 | 58 | 77 | 97 | 116 | 135 | 155 | 174 | 284 | 45332 | 15                  | 30 | 46 | 61 | 76 | 91 | 107 | 122 | 137 |
| 225 | 35218 | 20                  | 39 | 58 | 77 | 97 | 116 | 135 | 154 | 174 | 285 | 45484 | 16                  | 31 | 46 | 61 | 77 | 92 | 107 | 122 | 137 |
| 226 | 35411 | 19                  | 38 | 57 | 77 | 96 | 115 | 134 | 153 | 172 | 286 | 45637 | 15                  | 30 | 45 | 60 | 75 | 91 | 106 | 121 | 136 |
| 227 | 35603 | 19                  | 38 | 57 | 76 | 95 | 114 | 133 | 152 | 171 | 287 | 45788 | 15                  | 30 | 46 | 61 | 76 | 91 | 106 | 121 | 136 |
| 228 | 35793 | 20                  | 39 | 58 | 77 | 96 | 115 | 134 | 153 | 172 | 288 | 45939 | 15                  | 30 | 45 | 61 | 76 | 91 | 106 | 121 | 136 |
| 229 | 35984 | 19                  | 37 | 56 | 75 | 94 | 113 | 132 | 151 | 170 | 289 | 46090 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 |
| 230 | 36173 | 19                  | 38 | 56 | 75 | 94 | 113 | 132 | 151 | 169 | 290 | 46240 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 119 | 134 |
| 231 | 36361 | 19                  | 38 | 57 | 75 | 94 | 113 | 132 | 150 | 169 | 291 | 46389 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 134 |
| 232 | 36549 | 19                  | 37 | 56 | 75 | 93 | 112 | 131 | 149 | 168 | 292 | 46538 | 15                  | 30 | 45 | 60 | 75 | 89 | 104 | 119 | 134 |
| 233 | 36736 | 18                  | 37 | 55 | 74 | 93 | 111 | 130 | 148 | 167 | 293 | 46687 | 15                  | 29 | 44 | 59 | 74 | 89 | 103 | 118 | 133 |
| 234 | 36922 | 18                  | 37 | 55 | 74 | 92 | 111 | 129 | 148 | 166 | 294 | 46835 | 15                  | 29 | 44 | 59 | 74 | 88 | 103 | 118 | 132 |
| 235 | 37107 | 18                  | 37 | 55 | 74 | 92 | 111 | 129 | 147 | 166 | 295 | 46982 | 15                  | 30 | 44 | 59 | 74 | 88 | 103 | 118 | 132 |
| 236 | 37291 | 19                  | 37 | 55 | 74 | 92 | 110 | 129 | 147 | 166 | 296 | 47129 | 15                  | 30 | 44 | 59 | 73 | 88 | 103 | 117 | 132 |
| 237 | 37475 | 18                  | 36 | 55 | 73 | 91 | 110 | 128 | 146 | 164 | 297 | 47276 | 14                  | 29 | 43 | 58 | 73 | 87 | 102 | 116 | 131 |
| 238 | 37658 | 18                  | 36 | 54 | 73 | 91 | 109 | 127 | 145 | 164 | 298 | 47422 | 14                  | 29 | 43 | 58 | 72 | 87 | 102 | 116 | 131 |
| 239 | 37840 | 18                  | 36 | 54 | 72 | 91 | 109 | 127 | 145 | 163 | 299 | 47567 | 15                  | 29 | 44 | 58 | 73 | 87 | 102 | 116 | 131 |
| 240 | 38021 | 18                  | 36 | 54 | 72 | 91 | 109 | 127 | 145 | 163 | 300 | 47711 | 15                  | 29 | 44 | 58 | 72 | 87 | 101 | 116 | 130 |
| 241 | 38202 | 18                  | 36 | 54 | 72 | 90 | 108 | 126 | 144 | 162 | 301 | 47857 | 14                  | 28 | 43 | 57 | 72 | 86 | 101 | 115 | 129 |
| 242 | 38382 | 17                  | 35 | 53 | 71 | 89 | 107 | 125 | 143 | 161 | 302 | 48001 | 14                  | 28 | 43 | 57 | 72 | 86 | 100 | 115 | 129 |
| 243 | 38561 | 17                  | 35 | 53 | 71 | 89 | 107 | 125 | 142 | 160 | 303 | 48144 | 15                  | 29 | 43 | 58 | 72 | 86 | 100 | 115 | 129 |
| 244 | 38739 | 18                  | 36 | 53 | 71 | 89 | 107 | 124 | 142 | 160 | 304 | 48287 | 15                  | 29 | 43 | 57 | 72 | 86 | 100 | 114 | 129 |
| 245 | 38917 | 17                  | 35 | 53 | 70 | 88 | 106 | 124 | 141 | 159 | 305 | 48430 | 14                  | 28 | 43 | 57 | 71 | 85 | 100 | 114 | 128 |
| 246 | 39094 | 17                  | 35 | 52 | 70 | 88 | 105 | 123 | 141 | 158 | 306 | 48572 | 14                  | 29 | 43 | 57 | 71 | 85 | 99  | 114 | 128 |
| 247 | 39270 | 17                  | 35 | 52 | 70 | 88 | 105 | 123 | 140 | 158 | 307 | 48714 | 14                  | 28 | 42 | 56 | 71 | 85 | 99  | 113 | 127 |
| 248 | 39445 | 16                  | 35 | 53 | 70 | 88 | 105 | 123 | 140 | 157 | 308 | 48855 | 14                  | 28 | 42 | 56 | 71 | 85 | 99  | 113 | 127 |
| 249 | 39620 | 17                  | 35 | 52 | 70 | 87 | 104 | 122 | 139 | 157 | 309 | 48996 | 14                  | 28 | 42 | 56 | 70 | 84 | 98  | 112 | 126 |
| 250 | 39794 | 17                  | 35 | 52 | 69 | 87 | 104 | 121 | 139 | 156 | 310 | 49136 | 14                  | 28 | 42 | 56 | 70 | 84 | 98  | 112 | 126 |
| 251 | 39977 | 18                  | 35 | 52 | 70 | 87 | 104 | 121 | 139 | 156 | 311 | 49276 | 14                  | 28 | 42 | 56 | 70 | 84 | 98  | 112 | 126 |
| 252 | 40140 | 17                  | 35 | 52 | 69 | 86 | 103 | 121 | 138 | 155 | 312 | 49415 | 14                  | 28 | 42 | 56 | 70 | 84 | 98  | 112 | 126 |
| 253 | 40312 | 17                  | 34 | 52 | 69 | 86 | 103 | 120 | 137 | 154 | 313 | 49554 | 14                  | 28 | 42 | 56 | 70 | 84 | 97  | 111 | 125 |
| 254 | 40483 | 17                  | 35 | 52 | 69 | 86 | 103 | 120 | 137 | 154 | 314 | 49693 | 14                  | 28 | 41 | 55 | 69 | 83 | 97  | 110 | 124 |
| 255 | 40654 | 17                  | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 153 | 315 | 49831 | 14                  | 28 | 41 | 55 | 69 | 83 | 96  | 110 | 124 |
| 256 | 40824 | 17                  | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 152 | 316 | 49969 | 13                  | 27 | 41 | 55 | 68 | 82 | 96  | 110 | 123 |
| 257 | 40993 | 17                  | 34 | 51 | 68 | 85 | 102 | 118 | 135 | 152 | 317 | 50106 | 14                  | 27 | 41 | 55 | 68 | 82 | 96  | 109 | 123 |
| 258 | 41162 | 17                  | 34 | 50 | 67 | 84 | 101 | 118 | 134 | 151 | 318 | 50243 | 13                  | 27 | 41 | 54 | 68 | 82 | 95  | 109 | 122 |
| 259 | 41330 | 17                  | 33 | 50 | 67 | 84 | 100 | 117 | 134 | 151 | 319 | 50379 | 14                  | 27 | 41 | 54 | 68 | 82 | 95  | 109 | 122 |
| 260 | 41497 | 17                  | 34 | 50 | 67 | 84 | 100 | 117 | 134 | 150 | 320 | 50515 | 14                  | 27 | 41 | 54 | 68 | 81 | 95  | 108 | 122 |
| 261 | 41664 | 17                  | 33 | 50 | 67 | 83 | 100 | 116 | 133 | 150 | 321 | 50651 | 13                  | 27 | 40 | 54 | 67 | 81 | 94  | 108 | 121 |
| 262 | 41830 | 17                  | 33 | 50 | 66 | 83 | 99  | 116 | 133 | 149 | 322 | 50786 | 13                  | 27 | 40 | 54 | 67 | 80 | 94  | 107 | 121 |
| 263 | 41996 | 16                  | 33 | 49 | 66 | 82 | 99  | 115 | 131 | 148 | 323 | 50920 | 14                  | 27 | 41 | 54 | 67 | 81 | 94  | 108 | 121 |
| 264 | 42160 | 17                  | 33 | 50 | 66 | 83 | 99  | 115 | 132 | 148 | 324 | 51055 | 13                  | 26 | 40 | 53 | 66 | 80 | 93  | 107 | 120 |
| 265 | 42325 | 16                  | 32 | 49 | 65 | 81 | 98  | 114 | 130 | 147 | 325 | 51188 | 14                  | 27 | 40 | 54 | 67 | 80 | 94  | 107 | 120 |
| 266 | 42488 | 16                  | 33 | 49 | 65 | 82 | 98  | 114 | 131 | 147 | 326 | 51322 | 13                  | 26 | 40 | 53 | 66 | 80 | 93  | 106 | 119 |
| 267 | 42651 | 16                  | 33 | 49 | 65 | 81 | 98  | 114 | 130 | 146 | 327 | 51455 | 13                  | 26 | 40 | 53 | 66 | 79 | 93  | 106 | 119 |
| 268 | 42813 | 16                  | 33 | 49 | 65 | 81 | 98  | 114 | 130 | 146 | 328 | 51587 | 14                  | 27 | 40 | 53 | 67 | 80 | 93  | 106 | 119 |
| 269 | 42975 | 17                  | 33 | 49 | 65 | 81 | 97  | 113 | 129 | 145 | 329 | 51720 | 13                  | 26 | 39 | 52 | 66 | 79 | 92  | 105 | 118 |
| 270 | 43136 | 16                  | 33 | 49 | 65 | 81 | 97  | 113 | 129 | 145 | 330 | 51851 | 14                  | 27 | 40 | 53 | 66 | 79 | 92  | 106 | 119 |
| 271 | 43297 | 16                  | 32 | 48 | 64 | 80 | 96  | 112 | 128 | 144 | 331 | 51983 | 13                  | 26 | 39 | 52 | 65 | 78 | 92  | 105 | 118 |
| 272 | 43457 | 16                  | 32 | 48 | 64 | 80 | 96  | 112 | 127 | 143 | 332 | 52114 | 13                  | 26 | 39 | 52 | 65 | 78 | 91  | 104 | 117 |
| 273 | 43616 | 16                  | 32 | 48 | 64 | 80 | 96  | 111 | 127 | 143 | 333 | 52244 | 13                  | 26 | 40 | 53 | 66 | 79 | 92  | 105 | 118 |
| 274 | 43775 | 16                  | 32 | 48 | 63 | 79 | 95  | 111 | 127 | 142 | 334 | 52375 | 13                  | 26 | 39 | 52 | 65 | 78 | 91  | 104 | 117 |
| 275 | 43933 | 16                  | 32 | 48 | 63 | 79 | 95  | 111 | 126 | 142 | 335 | 52504 | 13                  | 26 | 39 | 52 | 65 | 78 | 91  | 104 | 117 |
| 276 | 44091 | 16                  | 31 | 47 | 63 | 79 | 94  | 110 | 126 | 141 | 336 | 52634 | 13                  | 26 | 39 | 52 | 65 | 77 | 90  | 103 | 116 |
| 277 | 44248 | 16                  | 31 | 47 | 63 | 78 | 94  | 110 | 125 | 141 | 337 | 52763 | 13                  | 26 | 39 | 52 | 64 | 77 | 90  | 103 | 116 |
| 278 | 44404 | 16                  | 32 | 47 | 63 | 79 | 94  | 110 | 125 | 141 | 338 | 52892 | 13                  | 25 | 38 | 51 | 64 | 77 | 90  | 102 | 115 |
| 279 | 44560 | 16                  | 32 | 47 | 63 | 78 | 94  | 109 | 125 | 140 | 339 | 53020 | 13                  | 26 | 38 | 51 | 64 | 77 | 90  | 102 | 115 |

| N.  | Log.  | Proportional Parts. |    |    |    |    |    |    |     |     |
|-----|-------|---------------------|----|----|----|----|----|----|-----|-----|
|     |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9   |
| 340 | 53148 | 13                  | 25 | 38 | 51 | 64 | 76 | 89 | 102 | 115 |
| 341 | 53275 | 13                  | 26 | 39 | 51 | 64 | 77 | 89 | 102 | 115 |
| 342 | 53403 | 12                  | 25 | 38 | 50 | 63 | 76 | 88 | 101 | 114 |
| 343 | 53529 | 13                  | 26 | 38 | 51 | 64 | 76 | 89 | 102 | 114 |
| 344 | 53656 | 12                  | 25 | 38 | 50 | 63 | 76 | 88 | 101 | 113 |
| 345 | 53782 | 12                  | 25 | 38 | 50 | 63 | 75 | 88 | 100 | 113 |
| 346 | 53908 | 12                  | 25 | 37 | 50 | 62 | 75 | 87 | 100 | 112 |
| 347 | 54033 | 12                  | 25 | 37 | 50 | 62 | 75 | 87 | 100 | 112 |
| 348 | 54158 | 12                  | 25 | 37 | 50 | 62 | 75 | 87 | 100 | 112 |
| 349 | 54283 | 12                  | 24 | 37 | 49 | 62 | 74 | 87 | 99  | 111 |
| 350 | 54407 | 12                  | 25 | 37 | 49 | 62 | 74 | 87 | 99  | 111 |
| 351 | 54531 | 12                  | 24 | 37 | 49 | 62 | 74 | 86 | 99  | 111 |
| 352 | 54654 | 13                  | 25 | 37 | 50 | 62 | 74 | 87 | 99  | 111 |
| 353 | 54777 | 13                  | 25 | 37 | 50 | 62 | 74 | 87 | 99  | 111 |
| 354 | 54900 | 13                  | 25 | 37 | 49 | 62 | 74 | 86 | 98  | 111 |
| 355 | 55023 | 12                  | 24 | 37 | 49 | 61 | 73 | 85 | 98  | 110 |
| 356 | 55145 | 12                  | 24 | 37 | 49 | 61 | 73 | 85 | 97  | 110 |
| 357 | 55267 | 12                  | 24 | 36 | 48 | 61 | 73 | 85 | 97  | 109 |
| 358 | 55388 | 12                  | 25 | 37 | 49 | 61 | 73 | 85 | 97  | 109 |
| 359 | 55509 | 13                  | 25 | 37 | 49 | 61 | 73 | 85 | 97  | 109 |
| 360 | 55630 | 12                  | 24 | 36 | 48 | 61 | 73 | 85 | 97  | 109 |
| 361 | 55751 | 12                  | 24 | 36 | 48 | 60 | 72 | 84 | 96  | 108 |
| 362 | 55871 | 12                  | 24 | 36 | 48 | 60 | 72 | 84 | 96  | 108 |
| 363 | 55991 | 12                  | 24 | 36 | 47 | 59 | 71 | 83 | 95  | 107 |
| 364 | 56110 | 12                  | 24 | 36 | 48 | 60 | 72 | 84 | 95  | 107 |
| 365 | 56229 | 12                  | 24 | 36 | 48 | 60 | 72 | 83 | 95  | 107 |
| 366 | 56348 | 12                  | 24 | 36 | 48 | 59 | 71 | 83 | 95  | 107 |
| 367 | 56467 | 11                  | 23 | 35 | 47 | 59 | 71 | 82 | 94  | 106 |
| 368 | 56585 | 12                  | 23 | 35 | 47 | 59 | 71 | 82 | 94  | 106 |
| 369 | 56703 | 11                  | 23 | 35 | 47 | 58 | 70 | 82 | 94  | 105 |
| 370 | 56820 | 12                  | 24 | 35 | 47 | 59 | 71 | 82 | 94  | 106 |
| 371 | 56937 | 12                  | 24 | 35 | 47 | 59 | 71 | 82 | 94  | 106 |
| 372 | 57054 | 12                  | 24 | 35 | 47 | 59 | 71 | 82 | 94  | 105 |
| 373 | 57171 | 12                  | 23 | 35 | 46 | 58 | 70 | 81 | 93  | 105 |
| 374 | 57287 | 12                  | 23 | 35 | 47 | 58 | 70 | 81 | 93  | 105 |
| 375 | 57403 | 12                  | 23 | 35 | 46 | 58 | 70 | 81 | 93  | 104 |
| 376 | 57519 | 11                  | 23 | 34 | 46 | 57 | 69 | 81 | 92  | 104 |
| 377 | 57634 | 12                  | 23 | 35 | 46 | 58 | 69 | 81 | 92  | 104 |
| 378 | 57749 | 12                  | 23 | 35 | 46 | 58 | 69 | 81 | 92  | 103 |
| 379 | 57864 | 11                  | 23 | 34 | 46 | 57 | 69 | 80 | 91  | 103 |
| 380 | 57978 | 12                  | 23 | 35 | 46 | 57 | 69 | 80 | 92  | 103 |
| 381 | 58092 | 12                  | 23 | 35 | 46 | 57 | 69 | 80 | 92  | 103 |
| 382 | 58206 | 12                  | 23 | 34 | 46 | 57 | 68 | 80 | 91  | 103 |
| 383 | 58320 | 11                  | 23 | 34 | 45 | 57 | 68 | 79 | 90  | 102 |
| 384 | 58433 | 11                  | 23 | 34 | 45 | 57 | 68 | 79 | 91  | 102 |
| 385 | 58546 | 11                  | 23 | 34 | 45 | 56 | 68 | 79 | 90  | 101 |
| 386 | 58659 | 11                  | 22 | 33 | 45 | 56 | 67 | 78 | 90  | 101 |
| 387 | 58771 | 11                  | 23 | 34 | 45 | 56 | 67 | 79 | 90  | 101 |
| 388 | 58883 | 11                  | 23 | 34 | 45 | 56 | 67 | 78 | 90  | 101 |
| 389 | 58995 | 11                  | 22 | 33 | 45 | 56 | 67 | 78 | 89  | 100 |
| 390 | 59106 | 12                  | 23 | 34 | 45 | 56 | 67 | 78 | 89  | 101 |
| 391 | 59218 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88  | 100 |
| 392 | 59329 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88  | 99  |
| 393 | 59439 | 11                  | 22 | 33 | 44 | 55 | 67 | 78 | 89  | 100 |
| 394 | 59550 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88  | 99  |
| 395 | 59660 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88  | 99  |
| 396 | 59770 | 10                  | 21 | 32 | 43 | 54 | 65 | 76 | 87  | 98  |
| 397 | 59879 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88  | 98  |
| 398 | 59988 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88  | 98  |
| 399 | 60097 | 11                  | 22 | 33 | 44 | 55 | 66 | 76 | 87  | 98  |

| N.  | Log.  | Proportional Parts. |    |    |    |    |    |    |    |    |
|-----|-------|---------------------|----|----|----|----|----|----|----|----|
|     |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 400 | 60206 | 11                  | 22 | 33 | 43 | 54 | 65 | 76 | 87 | 98 |
| 401 | 60314 | 11                  | 22 | 33 | 44 | 55 | 65 | 76 | 87 | 98 |
| 402 | 60423 | 10                  | 21 | 32 | 43 | 54 | 64 | 75 | 86 | 97 |
| 403 | 60531 | 10                  | 21 | 32 | 43 | 53 | 64 | 75 | 86 | 96 |
| 404 | 60638 | 11                  | 22 | 32 | 43 | 54 | 65 | 75 | 86 | 97 |
| 405 | 60746 | 10                  | 21 | 32 | 42 | 53 | 64 | 75 | 85 | 96 |
| 406 | 60853 | 10                  | 21 | 32 | 42 | 53 | 64 | 74 | 85 | 96 |
| 407 | 60959 | 11                  | 22 | 32 | 43 | 54 | 64 | 75 | 86 | 96 |
| 408 | 61066 | 11                  | 21 | 32 | 43 | 53 | 64 | 74 | 85 | 96 |
| 409 | 61172 | 11                  | 22 | 32 | 43 | 53 | 64 | 75 | 85 | 96 |
| 410 | 61278 | 11                  | 22 | 32 | 43 | 53 | 64 | 74 | 85 | 96 |
| 411 | 61384 | 11                  | 21 | 32 | 42 | 53 | 64 | 74 | 85 | 95 |
| 412 | 61490 | 10                  | 21 | 31 | 42 | 52 | 63 | 73 | 84 | 94 |
| 413 | 61595 | 11                  | 21 | 32 | 42 | 53 | 63 | 74 | 84 | 95 |
| 414 | 61700 | 11                  | 21 | 31 | 42 | 52 | 63 | 73 | 84 | 94 |
| 415 | 61805 | 10                  | 21 | 31 | 42 | 52 | 63 | 73 | 83 | 94 |
| 416 | 61909 | 11                  | 21 | 32 | 42 | 53 | 63 | 73 | 84 | 94 |
| 417 | 62014 | 10                  | 20 | 31 | 41 | 52 | 62 | 72 | 83 | 93 |
| 418 | 62118 | 10                  | 20 | 31 | 41 | 52 | 62 | 72 | 83 | 93 |
| 419 | 62221 | 11                  | 21 | 31 | 42 | 52 | 63 | 73 | 83 | 94 |
| 420 | 62325 | 10                  | 21 | 31 | 41 | 52 | 62 | 72 | 83 | 93 |
| 421 | 62428 | 11                  | 21 | 31 | 41 | 52 | 62 | 72 | 83 | 93 |
| 422 | 62531 | 11                  | 21 | 31 | 41 | 52 | 62 | 72 | 82 | 93 |
| 423 | 62634 | 10                  | 21 | 31 | 41 | 51 | 62 | 72 | 82 | 92 |
| 424 | 62737 | 10                  | 20 | 30 | 41 | 51 | 61 | 71 | 81 | 92 |
| 425 | 62839 | 10                  | 20 | 31 | 41 | 51 | 61 | 71 | 82 | 92 |
| 426 | 62941 | 10                  | 20 | 31 | 41 | 51 | 61 | 71 | 81 | 92 |
| 427 | 63043 | 10                  | 20 | 30 | 40 | 51 | 61 | 71 | 81 | 91 |
| 428 | 63144 | 11                  | 21 | 31 | 41 | 51 | 61 | 71 | 81 | 92 |
| 429 | 63246 | 10                  | 20 | 30 | 40 | 50 | 60 | 71 | 81 | 91 |
| 430 | 63347 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 81 | 91 |
| 431 | 63448 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| 432 | 63548 | 10                  | 20 | 31 | 41 | 51 | 61 | 71 | 81 | 91 |
| 433 | 63649 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| 434 | 63749 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| 435 | 63849 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| 436 | 63949 | 10                  | 20 | 30 | 39 | 49 | 59 | 69 | 79 | 89 |
| 437 | 64048 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 89 |
| 438 | 64147 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| 439 | 64246 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 89 |
| 440 | 64345 | 10                  | 20 | 30 | 40 | 50 | 59 | 69 | 79 | 89 |
| 441 | 64444 | 10                  | 20 | 29 | 39 | 49 | 59 | 69 | 79 | 88 |
| 442 | 64542 | 10                  | 20 | 30 | 40 | 49 | 59 | 69 | 79 | 89 |
| 443 | 64640 | 10                  | 20 | 30 | 40 | 49 | 59 | 69 | 79 | 89 |
| 444 | 64738 | 10                  | 20 | 30 | 39 | 49 | 59 | 69 | 78 | 88 |
| 445 | 64836 | 10                  | 20 | 29 | 39 | 49 | 59 | 68 | 78 | 88 |
| 446 | 64933 | 10                  | 20 | 30 | 39 | 49 | 59 | 69 | 78 | 88 |
| 447 | 65031 | 9                   | 19 | 29 | 39 | 48 | 58 | 68 | 77 | 87 |
| 448 | 65128 | 9                   | 19 | 29 | 39 | 48 | 58 | 68 | 77 | 87 |
| 449 | 65225 | 9                   | 19 | 29 | 38 | 48 | 58 | 68 | 77 | 87 |
| 450 | 65321 | 10                  | 20 | 29 | 39 | 48 | 58 | 68 | 77 | 87 |
| 451 | 65418 | 9                   | 19 | 29 | 38 | 48 | 57 | 67 | 77 | 86 |
| 452 | 65514 | 9                   | 19 | 29 | 38 | 48 | 57 | 67 | 77 | 86 |
| 453 | 65610 | 9                   | 19 | 29 | 38 | 48 | 57 | 67 | 76 | 86 |
| 454 | 65706 | 9                   | 19 | 28 | 38 | 47 | 57 | 66 | 76 | 86 |
| 455 | 65801 | 10                  | 19 | 29 | 38 | 48 | 57 | 67 | 76 | 86 |
| 456 | 65896 | 10                  | 20 | 29 | 39 | 48 | 57 | 67 | 77 | 86 |
| 457 | 65992 | 9                   | 19 | 28 | 38 | 47 | 57 | 66 | 76 | 85 |
| 458 | 66087 | 9                   | 19 | 28 | 37 | 47 | 56 | 66 | 75 | 85 |
| 459 | 66181 | 10                  | 19 | 29 | 38 | 48 | 57 | 66 | 76 | 85 |

N. Log.

Proportional Parts.

N. Log.

Proportional Parts.





| N.  | Log.  | D. | N.  | Log.  | D. | N.  | Log.  | D. |
|-----|-------|----|-----|-------|----|-----|-------|----|
| 820 | 91381 | 53 | 880 | 94448 | 50 | 940 | 97313 | 46 |
| 821 | 91434 | 53 | 881 | 94498 | 49 | 941 | 97359 | 46 |
| 822 | 91487 | 53 | 882 | 94547 | 49 | 942 | 97405 | 46 |
| 823 | 91540 | 53 | 883 | 94596 | 49 | 943 | 97451 | 46 |
| 824 | 91593 | 52 | 884 | 94645 | 49 | 944 | 97497 | 46 |
| 825 | 91645 | 53 | 885 | 94694 | 49 | 945 | 97543 | 46 |
| 826 | 91698 | 53 | 886 | 94743 | 49 | 946 | 97589 | 46 |
| 827 | 91751 | 52 | 887 | 94792 | 49 | 947 | 97635 | 46 |
| 828 | 91803 | 52 | 888 | 94841 | 49 | 948 | 97681 | 46 |
| 829 | 91855 | 53 | 889 | 94890 | 49 | 949 | 97727 | 45 |
| 830 | 91908 | 52 | 890 | 94939 | 49 | 950 | 97772 | 46 |
| 831 | 91960 | 52 | 891 | 94988 | 48 | 951 | 97818 | 46 |
| 832 | 92012 | 53 | 892 | 95036 | 49 | 952 | 97864 | 45 |
| 833 | 92065 | 52 | 893 | 95085 | 49 | 953 | 97909 | 46 |
| 834 | 92117 | 52 | 894 | 95134 | 48 | 954 | 97955 | 45 |
| 835 | 92169 | 52 | 895 | 95182 | 49 | 955 | 98000 | 46 |
| 836 | 92221 | 52 | 896 | 95231 | 48 | 956 | 98046 | 45 |
| 837 | 92273 | 51 | 897 | 95279 | 49 | 957 | 98091 | 46 |
| 838 | 92324 | 52 | 898 | 95328 | 48 | 958 | 98137 | 45 |
| 839 | 92376 | 52 | 899 | 95376 | 48 | 959 | 98182 | 45 |
| 840 | 92428 | 52 | 900 | 95424 | 48 | 960 | 98227 | 45 |
| 841 | 92480 | 51 | 901 | 95472 | 49 | 961 | 98272 | 46 |
| 842 | 92531 | 52 | 902 | 95521 | 48 | 962 | 98318 | 45 |
| 843 | 92583 | 51 | 903 | 95569 | 48 | 963 | 98363 | 45 |
| 844 | 92634 | 52 | 904 | 95617 | 48 | 964 | 98408 | 45 |
| 845 | 92686 | 51 | 905 | 95665 | 48 | 965 | 98453 | 45 |
| 846 | 92737 | 51 | 906 | 95713 | 48 | 966 | 98498 | 45 |
| 847 | 92788 | 52 | 907 | 95761 | 48 | 967 | 98543 | 45 |
| 848 | 92840 | 51 | 908 | 95809 | 47 | 968 | 98588 | 44 |
| 849 | 92891 | 51 | 909 | 95856 | 48 | 969 | 98632 | 45 |
| 850 | 92942 | 51 | 910 | 95904 | 48 | 970 | 98677 | 45 |
| 851 | 92993 | 51 | 911 | 95952 | 47 | 971 | 98722 | 45 |
| 852 | 93044 | 51 | 912 | 95999 | 48 | 972 | 98767 | 44 |
| 853 | 93095 | 51 | 913 | 96047 | 48 | 973 | 98811 | 45 |
| 854 | 93146 | 51 | 914 | 96095 | 47 | 974 | 98856 | 44 |
| 855 | 93197 | 50 | 915 | 96142 | 48 | 975 | 98900 | 45 |
| 856 | 93247 | 51 | 916 | 96190 | 47 | 976 | 98945 | 44 |
| 857 | 93298 | 51 | 917 | 96237 | 47 | 977 | 98989 | 45 |
| 858 | 93349 | 50 | 918 | 96284 | 48 | 978 | 99034 | 44 |
| 859 | 93399 | 51 | 919 | 96332 | 47 | 979 | 99078 | 45 |
| 860 | 93450 | 50 | 920 | 96379 | 47 | 980 | 99123 | 44 |
| 861 | 93500 | 51 | 921 | 96426 | 47 | 981 | 99167 | 44 |
| 862 | 93551 | 50 | 922 | 96473 | 47 | 982 | 99211 | 44 |
| 863 | 93601 | 50 | 923 | 96520 | 47 | 983 | 99255 | 45 |
| 864 | 93651 | 51 | 924 | 96567 | 47 | 984 | 99300 | 44 |
| 865 | 93702 | 50 | 925 | 96614 | 47 | 985 | 99344 | 44 |
| 866 | 93752 | 50 | 926 | 96661 | 47 | 986 | 99388 | 44 |
| 867 | 93802 | 50 | 927 | 96708 | 47 | 987 | 99432 | 44 |
| 868 | 93852 | 50 | 928 | 96755 | 47 | 988 | 99476 | 44 |
| 869 | 93902 | 50 | 929 | 96802 | 46 | 989 | 99520 | 44 |
| 870 | 93952 | 50 | 930 | 96848 | 47 | 990 | 99564 | 43 |
| 871 | 94002 | 50 | 931 | 96895 | 47 | 991 | 99607 | 44 |
| 872 | 94052 | 49 | 932 | 96942 | 46 | 992 | 99651 | 44 |
| 873 | 94101 | 50 | 933 | 96988 | 47 | 993 | 99695 | 44 |
| 874 | 94151 | 50 | 934 | 97035 | 46 | 994 | 99739 | 43 |
| 875 | 94201 | 49 | 935 | 97081 | 47 | 995 | 99782 | 44 |
| 876 | 94250 | 50 | 936 | 97128 | 46 | 996 | 99826 | 44 |
| 877 | 94300 | 49 | 937 | 97174 | 46 | 997 | 99870 | 43 |
| 878 | 94349 | 50 | 938 | 97220 | 47 | 998 | 99913 | 44 |
| 879 | 94399 | 49 | 939 | 97267 | 46 | 999 | 99957 | 43 |
| N.  | Log.  | D. | N.  | Log.  | D. | N.  | Log.  | D. |

| Diff. and Proportional Parts. |   |    |    |    |    |    |    |    |    |
|-------------------------------|---|----|----|----|----|----|----|----|----|
| D.                            | 1 |    |    | 2  |    |    | 3  |    |    |
|                               | 4 | 5  | 6  | 7  | 8  | 9  | 4  | 5  | 6  |
| 94                            | 9 | 19 | 28 | 38 | 47 | 56 | 66 | 75 | 85 |
| 93                            | 9 | 19 | 28 | 37 | 46 | 56 | 65 | 74 | 84 |
| 92                            | 9 | 18 | 28 | 37 | 46 | 55 | 64 | 74 | 83 |
| 91                            | 9 | 18 | 27 | 36 | 46 | 55 | 64 | 73 | 82 |
| 90                            | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |
| 89                            | 9 | 18 | 27 | 36 | 45 | 53 | 62 | 71 | 80 |
| 88                            | 9 | 18 | 26 | 35 | 44 | 53 | 62 | 70 | 79 |
| 87                            | 9 | 17 | 26 | 35 | 44 | 52 | 61 | 70 | 78 |
| 86                            | 9 | 17 | 26 | 34 | 43 | 52 | 60 | 69 | 77 |
| 85                            | 9 | 17 | 26 | 34 | 43 | 51 | 60 | 68 | 77 |
| 84                            | 8 | 17 | 25 | 34 | 42 | 50 | 59 | 67 | 76 |
| 83                            | 8 | 17 | 25 | 33 | 42 | 50 | 58 | 66 | 75 |
| 82                            | 8 | 16 | 25 | 33 | 41 | 49 | 57 | 66 | 74 |
| 81                            | 8 | 16 | 24 | 32 | 41 | 49 | 57 | 65 | 73 |
| 80                            | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| 79                            | 8 | 16 | 24 | 32 | 40 | 47 | 55 | 63 | 71 |
| 78                            | 8 | 16 | 23 | 31 | 39 | 47 | 55 | 62 | 70 |
| 77                            | 8 | 15 | 23 | 31 | 39 | 46 | 54 | 62 | 69 |
| 76                            | 8 | 15 | 23 | 30 | 38 | 46 | 53 | 61 | 68 |
| 75                            | 8 | 15 | 23 | 30 | 38 | 45 | 53 | 60 | 68 |
| 74                            | 7 | 15 | 22 | 30 | 37 | 44 | 52 | 59 | 67 |
| 73                            | 7 | 15 | 22 | 29 | 37 | 44 | 51 | 58 | 66 |
| 72                            | 7 | 14 | 22 | 29 | 36 | 43 | 50 | 58 | 65 |
| 71                            | 7 | 14 | 21 | 28 | 36 | 43 | 50 | 57 | 64 |
| 70                            | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 |
| 69                            | 7 | 14 | 21 | 28 | 35 | 41 | 48 | 55 | 62 |
| 68                            | 7 | 14 | 20 | 27 | 34 | 41 | 48 | 54 | 61 |
| 67                            | 7 | 13 | 20 | 27 | 34 | 40 | 47 | 54 | 60 |
| 66                            | 7 | 13 | 20 | 26 | 33 | 40 | 46 | 53 | 59 |
| 65                            | 7 | 13 | 20 | 26 | 33 | 39 | 46 | 52 | 59 |
| 64                            | 6 | 13 | 19 | 26 | 32 | 38 | 45 | 51 | 58 |
| 63                            | 6 | 13 | 19 | 25 | 32 | 38 | 44 | 50 | 57 |
| 62                            | 6 | 12 | 19 | 25 | 31 | 37 | 43 | 50 | 56 |
| 61                            | 6 | 12 | 18 | 24 | 31 | 37 | 43 | 49 | 55 |
| 60                            | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 |
| 59                            | 6 | 12 | 18 | 24 | 30 | 35 | 41 | 47 | 53 |
| 58                            | 6 | 12 | 17 | 23 | 29 | 35 | 41 | 46 | 52 |
| 57                            | 6 | 11 | 17 | 23 | 29 | 34 | 40 | 46 | 51 |
| 56                            | 6 | 11 | 17 | 22 | 28 | 34 | 39 | 45 | 50 |
| 55                            | 6 | 11 | 17 | 22 | 28 | 33 | 39 | 44 | 50 |
| 54                            | 5 | 11 | 16 | 22 | 27 | 32 | 38 | 43 | 49 |
| 53                            | 5 | 11 | 16 | 21 | 27 | 32 | 37 | 42 | 48 |
| 52                            | 5 | 10 | 16 | 21 | 26 | 31 | 36 | 42 | 47 |
| 51                            | 5 | 10 | 15 | 20 | 26 | 31 | 36 | 41 | 46 |
| 50                            | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
| 49                            | 5 | 10 | 15 | 20 | 25 | 29 | 34 | 39 | 44 |
| 48                            | 5 | 10 | 14 | 19 | 24 | 29 | 34 | 38 | 43 |
| 47                            | 5 | 9  | 14 | 19 | 24 | 28 | 33 | 38 | 42 |
| 46                            | 5 | 9  | 14 | 18 | 23 | 28 | 32 | 37 | 41 |
| 45                            | 5 | 9  | 14 | 18 | 23 | 27 | 32 | 36 | 41 |
| 44                            | 4 | 9  | 13 | 18 | 22 | 26 | 31 | 35 | 40 |
| 43                            | 4 | 9  | 13 | 17 | 22 | 26 | 30 | 34 | 39 |
| D.                            | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |

Diff. and Proportional Parts.





| L.   | Num D. | L. | Num D. | L.    | Num D. |
|------|--------|----|--------|-------|--------|
| .340 | 21878  | 50 | .400   | 25119 | 58     |
| .341 | 21928  | 51 | .401   | 25177 | 58     |
| .342 | 21979  | 50 | .402   | 25235 | 58     |
| .343 | 22029  | 51 | .403   | 25293 | 58     |
| .344 | 22080  | 51 | .404   | 25351 | 59     |
| .345 | 22131  | 51 | .405   | 25410 | 58     |
| .346 | 22182  | 51 | .406   | 25468 | 59     |
| .347 | 22233  | 51 | .407   | 25527 | 59     |
| .348 | 22284  | 52 | .408   | 25586 | 59     |
| .349 | 22336  | 51 | .409   | 25645 | 59     |
| .350 | 22387  | 52 | .410   | 25704 | 59     |
| .351 | 22439  | 52 | .411   | 25763 | 60     |
| .352 | 22491  | 51 | .412   | 25823 | 59     |
| .353 | 22542  | 52 | .413   | 25882 | 60     |
| .354 | 22594  | 52 | .414   | 25942 | 60     |
| .355 | 22646  | 53 | .415   | 26002 | 60     |
| .356 | 22699  | 52 | .416   | 26062 | 60     |
| .357 | 22751  | 52 | .417   | 26122 | 60     |
| .358 | 22803  | 53 | .418   | 26182 | 60     |
| .359 | 22856  | 53 | .419   | 26242 | 61     |
| .360 | 22909  | 52 | .420   | 26303 | 60     |
| .361 | 22961  | 53 | .421   | 26363 | 61     |
| .362 | 23014  | 53 | .422   | 26424 | 61     |
| .363 | 23067  | 54 | .423   | 26485 | 61     |
| .364 | 23121  | 53 | .424   | 26546 | 61     |
| .365 | 23174  | 53 | .425   | 26607 | 62     |
| .366 | 23227  | 54 | .426   | 26669 | 61     |
| .367 | 23281  | 54 | .427   | 26730 | 62     |
| .368 | 23335  | 53 | .428   | 26792 | 61     |
| .369 | 23388  | 54 | .429   | 26853 | 62     |
| .370 | 23442  | 54 | .430   | 26915 | 62     |
| .371 | 23496  | 54 | .431   | 26977 | 63     |
| .372 | 23550  | 55 | .432   | 27040 | 62     |
| .373 | 23605  | 54 | .433   | 27102 | 62     |
| .374 | 23659  | 55 | .434   | 27164 | 63     |
| .375 | 23714  | 54 | .435   | 27227 | 63     |
| .376 | 23768  | 55 | .436   | 27290 | 63     |
| .377 | 23823  | 55 | .437   | 27353 | 63     |
| .378 | 23878  | 55 | .438   | 27416 | 63     |
| .379 | 23933  | 55 | .439   | 27479 | 63     |
| .380 | 23988  | 56 | .440   | 27542 | 64     |
| .381 | 24044  | 55 | .441   | 27606 | 63     |
| .382 | 24099  | 56 | .442   | 27669 | 64     |
| .383 | 24155  | 55 | .443   | 27733 | 64     |
| .384 | 24210  | 56 | .444   | 27797 | 64     |
| .385 | 24266  | 56 | .445   | 27861 | 64     |
| .386 | 24322  | 56 | .446   | 27925 | 65     |
| .387 | 24378  | 56 | .447   | 27990 | 64     |
| .388 | 24434  | 57 | .448   | 28054 | 65     |
| .389 | 24491  | 56 | .449   | 28119 | 65     |
| .390 | 24547  | 57 | .450   | 28184 | 65     |
| .391 | 24604  | 56 | .451   | 28249 | 65     |
| .392 | 24660  | 57 | .452   | 28314 | 65     |
| .393 | 24717  | 57 | .453   | 28379 | 66     |
| .394 | 24774  | 57 | .454   | 28445 | 65     |
| .395 | 24831  | 58 | .455   | 28510 | 66     |
| .396 | 24889  | 57 | .456   | 28576 | 66     |
| .397 | 24946  | 57 | .457   | 28642 | 66     |
| .398 | 25003  | 58 | .458   | 28708 | 66     |
| .399 | 25061  | 58 | .459   | 28774 | 66     |
| L.   | Num D. | L. | Num D. | L.    | Num D. |

| Diff. and Proportional Parts. |   |    |    |    |    |    |    |    |    |
|-------------------------------|---|----|----|----|----|----|----|----|----|
| D.                            | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 23                            | 2 | 5  | 7  | 9  | 11 | 14 | 16 | 18 | 21 |
| 24                            | 2 | 5  | 7  | 10 | 12 | 14 | 17 | 19 | 22 |
| 25                            | 2 | 5  | 7  | 10 | 12 | 15 | 17 | 20 | 22 |
| 26                            | 3 | 5  | 8  | 10 | 13 | 16 | 18 | 21 | 23 |
| 27                            | 3 | 5  | 8  | 11 | 13 | 16 | 19 | 22 | 24 |
| 28                            | 3 | 6  | 8  | 11 | 14 | 17 | 20 | 22 | 25 |
| 29                            | 3 | 6  | 9  | 12 | 14 | 17 | 20 | 23 | 26 |
| 30                            | 3 | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27 |
| 31                            | 3 | 6  | 9  | 12 | 15 | 19 | 22 | 25 | 28 |
| 32                            | 3 | 6  | 10 | 13 | 16 | 19 | 22 | 26 | 29 |
| 33                            | 3 | 7  | 10 | 13 | 16 | 20 | 23 | 26 | 30 |
| 34                            | 3 | 7  | 10 | 14 | 17 | 20 | 24 | 27 | 31 |
| 35                            | 3 | 7  | 10 | 14 | 17 | 21 | 24 | 28 | 31 |
| 36                            | 4 | 7  | 11 | 14 | 18 | 22 | 25 | 29 | 32 |
| 37                            | 4 | 7  | 11 | 15 | 18 | 22 | 26 | 30 | 33 |
| 38                            | 4 | 8  | 11 | 15 | 19 | 23 | 27 | 30 | 34 |
| 39                            | 4 | 8  | 12 | 16 | 19 | 23 | 27 | 31 | 35 |
| 40                            | 4 | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36 |
| 41                            | 4 | 8  | 12 | 16 | 20 | 25 | 29 | 33 | 37 |
| 42                            | 4 | 8  | 13 | 17 | 21 | 25 | 29 | 34 | 38 |
| 43                            | 4 | 9  | 13 | 17 | 21 | 26 | 30 | 34 | 39 |
| 44                            | 4 | 9  | 13 | 18 | 22 | 26 | 31 | 35 | 40 |
| 45                            | 4 | 9  | 13 | 18 | 22 | 27 | 31 | 36 | 40 |
| 46                            | 5 | 9  | 14 | 18 | 23 | 28 | 32 | 37 | 41 |
| 47                            | 5 | 9  | 14 | 19 | 23 | 28 | 33 | 38 | 42 |
| 48                            | 5 | 10 | 14 | 19 | 24 | 29 | 34 | 38 | 43 |
| 49                            | 5 | 10 | 15 | 20 | 24 | 29 | 34 | 39 | 44 |
| 50                            | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
| 51                            | 5 | 10 | 15 | 20 | 25 | 31 | 36 | 41 | 46 |
| 52                            | 5 | 10 | 16 | 21 | 26 | 31 | 36 | 42 | 47 |
| 53                            | 5 | 11 | 16 | 21 | 26 | 32 | 37 | 42 | 48 |
| 54                            | 5 | 11 | 16 | 22 | 27 | 32 | 38 | 43 | 49 |
| 55                            | 5 | 11 | 16 | 22 | 27 | 33 | 38 | 44 | 49 |
| 56                            | 6 | 11 | 17 | 22 | 28 | 34 | 39 | 45 | 50 |
| 57                            | 6 | 11 | 17 | 23 | 28 | 34 | 40 | 46 | 51 |
| 58                            | 6 | 12 | 17 | 23 | 29 | 35 | 41 | 46 | 52 |
| 59                            | 6 | 12 | 18 | 24 | 29 | 35 | 41 | 47 | 53 |
| 60                            | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 |
| 61                            | 6 | 12 | 18 | 24 | 30 | 37 | 43 | 49 | 55 |
| 62                            | 6 | 12 | 19 | 25 | 31 | 37 | 43 | 50 | 56 |
| 63                            | 6 | 13 | 19 | 25 | 31 | 38 | 44 | 50 | 57 |
| 64                            | 6 | 13 | 19 | 26 | 32 | 38 | 45 | 51 | 58 |
| 65                            | 6 | 13 | 19 | 26 | 32 | 39 | 45 | 52 | 58 |
| 66                            | 7 | 13 | 20 | 26 | 33 | 40 | 46 | 53 | 59 |
| 67                            | 7 | 13 | 20 | 27 | 33 | 40 | 47 | 54 | 60 |
| 68                            | 7 | 14 | 20 | 27 | 34 | 41 | 48 | 54 | 61 |
| 69                            | 7 | 14 | 21 | 28 | 34 | 41 | 48 | 55 | 62 |
| 70                            | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 |
| 71                            | 7 | 14 | 21 | 28 | 35 | 43 | 50 | 57 | 64 |
| 72                            | 7 | 14 | 22 | 29 | 36 | 43 | 50 | 58 | 65 |
| 73                            | 7 | 15 | 22 | 29 | 36 | 44 | 51 | 58 | 66 |
| 74                            | 7 | 15 | 22 | 30 | 37 | 44 | 52 | 59 | 67 |
| 75                            | 7 | 15 | 22 | 30 | 37 | 45 | 52 | 60 | 67 |
| 76                            | 8 | 15 | 23 | 30 | 38 | 46 | 53 | 61 | 68 |
| D.                            | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |

| L.   | Num   | Proportional Parts. |    |    |    |    |    |    |    |    |
|------|-------|---------------------|----|----|----|----|----|----|----|----|
|      |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| .520 | 33113 | 8                   | 15 | 23 | 31 | 38 | 46 | 54 | 61 | 69 |
| .521 | 33189 | 8                   | 16 | 23 | 31 | 39 | 46 | 54 | 62 | 69 |
| .522 | 33266 | 8                   | 15 | 23 | 31 | 39 | 46 | 54 | 61 | 69 |
| .523 | 33343 | 7                   | 15 | 23 | 30 | 38 | 46 | 53 | 61 | 69 |
| .524 | 33420 | 7                   | 15 | 23 | 30 | 38 | 46 | 53 | 61 | 69 |
| .525 | 33497 | 7                   | 15 | 23 | 30 | 38 | 46 | 54 | 61 | 69 |
| .526 | 33574 | 8                   | 15 | 23 | 31 | 38 | 46 | 54 | 62 | 69 |
| .527 | 33651 | 8                   | 16 | 23 | 31 | 39 | 47 | 54 | 62 | 70 |
| .528 | 33729 | 8                   | 15 | 23 | 31 | 39 | 46 | 54 | 62 | 70 |
| .529 | 33806 | 8                   | 16 | 24 | 32 | 39 | 47 | 55 | 63 | 71 |
| .530 | 33884 | 8                   | 16 | 24 | 32 | 39 | 47 | 55 | 63 | 71 |
| .531 | 33963 | 7                   | 15 | 23 | 31 | 39 | 46 | 54 | 62 | 70 |
| .532 | 34041 | 8                   | 15 | 23 | 31 | 39 | 47 | 55 | 63 | 70 |
| .533 | 34119 | 8                   | 16 | 24 | 32 | 40 | 47 | 55 | 63 | 71 |
| .534 | 34198 | 8                   | 16 | 24 | 31 | 39 | 47 | 55 | 63 | 71 |
| .535 | 34277 | 8                   | 16 | 23 | 31 | 39 | 47 | 55 | 63 | 71 |
| .536 | 34356 | 8                   | 16 | 24 | 31 | 39 | 47 | 55 | 63 | 71 |
| .537 | 34435 | 8                   | 16 | 24 | 32 | 40 | 48 | 56 | 63 | 71 |
| .538 | 34514 | 8                   | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| .539 | 34594 | 8                   | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| .540 | 34674 | 8                   | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| .541 | 34754 | 8                   | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| .542 | 34834 | 8                   | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| .543 | 34914 | 8                   | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| .544 | 34995 | 8                   | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| .545 | 35075 | 8                   | 16 | 24 | 33 | 41 | 49 | 57 | 65 | 73 |
| .546 | 35156 | 8                   | 16 | 24 | 32 | 41 | 49 | 57 | 65 | 73 |
| .547 | 35237 | 8                   | 16 | 24 | 33 | 41 | 49 | 57 | 65 | 73 |
| .548 | 35318 | 8                   | 17 | 25 | 33 | 41 | 49 | 57 | 65 | 74 |
| .549 | 35400 | 8                   | 16 | 24 | 32 | 41 | 49 | 57 | 65 | 73 |
| .550 | 35481 | 9                   | 17 | 25 | 33 | 41 | 49 | 58 | 66 | 74 |
| .551 | 35563 | 8                   | 17 | 25 | 33 | 41 | 49 | 57 | 66 | 74 |
| .552 | 35645 | 8                   | 17 | 25 | 33 | 41 | 49 | 58 | 66 | 74 |
| .553 | 35727 | 9                   | 17 | 25 | 33 | 41 | 50 | 58 | 66 | 74 |
| .554 | 35810 | 8                   | 16 | 24 | 33 | 41 | 49 | 57 | 66 | 74 |
| .555 | 35892 | 8                   | 17 | 25 | 33 | 42 | 50 | 58 | 66 | 75 |
| .556 | 35975 | 8                   | 17 | 25 | 33 | 41 | 50 | 58 | 66 | 75 |
| .557 | 36058 | 8                   | 16 | 25 | 33 | 41 | 50 | 58 | 66 | 75 |
| .558 | 36141 | 8                   | 17 | 25 | 33 | 42 | 50 | 58 | 67 | 75 |
| .559 | 36224 | 9                   | 17 | 25 | 34 | 42 | 50 | 59 | 67 | 75 |
| .560 | 36308 | 8                   | 17 | 25 | 33 | 42 | 50 | 58 | 67 | 75 |
| .561 | 36392 | 8                   | 16 | 25 | 33 | 41 | 50 | 58 | 67 | 75 |
| .562 | 36475 | 9                   | 17 | 26 | 34 | 42 | 51 | 59 | 68 | 76 |
| .563 | 36559 | 9                   | 17 | 26 | 34 | 43 | 51 | 59 | 68 | 76 |
| .564 | 36644 | 8                   | 17 | 25 | 34 | 42 | 50 | 59 | 67 | 76 |
| .565 | 36728 | 9                   | 17 | 26 | 34 | 43 | 51 | 59 | 68 | 76 |
| .566 | 36813 | 8                   | 17 | 25 | 34 | 42 | 51 | 59 | 68 | 76 |
| .567 | 36898 | 8                   | 17 | 25 | 34 | 42 | 51 | 59 | 68 | 76 |
| .568 | 36983 | 8                   | 17 | 25 | 34 | 42 | 51 | 59 | 68 | 77 |
| .569 | 37068 | 9                   | 17 | 26 | 34 | 43 | 51 | 60 | 68 | 77 |
| .570 | 37154 | 8                   | 17 | 25 | 34 | 43 | 51 | 59 | 68 | 77 |
| .571 | 37239 | 9                   | 17 | 26 | 34 | 43 | 52 | 60 | 69 | 77 |
| .572 | 37325 | 9                   | 17 | 26 | 34 | 43 | 52 | 60 | 69 | 77 |
| .573 | 37411 | 9                   | 17 | 26 | 35 | 43 | 52 | 60 | 69 | 78 |
| .574 | 37497 | 9                   | 18 | 26 | 35 | 43 | 52 | 61 | 69 | 78 |
| .575 | 37584 | 8                   | 17 | 26 | 34 | 43 | 52 | 60 | 69 | 78 |
| .576 | 37670 | 9                   | 18 | 26 | 35 | 44 | 52 | 61 | 70 | 79 |
| .577 | 37757 | 9                   | 18 | 26 | 35 | 44 | 52 | 61 | 70 | 79 |
| .578 | 37844 | 9                   | 18 | 26 | 35 | 44 | 53 | 61 | 70 | 79 |
| .579 | 37931 | 9                   | 18 | 27 | 35 | 44 | 53 | 62 | 70 | 79 |
| L.   | Num   | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |

| L.   | Num   | Proportional Parts. |    |    |    |    |    |    |    |    |
|------|-------|---------------------|----|----|----|----|----|----|----|----|
|      |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| .580 | 38019 | 9                   | 17 | 26 | 35 | 44 | 53 | 61 | 70 | 79 |
| .581 | 38107 | 8                   | 17 | 26 | 35 | 43 | 52 | 61 | 70 | 79 |
| .582 | 38194 | 9                   | 18 | 27 | 36 | 44 | 53 | 62 | 71 | 80 |
| .583 | 38282 | 9                   | 18 | 27 | 36 | 45 | 53 | 62 | 71 | 80 |
| .584 | 38371 | 9                   | 17 | 26 | 35 | 44 | 53 | 62 | 70 | 79 |
| .585 | 38459 | 9                   | 18 | 27 | 36 | 44 | 53 | 62 | 71 | 80 |
| .586 | 38548 | 9                   | 18 | 26 | 35 | 44 | 53 | 62 | 71 | 80 |
| .587 | 38637 | 9                   | 17 | 26 | 35 | 44 | 53 | 62 | 71 | 80 |
| .588 | 38726 | 9                   | 18 | 27 | 35 | 44 | 53 | 62 | 71 | 80 |
| .589 | 38815 | 9                   | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |
| .590 | 38905 | 8                   | 17 | 26 | 35 | 44 | 53 | 62 | 71 | 80 |
| .591 | 38994 | 9                   | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |
| .592 | 39084 | 9                   | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |
| .593 | 39174 | 9                   | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |
| .594 | 39264 | 10                  | 19 | 28 | 37 | 46 | 55 | 64 | 73 | 82 |
| .595 | 39355 | 9                   | 18 | 27 | 36 | 45 | 54 | 63 | 73 | 82 |
| .596 | 39446 | 9                   | 18 | 27 | 36 | 45 | 54 | 63 | 73 | 82 |
| .597 | 39537 | 9                   | 18 | 27 | 36 | 45 | 54 | 63 | 73 | 82 |
| .598 | 39628 | 9                   | 18 | 27 | 36 | 45 | 55 | 64 | 73 | 82 |
| .599 | 39719 | 9                   | 18 | 28 | 37 | 46 | 55 | 64 | 73 | 82 |
| .600 | 39811 | 9                   | 18 | 27 | 36 | 46 | 55 | 64 | 73 | 82 |
| .601 | 39902 | 10                  | 19 | 28 | 37 | 46 | 56 | 65 | 74 | 83 |
| .602 | 39994 | 10                  | 19 | 28 | 37 | 47 | 56 | 65 | 74 | 83 |
| .603 | 40087 | 9                   | 18 | 27 | 37 | 47 | 56 | 65 | 74 | 83 |
| .604 | 40179 | 9                   | 19 | 28 | 37 | 46 | 56 | 65 | 74 | 83 |
| .605 | 40272 | 9                   | 18 | 28 | 37 | 46 | 55 | 65 | 74 | 83 |
| .606 | 40365 | 9                   | 18 | 27 | 37 | 46 | 55 | 65 | 74 | 83 |
| .607 | 40458 | 9                   | 18 | 28 | 37 | 46 | 56 | 65 | 74 | 84 |
| .608 | 40551 | 9                   | 19 | 28 | 37 | 47 | 56 | 65 | 75 | 84 |
| .609 | 40644 | 10                  | 19 | 28 | 38 | 47 | 57 | 66 | 75 | 85 |
| .610 | 40738 | 9                   | 19 | 28 | 38 | 47 | 56 | 66 | 75 | 85 |
| .611 | 40832 | 9                   | 19 | 28 | 38 | 47 | 56 | 66 | 75 | 85 |
| .612 | 40926 | 9                   | 19 | 28 | 38 | 47 | 57 | 66 | 76 | 85 |
| .613 | 41020 | 10                  | 19 | 29 | 38 | 48 | 57 | 67 | 76 | 86 |
| .614 | 41115 | 9                   | 19 | 28 | 38 | 47 | 57 | 66 | 76 | 85 |
| .615 | 41210 | 9                   | 19 | 28 | 38 | 47 | 57 | 66 | 76 | 85 |
| .616 | 41305 | 9                   | 19 | 28 | 38 | 47 | 57 | 66 | 76 | 85 |
| .617 | 41400 | 10                  | 19 | 29 | 38 | 48 | 57 | 67 | 76 | 86 |
| .618 | 41495 | 10                  | 20 | 29 | 39 | 48 | 58 | 67 | 77 | 86 |
| .619 | 41591 | 10                  | 19 | 29 | 38 | 48 | 58 | 67 | 77 | 86 |
| .620 | 41687 | 10                  | 19 | 29 | 38 | 48 | 58 | 67 | 77 | 86 |
| .621 | 41783 | 10                  | 19 | 29 | 39 | 48 | 58 | 67 | 77 | 87 |
| .622 | 41879 | 10                  | 20 | 29 | 39 | 49 | 58 | 68 | 78 | 87 |
| .623 | 41976 | 10                  | 19 | 29 | 39 | 48 | 58 | 68 | 77 | 87 |
| .624 | 42073 | 9                   | 19 | 29 | 38 | 48 | 58 | 68 | 77 | 87 |
| .625 | 42170 | 9                   | 19 | 29 | 39 | 48 | 58 | 68 | 77 | 87 |
| .626 | 42267 | 10                  | 19 | 29 | 39 | 49 | 58 | 68 | 78 | 88 |
| .627 | 42364 | 10                  | 20 | 30 | 39 | 49 | 59 | 69 | 78 | 88 |
| .628 | 42462 | 10                  | 20 | 29 | 39 | 49 | 59 | 68 | 78 | 88 |
| .629 | 42560 | 10                  | 19 | 29 | 39 | 49 | 59 | 68 | 78 | 88 |
| .630 | 42658 | 10                  | 20 | 29 | 39 | 49 | 59 | 69 | 79 | 88 |
| .631 | 42756 | 10                  | 20 | 30 | 40 | 50 | 59 | 69 | 79 | 89 |
| .632 | 42855 | 10                  | 20 | 29 | 39 | 49 | 59 | 69 | 79 | 89 |
| .633 | 42954 | 10                  | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 |
| .634 | 43053 | 10                  | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 |
| .635 | 43152 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 79 | 89 |
| .636 | 43251 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| .637 | 43351 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| .638 | 43451 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
| .639 | 43551 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 91 |
| L.   | Num   | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |

| L.   | Num   | Proportional Parts. |    |    |    |    |    |    |    |     |
|------|-------|---------------------|----|----|----|----|----|----|----|-----|
|      |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   |
| .640 | 43652 | 10                  | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90  |
| .641 | 43752 | 10                  | 20 | 30 | 41 | 51 | 61 | 71 | 81 | 91  |
| .642 | 43853 | 10                  | 20 | 30 | 40 | 51 | 61 | 71 | 81 | 91  |
| .643 | 43954 | 10                  | 20 | 31 | 41 | 51 | 61 | 71 | 81 | 91  |
| .644 | 44055 | 11                  | 21 | 31 | 41 | 51 | 61 | 72 | 82 | 92  |
| .645 | 44157 | 10                  | 20 | 31 | 41 | 51 | 61 | 71 | 81 | 92  |
| .646 | 44259 | 10                  | 20 | 30 | 41 | 51 | 61 | 71 | 81 | 92  |
| .647 | 44361 | 10                  | 20 | 31 | 41 | 51 | 61 | 71 | 82 | 92  |
| .648 | 44463 | 10                  | 21 | 31 | 41 | 51 | 62 | 72 | 82 | 92  |
| .649 | 44566 | 16                  | 20 | 30 | 41 | 51 | 61 | 72 | 82 | 92  |
| .650 | 44668 | 11                  | 21 | 31 | 42 | 52 | 62 | 72 | 83 | 93  |
| .651 | 44771 | 11                  | 21 | 31 | 42 | 52 | 62 | 73 | 83 | 93  |
| .652 | 44875 | 10                  | 20 | 31 | 41 | 51 | 62 | 72 | 82 | 93  |
| .653 | 44978 | 10                  | 21 | 31 | 41 | 52 | 62 | 73 | 83 | 93  |
| .654 | 45082 | 10                  | 20 | 31 | 41 | 52 | 62 | 72 | 83 | 93  |
| .655 | 45186 | 10                  | 20 | 31 | 41 | 52 | 62 | 72 | 83 | 93  |
| .656 | 45290 | 10                  | 21 | 31 | 41 | 52 | 62 | 73 | 83 | 94  |
| .657 | 45394 | 11                  | 21 | 32 | 42 | 52 | 63 | 73 | 84 | 94  |
| .658 | 45499 | 10                  | 21 | 31 | 42 | 52 | 63 | 73 | 84 | 94  |
| .659 | 45604 | 10                  | 21 | 31 | 42 | 52 | 63 | 73 | 84 | 94  |
| .660 | 45709 | 10                  | 21 | 31 | 42 | 52 | 63 | 74 | 84 | 95  |
| .661 | 45814 | 11                  | 21 | 32 | 42 | 53 | 64 | 74 | 85 | 95  |
| .662 | 45920 | 10                  | 21 | 32 | 42 | 53 | 63 | 74 | 84 | 95  |
| .663 | 46026 | 10                  | 21 | 31 | 42 | 53 | 63 | 74 | 85 | 95  |
| .664 | 46132 | 10                  | 21 | 32 | 42 | 53 | 64 | 74 | 85 | 95  |
| .665 | 46238 | 11                  | 21 | 32 | 43 | 53 | 64 | 75 | 85 | 96  |
| .666 | 46345 | 10                  | 21 | 32 | 42 | 53 | 64 | 74 | 85 | 96  |
| .667 | 46452 | 10                  | 21 | 32 | 42 | 53 | 64 | 74 | 85 | 96  |
| .668 | 46559 | 10                  | 21 | 32 | 43 | 53 | 64 | 75 | 85 | 96  |
| .669 | 46666 | 11                  | 21 | 32 | 43 | 54 | 64 | 75 | 86 | 97  |
| .670 | 46774 | 10                  | 21 | 32 | 43 | 53 | 64 | 75 | 86 | 97  |
| .671 | 46881 | 11                  | 22 | 33 | 44 | 54 | 65 | 76 | 87 | 98  |
| .672 | 46989 | 11                  | 22 | 33 | 44 | 55 | 65 | 76 | 87 | 98  |
| .673 | 47098 | 11                  | 21 | 32 | 43 | 54 | 65 | 76 | 87 | 97  |
| .674 | 47206 | 11                  | 22 | 33 | 44 | 55 | 66 | 76 | 87 | 98  |
| .675 | 47315 | 11                  | 22 | 33 | 44 | 55 | 66 | 76 | 87 | 98  |
| .676 | 47424 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  |
| .677 | 47534 | 10                  | 21 | 32 | 43 | 54 | 65 | 76 | 87 | 98  |
| .678 | 47643 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  |
| .679 | 47753 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  |
| .680 | 47863 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  |
| .681 | 47973 | 11                  | 22 | 33 | 45 | 56 | 67 | 78 | 89 | 100 |
| .682 | 48084 | 11                  | 22 | 33 | 44 | 55 | 66 | 77 | 89 | 100 |
| .683 | 48195 | 11                  | 22 | 33 | 44 | 55 | 66 | 78 | 89 | 100 |
| .684 | 48306 | 11                  | 22 | 33 | 44 | 55 | 67 | 78 | 89 | 100 |
| .685 | 48417 | 11                  | 23 | 34 | 45 | 56 | 67 | 78 | 90 | 101 |
| .686 | 48529 | 11                  | 22 | 33 | 45 | 56 | 67 | 78 | 89 | 101 |
| .687 | 48641 | 11                  | 22 | 33 | 45 | 56 | 67 | 78 | 89 | 101 |
| .688 | 48753 | 11                  | 22 | 34 | 45 | 56 | 67 | 78 | 90 | 101 |
| .689 | 48865 | 11                  | 23 | 34 | 45 | 57 | 68 | 79 | 90 | 102 |
| .690 | 48978 | 11                  | 22 | 34 | 45 | 56 | 68 | 79 | 90 | 101 |
| .691 | 49091 | 11                  | 22 | 34 | 45 | 56 | 68 | 79 | 90 | 102 |
| .692 | 49204 | 11                  | 23 | 34 | 45 | 57 | 68 | 79 | 91 | 102 |
| .693 | 49317 | 12                  | 23 | 34 | 46 | 57 | 69 | 80 | 91 | 103 |
| .694 | 49431 | 11                  | 23 | 34 | 46 | 57 | 68 | 80 | 91 | 103 |
| .695 | 49545 | 11                  | 23 | 34 | 46 | 57 | 69 | 80 | 91 | 103 |
| .696 | 49659 | 12                  | 23 | 35 | 46 | 57 | 69 | 80 | 92 | 103 |
| .697 | 49774 | 11                  | 23 | 34 | 46 | 57 | 69 | 80 | 91 | 103 |
| .698 | 49888 | 12                  | 23 | 35 | 46 | 58 | 69 | 81 | 92 | 104 |
| .699 | 50003 | 12                  | 23 | 35 | 47 | 58 | 70 | 81 | 93 | 104 |
|      |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   |

| L.   | Num   | Proportional Parts. |    |    |    |    |    |    |     |     |
|------|-------|---------------------|----|----|----|----|----|----|-----|-----|
|      |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9   |
| .700 | 50119 | 11                  | 23 | 34 | 46 | 57 | 69 | 81 | 92  | 104 |
| .701 | 50234 | 12                  | 23 | 35 | 47 | 58 | 70 | 81 | 93  | 104 |
| .702 | 50350 | 12                  | 23 | 35 | 46 | 58 | 70 | 81 | 93  | 105 |
| .703 | 50466 | 12                  | 23 | 35 | 47 | 58 | 70 | 82 | 93  | 105 |
| .704 | 50582 | 12                  | 24 | 35 | 47 | 59 | 70 | 82 | 94  | 105 |
| .705 | 50699 | 12                  | 23 | 35 | 47 | 58 | 70 | 82 | 94  | 105 |
| .706 | 50816 | 12                  | 23 | 35 | 47 | 58 | 70 | 82 | 94  | 105 |
| .707 | 50933 | 12                  | 24 | 35 | 47 | 59 | 71 | 82 | 94  | 106 |
| .708 | 51050 | 12                  | 24 | 36 | 48 | 59 | 71 | 83 | 95  | 106 |
| .709 | 51168 | 12                  | 24 | 36 | 47 | 59 | 71 | 83 | 95  | 106 |
| .710 | 51286 | 12                  | 24 | 36 | 47 | 59 | 71 | 83 | 95  | 107 |
| .711 | 51404 | 12                  | 24 | 36 | 48 | 60 | 71 | 83 | 95  | 107 |
| .712 | 51523 | 12                  | 24 | 35 | 47 | 59 | 71 | 83 | 95  | 107 |
| .713 | 51642 | 12                  | 23 | 35 | 47 | 59 | 71 | 83 | 95  | 107 |
| .714 | 51761 | 12                  | 24 | 35 | 47 | 59 | 71 | 83 | 95  | 107 |
| .715 | 51880 | 12                  | 24 | 36 | 48 | 60 | 72 | 84 | 96  | 108 |
| .716 | 52000 | 12                  | 24 | 36 | 48 | 60 | 71 | 83 | 95  | 107 |
| .717 | 52119 | 12                  | 24 | 36 | 48 | 61 | 73 | 85 | 97  | 109 |
| .718 | 52240 | 12                  | 24 | 36 | 48 | 60 | 72 | 84 | 96  | 108 |
| .719 | 52360 | 12                  | 24 | 36 | 48 | 60 | 72 | 85 | 97  | 109 |
| .720 | 52481 | 12                  | 24 | 36 | 48 | 60 | 72 | 84 | 97  | 109 |
| .721 | 52602 | 12                  | 24 | 36 | 48 | 60 | 72 | 85 | 97  | 109 |
| .722 | 52723 | 12                  | 24 | 36 | 49 | 61 | 73 | 85 | 97  | 109 |
| .723 | 52845 | 12                  | 24 | 36 | 48 | 60 | 73 | 85 | 97  | 109 |
| .724 | 52966 | 13                  | 25 | 37 | 49 | 61 | 74 | 86 | 98  | 110 |
| .725 | 53088 | 13                  | 25 | 37 | 49 | 62 | 74 | 86 | 98  | 111 |
| .726 | 53211 | 12                  | 24 | 37 | 49 | 61 | 73 | 86 | 98  | 110 |
| .727 | 53333 | 13                  | 25 | 37 | 50 | 62 | 74 | 87 | 99  | 111 |
| .728 | 53456 | 13                  | 25 | 37 | 50 | 62 | 74 | 87 | 99  | 111 |
| .729 | 53580 | 12                  | 24 | 37 | 49 | 61 | 74 | 86 | 98  | 111 |
| .730 | 53703 | 13                  | 25 | 37 | 50 | 62 | 74 | 87 | 99  | 112 |
| .731 | 53827 | 12                  | 25 | 37 | 50 | 62 | 74 | 87 | 99  | 112 |
| .732 | 53951 | 12                  | 25 | 37 | 50 | 62 | 75 | 87 | 100 | 112 |
| .733 | 54075 | 13                  | 25 | 38 | 50 | 63 | 75 | 88 | 100 | 113 |
| .734 | 54200 | 13                  | 25 | 38 | 50 | 63 | 75 | 88 | 100 | 113 |
| .735 | 54325 | 13                  | 25 | 38 | 50 | 63 | 75 | 88 | 100 | 113 |
| .736 | 54450 | 13                  | 25 | 38 | 50 | 63 | 76 | 88 | 101 | 113 |
| .737 | 54576 | 12                  | 25 | 37 | 50 | 63 | 75 | 88 | 100 | 113 |
| .738 | 54702 | 12                  | 25 | 37 | 50 | 63 | 75 | 88 | 100 | 113 |
| .739 | 54828 | 12                  | 25 | 38 | 50 | 63 | 75 | 88 | 101 | 113 |
| .740 | 54954 | 13                  | 25 | 38 | 51 | 63 | 76 | 89 | 101 | 114 |
| .741 | 55081 | 12                  | 25 | 38 | 51 | 63 | 76 | 89 | 101 | 114 |
| .742 | 55208 | 12                  | 25 | 38 | 51 | 63 | 76 | 89 | 102 | 114 |
| .743 | 55335 | 13                  | 25 | 38 | 51 | 64 | 77 | 89 | 102 | 115 |
| .744 | 55463 | 12                  | 25 | 38 | 51 | 63 | 76 | 89 | 102 | 115 |
| .745 | 55590 | 13                  | 26 | 39 | 52 | 64 | 77 | 90 | 103 | 116 |
| .746 | 55719 | 12                  | 25 | 38 | 51 | 64 | 77 | 89 | 102 | 115 |
| .747 | 55847 | 13                  | 26 | 39 | 51 | 64 | 77 | 90 | 103 | 116 |
| .748 | 55976 | 13                  | 26 | 38 | 51 | 64 | 77 | 90 | 103 | 116 |
| .749 | 56105 | 13                  | 26 | 39 | 51 | 64 | 77 | 90 | 103 | 116 |
| .750 | 56234 | 13                  | 26 | 39 | 52 | 65 | 78 | 91 | 104 | 117 |
| .751 | 56364 | 13                  | 26 | 39 | 52 | 65 | 78 | 91 | 104 | 117 |
| .752 | 56494 | 13                  | 26 | 39 | 52 | 65 | 78 | 91 | 104 | 117 |
| .753 | 56624 | 13                  | 26 | 39 | 52 | 65 | 78 | 91 | 104 | 117 |
| .754 | 56754 | 14                  | 27 | 40 | 53 | 66 | 79 | 92 | 105 | 118 |
| .755 | 56885 | 13                  | 26 | 40 | 53 | 66 | 79 | 92 | 105 | 118 |
| .756 | 57016 | 14                  | 27 | 40 | 53 | 66 | 79 | 92 | 105 | 118 |
| .757 | 57148 | 13                  | 26 | 39 | 53 | 66 | 79 | 92 | 105 | 118 |
| .758 | 57280 | 13                  | 26 | 39 | 53 | 66 | 79 | 92 | 105 | 118 |
| .759 | 57412 | 13                  | 26 | 39 | 53 | 66 | 79 | 92 | 105 | 119 |
|      |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7  | 8   | 9   |

| L.   | Num   | Proportional Parts. |    |    |    |    |    |     |     |     | L.   | Num   | Proportional Parts. |    |    |    |    |     |     |     |     |
|------|-------|---------------------|----|----|----|----|----|-----|-----|-----|------|-------|---------------------|----|----|----|----|-----|-----|-----|-----|
|      |       | 1                   | 2  | 3  | 4  | 5  | 6  | 7   | 8   | 9   |      |       | 1                   | 2  | 3  | 4  | 5  | 6   | 7   | 8   | 9   |
| .760 | 57544 | 13                  | 26 | 40 | 53 | 66 | 80 | 93  | 106 | 119 | .820 | 66069 | 16                  | 31 | 46 | 61 | 76 | 92  | 107 | 122 | 137 |
| .761 | 57677 | 13                  | 26 | 40 | 53 | 66 | 79 | 93  | 106 | 119 | .821 | 66222 | 15                  | 30 | 45 | 61 | 76 | 91  | 106 | 122 | 137 |
| .762 | 57810 | 13                  | 26 | 40 | 53 | 66 | 80 | 93  | 106 | 120 | .822 | 66374 | 16                  | 31 | 46 | 61 | 77 | 92  | 107 | 123 | 138 |
| .763 | 57943 | 13                  | 27 | 41 | 54 | 67 | 80 | 93  | 107 | 120 | .823 | 66527 | 16                  | 31 | 46 | 62 | 77 | 92  | 108 | 123 | 138 |
| .764 | 58076 | 14                  | 27 | 41 | 54 | 67 | 81 | 94  | 108 | 121 | .824 | 66681 | 15                  | 30 | 46 | 61 | 76 | 92  | 107 | 123 | 138 |
| .765 | 58210 | 14                  | 27 | 41 | 54 | 67 | 81 | 94  | 108 | 121 | .825 | 66834 | 16                  | 31 | 47 | 62 | 77 | 93  | 108 | 124 | 139 |
| .766 | 58345 | 13                  | 26 | 40 | 53 | 67 | 80 | 94  | 107 | 121 | .826 | 66988 | 16                  | 31 | 47 | 62 | 78 | 93  | 109 | 124 | 139 |
| .767 | 58479 | 13                  | 27 | 40 | 54 | 67 | 81 | 94  | 108 | 121 | .827 | 67143 | 15                  | 31 | 46 | 62 | 77 | 93  | 108 | 124 | 139 |
| .768 | 58614 | 13                  | 27 | 40 | 54 | 67 | 81 | 94  | 108 | 121 | .828 | 67298 | 15                  | 31 | 46 | 62 | 77 | 93  | 108 | 124 | 139 |
| .769 | 58749 | 13                  | 27 | 41 | 54 | 68 | 81 | 95  | 108 | 122 | .829 | 67453 | 15                  | 31 | 46 | 62 | 78 | 93  | 109 | 124 | 140 |
| .770 | 58884 | 14                  | 27 | 41 | 55 | 68 | 82 | 95  | 109 | 123 | .830 | 67608 | 16                  | 31 | 47 | 63 | 78 | 94  | 109 | 125 | 141 |
| .771 | 59020 | 14                  | 27 | 41 | 54 | 68 | 82 | 95  | 109 | 123 | .831 | 67764 | 16                  | 31 | 47 | 63 | 78 | 94  | 109 | 125 | 141 |
| .772 | 59156 | 14                  | 27 | 41 | 55 | 68 | 82 | 96  | 109 | 123 | .832 | 67920 | 16                  | 32 | 47 | 63 | 79 | 94  | 110 | 126 | 141 |
| .773 | 59293 | 13                  | 27 | 41 | 54 | 68 | 82 | 95  | 109 | 123 | .833 | 68077 | 16                  | 31 | 47 | 63 | 78 | 94  | 110 | 125 | 141 |
| .774 | 59429 | 14                  | 28 | 41 | 55 | 69 | 82 | 96  | 110 | 124 | .834 | 68234 | 16                  | 31 | 47 | 63 | 78 | 94  | 110 | 126 | 141 |
| .775 | 59566 | 14                  | 28 | 41 | 55 | 69 | 83 | 96  | 110 | 124 | .835 | 68391 | 16                  | 32 | 47 | 63 | 79 | 95  | 110 | 126 | 142 |
| .776 | 59704 | 13                  | 27 | 41 | 55 | 68 | 82 | 96  | 110 | 123 | .836 | 68549 | 16                  | 31 | 47 | 63 | 79 | 95  | 110 | 126 | 142 |
| .777 | 59841 | 14                  | 28 | 42 | 55 | 69 | 83 | 97  | 110 | 124 | .837 | 68707 | 16                  | 31 | 47 | 63 | 79 | 95  | 111 | 127 | 142 |
| .778 | 59979 | 14                  | 28 | 42 | 55 | 69 | 83 | 97  | 111 | 125 | .838 | 68865 | 16                  | 32 | 48 | 64 | 80 | 95  | 111 | 127 | 143 |
| .779 | 60117 | 14                  | 28 | 42 | 56 | 70 | 83 | 97  | 111 | 125 | .839 | 69024 | 16                  | 32 | 48 | 64 | 79 | 95  | 111 | 127 | 143 |
| .780 | 60256 | 14                  | 28 | 42 | 55 | 69 | 83 | 97  | 111 | 125 | .840 | 69183 | 16                  | 32 | 48 | 64 | 80 | 96  | 112 | 128 | 144 |
| .781 | 60395 | 14                  | 28 | 42 | 56 | 69 | 83 | 97  | 111 | 125 | .841 | 69343 | 16                  | 32 | 47 | 63 | 79 | 95  | 112 | 127 | 143 |
| .782 | 60534 | 14                  | 28 | 42 | 56 | 70 | 84 | 98  | 112 | 126 | .842 | 69502 | 16                  | 32 | 48 | 64 | 80 | 97  | 113 | 129 | 145 |
| .783 | 60674 | 14                  | 28 | 42 | 56 | 70 | 84 | 98  | 112 | 125 | .843 | 69663 | 16                  | 32 | 48 | 64 | 80 | 96  | 112 | 128 | 144 |
| .784 | 60814 | 14                  | 28 | 42 | 56 | 70 | 84 | 98  | 112 | 126 | .844 | 69823 | 16                  | 32 | 48 | 65 | 81 | 97  | 113 | 129 | 145 |
| .785 | 60954 | 14                  | 28 | 42 | 56 | 70 | 84 | 98  | 112 | 126 | .845 | 69984 | 16                  | 32 | 49 | 65 | 81 | 97  | 113 | 129 | 145 |
| .786 | 61094 | 14                  | 28 | 42 | 56 | 71 | 85 | 99  | 113 | 127 | .846 | 70146 | 16                  | 32 | 48 | 64 | 80 | 97  | 113 | 129 | 145 |
| .787 | 61235 | 14                  | 28 | 42 | 56 | 71 | 85 | 99  | 113 | 127 | .847 | 70307 | 16                  | 33 | 49 | 65 | 81 | 97  | 114 | 130 | 146 |
| .788 | 61376 | 14                  | 28 | 43 | 57 | 71 | 85 | 99  | 113 | 128 | .848 | 70469 | 17                  | 33 | 49 | 65 | 81 | 98  | 114 | 130 | 146 |
| .789 | 61518 | 14                  | 28 | 42 | 56 | 71 | 85 | 99  | 113 | 127 | .849 | 70632 | 16                  | 32 | 49 | 65 | 81 | 97  | 114 | 130 | 146 |
| .790 | 61660 | 14                  | 28 | 42 | 56 | 71 | 85 | 99  | 113 | 127 | .850 | 70795 | 16                  | 32 | 48 | 65 | 81 | 97  | 114 | 130 | 146 |
| .791 | 61802 | 14                  | 28 | 42 | 57 | 71 | 85 | 99  | 114 | 128 | .851 | 70958 | 16                  | 32 | 49 | 65 | 82 | 98  | 114 | 131 | 147 |
| .792 | 61944 | 14                  | 29 | 43 | 57 | 71 | 86 | 100 | 114 | 129 | .852 | 71121 | 17                  | 33 | 49 | 66 | 82 | 99  | 115 | 131 | 148 |
| .793 | 62087 | 14                  | 29 | 43 | 57 | 71 | 86 | 100 | 114 | 129 | .853 | 71285 | 17                  | 33 | 50 | 66 | 82 | 99  | 115 | 132 | 148 |
| .794 | 62230 | 14                  | 29 | 43 | 57 | 72 | 86 | 100 | 115 | 129 | .854 | 71450 | 16                  | 33 | 49 | 65 | 82 | 98  | 115 | 131 | 148 |
| .795 | 62373 | 15                  | 29 | 44 | 58 | 72 | 87 | 101 | 115 | 130 | .855 | 71614 | 17                  | 33 | 50 | 66 | 83 | 99  | 116 | 132 | 149 |
| .796 | 62517 | 15                  | 29 | 43 | 58 | 72 | 87 | 101 | 116 | 130 | .856 | 71779 | 17                  | 33 | 50 | 67 | 83 | 100 | 116 | 133 | 149 |
| .797 | 62661 | 15                  | 29 | 44 | 58 | 73 | 87 | 101 | 116 | 130 | .857 | 71945 | 16                  | 33 | 50 | 66 | 83 | 99  | 116 | 133 | 149 |
| .798 | 62806 | 14                  | 29 | 43 | 58 | 72 | 87 | 101 | 116 | 130 | .858 | 72111 | 16                  | 33 | 50 | 66 | 83 | 99  | 116 | 133 | 149 |
| .799 | 62951 | 14                  | 29 | 43 | 58 | 72 | 87 | 101 | 116 | 130 | .859 | 72277 | 17                  | 33 | 50 | 67 | 83 | 100 | 117 | 133 | 150 |
| .800 | 63096 | 14                  | 29 | 43 | 58 | 72 | 87 | 102 | 116 | 131 | .860 | 72444 | 16                  | 33 | 50 | 66 | 83 | 100 | 116 | 133 | 150 |
| .801 | 63241 | 15                  | 29 | 44 | 58 | 73 | 88 | 102 | 117 | 131 | .861 | 72611 | 16                  | 33 | 50 | 67 | 83 | 100 | 117 | 133 | 150 |
| .802 | 63387 | 15                  | 29 | 44 | 58 | 73 | 88 | 102 | 117 | 131 | .862 | 72778 | 17                  | 34 | 50 | 67 | 84 | 101 | 117 | 134 | 151 |
| .803 | 63533 | 15                  | 29 | 44 | 59 | 73 | 88 | 103 | 117 | 132 | .863 | 72946 | 17                  | 33 | 50 | 67 | 84 | 101 | 117 | 134 | 151 |
| .804 | 63680 | 14                  | 29 | 44 | 58 | 73 | 88 | 102 | 117 | 132 | .864 | 73114 | 17                  | 34 | 50 | 67 | 84 | 101 | 118 | 135 | 152 |
| .805 | 63826 | 15                  | 30 | 44 | 59 | 74 | 89 | 103 | 118 | 133 | .865 | 73282 | 17                  | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 152 |
| .806 | 63973 | 15                  | 30 | 45 | 59 | 74 | 89 | 104 | 118 | 133 | .866 | 73451 | 17                  | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 153 |
| .807 | 64119 | 15                  | 29 | 44 | 59 | 74 | 89 | 103 | 118 | 133 | .867 | 73621 | 17                  | 34 | 51 | 68 | 85 | 101 | 118 | 135 | 152 |
| .808 | 64269 | 15                  | 29 | 44 | 59 | 74 | 89 | 103 | 118 | 133 | .868 | 73790 | 17                  | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 153 |
| .809 | 64417 | 15                  | 30 | 44 | 59 | 74 | 89 | 104 | 119 | 134 | .869 | 73961 | 17                  | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 153 |
| .810 | 64565 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 119 | 134 | .870 | 74131 | 17                  | 34 | 51 | 68 | 85 | 103 | 120 | 137 | 154 |
| .811 | 64714 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | .871 | 74302 | 17                  | 34 | 51 | 68 | 86 | 103 | 120 | 137 | 154 |
| .812 | 64863 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | .872 | 74473 | 17                  | 35 | 52 | 69 | 86 | 103 | 120 | 138 | 155 |
| .813 | 65013 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | .873 | 74645 | 17                  | 34 | 51 | 69 | 86 | 103 | 120 | 138 | 155 |
| .814 | 65163 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | .874 | 74817 | 17                  | 34 | 52 | 69 | 86 | 103 | 121 | 138 | 155 |
| .815 | 65313 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 136 | .875 | 74989 | 18                  | 35 | 52 | 70 | 87 | 104 | 121 | 139 | 156 |
| .816 | 65464 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | .876 | 75162 | 18                  | 35 | 52 | 70 | 87 | 104 | 122 | 139 | 156 |
| .817 | 65615 | 15                  | 30 | 45 | 60 | 75 | 90 | 105 | 121 | 136 | .877 | 75336 | 17                  | 34 | 52 | 69 | 86 | 104 | 121 | 138 | 156 |
| .818 | 65766 | 15                  | 30 | 45 | 60 | 76 | 91 | 106 | 121 | 136 | .878 | 75509 | 18                  | 35 | 52 | 70 | 87 | 105 | 122 | 139 | 157 |
| .819 | 65917 | 16                  | 31 | 46 | 61 | 76 | 92 | 107 | 122 | 137 | .879 | 75683 | 18                  | 35 | 53 | 70 | 87 | 105 | 122 | 140 | 157 |



| L.   | Num   | Proportional Parts. |    |    |    |     |     |     |     |     |
|------|-------|---------------------|----|----|----|-----|-----|-----|-----|-----|
|      |       | 1                   | 2  | 3  | 4  | 5   | 6   | 7   | 8   | 9   |
| .880 | 75858 | 17                  | 35 | 52 | 70 | 87  | 105 | 122 | 140 | 157 |
| .881 | 76033 | 17                  | 35 | 52 | 70 | 87  | 105 | 122 | 140 | 157 |
| .882 | 76208 | 17                  | 35 | 53 | 70 | 88  | 105 | 123 | 140 | 158 |
| .883 | 76384 | 17                  | 35 | 52 | 70 | 88  | 105 | 123 | 140 | 158 |
| .884 | 76560 | 17                  | 35 | 53 | 70 | 88  | 106 | 123 | 141 | 158 |
| .885 | 76736 | 18                  | 35 | 53 | 71 | 89  | 106 | 124 | 142 | 159 |
| .886 | 76913 | 18                  | 35 | 53 | 71 | 89  | 106 | 124 | 142 | 160 |
| .887 | 77090 | 18                  | 36 | 54 | 71 | 89  | 107 | 125 | 142 | 160 |
| .888 | 77268 | 18                  | 36 | 53 | 71 | 89  | 107 | 125 | 143 | 160 |
| .889 | 77446 | 18                  | 36 | 54 | 72 | 89  | 107 | 125 | 143 | 161 |
| .890 | 77625 | 18                  | 35 | 53 | 71 | 89  | 107 | 125 | 143 | 161 |
| .891 | 77804 | 18                  | 35 | 53 | 71 | 89  | 107 | 125 | 143 | 161 |
| .892 | 77983 | 18                  | 36 | 54 | 72 | 90  | 108 | 126 | 144 | 162 |
| .893 | 78163 | 18                  | 36 | 54 | 72 | 90  | 108 | 126 | 144 | 162 |
| .894 | 78343 | 18                  | 36 | 54 | 72 | 90  | 108 | 126 | 144 | 162 |
| .895 | 78524 | 18                  | 36 | 54 | 72 | 90  | 108 | 126 | 144 | 162 |
| .896 | 78705 | 18                  | 36 | 54 | 72 | 90  | 108 | 127 | 145 | 163 |
| .897 | 78886 | 18                  | 36 | 55 | 73 | 91  | 109 | 127 | 145 | 164 |
| .898 | 79068 | 18                  | 36 | 54 | 73 | 91  | 109 | 127 | 146 | 164 |
| .899 | 79250 | 18                  | 37 | 55 | 73 | 91  | 110 | 128 | 146 | 165 |
| .900 | 79433 | 18                  | 36 | 55 | 73 | 91  | 110 | 128 | 146 | 165 |
| .901 | 79616 | 18                  | 37 | 55 | 73 | 91  | 110 | 128 | 147 | 165 |
| .902 | 79799 | 19                  | 37 | 56 | 74 | 92  | 111 | 129 | 148 | 166 |
| .903 | 79983 | 19                  | 37 | 56 | 74 | 92  | 111 | 129 | 148 | 166 |
| .904 | 80168 | 18                  | 37 | 55 | 74 | 92  | 111 | 129 | 148 | 166 |
| .905 | 80353 | 18                  | 37 | 55 | 74 | 92  | 111 | 129 | 148 | 166 |
| .906 | 80538 | 18                  | 37 | 55 | 74 | 93  | 111 | 130 | 148 | 167 |
| .907 | 80724 | 18                  | 37 | 55 | 74 | 92  | 111 | 130 | 148 | 167 |
| .908 | 80910 | 18                  | 37 | 55 | 74 | 93  | 111 | 130 | 149 | 167 |
| .909 | 81096 | 19                  | 37 | 56 | 75 | 94  | 112 | 131 | 150 | 168 |
| .910 | 81283 | 19                  | 37 | 56 | 75 | 94  | 112 | 131 | 150 | 169 |
| .911 | 81470 | 19                  | 38 | 57 | 76 | 94  | 113 | 132 | 151 | 169 |
| .912 | 81658 | 19                  | 38 | 57 | 75 | 94  | 113 | 132 | 151 | 170 |
| .913 | 81846 | 19                  | 38 | 57 | 76 | 95  | 114 | 133 | 151 | 170 |
| .914 | 82035 | 19                  | 38 | 57 | 76 | 95  | 114 | 132 | 151 | 170 |
| .915 | 82224 | 19                  | 38 | 57 | 76 | 95  | 114 | 133 | 152 | 171 |
| .916 | 82414 | 19                  | 38 | 57 | 76 | 95  | 114 | 133 | 152 | 171 |
| .917 | 82604 | 19                  | 38 | 57 | 76 | 95  | 114 | 133 | 152 | 171 |
| .918 | 82794 | 19                  | 38 | 57 | 77 | 96  | 115 | 134 | 153 | 172 |
| .919 | 82985 | 19                  | 38 | 57 | 77 | 96  | 115 | 134 | 153 | 172 |
| .920 | 83176 | 20                  | 39 | 58 | 77 | 96  | 115 | 135 | 154 | 173 |
| .921 | 83368 | 19                  | 39 | 58 | 77 | 96  | 115 | 135 | 154 | 173 |
| .922 | 83560 | 20                  | 39 | 58 | 77 | 97  | 116 | 135 | 154 | 174 |
| .923 | 83753 | 19                  | 39 | 58 | 77 | 96  | 116 | 135 | 154 | 174 |
| .924 | 83946 | 19                  | 39 | 58 | 77 | 97  | 116 | 135 | 155 | 174 |
| .925 | 84140 | 19                  | 38 | 58 | 77 | 96  | 116 | 135 | 155 | 174 |
| .926 | 84333 | 20                  | 39 | 59 | 78 | 98  | 117 | 137 | 156 | 175 |
| .927 | 84528 | 19                  | 39 | 58 | 78 | 97  | 117 | 136 | 156 | 175 |
| .928 | 84723 | 19                  | 39 | 58 | 78 | 97  | 117 | 136 | 156 | 175 |
| .929 | 84918 | 20                  | 39 | 59 | 78 | 98  | 117 | 137 | 157 | 176 |
| .930 | 85114 | 19                  | 39 | 59 | 78 | 98  | 117 | 137 | 157 | 176 |
| .931 | 85310 | 20                  | 39 | 59 | 79 | 98  | 118 | 138 | 157 | 177 |
| .932 | 85507 | 19                  | 39 | 59 | 79 | 98  | 118 | 138 | 157 | 177 |
| .933 | 85704 | 20                  | 39 | 59 | 79 | 99  | 118 | 138 | 158 | 178 |
| .934 | 85901 | 20                  | 40 | 60 | 80 | 99  | 119 | 139 | 159 | 179 |
| .935 | 86100 | 20                  | 40 | 60 | 80 | 100 | 119 | 139 | 159 | 179 |
| .936 | 86298 | 20                  | 40 | 60 | 80 | 99  | 119 | 139 | 159 | 179 |
| .937 | 86497 | 20                  | 40 | 60 | 80 | 99  | 119 | 139 | 159 | 179 |
| .938 | 86696 | 20                  | 40 | 60 | 80 | 100 | 120 | 140 | 160 | 180 |
| .939 | 86896 | 20                  | 40 | 60 | 80 | 100 | 120 | 140 | 160 | 180 |

| L.   | Num   | Proportional Parts. |    |    |    |     |     |     |     |     |
|------|-------|---------------------|----|----|----|-----|-----|-----|-----|-----|
|      |       | 1                   | 2  | 3  | 4  | 5   | 6   | 7   | 8   | 9   |
| .940 | 87096 | 20                  | 40 | 61 | 81 | 101 | 121 | 141 | 161 | 181 |
| .941 | 87297 | 20                  | 40 | 60 | 81 | 101 | 121 | 141 | 161 | 181 |
| .942 | 87498 | 21                  | 41 | 61 | 81 | 101 | 121 | 142 | 162 | 182 |
| .943 | 87700 | 20                  | 40 | 61 | 81 | 101 | 121 | 142 | 162 | 182 |
| .944 | 87903 | 20                  | 41 | 61 | 81 | 102 | 122 | 142 | 162 | 183 |
| .945 | 88105 | 20                  | 40 | 61 | 81 | 101 | 122 | 142 | 162 | 183 |
| .946 | 88308 | 20                  | 41 | 61 | 81 | 102 | 122 | 142 | 163 | 183 |
| .947 | 88512 | 20                  | 40 | 61 | 81 | 102 | 122 | 142 | 163 | 183 |
| .948 | 88716 | 20                  | 40 | 61 | 81 | 102 | 122 | 143 | 163 | 184 |
| .949 | 88920 | 21                  | 41 | 62 | 82 | 103 | 123 | 144 | 164 | 185 |
| .950 | 89125 | 21                  | 41 | 62 | 82 | 103 | 123 | 144 | 164 | 185 |
| .951 | 89331 | 20                  | 41 | 61 | 82 | 102 | 123 | 144 | 164 | 185 |
| .952 | 89536 | 21                  | 42 | 62 | 83 | 104 | 124 | 145 | 166 | 186 |
| .953 | 89743 | 21                  | 41 | 62 | 83 | 103 | 124 | 145 | 166 | 186 |
| .954 | 89950 | 20                  | 41 | 62 | 83 | 103 | 124 | 145 | 166 | 186 |
| .955 | 90157 | 21                  | 42 | 62 | 83 | 104 | 125 | 146 | 166 | 187 |
| .956 | 90365 | 21                  | 42 | 62 | 83 | 104 | 125 | 146 | 167 | 187 |
| .957 | 90573 | 21                  | 42 | 63 | 84 | 105 | 125 | 146 | 167 | 188 |
| .958 | 90782 | 21                  | 42 | 63 | 84 | 105 | 126 | 146 | 167 | 188 |
| .959 | 90991 | 21                  | 42 | 63 | 84 | 105 | 126 | 147 | 168 | 189 |
| .960 | 91201 | 21                  | 42 | 63 | 84 | 105 | 126 | 147 | 168 | 189 |
| .961 | 91411 | 21                  | 42 | 63 | 85 | 106 | 127 | 148 | 169 | 190 |
| .962 | 91622 | 21                  | 42 | 63 | 84 | 106 | 127 | 148 | 169 | 190 |
| .963 | 91833 | 21                  | 43 | 64 | 85 | 106 | 127 | 148 | 170 | 191 |
| .964 | 92045 | 21                  | 42 | 64 | 85 | 106 | 127 | 148 | 170 | 191 |
| .965 | 92257 | 21                  | 43 | 64 | 85 | 106 | 128 | 149 | 170 | 192 |
| .966 | 92470 | 21                  | 42 | 64 | 85 | 106 | 128 | 149 | 170 | 192 |
| .967 | 92683 | 21                  | 43 | 64 | 85 | 107 | 128 | 149 | 171 | 192 |
| .968 | 92897 | 21                  | 42 | 64 | 85 | 107 | 128 | 149 | 171 | 192 |
| .969 | 93111 | 21                  | 43 | 64 | 86 | 107 | 129 | 150 | 171 | 193 |
| .970 | 93325 | 22                  | 43 | 65 | 86 | 108 | 129 | 151 | 173 | 194 |
| .971 | 93541 | 21                  | 43 | 64 | 86 | 107 | 129 | 150 | 172 | 194 |
| .972 | 93756 | 22                  | 43 | 65 | 87 | 108 | 130 | 151 | 173 | 195 |
| .973 | 93972 | 22                  | 44 | 65 | 87 | 109 | 130 | 152 | 174 | 195 |
| .974 | 94189 | 22                  | 43 | 65 | 87 | 108 | 130 | 152 | 174 | 195 |
| .975 | 94406 | 22                  | 44 | 65 | 87 | 109 | 131 | 152 | 174 | 196 |
| .976 | 94624 | 22                  | 43 | 65 | 87 | 109 | 131 | 152 | 174 | 196 |
| .977 | 94842 | 22                  | 44 | 65 | 87 | 109 | 131 | 153 | 175 | 197 |
| .978 | 95060 | 22                  | 44 | 66 | 88 | 110 | 132 | 154 | 176 | 198 |
| .979 | 95280 | 22                  | 44 | 65 | 87 | 109 | 131 | 153 | 175 | 197 |
| .980 | 95499 | 22                  | 44 | 66 | 88 | 110 | 132 | 154 | 176 | 198 |
| .981 | 95719 | 22                  | 44 | 67 | 89 | 111 | 133 | 155 | 177 | 199 |
| .982 | 95940 | 22                  | 44 | 66 | 88 | 111 | 133 | 155 | 177 | 199 |
| .983 | 96161 | 22                  | 45 | 67 | 89 | 111 | 133 | 155 | 178 | 200 |
| .984 | 96383 | 22                  | 44 | 67 | 89 | 111 | 133 | 155 | 178 | 200 |
| .985 | 96605 | 22                  | 45 | 67 | 89 | 111 | 134 | 156 | 178 | 200 |
| .986 | 96828 | 22                  | 44 | 67 | 89 | 111 | 134 | 156 | 178 | 201 |
| .987 | 97051 | 22                  | 45 | 67 | 89 | 112 | 134 | 157 | 179 | 201 |
| .988 | 97275 | 22                  | 45 | 67 | 89 | 112 | 134 | 157 | 179 | 202 |
| .989 | 97499 | 22                  | 45 | 67 | 90 | 112 | 135 | 157 | 180 | 202 |
| .990 | 97724 | 22                  | 45 | 67 | 90 | 112 | 135 | 157 | 180 | 202 |
| .991 | 97949 | 23                  | 45 | 68 | 90 | 113 | 135 | 158 | 181 | 203 |
| .992 | 98175 | 22                  | 45 | 68 | 90 | 113 | 136 | 158 | 181 | 203 |
| .993 | 98401 | 23                  | 45 | 68 | 91 | 113 | 136 | 159 | 182 | 204 |
| .994 | 98628 | 23                  | 45 | 68 | 91 | 114 | 136 | 159 | 182 | 205 |
| .995 | 98855 | 23                  | 46 | 69 | 91 | 114 | 137 | 160 | 183 | 205 |
| .996 | 99083 | 23                  | 46 | 69 | 91 | 114 | 137 | 160 | 183 | 206 |
| .997 | 99312 | 22                  | 45 | 68 | 91 | 114 | 137 | 160 | 183 | 206 |
| .998 | 99541 | 22                  | 45 | 68 | 91 | 114 | 137 | 160 | 183 | 206 |
| .999 | 99770 | 23                  | 46 | 69 | 92 | 115 | 138 | 161 | 184 | 207 |

| L. | Num | Proportional Parts. |   |   |   |   |   |   |   |   |
|----|-----|---------------------|---|---|---|---|---|---|---|---|
|    |     | 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| L. | Num | Proportional Parts. |   |   |   |   |   |   |   |   |
|----|-----|---------------------|---|---|---|---|---|---|---|---|
|    |     | 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |



|      |    | 0°        |        |           |           |           |           |        |      | 179°  |       |        |      | 1°    |        |     | 178° |  |  |
|------|----|-----------|--------|-----------|-----------|-----------|-----------|--------|------|-------|-------|--------|------|-------|--------|-----|------|--|--|
| #    | i  | sin.      | q-n    | tan.      | col.      | q+n       | cosec.    | sec.   | cos. | sin.  | d. 1" | cosec. | 8.   | d. 1" | cosec. | 11. |      |  |  |
|      |    | 4 68      | 15 314 | 10.0      | 9.9       | 8.        | 11.       |        |      |       |       |        |      |       |        |     |      |  |  |
| 0    | 0  | inf. neg. |        | inf. neg. | inf. pos. | inf. pos. | inf. pos. | 0.000  | 9.9  | 24186 |       | 75814  | 60   |       |        |     |      |  |  |
| 60   | 1  | 6.46373   | 57 57  | 6.46373   | 13.53627  | 43 43     | 13.53627  | 0.000  | ten  | 24903 | 11.95 | 75097  | 50   |       |        |     |      |  |  |
| 120  | 2  | 6.76476   | 57 57  | 6.76476   | 13.23524  | 43 43     | 13.23524  | 0.000  | ten  | 25609 | 11.58 | 74391  | 54   |       |        |     |      |  |  |
| 180  | 3  | 6.94085   | 57 57  | 6.94085   | 13.05915  | 43 43     | 13.05915  | 0.000  | ten  | 26304 | 11.40 | 73696  | 57   |       |        |     |      |  |  |
| 240  | 4  | 7.06579   | 57 58  | 7.06579   | 12.93421  | 42 43     | 12.93421  | 0.000  | ten  | 26988 | 11.22 | 73012  | 56   |       |        |     |      |  |  |
| 300  | 5  | 7.16270   | 57 58  | 7.16270   | 12.83730  | 42 43     | 12.83730  | 0.000  | ten  | 27661 |       | 72339  | 55   |       |        |     |      |  |  |
| 360  | 6  | 7.24188   | 57 58  | 7.24188   | 12.75812  | 42 43     | 12.75812  | 0.000  | ten  | 28324 | 11.05 | 71676  | 54   |       |        |     |      |  |  |
| 420  | 7  | 7.30532   | 57 53  | 7.30882   | 12.69118  | 42 43     | 12.69118  | 0.000  | ten  | 28977 | 10.88 | 71023  | 53   |       |        |     |      |  |  |
| 480  | 8  | 7.35632   | 57 53  | 7.36682   | 12.63318  | 42 43     | 12.63318  | 0.000  | ten  | 29621 | 10.73 | 70379  | 52   |       |        |     |      |  |  |
| 540  | 9  | 7.41197   | 57 53  | 7.41797   | 12.58203  | 42 43     | 12.58203  | 0.000  | ten  | 30255 | 10.57 | 69745  | 51   |       |        |     |      |  |  |
| 600  | 10 | 7.46373   | 57 58  | 7.46373   | 12.53627  | 42 43     | 12.53627  | 0.000  | ten  | 30879 | 10.40 | 69121  | 50   |       |        |     |      |  |  |
| 660  | 11 | 7.50512   | 57 58  | 7.50512   | 12.49488  | 42 43     | 12.49488  | 0.000  | ten  | 31495 | 10.27 | 68505  | 49   |       |        |     |      |  |  |
| 720  | 12 | 7.54291   | 57 58  | 7.54291   | 12.45709  | 42 43     | 12.45709  | 0.000  | ten  | 32103 | 10.13 | 67897  | 48   |       |        |     |      |  |  |
| 780  | 13 | 7.57767   | 57 58  | 7.57767   | 12.42233  | 42 43     | 12.42233  | 0.000  | ten  | 32702 | 9.98  | 67298  | 47   |       |        |     |      |  |  |
| 840  | 14 | 7.60985   | 57 58  | 7.60985   | 12.39014  | 42 43     | 12.39015  | 0.000  | ten  | 33292 | 9.83  | 66708  | 46   |       |        |     |      |  |  |
| 900  | 15 | 7.63982   | 57 59  | 7.63982   | 12.36018  | 42 43     | 12.36018  | 0.000  | ten  | 33875 | 9.72  | 66125  | 45   |       |        |     |      |  |  |
| 960  | 16 | 7.66784   | 57 58  | 7.66785   | 12.33215  | 42 43     | 12.33216  | 0.000  | ten  | 34450 | 9.58  | 65550  | 44   |       |        |     |      |  |  |
| 1020 | 17 | 7.69417   | 57 58  | 7.69418   | 12.30582  | 42 43     | 12.30583  | 0.001  | 9999 | 35018 | 9.47  | 64982  | 43   |       |        |     |      |  |  |
| 1080 | 18 | 7.71900   | 57 58  | 7.71900   | 12.28100  | 42 43     | 12.28100  | 0.001  | 9999 | 35578 | 9.33  | 64422  | 42   |       |        |     |      |  |  |
| 1140 | 19 | 7.74248   | 57 58  | 7.74248   | 12.25752  | 42 43     | 12.25752  | 0.001  | 9999 | 36131 | 9.22  | 63869  | 41   |       |        |     |      |  |  |
| 1200 | 20 | 7.76475   | 57 53  | 7.76476   | 12.23524  | 42 43     | 12.23525  | 0.001  | 9999 | 36678 | 9.12  | 63322  | 40   |       |        |     |      |  |  |
| 1260 | 21 | 7.78591   | 57 53  | 7.78591   | 12.21405  | 42 43     | 12.21406  | 0.001  | 9999 | 37217 | 8.98  | 62783  | 39   |       |        |     |      |  |  |
| 1320 | 22 | 7.80615   | 57 58  | 7.80615   | 12.19385  | 42 43     | 12.19385  | 0.001  | 9999 | 37750 | 8.88  | 62250  | 38   |       |        |     |      |  |  |
| 1380 | 23 | 7.82545   | 57 58  | 7.82546   | 12.17454  | 42 43     | 12.17455  | 0.001  | 9999 | 38276 | 8.77  | 61724  | 37   |       |        |     |      |  |  |
| 1440 | 24 | 7.84393   | 57 53  | 7.84393   | 12.15606  | 42 43     | 12.15607  | 0.001  | 9999 | 38796 | 8.67  | 61204  | 36   |       |        |     |      |  |  |
| 1500 | 25 | 7.86106   | 57 58  | 7.86107   | 12.13833  | 42 43     | 12.13834  | 0.001  | 9999 | 39310 | 8.57  | 60690  | 35   |       |        |     |      |  |  |
| 1560 | 26 | 7.87870   | 57 58  | 7.87871   | 12.12129  | 42 43     | 12.12130  | 0.001  | 9999 | 39818 | 8.47  | 60182  | 34   |       |        |     |      |  |  |
| 1620 | 27 | 7.89539   | 57 58  | 7.89540   | 12.10490  | 42 43     | 12.10491  | 0.001  | 9999 | 40320 | 8.37  | 59680  | 33   |       |        |     |      |  |  |
| 1680 | 28 | 7.91088   | 57 58  | 7.91089   | 12.08911  | 42 43     | 12.08912  | 0.001  | 9999 | 40816 | 8.27  | 59184  | 32   |       |        |     |      |  |  |
| 1740 | 29 | 7.92612   | 57 59  | 7.92613   | 12.07387  | 41 43     | 12.07388  | 0.002  | 9998 | 41307 | 8.18  | 58693  | 31   |       |        |     |      |  |  |
| 1800 | 30 | 7.94084   | 57 59  | 7.94086   | 12.05914  | 41 43     | 12.05916  | 0.002  | 9998 | 41792 | 8.08  | 58208  | 30   |       |        |     |      |  |  |
| 1860 | 31 | 7.95508   | 57 59  | 7.95510   | 12.04490  | 41 43     | 12.04492  | 0.002  | 9998 | 42272 | 8.00  | 57728  | 29   |       |        |     |      |  |  |
| 1920 | 32 | 7.96887   | 57 59  | 7.96889   | 12.03111  | 41 43     | 12.03113  | 0.002  | 9998 | 42746 | 7.90  | 57254  | 28   |       |        |     |      |  |  |
| 1980 | 33 | 7.98223   | 57 59  | 7.98225   | 12.01775  | 41 43     | 12.01777  | 0.002  | 9998 | 43216 | 7.83  | 56784  | 27   |       |        |     |      |  |  |
| 2040 | 34 | 7.99520   | 57 59  | 7.99522   | 12.00478  | 41 43     | 12.00480  | 0.002  | 9998 | 43680 | 7.73  | 56320  | 26   |       |        |     |      |  |  |
| 2100 | 35 | 8.00779   | 57 59  | 8.00781   | 11.99219  | 41 43     | 11.99221  | 0.002  | 9998 | 44139 | 7.65  | 55861  | 25   |       |        |     |      |  |  |
| 2160 | 36 | 8.02002   | 57 59  | 8.02004   | 11.97996  | 41 43     | 11.97998  | 0.002  | 9998 | 44594 | 7.58  | 55406  | 24   |       |        |     |      |  |  |
| 2220 | 37 | 8.03192   | 57 53  | 8.03194   | 11.96806  | 41 43     | 11.96808  | 0.003  | 9997 | 45044 | 7.50  | 54956  | 23   |       |        |     |      |  |  |
| 2280 | 38 | 8.04350   | 57 59  | 8.04353   | 11.95647  | 41 43     | 11.95650  | 0.003  | 9997 | 45489 | 7.42  | 54511  | 22   |       |        |     |      |  |  |
| 2340 | 39 | 8.05478   | 57 59  | 8.05481   | 11.94519  | 41 43     | 11.94522  | 0.003  | 9997 | 45930 | 7.35  | 54070  | 21   |       |        |     |      |  |  |
| 2400 | 40 | 8.06578   | 57 59  | 8.06581   | 11.93419  | 41 43     | 11.93422  | 0.003  | 9997 | 46366 | 7.27  | 53634  | 20   |       |        |     |      |  |  |
| 2460 | 41 | 8.07650   | 56 50  | 8.07653   | 11.92347  | 40 44     | 11.92350  | 0.003  | 9997 | 46799 | 7.22  | 53201  | 19   |       |        |     |      |  |  |
| 2520 | 42 | 8.08695   | 56 50  | 8.08700   | 11.91300  | 40 44     | 11.91304  | 0.003  | 9997 | 47226 | 7.12  | 52774  | 18   |       |        |     |      |  |  |
| 2580 | 43 | 8.09718   | 56 50  | 8.09722   | 11.90278  | 40 44     | 11.90282  | 0.003  | 9997 | 47650 | 7.02  | 52350  | 17   |       |        |     |      |  |  |
| 2640 | 44 | 8.10717   | 56 50  | 8.10721   | 11.89280  | 40 44     | 11.89283  | 0.004  | 9996 | 48069 | 6.93  | 51931  | 16   |       |        |     |      |  |  |
| 2700 | 45 | 8.11693   | 56 50  | 8.11697   | 11.88304  | 40 44     | 11.88307  | 0.004  | 9996 | 48485 | 6.83  | 51515  | 15   |       |        |     |      |  |  |
| 2760 | 46 | 8.12647   | 56 50  | 8.12651   | 11.87349  | 40 44     | 11.87353  | 0.004  | 9996 | 48896 | 6.85  | 51104  | 14   |       |        |     |      |  |  |
| 2820 | 47 | 8.13581   | 56 50  | 8.13585   | 11.86415  | 40 44     | 11.86419  | 0.004  | 9996 | 49304 | 6.80  | 50696  | 13   |       |        |     |      |  |  |
| 2880 | 48 | 8.14495   | 56 50  | 8.14500   | 11.85500  | 40 44     | 11.85505  | 0.004  | 9996 | 49708 | 6.73  | 50292  | 12   |       |        |     |      |  |  |
| 2940 | 49 | 8.15391   | 56 50  | 8.15395   | 11.84605  | 40 44     | 11.84609  | 0.004  | 9996 | 50108 | 6.67  | 49892  | 11   |       |        |     |      |  |  |
| 3000 | 50 | 8.16268   | 56 61  | 8.16273   | 11.83727  | 39 44     | 11.83732  | 0.005  | 9995 | 50504 | 6.60  | 49496  | 10   |       |        |     |      |  |  |
| 3060 | 51 | 8.17123   | 56 61  | 8.17133   | 11.82867  | 39 44     | 11.82877  | 0.005  | 9995 | 50897 | 6.55  | 49103  | 9    |       |        |     |      |  |  |
| 3120 | 52 | 8.17971   | 56 61  | 8.17976   | 11.82024  | 39 44     | 11.82029  | 0.005  | 9995 | 51287 | 6.50  | 48713  | 8    |       |        |     |      |  |  |
| 3180 | 53 | 8.18798   | 56 61  | 8.18804   | 11.81196  | 39 44     | 11.81202  | 0.005  | 9995 | 51673 | 6.43  | 48327  | 7    |       |        |     |      |  |  |
| 3240 | 54 | 8.19610   | 56 61  | 8.19616   | 11.80384  | 39 44     | 11.80390  | 0.005  | 9995 | 52055 | 6.37  | 47945  | 6    |       |        |     |      |  |  |
| 3300 | 55 | 8.20407   | 56 61  | 8.20413   | 11.79587  | 39 44     | 11.79593  | 0.006  | 9994 | 52434 | 6.32  | 47566  | 5    |       |        |     |      |  |  |
| 3360 | 56 | 8.21189   | 56 61  | 8.21195   | 11.78805  | 39 44     | 11.78811  | 0.006  | 9994 | 52810 | 6.27  | 47190  | 4    |       |        |     |      |  |  |
| 3420 | 57 | 8.21958   | 56 61  | 8.21964   | 11.78036  | 39 44     | 11.78042  | 0.006  | 9994 | 53183 | 6.22  | 46817  | 3    |       |        |     |      |  |  |
| 3480 | 58 | 8.22713   | 56 62  | 8.22720   | 11.77280  | 38 45     | 11.77287  | 0.006  | 9994 | 53552 | 6.15  | 46448  | 2    |       |        |     |      |  |  |
| 3540 | 59 | 8.23456   | 56 62  | 8.23464   | 11.76538  | 38 45     | 11.76544  | 0.006  | 9994 | 53919 | 6.12  | 46081  | 1    |       |        |     |      |  |  |
| 3600 | 60 | 8.24186   | 56 62  | 8.24192   | 11.75808  | 38 45     | 11.75814  | 0.007  | 9993 | 54282 | 6.05  | 45718  | 0    |       |        |     |      |  |  |
| #    | i  | no.       | 4.685  | col.      | tan.      | q+n       | sec.      | cosec. | sin. | 8     | cos.  | d. 1"  | sec. | 89°   | 91°    | 88° |      |  |  |

| /  | 170°  |       |       |        |      | 2°    |       |        |       |       | 177°  |        |      |     |  | / |
|----|-------|-------|-------|--------|------|-------|-------|--------|-------|-------|-------|--------|------|-----|--|---|
|    | tan.  | d. 1" | col.  | sec.   | cos. | sin.  | d. 1" | cosec. | tan.  | d. 1" | col.  | sec.   | csc. |     |  |   |
|    | 11.   | 10.0  | 9.9   | 11.    | 10.0 | 8.    | 11.   | 8.     | 11.   | 10.0  | 9.9   | 11.    | 10.0 | 9.9 |  |   |
| 0  | 24192 |       | 75808 | 0007   | 9993 | 54282 |       | 45718  | 54308 | 6.02  | 45692 | 0026   | 9974 | 60  |  |   |
| 1  | 24910 | 11.97 | 75090 | 0007   | 9993 | 54642 | 6.00  | 45358  | 54669 | 5.97  | 45331 | 0027   | 9973 | 59  |  |   |
| 2  | 25616 | 11.77 | 74384 | 0007   | 9993 | 54999 | 5.95  | 45001  | 55027 | 5.92  | 44973 | 0027   | 9973 | 58  |  |   |
| 3  | 26312 | 11.60 | 73688 | 0007   | 9993 | 55354 | 5.92  | 44646  | 55382 | 5.92  | 44618 | 0028   | 9972 | 57  |  |   |
| 4  | 26996 | 11.40 | 73004 | 0008   | 9992 | 55705 | 5.85  | 44295  | 55734 | 5.87  | 44266 | 0028   | 9972 | 56  |  |   |
| 5  | 27669 | 11.22 | 72331 | 0008   | 9992 | 56054 | 5.82  | 43946  | 56083 | 5.82  | 43917 | 0029   | 9971 | 55  |  |   |
| 6  | 28332 | 11.05 | 71668 | 0008   | 9992 | 56400 | 5.77  | 43600  | 56429 | 5.77  | 43571 | 0029   | 9971 | 54  |  |   |
| 7  | 28986 | 10.90 | 71014 | 0008   | 9992 | 56743 | 5.72  | 43257  | 56773 | 5.73  | 43227 | 0030   | 9970 | 53  |  |   |
| 8  | 29629 | 10.72 | 70371 | 0008   | 9992 | 57084 | 5.68  | 42916  | 57114 | 5.68  | 42886 | 0030   | 9970 | 52  |  |   |
| 9  | 30263 | 10.57 | 69737 | 0009   | 9991 | 57421 | 5.62  | 42579  | 57452 | 5.63  | 42548 | 0031   | 9969 | 51  |  |   |
| 10 | 30888 | 10.42 | 69112 | 0009   | 9991 | 57757 | 5.60  | 42243  | 57788 | 5.60  | 42212 | 0031   | 9969 | 50  |  |   |
| 11 | 31505 | 10.28 | 68495 | 0009   | 9991 | 58089 | 5.53  | 41911  | 58121 | 5.55  | 41879 | 0032   | 9968 | 49  |  |   |
| 12 | 32112 | 10.12 | 67888 | 0010   | 9990 | 58419 | 5.50  | 41581  | 58451 | 5.50  | 41549 | 0032   | 9968 | 48  |  |   |
| 13 | 32711 | 9.98  | 67289 | 0010   | 9990 | 58747 | 5.47  | 41253  | 58779 | 5.47  | 41221 | 0033   | 9967 | 47  |  |   |
| 14 | 33302 | 9.85  | 66698 | 0010   | 9990 | 59072 | 5.42  | 40928  | 59105 | 5.43  | 40895 | 0033   | 9967 | 46  |  |   |
| 15 | 33886 | 9.73  | 66114 | 0010   | 9990 | 59395 | 5.38  | 40605  | 59428 | 5.38  | 40572 | 0033   | 9967 | 45  |  |   |
| 16 | 34461 | 9.58  | 65539 | 0011   | 9989 | 59715 | 5.33  | 40285  | 59749 | 5.35  | 40251 | 0034   | 9966 | 44  |  |   |
| 17 | 35029 | 9.47  | 64971 | 0011   | 9989 | 60033 | 5.30  | 39967  | 60068 | 5.32  | 39932 | 0034   | 9966 | 43  |  |   |
| 18 | 35590 | 9.35  | 64410 | 0011   | 9989 | 60349 | 5.27  | 39651  | 60384 | 5.27  | 39616 | 0035   | 9965 | 42  |  |   |
| 19 | 36143 | 9.22  | 63857 | 0011   | 9989 | 60662 | 5.22  | 39338  | 60698 | 5.23  | 39302 | 0036   | 9964 | 41  |  |   |
| 20 | 36689 | 9.10  | 63311 | 0012   | 9988 | 60973 | 5.18  | 39027  | 61009 | 5.18  | 38991 | 0036   | 9964 | 40  |  |   |
| 21 | 37229 | 8.98  | 62771 | 0012   | 9988 | 61282 | 5.15  | 38718  | 61319 | 5.17  | 38681 | 0037   | 9963 | 39  |  |   |
| 22 | 37762 | 8.88  | 62238 | 0012   | 9988 | 61589 | 5.12  | 38411  | 61626 | 5.12  | 38374 | 0037   | 9963 | 38  |  |   |
| 23 | 38289 | 8.78  | 61711 | 0013   | 9987 | 61894 | 5.08  | 38106  | 61931 | 5.08  | 38069 | 0038   | 9962 | 37  |  |   |
| 24 | 38809 | 8.67  | 61191 | 0013   | 9987 | 62196 | 5.03  | 37804  | 62234 | 5.05  | 37766 | 0038   | 9962 | 36  |  |   |
| 25 | 39333 | 8.57  | 60677 | 0013   | 9987 | 62497 | 5.02  | 37503  | 62535 | 5.02  | 37465 | 0039   | 9961 | 35  |  |   |
| 26 | 39832 | 8.48  | 60168 | 0014   | 9986 | 62795 | 4.97  | 37205  | 62834 | 4.98  | 37166 | 0039   | 9961 | 34  |  |   |
| 27 | 40334 | 8.37  | 59666 | 0014   | 9986 | 63091 | 4.93  | 36909  | 63131 | 4.95  | 36869 | 0040   | 9960 | 33  |  |   |
| 28 | 40830 | 8.27  | 59170 | 0014   | 9986 | 63385 | 4.90  | 36615  | 63426 | 4.92  | 36574 | 0040   | 9960 | 32  |  |   |
| 29 | 41321 | 8.18  | 58679 | 0015   | 9985 | 63678 | 4.88  | 36322  | 63718 | 4.87  | 36282 | 0041   | 9959 | 31  |  |   |
| 30 | 41807 | 8.10  | 58193 | 0015   | 9985 | 63968 | 4.83  | 36032  | 64009 | 4.85  | 35991 | 0041   | 9959 | 30  |  |   |
| 31 | 42287 | 8.00  | 57713 | 0015   | 9985 | 64256 | 4.80  | 35744  | 64298 | 4.82  | 35702 | 0042   | 9958 | 29  |  |   |
| 32 | 42762 | 7.92  | 57238 | 0016   | 9984 | 64543 | 4.78  | 35457  | 64585 | 4.78  | 35415 | 0042   | 9958 | 28  |  |   |
| 33 | 43232 | 7.83  | 56768 | 0016   | 9984 | 64827 | 4.73  | 35173  | 64870 | 4.75  | 35130 | 0043   | 9957 | 27  |  |   |
| 34 | 43696 | 7.73  | 56304 | 0016   | 9984 | 65110 | 4.72  | 34890  | 65154 | 4.73  | 34846 | 0044   | 9956 | 26  |  |   |
| 35 | 44156 | 7.67  | 55844 | 0017   | 9983 | 65391 | 4.68  | 34609  | 65435 | 4.68  | 34565 | 0044   | 9956 | 25  |  |   |
| 36 | 44611 | 7.58  | 55389 | 0017   | 9983 | 65670 | 4.65  | 34330  | 65715 | 4.67  | 34285 | 0045   | 9955 | 24  |  |   |
| 37 | 45061 | 7.50  | 54939 | 0017   | 9983 | 65947 | 4.62  | 34053  | 65993 | 4.63  | 34007 | 0045   | 9955 | 23  |  |   |
| 38 | 45507 | 7.43  | 54493 | 0018   | 9982 | 66223 | 4.60  | 33777  | 66269 | 4.60  | 33731 | 0046   | 9954 | 22  |  |   |
| 39 | 45948 | 7.35  | 54052 | 0018   | 9982 | 66497 | 4.57  | 33503  | 66543 | 4.57  | 33457 | 0046   | 9954 | 21  |  |   |
| 40 | 46385 | 7.28  | 53615 | 0018   | 9982 | 66769 | 4.53  | 33231  | 66816 | 4.55  | 33218 | 0047   | 9953 | 20  |  |   |
| 41 | 46817 | 7.20  | 53183 | 0019   | 9981 | 67039 | 4.50  | 32961  | 67087 | 4.52  | 32913 | 0048   | 9952 | 19  |  |   |
| 42 | 47245 | 7.13  | 52755 | 0019   | 9981 | 67308 | 4.48  | 32692  | 67356 | 4.48  | 32644 | 0048   | 9952 | 18  |  |   |
| 43 | 47669 | 7.07  | 52331 | 0019   | 9981 | 67575 | 4.45  | 32425  | 67624 | 4.47  | 32376 | 0049   | 9951 | 17  |  |   |
| 44 | 48089 | 7.00  | 51911 | 0020   | 9980 | 67841 | 4.43  | 32159  | 67890 | 4.43  | 32110 | 0049   | 9951 | 16  |  |   |
| 45 | 48505 | 6.93  | 51495 | 0020   | 9980 | 68104 | 4.38  | 31896  | 68154 | 4.40  | 31846 | 0050   | 9950 | 15  |  |   |
| 46 | 48917 | 6.87  | 51083 | 0021   | 9979 | 68367 | 4.38  | 31633  | 68417 | 4.38  | 31583 | 0051   | 9949 | 14  |  |   |
| 47 | 49325 | 6.80  | 50675 | 0021   | 9979 | 68627 | 4.33  | 31373  | 68678 | 4.35  | 31322 | 0051   | 9949 | 13  |  |   |
| 48 | 49729 | 6.73  | 50271 | 0021   | 9979 | 68886 | 4.32  | 31114  | 68938 | 4.33  | 31062 | 0052   | 9948 | 12  |  |   |
| 49 | 50130 | 6.68  | 49870 | 0022   | 9978 | 69144 | 4.30  | 30856  | 69196 | 4.30  | 30804 | 0052   | 9948 | 11  |  |   |
| 50 | 50527 | 6.62  | 49473 | 0022   | 9978 | 69400 | 4.27  | 30600  | 69453 | 4.28  | 30547 | 0053   | 9947 | 10  |  |   |
| 51 | 50920 | 6.55  | 49080 | 0023   | 9977 | 69654 | 4.23  | 30346  | 69708 | 4.25  | 30292 | 0054   | 9946 | 9   |  |   |
| 52 | 51310 | 6.50  | 48690 | 0023   | 9977 | 69907 | 4.22  | 30093  | 69962 | 4.23  | 30038 | 0054   | 9946 | 8   |  |   |
| 53 | 51696 | 6.43  | 48304 | 0023   | 9977 | 70159 | 4.20  | 29841  | 70214 | 4.20  | 29786 | 0055   | 9945 | 7   |  |   |
| 54 | 52079 | 6.38  | 47921 | 0024   | 9976 | 70409 | 4.17  | 29591  | 70465 | 4.18  | 29535 | 0056   | 9944 | 6   |  |   |
| 55 | 52459 | 6.33  | 47541 | 0024   | 9976 | 70658 | 4.15  | 29342  | 70714 | 4.15  | 29286 | 0056   | 9944 | 5   |  |   |
| 56 | 52835 | 6.27  | 47165 | 0025   | 9975 | 70905 | 4.12  | 29095  | 70962 | 4.12  | 29038 | 0057   | 9943 | 4   |  |   |
| 57 | 53208 | 6.22  | 46792 | 0025   | 9975 | 71151 | 4.10  | 28849  | 71208 | 4.10  | 28792 | 0058   | 9942 | 3   |  |   |
| 58 | 53578 | 6.17  | 46422 | 0026   | 9974 | 71395 | 4.07  | 28605  | 71453 | 4.08  | 28547 | 0058   | 9942 | 2   |  |   |
| 59 | 53945 | 6.12  | 46055 | 0026   | 9974 | 71638 | 4.05  | 28362  | 71697 | 4.07  | 28303 | 0059   | 9941 | 1   |  |   |
| 60 | 54308 | 6.05  | 45692 | 0026   | 9974 | 71880 | 4.03  | 28120  | 71940 | 4.05  | 28060 | 0060   | 9940 | 0   |  |   |
|    | 8.    |       | 11.   | 10.0   | 9.9  | 8.    |       | 11.    | 8.    |       | 11.   | 10.0   | 9.9  |     |  |   |
|    | col.  | d. 1" | tan.  | cosec. | sin. | col.  | d. 1" | sec.   | tan.  | d. 1" | tan.  | cosec. | sin. |     |  |   |
|    | 91°   |       |       |        | 88°  |       |       |        |       |       |       |        | 87°  |     |  |   |

| 30°  |       | 170°    |       |       |       |      |       |      |       |         |      | 40°   |       | 170° |      |      |       |         |      |       |       |      |      |  |
|------|-------|---------|-------|-------|-------|------|-------|------|-------|---------|------|-------|-------|------|------|------|-------|---------|------|-------|-------|------|------|--|
| sin. | d. 1" | cossec. | tan.  | d. 1" | sec.  | sec. | cos.  | sin. | d. 1" | cossec. | tan. | d. 1" | cot.  | sec. | cos. | sin. | d. 1" | cossec. | tan. | d. 1" | cot.  | sec. | cos. |  |
| 8.7* |       | 11.2*   | 8.7*  |       | 11.2* | 10.0 | 9.9   | 8.8* |       | 11.1*   | 8.8* |       | 11.1* | 10.0 | 9.9  | 8.8* |       | 11.0*   | 8.9* |       | 11.0* | 10.0 | 9.9  |  |
| 0    | 1880  |         | 8120  | 1940  | 4.02  | 8600 | 0060  | 9940 | 4358  | 3.02    | 5642 | 4464  | 3.03  | 5536 | 0106 | 9894 | 60    |         |      |       |       |      |      |  |
| 1    | 2120  | 4.00    | 7880  | 2181  | 3.98  | 7819 | 0060  | 9940 | 4530  | 2.98    | 5461 | 4646  | 3.00  | 5354 | 0107 | 9893 | 59    |         |      |       |       |      |      |  |
| 2    | 2359  | 3.98    | 7641  | 2420  | 3.98  | 7580 | 0061  | 9939 | 4718  | 2.98    | 5282 | 4826  | 3.00  | 5174 | 0108 | 9892 | 58    |         |      |       |       |      |      |  |
| 3    | 2597  | 3.97    | 7403  | 2659  | 3.95  | 7341 | 0062  | 9938 | 4897  | 2.97    | 5103 | 5006  | 2.98  | 4994 | 0109 | 9891 | 57    |         |      |       |       |      |      |  |
| 4    | 2834  | 3.95    | 7166  | 2896  | 3.93  | 7104 | 0062  | 9938 | 5075  | 2.95    | 4925 | 5185  | 2.98  | 4815 | 0109 | 9891 | 56    |         |      |       |       |      |      |  |
| 5    | 3069  | 3.90    | 6931  | 3132  | 3.90  | 6868 | 0063  | 9937 | 5252  | 2.95    | 4748 | 5363  | 2.97  | 4637 | 0110 | 9890 | 55    |         |      |       |       |      |      |  |
| 6    | 3303  | 3.87    | 6697  | 3366  | 3.90  | 6634 | 0064  | 9936 | 5429  | 2.95    | 4571 | 5540  | 2.95  | 4460 | 0111 | 9889 | 54    |         |      |       |       |      |      |  |
| 7    | 3535  | 3.87    | 6465  | 3600  | 3.87  | 6400 | 0064  | 9936 | 5605  | 2.93    | 4395 | 5717  | 2.95  | 4283 | 0112 | 9888 | 53    |         |      |       |       |      |      |  |
| 8    | 3767  | 3.83    | 6233  | 3832  | 3.87  | 6168 | 0065  | 9935 | 5780  | 2.92    | 4220 | 5893  | 2.93  | 4107 | 0113 | 9887 | 52    |         |      |       |       |      |      |  |
| 9    | 3997  | 3.83    | 6003  | 4063  | 3.85  | 5937 | 0066  | 9934 | 5955  | 2.92    | 4045 | 6069  | 2.93  | 3931 | 0114 | 9886 | 51    |         |      |       |       |      |      |  |
| 10   | 4226  | 3.82    | 5774  | 4292  | 3.82  | 5708 | 0066  | 9934 | 6128  | 2.88    | 3872 | 6243  | 2.90  | 3757 | 0115 | 9885 | 50    |         |      |       |       |      |      |  |
| 11   | 4454  | 3.80    | 5546  | 4521  | 3.82  | 5479 | 0067  | 9933 | 6301  | 2.88    | 3699 | 6417  | 2.90  | 3583 | 0116 | 9884 | 49    |         |      |       |       |      |      |  |
| 12   | 4680  | 3.77    | 5320  | 4748  | 3.78  | 5252 | 0068  | 9932 | 6474  | 2.88    | 3526 | 6591  | 2.90  | 3409 | 0117 | 9883 | 48    |         |      |       |       |      |      |  |
| 13   | 4906  | 3.77    | 5094  | 4974  | 3.75  | 5026 | 0068  | 9932 | 6645  | 2.85    | 3355 | 6763  | 2.87  | 3237 | 0118 | 9882 | 47    |         |      |       |       |      |      |  |
| 14   | 5130  | 3.73    | 4870  | 5199  | 3.75  | 4801 | 0069  | 9931 | 6816  | 2.85    | 3184 | 6935  | 2.87  | 3065 | 0119 | 9881 | 46    |         |      |       |       |      |      |  |
| 15   | 5353  | 3.72    | 4647  | 5423  | 3.73  | 4577 | 0070  | 9930 | 6987  | 2.85    | 3013 | 7106  | 2.85  | 2894 | 0120 | 9880 | 45    |         |      |       |       |      |      |  |
| 16   | 5575  | 3.70    | 4425  | 5645  | 3.70  | 4355 | 0071  | 9929 | 7156  | 2.82    | 2844 | 7277  | 2.85  | 2723 | 0121 | 9879 | 44    |         |      |       |       |      |      |  |
| 17   | 5795  | 3.67    | 4205  | 5867  | 3.70  | 4133 | 0071  | 9929 | 7325  | 2.82    | 2675 | 7447  | 2.83  | 2553 | 0121 | 9879 | 43    |         |      |       |       |      |      |  |
| 18   | 6015  | 3.67    | 3985  | 6087  | 3.67  | 3913 | 0072  | 9928 | 7494  | 2.82    | 2506 | 7616  | 2.82  | 2384 | 0122 | 9878 | 42    |         |      |       |       |      |      |  |
| 19   | 6234  | 3.65    | 3766  | 6306  | 3.65  | 3694 | 0073  | 9927 | 7661  | 2.78    | 2339 | 7785  | 2.82  | 2215 | 0123 | 9877 | 41    |         |      |       |       |      |      |  |
| 20   | 6451  | 3.62    | 3549  | 6525  | 3.65  | 3475 | 0074  | 9926 | 7829  | 2.80    | 2171 | 7955  | 2.80  | 2047 | 0124 | 9876 | 40    |         |      |       |       |      |      |  |
| 21   | 6667  | 3.60    | 3333  | 6742  | 3.62  | 3258 | 0074  | 9926 | 7995  | 2.77    | 2005 | 8120  | 2.78  | 1880 | 0125 | 9875 | 39    |         |      |       |       |      |      |  |
| 22   | 6883  | 3.60    | 3117  | 6958  | 3.60  | 3042 | 0075  | 9925 | 8161  | 2.77    | 1839 | 8287  | 2.77  | 1713 | 0126 | 9874 | 38    |         |      |       |       |      |      |  |
| 23   | 7097  | 3.57    | 2903  | 7173  | 3.58  | 2827 | 0076  | 9924 | 8326  | 2.75    | 1674 | 8453  | 2.77  | 1547 | 0127 | 9873 | 37    |         |      |       |       |      |      |  |
| 24   | 7310  | 3.55    | 2690  | 7387  | 3.57  | 2613 | 0077  | 9923 | 8490  | 2.73    | 1510 | 8618  | 2.75  | 1382 | 0128 | 9872 | 36    |         |      |       |       |      |      |  |
| 25   | 7522  | 3.53    | 2478  | 7600  | 3.55  | 2400 | 0077  | 9923 | 8654  | 2.73    | 1346 | 8783  | 2.75  | 1217 | 0129 | 9871 | 35    |         |      |       |       |      |      |  |
| 26   | 7733  | 3.52    | 2267  | 7811  | 3.52  | 2189 | 0078  | 9922 | 8817  | 2.72    | 1183 | 8948  | 2.75  | 1052 | 0130 | 9870 | 34    |         |      |       |       |      |      |  |
| 27   | 7943  | 3.50    | 2057  | 8022  | 3.52  | 1978 | 0079  | 9921 | 8980  | 2.72    | 1020 | 9111  | 2.72  | 889  | 0131 | 9869 | 33    |         |      |       |       |      |      |  |
| 28   | 8152  | 3.48    | 1848  | 8232  | 3.50  | 1768 | 0080  | 9920 | 9142  | 2.70    | 8858 | 9274  | 2.72  | 7726 | 0132 | 9868 | 32    |         |      |       |       |      |      |  |
| 29   | 8360  | 3.47    | 1640  | 8441  | 3.48  | 1559 | 0080  | 9920 | 9304  | 2.70    | 8696 | 9437  | 2.72  | 6563 | 0133 | 9867 | 31    |         |      |       |       |      |      |  |
| 30   | 8568  | 3.47    | 1432  | 8649  | 3.47  | 1351 | 0081  | 9919 | 9464  | 2.67    | 8536 | 9598  | 2.68  | 5402 | 0134 | 9866 | 30    |         |      |       |       |      |      |  |
| 31   | 8774  | 3.43    | 1226  | 8855  | 3.43  | 1145 | 0082  | 9918 | 9625  | 2.66    | 8375 | 9760  | 2.70  | 4240 | 0135 | 9865 | 29    |         |      |       |       |      |      |  |
| 32   | 8979  | 3.42    | 1021  | 9061  | 3.43  | 939  | 0083  | 9917 | 9784  | 2.65    | 8216 | 9920  | 2.67  | 3080 | 0136 | 9864 | 28    |         |      |       |       |      |      |  |
| 33   | 9183  | 3.40    | 817   | 9266  | 3.42  | 734  | 0083  | 9917 | 9943  | 2.65    | 8057 | 10080 | 2.67  | 1920 | 0137 | 9863 | 27    |         |      |       |       |      |      |  |
| 34   | 9386  | 3.38    | 614   | 9470  | 3.40  | 530  | 0084  | 9916 | 1012  | 2.65    | 7908 | 10240 | 2.67  | 7760 | 0138 | 9862 | 26    |         |      |       |       |      |      |  |
| 35   | 9588  | 3.37    | 412   | 9673  | 3.38  | 327  | 0085  | 9915 | 1026  | 2.63    | 7749 | 10399 | 2.65  | 6601 | 0139 | 9861 | 25    |         |      |       |       |      |      |  |
| 36   | 9789  | 3.35    | 211   | 9875  | 3.37  | 125  | 0086  | 9914 | 1041  | 2.62    | 7583 | 10557 | 2.63  | 5443 | 0140 | 9860 | 24    |         |      |       |       |      |      |  |
| 37   | 9990  | 3.35    | 10    | 10076 | 3.35  | 9924 | 0087  | 9913 | 10574 | 2.62    | 7426 | 10715 | 2.63  | 4285 | 0141 | 9859 | 23    |         |      |       |       |      |      |  |
| 38   | 10189 | 3.32    | 981   | 10277 | 3.35  | 7923 | 0087  | 9913 | 10730 | 2.60    | 7270 | 10872 | 2.62  | 3128 | 0142 | 9858 | 22    |         |      |       |       |      |      |  |
| 39   | 10388 | 3.32    | 9612  | 10476 | 3.32  | 5924 | 0088  | 9912 | 10885 | 2.58    | 7115 | 11029 | 2.62  | 1971 | 0143 | 9857 | 21    |         |      |       |       |      |      |  |
| 40   | 10585 | 3.28    | 9415  | 10674 | 3.30  | 3926 | 0089  | 9911 | 11040 | 2.58    | 6960 | 11185 | 2.58  | 8815 | 0144 | 9856 | 20    |         |      |       |       |      |      |  |
| 41   | 10782 | 3.28    | 9218  | 10872 | 3.30  | 1928 | 0090  | 9910 | 11195 | 2.58    | 6805 | 11340 | 2.58  | 7660 | 0145 | 9855 | 19    |         |      |       |       |      |      |  |
| 42   | 10978 | 3.27    | 9022  | 11068 | 3.27  | 930  | 0091  | 9909 | 11349 | 2.57    | 6651 | 11495 | 2.58  | 6505 | 0146 | 9854 | 18    |         |      |       |       |      |      |  |
| 43   | 11173 | 3.25    | 8827  | 11264 | 3.27  | 736  | 0091  | 9909 | 11502 | 2.55    | 6498 | 11650 | 2.58  | 5350 | 0147 | 9853 | 17    |         |      |       |       |      |      |  |
| 44   | 11367 | 3.23    | 8633  | 11459 | 3.25  | 541  | 0092  | 9908 | 11655 | 2.55    | 6345 | 11803 | 2.55  | 4197 | 0148 | 9852 | 16    |         |      |       |       |      |      |  |
| 45   | 11560 | 3.22    | 8440  | 11653 | 3.23  | 347  | 0093  | 9907 | 11807 | 2.53    | 6193 | 11957 | 2.57  | 3043 | 0149 | 9851 | 15    |         |      |       |       |      |      |  |
| 46   | 11752 | 3.20    | 8248  | 11846 | 3.22  | 154  | 0094  | 9906 | 11959 | 2.53    | 6041 | 12110 | 2.55  | 1890 | 0150 | 9850 | 14    |         |      |       |       |      |      |  |
| 47   | 11944 | 3.20    | 8056  | 12038 | 3.20  | 962  | 0095  | 9905 | 12110 | 2.52    | 5890 | 12262 | 2.53  | 738  | 0152 | 9848 | 13    |         |      |       |       |      |      |  |
| 48   | 12134 | 3.17    | 7866  | 12230 | 3.20  | 770  | 0096  | 9904 | 12261 | 2.52    | 5739 | 12414 | 2.53  | 5786 | 0153 | 9847 | 12    |         |      |       |       |      |      |  |
| 49   | 12324 | 3.17    | 7676  | 12420 | 3.17  | 578  | 0096  | 9904 | 12411 | 2.50    | 5589 | 12565 | 2.52  | 4635 | 0154 | 9846 | 11    |         |      |       |       |      |      |  |
| 50   | 12513 | 3.15    | 7487  | 12610 | 3.17  | 387  | 0097  | 9903 | 12561 | 2.50    | 5439 | 12716 | 2.52  | 3484 | 0155 | 9845 | 10    |         |      |       |       |      |      |  |
| 51   | 12701 | 3.13    | 7299  | 12800 | 3.15  | 196  | 0098  | 9902 | 12710 | 2.48    | 5290 | 12866 | 2.50  | 2333 | 0156 | 9844 | 9     |         |      |       |       |      |      |  |
| 52   | 12888 | 3.12    | 7112  | 12987 | 3.13  | 7    | 0099  | 9901 | 12859 | 2.48    | 5141 | 13016 | 2.50  | 1182 | 0157 | 9843 | 8     |         |      |       |       |      |      |  |
| 53   | 13075 | 3.12    | 6925  | 13175 | 3.13  | 6825 | 0100  | 9900 | 13007 | 2.47    | 4992 | 13165 | 2.48  | 63   | 0158 | 9842 | 7     |         |      |       |       |      |      |  |
| 54   | 13261 | 3.10    | 6739  | 13361 | 3.10  | 6639 | 0101  | 9899 | 13154 | 2.45    | 4843 | 13313 | 2.47  | 6687 | 0159 | 9841 | 6     |         |      |       |       |      |      |  |
| 55   | 13446 | 3.08    | 6554  | 13547 | 3.10  | 6453 | 0102  | 9898 | 13301 | 2.45    | 4694 | 13460 | 2.48  | 6538 | 0160 | 9840 | 5     |         |      |       |       |      |      |  |
| 56   | 13630 | 3.07    | 6370  | 13732 | 3.08  | 6268 | 0102  | 9898 | 13448 | 2.45    | 4545 | 13607 | 2.45  | 6391 | 0161 | 9839 | 4     |         |      |       |       |      |      |  |
| 57   | 13813 | 3.05    | 6187  | 13916 | 3.07  | 6084 | 0103  | 9897 | 13594 | 2.43    | 4396 | 13754 | 2.45  | 6244 | 0162 | 9838 | 3     |         |      |       |       |      |      |  |
| 58   | 13996 | 3.05    | 6004  | 14100 | 3.07  | 5900 | 0104  | 9896 | 13740 | 2.43    | 4247 | 13900 | 2.45  | 6097 | 0163 | 9837 | 2     |         |      |       |       |      |      |  |
| 59   | 14177 | 3.02    | 5823  | 14282 | 3.03  | 5718 | 0105  | 9895 | 13885 | 2.42    | 4098 | 14046 | 2.43  | 5951 | 0164 | 9836 | 1     |         |      |       |       |      |      |  |
| 60   | 14358 | 3.02    | 5642  | 14464 | 3.03  | 5536 | 0106  | 9894 | 14030 | 2.42    | 3949 | 14191 | 2.43  | 5805 | 0166 | 9834 | 0     |         |      |       |       |      |      |  |
|      | cos.  | d. 1"   | 11.1* | 8.8*  |       | tan. | 11.1* | 10.0 | 9.9   | 8.9*    |      | 1     |       |      |      |      |       |         |      |       |       |      |      |  |

| 5°      |       |       |       | 174°  |      |      |      | 6°   |       |       |      | 173°  |      |      |      |    |
|---------|-------|-------|-------|-------|------|------|------|------|-------|-------|------|-------|------|------|------|----|
| sin.    | d. 1" | cosc. | tan.  | d. 1" | cot. | sec. | cos. | sin. | d. 1" | cosc. | tan. | d. 1" | cot. | sec. | cos. |    |
| 8.9*    | 11.0* | 8.9*  | 11.0* | 10.0  | 9.9  | 9.9  | 10.0 | 9.0  | 10.9  | 9.0   | 10.9 | 10.9  | 10.9 | 10.0 | 9.9  |    |
| 0.4030  |       | 5970  | 4195  | 2.42  | 5805 | 0166 | 9834 | 1923 |       | 8077  | 2162 |       | 7838 | 0230 | 9761 | 60 |
| 1.4174  | 2.40  | 5826  | 4340  | 2.42  | 5660 | 0167 | 9833 | 2043 | 2.00  | 7957  | 2283 | 2.02  | 7717 | 0240 | 9760 | 50 |
| 2.4317  | 2.38  | 5683  | 4485  | 2.42  | 5515 | 0168 | 9832 | 2163 | 2.00  | 7837  | 2404 | 2.02  | 7596 | 0241 | 9759 | 58 |
| 3.4461  | 2.40  | 5539  | 4630  | 2.38  | 5370 | 0169 | 9831 | 2283 | 2.00  | 7717  | 2525 | 2.02  | 7475 | 0243 | 9757 | 57 |
| 4.4603  | 2.37  | 5397  | 4773  | 2.38  | 5227 | 0170 | 9830 | 2402 | 1.98  | 7598  | 2645 | 2.00  | 7355 | 0244 | 9756 | 56 |
|         | 2.38  |       |       | 2.40  |      |      |      |      | 1.97  |       |      | 2.02  |      |      |      |    |
| 5.4746  | 2.35  | 5254  | 4917  | 2.38  | 5083 | 0171 | 9829 | 2520 | 1.98  | 7480  | 2766 | 1.98  | 7234 | 0245 | 9755 | 55 |
| 6.4887  | 2.35  | 5113  | 5060  | 2.37  | 4940 | 0172 | 9828 | 2639 | 1.97  | 7361  | 2885 | 2.00  | 7115 | 0247 | 9753 | 54 |
| 7.5029  | 2.37  | 4971  | 5202  | 2.37  | 4798 | 0173 | 9827 | 2757 | 1.97  | 7243  | 3005 | 2.00  | 6995 | 0248 | 9752 | 53 |
| 8.5170  | 2.35  | 4830  | 5344  | 2.37  | 4656 | 0175 | 9825 | 2874 | 1.95  | 7126  | 3124 | 1.98  | 6876 | 0249 | 9751 | 52 |
| 9.5310  | 2.33  | 4690  | 5486  | 2.37  | 4514 | 0176 | 9824 | 2992 | 1.97  | 7008  | 3242 | 1.97  | 6758 | 0251 | 9749 | 51 |
|         | 2.33  |       |       | 2.35  |      |      |      |      | 1.95  |       |      | 1.98  |      |      |      |    |
| 10.5450 | 2.32  | 4550  | 5627  | 2.33  | 4373 | 0177 | 9823 | 3109 | 1.95  | 6891  | 3361 | 1.98  | 6639 | 0252 | 9748 | 50 |
| 11.5589 | 2.32  | 4411  | 5767  | 2.35  | 4233 | 0178 | 9822 | 3226 | 1.93  | 6774  | 3479 | 1.97  | 6521 | 0253 | 9747 | 49 |
| 12.5728 | 2.32  | 4272  | 5908  | 2.32  | 4092 | 0179 | 9821 | 3342 | 1.93  | 6658  | 3597 | 1.97  | 6403 | 0255 | 9745 | 48 |
| 13.5867 | 2.32  | 4133  | 6047  | 2.32  | 3953 | 0180 | 9820 | 3458 | 1.93  | 6542  | 3714 | 1.95  | 6286 | 0256 | 9744 | 47 |
| 14.6005 | 2.30  | 3995  | 6187  | 2.33  | 3813 | 0181 | 9819 | 3574 | 1.93  | 6426  | 3832 | 1.97  | 6168 | 0258 | 9742 | 46 |
|         | 2.30  |       |       | 2.30  |      |      |      |      | 1.93  |       |      | 1.93  |      |      |      |    |
| 15.6143 | 2.28  | 3857  | 6325  | 2.32  | 3675 | 0183 | 9817 | 3690 | 1.92  | 6310  | 3948 | 1.95  | 6052 | 0259 | 9741 | 45 |
| 16.6280 | 2.28  | 3720  | 6464  | 2.30  | 3536 | 0184 | 9816 | 3805 | 1.92  | 6195  | 4065 | 1.95  | 5935 | 0260 | 9740 | 44 |
| 17.6417 | 2.27  | 3583  | 6602  | 2.28  | 3398 | 0185 | 9815 | 3920 | 1.90  | 6080  | 4181 | 1.93  | 5819 | 0262 | 9738 | 43 |
| 18.6553 | 2.27  | 3447  | 6739  | 2.30  | 3261 | 0186 | 9814 | 4034 | 1.90  | 5966  | 4297 | 1.93  | 5703 | 0263 | 9737 | 42 |
| 19.6689 | 2.27  | 3311  | 6877  | 2.27  | 3123 | 0187 | 9813 | 4149 | 1.92  | 5851  | 4413 | 1.92  | 5587 | 0264 | 9736 | 41 |
|         | 2.27  |       |       | 2.27  |      |      |      |      | 1.88  |       |      | 1.92  |      |      |      |    |
| 20.6825 | 2.25  | 3175  | 7013  | 2.28  | 2987 | 0188 | 9812 | 4262 | 1.90  | 5738  | 4528 | 1.92  | 5472 | 0266 | 9734 | 40 |
| 21.6960 | 2.25  | 3040  | 7150  | 2.25  | 2850 | 0190 | 9810 | 4376 | 1.90  | 5624  | 4643 | 1.92  | 5357 | 0267 | 9733 | 39 |
| 22.7095 | 2.23  | 2905  | 7285  | 2.25  | 2715 | 0191 | 9809 | 4490 | 1.88  | 5510  | 4758 | 1.92  | 5242 | 0269 | 9731 | 38 |
| 23.7229 | 2.23  | 2771  | 7421  | 2.25  | 2579 | 0192 | 9808 | 4603 | 1.88  | 5397  | 4873 | 1.92  | 5127 | 0270 | 9730 | 37 |
| 24.7363 | 2.22  | 2637  | 7556  | 2.25  | 2444 | 0193 | 9807 | 4715 | 1.87  | 5285  | 4987 | 1.90  | 5013 | 0272 | 9728 | 36 |
|         | 2.22  |       |       | 2.25  |      |      |      |      | 1.88  |       |      | 1.90  |      |      |      |    |
| 25.7496 | 2.22  | 2504  | 7691  | 2.23  | 2309 | 0194 | 9806 | 4828 | 1.87  | 5172  | 5101 | 1.88  | 4899 | 0273 | 9727 | 35 |
| 26.7629 | 2.22  | 2371  | 7825  | 2.23  | 2175 | 0196 | 9804 | 4940 | 1.87  | 5060  | 5214 | 1.90  | 4786 | 0274 | 9726 | 34 |
| 27.7762 | 2.22  | 2238  | 7959  | 2.23  | 2041 | 0197 | 9803 | 5052 | 1.87  | 4948  | 5328 | 1.90  | 4672 | 0276 | 9724 | 33 |
| 28.7894 | 2.20  | 2106  | 8092  | 2.22  | 1908 | 0198 | 9802 | 5164 | 1.87  | 4836  | 5441 | 1.88  | 4559 | 0277 | 9723 | 32 |
| 29.8026 | 2.20  | 1974  | 8225  | 2.22  | 1775 | 0199 | 9801 | 5275 | 1.85  | 4725  | 5553 | 1.87  | 4447 | 0279 | 9721 | 31 |
|         | 2.18  |       |       | 2.22  |      |      |      |      | 1.85  |       |      | 1.88  |      |      |      |    |
| 30.8157 | 2.18  | 1843  | 8358  | 2.20  | 1642 | 0200 | 9800 | 5386 | 1.85  | 4614  | 5666 | 1.87  | 4334 | 0280 | 9720 | 30 |
| 31.8288 | 2.18  | 1712  | 8490  | 2.20  | 1510 | 0202 | 9798 | 5497 | 1.83  | 4503  | 5778 | 1.87  | 4222 | 0282 | 9718 | 29 |
| 32.8419 | 2.17  | 1581  | 8622  | 2.18  | 1378 | 0203 | 9797 | 5607 | 1.83  | 4393  | 5890 | 1.87  | 4110 | 0283 | 9717 | 28 |
| 33.8549 | 2.17  | 1451  | 8753  | 2.18  | 1247 | 0204 | 9796 | 5717 | 1.83  | 4283  | 6002 | 1.87  | 3998 | 0284 | 9716 | 27 |
| 34.8679 | 2.15  | 1321  | 8884  | 2.18  | 1116 | 0205 | 9795 | 5827 | 1.83  | 4173  | 6113 | 1.85  | 3887 | 0286 | 9714 | 26 |
|         | 2.15  |       |       | 2.18  |      |      |      |      | 1.83  |       |      | 1.85  |      |      |      |    |
| 35.8808 | 2.15  | 1192  | 9015  | 2.17  | 9855 | 0207 | 9793 | 5937 | 1.82  | 4063  | 6224 | 1.85  | 3776 | 0287 | 9713 | 25 |
| 36.8937 | 2.15  | 1063  | 9145  | 2.17  | 8595 | 0208 | 9792 | 6046 | 1.82  | 3954  | 6335 | 1.85  | 3665 | 0289 | 9711 | 24 |
| 37.9066 | 2.15  | 934   | 9275  | 2.17  | 7335 | 0209 | 9791 | 6155 | 1.82  | 3845  | 6445 | 1.85  | 3555 | 0290 | 9710 | 23 |
| 38.9194 | 2.13  | 806   | 9405  | 2.17  | 6075 | 0210 | 9790 | 6264 | 1.82  | 3736  | 6556 | 1.85  | 3444 | 0292 | 9708 | 22 |
| 39.9322 | 2.13  | 678   | 9534  | 2.15  | 4815 | 0212 | 9788 | 6372 | 1.80  | 3628  | 6666 | 1.83  | 3334 | 0293 | 9707 | 21 |
| 40.9450 | 2.13  | 550   | 9662  | 2.15  | 3555 | 0213 | 9787 | 6481 | 1.82  | 3519  | 6775 | 1.82  | 3225 | 0295 | 9705 | 20 |
| 41.9577 | 2.12  | 423   | 9791  | 2.13  | 2295 | 0214 | 9786 | 6589 | 1.80  | 3411  | 6885 | 1.83  | 3115 | 0296 | 9704 | 19 |
| 42.9704 | 2.12  | 296   | 9919  | 2.13  | 1035 | 0215 | 9785 | 6696 | 1.78  | 3304  | 6994 | 1.82  | 3006 | 0298 | 9702 | 18 |
| 43.9830 | 2.10  | 170   | 1046  | 2.12  | 9954 | 0217 | 9783 | 6804 | 1.80  | 3196  | 7103 | 1.82  | 2897 | 0299 | 9701 | 17 |
| 44.9956 | 2.10  | 44    | 1074  | 2.13  | 9626 | 0218 | 9782 | 6911 | 1.78  | 3089  | 7211 | 1.80  | 2789 | 0301 | 9699 | 16 |
|         | 2.10  |       |       | 2.12  |      |      |      |      | 1.78  |       |      | 1.82  |      |      |      |    |
| 45.0082 | 2.08  | 9918  | 10301 | 2.10  | 9699 | 0219 | 9781 | 7018 | 1.77  | 2982  | 7320 | 1.80  | 2680 | 0302 | 9698 | 15 |
| 46.0207 | 2.08  | 9793  | 10427 | 2.10  | 9573 | 0220 | 9780 | 7124 | 1.77  | 2876  | 7428 | 1.80  | 2572 | 0304 | 9696 | 14 |
| 47.0332 | 2.08  | 9668  | 10553 | 2.10  | 9447 | 0222 | 9778 | 7231 | 1.78  | 2769  | 7536 | 1.80  | 2464 | 0305 | 9695 | 13 |
| 48.0456 | 2.07  | 9544  | 10679 | 2.10  | 9321 | 0223 | 9777 | 7337 | 1.77  | 2663  | 7643 | 1.78  | 2357 | 0307 | 9693 | 12 |
| 49.0581 | 2.05  | 9419  | 10805 | 2.10  | 9195 | 0224 | 9776 | 7442 | 1.75  | 2558  | 7751 | 1.80  | 2249 | 0308 | 9692 | 11 |
|         | 2.05  |       |       | 2.08  |      |      |      |      | 1.77  |       |      | 1.78  |      |      |      |    |
| 50.0704 | 2.07  | 9296  | 10930 | 2.08  | 9070 | 0225 | 9775 | 7548 | 1.75  | 2452  | 7858 | 1.78  | 2142 | 0310 | 9690 | 10 |
| 51.0828 | 2.07  | 9172  | 11055 | 2.07  | 8945 | 0227 | 9773 | 7653 | 1.75  | 2347  | 7964 | 1.77  | 2036 | 0311 | 9689 | 9  |
| 52.0951 | 2.05  | 9049  | 11179 | 2.07  | 8821 | 0228 | 9772 | 7758 | 1.75  | 2242  | 8071 | 1.78  | 1929 | 0313 | 9687 | 8  |
| 53.1074 | 2.05  | 8926  | 11303 | 2.07  | 8697 | 0229 | 9771 | 7863 | 1.75  | 2137  | 8177 | 1.77  | 1823 | 0314 | 9686 | 7  |
| 54.1196 | 2.03  | 8804  | 11427 | 2.05  | 8573 | 0231 | 9769 | 7968 | 1.75  | 2032  | 8283 | 1.77  | 1717 | 0316 | 9684 | 6  |
|         | 2.03  |       |       | 2.07  |      |      |      |      | 1.73  |       |      | 1.77  |      |      |      |    |
| 55.1318 | 2.03  | 8682  | 11550 | 2.05  | 8450 | 0232 | 9768 | 8072 | 1.73  | 1928  | 8389 | 1.77  | 1611 | 0317 | 9683 | 5  |
| 56.1440 | 2.03  | 8560  | 11673 | 2.05  | 8327 | 0233 | 9767 | 8176 | 1.73  | 1824  | 8495 | 1.77  | 1505 | 0319 | 9681 | 4  |
| 57.1561 | 2.02  | 8439  | 11796 | 2.05  | 8204 | 0235 | 9765 | 8280 | 1.73  | 1720  | 8600 | 1.75  | 1400 | 0320 | 9680 | 3  |
| 58.1682 | 2.02  | 8318  | 11918 | 2.03  | 8082 | 0236 | 9764 | 8383 | 1.72  | 1617  | 8705 | 1.75  | 1295 | 0322 | 9678 | 2  |
| 59.1803 | 2.02  | 8197  | 12040 | 2.03  | 7960 | 0237 | 9763 | 8486 | 1.72  | 1514  | 8810 | 1.75  | 1190 | 0323 | 9677 | 1  |
| 60.1923 | 2.00  | 8077  | 12162 | 2.03  | 7838 | 0239 | 9761 | 8589 | 1.72  | 1411  | 8914 | 1.    |      |      |      |    |



| 70      |       |         |       | 1720  |       |         |      | 80   |       |         |      | 170   |      |         |      |    |
|---------|-------|---------|-------|-------|-------|---------|------|------|-------|---------|------|-------|------|---------|------|----|
| sin.    | d. 1" | cossec. | tan.  | d. 1" | cot.  | sec.    | cos. | sin. | d. 1" | cossec. | tan. | d. 1" | cot. | sec.    | cos. |    |
| 9.0*    | 10.9* | 9.0*    | 10.9* | 10.9* | 10.0  | 9.9     |      | 9.1  | 10.8  | 9.1     | 10.8 | 10.8  | 10.0 | 10.0    | 9.9  |    |
| 0.8589  | 1.72  | 1411    | 8914  | 1.75  | 1086  | 0325    | 9675 | 4356 | 1.48  | 5644    | 4780 | 1.53  | 5220 | 0425    | 9575 | 60 |
| 1.8692  | 1.72  | 1308    | 9019  | 1.73  | 0981  | 0326    | 9674 | 4445 | 1.50  | 5555    | 4872 | 1.52  | 5128 | 0426    | 9574 | 50 |
| 2.8795  | 1.70  | 1205    | 9123  | 1.73  | 0877  | 0328    | 9672 | 4535 | 1.48  | 5465    | 4963 | 1.52  | 5037 | 0428    | 9572 | 58 |
| 3.8897  | 1.70  | 1103    | 9227  | 1.73  | 0773  | 0330    | 9670 | 4624 | 1.48  | 5376    | 5054 | 1.52  | 4946 | 0430    | 9570 | 57 |
| 4.8999  | 1.70  | 1001    | 9330  | 1.73  | 0670  | 0331    | 9669 | 4714 | 1.48  | 5286    | 5145 | 1.52  | 4855 | 0432    | 9568 | 56 |
| 5.9101  | 1.68  | 0899    | 9434  | 1.72  | 0566  | 0333    | 9667 | 4803 | 1.47  | 5197    | 5236 | 1.52  | 4764 | 0434    | 9566 | 55 |
| 6.9202  | 1.68  | 0798    | 9537  | 1.72  | 0463  | 0334    | 9666 | 4891 | 1.48  | 5109    | 5327 | 1.52  | 4673 | 0435    | 9565 | 54 |
| 7.9304  | 1.68  | 0696    | 9640  | 1.70  | 0360  | 0336    | 9664 | 4980 | 1.48  | 5020    | 5417 | 1.52  | 4582 | 0437    | 9563 | 53 |
| 8.9405  | 1.68  | 0595    | 9742  | 1.70  | 0258  | 0337    | 9663 | 5069 | 1.48  | 4931    | 5508 | 1.52  | 4491 | 0439    | 9561 | 52 |
| 9.9506  | 1.68  | 0494    | 9845  | 1.70  | 0155  | 0339    | 9661 | 5157 | 1.47  | 4843    | 5598 | 1.50  | 4402 | 0441    | 9559 | 51 |
| 10.9606 | 1.67  | 0394    | 9947  | 1.70  | 0053  | 0341    | 9659 | 5245 | 1.47  | 4755    | 5688 | 1.50  | 4312 | 0443    | 9557 | 50 |
| 11.9707 | 1.67  | 0293    | 0049  | 1.70  | 9951  | 0342    | 9658 | 5333 | 1.47  | 4667    | 5777 | 1.48  | 4223 | 0444    | 9556 | 49 |
| 12.9807 | 1.67  | 0193    | 0150  | 1.68  | 9850  | 0344    | 9656 | 5421 | 1.47  | 4579    | 5867 | 1.50  | 4133 | 0446    | 9554 | 48 |
| 13.9907 | 1.67  | 0093    | 0252  | 1.68  | 9748  | 0345    | 9655 | 5508 | 1.45  | 4492    | 5956 | 1.48  | 4044 | 0448    | 9552 | 47 |
| 14.0006 | 1.65  | 9994    | 0353  | 1.68  | 9647  | 0347    | 9653 | 5596 | 1.47  | 4404    | 6046 | 1.50  | 3954 | 0450    | 9550 | 46 |
| 15.0106 | 1.65  | 9894    | 0454  | 1.63  | 9546  | 0349    | 9651 | 5683 | 1.45  | 4317    | 6135 | 1.48  | 3865 | 0452    | 9548 | 45 |
| 16.0205 | 1.65  | 9795    | 0555  | 1.68  | 9445  | 0350    | 9650 | 5770 | 1.45  | 4230    | 6224 | 1.47  | 3776 | 0454    | 9546 | 44 |
| 17.0304 | 1.63  | 9696    | 0656  | 1.68  | 9344  | 0352    | 9648 | 5857 | 1.45  | 4143    | 6312 | 1.47  | 3688 | 0455    | 9545 | 43 |
| 18.0402 | 1.63  | 9598    | 0756  | 1.67  | 9244  | 0353    | 9647 | 5944 | 1.45  | 4056    | 6401 | 1.48  | 3599 | 0457    | 9543 | 42 |
| 19.0501 | 1.65  | 9499    | 0856  | 1.67  | 9144  | 0355    | 9645 | 6030 | 1.43  | 3970    | 6489 | 1.47  | 3511 | 0459    | 9541 | 41 |
| 20.0599 | 1.63  | 9401    | 0956  | 1.67  | 9044  | 0357    | 9643 | 6116 | 1.43  | 3884    | 6577 | 1.47  | 3423 | 0461    | 9539 | 40 |
| 21.0697 | 1.63  | 9303    | 1056  | 1.67  | 8944  | 0358    | 9642 | 6203 | 1.45  | 3797    | 6665 | 1.47  | 3335 | 0463    | 9537 | 39 |
| 22.0795 | 1.63  | 9205    | 1155  | 1.65  | 8845  | 0360    | 9640 | 6289 | 1.43  | 3711    | 6753 | 1.47  | 3247 | 0465    | 9535 | 38 |
| 23.0893 | 1.62  | 9107    | 1255  | 1.65  | 8746  | 0362    | 9638 | 6374 | 1.42  | 3626    | 6841 | 1.47  | 3159 | 0467    | 9533 | 37 |
| 24.0990 | 1.62  | 9010    | 1353  | 1.65  | 8647  | 0363    | 9637 | 6460 | 1.42  | 3540    | 6928 | 1.45  | 3072 | 0468    | 9532 | 36 |
| 25.1087 | 1.62  | 8913    | 1452  | 1.63  | 8548  | 0365    | 9635 | 6545 | 1.42  | 3455    | 7016 | 1.45  | 2984 | 0470    | 9530 | 35 |
| 26.1184 | 1.62  | 8816    | 1551  | 1.63  | 8449  | 0367    | 9633 | 6631 | 1.43  | 3369    | 7103 | 1.45  | 2897 | 0472    | 9528 | 34 |
| 27.1281 | 1.62  | 8719    | 1649  | 1.63  | 8351  | 0368    | 9632 | 6716 | 1.42  | 3284    | 7190 | 1.45  | 2811 | 0474    | 9526 | 33 |
| 28.1377 | 1.62  | 8623    | 1747  | 1.63  | 8253  | 0370    | 9630 | 6801 | 1.42  | 3199    | 7277 | 1.45  | 2723 | 0476    | 9524 | 32 |
| 29.1474 | 1.60  | 8526    | 1845  | 1.63  | 8155  | 0371    | 9629 | 6886 | 1.42  | 3114    | 7363 | 1.43  | 2637 | 0478    | 9522 | 31 |
| 30.1570 | 1.60  | 8430    | 1943  | 1.63  | 8057  | 0373    | 9627 | 6970 | 1.40  | 3030    | 7450 | 1.45  | 2550 | 0480    | 9520 | 30 |
| 31.1666 | 1.58  | 8334    | 2040  | 1.63  | 7960  | 0375    | 9625 | 7055 | 1.40  | 2945    | 7536 | 1.43  | 2464 | 0482    | 9518 | 29 |
| 32.1761 | 1.58  | 8239    | 2138  | 1.62  | 7862  | 0376    | 9624 | 7139 | 1.40  | 2861    | 7622 | 1.43  | 2378 | 0483    | 9517 | 28 |
| 33.1857 | 1.60  | 8143    | 2235  | 1.62  | 7765  | 0378    | 9622 | 7223 | 1.40  | 2777    | 7708 | 1.43  | 2292 | 0485    | 9515 | 27 |
| 34.1952 | 1.58  | 8048    | 2332  | 1.62  | 7668  | 0380    | 9620 | 7307 | 1.40  | 2693    | 7794 | 1.43  | 2206 | 0487    | 9513 | 26 |
| 35.2047 | 1.58  | 7953    | 2428  | 1.60  | 7572  | 0382    | 9618 | 7391 | 1.40  | 2609    | 7880 | 1.43  | 2120 | 0489    | 9511 | 25 |
| 36.2142 | 1.57  | 7858    | 2525  | 1.62  | 7475  | 0383    | 9617 | 7474 | 1.38  | 2526    | 7965 | 1.42  | 2035 | 0491    | 9509 | 24 |
| 37.2236 | 1.57  | 7764    | 2621  | 1.60  | 7379  | 0385    | 9615 | 7558 | 1.40  | 2442    | 8051 | 1.43  | 1949 | 0493    | 9507 | 23 |
| 38.2331 | 1.58  | 7669    | 2717  | 1.60  | 7283  | 0387    | 9613 | 7641 | 1.42  | 2359    | 8136 | 1.42  | 1864 | 0495    | 9505 | 22 |
| 39.2425 | 1.57  | 7575    | 2813  | 1.60  | 7187  | 0388    | 9612 | 7724 | 1.38  | 2276    | 8221 | 1.42  | 1779 | 0497    | 9503 | 21 |
| 40.2519 | 1.55  | 7481    | 2909  | 1.58  | 7091  | 0390    | 9610 | 7807 | 1.38  | 2193    | 8306 | 1.42  | 1694 | 0499    | 9501 | 20 |
| 41.2612 | 1.55  | 7388    | 3004  | 1.58  | 6996  | 0392    | 9608 | 7890 | 1.38  | 2110    | 8391 | 1.40  | 1609 | 0501    | 9499 | 19 |
| 42.2706 | 1.57  | 7294    | 3099  | 1.58  | 6901  | 0393    | 9607 | 7973 | 1.37  | 2027    | 8475 | 1.40  | 1525 | 0503    | 9497 | 18 |
| 43.2799 | 1.55  | 7201    | 3194  | 1.58  | 6806  | 0395    | 9605 | 8055 | 1.37  | 1945    | 8560 | 1.40  | 1441 | 0505    | 9495 | 17 |
| 44.2892 | 1.55  | 7108    | 3289  | 1.58  | 6711  | 0397    | 9603 | 8137 | 1.37  | 1863    | 8644 | 1.40  | 1356 | 0506    | 9494 | 16 |
| 45.2985 | 1.55  | 7015    | 3384  | 1.57  | 6616  | 0399    | 9601 | 8220 | 1.37  | 1780    | 8728 | 1.40  | 1272 | 0508    | 9492 | 15 |
| 46.3078 | 1.55  | 6922    | 3478  | 1.58  | 6522  | 0400    | 9600 | 8302 | 1.35  | 1698    | 8812 | 1.40  | 1188 | 0510    | 9490 | 14 |
| 47.3171 | 1.53  | 6829    | 3573  | 1.57  | 6427  | 0402    | 9598 | 8383 | 1.35  | 1617    | 8896 | 1.40  | 1104 | 0512    | 9488 | 13 |
| 48.3263 | 1.53  | 6737    | 3667  | 1.57  | 6333  | 0404    | 9596 | 8465 | 1.37  | 1535    | 8979 | 1.38  | 1021 | 0514    | 9486 | 12 |
| 49.3355 | 1.53  | 6645    | 3761  | 1.55  | 6239  | 0405    | 9595 | 8547 | 1.37  | 1453    | 9063 | 1.38  | 937  | 0516    | 9484 | 11 |
| 50.3447 | 1.53  | 6553    | 3854  | 1.55  | 6146  | 0407    | 9593 | 8628 | 1.35  | 1372    | 9146 | 1.38  | 854  | 0518    | 9482 | 10 |
| 51.3539 | 1.53  | 6461    | 3948  | 1.55  | 6053  | 0409    | 9591 | 8709 | 1.35  | 1291    | 9229 | 1.38  | 771  | 0520    | 9480 | 9  |
| 52.3630 | 1.53  | 6370    | 4041  | 1.55  | 5959  | 0411    | 9589 | 8790 | 1.35  | 1210    | 9312 | 1.38  | 688  | 0522    | 9478 | 8  |
| 53.3722 | 1.53  | 6278    | 4134  | 1.55  | 5866  | 0412    | 9588 | 8871 | 1.35  | 1129    | 9395 | 1.38  | 605  | 0524    | 9476 | 7  |
| 54.3813 | 1.52  | 6187    | 4227  | 1.55  | 5773  | 0414    | 9586 | 8951 | 1.35  | 1048    | 9478 | 1.38  | 522  | 0526    | 9474 | 6  |
| 55.3904 | 1.50  | 6096    | 4320  | 1.53  | 5680  | 0416    | 9584 | 9033 | 1.33  | 967     | 9561 | 1.37  | 439  | 0528    | 9472 | 5  |
| 56.3994 | 1.50  | 6006    | 4412  | 1.53  | 5588  | 0418    | 9582 | 9113 | 1.33  | 887     | 9643 | 1.37  | 357  | 0530    | 9470 | 4  |
| 57.4085 | 1.52  | 5915    | 4504  | 1.53  | 5496  | 0419    | 9581 | 9193 | 1.33  | 807     | 9725 | 1.37  | 275  | 0532    | 9468 | 3  |
| 58.4175 | 1.52  | 5825    | 4597  | 1.53  | 5403  | 0421    | 9579 | 9273 | 1.33  | 727     | 9807 | 1.37  | 193  | 0534    | 9466 | 2  |
| 59.4266 | 1.50  | 5734    | 4688  | 1.53  | 5312  | 0423    | 9577 | 9353 | 1.33  | 647     | 9889 | 1.37  | 111  | 0536    | 9464 | 1  |
| 60.4356 | 1.50  | 5644    | 4780  | 1.53  | 5220  | 0425    | 9575 | 9433 | 1.33  | 567     | 9971 | 1.37  | 29   | 0538    | 9462 | 0  |
| 9.1*    |       | 10.8*   | 9.1*  |       | 10.8* | 10.0    | 9.9  | 9.1  |       | 10.8*   | 9.1  |       | 10.8 | 10.0    | 9.9  |    |
| cos.    | d. 1" | sec.    | tan.  | d. 1" | tan.  | cossec. | sin. | cos. | d. 1" | sec.    | tan. | d. 1" | tan. | cossec. | sin. |    |



| 90°     |       |        |      | 170°  |      |       |      | 10°  |       |        |      | 180°  |      |       |      |    |
|---------|-------|--------|------|-------|------|-------|------|------|-------|--------|------|-------|------|-------|------|----|
| sin.    | d. 1" | cos.ec | tan. | d. 1" | cut. | sec.  | cos. | sin. | d. 1" | cos.ec | tan. | d. 1" | cut. | sec.  | cos. |    |
| 10.9*   | 9.1*  | 10.9*  | 9.1* | 10.8* | 10.0 | 9.9   | 9.2  | 10.7 | 10.0  | 9.2    | 10.7 | 10.0  | 10.7 | 10.0  | 9.9  |    |
| 0.9433  | 1.33  | 0567   | 9971 | 1.37  | *029 | 0538  | 9462 | 3967 | 1.20  | 6033   | 4632 | 1.23  | 5368 | 0665  | 9335 | 60 |
| 1.9513  | 1.32  | 0487   | *053 | 1.35  | 9947 | 0540  | 9460 | 4039 | 1.18  | 5961   | 4770 | 1.22  | 5294 | 0667  | 9333 | 59 |
| 2.9592  | 1.33  | 0408   | 0134 | 1.37  | 9866 | 0542  | 9458 | 4110 | 1.18  | 5890   | 4769 | 1.22  | 5221 | 0669  | 9331 | 58 |
| 3.9672  | 1.33  | 0328   | 0216 | 1.37  | 9784 | 0544  | 9456 | 4181 | 1.20  | 5819   | 4853 | 1.23  | 5147 | 0672  | 9328 | 57 |
| 4.9751  | 1.32  | 0249   | 0297 | 1.35  | 9703 | 0546  | 9454 | 4253 | 1.18  | 5747   | 4926 | 1.23  | 5074 | 0674  | 9326 | 56 |
| 5.9830  | 1.32  | 0170   | 0378 | 1.35  | 9622 | 0548  | 9452 | 4324 | 1.18  | 5676   | 5000 | 1.22  | 5000 | 0676  | 9324 | 55 |
| 6.9909  | 1.32  | 0091   | 0459 | 1.35  | 9541 | 0550  | 9450 | 4395 | 1.18  | 5605   | 5073 | 1.22  | 4927 | 0678  | 9322 | 54 |
| 7.9988  | 1.32  | *012   | 0540 | 1.35  | 9460 | 0552  | 9448 | 4466 | 1.18  | 5534   | 5146 | 1.22  | 4854 | 0681  | 9319 | 53 |
| 8.*067  | 1.32  | 9933   | 0621 | 1.35  | 9379 | 0554  | 9446 | 4536 | 1.17  | 5464   | 5219 | 1.22  | 4781 | 0683  | 9317 | 52 |
| 9.0145  | 1.30  | 9855   | 0701 | 1.33  | 9299 | 0556  | 9444 | 4607 | 1.18  | 5393   | 5292 | 1.22  | 4708 | 0685  | 9315 | 51 |
| 10.0223 | 1.30  | 9777   | 0782 | 1.33  | 9218 | 0558  | 9442 | 4677 | 1.18  | 5322   | 5365 | 1.20  | 4635 | 0687  | 9313 | 50 |
| 11.0302 | 1.32  | 9698   | 0862 | 1.33  | 9138 | 0560  | 9440 | 4748 | 1.18  | 5252   | 5437 | 1.22  | 4563 | 0690  | 9310 | 49 |
| 12.0380 | 1.30  | 9620   | 0942 | 1.33  | 9058 | 0562  | 9438 | 4818 | 1.17  | 5182   | 5510 | 1.22  | 4490 | 0692  | 9308 | 48 |
| 13.0458 | 1.30  | 9542   | 1022 | 1.33  | 8978 | 0564  | 9436 | 4888 | 1.17  | 5112   | 5582 | 1.22  | 4418 | 0694  | 9306 | 47 |
| 14.0535 | 1.28  | 9465   | 1102 | 1.33  | 8898 | 0566  | 9434 | 4958 | 1.17  | 5043   | 5655 | 1.22  | 4345 | 0696  | 9304 | 46 |
| 15.0613 | 1.30  | 9387   | 1182 | 1.32  | 8818 | 0568  | 9432 | 5028 | 1.17  | 4972   | 5727 | 1.20  | 4273 | 0699  | 9301 | 45 |
| 16.0691 | 1.28  | 9309   | 1261 | 1.33  | 8739 | 0571  | 9429 | 5098 | 1.17  | 4902   | 5799 | 1.20  | 4201 | 0701  | 9299 | 44 |
| 17.0768 | 1.28  | 9231   | 1341 | 1.33  | 8659 | 0573  | 9427 | 5168 | 1.17  | 4833   | 5871 | 1.20  | 4129 | 0703  | 9297 | 43 |
| 18.0845 | 1.28  | 9155   | 1420 | 1.32  | 8580 | 0575  | 9425 | 5237 | 1.15  | 4763   | 5943 | 1.20  | 4057 | 0706  | 9294 | 42 |
| 19.0922 | 1.28  | 9078   | 1499 | 1.32  | 8501 | 0577  | 9423 | 5307 | 1.17  | 4693   | 6015 | 1.20  | 3985 | 0708  | 9292 | 41 |
| 20.0999 | 1.28  | 9001   | 1578 | 1.32  | 8422 | 0579  | 9421 | 5376 | 1.15  | 4624   | 6086 | 1.18  | 3914 | 0710  | 9290 | 40 |
| 21.1076 | 1.28  | 8924   | 1657 | 1.32  | 8343 | 0581  | 9419 | 5445 | 1.15  | 4555   | 6158 | 1.20  | 3842 | 0712  | 9288 | 39 |
| 22.1153 | 1.28  | 8847   | 1736 | 1.30  | 8264 | 0583  | 9417 | 5514 | 1.15  | 4486   | 6229 | 1.20  | 3771 | 0715  | 9285 | 38 |
| 23.1229 | 1.27  | 8771   | 1814 | 1.30  | 8186 | 0585  | 9415 | 5583 | 1.15  | 4417   | 6301 | 1.20  | 3699 | 0717  | 9283 | 37 |
| 24.1306 | 1.27  | 8694   | 1893 | 1.32  | 8107 | 0587  | 9413 | 5652 | 1.15  | 4348   | 6372 | 1.18  | 3628 | 0719  | 9281 | 36 |
| 25.1382 | 1.27  | 8618   | 1971 | 1.30  | 8029 | 0589  | 9411 | 5721 | 1.15  | 4279   | 6443 | 1.18  | 3557 | 0722  | 9278 | 35 |
| 26.1458 | 1.27  | 8542   | 2049 | 1.30  | 7951 | 0591  | 9409 | 5790 | 1.15  | 4210   | 6514 | 1.18  | 3486 | 0724  | 9276 | 34 |
| 27.1534 | 1.27  | 8466   | 2127 | 1.30  | 7873 | 0593  | 9407 | 5858 | 1.13  | 4142   | 6585 | 1.18  | 3415 | 0726  | 9274 | 33 |
| 28.1610 | 1.27  | 8390   | 2205 | 1.30  | 7795 | 0595  | 9404 | 5927 | 1.15  | 4073   | 6655 | 1.17  | 3344 | 0729  | 9271 | 32 |
| 29.1685 | 1.25  | 8315   | 2283 | 1.30  | 7717 | 0598  | 9402 | 5995 | 1.13  | 4005   | 6726 | 1.18  | 3274 | 0731  | 9269 | 31 |
| 30.1761 | 1.25  | 8239   | 2361 | 1.28  | 7639 | 0600  | 9400 | 6063 | 1.13  | 3937   | 6797 | 1.18  | 3203 | 0733  | 9267 | 30 |
| 31.1836 | 1.27  | 8164   | 2438 | 1.30  | 7562 | 0602  | 9398 | 6131 | 1.13  | 3869   | 6867 | 1.17  | 3133 | 0736  | 9264 | 29 |
| 32.1912 | 1.27  | 8088   | 2516 | 1.28  | 7484 | 0604  | 9396 | 6199 | 1.13  | 3801   | 6937 | 1.18  | 3063 | 0738  | 9262 | 28 |
| 33.1987 | 1.25  | 8013   | 2593 | 1.28  | 7407 | 0606  | 9394 | 6267 | 1.13  | 3733   | 7008 | 1.18  | 2992 | 0740  | 9260 | 27 |
| 34.2062 | 1.25  | 7938   | 2670 | 1.28  | 7330 | 0608  | 9392 | 6335 | 1.13  | 3665   | 7078 | 1.17  | 2922 | 0743  | 9257 | 26 |
| 35.2137 | 1.25  | 7863   | 2747 | 1.28  | 7253 | 0610  | 9390 | 6403 | 1.13  | 3597   | 7148 | 1.17  | 2852 | 0745  | 9255 | 25 |
| 36.2211 | 1.25  | 7789   | 2824 | 1.28  | 7176 | 0612  | 9388 | 6470 | 1.12  | 3530   | 7218 | 1.17  | 2782 | 0748  | 9252 | 24 |
| 37.2286 | 1.25  | 7714   | 2901 | 1.28  | 7100 | 0615  | 9385 | 6538 | 1.13  | 3462   | 7288 | 1.17  | 2712 | 0750  | 9250 | 23 |
| 38.2361 | 1.25  | 7639   | 2977 | 1.27  | 7023 | 0617  | 9383 | 6605 | 1.12  | 3395   | 7357 | 1.15  | 2643 | 0752  | 9248 | 22 |
| 39.2435 | 1.23  | 7565   | 3054 | 1.28  | 6946 | 0619  | 9381 | 6672 | 1.12  | 3328   | 7427 | 1.17  | 2573 | 0755  | 9245 | 21 |
| 40.2509 | 1.23  | 7491   | 3130 | 1.27  | 6870 | 0621  | 9379 | 6739 | 1.12  | 3261   | 7496 | 1.15  | 2504 | 0757  | 9243 | 20 |
| 41.2583 | 1.23  | 7417   | 3206 | 1.27  | 6794 | 0623  | 9377 | 6806 | 1.12  | 3194   | 7566 | 1.15  | 2434 | 0759  | 9241 | 19 |
| 42.2657 | 1.23  | 7343   | 3283 | 1.28  | 6717 | 0625  | 9375 | 6873 | 1.12  | 3127   | 7635 | 1.15  | 2365 | 0762  | 9238 | 18 |
| 43.2731 | 1.23  | 7269   | 3359 | 1.27  | 6641 | 0628  | 9372 | 6940 | 1.12  | 3060   | 7704 | 1.15  | 2296 | 0764  | 9236 | 17 |
| 44.2805 | 1.23  | 7195   | 3435 | 1.27  | 6565 | 0630  | 9370 | 7007 | 1.12  | 2993   | 7773 | 1.15  | 2227 | 0767  | 9233 | 16 |
| 45.2878 | 1.22  | 7122   | 3510 | 1.25  | 6490 | 0632  | 9368 | 7073 | 1.12  | 2927   | 7842 | 1.15  | 2158 | 0769  | 9231 | 15 |
| 46.2952 | 1.23  | 7048   | 3586 | 1.27  | 6414 | 0634  | 9366 | 7140 | 1.10  | 2860   | 7911 | 1.15  | 2089 | 0771  | 9229 | 14 |
| 47.3025 | 1.22  | 6975   | 3661 | 1.25  | 6339 | 0636  | 9364 | 7206 | 1.10  | 2794   | 7980 | 1.15  | 2020 | 0774  | 9226 | 13 |
| 48.3098 | 1.22  | 6902   | 3737 | 1.27  | 6263 | 0638  | 9362 | 7273 | 1.12  | 2727   | 8049 | 1.15  | 1951 | 0776  | 9224 | 12 |
| 49.3171 | 1.22  | 6829   | 3812 | 1.25  | 6188 | 0641  | 9359 | 7339 | 1.10  | 2661   | 8117 | 1.15  | 1883 | 0779  | 9221 | 11 |
| 50.3244 | 1.22  | 6756   | 3887 | 1.25  | 6113 | 0643  | 9357 | 7405 | 1.10  | 2595   | 8186 | 1.13  | 1814 | 0781  | 9219 | 10 |
| 51.3317 | 1.22  | 6683   | 3962 | 1.25  | 6038 | 0645  | 9355 | 7471 | 1.10  | 2529   | 8254 | 1.15  | 1746 | 0783  | 9217 | 9  |
| 52.3390 | 1.22  | 6610   | 4037 | 1.25  | 5963 | 0647  | 9353 | 7537 | 1.10  | 2463   | 8323 | 1.13  | 1677 | 0786  | 9214 | 8  |
| 53.3462 | 1.20  | 6538   | 4112 | 1.25  | 5888 | 0649  | 9351 | 7602 | 1.08  | 2398   | 8391 | 1.13  | 1609 | 0788  | 9212 | 7  |
| 54.3535 | 1.22  | 6465   | 4186 | 1.23  | 5814 | 0652  | 9348 | 7668 | 1.10  | 2332   | 8459 | 1.13  | 1541 | 0791  | 9209 | 6  |
| 55.3607 | 1.22  | 6393   | 4261 | 1.25  | 5739 | 0654  | 9346 | 7734 | 1.10  | 2266   | 8527 | 1.13  | 1473 | 0793  | 9207 | 5  |
| 56.3679 | 1.20  | 6321   | 4335 | 1.23  | 5665 | 0656  | 9344 | 7799 | 1.08  | 2201   | 8595 | 1.13  | 1405 | 0796  | 9204 | 4  |
| 57.3752 | 1.22  | 6248   | 4410 | 1.25  | 5590 | 0658  | 9342 | 7864 | 1.10  | 2136   | 8662 | 1.12  | 1338 | 0798  | 9202 | 3  |
| 58.3823 | 1.18  | 6177   | 4484 | 1.23  | 5516 | 0660  | 9340 | 7930 | 1.10  | 2070   | 8730 | 1.13  | 1270 | 0800  | 9200 | 2  |
| 59.3895 | 1.20  | 6105   | 4558 | 1.23  | 5442 | 0663  | 9337 | 7995 | 1.08  | 2005   | 8798 | 1.13  | 1202 | 0803  | 9197 | 1  |
| 60.3967 | 1.20  | 6033   | 4632 | 1.23  | 5368 | 0665  | 9335 | 8060 | 1.08  | 1940   | 8865 | 1.12  | 1135 | 0805  | 9195 | 0  |
| 1       | 2     | 10.7*  | 9.2* | 10.7* | 10.0 | 9.9   | 9.2  | 10.7 | 10.0  | 9.2    | 10.7 | 10.0  | 10.7 | 10.0  | 9.9  | 1  |
| cos.    | d. 1" | sec.   | cot. | d. 1" | tan. | cover | sin. | cos. | d. 1" | sec.   | cot. | d. 1" | tan. | cover | sin. |    |

| 11°  |        |        |       | 168°   |        |       |        | 12°  |        |        |      | 167°   |        |      |        |      |    |
|------|--------|--------|-------|--------|--------|-------|--------|------|--------|--------|------|--------|--------|------|--------|------|----|
| sin. | d. 1'' | cos.ec | tan.  | d. 1'' | cot.   | sec.  | cos.   | sin. | d. 1'' | cos.ec | tan. | d. 1'' | cot.   | sec. | cos.   |      |    |
| 9.2* |        | 10.7*  | 9.2*  |        | 10.7*  | 10.0  | 9.9    | 9.3  |        | 10.6   | 9.3  |        | 10.6   | 10.0 | 9.9    |      |    |
| 0    | 8060   |        | 1940  | 8865   | 1.13   | 1135  | 0805   | 9195 | 1788   |        | 8212 | 2747   | 1.05   | 7253 | 0960   | 9040 | 60 |
| 1    | 8125   | 1.08   | 1875  | 8933   | 1.12   | 1067  | 0808   | 9192 | 1847   | 0.98   | 8153 | 2810   | 1.03   | 7190 | 0962   | 9038 | 50 |
| 2    | 8190   | 1.08   | 1810  | 9000   | 1.12   | 1000  | 0810   | 9190 | 1907   | 1.00   | 8093 | 2872   | 1.02   | 7128 | 0965   | 9035 | 50 |
| 3    | 8254   | 1.07   | 1746  | 9067   | 1.12   | 0933  | 0813   | 9187 | 1966   | 0.98   | 8034 | 2933   | 1.02   | 7067 | 0968   | 9032 | 57 |
| 4    | 8319   | 1.08   | 1681  | 9134   | 1.12   | 0866  | 0815   | 9185 | 2025   | 0.98   | 7975 | 2995   | 1.03   | 7005 | 0970   | 9030 | 56 |
| 5    | 8384   | 1.07   | 1616  | 9201   | 1.12   | 0799  | 0818   | 9182 | 2084   | 0.98   | 7916 | 3057   | 1.03   | 6943 | 0973   | 9027 | 55 |
| 6    | 8448   | 1.07   | 1552  | 9268   | 1.12   | 0732  | 0820   | 9180 | 2143   | 0.98   | 7857 | 3119   | 1.03   | 6881 | 0976   | 9024 | 54 |
| 7    | 8512   | 1.07   | 1488  | 9335   | 1.12   | 0665  | 0823   | 9177 | 2202   | 0.98   | 7798 | 3180   | 1.03   | 6820 | 0978   | 9022 | 53 |
| 8    | 8577   | 1.08   | 1423  | 9402   | 1.12   | 0598  | 0825   | 9175 | 2261   | 0.98   | 7739 | 3242   | 1.03   | 6758 | 0981   | 9019 | 52 |
| 9    | 8641   | 1.07   | 1359  | 9468   | 1.12   | 0532  | 0828   | 9172 | 2319   | 0.98   | 7681 | 3303   | 1.03   | 6697 | 0984   | 9016 | 51 |
| 10   | 8705   | 1.07   | 1295  | 9535   | 1.10   | 0465  | 0830   | 9170 | 2378   | 0.98   | 7622 | 3365   | 1.02   | 6635 | 0987   | 9013 | 50 |
| 11   | 8769   | 1.07   | 1231  | 9601   | 1.12   | 0399  | 0833   | 9167 | 2437   | 0.97   | 7563 | 3427   | 1.02   | 6574 | 0989   | 9011 | 49 |
| 12   | 8833   | 1.07   | 1167  | 9668   | 1.12   | 0332  | 0835   | 9165 | 2495   | 0.97   | 7505 | 3488   | 1.02   | 6513 | 0992   | 9008 | 48 |
| 13   | 8896   | 1.05   | 1104  | 9734   | 1.10   | 0266  | 0838   | 9162 | 2553   | 0.97   | 7447 | 3548   | 1.02   | 6452 | 0995   | 9005 | 47 |
| 14   | 8960   | 1.07   | 1040  | 9800   | 1.10   | 0200  | 0840   | 9160 | 2612   | 0.98   | 7388 | 3609   | 1.02   | 6391 | 0998   | 9002 | 46 |
| 15   | 9024   | 1.07   | 9776  | 9866   | 1.10   | 0134  | 0843   | 9157 | 2670   | 0.97   | 7330 | 3670   | 1.02   | 6330 | 1000   | 9000 | 45 |
| 16   | 9087   | 1.05   | 9131  | 9932   | 1.10   | 0068  | 0845   | 9155 | 2728   | 0.97   | 7271 | 3731   | 1.02   | 6269 | 1003   | 8997 | 44 |
| 17   | 9150   | 1.05   | 8500  | 9998   | 1.10   | 0002  | 0848   | 9152 | 2786   | 0.97   | 7214 | 3792   | 1.02   | 6208 | 1006   | 8994 | 43 |
| 18   | 9214   | 1.07   | 7876  | 0064   | 1.10   | 0036  | 0850   | 9150 | 2844   | 0.97   | 7156 | 3853   | 1.02   | 6147 | 1009   | 8991 | 42 |
| 19   | 9277   | 1.05   | 7273  | 0130   | 1.08   | 0070  | 0853   | 9147 | 2902   | 0.97   | 7098 | 3913   | 1.02   | 6087 | 1011   | 8989 | 41 |
| 20   | 9340   | 1.05   | 6660  | 0195   | 1.10   | 0105  | 0855   | 9145 | 2960   | 0.97   | 7040 | 3974   | 1.00   | 6026 | 1014   | 8986 | 40 |
| 21   | 9403   | 1.05   | 6057  | 0261   | 1.10   | 0139  | 0858   | 9142 | 3018   | 0.97   | 6982 | 4034   | 1.02   | 5966 | 1017   | 8983 | 39 |
| 22   | 9466   | 1.05   | 5454  | 0326   | 1.08   | 0174  | 0860   | 9140 | 3075   | 0.95   | 6925 | 4095   | 1.02   | 5905 | 1020   | 8980 | 38 |
| 23   | 9529   | 1.05   | 4871  | 0391   | 1.08   | 0209  | 0863   | 9137 | 3133   | 0.97   | 6867 | 4155   | 1.00   | 5845 | 1022   | 8978 | 37 |
| 24   | 9591   | 1.05   | 4290  | 0457   | 1.08   | 0243  | 0865   | 9135 | 3190   | 0.95   | 6810 | 4215   | 1.02   | 5785 | 1025   | 8975 | 36 |
| 25   | 9654   | 1.03   | 3736  | 0522   | 1.08   | 0278  | 0868   | 9132 | 3248   | 0.95   | 6752 | 4276   | 1.00   | 5724 | 1028   | 8972 | 35 |
| 26   | 9716   | 1.03   | 3204  | 0587   | 1.08   | 0313  | 0870   | 9130 | 3305   | 0.95   | 6695 | 4336   | 1.00   | 5664 | 1031   | 8969 | 34 |
| 27   | 9779   | 1.03   | 2691  | 0652   | 1.08   | 0348  | 0873   | 9127 | 3362   | 0.95   | 6638 | 4396   | 1.00   | 5604 | 1033   | 8967 | 33 |
| 28   | 9841   | 1.03   | 2199  | 0717   | 1.08   | 0383  | 0876   | 9124 | 3420   | 0.95   | 6580 | 4456   | 1.00   | 5544 | 1036   | 8964 | 32 |
| 29   | 9903   | 1.03   | 1729  | 0782   | 1.08   | 0418  | 0878   | 9122 | 3477   | 0.95   | 6523 | 4516   | 1.00   | 5484 | 1039   | 8961 | 31 |
| 30   | 9966   | 1.03   | 1280  | 0846   | 1.08   | 0454  | 0881   | 9119 | 3534   | 0.95   | 6466 | 4576   | 0.98   | 5424 | 1042   | 8958 | 30 |
| 31   | 0028   | 1.03   | 9972  | 0911   | 1.07   | 0490  | 0883   | 9117 | 3591   | 0.95   | 6409 | 4635   | 0.98   | 5365 | 1045   | 8955 | 29 |
| 32   | 0090   | 1.03   | 9910  | 0975   | 1.07   | 0525  | 0886   | 9114 | 3647   | 0.93   | 6353 | 4695   | 1.00   | 5305 | 1047   | 8953 | 28 |
| 33   | 0151   | 1.03   | 9849  | 1040   | 1.08   | 0560  | 0888   | 9112 | 3704   | 0.95   | 6296 | 4755   | 1.00   | 5245 | 1050   | 8950 | 27 |
| 34   | 0213   | 1.03   | 9787  | 1104   | 1.07   | 0596  | 0891   | 9109 | 3761   | 0.95   | 6239 | 4814   | 0.98   | 5186 | 1053   | 8947 | 26 |
| 35   | 0275   | 1.02   | 9725  | 1168   | 1.08   | 0632  | 0894   | 9106 | 3818   | 0.95   | 6182 | 4874   | 0.98   | 5126 | 1056   | 8944 | 25 |
| 36   | 0336   | 1.02   | 9664  | 1233   | 1.08   | 0667  | 0896   | 9104 | 3874   | 0.95   | 6126 | 4933   | 0.98   | 5067 | 1059   | 8941 | 24 |
| 37   | 0398   | 1.03   | 9602  | 1297   | 1.07   | 0703  | 0899   | 9101 | 3931   | 0.95   | 6069 | 4992   | 0.98   | 5008 | 1062   | 8938 | 23 |
| 38   | 0459   | 1.02   | 9541  | 1361   | 1.07   | 0739  | 0901   | 9099 | 3987   | 0.93   | 6013 | 5051   | 0.98   | 4949 | 1064   | 8936 | 22 |
| 39   | 0521   | 1.03   | 9479  | 1425   | 1.07   | 0775  | 0904   | 9096 | 4043   | 0.95   | 5957 | 5111   | 0.98   | 4889 | 1067   | 8933 | 21 |
| 40   | 0582   | 1.02   | 9418  | 1489   | 1.05   | 0811  | 0907   | 9093 | 4100   | 0.95   | 5900 | 5170   | 0.98   | 4830 | 1070   | 8930 | 20 |
| 41   | 0643   | 1.02   | 9357  | 1552   | 1.07   | 0848  | 0909   | 9091 | 4156   | 0.95   | 5844 | 5229   | 0.98   | 4771 | 1073   | 8927 | 19 |
| 42   | 0704   | 1.02   | 9296  | 1616   | 1.07   | 0884  | 0912   | 9088 | 4212   | 0.95   | 5788 | 5288   | 0.98   | 4713 | 1076   | 8924 | 18 |
| 43   | 0765   | 1.02   | 9235  | 1679   | 1.05   | 0921  | 0914   | 9086 | 4268   | 0.95   | 5732 | 5347   | 0.98   | 4653 | 1079   | 8921 | 17 |
| 44   | 0826   | 1.02   | 9174  | 1743   | 1.07   | 0957  | 0917   | 9083 | 4324   | 0.95   | 5676 | 5405   | 0.98   | 4595 | 1081   | 8919 | 16 |
| 45   | 0887   | 1.00   | 9113  | 1806   | 1.07   | 0994  | 0920   | 9080 | 4380   | 0.95   | 5620 | 5464   | 0.98   | 4536 | 1084   | 8916 | 15 |
| 46   | 0947   | 1.00   | 9053  | 1870   | 1.07   | 1030  | 0922   | 9078 | 4436   | 0.95   | 5564 | 5523   | 0.98   | 4477 | 1087   | 8913 | 14 |
| 47   | 1008   | 1.00   | 8993  | 1933   | 1.05   | 1067  | 0925   | 9075 | 4491   | 0.95   | 5509 | 5581   | 0.97   | 4419 | 1090   | 8910 | 13 |
| 48   | 1068   | 1.00   | 8932  | 1996   | 1.05   | 1104  | 0928   | 9072 | 4547   | 0.95   | 5453 | 5640   | 0.98   | 4360 | 1093   | 8907 | 12 |
| 49   | 1129   | 1.00   | 8871  | 2059   | 1.05   | 1141  | 0930   | 9070 | 4602   | 0.95   | 5398 | 5698   | 0.98   | 4302 | 1096   | 8904 | 11 |
| 50   | 1189   | 1.02   | 8811  | 2122   | 1.05   | 1178  | 0933   | 9067 | 4658   | 0.95   | 5342 | 5757   | 0.97   | 4243 | 1099   | 8901 | 10 |
| 51   | 1250   | 1.02   | 8750  | 2185   | 1.05   | 1215  | 0936   | 9064 | 4713   | 0.95   | 5287 | 5815   | 0.97   | 4185 | 1102   | 8898 | 9  |
| 52   | 1310   | 1.00   | 8690  | 2248   | 1.05   | 1252  | 0938   | 9062 | 4769   | 0.95   | 5231 | 5873   | 0.97   | 4127 | 1104   | 8896 | 8  |
| 53   | 1370   | 1.00   | 8630  | 2311   | 1.05   | 1289  | 0941   | 9059 | 4824   | 0.95   | 5176 | 5931   | 0.97   | 4069 | 1107   | 8893 | 7  |
| 54   | 1430   | 1.00   | 8570  | 2373   | 1.03   | 1326  | 0944   | 9056 | 4879   | 0.95   | 5121 | 5989   | 0.97   | 4011 | 1110   | 8890 | 6  |
| 55   | 1490   | 0.98   | 8510  | 2436   | 1.05   | 1362  | 0946   | 9054 | 4934   | 0.95   | 5066 | 6047   | 0.97   | 3953 | 1113   | 8887 | 5  |
| 56   | 1549   | 1.00   | 8451  | 2498   | 1.05   | 1399  | 0949   | 9051 | 4989   | 0.95   | 5011 | 6105   | 0.97   | 3895 | 1116   | 8884 | 4  |
| 57   | 1609   | 1.00   | 8391  | 2561   | 1.03   | 1436  | 0952   | 9048 | 5044   | 0.95   | 4956 | 6163   | 0.97   | 3837 | 1119   | 8881 | 3  |
| 58   | 1669   | 0.98   | 8331  | 2623   | 1.03   | 1473  | 0955   | 9046 | 5099   | 0.95   | 4901 | 6221   | 0.97   | 3779 | 1122   | 8878 | 2  |
| 59   | 1728   | 1.00   | 8272  | 2685   | 1.03   | 1510  | 0957   | 9043 | 5154   | 0.95   | 4846 | 6279   | 0.97   | 3721 | 1125   | 8875 | 1  |
| 60   | 1788   | 1.00   | 8212  | 2747   | 1.03   | 1547  | 0960   | 9040 | 5209   | 0.95   | 4791 | 6336   | 0.95   | 3664 | 1128   | 8872 | 0  |
| i    | 9.3*   |        | 10.6* | 9.3*   |        | 10.6* | 10.0   | 9.9  | 9.3    |        | 10.6 | 9.3    |        | 10.6 | 10.0   | 9.9  |    |
|      | cos.   | d. 1'' | sec.  | cot.   | d. 1'' | tan.  | cos.ec | sin. | cos.   | d. 1'' | sec. | cot.   | d. 1'' | tan. | cos.ec | sin. |    |





|    |      | 164° |      |        |      |      |        |      |      | 16°  |      |      |        |      |      |      |        | 163° |      |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
|----|------|------|------|--------|------|------|--------|------|------|------|------|------|--------|------|------|------|--------|------|------|------|------|------|--|--|--|--|--|--|--|--|-----|--|--|--|--|--|--|--|--|--|
|    |      | 18°  |      | 10.5   |      | 9.4  |        | 10.5 |      | 10.0 |      | 9.9  |        | 9.4  |      | 10.5 |        | 10.0 |      | 9.9  |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
|    |      | sin. | d.   | cosec. | tan. | d.   | cot.   | sec. | d.   | cos. | sin. | d.   | cosec. | tan. | d.   | cot. | sec.   | d.   | cos. | sin. | d.   | cos. |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 0  | 1300 | 0    | 8700 | 2805   | 0    | 7195 | 1506   | 0    | 8494 | 4034 | 0    | 5966 | 5750   | 0    | 4250 | 1716 | 0      | 8284 | 60   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 1  | 1347 | 1    | 8653 | 2856   | 1    | 7144 | 1509   | 0    | 8491 | 4078 | 1    | 5922 | 5797   | 1    | 4203 | 1719 | 0      | 8281 | 59   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 2  | 1394 | 2    | 8606 | 2906   | 2    | 7094 | 1512   | 0    | 8488 | 4122 | 2    | 5878 | 5845   | 2    | 4155 | 1723 | 0      | 8277 | 58   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 3  | 1441 | 3    | 8559 | 2957   | 3    | 7043 | 1516   | 0    | 8484 | 4166 | 3    | 5834 | 5892   | 3    | 4108 | 1727 | 0      | 8273 | 57   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 4  | 1488 | 4    | 8512 | 3007   | 4    | 6993 | 1519   | 0    | 8481 | 4210 | 4    | 5790 | 5940   | 4    | 4060 | 1730 | 0      | 8270 | 56   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 5  | 1535 | 5    | 8465 | 3057   | 5    | 6943 | 1523   | 0    | 8477 | 4253 | 5    | 5747 | 5987   | 5    | 4013 | 1734 | 0      | 8266 | 55   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 6  | 1582 | 6    | 8418 | 3108   | 6    | 6892 | 1526   | 0    | 8474 | 4297 | 6    | 5703 | 6035   | 6    | 3965 | 1738 | 0      | 8262 | 54   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 7  | 1628 | 7    | 8372 | 3158   | 7    | 6842 | 1529   | 0    | 8471 | 4341 | 7    | 5659 | 6082   | 7    | 3918 | 1741 | 0      | 8259 | 53   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 8  | 1675 | 8    | 8325 | 3208   | 8    | 6792 | 1533   | 0    | 8467 | 4385 | 8    | 5615 | 6130   | 8    | 3870 | 1745 | 0      | 8255 | 52   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 9  | 1722 | 9    | 8278 | 3258   | 9    | 6742 | 1536   | 1    | 8464 | 4428 | 9    | 5572 | 6177   | 9    | 3823 | 1749 | 1      | 8251 | 51   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 10 | 1768 | 10   | 8232 | 3308   | 10   | 6692 | 1540   | 1    | 8460 | 4472 | 10   | 5528 | 6224   | 10   | 3776 | 1752 | 1      | 8248 | 50   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 11 | 1815 | 11   | 8185 | 3358   | 11   | 6642 | 1543   | 1    | 8457 | 4516 | 11   | 5484 | 6271   | 11   | 3729 | 1756 | 1      | 8244 | 49   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 12 | 1861 | 12   | 8139 | 3408   | 12   | 6592 | 1547   | 1    | 8453 | 4559 | 12   | 5441 | 6319   | 12   | 3681 | 1760 | 1      | 8240 | 48   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 13 | 1908 | 13   | 8092 | 3458   | 13   | 6542 | 1550   | 1    | 8450 | 4602 | 13   | 5398 | 6366   | 13   | 3634 | 1763 | 1      | 8237 | 47   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 14 | 1954 | 14   | 8046 | 3508   | 14   | 6492 | 1553   | 1    | 8447 | 4646 | 14   | 5354 | 6413   | 14   | 3587 | 1767 | 1      | 8233 | 46   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 15 | 2001 | 15   | 7999 | 3558   | 15   | 6442 | 1557   | 1    | 8443 | 4689 | 15   | 5311 | 6460   | 15   | 3540 | 1771 | 1      | 8229 | 45   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 16 | 2047 | 16   | 7953 | 3607   | 16   | 6392 | 1560   | 1    | 8440 | 4733 | 16   | 5267 | 6507   | 16   | 3493 | 1774 | 1      | 8226 | 44   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 17 | 2093 | 17   | 7907 | 3657   | 17   | 6342 | 1564   | 1    | 8436 | 4776 | 17   | 5224 | 6554   | 17   | 3446 | 1778 | 1      | 8222 | 43   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 18 | 2140 | 18   | 7860 | 3707   | 18   | 6292 | 1567   | 1    | 8433 | 4819 | 18   | 5181 | 6601   | 18   | 3399 | 1782 | 1      | 8218 | 42   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 19 | 2186 | 19   | 7814 | 3756   | 19   | 6242 | 1571   | 1    | 8429 | 4862 | 19   | 5138 | 6648   | 19   | 3352 | 1785 | 1      | 8215 | 41   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 20 | 2232 | 20   | 7768 | 3806   | 20   | 6192 | 1574   | 1    | 8426 | 4905 | 20   | 5095 | 6694   | 20   | 3306 | 1789 | 1      | 8211 | 40   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 21 | 2278 | 21   | 7722 | 3855   | 21   | 6142 | 1578   | 1    | 8422 | 4948 | 21   | 5052 | 6741   | 21   | 3259 | 1793 | 1      | 8207 | 39   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 22 | 2324 | 22   | 7676 | 3905   | 22   | 6092 | 1581   | 1    | 8419 | 4992 | 22   | 5008 | 6788   | 22   | 3212 | 1796 | 1      | 8204 | 38   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 23 | 2370 | 23   | 7630 | 3954   | 23   | 6042 | 1585   | 1    | 8415 | 5035 | 23   | 4965 | 6835   | 23   | 3165 | 1800 | 1      | 8200 | 37   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 24 | 2416 | 24   | 7584 | 4004   | 24   | 5992 | 1588   | 1    | 8412 | 5077 | 24   | 4923 | 6881   | 24   | 3119 | 1804 | 1      | 8196 | 36   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 25 | 2461 | 25   | 7538 | 4053   | 25   | 5942 | 1591   | 1    | 8409 | 5120 | 25   | 4880 | 6928   | 25   | 3072 | 1808 | 2      | 8192 | 35   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 26 | 2507 | 26   | 7493 | 4102   | 26   | 5892 | 1595   | 2    | 8405 | 5163 | 26   | 4837 | 6975   | 26   | 3025 | 1811 | 2      | 8189 | 34   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 27 | 2553 | 27   | 7447 | 4151   | 27   | 5842 | 1598   | 2    | 8402 | 5206 | 27   | 4794 | 7021   | 27   | 2979 | 1815 | 2      | 8185 | 33   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 28 | 2599 | 28   | 7401 | 4201   | 28   | 5792 | 1602   | 2    | 8398 | 5249 | 28   | 4751 | 7068   | 28   | 2932 | 1819 | 2      | 8181 | 32   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 29 | 2644 | 29   | 7356 | 4250   | 29   | 5742 | 1605   | 2    | 8395 | 5292 | 29   | 4708 | 7114   | 29   | 2886 | 1823 | 2      | 8177 | 31   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 30 | 2690 | 30   | 7310 | 4299   | 30   | 5692 | 1609   | 2    | 8391 | 5334 | 30   | 4666 | 7160   | 30   | 2840 | 1826 | 2      | 8174 | 30   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 31 | 2735 | 31   | 7265 | 4348   | 31   | 5642 | 1612   | 2    | 8388 | 5377 | 31   | 4623 | 7207   | 31   | 2793 | 1830 | 2      | 8170 | 29   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 32 | 2781 | 32   | 7219 | 4397   | 32   | 5592 | 1616   | 2    | 8384 | 5419 | 32   | 4581 | 7253   | 32   | 2747 | 1834 | 2      | 8166 | 28   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 33 | 2826 | 33   | 7174 | 4446   | 33   | 5542 | 1619   | 2    | 8381 | 5462 | 33   | 4538 | 7299   | 33   | 2701 | 1838 | 2      | 8162 | 27   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 34 | 2872 | 34   | 7128 | 4495   | 34   | 5492 | 1623   | 2    | 8377 | 5504 | 34   | 4496 | 7346   | 34   | 2654 | 1841 | 2      | 8159 | 26   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 35 | 2917 | 35   | 7083 | 4544   | 35   | 5442 | 1627   | 2    | 8373 | 5547 | 35   | 4453 | 7392   | 35   | 2608 | 1845 | 2      | 8155 | 25   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 36 | 2962 | 36   | 7038 | 4592   | 36   | 5392 | 1630   | 2    | 8370 | 5589 | 36   | 4411 | 7438   | 36   | 2562 | 1849 | 2      | 8151 | 24   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 37 | 3008 | 37   | 6992 | 4641   | 37   | 5342 | 1634   | 2    | 8366 | 5632 | 37   | 4368 | 7484   | 37   | 2516 | 1853 | 2      | 8147 | 23   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 38 | 3053 | 38   | 6947 | 4690   | 38   | 5292 | 1637   | 2    | 8363 | 5674 | 38   | 4326 | 7530   | 38   | 2470 | 1856 | 2      | 8144 | 22   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 39 | 3098 | 39   | 6902 | 4738   | 39   | 5242 | 1641   | 2    | 8359 | 5716 | 39   | 4284 | 7576   | 39   | 2424 | 1860 | 2      | 8140 | 21   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 40 | 3143 | 40   | 6857 | 4787   | 40   | 5192 | 1644   | 2    | 8356 | 5758 | 40   | 4242 | 7622   | 40   | 2378 | 1864 | 2      | 8136 | 20   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 41 | 3188 | 41   | 6812 | 4836   | 41   | 5142 | 1648   | 2    | 8352 | 5801 | 41   | 4199 | 7668   | 41   | 2332 | 1868 | 3      | 8132 | 19   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 42 | 3233 | 42   | 6767 | 4884   | 42   | 5092 | 1651   | 2    | 8349 | 5843 | 42   | 4157 | 7714   | 42   | 2286 | 1871 | 3      | 8129 | 18   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 43 | 3278 | 43   | 6722 | 4933   | 43   | 5042 | 1655   | 3    | 8345 | 5885 | 43   | 4115 | 7760   | 43   | 2240 | 1875 | 3      | 8125 | 17   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 44 | 3323 | 44   | 6677 | 4981   | 44   | 4992 | 1658   | 3    | 8342 | 5927 | 44   | 4073 | 7806   | 44   | 2194 | 1879 | 3      | 8121 | 16   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 45 | 3367 | 45   | 6633 | 5029   | 45   | 4942 | 1662   | 3    | 8338 | 5969 | 45   | 4031 | 7852   | 45   | 2148 | 1883 | 3      | 8117 | 15   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 46 | 3412 | 46   | 6588 | 5078   | 46   | 4892 | 1666   | 3    | 8334 | 6011 | 46   | 3989 | 7897   | 46   | 2103 | 1887 | 3      | 8113 | 14   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 47 | 3457 | 47   | 6543 | 5126   | 47   | 4842 | 1669   | 3    | 8331 | 6053 | 47   | 3947 | 7943   | 47   | 2057 | 1890 | 3      | 8110 | 13   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 48 | 3502 | 48   | 6498 | 5174   | 48   | 4792 | 1673   | 3    | 8327 | 6095 | 48   | 3905 | 7989   | 48   | 2011 | 1894 | 3      | 8106 | 12   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 49 | 3546 | 49   | 6454 | 5222   | 49   | 4742 | 1676   | 3    | 8324 | 6136 | 49   | 3864 | 8035   | 49   | 1965 | 1898 | 3      | 8102 | 11   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 50 | 3591 | 50   | 6409 | 5271   | 50   | 4692 | 1680   | 3    | 8320 | 6178 | 50   | 3822 | 8080   | 50   | 1920 | 1902 | 3      | 8098 | 10   |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 51 | 3635 | 51   | 6365 | 5319   | 51   | 4642 | 1683   | 3    | 8317 | 6220 | 51   | 3780 | 8126   | 51   | 1874 | 1906 | 3      | 8094 | 9    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 52 | 3680 | 52   | 6320 | 5367   | 52   | 4592 | 1687   | 3    | 8313 | 6262 | 52   | 3738 | 8171   | 52   | 1829 | 1910 | 3      | 8090 | 8    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 53 | 3724 | 53   | 6276 | 5415   | 53   | 4542 | 1691   | 3    | 8310 | 6303 | 53   | 3697 | 8217   | 53   | 1783 | 1913 | 3      | 8087 | 7    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 54 | 3769 | 54   | 6231 | 5463   | 54   | 4492 | 1694   | 3    | 8306 | 6345 | 54   | 3655 | 8262   | 54   | 1738 | 1917 | 3      | 8083 | 6    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 55 | 3813 | 55   | 6187 | 5511   | 55   | 4442 | 1698   | 3    | 8302 | 6386 | 55   | 3614 | 8307   | 55   | 1693 | 1921 | 3      | 8079 | 5    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 56 | 3857 | 56   | 6143 | 5559   | 56   | 4392 | 1701   | 3    | 8299 | 6428 | 56   | 3572 | 8353   | 56   | 1647 | 1925 | 3      | 8075 | 4    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 57 | 3901 | 57   | 6099 | 5606   | 57   | 4342 | 1705   | 3    | 8295 | 6469 | 57   | 3531 | 8398   | 57   | 1602 | 1929 | 4      | 8071 | 3    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 58 | 3946 | 58   | 6054 | 5654   | 58   | 4292 | 1709   | 3    | 8291 | 6511 | 58   | 3489 | 8443   | 58   | 1557 | 1933 | 4      | 8067 | 2    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 59 | 3990 | 59   | 6010 | 5702   | 59   | 4242 | 1712   | 3    | 8288 | 6552 | 59   | 3448 | 8489   | 59   | 1511 | 1937 | 4      | 8063 | 1    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
| 60 | 4034 | 60   | 5966 | 5750   | 60   | 4192 | 1716   | 4    | 8284 | 6594 | 60   | 3406 | 8534   | 60   | 1466 | 1940 | 4      | 8060 | 0    |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
|    | 9.4  |      | 10.5 |        | 9.4  |      | 10.5   |      | 10.0 |      | 9.9  |      | 9.4    |      | 10.5 |      | 10.0   |      | 9.9  |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
|    | cos. | d.   | sec. | cot.   | d.   | tan. | cosec. | d.   | sin. |      | cos. | d.   | sec.   | cot. | d.   | tan. | cosec. | d.   | sin. |      |      |      |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |
|    | 105° |      |      |        |      |      |        |      |      |      | 74°  |      |        |      |      |      |        |      |      |      | 106° |      |  |  |  |  |  |  |  |  | 73° |  |  |  |  |  |  |  |  |  |

| 162° |      |      |      |        |    |      |      |      |      | 160° |    |      |      |      |      |        |    |      |    | 158°   |  |      |  |     |  |      |  |      |  | 161° |  |      |  |     |  |  |  |  |  |
|------|------|------|------|--------|----|------|------|------|------|------|----|------|------|------|------|--------|----|------|----|--------|--|------|--|-----|--|------|--|------|--|------|--|------|--|-----|--|--|--|--|--|
| sin. |      | d.   |      | cosec. |    | tan. |      | d.   |      | cot. |    | sec. |      | d.   |      | cos.   |    | d.   |    | cosec. |  | tan. |  | d.  |  | cot. |  | sec. |  | d.   |  | cos. |  |     |  |  |  |  |  |
| 9.4  |      | 10.5 |      | 9.10   |    | 10.5 |      | 10.0 |      | 9.9  |    | 9.4  |      | 10.5 |      | 9.5    |    | 10.4 |    | 10.0   |  | 9.9  |  | 9.4 |  | 10.5 |  | 9.5  |  | 10.4 |  | 10.0 |  | 9.9 |  |  |  |  |  |
| 0    | 6594 | 0    | 3406 | 8534   | 0  | 1466 | 1940 | 0    | 8060 | 8998 | 0  | 1002 | 1178 | 0    | 8822 | 2179   | 0  | 7821 | 60 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 1    | 6635 | 1    | 3365 | 8579   | 1  | 1421 | 1944 | 0    | 8056 | 9037 | 1  | 0963 | 1221 | 1    | 8779 | 2183   | 0  | 7817 | 59 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 2    | 6676 | 1    | 3324 | 8624   | 1  | 1376 | 1948 | 0    | 8052 | 9076 | 1  | 0924 | 1264 | 1    | 8736 | 2188   | 0  | 7812 | 58 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 3    | 6717 | 2    | 3283 | 8669   | 2  | 1331 | 1952 | 0    | 8048 | 9115 | 2  | 0885 | 1306 | 2    | 8694 | 2192   | 0  | 7808 | 57 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 4    | 6758 | 3    | 3242 | 8714   | 3  | 1286 | 1956 | 0    | 8044 | 9153 | 3  | 0847 | 1349 | 3    | 8651 | 2196   | 0  | 7804 | 56 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 5    | 6800 | 3    | 3200 | 8759   | 4  | 1241 | 1960 | 0    | 8040 | 9192 | 3  | 0808 | 1392 | 3    | 8608 | 2200   | 0  | 7800 | 55 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 6    | 6841 | 4    | 3159 | 8804   | 4  | 1196 | 1964 | 0    | 8036 | 9231 | 4  | 0769 | 1435 | 4    | 8565 | 2204   | 0  | 7796 | 54 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 7    | 6882 | 5    | 3118 | 8849   | 5  | 1151 | 1968 | 0    | 8032 | 9269 | 4  | 0731 | 1478 | 5    | 8522 | 2208   | 0  | 7792 | 53 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 8    | 6923 | 5    | 3077 | 8894   | 6  | 1106 | 1971 | 1    | 8029 | 9308 | 5  | 0692 | 1520 | 6    | 8480 | 2212   | 1  | 7788 | 52 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 9    | 6964 | 6    | 3036 | 8939   | 7  | 1061 | 1975 | 1    | 8025 | 9347 | 6  | 0653 | 1563 | 6    | 8437 | 2216   | 1  | 7784 | 51 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 10   | 7005 | 7    | 2995 | 8984   | 7  | 1016 | 1979 | 1    | 8021 | 9385 | 6  | 0615 | 1606 | 7    | 8394 | 2221   | 1  | 7779 | 50 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 11   | 7046 | 7    | 2955 | 9029   | 8  | 0971 | 1983 | 1    | 8017 | 9424 | 7  | 0576 | 1648 | 8    | 8352 | 2225   | 1  | 7775 | 49 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 12   | 7087 | 8    | 2914 | 9073   | 9  | 0927 | 1987 | 1    | 8013 | 9462 | 8  | 0538 | 1691 | 9    | 8310 | 2229   | 1  | 7771 | 48 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 13   | 7127 | 9    | 2873 | 9118   | 10 | 0882 | 1991 | 1    | 8009 | 9500 | 8  | 0500 | 1734 | 9    | 8268 | 2233   | 1  | 7767 | 47 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 14   | 7168 | 9    | 2832 | 9163   | 10 | 0837 | 1995 | 1    | 8005 | 9539 | 9  | 0461 | 1777 | 10   | 8226 | 2237   | 1  | 7763 | 46 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 15   | 7209 | 10   | 2791 | 9207   | 11 | 0793 | 1999 | 1    | 8001 | 9577 | 9  | 0423 | 1819 | 10   | 8184 | 2241   | 1  | 7759 | 45 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 16   | 7249 | 11   | 2751 | 9252   | 12 | 0748 | 2003 | 1    | 7997 | 9615 | 10 | 0385 | 1861 | 11   | 8143 | 2246   | 1  | 7754 | 44 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 17   | 7290 | 11   | 2710 | 9296   | 12 | 0704 | 2007 | 1    | 7993 | 9654 | 11 | 0346 | 1903 | 12   | 8097 | 2250   | 1  | 7750 | 43 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 18   | 7330 | 12   | 2670 | 9341   | 13 | 0659 | 2011 | 1    | 7989 | 9692 | 11 | 0308 | 1946 | 13   | 8054 | 2254   | 1  | 7746 | 42 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 19   | 7371 | 13   | 2629 | 9385   | 14 | 0615 | 2014 | 1    | 7986 | 9730 | 12 | 0270 | 1988 | 13   | 8012 | 2258   | 1  | 7742 | 41 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 20   | 7411 | 13   | 2589 | 9430   | 15 | 0570 | 2018 | 1    | 7982 | 9768 | 13 | 0232 | 2031 | 14   | 7969 | 2262   | 1  | 7738 | 40 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 21   | 7452 | 14   | 2548 | 9474   | 15 | 0526 | 2022 | 1    | 7978 | 9806 | 13 | 0194 | 2073 | 15   | 7927 | 2266   | 1  | 7734 | 39 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 22   | 7492 | 15   | 2508 | 9519   | 16 | 0481 | 2026 | 1    | 7974 | 9844 | 14 | 0156 | 2115 | 15   | 7885 | 2271   | 2  | 7730 | 38 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 23   | 7533 | 15   | 2467 | 9563   | 17 | 0437 | 2030 | 2    | 7970 | 9882 | 14 | 0118 | 2157 | 16   | 7843 | 2275   | 2  | 7725 | 37 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 24   | 7573 | 16   | 2427 | 9607   | 18 | 0393 | 2034 | 2    | 7966 | 9920 | 15 | 0080 | 2200 | 17   | 7800 | 2279   | 2  | 7721 | 36 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 25   | 7613 | 17   | 2387 | 9652   | 18 | 0348 | 2038 | 2    | 7962 | 9958 | 16 | 0042 | 2242 | 17   | 7758 | 2283   | 2  | 7717 | 35 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 26   | 7654 | 17   | 2346 | 9696   | 19 | 0304 | 2042 | 2    | 7958 | 9996 | 16 | 0004 | 2284 | 18   | 7716 | 2287   | 2  | 7713 | 34 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 27   | 7694 | 18   | 2306 | 9740   | 20 | 0260 | 2046 | 2    | 7954 | +034 | 17 | 9966 | 2326 | 19   | 7674 | 2292   | 2  | 7708 | 33 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 28   | 7734 | 19   | 2266 | 9784   | 21 | 0216 | 2050 | 2    | 7950 | 0072 | 18 | 9928 | 2368 | 20   | 7632 | 2296   | 2  | 7704 | 32 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 29   | 7774 | 19   | 2226 | 9828   | 21 | 0172 | 2054 | 2    | 7946 | 0110 | 18 | 9890 | 2410 | 20   | 7590 | 2300   | 2  | 7700 | 31 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 30   | 7814 | 20   | 2186 | 9872   | 22 | 0128 | 2058 | 2    | 7942 | 0148 | 19 | 9852 | 2452 | 21   | 7548 | 2304   | 2  | 7696 | 30 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 31   | 7854 | 21   | 2146 | 9916   | 23 | 0084 | 2062 | 2    | 7938 | 0185 | 20 | 9815 | 2494 | 22   | 7506 | 2309   | 2  | 7692 | 29 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 32   | 7894 | 21   | 2106 | 9960   | 24 | 0040 | 2066 | 2    | 7934 | 0223 | 20 | 9777 | 2536 | 22   | 7464 | 2313   | 2  | 7688 | 28 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 33   | 7934 | 22   | 2066 | +004   | 24 | 9996 | 2070 | 2    | 7930 | 0261 | 21 | 9739 | 2578 | 23   | 7422 | 2317   | 2  | 7683 | 27 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 34   | 7974 | 23   | 2026 | 0048   | 25 | 9952 | 2074 | 2    | 7926 | 0298 | 21 | 9702 | 2620 | 24   | 7380 | 2321   | 2  | 7679 | 26 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 35   | 8014 | 23   | 1986 | 0092   | 26 | 9908 | 2078 | 2    | 7922 | 0336 | 22 | 9664 | 2661 | 24   | 7338 | 2326   | 2  | 7674 | 25 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 36   | 8054 | 24   | 1946 | 0136   | 26 | 9864 | 2082 | 2    | 7918 | 0374 | 23 | 9626 | 2703 | 25   | 7297 | 2330   | 3  | 7670 | 24 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 37   | 8094 | 25   | 1906 | 0180   | 27 | 9820 | 2086 | 2    | 7914 | 0411 | 23 | 9589 | 2745 | 26   | 7255 | 2334   | 3  | 7666 | 23 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 38   | 8133 | 25   | 1867 | 0223   | 28 | 9777 | 2090 | 3    | 7910 | 0449 | 24 | 9551 | 2787 | 27   | 7213 | 2338   | 3  | 7662 | 22 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 39   | 8173 | 26   | 1827 | 0267   | 29 | 9733 | 2094 | 3    | 7906 | 0486 | 25 | 9514 | 2829 | 27   | 7171 | 2343   | 3  | 7657 | 21 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 40   | 8213 | 27   | 1787 | 0311   | 29 | 9689 | 2098 | 3    | 7902 | 0523 | 25 | 9477 | 2870 | 28   | 7130 | 2347   | 3  | 7653 | 20 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 41   | 8252 | 27   | 1748 | 0355   | 30 | 9645 | 2102 | 3    | 7898 | 0561 | 26 | 9439 | 2912 | 29   | 7088 | 2351   | 3  | 7649 | 19 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 42   | 8292 | 28   | 1708 | 0398   | 31 | 9602 | 2106 | 3    | 7894 | 0598 | 26 | 9402 | 2953 | 29   | 7047 | 2355   | 3  | 7645 | 18 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 43   | 8332 | 29   | 1668 | 0442   | 32 | 9558 | 2110 | 3    | 7890 | 0635 | 27 | 9365 | 2995 | 30   | 7005 | 2360   | 3  | 7640 | 17 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 44   | 8371 | 29   | 1629 | 0485   | 32 | 9515 | 2114 | 3    | 7886 | 0673 | 28 | 9327 | 3037 | 31   | 6963 | 2364   | 3  | 7636 | 16 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 45   | 8411 | 30   | 1589 | 0529   | 33 | 9471 | 2118 | 3    | 7882 | 0710 | 28 | 9290 | 3078 | 31   | 6922 | 2368   | 3  | 7632 | 15 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 46   | 8450 | 31   | 1550 | 0572   | 34 | 9428 | 2122 | 3    | 7878 | 0747 | 29 | 9253 | 3120 | 32   | 6880 | 2372   | 3  | 7628 | 14 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 47   | 8490 | 31   | 1510 | 0616   | 35 | 9384 | 2126 | 3    | 7874 | 0784 | 30 | 9216 | 3161 | 33   | 6839 | 2377   | 3  | 7623 | 13 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 48   | 8529 | 32   | 1471 | 0659   | 35 | 9341 | 2130 | 3    | 7870 | 0821 | 30 | 9179 | 3202 | 34   | 6798 | 2381   | 3  | 7619 | 12 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 49   | 8568 | 33   | 1432 | 0703   | 36 | 9297 | 2134 | 3    | 7866 | 0858 | 31 | 9142 | 3244 | 34   | 6756 | 2385   | 3  | 7615 | 11 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 50   | 8607 | 33   | 1393 | 0746   | 37 | 9254 | 2139 | 3    | 7861 | 0896 | 31 | 9104 | 3285 | 35   | 6715 | 2390   | 4  | 7610 | 10 |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 51   | 8647 | 34   | 1353 | 0789   | 37 | 9211 | 2143 | 3    | 7857 | 0933 | 32 | 9067 | 3327 | 36   | 6673 | 2394   | 4  | 7606 | 9  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 52   | 8686 | 35   | 1314 | 0833   | 38 | 9167 | 2147 | 3    | 7853 | 0970 | 33 | 9030 | 3368 | 36   | 6632 | 2398   | 4  | 7602 | 8  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 53   | 8725 | 35   | 1275 | 0876   | 39 | 9124 | 2151 | 4    | 7849 | 1007 | 33 | 8993 | 3409 | 37   | 6591 | 2403   | 4  | 7597 | 7  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 54   | 8764 | 36   | 1236 | 0919   | 40 | 9081 | 2155 | 4    | 7845 | 1043 | 34 | 8957 | 3450 | 38   | 6550 | 2407   | 4  | 7593 | 6  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 55   | 8803 | 37   | 1197 | 0962   | 40 | 9038 | 2159 | 4    | 7841 | 1080 | 35 | 8920 | 3492 | 38   | 6508 | 2411   | 4  | 7589 | 5  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 56   | 8842 | 37   | 1158 | 1005   | 41 | 8995 | 2163 | 4    | 7837 | 1117 | 35 | 8883 | 3533 | 39   | 6467 | 2416   | 4  | 7584 | 4  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 57   | 8881 | 38   | 1119 | 1048   | 42 | 8952 | 2167 | 4    | 7833 | 1154 | 36 | 8846 | 3574 | 40   | 6426 | 2420   | 4  | 7580 | 3  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 58   | 8920 | 39   | 1080 | 1092   | 43 | 8908 | 2171 | 4    | 7829 | 1191 | 37 | 8809 | 3615 | 41   | 6385 | 2424   | 4  | 7576 | 2  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 59   | 8959 | 39   | 1041 | 1135   | 43 | 8865 | 2175 | 4    | 7825 | 1227 | 37 | 8773 | 3656 | 41   | 6344 | 2429   | 4  | 7571 | 1  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
| 60   | 8998 | 40   | 1002 | 1178   | 44 | 8822 | 2179 | 4    | 7821 | 1264 | 38 | 8736 | 3697 | 42   | 6303 | 2433   | 4  | 7567 | 0  |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
|      | 9.1  |      | 10.  | 9.5    |    | 10.4 |      | 10.0 |      | 9.9  |    | 9.5  |      | 10.4 |      | 10.0   |    | 9.9  |    |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |
|      | cos. | d.   | sec. | cot.   | d. | tan. | sec. | d.   | sin. | cos. | d. | sec. | cot. | d.   | tan. | cosec. | d. | sin. |    |        |  |      |  |     |  |      |  |      |  |      |  |      |  |     |  |  |  |  |  |



| °  | 19°  |      |      |      | 160° |      |       |    | 20°  |      |     |      | 159° |     |      |       |    |      |
|----|------|------|------|------|------|------|-------|----|------|------|-----|------|------|-----|------|-------|----|------|
|    | sin. | d.   | cos. | tan. | d.   | cot. | sec.  | d. | cos. | sin. | d.  | cos. | tan. | d.  | cot. | sec.  | d. | cos. |
| 0  | 9.5  | 10.4 | 9.5  | 10.4 | 10.0 | 9.9  |       |    | 9.5  | 10.4 | 9.5 | 10.4 | 10.0 | 9.9 |      |       |    | 9.9  |
| 1  | 1264 | 0    | 8736 | 3697 | 0    | 6303 | 2433  | 0  | 7567 | 3405 | 0   | 6595 | 6107 | 0   | 3893 | 2701  | 0  | 7299 |
| 2  | 1301 | 1    | 8699 | 3738 | 1    | 6262 | 2437  | 0  | 7563 | 3440 | 1   | 6560 | 6146 | 1   | 3854 | 2706  | 0  | 7294 |
| 3  | 1338 | 1    | 8662 | 3779 | 1    | 6221 | 2442  | 0  | 7558 | 3475 | 1   | 6525 | 6185 | 1   | 3815 | 2711  | 0  | 7289 |
| 4  | 1374 | 2    | 8626 | 3820 | 2    | 6180 | 2446  | 0  | 7554 | 3509 | 2   | 6491 | 6224 | 2   | 3776 | 2715  | 0  | 7285 |
| 5  | 1411 | 2    | 8589 | 3861 | 3    | 6139 | 2450  | 0  | 7550 | 3544 | 2   | 6456 | 6264 | 3   | 3736 | 2720  | 0  | 7280 |
| 6  | 1447 | 3    | 8553 | 3902 | 3    | 6098 | 2455  | 0  | 7545 | 3578 | 3   | 6422 | 6303 | 3   | 3697 | 2724  | 0  | 7276 |
| 7  | 1484 | 4    | 8516 | 3943 | 4    | 6057 | 2459  | 0  | 7541 | 3613 | 3   | 6387 | 6342 | 4   | 3658 | 2729  | 0  | 7271 |
| 8  | 1520 | 4    | 8480 | 3984 | 5    | 6016 | 2464  | 1  | 7536 | 3647 | 4   | 6353 | 6381 | 4   | 3619 | 2734  | 1  | 7266 |
| 9  | 1557 | 5    | 8443 | 4025 | 5    | 5975 | 2468  | 1  | 7532 | 3682 | 5   | 6318 | 6420 | 5   | 3580 | 2738  | 1  | 7262 |
| 10 | 1593 | 5    | 8407 | 4065 | 6    | 5935 | 2472  | 1  | 7528 | 3716 | 5   | 6284 | 6459 | 6   | 3541 | 2743  | 1  | 7257 |
| 11 | 1629 | 6    | 8371 | 4106 | 7    | 5894 | 2477  | 1  | 7523 | 3751 | 6   | 6249 | 6498 | 6   | 3502 | 2748  | 1  | 7252 |
| 12 | 1666 | 7    | 8334 | 4147 | 7    | 5853 | 2481  | 1  | 7519 | 3785 | 6   | 6215 | 6537 | 7   | 3463 | 2752  | 1  | 7248 |
| 13 | 1702 | 7    | 8298 | 4187 | 8    | 5813 | 2485  | 1  | 7515 | 3819 | 7   | 6181 | 6576 | 8   | 3424 | 2757  | 1  | 7243 |
| 14 | 1738 | 8    | 8262 | 4228 | 9    | 5772 | 2490  | 1  | 7510 | 3854 | 7   | 6146 | 6615 | 8   | 3385 | 2762  | 1  | 7238 |
| 15 | 1774 | 8    | 8226 | 4269 | 9    | 5731 | 2494  | 1  | 7506 | 3888 | 8   | 6112 | 6654 | 9   | 3346 | 2766  | 1  | 7234 |
| 16 | 1811 | 9    | 8189 | 4309 | 10   | 5691 | 2499  | 1  | 7501 | 3922 | 8   | 6078 | 6693 | 10  | 3307 | 2771  | 1  | 7229 |
| 17 | 1847 | 10   | 8153 | 4350 | 11   | 5650 | 2503  | 1  | 7497 | 3957 | 9   | 6043 | 6732 | 10  | 3268 | 2776  | 1  | 7224 |
| 18 | 1883 | 10   | 8117 | 4390 | 11   | 5610 | 2508  | 1  | 7492 | 3991 | 10  | 6009 | 6771 | 11  | 3229 | 2780  | 1  | 7220 |
| 19 | 1919 | 11   | 8081 | 4431 | 12   | 5569 | 2512  | 1  | 7488 | 4025 | 10  | 5975 | 6810 | 12  | 3190 | 2785  | 1  | 7215 |
| 20 | 1955 | 11   | 8045 | 4471 | 13   | 5529 | 2516  | 1  | 7484 | 4059 | 11  | 5941 | 6849 | 12  | 3151 | 2790  | 1  | 7210 |
| 21 | 1991 | 12   | 8009 | 4512 | 13   | 5488 | 2521  | 1  | 7479 | 4093 | 11  | 5907 | 6887 | 13  | 3113 | 2794  | 2  | 7206 |
| 22 | 2027 | 12   | 7973 | 4552 | 14   | 5448 | 2525  | 2  | 7475 | 4127 | 12  | 5873 | 6926 | 13  | 3074 | 2799  | 2  | 7201 |
| 23 | 2063 | 13   | 7937 | 4593 | 15   | 5407 | 2530  | 2  | 7470 | 4161 | 12  | 5839 | 6965 | 14  | 3035 | 2804  | 2  | 7197 |
| 24 | 2099 | 14   | 7901 | 4633 | 15   | 5367 | 2534  | 2  | 7466 | 4195 | 13  | 5805 | 7004 | 15  | 2996 | 2808  | 2  | 7192 |
| 25 | 2135 | 14   | 7865 | 4673 | 16   | 5327 | 2539  | 2  | 7461 | 4229 | 14  | 5771 | 7042 | 15  | 2958 | 2813  | 2  | 7187 |
| 26 | 2171 | 15   | 7829 | 4714 | 17   | 5286 | 2543  | 2  | 7457 | 4263 | 14  | 5737 | 7081 | 16  | 2919 | 2818  | 2  | 7182 |
| 27 | 2207 | 15   | 7793 | 4754 | 17   | 5246 | 2547  | 2  | 7453 | 4297 | 15  | 5703 | 7120 | 17  | 2880 | 2822  | 2  | 7178 |
| 28 | 2242 | 16   | 7758 | 4794 | 18   | 5206 | 2552  | 2  | 7448 | 4331 | 15  | 5669 | 7158 | 17  | 2842 | 2827  | 2  | 7173 |
| 29 | 2278 | 17   | 7722 | 4835 | 19   | 5165 | 2556  | 2  | 7444 | 4365 | 16  | 5635 | 7197 | 18  | 2803 | 2832  | 2  | 7168 |
| 30 | 2314 | 17   | 7686 | 4875 | 19   | 5125 | 2561  | 2  | 7439 | 4399 | 16  | 5601 | 7235 | 19  | 2765 | 2837  | 2  | 7163 |
| 31 | 2350 | 18   | 7650 | 4915 | 20   | 5085 | 2565  | 2  | 7435 | 4433 | 17  | 5567 | 7274 | 19  | 2726 | 2841  | 2  | 7159 |
| 32 | 2385 | 18   | 7615 | 4955 | 21   | 5045 | 2570  | 2  | 7430 | 4466 | 17  | 5533 | 7312 | 20  | 2688 | 2846  | 2  | 7154 |
| 33 | 2421 | 19   | 7579 | 4995 | 21   | 5005 | 2574  | 2  | 7426 | 4500 | 18  | 5500 | 7351 | 21  | 2649 | 2851  | 3  | 7149 |
| 34 | 2456 | 20   | 7544 | 5035 | 22   | 4965 | 2579  | 2  | 7421 | 4534 | 19  | 5466 | 7389 | 21  | 2611 | 2855  | 3  | 7145 |
| 35 | 2492 | 20   | 7508 | 5075 | 23   | 4925 | 2583  | 3  | 7417 | 4567 | 19  | 5433 | 7428 | 22  | 2572 | 2860  | 3  | 7140 |
| 36 | 2527 | 21   | 7473 | 5115 | 23   | 4885 | 2588  | 3  | 7412 | 4601 | 20  | 5399 | 7466 | 22  | 2534 | 2865  | 3  | 7135 |
| 37 | 2563 | 21   | 7437 | 5155 | 24   | 4845 | 2592  | 3  | 7408 | 4635 | 20  | 5365 | 7504 | 23  | 2496 | 2870  | 3  | 7130 |
| 38 | 2598 | 22   | 7402 | 5195 | 25   | 4805 | 2597  | 3  | 7403 | 4668 | 21  | 5332 | 7542 | 24  | 2457 | 2874  | 3  | 7126 |
| 39 | 2634 | 23   | 7366 | 5235 | 25   | 4765 | 2601  | 3  | 7399 | 4702 | 21  | 5298 | 7581 | 24  | 2419 | 2879  | 3  | 7121 |
| 40 | 2669 | 23   | 7331 | 5275 | 26   | 4725 | 2606  | 3  | 7394 | 4735 | 22  | 5265 | 7619 | 25  | 2381 | 2884  | 3  | 7116 |
| 41 | 2705 | 24   | 7295 | 5315 | 27   | 4685 | 2610  | 3  | 7390 | 4769 | 23  | 5231 | 7658 | 26  | 2342 | 2889  | 3  | 7111 |
| 42 | 2740 | 24   | 7260 | 5355 | 27   | 4645 | 2615  | 3  | 7385 | 4802 | 23  | 5198 | 7696 | 26  | 2304 | 2893  | 3  | 7107 |
| 43 | 2775 | 25   | 7225 | 5395 | 28   | 4605 | 2619  | 3  | 7381 | 4836 | 24  | 5164 | 7734 | 27  | 2266 | 2898  | 3  | 7102 |
| 44 | 2811 | 26   | 7189 | 5434 | 29   | 4566 | 2624  | 3  | 7376 | 4869 | 24  | 5131 | 7772 | 28  | 2228 | 2903  | 3  | 7097 |
| 45 | 2846 | 26   | 7154 | 5474 | 29   | 4526 | 2628  | 3  | 7372 | 4903 | 25  | 5097 | 7810 | 28  | 2190 | 2908  | 3  | 7092 |
| 46 | 2881 | 27   | 7119 | 5514 | 30   | 4486 | 2633  | 3  | 7367 | 4936 | 25  | 5063 | 7849 | 29  | 2151 | 2913  | 4  | 7087 |
| 47 | 2916 | 27   | 7084 | 5554 | 31   | 4446 | 2637  | 3  | 7363 | 4969 | 26  | 5031 | 7887 | 30  | 2113 | 2917  | 4  | 7083 |
| 48 | 2951 | 28   | 7049 | 5593 | 31   | 4407 | 2642  | 3  | 7358 | 5003 | 26  | 4997 | 7925 | 30  | 2075 | 2922  | 4  | 7078 |
| 49 | 2986 | 29   | 7014 | 5633 | 32   | 4367 | 2647  | 4  | 7353 | 5036 | 27  | 4964 | 7963 | 31  | 2037 | 2927  | 4  | 7073 |
| 50 | 3021 | 29   | 6979 | 5673 | 33   | 4327 | 2651  | 4  | 7349 | 5069 | 28  | 4931 | 8001 | 31  | 1999 | 2932  | 4  | 7068 |
| 51 | 3056 | 30   | 6944 | 5712 | 33   | 4288 | 2656  | 4  | 7344 | 5102 | 28  | 4898 | 8039 | 32  | 1961 | 2937  | 4  | 7063 |
| 52 | 3092 | 30   | 6908 | 5752 | 34   | 4248 | 2660  | 4  | 7340 | 5136 | 29  | 4864 | 8077 | 33  | 1923 | 2941  | 4  | 7059 |
| 53 | 3126 | 31   | 6874 | 5791 | 35   | 4209 | 2665  | 4  | 7335 | 5169 | 29  | 4831 | 8115 | 33  | 1885 | 2946  | 4  | 7054 |
| 54 | 3161 | 32   | 6839 | 5831 | 35   | 4169 | 2669  | 4  | 7331 | 5202 | 30  | 4798 | 8153 | 34  | 1847 | 2951  | 4  | 7049 |
| 55 | 3196 | 32   | 6804 | 5870 | 36   | 4130 | 2674  | 4  | 7326 | 5235 | 30  | 4765 | 8191 | 35  | 1809 | 2956  | 4  | 7044 |
| 56 | 3231 | 33   | 6769 | 5910 | 37   | 4090 | 2678  | 4  | 7322 | 5268 | 31  | 4732 | 8229 | 35  | 1771 | 2961  | 4  | 7039 |
| 57 | 3266 | 33   | 6734 | 5949 | 37   | 4051 | 2683  | 4  | 7317 | 5301 | 32  | 4699 | 8267 | 36  | 1733 | 2965  | 4  | 7035 |
| 58 | 3301 | 34   | 6699 | 5989 | 38   | 4011 | 2688  | 4  | 7312 | 5334 | 32  | 4666 | 8304 | 37  | 1696 | 2970  | 4  | 7030 |
| 59 | 3336 | 34   | 6664 | 6028 | 39   | 3972 | 2692  | 4  | 7308 | 5367 | 33  | 4633 | 8342 | 37  | 1658 | 2975  | 5  | 7025 |
| 60 | 3370 | 35   | 6630 | 6067 | 39   | 3933 | 2697  | 4  | 7303 | 5400 | 33  | 4600 | 8380 | 38  | 1620 | 2980  | 5  | 7020 |
|    | 3405 | 36   | 6595 | 6107 | 40   | 3893 | 2701  | 4  | 7299 | 5433 | 34  | 4567 | 8418 | 39  | 1582 | 2985  | 5  | 7015 |
| r  | 9.5  | 10.4 | 9.5  | 10.4 | 10.0 | 9.9  |       |    | 9.5  | 10.4 | 9.5 | 10.4 | 10.0 | 9.9 |      |       |    | 9.9  |
|    | cos. | d.   | sec. | cot. | d.   | tan. | cosc. | d. | sin. | cos. | d.  | sec. | cot. | d.  | tan. | cosc. | d. | sin. |

109°

70°

110°

69°



| 21°  |      |      |       |      |      |      |      |      |      | 158° |      |      |      |      |      |      |    |      |    | 22°  |      |      |      |      |      |      |    |      |    | 157° |      |      |      |      |      |      |    |      |    |
|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|------|----|------|------|------|------|------|------|------|----|------|----|------|------|------|------|------|------|------|----|------|----|
| sin. | d.   | cosc | tan.  | d.   | cot. | sec. | d.   | cos. | r.   | sin. | d.   | cosc | tan. | d.   | cot. | sec. | d. | cos. | r. | sin. | d.   | cosc | tan. | d.   | cot. | sec. | d. | cos. | r. | sin. | d.   | cosc | tan. | d.   | cot. | sec. | d. | cos. | r. |
| 9.5  | 10.4 | 9.5* | 10.4* | 10.0 | 10.0 | 9.9  |      |      |      | 9.5  | 10.4 | 9.6  | 10.3 | 10.0 | 10.0 | 9.9  |    |      |    | 9.5  | 10.4 | 9.6  | 10.3 | 10.0 | 10.0 | 9.9  |    |      |    | 9.5  | 10.4 | 9.6  | 10.3 | 10.0 | 10.0 | 9.9  |    |      |    |
| 0    | 5433 | 0    | 4567  | 8418 | 0    | 1582 | 2985 | 0    | 7015 | 7358 | 0    | 2642 | 0641 | 0    | 9359 | 3983 | 0  | 6717 | 60 | 7358 | 0    | 2642 | 0641 | 0    | 9359 | 3983 | 0  | 6717 | 60 | 7358 | 0    | 2642 | 0641 | 0    | 9359 | 3983 | 0  | 6717 | 60 |
| 1    | 5466 | 1    | 4534  | 8455 | 1    | 1545 | 2990 | 0    | 7010 | 7389 | 1    | 2611 | 0677 | 1    | 9323 | 3989 | 0  | 6711 | 59 | 7389 | 1    | 2611 | 0677 | 1    | 9323 | 3989 | 0  | 6711 | 59 | 7389 | 1    | 2611 | 0677 | 1    | 9323 | 3989 | 0  | 6711 | 59 |
| 2    | 5499 | 1    | 4501  | 8493 | 1    | 1507 | 2995 | 0    | 7005 | 7420 | 1    | 2580 | 0714 | 1    | 9286 | 3994 | 0  | 6706 | 58 | 7420 | 1    | 2580 | 0714 | 1    | 9286 | 3994 | 0  | 6706 | 58 | 7420 | 1    | 2580 | 0714 | 1    | 9286 | 3994 | 0  | 6706 | 58 |
| 3    | 5532 | 2    | 4468  | 8531 | 2    | 1469 | 2999 | 0    | 7001 | 7451 | 2    | 2549 | 0750 | 2    | 9250 | 3999 | 0  | 6701 | 57 | 7451 | 2    | 2549 | 0750 | 2    | 9250 | 3999 | 0  | 6701 | 57 | 7451 | 2    | 2549 | 0750 | 2    | 9250 | 3999 | 0  | 6701 | 57 |
| 4    | 5564 | 2    | 4436  | 8569 | 2    | 1431 | 3004 | 0    | 6996 | 7482 | 2    | 2518 | 0786 | 2    | 9214 | 3304 | 0  | 6696 | 56 | 7482 | 2    | 2518 | 0786 | 2    | 9214 | 3304 | 0  | 6696 | 56 | 7482 | 2    | 2518 | 0786 | 2    | 9214 | 3304 | 0  | 6696 | 56 |
| 5    | 5597 | 3    | 4403  | 8606 | 3    | 1394 | 3009 | 0    | 6991 | 7514 | 3    | 2486 | 0823 | 3    | 9177 | 3309 | 0  | 6691 | 55 | 7514 | 3    | 2486 | 0823 | 3    | 9177 | 3309 | 0  | 6691 | 55 | 7514 | 3    | 2486 | 0823 | 3    | 9177 | 3309 | 0  | 6691 | 55 |
| 6    | 5630 | 3    | 4370  | 8644 | 4    | 1356 | 3014 | 0    | 6986 | 7545 | 3    | 2455 | 0859 | 4    | 9141 | 3314 | 1  | 6686 | 54 | 7545 | 3    | 2455 | 0859 | 4    | 9141 | 3314 | 1  | 6686 | 54 | 7545 | 3    | 2455 | 0859 | 4    | 9141 | 3314 | 1  | 6686 | 54 |
| 7    | 5663 | 4    | 4337  | 8681 | 4    | 1319 | 3019 | 1    | 6981 | 7576 | 4    | 2424 | 0895 | 4    | 9105 | 3319 | 1  | 6681 | 53 | 7576 | 4    | 2424 | 0895 | 4    | 9105 | 3319 | 1  | 6681 | 53 | 7576 | 4    | 2424 | 0895 | 4    | 9105 | 3319 | 1  | 6681 | 53 |
| 8    | 5695 | 4    | 4305  | 8719 | 5    | 1281 | 3024 | 1    | 6976 | 7607 | 4    | 2393 | 0931 | 5    | 9069 | 3324 | 1  | 6676 | 52 | 7607 | 4    | 2393 | 0931 | 5    | 9069 | 3324 | 1  | 6676 | 52 | 7607 | 4    | 2393 | 0931 | 5    | 9069 | 3324 | 1  | 6676 | 52 |
| 9    | 5728 | 5    | 4272  | 8757 | 6    | 1243 | 3029 | 1    | 6971 | 7638 | 5    | 2362 | 0967 | 5    | 9033 | 3330 | 1  | 6670 | 51 | 7638 | 5    | 2362 | 0967 | 5    | 9033 | 3330 | 1  | 6670 | 51 | 7638 | 5    | 2362 | 0967 | 5    | 9033 | 3330 | 1  | 6670 | 51 |
| 10   | 5761 | 5    | 4239  | 8794 | 6    | 1206 | 3034 | 1    | 6966 | 7669 | 5    | 2331 | 1004 | 6    | 8996 | 3335 | 1  | 6665 | 50 | 7669 | 5    | 2331 | 1004 | 6    | 8996 | 3335 | 1  | 6665 | 50 | 7669 | 5    | 2331 | 1004 | 6    | 8996 | 3335 | 1  | 6665 | 50 |
| 11   | 5793 | 6    | 4207  | 8832 | 7    | 1168 | 3038 | 1    | 6962 | 7700 | 6    | 2300 | 1040 | 7    | 8960 | 3340 | 1  | 6660 | 49 | 7700 | 6    | 2300 | 1040 | 7    | 8960 | 3340 | 1  | 6660 | 49 | 7700 | 6    | 2300 | 1040 | 7    | 8960 | 3340 | 1  | 6660 | 49 |
| 12   | 5826 | 6    | 4174  | 8869 | 7    | 1131 | 3043 | 1    | 6957 | 7731 | 6    | 2269 | 1076 | 7    | 8924 | 3345 | 1  | 6655 | 48 | 7731 | 6    | 2269 | 1076 | 7    | 8924 | 3345 | 1  | 6655 | 48 | 7731 | 6    | 2269 | 1076 | 7    | 8924 | 3345 | 1  | 6655 | 48 |
| 13   | 5858 | 7    | 4142  | 8907 | 8    | 1093 | 3048 | 1    | 6953 | 7762 | 7    | 2238 | 1112 | 8    | 8888 | 3350 | 1  | 6650 | 47 | 7762 | 7    | 2238 | 1112 | 8    | 8888 | 3350 | 1  | 6650 | 47 | 7762 | 7    | 2238 | 1112 | 8    | 8888 | 3350 | 1  | 6650 | 47 |
| 14   | 5891 | 7    | 4109  | 8944 | 9    | 1056 | 3053 | 1    | 6947 | 7793 | 7    | 2207 | 1148 | 8    | 8852 | 3355 | 1  | 6645 | 46 | 7793 | 7    | 2207 | 1148 | 8    | 8852 | 3355 | 1  | 6645 | 46 | 7793 | 7    | 2207 | 1148 | 8    | 8852 | 3355 | 1  | 6645 | 46 |
| 15   | 5923 | 8    | 4077  | 8981 | 9    | 1019 | 3058 | 1    | 6942 | 7824 | 8    | 2176 | 1184 | 9    | 8816 | 3360 | 1  | 6640 | 45 | 7824 | 8    | 2176 | 1184 | 9    | 8816 | 3360 | 1  | 6640 | 45 | 7824 | 8    | 2176 | 1184 | 9    | 8816 | 3360 | 1  | 6640 | 45 |
| 16   | 5956 | 9    | 4044  | 9019 | 10   | 981  | 3063 | 1    | 6937 | 7855 | 8    | 2145 | 1220 | 10   | 8780 | 3366 | 1  | 6634 | 44 | 7855 | 8    | 2145 | 1220 | 10   | 8780 | 3366 | 1  | 6634 | 44 | 7855 | 8    | 2145 | 1220 | 10   | 8780 | 3366 | 1  | 6634 | 44 |
| 17   | 5988 | 9    | 4012  | 9056 | 10   | 944  | 3068 | 1    | 6932 | 7885 | 9    | 2115 | 1256 | 10   | 8744 | 3371 | 1  | 6629 | 43 | 7885 | 9    | 2115 | 1256 | 10   | 8744 | 3371 | 1  | 6629 | 43 | 7885 | 9    | 2115 | 1256 | 10   | 8744 | 3371 | 1  | 6629 | 43 |
| 18   | 6021 | 10   | 3979  | 9094 | 11   | 906  | 3073 | 1    | 6927 | 7916 | 9    | 2084 | 1292 | 11   | 8708 | 3376 | 2  | 6624 | 42 | 7916 | 9    | 2084 | 1292 | 11   | 8708 | 3376 | 2  | 6624 | 42 | 7916 | 9    | 2084 | 1292 | 11   | 8708 | 3376 | 2  | 6624 | 42 |
| 19   | 6053 | 10   | 3947  | 9131 | 12   | 869  | 3078 | 2    | 6922 | 7947 | 10   | 2053 | 1328 | 11   | 8672 | 3381 | 2  | 6619 | 41 | 7947 | 10   | 2053 | 1328 | 11   | 8672 | 3381 | 2  | 6619 | 41 | 7947 | 10   | 2053 | 1328 | 11   | 8672 | 3381 | 2  | 6619 | 41 |
| 20   | 6085 | 11   | 3915  | 9168 | 12   | 832  | 3083 | 2    | 6917 | 7978 | 10   | 2022 | 1364 | 12   | 8636 | 3386 | 2  | 6614 | 40 | 7978 | 10   | 2022 | 1364 | 12   | 8636 | 3386 | 2  | 6614 | 40 | 7978 | 10   | 2022 | 1364 | 12   | 8636 | 3386 | 2  | 6614 | 40 |
| 21   | 6118 | 11   | 3882  | 9205 | 13   | 795  | 3088 | 2    | 6912 | 8008 | 11   | 1992 | 1400 | 13   | 8600 | 3392 | 2  | 6608 | 39 | 8008 | 11   | 1992 | 1400 | 13   | 8600 | 3392 | 2  | 6608 | 39 | 8008 | 11   | 1992 | 1400 | 13   | 8600 | 3392 | 2  | 6608 | 39 |
| 22   | 6150 | 12   | 3850  | 9243 | 14   | 757  | 3093 | 2    | 6907 | 8039 | 11   | 1961 | 1436 | 13   | 8564 | 3397 | 2  | 6603 | 38 | 8039 | 11   | 1961 | 1436 | 13   | 8564 | 3397 | 2  | 6603 | 38 | 8039 | 11   | 1961 | 1436 | 13   | 8564 | 3397 | 2  | 6603 | 38 |
| 23   | 6182 | 12   | 3818  | 9280 | 14   | 720  | 3097 | 2    | 6903 | 8070 | 12   | 1930 | 1472 | 14   | 8528 | 3402 | 2  | 6598 | 37 | 8070 | 12   | 1930 | 1472 | 14   | 8528 | 3402 | 2  | 6598 | 37 | 8070 | 12   | 1930 | 1472 | 14   | 8528 | 3402 | 2  | 6598 | 37 |
| 24   | 6215 | 13   | 3785  | 9317 | 15   | 683  | 3102 | 2    | 6898 | 8101 | 12   | 1899 | 1508 | 14   | 8492 | 3407 | 2  | 6593 | 36 | 8101 | 12   | 1899 | 1508 | 14   | 8492 | 3407 | 2  | 6593 | 36 | 8101 | 12   | 1899 | 1508 | 14   | 8492 | 3407 | 2  | 6593 | 36 |
| 25   | 6247 | 13   | 3753  | 9354 | 15   | 646  | 3107 | 2    | 6893 | 8131 | 13   | 1869 | 1544 | 15   | 8456 | 3412 | 2  | 6588 | 35 | 8131 | 13   | 1869 | 1544 | 15   | 8456 | 3412 | 2  | 6588 | 35 | 8131 | 13   | 1869 | 1544 | 15   | 8456 | 3412 | 2  | 6588 | 35 |
| 26   | 6279 | 14   | 3721  | 9391 | 16   | 609  | 3112 | 2    | 6888 | 8162 | 13   | 1838 | 1579 | 15   | 8421 | 3418 | 2  | 6583 | 34 | 8162 | 13   | 1838 | 1579 | 15   | 8421 | 3418 | 2  | 6583 | 34 | 8162 | 13   | 1838 | 1579 | 15   | 8421 | 3418 | 2  | 6583 | 34 |
| 27   | 6311 | 14   | 3689  | 9429 | 17   | 572  | 3117 | 2    | 6883 | 8192 | 14   | 1808 | 1615 | 16   | 8385 | 3423 | 2  | 6577 | 33 | 8192 | 14   | 1808 | 1615 | 16   | 8385 | 3423 | 2  | 6577 | 33 | 8192 | 14   | 1808 | 1615 | 16   | 8385 | 3423 | 2  | 6577 | 33 |
| 28   | 6343 | 15   | 3657  | 9466 | 17   | 535  | 3122 | 2    | 6878 | 8223 | 14   | 1777 | 1651 | 17   | 8349 | 3428 | 2  | 6572 | 32 | 8223 | 14   | 1777 | 1651 | 17   | 8349 | 3428 | 2  | 6572 | 32 | 8223 | 14   | 1777 | 1651 | 17   | 8349 | 3428 | 2  | 6572 | 32 |
| 29   | 6375 | 16   | 3625  | 9503 | 18   | 497  | 3127 | 2    | 6873 | 8253 | 15   | 1747 | 1687 | 17   | 8313 | 3433 | 3  | 6567 | 31 | 8253 | 15   | 1747 | 1687 | 17   | 8313 | 3433 | 3  | 6567 | 31 | 8253 | 15   | 1747 | 1687 | 17   | 8313 | 3433 | 3  | 6567 | 31 |
| 30   | 6408 | 16   | 3592  | 9540 | 19   | 460  | 3132 | 2    | 6868 | 8284 | 15   | 1716 | 1722 | 18   | 8278 | 3438 | 3  | 6562 | 30 | 8284 | 15   | 1716 | 1722 | 18   | 8278 | 3438 | 3  | 6562 | 30 | 8284 | 15   | 1716 | 1722 | 18   | 8278 | 3438 | 3  | 6562 | 30 |
| 31   | 6440 | 17   | 3560  | 9577 | 19   | 423  | 3137 | 3    | 6863 | 8314 | 16   | 1686 | 1758 | 18   | 8242 | 3444 | 3  | 6556 | 29 | 8314 | 16   | 1686 | 1758 | 18   | 8242 | 3444 | 3  | 6556 | 29 | 8314 | 16   | 1686 | 1758 | 18   | 8242 | 3444 | 3  | 6556 | 29 |
| 32   | 6472 | 17   | 3528  | 9614 | 20   | 386  | 3142 | 3    | 6858 | 8345 | 16   | 1655 | 1794 | 19   | 8206 | 3449 | 3  | 6551 | 28 | 8345 | 16   | 1655 | 1794 | 19   | 8206 | 3449 | 3  | 6551 | 28 | 8345 | 16   | 1655 | 1794 | 19   | 8206 | 3449 | 3  | 6551 | 28 |
| 33   | 6504 | 18   | 3496  | 9651 | 20   | 349  | 3147 | 3    | 6853 | 8375 | 17   | 1625 | 1830 | 20   | 8170 | 3454 | 3  | 6546 | 27 | 8375 | 17   | 1625 | 1830 | 20   | 8170 | 3454 | 3  | 6546 | 27 | 8375 | 17   | 1625 | 1830 | 20   | 8170 | 3454 | 3  | 6546 | 27 |
| 34   | 6536 | 18   | 3464  | 9688 | 21   | 312  | 3152 | 3    | 6848 | 8406 | 17   | 1594 | 1865 | 20   | 8135 | 3459 | 3  | 6541 | 26 | 8406 | 17   | 1594 | 1865 | 20   | 8135 | 3459 | 3  | 6541 | 26 | 8406 | 17   | 1594 | 1865 | 20   | 8135 | 3459 | 3  | 6541 | 26 |
| 35   | 6568 | 19   | 3432  | 9725 | 22   | 275  | 3157 | 3    | 6843 | 8436 |      |      |      |      |      |      |    |      |    |      |      |      |      |      |      |      |    |      |    |      |      |      |      |      |      |      |    |      |    |





| °  | 125° |    |       |      |    |      |      | 154° |      |      |    |       |       |    | 26°  |      |    |      |      |      |       | 153° |       |      |      |      |      |      |    |
|----|------|----|-------|------|----|------|------|------|------|------|----|-------|-------|----|------|------|----|------|------|------|-------|------|-------|------|------|------|------|------|----|
|    | sin. | d. | cosc. | tan. | d. | cot. | sec. | d.   | cos. | sin. | d. | cosc. | tan.  | d. | cot. | sec. | d. | cos. | sin. | d.   | cosc. | tan. | d.    | cot. | sec. | d.   | cos. |      |    |
| 0  | 9.6  |    |       | 9.6  |    |      |      |      | 9.9  | 9.8  |    |       | 9.8   |    |      |      |    | 9.9  | 9.8  |      |       | 9.8  |       |      |      |      | 9.9  |      |    |
| 1  | 2595 | 0  | 7405  | 6867 | 0  | 3133 | 4272 | 0    | 5728 | 4184 | 0  | 5816  | 8818  | 0  | 1182 | 4634 | 0  | 5366 | 4210 | 0    | 5790  | 8850 | 1     | 1150 | 4640 | 0    | 5360 | 59   |    |
| 2  | 2649 | 1  | 7351  | 6933 | 1  | 3067 | 4284 | 1    | 5716 | 4236 | 1  | 5764  | 8882  | 1  | 1118 | 4646 | 1  | 5354 | 2649 | 2    | 7302  | 8914 | 2     | 1086 | 4652 | 0    | 5348 | 58   |    |
| 3  | 2676 | 1  | 7324  | 6966 | 2  | 3034 | 4290 | 0    | 5710 | 4262 | 1  | 5738  | 8914  | 2  | 1086 | 4652 | 0  | 5348 | 2676 | 3    | 7279  | 8946 | 2     | 1054 | 4659 | 0    | 5341 | 56   |    |
| 4  | 2703 | 2  | 7297  | 6999 | 2  | 3001 | 4296 | 0    | 5704 | 4288 | 2  | 5712  | 8946  | 2  | 1054 | 4659 | 0  | 5341 | 2703 | 4    | 7270  | 8978 | 3     | 1022 | 4665 | 1    | 5335 | 55   |    |
| 5  | 2730 | 2  | 7270  | 7032 | 3  | 2968 | 4302 | 1    | 5698 | 4313 | 2  | 5687  | 8978  | 3  | 1022 | 4665 | 1  | 5335 | 2730 | 5    | 7243  | 9010 | 3     | 0990 | 4671 | 1    | 5329 | 54   |    |
| 6  | 2757 | 3  | 7243  | 7065 | 3  | 2935 | 4308 | 1    | 5692 | 4339 | 3  | 5661  | 9010  | 3  | 0990 | 4671 | 1  | 5329 | 2757 | 6    | 7216  | 9042 | 4     | 0958 | 4677 | 1    | 5323 | 53   |    |
| 7  | 2784 | 3  | 7216  | 7098 | 4  | 2902 | 4314 | 1    | 5686 | 4365 | 3  | 5635  | 9042  | 4  | 0958 | 4677 | 1  | 5323 | 2784 | 7    | 7189  | 9074 | 4     | 0926 | 4683 | 1    | 5317 | 52   |    |
| 8  | 2811 | 4  | 7189  | 7131 | 4  | 2869 | 4320 | 1    | 5680 | 4391 | 3  | 5609  | 9074  | 4  | 0926 | 4683 | 1  | 5317 | 2811 | 8    | 7162  | 9106 | 5     | 0894 | 4690 | 1    | 5310 | 51   |    |
| 9  | 2838 | 4  | 7162  | 7163 | 5  | 2837 | 4326 | 1    | 5674 | 4417 | 4  | 5583  | 9106  | 5  | 0894 | 4690 | 1  | 5310 | 2838 | 9    | 7135  | 9138 | 5     | 0862 | 4696 | 1    | 5304 | 50   |    |
| 10 | 2865 | 4  | 7135  | 7196 | 5  | 2804 | 4332 | 1    | 5668 | 4442 | 4  | 5558  | 9138  | 5  | 0862 | 4696 | 1  | 5304 | 2865 | 10   | 7108  | 9170 | 6     | 0830 | 4702 | 1    | 5298 | 49   |    |
| 11 | 2892 | 5  | 7108  | 7229 | 6  | 2771 | 4337 | 1    | 5663 | 4468 | 5  | 5532  | 9170  | 6  | 0830 | 4702 | 1  | 5298 | 2892 | 11   | 7082  | 9202 | 6     | 0798 | 4708 | 1    | 5292 | 48   |    |
| 12 | 2918 | 5  | 7082  | 7262 | 7  | 2738 | 4343 | 1    | 5657 | 4494 | 5  | 5506  | 9202  | 6  | 0798 | 4708 | 1  | 5292 | 2918 | 12   | 7055  | 9234 | 7     | 0766 | 4714 | 1    | 5286 | 47   |    |
| 13 | 2945 | 6  | 7055  | 7295 | 7  | 2705 | 4349 | 1    | 5651 | 4519 | 5  | 5481  | 9234  | 7  | 0766 | 4714 | 1  | 5286 | 2945 | 13   | 7028  | 9266 | 7     | 0734 | 4721 | 1    | 5279 | 46   |    |
| 14 | 2972 | 6  | 7028  | 7327 | 8  | 2673 | 4355 | 1    | 5645 | 4545 | 6  | 5455  | 9266  | 7  | 0734 | 4721 | 1  | 5279 | 2972 | 14   | 7001  | 9298 | 8     | 0702 | 4727 | 2    | 5273 | 45   |    |
| 15 | 2999 | 7  | 7001  | 7360 | 8  | 2640 | 4361 | 2    | 5639 | 4571 | 6  | 5429  | 9298  | 8  | 0702 | 4727 | 2  | 5273 | 2999 | 15   | 6974  | 9330 | 8     | 0671 | 4733 | 2    | 5267 | 44   |    |
| 16 | 3026 | 7  | 6974  | 7393 | 9  | 2607 | 4367 | 2    | 5633 | 4596 | 7  | 5404  | 9330  | 8  | 0671 | 4733 | 2  | 5267 | 3026 | 16   | 6948  | 9362 | 9     | 0639 | 4739 | 2    | 5261 | 43   |    |
| 17 | 3052 | 8  | 6948  | 7426 | 9  | 2574 | 4373 | 2    | 5627 | 4622 | 7  | 5378  | 9362  | 9  | 0639 | 4739 | 2  | 5261 | 3052 | 17   | 6921  | 9394 | 9     | 0607 | 4746 | 2    | 5254 | 42   |    |
| 18 | 3079 | 8  | 6921  | 7458 | 10 | 2542 | 4379 | 2    | 5621 | 4647 | 8  | 5353  | 9394  | 9  | 0607 | 4746 | 2  | 5254 | 3079 | 18   | 6894  | 9426 | 10    | 0575 | 4752 | 2    | 5248 | 41   |    |
| 19 | 3106 | 8  | 6894  | 7491 | 10 | 2509 | 4385 | 2    | 5615 | 4673 | 8  | 5327  | 9426  | 10 | 0575 | 4752 | 2  | 5248 | 3106 | 19   | 6867  | 9458 | 10    | 0543 | 4758 | 2    | 5242 | 40   |    |
| 20 | 3133 | 9  | 6867  | 7524 | 11 | 2476 | 4391 | 2    | 5609 | 4698 | 8  | 5301  | 9458  | 10 | 0543 | 4758 | 2  | 5242 | 20   | 3133 | 9     | 6841 | 9490  | 11   | 0511 | 4764 | 2    | 5236 | 39 |
| 21 | 3159 | 9  | 6841  | 7556 | 11 | 2444 | 4397 | 2    | 5603 | 4724 | 9  | 5276  | 9490  | 11 | 0511 | 4764 | 2  | 5236 | 3159 | 21   | 6814  | 9522 | 12    | 0480 | 4771 | 2    | 5230 | 38   |    |
| 22 | 3186 | 10 | 6814  | 7588 | 12 | 2411 | 4403 | 2    | 5597 | 4749 | 9  | 5251  | 9522  | 12 | 0480 | 4771 | 2  | 5230 | 22   | 3186 | 10    | 6787 | 9554  | 12   | 0448 | 4777 | 2    | 5224 | 37 |
| 23 | 3213 | 10 | 6787  | 7621 | 12 | 2378 | 4409 | 2    | 5591 | 4775 | 10 | 5225  | 9554  | 12 | 0448 | 4777 | 2  | 5224 | 3213 | 23   | 6761  | 9586 | 13    | 0416 | 4783 | 3    | 5217 | 36   |    |
| 24 | 3239 | 11 | 6761  | 7654 | 13 | 2346 | 4415 | 2    | 5585 | 4801 | 10 | 5200  | 9586  | 13 | 0416 | 4783 | 3  | 5217 | 24   | 3239 | 11    | 6734 | 9618  | 13   | 0385 | 4789 | 3    | 5211 | 35 |
| 25 | 3266 | 11 | 6734  | 7687 | 14 | 2313 | 4421 | 3    | 5579 | 4826 | 11 | 5174  | 9618  | 13 | 0385 | 4789 | 3  | 5211 | 25   | 3266 | 11    | 6708 | 9650  | 14   | 0353 | 4796 | 3    | 5204 | 34 |
| 26 | 3292 | 11 | 6708  | 7719 | 14 | 2281 | 4427 | 3    | 5573 | 4851 | 11 | 5149  | 9650  | 14 | 0353 | 4796 | 3  | 5204 | 26   | 3292 | 12    | 6681 | 9682  | 14   | 0321 | 4802 | 3    | 5198 | 33 |
| 27 | 3319 | 12 | 6681  | 7752 | 15 | 2248 | 4433 | 3    | 5567 | 4877 | 11 | 5123  | 9682  | 14 | 0321 | 4802 | 3  | 5198 | 27   | 3319 | 12    | 6655 | 9714  | 15   | 0290 | 4808 | 3    | 5192 | 32 |
| 28 | 3345 | 12 | 6655  | 7785 | 15 | 2215 | 4439 | 3    | 5561 | 4902 | 12 | 5098  | 9714  | 15 | 0290 | 4808 | 3  | 5192 | 28   | 3345 | 12    | 6628 | 9746  | 15   | 0258 | 4815 | 3    | 5185 | 31 |
| 29 | 3372 | 13 | 6628  | 7817 | 16 | 2183 | 4445 | 3    | 5555 | 4927 | 12 | 5073  | 9746  | 15 | 0258 | 4815 | 3  | 5185 | 29   | 3372 | 13    | 6602 | 9778  | 16   | 0226 | 4821 | 3    | 5179 | 30 |
| 30 | 3398 | 13 | 6602  | 7850 | 16 | 2150 | 4451 | 3    | 5549 | 4953 | 13 | 5047  | 9778  | 16 | 0226 | 4821 | 3  | 5179 | 30   | 3398 | 13    | 6575 | 9810  | 16   | 0195 | 4827 | 3    | 5173 | 29 |
| 31 | 3425 | 14 | 6575  | 7882 | 17 | 2118 | 4457 | 3    | 5543 | 4978 | 13 | 5022  | 9810  | 16 | 0195 | 4827 | 3  | 5173 | 31   | 3425 | 14    | 6549 | 9842  | 17   | 0163 | 4833 | 3    | 5167 | 28 |
| 32 | 3451 | 14 | 6549  | 7915 | 17 | 2085 | 4463 | 3    | 5537 | 5003 | 14 | 4997  | 9842  | 17 | 0163 | 4833 | 3  | 5167 | 32   | 3451 | 15    | 6522 | 9874  | 17   | 0132 | 4840 | 3    | 5161 | 27 |
| 33 | 3478 | 15 | 6522  | 7947 | 18 | 2053 | 4469 | 3    | 5531 | 5029 | 14 | 4971  | 9874  | 17 | 0132 | 4840 | 3  | 5161 | 33   | 3478 | 15    | 6496 | 9906  | 18   | 0100 | 4846 | 4    | 5154 | 26 |
| 34 | 3504 | 15 | 6496  | 7980 | 18 | 2020 | 4475 | 3    | 5525 | 5054 | 14 | 4946  | 9906  | 18 | 0100 | 4846 | 4  | 5154 | 34   | 3504 | 15    | 6469 | 9938  | 18   | 0068 | 4852 | 4    | 5148 | 25 |
| 35 | 3531 | 15 | 6469  | 8012 | 19 | 1988 | 4481 | 4    | 5519 | 5079 | 15 | 4921  | 9938  | 18 | 0068 | 4852 | 4  | 5148 | 35   | 3531 | 15    | 6443 | 9970  | 19   | 0037 | 4859 | 4    | 5141 | 24 |
| 36 | 3557 | 16 | 6443  | 8044 | 20 | 1956 | 4487 | 4    | 5513 | 5104 | 15 | 4896  | 9970  | 19 | 0037 | 4859 | 4  | 5141 | 36   | 3557 | 16    | 6417 | 10002 | 19   | 0005 | 4865 | 4    | 5135 | 23 |
| 37 | 3583 | 16 | 6417  | 8077 | 20 | 1923 | 4493 | 4    | 5507 | 5130 | 16 | 4870  | 10002 | 19 | 0005 | 4865 | 4  | 5135 | 37   | 3583 | 16    | 6391 | 10034 | 20   | 0000 | 4871 | 4    | 5129 | 22 |
| 38 | 3610 | 17 | 6391  | 8109 | 21 | 1891 | 4500 | 4    | 5500 | 5155 | 16 | 4844  | 10034 | 20 | 0000 | 4871 | 4  | 5129 | 38   | 3610 | 17    | 6365 | 10066 | 21   | 0000 | 4878 | 4    | 5122 | 21 |
| 39 | 3636 | 17 | 6365  | 8142 | 21 | 1858 | 4506 | 4    | 5494 | 5180 | 16 | 4818  | 10066 | 21 | 0000 | 4878 | 4  | 5122 | 39   | 3636 | 17    | 6339 | 10098 | 21   | 0000 | 4884 | 4    | 5116 | 20 |
| 40 | 3662 | 18 | 6339  | 8174 | 22 | 1826 | 4512 | 4    | 5488 | 5205 | 17 | 4793  | 10098 | 21 | 0000 | 4884 | 4  | 5116 | 40   | 3662 | 18    | 6313 | 10130 | 22   | 0000 | 4890 | 4    | 5110 | 19 |
| 41 | 3688 | 18 | 6313  | 8206 | 22 | 1794 | 4518 | 4    | 5482 | 5230 | 17 | 4767  | 10130 | 22 | 0000 | 4890 | 4  | 5110 | 41   | 3688 | 18    | 6287 | 10162 | 22   | 0000 | 4897 | 4    | 5103 | 18 |
| 42 | 3715 | 19 | 6287  | 8239 | 23 | 1762 | 4524 | 4    | 5476 | 5255 | 18 | 4741  | 10162 | 22 | 0000 | 4897 | 4  | 5103 | 42   | 3715 | 19    | 6261 | 10194 | 23   | 0000 | 4903 | 5    | 5097 | 17 |
| 43 | 3741 | 19 | 6261  | 8271 | 23 | 1729 | 4530 | 4    | 5470 | 5281 | 18 | 4715  | 10194 | 23 | 0000 | 4903 | 5  | 5097 | 43   | 3741 | 19    | 6235 | 10226 | 23   | 0000 | 4910 | 5    | 5090 | 16 |
| 44 | 3767 | 19 |       |      |    |      |      |      |      |      |    |       |       |    |      |      |    |      |      |      |       |      |       |      |      |      |      |      |    |



|    |      | 27°  |      |       |      |      | 152° |       |      |      |    | 28°  |      |       |      |      | 151° |       |    |      |  |      |      |       |      |      |      |       |    |      |
|----|------|------|------|-------|------|------|------|-------|------|------|----|------|------|-------|------|------|------|-------|----|------|--|------|------|-------|------|------|------|-------|----|------|
|    |      | sin. | d.   | cosc. | tan. | d.   | cot. | sec.  | d.   | cos. |    | sin. | d.   | cosc. | tan. | d.   | cot. | sec.  | d. | cos. |  | sin. | d.   | cosc. | tan. | d.   | cot. | sec.  | d. | cos. |
|    |      | 9.6  | 10.3 | 9.7   | 10.2 | 10.0 | 9.9  |       |      |      |    | 9.6  | 10.3 | 9.7   | 10.2 | 10.0 | 9.9  |       |    |      |  | 9.6  | 10.3 | 9.7   | 10.2 | 10.0 | 9.9  |       |    |      |
| 0  | 5705 | 0    | 4295 | 0717  | 0    | 9283 | 5012 | 0     | 4988 | 7161 | 0  | 2839 | 2567 | 0     | 7433 | 5407 | 0    | 4593  | 60 |      |  |      |      |       |      |      |      |       |    |      |
| 1  | 5729 | 0    | 4271 | 0748  | 1    | 9252 | 5018 | 0     | 4982 | 7185 | 0  | 2815 | 2598 | 1     | 7402 | 5413 | 0    | 4587  | 59 |      |  |      |      |       |      |      |      |       |    |      |
| 2  | 5754 | 1    | 4246 | 0779  | 1    | 9221 | 5025 | 0     | 4975 | 7208 | 1  | 2792 | 2628 | 1     | 7372 | 5420 | 0    | 4580  | 58 |      |  |      |      |       |      |      |      |       |    |      |
| 3  | 5779 | 1    | 4221 | 0810  | 2    | 9190 | 5031 | 0     | 4969 | 7232 | 1  | 2768 | 2659 | 2     | 7341 | 5427 | 0    | 4573  | 57 |      |  |      |      |       |      |      |      |       |    |      |
| 4  | 5804 | 2    | 4196 | 0841  | 2    | 9159 | 5038 | 0     | 4962 | 7256 | 2  | 2744 | 2689 | 2     | 7311 | 5433 | 0    | 4567  | 56 |      |  |      |      |       |      |      |      |       |    |      |
| 5  | 5828 | 2    | 4172 | 0873  | 3    | 9127 | 5044 | 1     | 4956 | 7280 | 2  | 2720 | 2720 | 3     | 7280 | 5440 | 1    | 4560  | 55 |      |  |      |      |       |      |      |      |       |    |      |
| 6  | 5853 | 2    | 4147 | 0904  | 3    | 9096 | 5051 | 1     | 4949 | 7303 | 2  | 2697 | 2750 | 3     | 7250 | 5447 | 1    | 4553  | 54 |      |  |      |      |       |      |      |      |       |    |      |
| 7  | 5878 | 3    | 4122 | 0935  | 4    | 9065 | 5057 | 1     | 4943 | 7327 | 3  | 2673 | 2780 | 4     | 7220 | 5454 | 1    | 4546  | 53 |      |  |      |      |       |      |      |      |       |    |      |
| 8  | 5902 | 3    | 4098 | 0966  | 4    | 9034 | 5064 | 1     | 4936 | 7350 | 3  | 2650 | 2811 | 4     | 7190 | 5460 | 1    | 4540  | 52 |      |  |      |      |       |      |      |      |       |    |      |
| 9  | 5927 | 4    | 4073 | 0997  | 5    | 9003 | 5070 | 1     | 4930 | 7374 | 3  | 2626 | 2841 | 5     | 7159 | 5467 | 1    | 4533  | 51 |      |  |      |      |       |      |      |      |       |    |      |
| 10 | 5952 | 4    | 4048 | 1028  | 5    | 8972 | 5077 | 1     | 4923 | 7398 | 4  | 2602 | 2872 | 5     | 7128 | 5474 | 1    | 4526  | 50 |      |  |      |      |       |      |      |      |       |    |      |
| 11 | 5976 | 4    | 4024 | 1059  | 6    | 8941 | 5083 | 1     | 4917 | 7421 | 4  | 2579 | 2902 | 6     | 7098 | 5481 | 1    | 4519  | 49 |      |  |      |      |       |      |      |      |       |    |      |
| 12 | 6001 | 5    | 3999 | 1090  | 6    | 8910 | 5089 | 1     | 4911 | 7445 | 5  | 2555 | 2932 | 6     | 7068 | 5487 | 1    | 4513  | 48 |      |  |      |      |       |      |      |      |       |    |      |
| 13 | 6025 | 5    | 3975 | 1121  | 7    | 8879 | 5096 | 1     | 4904 | 7468 | 5  | 2532 | 2963 | 7     | 7037 | 5494 | 1    | 4506  | 47 |      |  |      |      |       |      |      |      |       |    |      |
| 14 | 6050 | 6    | 3950 | 1153  | 7    | 8847 | 5102 | 2     | 4898 | 7492 | 5  | 2508 | 2993 | 7     | 7007 | 5501 | 2    | 4499  | 46 |      |  |      |      |       |      |      |      |       |    |      |
| 15 | 6075 | 6    | 3925 | 1184  | 8    | 8816 | 5109 | 2     | 4891 | 7515 | 6  | 2485 | 3023 | 8     | 6977 | 5508 | 2    | 4492  | 45 |      |  |      |      |       |      |      |      |       |    |      |
| 16 | 6099 | 6    | 3901 | 1215  | 8    | 8785 | 5115 | 2     | 4885 | 7539 | 6  | 2461 | 3054 | 8     | 6946 | 5515 | 2    | 4485  | 44 |      |  |      |      |       |      |      |      |       |    |      |
| 17 | 6124 | 7    | 3876 | 1246  | 9    | 8754 | 5122 | 2     | 4878 | 7562 | 7  | 2438 | 3084 | 9     | 6916 | 5521 | 2    | 4479  | 43 |      |  |      |      |       |      |      |      |       |    |      |
| 18 | 6148 | 7    | 3852 | 1277  | 9    | 8723 | 5129 | 2     | 4871 | 7586 | 7  | 2414 | 3114 | 9     | 6886 | 5528 | 2    | 4472  | 42 |      |  |      |      |       |      |      |      |       |    |      |
| 19 | 6173 | 8    | 3827 | 1308  | 10   | 8692 | 5135 | 2     | 4865 | 7609 | 7  | 2391 | 3144 | 10    | 6856 | 5535 | 2    | 4465  | 41 |      |  |      |      |       |      |      |      |       |    |      |
| 20 | 6197 | 8    | 3803 | 1339  | 10   | 8661 | 5142 | 2     | 4858 | 7633 | 8  | 2367 | 3175 | 10    | 6825 | 5542 | 2    | 4458  | 40 |      |  |      |      |       |      |      |      |       |    |      |
| 21 | 6221 | 8    | 3779 | 1370  | 11   | 8630 | 5148 | 2     | 4852 | 7656 | 8  | 2344 | 3205 | 11    | 6795 | 5549 | 2    | 4451  | 39 |      |  |      |      |       |      |      |      |       |    |      |
| 22 | 6246 | 9    | 3754 | 1401  | 11   | 8599 | 5155 | 2     | 4845 | 7680 | 9  | 2320 | 3235 | 11    | 6765 | 5555 | 3    | 4445  | 38 |      |  |      |      |       |      |      |      |       |    |      |
| 23 | 6270 | 9    | 3730 | 1431  | 12   | 8569 | 5161 | 3     | 4839 | 7703 | 9  | 2297 | 3265 | 12    | 6735 | 5562 | 3    | 4438  | 37 |      |  |      |      |       |      |      |      |       |    |      |
| 24 | 6295 | 10   | 3705 | 1462  | 12   | 8538 | 5168 | 3     | 4832 | 7726 | 9  | 2274 | 3295 | 12    | 6705 | 5569 | 3    | 4431  | 36 |      |  |      |      |       |      |      |      |       |    |      |
| 25 | 6319 | 10   | 3681 | 1493  | 13   | 8507 | 5174 | 3     | 4826 | 7750 | 10 | 2250 | 3326 | 13    | 6674 | 5576 | 3    | 4424  | 35 |      |  |      |      |       |      |      |      |       |    |      |
| 26 | 6343 | 11   | 3657 | 1524  | 13   | 8476 | 5181 | 3     | 4819 | 7773 | 10 | 2227 | 3356 | 13    | 6644 | 5583 | 3    | 4417  | 34 |      |  |      |      |       |      |      |      |       |    |      |
| 27 | 6368 | 11   | 3633 | 1555  | 14   | 8445 | 5187 | 3     | 4813 | 7796 | 10 | 2204 | 3386 | 14    | 6614 | 5590 | 3    | 4410  | 33 |      |  |      |      |       |      |      |      |       |    |      |
| 28 | 6392 | 11   | 3608 | 1586  | 14   | 8414 | 5194 | 3     | 4806 | 7820 | 11 | 2180 | 3416 | 14    | 6584 | 5596 | 3    | 4404  | 32 |      |  |      |      |       |      |      |      |       |    |      |
| 29 | 6416 | 12   | 3584 | 1617  | 15   | 8383 | 5201 | 3     | 4799 | 7843 | 11 | 2157 | 3446 | 15    | 6554 | 5603 | 3    | 4397  | 31 |      |  |      |      |       |      |      |      |       |    |      |
| 30 | 6441 | 12   | 3559 | 1648  | 15   | 8352 | 5207 | 3     | 4793 | 7866 | 12 | 2134 | 3476 | 15    | 6524 | 5610 | 3    | 4390  | 30 |      |  |      |      |       |      |      |      |       |    |      |
| 31 | 6465 | 13   | 3535 | 1679  | 16   | 8321 | 5214 | 3     | 4786 | 7890 | 12 | 2110 | 3507 | 16    | 6493 | 5617 | 4    | 4383  | 29 |      |  |      |      |       |      |      |      |       |    |      |
| 32 | 6489 | 13   | 3511 | 1709  | 16   | 8291 | 5220 | 4     | 4780 | 7913 | 12 | 2087 | 3537 | 16    | 6463 | 5624 | 4    | 4376  | 28 |      |  |      |      |       |      |      |      |       |    |      |
| 33 | 6513 | 13   | 3487 | 1740  | 17   | 8260 | 5227 | 4     | 4773 | 7936 | 13 | 2064 | 3567 | 17    | 6433 | 5631 | 4    | 4369  | 27 |      |  |      |      |       |      |      |      |       |    |      |
| 34 | 6537 | 14   | 3463 | 1771  | 17   | 8229 | 5233 | 4     | 4767 | 7959 | 13 | 2041 | 3597 | 17    | 6403 | 5638 | 4    | 4362  | 26 |      |  |      |      |       |      |      |      |       |    |      |
| 35 | 6562 | 14   | 3438 | 1802  | 18   | 8198 | 5240 | 4     | 4760 | 7982 | 14 | 2018 | 3627 | 18    | 6373 | 5645 | 4    | 4355  | 25 |      |  |      |      |       |      |      |      |       |    |      |
| 36 | 6586 | 15   | 3414 | 1833  | 19   | 8167 | 5247 | 4     | 4753 | 8006 | 14 | 1994 | 3657 | 18    | 6343 | 5651 | 4    | 4348  | 24 |      |  |      |      |       |      |      |      |       |    |      |
| 37 | 6610 | 15   | 3390 | 1863  | 19   | 8137 | 5253 | 4     | 4747 | 8029 | 14 | 1971 | 3687 | 19    | 6313 | 5658 | 4    | 4341  | 23 |      |  |      |      |       |      |      |      |       |    |      |
| 38 | 6634 | 15   | 3366 | 1894  | 20   | 8106 | 5260 | 4     | 4740 | 8052 | 15 | 1948 | 3717 | 19    | 6283 | 5665 | 4    | 4335  | 22 |      |  |      |      |       |      |      |      |       |    |      |
| 39 | 6658 | 16   | 3342 | 1925  | 20   | 8075 | 5266 | 4     | 4734 | 8075 | 15 | 1925 | 3747 | 20    | 6253 | 5672 | 4    | 4328  | 21 |      |  |      |      |       |      |      |      |       |    |      |
| 40 | 6682 | 16   | 3318 | 1955  | 21   | 8045 | 5273 | 4     | 4727 | 8098 | 16 | 1902 | 3777 | 20    | 6223 | 5679 | 5    | 4321  | 20 |      |  |      |      |       |      |      |      |       |    |      |
| 41 | 6706 | 17   | 3294 | 1986  | 21   | 8014 | 5280 | 4     | 4720 | 8121 | 16 | 1879 | 3807 | 21    | 6193 | 5686 | 5    | 4314  | 19 |      |  |      |      |       |      |      |      |       |    |      |
| 42 | 6731 | 17   | 3269 | 2017  | 22   | 7983 | 5286 | 5     | 4714 | 8144 | 16 | 1856 | 3837 | 21    | 6163 | 5693 | 5    | 4307  | 18 |      |  |      |      |       |      |      |      |       |    |      |
| 43 | 6755 | 17   | 3245 | 2048  | 22   | 7952 | 5293 | 5     | 4707 | 8167 | 17 | 1833 | 3867 | 22    | 6133 | 5700 | 5    | 4300  | 17 |      |  |      |      |       |      |      |      |       |    |      |
| 44 | 6779 | 18   | 3221 | 2078  | 23   | 7922 | 5300 | 5     | 4700 | 8190 | 17 | 1810 | 3897 | 22    | 6103 | 5707 | 5    | 4293  | 16 |      |  |      |      |       |      |      |      |       |    |      |
| 45 | 6803 | 18   | 3197 | 2109  | 23   | 7891 | 5306 | 5     | 4694 | 8213 | 17 | 1787 | 3927 | 23    | 6073 | 5714 | 5    | 4286  | 15 |      |  |      |      |       |      |      |      |       |    |      |
| 46 | 6827 | 19   | 3173 | 2140  | 24   | 7860 | 5313 | 5     | 4687 | 8237 | 18 | 1763 | 3957 | 23    | 6043 | 5721 | 5    | 4279  | 14 |      |  |      |      |       |      |      |      |       |    |      |
| 47 | 6851 | 19   | 3149 | 2170  | 24   | 7830 | 5320 | 5     | 4680 | 8260 | 18 | 1740 | 3987 | 24    | 6013 | 5727 | 5    | 4273  | 13 |      |  |      |      |       |      |      |      |       |    |      |
| 48 | 6875 | 19   | 3125 | 2201  | 25   | 7799 | 5326 | 5     | 4674 | 8283 | 19 | 1717 | 4017 | 24    | 5983 | 5734 | 5    | 4266  | 12 |      |  |      |      |       |      |      |      |       |    |      |
| 49 | 6899 | 20   | 3101 | 2231  | 25   | 7769 | 5333 | 5     | 4667 | 8305 | 19 | 1695 | 4047 | 25    | 5953 | 5741 | 6    | 4259  | 11 |      |  |      |      |       |      |      |      |       |    |      |
| 50 | 6922 | 20   | 3078 | 2262  | 26   | 7738 | 5340 | 5     | 4660 | 8328 | 19 | 1672 | 4077 | 25    | 5923 | 5748 | 6    | 4252  | 10 |      |  |      |      |       |      |      |      |       |    |      |
| 51 | 6946 | 21   | 3054 | 2293  | 26   | 7707 | 5346 | 6     | 4654 | 8351 | 20 | 1649 | 4107 | 26    | 5893 | 5755 | 6    | 4245  | 9  |      |  |      |      |       |      |      |      |       |    |      |
| 52 | 6970 | 21   | 3030 | 2323  | 27   | 7677 | 5353 | 6     | 4647 | 8374 | 20 | 1626 | 4137 | 26    | 5863 | 5762 | 6    | 4238  | 8  |      |  |      |      |       |      |      |      |       |    |      |
| 53 | 6994 | 21   | 3006 | 2354  | 27   | 7646 | 5360 | 6     | 4640 | 8397 | 21 | 1603 | 4166 | 27    | 5834 | 5769 | 6    | 4231  | 7  |      |  |      |      |       |      |      |      |       |    |      |
| 54 | 7018 | 22   | 2982 | 2384  | 28   | 7615 | 5366 | 6     | 4634 | 8420 | 21 | 1580 | 4196 | 27    | 5804 | 5776 | 6    | 4224  | 6  |      |  |      |      |       |      |      |      |       |    |      |
| 55 | 7042 | 22   | 2958 | 2415  | 28   | 7585 | 5373 | 6     | 4627 | 8443 | 21 | 1557 | 4226 | 28    | 5774 | 5783 | 6    | 4217  | 5  |      |  |      |      |       |      |      |      |       |    |      |
| 56 | 7066 | 23   | 2934 | 2445  | 29   | 7555 | 5380 | 6     | 4620 | 8466 | 22 | 1534 | 4256 | 28    | 5744 | 5790 | 6    | 4210  | 4  |      |  |      |      |       |      |      |      |       |    |      |
| 57 | 7090 | 23   | 2910 | 2476  | 29   | 7524 | 5386 | 6     | 4614 | 8489 | 22 | 1511 | 4286 | 29    | 5714 | 5797 | 7    | 4203  | 3  |      |  |      |      |       |      |      |      |       |    |      |
| 58 | 7113 | 23   | 2887 | 2506  | 30   | 7494 | 5393 | 6     | 4607 | 8512 | 22 | 1488 | 4316 | 29    | 5684 | 5804 | 7    | 4196  | 2  |      |  |      |      |       |      |      |      |       |    |      |
| 59 | 7137 | 24   | 2863 | 2537  | 30   | 7463 | 5400 | 6     | 4600 | 8534 | 23 | 1466 | 4345 | 30    | 5655 | 5811 | 7    | 4189  | 1  |      |  |      |      |       |      |      |      |       |    |      |
| 60 | 7161 | 24   | 2839 | 2567  | 31   | 7433 | 5407 | 7     | 4593 | 8557 | 23 | 1443 | 4375 | 30    | 5625 | 5818 | 7    | 4182  | 0  |      |  |      |      |       |      |      |      |       |    |      |
|    |      | 9.6  | 10.3 | 9.7   | 10.2 | 10.0 | 9.9  |       |      |      |    | 9.6  | 10.3 | 9.7   | 10.2 | 10.0 | 9.9  |       |    |      |  | 9.6  | 10.3 | 9.7   | 10.2 | 10.0 | 9.9  |       |    |      |
|    |      | cos. | d.   | sec.  | cot. | d.   | tan. | cosc. | d.   | sin. |    | cos. | d.   | sec.  | cot. | d.   | tan. | cosc. | d. | sin. |  | cos. | d.   | sec.  | cot. | d.   | tan. | cosc. | d. | sin. |



| 29°  |      |    |      |      |   |      |      |    |      | 150° |   |      |      |    |      |      |   |      |    | 30° |      |       |      |      |   |      |      |      |      | 149° |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |  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 |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |
|------|------|----|------|------|---|------|------|----|------|------|---|------|------|----|------|------|---|------|----|-----|------|-------|------|------|---|------|------|------|------|------|---|------|------|---|------|------|---|------|----|---|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|---|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|---|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|---|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|---|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|---|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|---|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|---|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|------|---|------|----|----|------|---|------|------|----|------|------|---|------|------|---|------|------|----|------|------|---|------|----|----|------|---|------|------|----|------|------|---|------|------|---|------|------|----|------|------|---|------|----|----|------|---|------|------|----|------|------|---|------|------|---|------|------|----|------|------|---|------|----|----|------|---|------|------|----|------|------|---|------|------|---|------|------|----|------|------|---|------|----|----|------|---|------|------|----|------|------|---|------|------|---|------|------|----|------|------|---|------|----|----|------|---|------|------|----|------|------|---|------|------|---|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|---|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|------|----|------|------|---|------|----|----|------|----|------|------|----|------|------|---|------|------|----|------|-----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| sin. |      | d. |      | 10.3 |   | 9.7  |      | d. |      | 10.2 |   | 10.0 |      | d. |      | 9.9  |   | sin. |    | d.  |      | 10.3* |      | 9.7  |   | d.   |      | 10.2 |      | 10.0 |   | 9.9  |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |   |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |      |   |      |    |    |      |   |      |      |    |      |      |   |      |      |   |      |      |    |      |      |   |      |    |    |      |   |      |      |    |      |      |   |      |      |   |      |      |    |      |      |   |      |    |    |      |   |      |      |    |      |      |   |      |      |   |      |      |    |      |      |   |      |    |    |      |   |      |      |    |      |      |   |      |      |   |      |      |    |      |      |   |      |    |    |      |   |      |      |    |      |      |   |      |      |   |      |      |    |      |      |   |      |    |    |      |   |      |      |    |      |      |   |      |      |   |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |   |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |    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 |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |    |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |    |      |    |      |      |    |      |      |   |      |      |    |      |      |    |      |      |   |      |   |
| 0    | 8557 | 0  | 1443 | 4375 | 0 | 5625 | 5818 | 0  | 4182 | 9897 | 0 | 0103 | 6144 | 0  | 3856 | 6247 | 0 | 3753 | 60 | 1   | 8580 | 0     | 1420 | 4405 | 0 | 5595 | 5825 | 0    | 4175 | 9919 | 0 | 0081 | 6173 | 0 | 3827 | 6254 | 0 | 3746 | 59 | 2 | 8603 | 1 | 1397 | 4435 | 1 | 5565 | 5832 | 0 | 4168 | 9941 | 1 | 0059 | 6202 | 1 | 3798 | 6262 | 0 | 3738 | 58 | 3 | 8625 | 1 | 1375 | 4465 | 1 | 5535 | 5839 | 0 | 4161 | 9963 | 1 | 0037 | 6231 | 1 | 3769 | 6269 | 0 | 3731 | 57 | 4 | 8648 | 1 | 1352 | 4494 | 2 | 5506 | 5846 | 0 | 4154 | 9984 | 1 | 0016 | 6261 | 2 | 3739 | 6276 | 0 | 3724 | 56 | 5 | 8671 | 2 | 1329 | 4524 | 2 | 5476 | 5853 | 1 | 4147 | 0006 | 2 | 9994 | 6290 | 2 | 3710 | 6283 | 1 | 3717 | 55 | 6 | 8694 | 2 | 1306 | 4554 | 3 | 5446 | 5860 | 1 | 4140 | 0028 | 2 | 9972 | 6319 | 3 | 3681 | 6291 | 1 | 3709 | 54 | 7 | 8716 | 3 | 1284 | 4583 | 3 | 5417 | 5867 | 1 | 4133 | 0050 | 3 | 9950 | 6348 | 3 | 3652 | 6298 | 1 | 3702 | 53 | 8 | 8739 | 3 | 1261 | 4613 | 4 | 5387 | 5874 | 1 | 4126 | 0072 | 3 | 9928 | 6377 | 4 | 3623 | 6305 | 1 | 3695 | 52 | 9 | 8762 | 3 | 1238 | 4643 | 4 | 5357 | 5881 | 1 | 4119 | 0093 | 3 | 9907 | 6406 | 4 | 3594 | 6313 | 1 | 3687 | 51 | 10 | 8784 | 4 | 1216 | 4673 | 5 | 5327 | 5888 | 1 | 4112 | 0115 | 4 | 9885 | 6435 | 5 | 3565 | 6320 | 1 | 3680 | 50 | 11 | 8807 | 4 | 1193 | 4702 | 5 | 5298 | 5895 | 1 | 4105 | 0137 | 4 | 9863 | 6464 | 5 | 3536 | 6327 | 1 | 3673 | 49 | 12 | 8829 | 4 | 1171 | 4732 | 6 | 5268 | 5902 | 1 | 4098 | 0159 | 4 | 9841 | 6493 | 6 | 3507 | 6335 | 1 | 3665 | 48 | 13 | 8852 | 5 | 1148 | 4762 | 6 | 5238 | 5910 | 2 | 4090 | 0180 | 5 | 9820 | 6522 | 6 | 3478 | 6342 | 2 | 3658 | 47 | 14 | 8875 | 5 | 1125 | 4791 | 7 | 5209 | 5917 | 2 | 4083 | 0202 | 5 | 9798 | 6551 | 7 | 3449 | 6350 | 2 | 3650 | 46 | 15 | 8897 | 6 | 1103 | 4821 | 7 | 5179 | 5924 | 2 | 4076 | 0224 | 5 | 9776 | 6580 | 7 | 3420 | 6357 | 2 | 3643 | 45 | 16 | 8920 | 6 | 1080 | 4851 | 8 | 5149 | 5931 | 2 | 4069 | 0245 | 6 | 9755 | 6609 | 8 | 3391 | 6364 | 2 | 3636 | 44 | 17 | 8942 | 6 | 1058 | 4880 | 8 | 5120 | 5938 | 2 | 4062 | 0267 | 6 | 9733 | 6639 | 8 | 3361 | 6372 | 2 | 3628 | 43 | 18 | 8965 | 7 | 1035 | 4910 | 9 | 5090 | 5945 | 2 | 4055 | 0288 | 6 | 9712 | 6668 | 9 | 3332 | 6379 | 2 | 3621 | 42 | 19 | 8987 | 7 | 1013 | 4939 | 9 | 5061 | 5952 | 2 | 4048 | 0310 | 7 | 9690 | 6697 | 9 | 3303 | 6386 | 2 | 3614 | 41 | 20 | 9010 | 7 | 9909 | 4969 | 10 | 5031 | 5959 | 2 | 4041 | 0332 | 7 | 9668 | 6725 | 10 | 3275 | 6394 | 2 | 3606 | 40 | 21 | 9032 | 8 | 9698 | 5000 | 10 | 5002 | 5966 | 3 | 4034 | 0353 | 8 | 9647 | 6754 | 10 | 3246 | 6401 | 3 | 3599 | 39 | 22 | 9055 | 8 | 9485 | 5028 | 11 | 4972 | 5973 | 3 | 4027 | 0375 | 8 | 9625 | 6783 | 11 | 3217 | 6409 | 3 | 3591 | 38 | 23 | 9077 | 9 | 9273 | 5058 | 11 | 4942 | 5980 | 3 | 4020 | 0396 | 8 | 9604 | 6812 | 11 | 3188 | 6416 | 3 | 3584 | 37 | 24 | 9100 | 9 | 9060 | 5087 | 12 | 4913 | 5988 | 3 | 4012 | 0418 | 9 | 9582 | 6841 | 12 | 3159 | 6423 | 3 | 3577 | 36 | 25 | 9122 | 9 | 8848 | 5117 | 12 | 4883 | 5995 | 3 | 4005 | 0439 | 9 | 9561 | 6870 | 12 | 3130 | 6431 | 3 | 3569 | 35 | 26 | 9144 | 10 | 8636 | 5146 | 13 | 4854 | 6002 | 3 | 3998 | 0461 | 9 | 9539 | 6899 | 13 | 3101 | 6438 | 3 | 3562 | 34 | 27 | 9167 | 10 | 8423 | 5176 | 13 | 4824 | 6009 | 3 | 3991 | 0482 | 10 | 9518 | 6928 | 13 | 3072 | 6446 | 3 | 3554 | 33 | 28 | 9189 | 10 | 8211 | 5205 | 14 | 4795 | 6016 | 3 | 3984 | 0504 | 10 | 9496 | 6957 | 13 | 3043 | 6453 | 3 | 3547 | 32 | 29 | 9212 | 11 | 8008 | 5235 | 14 | 4765 | 6023 | 3 | 3977 | 0525 | 10 | 9475 | 6986 | 14 | 3014 | 6461 | 4 | 3539 | 31 | 30 | 9234 | 11 | 7806 | 5264 | 15 | 4736 | 6030 | 4 | 3970 | 0547 | 11 | 9453 | 7015 | 14 | 2985 | 6468 | 4 | 3532 | 30 | 31 | 9256 | 12 | 7604 | 5294 | 15 | 4706 | 6037 | 4 | 3963 | 0568 | 11 | 9432 | 7044 | 15 | 2956 | 6475 | 4 | 3525 | 29 | 32 | 9279 | 12 | 7402 | 5323 | 16 | 4677 | 6045 | 4 | 3955 | 0590 | 11 | 9410 | 7073 | 15 | 2927 | 6483 | 4 | 3517 | 28 | 33 | 9301 | 12 | 7200 | 5353 | 16 | 4647 | 6052 | 4 | 3948 | 0611 | 12 | 9389 | 7101 | 16 | 2899 | 6490 | 4 | 3510 | 27 | 34 | 9323 | 13 | 6997 | 5382 | 17 | 4618 | 6059 | 4 | 3941 | 0633 | 12 | 9367 | 7130 | 16 | 2870 | 6498 | 4 | 3502 | 26 | 35 | 9345 | 13 | 6795 | 5411 | 17 | 4589 | 6066 | 4 | 3934 | 0654 | 13 | 9346 | 7159 | 17 | 2841 | 6505 | 4 | 3495 | 25 | 36 | 9368 | 13 | 6593 | 5441 | 18 | 4559 | 6073 | 4 | 3927 | 0675 | 13 | 9325 | 7188 | 17 | 2812 | 6513 | 4 | 3487 | 24 | 37 | 9390 | 14 | 6391 | 5470 | 18 | 4530 | 6080 | 4 | 3920 | 0697 | 13 | 9303 | 7217 | 18 | 2783 | 6520 | 5 | 3480 | 23 | 38 | 9412 | 14 | 6188 | 5500 | 19 | 4500 | 6088 | 5 | 3912 | 0718 | 14 | 9282 | 7246 | 18 | 2754 | 6528 | 5 | 3472 | 22 | 39 | 9434 | 15 | 5986 | 5529 | 19 | 4471 | 6095 | 5 | 3905 | 0739 | 14 | 9261 | 7274 | 19 | 2726 | 6535 | 5 | 3465 | 21 | 40 | 9456 | 15 | 5784 | 5558 | 20 | 4442 | 6102 | 5 | 3898 | 0761 | 14 | 9239 | 7303 | 19 | 2697 | 6543 | 5 | 3457 | 20 | 41 | 9479 | 15 | 5582 | 5588 | 20 | 4412 | 6109 | 5 | 3891 | 0782 | 15 | 9218 | 7332 | 20 | 2668 | 6550 | 5 | 3450 | 19 | 42 | 9501 | 16 | 5380 | 5617 | 21 | 4383 | 6116 | 5 | 3884 | 0803 | 15 | 9197 | 7361 | 20 | 2639 | 6558 | 5 | 3442 | 18 | 43 | 9523 | 16 | 5178 | 5647 | 21 | 4353 | 6124 | 5 | 3876 | 0824 | 15 | 9176 | 7390 | 21 | 2610 | 6565 | 5 | 3435 | 17 | 44 | 9545 | 16 | 4976 | 5676 | 22 | 4324 | 6131 | 5 | 3869 | 0846 | 16 | 9154 | 7418 | 21 | 2582 | 6573 | 5 | 3427 | 16 | 45 | 9567 | 17 | 4774 | 5705 | 22 | 4295 | 6138 | 5 | 3862 | 0867 | 16 | 9133 | 7447 | 22 | 2553 | 6580 | 6 | 3420 | 15 | 46 | 9589 | 17 | 4572 | 5735 | 23 | 4265 | 6145 | 5 | 3855 | 0888 | 16 | 9112 | 7476 | 22 | 2524 | 6588 | 6 | 3412 | 14 | 47 | 9611 | 17 | 4370 | 5764 | 23 | 4236 | 6153 | 6 | 3847 | 0909 | 17 | 9091 | 7505 | 23 | 2495 | 6595 | 6 | 3405 | 13 | 48 | 9633 | 18 | 4168 | 5793 | 24 | 4207 | 6160 | 6 | 3840 | 0931 | 17 | 9069 | 7533 | 23 | 2467 | 6603 | 6 | 3397 | 12 | 49 | 9655 | 18 | 3966 | 5822 | 24 | 4178 | 6167 | 6 | 3833 | 0952 | 18 | 9048 | 7562 | 24 | 2438 | 6610 | 6 | 3390 | 11 | 50 | 9677 | 19 | 3764 | 5852 | 25 | 4148 | 6174 | 6 | 3826 | 0973 | 18 | 9027 | 7591 | 24 | 2409 | 6618 | 6 | 3382 | 10 | 51 | 9699 | 19 | 3562 | 5881 | 25 | 4119 | 6181 | 6 | 3819 | 0994 | 18 | 9006 | 7619 | 25 | 2381 | 6625 | 6 | 3375 | 9 | 52 | 9721 | 19 | 3360 | 5910 | 26 | 4090 | 6189 | 6 | 3811 | 1015 | 19 | 8985 | 7648 | 25 | 2352 | 6633 | 6 | 3367 | 8 | 53 | 9743 | 20 | 3158 | 5939 | 26 | 4061 | 6196 | 6 | 3804 | 1036 | 19 | 8964 | 7677 | 26 | 2323 | 6640 | 7 | 3360 | 7 | 54 | 9765 | 20 | 2956 | 5969 | 27 | 4031 | 6203 | 6 | 3797 | 1058 | 19 | 8942 | 7706 | 26 | 2294 | 6648 | 7 | 3352 | 6 | 55 | 9787 | 20 | 2754 | 5998 | 27 | 4002 | 6211 | 7 | 3789 | 1079 | 20 | 8921 | 7734 | 26 | 2266 | 6656 | 7 | 3344 | 5 | 56 | 9809 | 21 | 2552 | 6027 | 28 | 3973 | 6218 | 7 | 3782 | 1100 | 20 | 8900 | 7763 | 27 | 2237 | 6663 | 7 | 3337 | 4 | 57 | 9831 | 21 | 2350 | 6056 | 28 | 3944 | 6225 | 7 | 3775 | 1121 | 20 | 8879 | 7791 | 27 | 2209 | 6671 | 7 | 3329 | 3 | 58 | 9853 | 22 | 2148 | 6086 | 29 | 3914 | 6232 | 7 | 3768 | 1142 | 21 | 8858 | 7820 | 28 | 2180 | 6678 | 7 | 3321 | 2 | 59 | 9875 | 22 | 1946 | 6115 | 29 | 3885 | 6240 | 7 | 3760 | 1163 | 21 | 8837 | 7849 | 28 | 2151 | 6686 | 7 | 3314 | 1 | 60 | 9897 | 22 | 1744 | 6144 | 29 | 3856 | 6247 | 7 | 3753 | 1184 | 21 | 8816 | 7877 | 29 | 2122 | 6693 | 7 | 3307 | 0 |

119°

60°

120°

59°



| 31° |       | 148° |        |      |    |      |        |     |      | 32°  |    | 147°   |      |      |       |      |      |        |    |      |
|-----|-------|------|--------|------|----|------|--------|-----|------|------|----|--------|------|------|-------|------|------|--------|----|------|
|     | sin.  | d.   | cos.ec | tan. | d. | cot. | sec.   | d.  | cos. | sin. | d. | cos.ec | tan. | d.   | cot.  | sec. | d.   | cos.   |    |      |
|     | 9.7   |      | 10.2   | 9.7  |    | 10.2 | 10.0   | 9.9 |      | 9.7  |    | 10.2   | 9.7* |      | 10.2* | 10.0 | 9.9  |        |    |      |
| 0   | 118.4 | 0    | 8816   | 7877 | 0  | 2123 | 6623   | 0   | 3307 | 2421 | 0  | 7579   | 9579 | 0    | 0421  | 7158 | 0    | 2842   | 60 |      |
| 1   | 120.5 | 0    | 8795   | 7906 | 0  | 2094 | 6701   | 0   | 3299 | 2441 | 0  | 7559   | 9607 | 0    | 0393  | 7166 | 0    | 2834   | 59 |      |
| 2   | 122.6 | 1    | 8774   | 7935 | 1  | 2065 | 6709   | 0   | 3291 | 2461 | 1  | 7539   | 9635 | 1    | 0365  | 7174 | 0    | 2826   | 58 |      |
| 3   | 124.7 | 1    | 8753   | 7963 | 1  | 2037 | 6716   | 0   | 3284 | 2482 | 1  | 7518   | 9663 | 1    | 0337  | 7182 | 0    | 2818   | 57 |      |
| 4   | 126.8 | 1    | 8732   | 7992 | 2  | 2008 | 6724   | 1   | 3276 | 2502 | 1  | 7498   | 9691 | 2    | 0309  | 7190 | 1    | 2810   | 56 |      |
| 5   | 128.9 | 2    | 8711   | 8020 | 2  | 1980 | 6731   | 1   | 3269 | 2522 | 2  | 7478   | 9719 | 2    | 0281  | 7197 | 1    | 2803   | 55 |      |
| 6   | 131.0 | 2    | 8690   | 8049 | 3  | 1951 | 6739   | 1   | 3261 | 2542 | 2  | 7458   | 9747 | 3    | 0253  | 7205 | 1    | 2795   | 54 |      |
| 7   | 133.1 | 2    | 8669   | 8077 | 3  | 1923 | 6747   | 1   | 3253 | 2562 | 2  | 7438   | 9776 | 3    | 0224  | 7213 | 1    | 2787   | 53 |      |
| 8   | 135.2 | 3    | 8648   | 8106 | 4  | 1894 | 6754   | 1   | 3246 | 2582 | 3  | 7418   | 9804 | 4    | 0196  | 7221 | 1    | 2779   | 52 |      |
| 9   | 137.3 | 3    | 8627   | 8135 | 4  | 1865 | 6762   | 1   | 3238 | 2602 | 3  | 7398   | 9832 | 4    | 0168  | 7229 | 1    | 2771   | 51 |      |
| 10  | 139.3 | 3    | 8607   | 8163 | 5  | 1837 | 6770   | 1   | 3230 | 2622 | 3  | 7378   | 9860 | 5    | 0140  | 7237 | 1    | 2763   | 50 |      |
| 11  | 141.4 | 4    | 8586   | 8192 | 5  | 1808 | 6777   | 1   | 3223 | 2643 | 4  | 7357   | 9888 | 5    | 0112  | 7245 | 1    | 2755   | 49 |      |
| 12  | 143.5 | 4    | 8565   | 8220 | 6  | 1780 | 6785   | 2   | 3215 | 2663 | 4  | 7337   | 9916 | 6    | 0084  | 7253 | 2    | 2747   | 48 |      |
| 13  | 145.6 | 4    | 8544   | 8249 | 6  | 1751 | 6793   | 2   | 3207 | 2683 | 4  | 7317   | 9944 | 6    | 0056  | 7261 | 2    | 2739   | 47 |      |
| 14  | 147.7 | 5    | 8523   | 8277 | 7  | 1723 | 6800   | 2   | 3200 | 2703 | 5  | 7297   | 9972 | 7    | 0028  | 7269 | 2    | 2731   | 46 |      |
| 15  | 149.8 | 5    | 8502   | 8306 | 7  | 1694 | 6808   | 2   | 3192 | 2723 | 5  | 7277   | *000 | 7    | *000  | 7277 | 2    | 2723   | 45 |      |
| 16  | 151.9 | 5    | 8481   | 8334 | 8  | 1666 | 6816   | 2   | 3184 | 2743 | 5  | 7257   | 0028 | 7    | 9972  | 7285 | 2    | 2715   | 44 |      |
| 17  | 153.9 | 6    | 8461   | 8363 | 8  | 1637 | 6823   | 2   | 3177 | 2763 | 6  | 7237   | 0056 | 8    | 9944  | 7293 | 2    | 2707   | 43 |      |
| 18  | 156.0 | 6    | 8440   | 8391 | 9  | 1609 | 6831   | 2   | 3169 | 2783 | 6  | 7217   | 0084 | 8    | 9916  | 7301 | 2    | 2699   | 42 |      |
| 19  | 158.1 | 7    | 8419   | 8419 | 9  | 1581 | 6839   | 2   | 3161 | 2803 | 6  | 7197   | 0112 | 9    | 9888  | 7309 | 3    | 2691   | 41 |      |
| 20  | 160.2 | 7    | 8398   | 8448 | 9  | 1552 | 6846   | 3   | 3154 | 2823 | 7  | 7177   | 0140 | 9    | 9860  | 7317 | 3    | 2683   | 40 |      |
| 21  | 162.2 | 7    | 8378   | 8476 | 10 | 1524 | 6854   | 3   | 3146 | 2843 | 7  | 7157   | 0168 | 10   | 9832  | 7325 | 3    | 2675   | 39 |      |
| 22  | 164.3 | 8    | 8357   | 8505 | 10 | 1495 | 6862   | 3   | 3138 | 2863 | 7  | 7137   | 0195 | 10   | 9805  | 7333 | 3    | 2667   | 38 |      |
| 23  | 166.4 | 8    | 8336   | 8533 | 11 | 1467 | 6869   | 3   | 3131 | 2883 | 8  | 7117   | 0223 | 11   | 9777  | 7341 | 3    | 2659   | 37 |      |
| 24  | 168.5 | 8    | 8315   | 8562 | 11 | 1438 | 6877   | 3   | 3123 | 2902 | 8  | 7098   | 0251 | 11   | 9749  | 7349 | 3    | 2651   | 36 |      |
| 25  | 170.5 | 9    | 8295   | 8590 | 12 | 1410 | 6885   | 3   | 3115 | 2922 | 8  | 7078   | 0279 | 12   | 9721  | 7357 | 3    | 2643   | 35 |      |
| 26  | 172.6 | 9    | 8274   | 8618 | 12 | 1382 | 6892   | 3   | 3108 | 2942 | 9  | 7058   | 0307 | 12   | 9693  | 7365 | 3    | 2635   | 34 |      |
| 27  | 174.7 | 9    | 8253   | 8647 | 13 | 1353 | 6900   | 3   | 3100 | 2962 | 9  | 7038   | 0335 | 13   | 9665  | 7373 | 4    | 2627   | 33 |      |
| 28  | 176.7 | 10   | 8233   | 8675 | 13 | 1325 | 6908   | 4   | 3092 | 2982 | 9  | 7018   | 0363 | 13   | 9637  | 7381 | 4    | 2619   | 32 |      |
| 29  | 178.8 | 10   | 8212   | 8704 | 14 | 1296 | 6916   | 4   | 3084 | 3002 | 10 | 6998   | 0391 | 13   | 9609  | 7389 | 4    | 2611   | 31 |      |
| 30  | 180.9 | 10   | 8191   | 8732 | 14 | 1268 | 6923   | 4   | 3077 | 3022 | 10 | 6978   | 0419 | 14   | 9581  | 7397 | 4    | 2603   | 30 |      |
| 31  | 182.9 | 11   | 8171   | 8760 | 15 | 1240 | 6931   | 4   | 3069 | 3041 | 10 | 6958   | 0447 | 14   | 9553  | 7405 | 4    | 2595   | 29 |      |
| 32  | 185.0 | 11   | 8150   | 8789 | 15 | 1211 | 6939   | 4   | 3061 | 3061 | 11 | 6939   | 0474 | 15   | 9526  | 7413 | 4    | 2587   | 28 |      |
| 33  | 187.0 | 11   | 8130   | 8817 | 16 | 1183 | 6947   | 4   | 3053 | 3081 | 11 | 6919   | 0502 | 15   | 9498  | 7421 | 4    | 2579   | 27 |      |
| 34  | 189.1 | 12   | 8109   | 8845 | 16 | 1155 | 6954   | 4   | 3046 | 3101 | 11 | 6899   | 0530 | 16   | 9470  | 7429 | 5    | 2571   | 26 |      |
| 35  | 191.1 | 12   | 8089   | 8874 | 17 | 1126 | 6962   | 5   | 3038 | 3121 | 12 | 6879   | 0558 | 16   | 9442  | 7437 | 5    | 2563   | 25 |      |
| 36  | 193.2 | 12   | 8068   | 8902 | 17 | 1098 | 6970   | 5   | 3030 | 3140 | 12 | 6860   | 0586 | 17   | 9414  | 7445 | 5    | 2555   | 24 |      |
| 37  | 195.2 | 13   | 8048   | 8930 | 17 | 1070 | 6978   | 5   | 3022 | 3160 | 12 | 6840   | 0614 | 17   | 9386  | 7454 | 5    | 2546   | 23 |      |
| 38  | 197.3 | 13   | 8027   | 8959 | 18 | 1041 | 6986   | 5   | 3014 | 3180 | 13 | 6820   | 0642 | 18   | 9358  | 7462 | 5    | 2538   | 22 |      |
| 39  | 199.4 | 13   | 8006   | 8987 | 18 | 1013 | 6993   | 5   | 3007 | 3200 | 13 | 6800   | 0669 | 18   | 9331  | 7470 | 5    | 2530   | 21 |      |
| 40  | 201.4 | 14   | 7986   | 9015 | 19 | 9855 | 7001   | 5   | 2999 | 3219 | 13 | 6781   | 0697 | 19   | 9303  | 7478 | 5    | 2522   | 20 |      |
| 41  | 203.4 | 14   | 7966   | 9043 | 19 | 9577 | 7009   | 5   | 2991 | 3239 | 14 | 6761   | 0725 | 19   | 9275  | 7486 | 6    | 2514   | 19 |      |
| 42  | 205.5 | 14   | 7945   | 9072 | 20 | 9298 | 7017   | 5   | 2983 | 3259 | 14 | 6741   | 0753 | 20   | 9247  | 7494 | 6    | 2506   | 18 |      |
| 43  | 207.5 | 15   | 7925   | 9100 | 20 | 9020 | 7024   | 6   | 2976 | 3278 | 14 | 6722   | 0781 | 20   | 9219  | 7502 | 6    | 2498   | 17 |      |
| 44  | 209.6 | 15   | 7904   | 9128 | 21 | 8742 | 7032   | 6   | 2968 | 3298 | 15 | 6702   | 0808 | 20   | 9192  | 7510 | 6    | 2490   | 16 |      |
| 45  | 211.6 | 15   | 7884   | 9156 | 21 | 8464 | 7040   | 6   | 2960 | 3318 | 15 | 6682   | 0836 | 21   | 9164  | 7518 | 6    | 2482   | 15 |      |
| 46  | 213.7 | 16   | 7863   | 9185 | 22 | 8185 | 7048   | 6   | 2952 | 3337 | 15 | 6663   | 0864 | 21   | 9136  | 7527 | 6    | 2474   | 14 |      |
| 47  | 215.7 | 16   | 7843   | 9213 | 22 | 7907 | 7056   | 6   | 2944 | 3357 | 16 | 6643   | 0892 | 22   | 9108  | 7535 | 6    | 2466   | 13 |      |
| 48  | 217.7 | 16   | 7823   | 9241 | 23 | 7629 | 7064   | 6   | 2936 | 3377 | 16 | 6623   | 0919 | 22   | 9081  | 7543 | 6    | 2458   | 12 |      |
| 49  | 219.8 | 17   | 7802   | 9269 | 23 | 7351 | 7071   | 6   | 2929 | 3396 | 16 | 6604   | 0947 | 23   | 9053  | 7551 | 7    | 2449   | 11 |      |
| 50  | 221.8 | 17   | 7782   | 9297 | 24 | 7073 | 7079   | 6   | 2921 | 3416 | 17 | 6584   | 0975 | 23   | 9025  | 7559 | 7    | 2441   | 10 |      |
| 51  | 223.8 | 18   | 7762   | 9325 | 24 | 6795 | 7087   | 7   | 2913 | 3435 | 17 | 6565   | 1003 | 24   | 8997  | 7567 | 7    | 2433   | 9  |      |
| 52  | 225.9 | 18   | 7741   | 9354 | 25 | 6517 | 7095   | 7   | 2905 | 3455 | 17 | 6545   | 1030 | 24   | 8970  | 7575 | 7    | 2425   | 8  |      |
| 53  | 227.9 | 18   | 7721   | 9382 | 25 | 6239 | 7103   | 7   | 2897 | 3474 | 18 | 6526   | 1058 | 25   | 8942  | 7584 | 7    | 2417   | 7  |      |
| 54  | 229.9 | 19   | 7701   | 9410 | 26 | 5961 | 7111   | 7   | 2889 | 3494 | 18 | 6506   | 1086 | 25   | 8914  | 7592 | 7    | 2408   | 6  |      |
| 55  | 232.0 | 19   | 7680   | 9438 | 26 | 5683 | 7119   | 7   | 2881 | 3513 | 18 | 6487   | 1113 | 26   | 8887  | 7600 | 7    | 2400   | 5  |      |
| 56  | 234.0 | 19   | 7660   | 9466 | 26 | 5405 | 7126   | 7   | 2874 | 3533 | 19 | 6467   | 1141 | 26   | 8859  | 7608 | 8    | 2392   | 4  |      |
| 57  | 236.0 | 20   | 7640   | 9495 | 27 | 5127 | 7134   | 7   | 2866 | 3552 | 19 | 6448   | 1169 | 26   | 8831  | 7616 | 8    | 2384   | 3  |      |
| 58  | 238.1 | 20   | 7619   | 9523 | 27 | 4849 | 7142   | 7   | 2858 | 3572 | 19 | 6428   | 1197 | 27   | 8804  | 7624 | 8    | 2376   | 2  |      |
| 59  | 240.1 | 20   | 7599   | 9551 | 28 | 4571 | 7150   | 8   | 2850 | 3591 | 20 | 6409   | 1224 | 27   | 8776  | 7633 | 8    | 2367   | 1  |      |
| 60  | 242.1 | 21   | 7579   | 9579 | 28 | 4293 | 7158   | 8   | 2842 | 3611 | 20 | 6389   | 1252 | 28   | 8748  | 7641 | 8    | 2359   | 0  |      |
|     | 9.7   |      | 10.2   | 9.7  |    | 10.2 | 10.0   | 9.9 |      | 9.7  |    | 10.2   | 9.7* |      | 10.2* | 10.0 | 9.9  |        |    |      |
|     | cos.  | d.   | sec.   | cot. | d. | tan. | cos.ec | d.  | sin. |      |    | cos.   | d.   | sec. | cot.  | d.   | tan. | cos.ec | d. | sin. |



| 33° |      |    |         |      |    |         |      |    |        | 146° |      |         |       |      |         |      |      |        |      | 34°  |      |         |       |      |         |      |      |        |      | 145° |  |  |  |  |  |  |  |  |  |
|-----|------|----|---------|------|----|---------|------|----|--------|------|------|---------|-------|------|---------|------|------|--------|------|------|------|---------|-------|------|---------|------|------|--------|------|------|--|--|--|--|--|--|--|--|--|
|     | sin. | d. | cosc.   | tan. | d. | cot.    | sec. | d. | cos.   |      | sin. | d.      | cosc. | tan. | d.      | cot. | sec. | d.     | cos. |      | sin. | d.      | cosc. | tan. | d.      | cot. | sec. | d.     | cos. |      |  |  |  |  |  |  |  |  |  |
| r   | 9.7  |    | 10.2    | 9.8  |    | 10.1    | 10.0 |    | 9.9    | r    | 9.7  |         | 10.2  | 9.8  |         | 10.1 | 10.0 |        | 9.9  | r    | 9.7  |         | 10.2  | 9.8  |         | 10.1 | 10.0 |        | 9.9  | r    |  |  |  |  |  |  |  |  |  |
| 0   | 3611 |    | 0.6389  | 1252 |    | 0.8748  | 7641 |    | 0.2359 | 4756 |      | 0.5244  | 2899  |      | 0.7101  | 8143 |      | 0.1857 | 60   | 4775 |      | 0.5225  | 2926  |      | 0.7074  | 8151 |      | 0.1849 | 59   |      |  |  |  |  |  |  |  |  |  |
| 1   | 3630 |    | 0.6370  | 1279 |    | 0.8721  | 7649 |    | 0.2351 | 4794 |      | 1.5206  | 2953  |      | 1.7047  | 8160 |      | 0.1840 | 58   | 4812 |      | 1.5188  | 2980  |      | 1.7020  | 8168 |      | 0.1832 | 57   |      |  |  |  |  |  |  |  |  |  |
| 2   | 3650 |    | 1.6331  | 1335 |    | 1.8665  | 7665 |    | 0.2335 | 4831 |      | 1.5169  | 3008  |      | 2.6992  | 8177 |      | 1.1823 | 56   | 4850 |      | 2.5150  | 3035  |      | 2.6965  | 8185 |      | 1.1815 | 55   |      |  |  |  |  |  |  |  |  |  |
| 3   | 3689 |    | 1.6311  | 1362 |    | 2.8638  | 7674 |    | 1.2326 | 4868 |      | 2.5133  | 3062  |      | 3.6938  | 8194 |      | 1.1806 | 54   | 4887 |      | 2.5113  | 3089  |      | 3.6911  | 8202 |      | 1.1798 | 53   |      |  |  |  |  |  |  |  |  |  |
| 4   | 3727 |    | 2.6292  | 1390 |    | 2.8610  | 7682 |    | 1.2318 | 4906 |      | 2.5094  | 3117  |      | 4.6883  | 8211 |      | 1.1789 | 52   | 4942 |      | 3.5076  | 3144  |      | 4.6856  | 8219 |      | 1.1781 | 51   |      |  |  |  |  |  |  |  |  |  |
| 5   | 3747 |    | 2.6273  | 1418 |    | 3.8582  | 7690 |    | 1.2310 | 4943 |      | 3.5057  | 3171  |      | 5.6829  | 8228 |      | 1.1772 | 50   | 4961 |      | 3.5039  | 3198  |      | 5.6802  | 8237 |      | 2.1763 | 49   |      |  |  |  |  |  |  |  |  |  |
| 6   | 3772 |    | 2.6253  | 1445 |    | 3.8555  | 7698 |    | 1.2302 | 4980 |      | 4.5020  | 3225  |      | 5.6775  | 8245 |      | 2.1755 | 48   | 4999 |      | 4.5001  | 3252  |      | 6.6748  | 8254 |      | 2.1746 | 47   |      |  |  |  |  |  |  |  |  |  |
| 7   | 3797 |    | 3.6234  | 1473 |    | 4.8527  | 7707 |    | 1.2293 | 5017 |      | 4.4983  | 3280  |      | 6.6720  | 8262 |      | 2.1738 | 46   | 5036 |      | 5.4964  | 3307  |      | 7.6693  | 8271 |      | 2.1729 | 45   |      |  |  |  |  |  |  |  |  |  |
| 8   | 3825 |    | 3.6215  | 1500 |    | 4.8500  | 7715 |    | 1.2285 | 5054 |      | 5.4946  | 3334  |      | 7.6666  | 8280 |      | 2.1720 | 44   | 5073 |      | 5.4927  | 3361  |      | 8.6639  | 8288 |      | 2.1712 | 43   |      |  |  |  |  |  |  |  |  |  |
| 9   | 3855 |    | 3.6195  | 1528 |    | 5.8472  | 7723 |    | 1.2277 | 5091 |      | 6.4909  | 3388  |      | 8.6612  | 8297 |      | 3.1703 | 42   | 5110 |      | 6.4890  | 3415  |      | 9.6585  | 8305 |      | 3.1695 | 41   |      |  |  |  |  |  |  |  |  |  |
| 10  | 3884 |    | 3.6176  | 1556 |    | 5.8444  | 7731 |    | 2.2269 | 5128 |      | 6.4872  | 3442  |      | 9.6558  | 8314 |      | 3.1686 | 40   | 5147 |      | 6.4853  | 3470  |      | 9.6530  | 8323 |      | 3.1677 | 39   |      |  |  |  |  |  |  |  |  |  |
| 11  | 3843 |    | 4.6157  | 1583 |    | 5.8417  | 7740 |    | 2.2260 | 5165 |      | 7.4835  | 3497  |      | 10.6503 | 8331 |      | 3.1669 | 38   | 5184 |      | 7.4816  | 3524  |      | 10.6476 | 8340 |      | 3.1660 | 37   |      |  |  |  |  |  |  |  |  |  |
| 12  | 3863 |    | 4.6137  | 1611 |    | 6.8389  | 7748 |    | 2.2252 | 5202 |      | 7.4798  | 3551  |      | 11.6449 | 8349 |      | 3.1651 | 36   | 5221 |      | 8.4779  | 3578  |      | 11.6422 | 8357 |      | 4.1643 | 35   |      |  |  |  |  |  |  |  |  |  |
| 13  | 3882 |    | 4.6118  | 1638 |    | 6.8362  | 7756 |    | 2.2244 | 5239 |      | 8.4761  | 3605  |      | 12.6395 | 8366 |      | 4.1634 | 34   | 5258 |      | 8.4742  | 2632  |      | 12.6368 | 8375 |      | 4.1625 | 33   |      |  |  |  |  |  |  |  |  |  |
| 14  | 3901 |    | 5.6099  | 1666 |    | 7.8334  | 7765 |    | 2.2235 | 5276 |      | 9.4724  | 3659  |      | 13.6341 | 8383 |      | 4.1617 | 32   | 5294 |      | 9.4706  | 3686  |      | 13.6314 | 8392 |      | 4.1608 | 31   |      |  |  |  |  |  |  |  |  |  |
| 15  | 3921 |    | 5.6079  | 1693 |    | 7.8307  | 7773 |    | 2.2227 | 5313 |      | 9.4687  | 3713  |      | 14.6287 | 8401 |      | 4.1599 | 30   | 5331 |      | 9.4669  | 3740  |      | 14.6260 | 8409 |      | 4.1591 | 29   |      |  |  |  |  |  |  |  |  |  |
| 16  | 3940 |    | 5.6060  | 1721 |    | 8.8279  | 7781 |    | 2.2219 | 5350 |      | 10.4650 | 3768  |      | 14.6232 | 8418 |      | 4.1582 | 28   | 5368 |      | 10.4632 | 3795  |      | 15.6205 | 8427 |      | 4.1573 | 27   |      |  |  |  |  |  |  |  |  |  |
| 17  | 3959 |    | 6.6041  | 1748 |    | 8.8252  | 7789 |    | 3.2211 | 5386 |      | 10.4614 | 3822  |      | 15.6178 | 8435 |      | 4.1565 | 26   | 5405 |      | 11.4595 | 3849  |      | 16.6151 | 8444 |      | 4.1556 | 25   |      |  |  |  |  |  |  |  |  |  |
| 18  | 3978 |    | 6.6022  | 1776 |    | 9.8224  | 7798 |    | 3.2202 | 5423 |      | 11.4577 | 3876  |      | 16.6124 | 8453 |      | 4.1547 | 24   | 5441 |      | 11.4559 | 3903  |      | 17.6097 | 8462 |      | 4.1538 | 23   |      |  |  |  |  |  |  |  |  |  |
| 19  | 3997 |    | 6.6003  | 1803 |    | 9.8197  | 7806 |    | 3.2194 | 5459 |      | 12.4541 | 3930  |      | 17.6070 | 8470 |      | 4.1530 | 22   | 5478 |      | 12.4522 | 3957  |      | 18.6043 | 8479 |      | 4.1521 | 21   |      |  |  |  |  |  |  |  |  |  |
| 20  | 4017 |    | 7.5983  | 1831 |    | 10.8169 | 7814 |    | 3.2186 | 5496 |      | 12.4504 | 3984  |      | 18.6016 | 8488 |      | 4.1512 | 20   | 5514 |      | 13.4486 | 4011  |      | 18.5989 | 8496 |      | 4.1504 | 19   |      |  |  |  |  |  |  |  |  |  |
| 21  | 4036 |    | 7.5964  | 1858 |    | 10.8142 | 7823 |    | 3.2177 | 5533 |      | 13.4467 | 4038  |      | 19.5962 | 8505 |      | 4.1495 | 18   | 5551 |      | 13.4449 | 4065  |      | 19.5935 | 8514 |      | 4.1486 | 17   |      |  |  |  |  |  |  |  |  |  |
| 22  | 4055 |    | 7.5945  | 1886 |    | 11.8114 | 7831 |    | 3.2169 | 5569 |      | 13.4431 | 4092  |      | 20.5908 | 8523 |      | 4.1477 | 16   | 5587 |      | 14.4413 | 4119  |      | 20.5881 | 8531 |      | 4.1469 | 15   |      |  |  |  |  |  |  |  |  |  |
| 23  | 4074 |    | 8.5926  | 1913 |    | 11.8087 | 7839 |    | 3.2161 | 5605 |      | 14.4395 | 4146  |      | 21.5854 | 8540 |      | 4.1460 | 14   | 5642 |      | 15.4376 | 4173  |      | 21.5827 | 8549 |      | 4.1451 | 13   |      |  |  |  |  |  |  |  |  |  |
| 24  | 4093 |    | 8.5907  | 1941 |    | 11.8060 | 7848 |    | 3.2152 | 5641 |      | 15.4358 | 4200  |      | 22.5800 | 8558 |      | 4.1442 | 12   | 5678 |      | 15.4340 | 4227  |      | 22.5773 | 8567 |      | 4.1433 | 11   |      |  |  |  |  |  |  |  |  |  |
| 25  | 4113 |    | 8.5888  | 1968 |    | 12.8032 | 7856 |    | 3.2144 | 5678 |      | 15.4322 | 4254  |      | 23.5746 | 8575 |      | 4.1425 | 10   | 5714 |      | 16.4304 | 4280  |      | 23.5720 | 8584 |      | 4.1416 | 9    |      |  |  |  |  |  |  |  |  |  |
| 26  | 4132 |    | 9.5868  | 1996 |    | 12.8004 | 7864 |    | 3.2136 | 5711 |      | 16.4286 | 4307  |      | 24.5666 | 8602 |      | 4.1407 | 8    | 5749 |      | 16.4268 | 4334  |      | 24.5666 | 8602 |      | 4.1398 | 7    |      |  |  |  |  |  |  |  |  |  |
| 27  | 4151 |    | 9.5849  | 2023 |    | 13.7977 | 7873 |    | 3.2127 | 5749 |      | 17.4249 | 4361  |      | 24.5639 | 8611 |      | 4.1389 | 6    | 5786 |      | 17.4231 | 4388  |      | 25.5612 | 8619 |      | 4.1381 | 5    |      |  |  |  |  |  |  |  |  |  |
| 28  | 4170 |    | 9.5830  | 2051 |    | 13.7949 | 7881 |    | 3.2119 | 5821 |      | 18.4213 | 4415  |      | 25.5585 | 8628 |      | 4.1372 | 4    | 5858 |      | 18.4195 | 4442  |      | 26.5558 | 8637 |      | 4.1363 | 3    |      |  |  |  |  |  |  |  |  |  |
| 29  | 4189 |    | 10.5811 | 2078 |    | 14.7922 | 7889 |    | 3.2111 | 5858 |      | 18.4177 | 4466  |      | 26.5531 | 8646 |      | 4.1354 | 2    | 5895 |      | 18.4159 | 4493  |      | 27.5504 | 8655 |      | 4.1345 | 1    |      |  |  |  |  |  |  |  |  |  |
| 30  | 4208 |    | 10.5792 | 2106 |    | 14.7894 | 7898 |    | 3.2102 | 5931 |      | 19.4141 | 4519  |      | 27.5477 | 8654 |      | 4.1336 | 0    | 5968 |      | 19.4123 | 4546  |      | 27.5477 | 8663 |      | 4.1327 | 0    |      |  |  |  |  |  |  |  |  |  |
| 31  | 4227 |    | 10.5773 | 2133 |    | 15.7867 | 7906 |    | 4.2094 | 5965 |      | 19.4123 | 4572  |      | 28.5450 | 8662 |      | 4.1318 |      | 6000 |      | 20.4085 | 4625  |      | 28.5450 | 8670 |      | 4.1309 |      |      |  |  |  |  |  |  |  |  |  |
| 32  | 4246 |    | 10.5754 | 2161 |    | 15.7839 | 7914 |    | 5.2086 | 6033 |      | 20.4067 | 4678  |      | 29.5423 | 8669 |      | 4.1300 |      | 6066 |      | 21.4049 | 4700  |      | 29.5423 | 8678 |      | 4.1300 |      |      |  |  |  |  |  |  |  |  |  |
| 33  | 4265 |    | 11.5735 | 2188 |    | 16.7812 | 7923 |    | 5.2077 | 6104 |      | 21.4049 | 4727  |      | 30.5396 | 8677 |      | 4.1291 |      | 6132 |      | 22.4025 | 4752  |      | 30.5396 | 8686 |      | 4.1291 |      |      |  |  |  |  |  |  |  |  |  |
| 34  | 4284 |    | 11.5716 | 2215 |    | 16.7785 | 7931 |    | 5.2069 | 6175 |      | 22.4025 | 4776  |      | 31.5369 | 8685 |      | 4.1282 |      | 6200 |      | 23.4003 | 4776  |      | 31.5369 | 8694 |      | 4.1282 |      |      |  |  |  |  |  |  |  |  |  |
| 35  | 4303 |    | 11.5697 | 2243 |    | 16.7757 | 7940 |    | 5.2060 | 6246 |      | 23.4003 | 4825  |      | 32.5342 | 8693 |      | 4.1273 |      | 6268 |      | 24.3981 | 4825  |      | 32.5342 | 8702 |      | 4.1273 |      |      |  |  |  |  |  |  |  |  |  |
| 36  | 4322 |    | 11.5678 | 2270 |    | 17.7730 | 7948 |    | 5.2052 | 6317 |      | 24.3981 | 4874  |      | 33.5315 | 8701 |      | 4.1264 |      | 6336 |      | 25.3959 | 4874  |      | 33.5315 | 8710 |      | 4.1264 |      |      |  |  |  |  |  |  |  |  |  |
| 37  | 4341 |    | 12.5659 | 2298 |    | 17.7702 | 7956 |    | 5.2044 | 6388 |      | 25.3959 | 4923  |      | 34.5288 | 8709 |      | 4.1255 |      | 6404 |      | 26.3937 | 4923  |      | 34.5288 | 8718 |      | 4.1255 |      |      |  |  |  |  |  |  |  |  |  |
| 38  | 4360 |    | 12.5640 | 2325 |    | 18.7675 | 7965 |    | 5.2035 | 6459 |      | 26.3937 | 4972  |      | 35.5261 | 8717 |      | 4.1246 |      | 6472 |      | 27.3915 | 4972  |      | 35.5261 | 8726 |      | 4.1246 |      |      |  |  |  |  |  |  |  |  |  |
| 39  | 4379 |    | 13.5621 | 2352 |    | 18.7648 | 7973 |    | 6.2027 | 6530 |      | 27.3915 | 5021  |      | 36.5234 | 8725 |      | 4.1237 |      | 6540 |      | 28.3893 | 5021  |      | 36.5234 | 8734 |      | 4.1237 |      |      |  |  |  |  |  |  |  |  |  |
| 40  | 4398 |    | 13.5602 | 2380 |    | 19.7620 | 7982 |    | 6.2018 | 6601 |      | 28.3893 | 5070  |      | 37.5207 | 8733 |      | 4.1228 |      | 6609 |      | 29.3871 | 5070  |      | 37.5207 | 8742 |      | 4.1228 |      |      |  |  |  |  |  |  |  |  |  |
| 41  | 4417 |    | 13.5583 | 2407 |    | 19.7593 | 7990 |    | 6.2010 | 6672 |      | 29.3871 | 5119  |      | 38.5180 | 8741 |      | 4.1219 |      | 6677 |      | 30.3849 | 5119  |      | 38.5180 | 8750 |      | 4.1219 |      |      |  |  |  |  |  |  |  |  |  |
| 42  | 4436 |    | 14.5564 | 2435 |    | 20.7565 | 7998 |    | 6.2002 | 6743 |      | 30.3849 | 5168  |      | 39.5153 | 8749 |      | 4.1210 |      | 6746 |      | 31.3827 | 5168  |      | 39.5153 | 8758 |      | 4.1210 |      |      |  |  |  |  |  |  |  |  |  |
| 43  | 4455 |    | 14.5545 | 2462 |    | 20.7538 | 8007 |    | 6.1993 | 6814 |      | 31.3827 | 5217  |      | 40.5126 | 8757 |      | 4.1201 |      | 6819 |      | 32.3805 | 5217  |      | 40.5126 | 8766 |      | 4.1201 |      |      |  |  |  |  |  |  |  |  |  |
| 44  | 4474 |    | 14.5526 | 2489 |    | 21.7511 | 8015 |    | 6.1985 | 6885 |      | 32.3805 | 5266  |      | 41.5099 | 8765 |      | 4.1192 |      | 6893 |      | 33.3783 | 5266  |      | 41.5099 | 8774 |      | 4.1192 |      |      |  |  |  |  |  |  |  |  |  |
| 45  | 4493 |    | 15.5507 | 2517 |    | 21.7483 | 8024 |    | 6.1976 | 6956 |      | 33.3783 | 5315  |      | 42.5072 | 8773 |      | 4.1183 |      | 6961 |      | 34.3761 | 5315  |      | 42.5072 | 8782 |      | 4.1183 |      |      |  |  |  |  |  |  |  |  |  |
| 46  | 4512 |    | 15.5488 | 2544 |    | 22.7456 | 8032 |    | 7.1968 | 7027 |      | 34.3761 | 5364  |      | 43.5045 | 8781 |      | 4.1174 |      | 7027 |      | 35.3739 | 5364  |      | 43.5045 | 8790 |      | 4.1174 |      |      |  |  |  |  |  |  |  |  |  |
| 47  | 4531 |    | 15.5469 | 2571 |    | 22.7429 | 8041 |    | 7.1959 | 7098 |      | 35.3739 | 5413  |      | 44.5018 | 8789 |      | 4.1165 |      | 7098 |      | 36.3717 | 5413  |      | 44.5018 | 8798 |      | 4.1165 |      |      |  |  |  |  |  |  |  |  |  |
| 48  | 4549 |    | 16.5451 | 2599 |    | 22      |      |    |        |      |      |         |       |      |         |      |      |        |      |      |      |         |       |      |         |      |      |        |      |      |  |  |  |  |  |  |  |  |  |





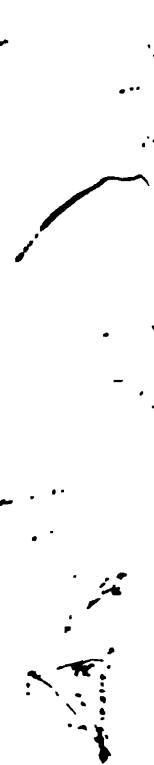
| °    | 142° |     |      |      |     |      |      |      | 38°  |      |      |      |      |      |      |      | 141° |      |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
|------|------|-----|------|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|
|      | sin. | d.  | cos. | tan. | d.  | sec. | d.   | cos. | tan. | d.   | sec. | d.   | cos. | tan. | d.   | sec. | d.   | cos. |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 0    | 7946 | 0   | 2054 | 7711 | 0   | 2289 | 9765 | 0    | 0235 | 8934 | 0    | 1066 | 9281 | 0    | 0719 | 0347 | 0    | 9653 | 60  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 1    | 7963 | 0   | 2037 | 7738 | 0   | 2262 | 9775 | 0    | 0225 | 8950 | 0    | 1050 | 9307 | 0    | 0693 | 0357 | 0    | 9643 | 59  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 2    | 7980 | 1   | 2020 | 7764 | 1   | 2236 | 9784 | 0    | 0216 | 8967 | 1    | 1033 | 9333 | 1    | 0667 | 0367 | 0    | 9633 | 58  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 3    | 7997 | 1   | 2003 | 7790 | 1   | 2210 | 9794 | 0    | 0206 | 8983 | 1    | 1017 | 9359 | 1    | 0641 | 0376 | 1    | 9624 | 57  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 4    | 8013 | 1   | 1987 | 7817 | 2   | 2183 | 9803 | 1    | 0197 | 8999 | 1    | 1001 | 9385 | 2    | 0615 | 0386 | 1    | 9614 | 56  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 5    | 8030 | 1   | 1970 | 7843 | 2   | 2157 | 9813 | 1    | 0187 | 9015 | 1    | 0985 | 9411 | 2    | 0589 | 0396 | 1    | 9604 | 55  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 6    | 8047 | 2   | 1953 | 7869 | 3   | 2131 | 9822 | 1    | 0178 | 9031 | 2    | 0969 | 9437 | 3    | 0563 | 0406 | 1    | 9594 | 54  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 7    | 8063 | 2   | 1937 | 7895 | 3   | 2105 | 9832 | 1    | 0168 | 9047 | 2    | 0953 | 9463 | 3    | 0537 | 0416 | 1    | 9584 | 53  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 8    | 8080 | 2   | 1920 | 7922 | 3   | 2078 | 9841 | 1    | 0159 | 9063 | 2    | 0937 | 9489 | 3    | 0511 | 0426 | 1    | 9574 | 52  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 9    | 8097 | 2   | 1903 | 7948 | 4   | 2052 | 9851 | 1    | 0149 | 9079 | 2    | 0921 | 9515 | 4    | 0485 | 0436 | 2    | 9564 | 51  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 10   | 8113 | 3   | 1887 | 7974 | 4   | 2026 | 9861 | 2    | 0139 | 9095 | 3    | 0905 | 9541 | 4    | 0459 | 0446 | 2    | 9554 | 50  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 11   | 8130 | 3   | 1870 | 8000 | 5   | 2000 | 9870 | 2    | 0130 | 9111 | 3    | 0889 | 9567 | 5    | 0433 | 0456 | 2    | 9543 | 49  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 12   | 8147 | 3   | 1853 | 8027 | 5   | 1973 | 9880 | 2    | 0120 | 9128 | 3    | 0872 | 9593 | 5    | 0407 | 0466 | 2    | 9534 | 48  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 13   | 8163 | 4   | 1837 | 8053 | 6   | 1947 | 9889 | 2    | 0111 | 9144 | 3    | 0856 | 9619 | 6    | 0381 | 0476 | 2    | 9524 | 47  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 14   | 8180 | 4   | 1820 | 8079 | 6   | 1921 | 9899 | 2    | 0101 | 9160 | 4    | 0840 | 9645 | 6    | 0355 | 0486 | 2    | 9514 | 46  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 15   | 8197 | 4   | 1803 | 8105 | 7   | 1895 | 9909 | 2    | 0091 | 9176 | 4    | 0824 | 9671 | 6    | 0329 | 0496 | 3    | 9504 | 45  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 16   | 8213 | 4   | 1787 | 8131 | 7   | 1869 | 9918 | 3    | 0082 | 9192 | 4    | 0808 | 9697 | 7    | 0303 | 0505 | 3    | 9495 | 44  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 17   | 8230 | 5   | 1770 | 8158 | 7   | 1842 | 9928 | 3    | 0072 | 9208 | 5    | 0792 | 9723 | 7    | 0277 | 0515 | 3    | 9485 | 43  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 18   | 8247 | 5   | 1754 | 8184 | 8   | 1816 | 9937 | 3    | 0063 | 9224 | 5    | 0776 | 9749 | 8    | 0251 | 0525 | 3    | 9475 | 42  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 19   | 8263 | 5   | 1737 | 8210 | 8   | 1790 | 9947 | 3    | 0053 | 9240 | 5    | 0760 | 9775 | 8    | 0225 | 0535 | 3    | 9465 | 41  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 20   | 8280 | 5   | 1720 | 8236 | 9   | 1764 | 9957 | 3    | 0043 | 9256 | 5    | 0744 | 9801 | 9    | 0199 | 0545 | 3    | 9455 | 40  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 21   | 8296 | 6   | 1704 | 8262 | 9   | 1738 | 9966 | 3    | 0034 | 9272 | 6    | 0728 | 9827 | 9    | 0173 | 0555 | 4    | 9445 | 39  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 22   | 8313 | 6   | 1687 | 8289 | 10  | 1711 | 9976 | 4    | 0024 | 9288 | 6    | 0712 | 9853 | 10   | 0147 | 0565 | 4    | 9435 | 38  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 23   | 8329 | 6   | 1671 | 8315 | 10  | 1685 | 9986 | 4    | 0014 | 9304 | 6    | 0696 | 9879 | 10   | 0121 | 0575 | 4    | 9425 | 37  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 24   | 8346 | 7   | 1654 | 8341 | 10  | 1659 | 9995 | 4    | 0005 | 9319 | 6    | 0681 | 9905 | 10   | 0095 | 0585 | 4    | 9415 | 36  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 25   | 8362 | 7   | 1638 | 8367 | 11  | 1633 | 0005 | 4    | 9995 | 9335 | 7    | 0665 | 9931 | 11   | 0069 | 0595 | 4    | 9405 | 35  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 26   | 8379 | 7   | 1621 | 8393 | 11  | 1607 | 0015 | 4    | 9985 | 9351 | 7    | 0649 | 9957 | 11   | 0043 | 0605 | 4    | 9395 | 34  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 27   | 8395 | 7   | 1605 | 8420 | 12  | 1580 | 0024 | 4    | 9976 | 9367 | 7    | 0633 | 9983 | 12   | 0017 | 0615 | 5    | 9385 | 33  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 28   | 8412 | 8   | 1588 | 8446 | 12  | 1554 | 0034 | 5    | 9966 | 9383 | 7    | 0617 | 0009 | 12   | 9991 | 0625 | 5    | 9375 | 32  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 29   | 8428 | 8   | 1572 | 8472 | 13  | 1528 | 0044 | 5    | 9956 | 9399 | 8    | 0601 | 0035 | 13   | 9965 | 0636 | 5    | 9364 | 31  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 30   | 8445 | 8   | 1555 | 8498 | 13  | 1502 | 0053 | 5    | 9947 | 9415 | 8    | 0585 | 0061 | 13   | 9939 | 0646 | 5    | 9354 | 30  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 31   | 8461 | 9   | 1539 | 8524 | 14  | 1476 | 0063 | 5    | 9937 | 9431 | 8    | 0569 | 0086 | 13   | 9914 | 0656 | 5    | 9344 | 29  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 32   | 8478 | 9   | 1522 | 8550 | 14  | 1450 | 0073 | 5    | 9927 | 9447 | 8    | 0553 | 0112 | 14   | 9888 | 0666 | 5    | 9334 | 28  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 33   | 8494 | 9   | 1506 | 8577 | 14  | 1423 | 0082 | 5    | 9918 | 9463 | 9    | 0537 | 0138 | 14   | 9862 | 0676 | 6    | 9324 | 27  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 34   | 8510 | 9   | 1490 | 8603 | 15  | 1397 | 0092 | 5    | 9908 | 9478 | 9    | 0522 | 0164 | 15   | 9836 | 0686 | 6    | 9314 | 26  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 35   | 8527 | 10  | 1473 | 8629 | 15  | 1371 | 0102 | 6    | 9898 | 9494 | 9    | 0506 | 0190 | 15   | 9810 | 0696 | 6    | 9304 | 25  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 36   | 8543 | 10  | 1457 | 8655 | 16  | 1345 | 0112 | 6    | 9888 | 9510 | 10   | 0490 | 0216 | 16   | 9784 | 0706 | 6    | 9294 | 24  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 37   | 8560 | 10  | 1440 | 8681 | 16  | 1319 | 0121 | 6    | 9879 | 9526 | 10   | 0474 | 0242 | 16   | 9758 | 0716 | 6    | 9284 | 23  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 38   | 8576 | 10  | 1424 | 8707 | 17  | 1293 | 0131 | 6    | 9869 | 9542 | 10   | 0458 | 0268 | 16   | 9732 | 0726 | 6    | 9274 | 22  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 39   | 8592 | 11  | 1408 | 8733 | 17  | 1267 | 0141 | 6    | 9859 | 9558 | 10   | 0442 | 0294 | 17   | 9706 | 0736 | 7    | 9264 | 21  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 40   | 8609 | 11  | 1391 | 8759 | 17  | 1241 | 0151 | 6    | 9849 | 9573 | 11   | 0427 | 0320 | 17   | 9680 | 0746 | 7    | 9254 | 20  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 41   | 8625 | 11  | 1375 | 8786 | 18  | 1214 | 0160 | 7    | 9840 | 9589 | 11   | 0411 | 0346 | 18   | 9654 | 0756 | 7    | 9244 | 19  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 42   | 8642 | 12  | 1358 | 8812 | 18  | 1188 | 0170 | 7    | 9830 | 9605 | 11   | 0395 | 0371 | 18   | 9628 | 0767 | 7    | 9234 | 18  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 43   | 8658 | 12  | 1342 | 8838 | 19  | 1162 | 0180 | 7    | 9820 | 9621 | 11   | 0379 | 0397 | 19   | 9602 | 0777 | 7    | 9224 | 17  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 44   | 8674 | 12  | 1326 | 8864 | 19  | 1136 | 0190 | 7    | 9810 | 9636 | 12   | 0364 | 0423 | 19   | 9577 | 0787 | 7    | 9213 | 16  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 45   | 8691 | 12  | 1310 | 8890 | 20  | 1110 | 0199 | 7    | 9801 | 9652 | 12   | 0348 | 0449 | 19   | 9551 | 0797 | 8    | 9203 | 15  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 46   | 8707 | 13  | 1293 | 8916 | 20  | 1084 | 0209 | 7    | 9791 | 9668 | 12   | 0332 | 0475 | 20   | 9525 | 0807 | 8    | 9193 | 14  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 47   | 8723 | 13  | 1277 | 8942 | 20  | 1058 | 0219 | 8    | 9781 | 9684 | 12   | 0316 | 0501 | 20   | 9499 | 0817 | 9    | 9183 | 13  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 48   | 8739 | 13  | 1261 | 8968 | 21  | 1032 | 0229 | 8    | 9771 | 9699 | 13   | 0301 | 0527 | 21   | 9473 | 0827 | 9    | 9173 | 12  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 49   | 8756 | 13  | 1244 | 8994 | 21  | 1006 | 0239 | 8    | 9761 | 9715 | 13   | 0285 | 0553 | 21   | 9447 | 0838 | 9    | 9162 | 11  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 50   | 8772 | 14  | 1228 | 9020 | 22  | 0980 | 0248 | 8    | 9752 | 9731 | 13   | 0269 | 0578 | 22   | 9422 | 0848 | 9    | 9152 | 10  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 51   | 8788 | 14  | 1212 | 9046 | 22  | 0954 | 0258 | 8    | 9742 | 9746 | 14   | 0254 | 0604 | 22   | 9396 | 0858 | 9    | 9142 | 9   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 52   | 8805 | 14  | 1195 | 9073 | 23  | 0927 | 0268 | 8    | 9732 | 9762 | 14   | 0238 | 0630 | 22   | 9370 | 0868 | 9    | 9132 | 8   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 53   | 8821 | 15  | 1179 | 9099 | 23  | 0901 | 0278 | 8    | 9722 | 9778 | 14   | 0222 | 0656 | 23   | 9344 | 0878 | 9    | 9122 | 7   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 54   | 8837 | 15  | 1163 | 9125 | 24  | 0875 | 0288 | 9    | 9712 | 9793 | 14   | 0207 | 0682 | 23   | 9318 | 0888 | 9    | 9112 | 6   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 55   | 8853 | 15  | 1147 | 9151 | 24  | 0849 | 0298 | 9    | 9702 | 9809 | 15   | 0191 | 0708 | 24   | 9292 | 0899 | 9    | 9101 | 5   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 56   | 8869 | 15  | 1131 | 9177 | 24  | 0823 | 0307 | 9    | 9693 | 9825 | 15   | 0175 | 0734 | 24   | 9266 | 0909 | 9    | 9091 | 4   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 57   | 8886 | 16  | 1114 | 9203 | 25  | 0797 | 0317 | 9    | 9683 | 9840 | 15   | 0160 | 0759 | 25   | 9241 | 0919 | 10   | 9081 | 3   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 58   | 8902 | 16  | 1098 | 9229 | 25  | 0771 | 0327 | 9    | 9673 | 9856 | 15   | 0144 | 0785 | 25   | 9215 | 0929 | 10   | 9071 | 2   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 59   | 8918 | 16  | 1082 | 9255 | 26  | 0745 | 0337 | 10   | 9663 | 9872 | 16   | 0128 | 0811 | 26   | 9189 | 0940 | 10   | 9060 | 1   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 60   | 8934 | 16  | 1066 | 9281 | 26  | 0719 | 0347 | 10   | 9653 | 9887 | 16   | 0113 | 0837 | 26   | 9163 | 0950 | 10   | 9050 | 0   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 9.   | 9.   | 10. | 9.   | 10.  | 10. | 9.   | 9.   | 9.   | 9.   | 9.   | 10.  | 9.   | 10.  | 9.   | 10.  | 9.   | 9.   | 9.   | 9.  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 00.  | 00.  | 00. | 00.  | 00.  | 00. | 00.  | 00.  | 00.  | 00.  | 00.  | 00.  | 00.  | 00.  | 00.  | 00.  | 00.  | 00.  | 00.  | 00. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| 127° |      |     |      |      |     |      |      |      |      |      |      |      |      |      |      |      | 52°  | 129° |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 51° |



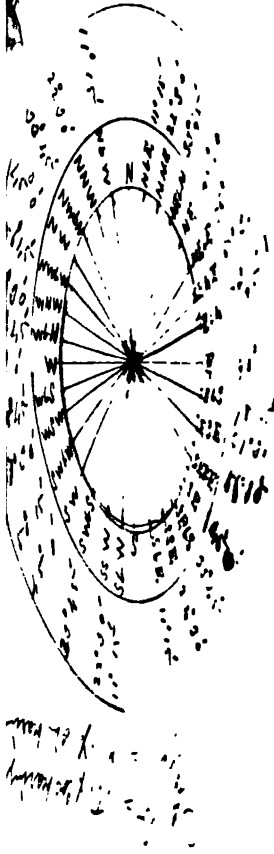


|    |         | 138° |      |       |         |      |      |      |          | 42°  |      |      |         |     |      |      |          | 137° |      |       |  |      |  |     |  |      |  |      |  |     |  |
|----|---------|------|------|-------|---------|------|------|------|----------|------|------|------|---------|-----|------|------|----------|------|------|-------|--|------|--|-----|--|------|--|------|--|-----|--|
|    |         | sin. |      | cosec |         | tan. |      | d.   |          | cot. |      | sec. |         | d.  |      | cos. |          | sin. |      | cosec |  | tan. |  | d.  |  | cot. |  | sec. |  | d.  |  |
|    |         | 9.8  |      | 10.1  |         | 9.9  |      | 10.0 |          | 10.1 |      | 9.8  |         | 9.8 |      | 10.1 |          | 9.9  |      | 10.0  |  | 10.1 |  | 9.8 |  | 9.8  |  | 10.1 |  | 9.9 |  |
| 0  | 1694    | 0    | 8306 | 3916  | 0       | 6084 | 2222 | 0    | 7778     | 2551 | 0    | 7449 | 5444    | 0   | 4556 | 2893 | 0        | 7107 | 60   |       |  |      |  |     |  |      |  |      |  |     |  |
| 1  | 1709    | 0    | 8291 | 3942  | 0       | 6058 | 2233 | 0    | 7767     | 2565 | 0    | 7435 | 5469    | 0   | 4531 | 2904 | 0        | 7096 | 59   |       |  |      |  |     |  |      |  |      |  |     |  |
| 2  | 1723    | 0    | 8277 | 3967  | 1       | 6033 | 2244 | 0    | 7756     | 2579 | 0    | 7421 | 5495    | 1   | 4505 | 2915 | 0        | 7085 | 58   |       |  |      |  |     |  |      |  |      |  |     |  |
| 3  | 1738    | 1    | 8264 | 3993  | 1       | 6007 | 2255 | 1    | 7745     | 2593 | 1    | 7407 | 5520    | 1   | 4480 | 2927 | 1        | 7073 | 57   |       |  |      |  |     |  |      |  |      |  |     |  |
| 4  | 1752    | 1    | 8248 | 4018  | 2       | 5982 | 2266 | 1    | 7734     | 2607 | 1    | 7393 | 5545    | 2   | 4455 | 2938 | 1        | 7062 | 56   |       |  |      |  |     |  |      |  |      |  |     |  |
| 5  | 1767    | 1    | 8233 | 4044  | 2       | 5956 | 2277 | 1    | 7723     | 2621 | 1    | 7379 | 5571    | 2   | 4429 | 2950 | 1        | 7050 | 55   |       |  |      |  |     |  |      |  |      |  |     |  |
| 6  | 1781    | 1    | 8219 | 4069  | 3       | 5931 | 2288 | 1    | 7712     | 2635 | 1    | 7365 | 5596    | 3   | 4404 | 2961 | 1        | 7039 | 54   |       |  |      |  |     |  |      |  |      |  |     |  |
| 7  | 1796    | 2    | 8204 | 4095  | 3       | 5905 | 2299 | 1    | 7701     | 2649 | 2    | 7351 | 5622    | 3   | 4378 | 2972 | 1        | 7028 | 53   |       |  |      |  |     |  |      |  |      |  |     |  |
| 8  | 1810    | 2    | 8190 | 4120  | 3       | 5880 | 2310 | 1    | 7690     | 2663 | 2    | 7337 | 5647    | 3   | 4353 | 2984 | 2        | 7016 | 52   |       |  |      |  |     |  |      |  |      |  |     |  |
| 9  | 1825    | 2    | 8175 | 4146  | 4       | 5854 | 2321 | 2    | 7679     | 2677 | 2    | 7323 | 5672    | 4   | 4328 | 2995 | 2        | 7005 | 51   |       |  |      |  |     |  |      |  |      |  |     |  |
| 10 | 1839    | 2    | 8161 | 4171  | 4       | 5829 | 2332 | 2    | 7668     | 2691 | 2    | 7309 | 5698    | 4   | 4302 | 3007 | 2        | 6993 | 50   |       |  |      |  |     |  |      |  |      |  |     |  |
| 11 | 1854    | 3    | 8146 | 4197  | 5       | 5803 | 2343 | 2    | 7657     | 2705 | 3    | 7295 | 5723    | 5   | 4277 | 3018 | 2        | 6982 | 49   |       |  |      |  |     |  |      |  |      |  |     |  |
| 12 | 1868    | 3    | 8132 | 4222  | 5       | 5778 | 2354 | 2    | 7646     | 2719 | 3    | 7281 | 5748    | 5   | 4252 | 3030 | 2        | 6970 | 48   |       |  |      |  |     |  |      |  |      |  |     |  |
| 13 | 1883    | 3    | 8118 | 4248  | 5       | 5752 | 2365 | 2    | 7635     | 2733 | 3    | 7267 | 5774    | 5   | 4226 | 3041 | 3        | 6959 | 47   |       |  |      |  |     |  |      |  |      |  |     |  |
| 14 | 1897    | 3    | 8103 | 4273  | 6       | 5727 | 2376 | 3    | 7624     | 2747 | 3    | 7253 | 5799    | 6   | 4201 | 3053 | 3        | 6947 | 46   |       |  |      |  |     |  |      |  |      |  |     |  |
| 15 | 1911    | 4    | 8089 | 4299  | 6       | 5701 | 2387 | 3    | 7613     | 2761 | 3    | 7239 | 5825    | 6   | 4175 | 3064 | 3        | 6936 | 45   |       |  |      |  |     |  |      |  |      |  |     |  |
| 16 | 1926    | 4    | 8074 | 4324  | 7       | 5676 | 2399 | 3    | 7601     | 2775 | 4    | 7225 | 5850    | 7   | 4150 | 3076 | 3        | 6924 | 44   |       |  |      |  |     |  |      |  |      |  |     |  |
| 17 | 1940    | 4    | 8060 | 4350  | 7       | 5650 | 2410 | 3    | 7590     | 2788 | 4    | 7212 | 5875    | 7   | 4125 | 3087 | 3        | 6913 | 43   |       |  |      |  |     |  |      |  |      |  |     |  |
| 18 | 1955    | 4    | 8045 | 4375  | 8       | 5625 | 2421 | 3    | 7579     | 2802 | 4    | 7198 | 5901    | 8   | 4099 | 3098 | 3        | 6902 | 42   |       |  |      |  |     |  |      |  |      |  |     |  |
| 19 | 1969    | 5    | 8031 | 4401  | 8       | 5599 | 2432 | 4    | 7568     | 2816 | 4    | 7184 | 5926    | 8   | 4074 | 3110 | 4        | 6890 | 41   |       |  |      |  |     |  |      |  |      |  |     |  |
| 20 | 1983    | 5    | 8017 | 4426  | 8       | 5574 | 2443 | 4    | 7557     | 2830 | 5    | 7170 | 5952    | 8   | 4048 | 3121 | 4        | 6879 | 40   |       |  |      |  |     |  |      |  |      |  |     |  |
| 21 | 1998    | 5    | 8002 | 4452  | 9       | 5548 | 2454 | 4    | 7546     | 2844 | 5    | 7156 | 5977    | 9   | 4023 | 3133 | 4        | 6867 | 39   |       |  |      |  |     |  |      |  |      |  |     |  |
| 22 | 2012    | 5    | 7988 | 4477  | 9       | 5523 | 2465 | 4    | 7535     | 2858 | 5    | 7142 | 6002    | 9   | 3998 | 3145 | 4        | 6855 | 38   |       |  |      |  |     |  |      |  |      |  |     |  |
| 23 | 2026    | 5    | 7974 | 4503  | 10      | 5497 | 2476 | 4    | 7524     | 2872 | 5    | 7128 | 6028    | 10  | 3972 | 3156 | 4        | 6844 | 37   |       |  |      |  |     |  |      |  |      |  |     |  |
| 24 | 2041    | 6    | 7959 | 4528  | 10      | 5472 | 2487 | 4    | 7513     | 2885 | 6    | 7115 | 6053    | 10  | 3947 | 3168 | 5        | 6832 | 36   |       |  |      |  |     |  |      |  |      |  |     |  |
| 25 | 2055    | 6    | 7945 | 4554  | 11      | 5446 | 2499 | 5    | 7501     | 2899 | 6    | 7101 | 6078    | 11  | 3922 | 3179 | 5        | 6821 | 35   |       |  |      |  |     |  |      |  |      |  |     |  |
| 26 | 2069    | 6    | 7931 | 4579  | 11      | 5421 | 2510 | 5    | 7490     | 2913 | 6    | 7087 | 6104    | 11  | 3896 | 3191 | 5        | 6809 | 34   |       |  |      |  |     |  |      |  |      |  |     |  |
| 27 | 2084    | 6    | 7916 | 4604  | 11      | 5396 | 2521 | 5    | 7479     | 2927 | 6    | 7073 | 6129    | 11  | 3871 | 3202 | 5        | 6798 | 33   |       |  |      |  |     |  |      |  |      |  |     |  |
| 28 | 2098    | 7    | 7902 | 4630  | 12      | 5370 | 2532 | 5    | 7468     | 2941 | 6    | 7059 | 6155    | 12  | 3845 | 3214 | 5        | 6786 | 32   |       |  |      |  |     |  |      |  |      |  |     |  |
| 29 | 2112    | 7    | 7888 | 4655  | 12      | 5345 | 2543 | 5    | 7457     | 2955 | 7    | 7045 | 6180    | 12  | 3820 | 3225 | 6        | 6775 | 31   |       |  |      |  |     |  |      |  |      |  |     |  |
| 30 | 2126    | 7    | 7874 | 4681  | 13      | 5319 | 2554 | 6    | 7446     | 2968 | 7    | 7031 | 6205    | 13  | 3795 | 3237 | 6        | 6763 | 30   |       |  |      |  |     |  |      |  |      |  |     |  |
| 31 | 2141    | 7    | 7859 | 4706  | 13      | 5294 | 2566 | 6    | 7434     | 2982 | 7    | 7017 | 6231    | 13  | 3769 | 3248 | 6        | 6752 | 29   |       |  |      |  |     |  |      |  |      |  |     |  |
| 32 | 2155    | 8    | 7845 | 4732  | 14      | 5268 | 2577 | 6    | 7423     | 2996 | 7    | 7004 | 6256    | 14  | 3744 | 3260 | 6        | 6740 | 28   |       |  |      |  |     |  |      |  |      |  |     |  |
| 33 | 2169    | 8    | 7831 | 4757  | 14      | 5243 | 2588 | 6    | 7412     | 3010 | 8    | 6990 | 6281    | 14  | 3719 | 3272 | 6        | 6728 | 27   |       |  |      |  |     |  |      |  |      |  |     |  |
| 34 | 2184    | 8    | 7816 | 4783  | 14      | 5217 | 2599 | 6    | 7401     | 3023 | 8    | 6977 | 6307    | 14  | 3693 | 3283 | 7        | 6717 | 26   |       |  |      |  |     |  |      |  |      |  |     |  |
| 35 | 2198    | 8    | 7802 | 4808  | 15      | 5192 | 2610 | 7    | 7390     | 3037 | 8    | 6963 | 6332    | 15  | 3668 | 3295 | 7        | 6705 | 25   |       |  |      |  |     |  |      |  |      |  |     |  |
| 36 | 2212    | 9    | 7788 | 4834  | 15      | 5166 | 2622 | 7    | 7378     | 3051 | 8    | 6949 | 6357    | 15  | 3643 | 3306 | 7        | 6694 | 24   |       |  |      |  |     |  |      |  |      |  |     |  |
| 37 | 2226    | 9    | 7774 | 4859  | 16      | 5141 | 2633 | 7    | 7367     | 3065 | 9    | 6935 | 6383    | 16  | 3617 | 3318 | 7        | 6682 | 23   |       |  |      |  |     |  |      |  |      |  |     |  |
| 38 | 2240    | 9    | 7760 | 4884  | 16      | 5116 | 2644 | 7    | 7356     | 3078 | 9    | 6922 | 6408    | 16  | 3592 | 3330 | 7        | 6670 | 22   |       |  |      |  |     |  |      |  |      |  |     |  |
| 39 | 2255    | 9    | 7745 | 4910  | 17      | 5090 | 2655 | 7    | 7345     | 3092 | 9    | 6908 | 6433    | 16  | 3567 | 3341 | 8        | 6659 | 21   |       |  |      |  |     |  |      |  |      |  |     |  |
| 40 | 2269    | 10   | 7731 | 4935  | 17      | 5065 | 2666 | 7    | 7334     | 3106 | 9    | 6894 | 6459    | 17  | 3541 | 3353 | 8        | 6647 | 20   |       |  |      |  |     |  |      |  |      |  |     |  |
| 41 | 2283    | 10   | 7717 | 4961  | 17      | 5039 | 2678 | 8    | 7322     | 3120 | 9    | 6880 | 6484    | 17  | 3516 | 3365 | 8        | 6635 | 19   |       |  |      |  |     |  |      |  |      |  |     |  |
| 42 | 2297    | 10   | 7703 | 4986  | 18      | 5014 | 2689 | 8    | 7311     | 3133 | 10   | 6866 | 6510    | 18  | 3490 | 3376 | 8        | 6624 | 18   |       |  |      |  |     |  |      |  |      |  |     |  |
| 43 | 2311    | 10   | 7689 | 5012  | 18      | 4988 | 2700 | 8    | 7300     | 3147 | 10   | 6853 | 6535    | 18  | 3465 | 3388 | 8        | 6612 | 17   |       |  |      |  |     |  |      |  |      |  |     |  |
| 44 | 2326    | 10   | 7674 | 5037  | 19      | 4963 | 2712 | 8    | 7288     | 3161 | 10   | 6839 | 6560    | 19  | 3440 | 3400 | 8        | 6600 | 16   |       |  |      |  |     |  |      |  |      |  |     |  |
| 45 | 2340    | 11   | 7660 | 5062  | 19      | 4938 | 2723 | 8    | 7277     | 3174 | 10   | 6826 | 6586    | 19  | 3414 | 3411 | 9        | 6589 | 15   |       |  |      |  |     |  |      |  |      |  |     |  |
| 46 | 2354    | 11   | 7646 | 5088  | 20      | 4912 | 2734 | 9    | 7266     | 3188 | 11   | 6812 | 6611    | 19  | 3389 | 3423 | 9        | 6577 | 14   |       |  |      |  |     |  |      |  |      |  |     |  |
| 47 | 2368    | 11   | 7632 | 5113  | 20      | 4887 | 2745 | 9    | 7255     | 3202 | 11   | 6798 | 6636    | 20  | 3364 | 3435 | 9        | 6565 | 13   |       |  |      |  |     |  |      |  |      |  |     |  |
| 48 | 2382    | 11   | 7618 | 5139  | 20      | 4861 | 2757 | 9    | 7243     | 3215 | 11   | 6785 | 6662    | 20  | 3338 | 3446 | 9        | 6554 | 12   |       |  |      |  |     |  |      |  |      |  |     |  |
| 49 | 2396    | 12   | 7604 | 5164  | 21      | 4836 | 2768 | 9    | 7232     | 3229 | 11   | 6771 | 6687    | 21  | 3313 | 3458 | 9        | 6542 | 11   |       |  |      |  |     |  |      |  |      |  |     |  |
| 50 | 2410    | 12   | 7590 | 5190  | 21      | 4810 | 2779 | 9    | 7221     | 3243 | 11   | 6758 | 6712    | 21  | 3288 | 3470 | 10       | 6530 | 10   |       |  |      |  |     |  |      |  |      |  |     |  |
| 51 | 2424    | 12   | 7576 | 5215  | 22      | 4785 | 2791 | 10   | 7209     | 3256 | 12   | 6744 | 6738    | 22  | 3262 | 3482 | 10       | 6518 | 9    |       |  |      |  |     |  |      |  |      |  |     |  |
| 52 | 2439    | 12   | 7561 | 5240  | 22      | 4760 | 2802 | 10   | 7198     | 3270 | 12   | 6730 | 6763    | 22  | 3237 | 3493 | 10       | 6507 | 8    |       |  |      |  |     |  |      |  |      |  |     |  |
| 53 | 2453    | 13   | 7547 | 5266  | 22      | 4734 | 2813 | 10   | 7187     | 3283 | 12   | 6717 | 6788    | 22  | 3212 | 3505 | 10       | 6495 | 7    |       |  |      |  |     |  |      |  |      |  |     |  |
| 54 | 2467    | 13   | 7533 | 5291  | 23      | 4709 | 2825 | 10   | 7175     | 3297 | 12   | 6703 | 6814    | 23  | 3186 | 3517 | 10       | 6483 | 6    |       |  |      |  |     |  |      |  |      |  |     |  |
| 55 | 2481    | 13   | 7519 | 5317  | 23      | 4683 | 2836 | 10   | 7164     | 3310 | 13   | 6690 | 6840    | 23  | 3161 | 3528 | 11       | 6472 | 5    |       |  |      |  |     |  |      |  |      |  |     |  |
| 56 | 2495    | 13   | 7505 | 5342  | 24      | 4658 | 2847 | 10   | 7153     | 3324 | 13   | 6676 | 6864    | 24  | 3136 | 3540 | 11       | 6460 | 4    |       |  |      |  |     |  |      |  |      |  |     |  |
| 57 | 2509    | 14   | 7491 | 5368  | 24      | 4632 | 2859 | 11   | 7141     | 3338 | 13   | 6662 | 6889    | 24  | 3110 | 3552 | 11       | 6448 | 3    |       |  |      |  |     |  |      |  |      |  |     |  |
| 58 | 2523    | 14   | 7477 | 5393  | 25      | 4607 | 2870 | 11   | 7130     | 3351 | 13   | 6649 | 6915    | 25  | 3085 | 3564 | 11       | 6436 | 2    |       |  |      |  |     |  |      |  |      |  |     |  |
| 59 | 2537    | 14   | 7463 | 5418  | 25      | 4582 | 2881 | 11   | 7119     | 3365 | 14   | 6635 | 6940    | 25  | 3060 | 3575 | 11       | 6425 | 1    |       |  |      |  |     |  |      |  |      |  |     |  |
| 60 | 2551    | 14   | 7449 | 5444  | 25      | 4556 | 2893 | 11   | 7107     | 3378 | 14   | 6622 | 6966    | 25  | 3034 | 3587 | 12       | 6413 | 0    |       |  |      |  |     |  |      |  |      |  |     |  |
|    | 9.8     |      | 10.1 | 9.9   |         | 10.0 | 10.1 |      | 9.8      |      |      | 10.1 | 9.9     |     | 10.0 | 10.1 |          | 9.8  |      |       |  |      |  |     |  |      |  |      |  |     |  |
|    | cos. d. |      | sec. |       | cot. d. |      | tan. |      | cosec d. |      | sin. |      | cos. d. |     | tan. |      | cosec d. |      | sin. |       |  |      |  |     |  |      |  |      |  |     |  |

| 43° |      |      |         |      | 136° |      |         |     |      | 44°  |      |      |         |      |      |      |  |  |  |  |
|-----|------|------|---------|------|------|------|---------|-----|------|------|------|------|---------|------|------|------|--|--|--|--|
|     | sin. | d.   | cos.ec. | tan. | d.   | cot. | sec.    | d.  | cos. |      | sin. | d.   | cos.ec. | tan. | d.   |      |  |  |  |  |
|     | 9.8  | 10.1 | 9.9     |      | 10.0 | 10.1 |         | 9.8 |      | 9.8  | 10.1 | 9.9  |         |      |      |      |  |  |  |  |
| 0   | 3378 | 0    | 6622    | 6966 | 0    | 3034 | 3587    | 0   | 6413 | 4177 | 0    | 5823 | 8484    | 0    |      |      |  |  |  |  |
| 1   | 3392 | 0    | 6608    | 6991 | 0    | 3009 | 3599    | 0   | 6401 | 4190 | 0    | 5810 | 8509    | 0    |      |      |  |  |  |  |
| 2   | 3405 | 0    | 6595    | 7016 | 1    | 2984 | 3611    | 0   | 6389 | 4203 | 0    | 5797 | 8534    | 1    |      |      |  |  |  |  |
| 3   | 3419 | 1    | 6581    | 7042 | 1    | 2958 | 3623    | 1   | 6377 | 4216 | 1    | 5784 | 8560    | 1    |      |      |  |  |  |  |
| 4   | 3432 | 1    | 6568    | 7067 | 2    | 2933 | 3634    | 1   | 6366 | 4229 | 1    | 5771 | 8585    | 2    |      |      |  |  |  |  |
| 5   | 3446 | 1    | 6554    | 7092 | 2    | 2908 | 3646    | 1   | 6354 | 4242 | 1    | 5758 | 8610    | 2    |      |      |  |  |  |  |
| 6   | 3459 | 1    | 6541    | 7118 | 3    | 2882 | 3658    | 1   | 6342 | 4255 | 1    | 5745 | 8635    | 3    |      |      |  |  |  |  |
| 7   | 3473 | 2    | 6527    | 7143 | 3    | 2857 | 3670    | 1   | 6330 | 4269 | 2    | 5731 | 8661    | 3    |      |      |  |  |  |  |
| 8   | 3486 | 2    | 6514    | 7168 | 3    | 2832 | 3682    | 2   | 6318 | 4282 | 2    | 5718 | 8686    | 3    |      |      |  |  |  |  |
| 9   | 3500 | 2    | 6500    | 7193 | 4    | 2807 | 3694    | 2   | 6306 | 4295 | 2    | 5705 | 8711    | 4    |      |      |  |  |  |  |
| 10  | 3513 | 2    | 6487    | 7219 | 4    | 2781 | 3705    | 2   | 6295 | 4308 | 2    | 5692 | 8737    | 4    |      |      |  |  |  |  |
| 11  | 3527 | 2    | 6473    | 7244 | 5    | 2756 | 3717    | 2   | 6283 | 4321 | 2    | 5679 | 8762    | 5    |      |      |  |  |  |  |
| 12  | 3540 | 3    | 6460    | 7269 | 5    | 2731 | 3729    | 2   | 6271 | 4334 | 3    | 5666 | 8787    | 5    |      |      |  |  |  |  |
| 13  | 3554 | 3    | 6446    | 7295 | 5    | 2705 | 3741    | 3   | 6259 | 4347 | 3    | 5653 | 8812    | 5    |      |      |  |  |  |  |
| 14  | 3567 | 3    | 6433    | 7320 | 6    | 2680 | 3753    | 3   | 6247 | 4360 | 3    | 5640 | 8838    | 6    |      |      |  |  |  |  |
| 15  | 3581 | 3    | 6419    | 7345 | 6    | 2655 | 3765    | 3   | 6235 | 4373 | 3    | 5627 | 8863    | 6    |      |      |  |  |  |  |
| 16  | 3594 | 4    | 6406    | 7371 | 7    | 2629 | 3777    | 3   | 6223 | 4385 | 3    | 5615 | 8888    | 7    |      |      |  |  |  |  |
| 17  | 3608 | 4    | 6392    | 7396 | 7    | 2604 | 3789    | 3   | 6211 | 4398 | 4    | 5602 | 8913    | 7    |      |      |  |  |  |  |
| 18  | 3621 | 4    | 6379    | 7421 | 8    | 2579 | 3800    | 4   | 6200 | 4411 | 4    | 5589 | 8939    | 8    |      |      |  |  |  |  |
| 19  | 3634 | 4    | 6366    | 7447 | 8    | 2553 | 3812    | 4   | 6188 | 4424 | 4    | 5576 | 8964    | 8    |      |      |  |  |  |  |
| 20  | 3648 | 4    | 6352    | 7472 | 8    | 2528 | 3824    | 4   | 6176 | 4437 | 4    | 5563 | 8989    | 8    |      |      |  |  |  |  |
| 21  | 3661 | 5    | 6339    | 7497 | 9    | 2503 | 3836    | 4   | 6164 | 4450 | 5    | 5550 | 9015    | 9    |      |      |  |  |  |  |
| 22  | 3674 | 5    | 6326    | 7523 | 9    | 2477 | 3848    | 4   | 6152 | 4463 | 5    | 5537 | 9040    | 9    |      |      |  |  |  |  |
| 23  | 3688 | 5    | 6312    | 7548 | 10   | 2452 | 3860    | 5   | 6140 | 4476 | 5    | 5524 | 9065    | 10   |      |      |  |  |  |  |
| 24  | 3701 | 5    | 6299    | 7573 | 10   | 2427 | 3872    | 5   | 6128 | 4489 | 5    | 5511 | 9090    | 10   |      |      |  |  |  |  |
| 25  | 3715 | 6    | 6285    | 7598 | 11   | 2402 | 3884    | 5   | 6116 | 4502 | 5    | 5498 | 9116    | 11   |      |      |  |  |  |  |
| 26  | 3728 | 6    | 6272    | 7624 | 11   | 2376 | 3896    | 5   | 6104 | 4515 | 6    | 5485 | 9141    | 11   |      |      |  |  |  |  |
| 27  | 3741 | 6    | 6259    | 7649 | 11   | 2351 | 3908    | 5   | 6092 | 4528 | 6    | 5472 | 9166    | 11   |      |      |  |  |  |  |
| 28  | 3755 | 6    | 6245    | 7674 | 12   | 2326 | 3920    | 6   | 6080 | 4540 | 6    | 5460 | 9191    | 12   |      |      |  |  |  |  |
| 29  | 3768 | 6    | 6232    | 7700 | 12   | 2300 | 3932    | 6   | 6068 | 4553 | 6    | 5447 | 9217    | 12   |      |      |  |  |  |  |
| 30  | 3781 | 7    | 6219    | 7725 | 13   | 2275 | 3944    | 6   | 6056 | 4566 | 6    | 5434 | 9242    | 13   |      |      |  |  |  |  |
| 31  | 3795 | 7    | 6205    | 7750 | 13   | 2250 | 3956    | 6   | 6044 | 4579 | 7    | 5421 | 9267    | 13   |      |      |  |  |  |  |
| 32  | 3808 | 7    | 6192    | 7776 | 13   | 2224 | 3968    | 6   | 6032 | 4592 | 7    | 5408 | 9293    | 13   |      |      |  |  |  |  |
| 33  | 3821 | 7    | 6179    | 7801 | 14   | 2199 | 3980    | 7   | 6020 | 4605 | 7    | 5395 | 9318    | 14   |      |      |  |  |  |  |
| 34  | 3834 | 8    | 6166    | 7826 | 14   | 2174 | 3992    | 7   | 6008 | 4618 | 7    | 5382 | 9343    | 14   |      |      |  |  |  |  |
| 35  | 3848 | 8    | 6152    | 7851 | 15   | 2149 | 4004    | 7   | 5996 | 4630 | 8    | 5370 | 9368    | 15   |      |      |  |  |  |  |
| 36  | 3861 | 8    | 6139    | 7877 | 15   | 2123 | 4016    | 7   | 5984 | 4643 | 8    | 5357 | 9394    | 15   |      |      |  |  |  |  |
| 37  | 3874 | 8    | 6126    | 7902 | 16   | 2098 | 4028    | 7   | 5972 | 4656 | 8    | 5344 | 9419    | 16   |      |      |  |  |  |  |
| 38  | 3887 | 8    | 6113    | 7927 | 16   | 2073 | 4040    | 8   | 5960 | 4669 | 8    | 5331 | 9444    | 16   |      |      |  |  |  |  |
| 39  | 3901 | 9    | 6099    | 7953 | 16   | 2047 | 4052    | 8   | 5948 | 4682 | 8    | 5318 | 9469    | 16   |      |      |  |  |  |  |
| 40  | 3914 | 9    | 6086    | 7978 | 17   | 2022 | 4064    | 8   | 5936 | 4694 | 9    | 5306 | 9495    | 17   |      |      |  |  |  |  |
| 41  | 3927 | 9    | 6073    | 8003 | 17   | 1997 | 4076    | 8   | 5924 | 4707 | 9    | 5293 | 9520    | 17   |      |      |  |  |  |  |
| 42  | 3940 | 9    | 6060    | 8029 | 18   | 1971 | 4088    | 8   | 5912 | 4720 | 9    | 5280 | 9545    | 18   |      |      |  |  |  |  |
| 43  | 3954 | 10   | 6046    | 8054 | 18   | 1946 | 4100    | 9   | 5900 | 4733 | 9    | 5267 | 9570    | 18   |      |      |  |  |  |  |
| 44  | 3967 | 10   | 6033    | 8079 | 19   | 1921 | 4112    | 9   | 5888 | 4745 | 9    | 5255 | 9596    | 19   |      |      |  |  |  |  |
| 45  | 3980 | 10   | 6020    | 8104 | 19   | 1896 | 4124    | 9   | 5876 | 4758 | 10   | 5242 | 9621    | 19   |      |      |  |  |  |  |
| 46  | 3993 | 10   | 6007    | 8130 | 19   | 1870 | 4136    | 9   | 5864 | 4771 | 10   | 5229 | 9646    | 19   |      |      |  |  |  |  |
| 47  | 4006 | 10   | 5994    | 8155 | 20   | 1845 | 4149    | 9   | 5851 | 4784 | 10   | 5216 | 9672    | 20   |      |      |  |  |  |  |
| 48  | 4020 | 11   | 5980    | 8180 | 20   | 1820 | 4161    | 10  | 5839 | 4796 | 10   | 5204 | 9697    | 20   |      |      |  |  |  |  |
| 49  | 4033 | 11   | 5967    | 8206 | 21   | 1794 | 4173    | 10  | 5827 | 4809 | 11   | 5191 | 9722    | 21   |      |      |  |  |  |  |
| 50  | 4046 | 11   | 5954    | 8231 | 21   | 1769 | 4185    | 10  | 5815 | 4822 | 11   | 5178 | 9747    | 21   |      |      |  |  |  |  |
| 51  | 4059 | 11   | 5941    | 8256 | 22   | 1744 | 4197    | 10  | 5803 | 4835 | 11   | 5165 | 9773    | 21   |      |      |  |  |  |  |
| 52  | 4072 | 12   | 5928    | 8281 | 22   | 1719 | 4209    | 10  | 5791 | 4847 | 11   | 5153 | 9798    | 22   |      |      |  |  |  |  |
| 53  | 4085 | 12   | 5915    | 8307 | 22   | 1693 | 4221    | 11  | 5779 | 4860 | 11   | 5140 | 9823    | 22   |      |      |  |  |  |  |
| 54  | 4098 | 12   | 5902    | 8332 | 23   | 1668 | 4234    | 11  | 5766 | 4873 | 12   | 5127 | 9848    | 23   |      |      |  |  |  |  |
| 55  | 4112 | 12   | 5888    | 8357 | 23   | 1643 | 4246    | 11  | 5754 | 4885 | 12   | 5115 | 9874    | 23   |      |      |  |  |  |  |
| 56  | 4125 | 12   | 5875    | 8383 | 24   | 1617 | 4258    | 11  | 5742 | 4898 | 12   | 5102 | 9899    | 24   |      |      |  |  |  |  |
| 57  | 4138 | 13   | 5862    | 8408 | 24   | 1592 | 4270    | 11  | 5730 | 4911 | 12   | 5089 | 9924    | 24   |      |      |  |  |  |  |
| 58  | 4151 | 13   | 5849    | 8433 | 24   | 1567 | 4282    | 12  | 5718 | 4923 | 12   | 5077 | 9949    | 24   |      |      |  |  |  |  |
| 59  | 4164 | 13   | 5836    | 8458 | 25   | 1542 | 4294    | 12  | 5706 | 4936 | 13   | 5064 | 9975    | 25   |      |      |  |  |  |  |
| 60  | 4177 | 13   | 5823    | 8484 | 25   | 1516 | 4307    | 12  | 5693 | 4949 | 13   | 5051 | 10000   | 25   |      |      |  |  |  |  |
|     | 9.8  | 10.1 | 9.9     |      | 10.0 | 10.1 |         | 9.8 |      | 9.8  | 10.1 | 9.9  |         | 10.0 | 10.1 |      |  |  |  |  |
|     | cos. | d.   | sec.    | cot. | d.   | tan. | cos.ec. | d.  | sin. |      | cos. | d.   | sec.    | cot. | d.   | tan. |  |  |  |  |
|     | 133° |      |         |      |      | 46°  |         |     |      |      | 134° |      |         |      |      | 45°  |  |  |  |  |



9 5175  
16 9 5162  
17 9 5150  
15 9 5137  
14 9 5125  
13 9 5112  
12 9 5100  
11 9 5087  
10 9 5074  
9 9 5062  
8 9 5049  
7 9 5037  
6 9 5024  
5 9 5012  
4 9 4999  
3 9 4986  
2 9 4974  
1 9 4961  
0 9 4949



VERSE TABLE,

OR

TABLE

OF

ANCE OF LATITUDE

AND

DEPARTURE.

| Course |      | Dist. 1   |           | Dist. 2   |           | Dist. 3   |           | Dist. 4   |           | Course |       |
|--------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|-------|
| point  | deg. | dif. lat. | dep.      | dif. lat. | dep.      | dif. lat. | dep.      | dif. lat. | dep.      | deg.   | point |
| 0      | 0°   | 1.00000   | 0.00000   | 2.00000   | 0.00000   | 3.00000   | 0.00000   | 4.00000   | 0.00000   | 90°    | 8     |
|        | 15'  | 0.99999   | 0.0436    | 1.99998   | 0.0873    | 2.99997   | 0.1309    | 3.99996   | 0.1745    | 45°    |       |
|        | 30'  | 0.99996   | 0.0873    | 1.99992   | 0.1745    | 2.99989   | 0.2618    | 3.99986   | 0.3491    | 30°    |       |
|        | 45'  | 0.99991   | 0.1309    | 1.99983   | 0.2618    | 2.99974   | 0.3491    | 3.99966   | 0.5236    | 15°    |       |
|        | 1°   | 0.99985   | 0.01745   | 1.99970   | 0.03490   | 2.99954   | 0.05236   | 3.99939   | 0.06981   | 89°    |       |
|        | 15'  | 0.99976   | 0.2181    | 1.99952   | 0.4363    | 2.99929   | 0.6544    | 3.99905   | 0.8726    | 45°    |       |
|        | 30'  | 0.99966   | 0.2618    | 1.99931   | 0.5235    | 2.99897   | 0.7853    | 3.99863   | 1.0471    | 30°    |       |
|        | 45'  | 0.99953   | 0.3054    | 1.99907   | 0.6108    | 2.99860   | 0.9162    | 3.99813   | 1.2215    | 15°    |       |
|        | 2°   | 0.99939   | 0.0349    | 1.99878   | 0.06980   | 2.99817   | 0.10470   | 3.99756   | 0.13960   | 88°    |       |
|        | 15'  | 0.99923   | 0.3926    | 1.99846   | 0.7852    | 2.99769   | 1.1778    | 3.99692   | 1.5704    | 45°    |       |
|        | 30'  | 0.99905   | 0.4362    | 1.99810   | 0.8724    | 2.99714   | 1.3086    | 3.99619   | 1.7448    | 30°    |       |
|        | 45'  | 0.99885   | 0.4798    | 1.99770   | 0.9596    | 2.99655   | 1.4393    | 3.99539   | 1.9191    | 15°    |       |
|        | 3°   | 0.99880   | 0.04907   | 1.99759   | 0.09814   | 2.99639   | 0.14720   | 3.99518   | 0.19627   | 87°    | 7     |
|        | 15'  | 0.99863   | 0.05234   | 1.99726   | 0.10467   | 2.99589   | 0.15701   | 3.99452   | 0.20934   | 75°    |       |
|        | 30'  | 0.99839   | 0.5669    | 1.99678   | 1.1339    | 2.99518   | 1.7008    | 3.99357   | 2.2677    | 45°    |       |
|        | 45'  | 0.99813   | 0.6105    | 1.99627   | 1.2110    | 2.99440   | 1.8315    | 3.99254   | 2.4419    | 30°    |       |
|        | 1°   | 0.99786   | 0.6540    | 1.99572   | 1.3081    | 2.99358   | 1.9621    | 3.99144   | 2.6161    | 15°    |       |
|        | 4°   | 0.99756   | 0.06976   | 1.99513   | 0.13951   | 2.99269   | 0.20927   | 3.99026   | 0.27903   | 86°    |       |
|        | 15'  | 0.99725   | 0.7411    | 1.99450   | 1.4822    | 2.99175   | 2.2233    | 3.98900   | 2.9643    | 45°    |       |
|        | 30'  | 0.99692   | 0.7842    | 1.99383   | 1.5692    | 2.99075   | 2.3538    | 3.98767   | 3.1384    | 30°    |       |
|        | 45'  | 0.99657   | 0.8281    | 1.99313   | 1.6562    | 2.98970   | 2.4842    | 3.98636   | 3.3123    | 15°    |       |
|        | 5°   | 0.99619   | 0.8716    | 1.99239   | 0.17431   | 2.98858   | 0.26147   | 3.98478   | 0.34802   | 85°    |       |
|        | 15'  | 0.99580   | 0.9150    | 1.99161   | 1.8300    | 2.98741   | 2.7450    | 3.98322   | 3.6601    | 45°    |       |
|        | 30'  | 0.99540   | 0.9585    | 1.99079   | 1.9169    | 2.98619   | 2.8754    | 3.98158   | 3.8338    | 30°    |       |
|        | 1°   | 0.99518   | 0.09802   | 1.99037   | 0.19603   | 2.98555   | 0.29415   | 3.98074   | 0.39207   | 84°    | 7     |
|        | 45'  | 0.99497   | 1.0019    | 1.98994   | 2.0038    | 2.98491   | 3.0056    | 3.97987   | 4.0075    | 15°    |       |
|        | 6°   | 0.99452   | 0.10453   | 1.98904   | 0.20906   | 2.98357   | 0.31359   | 3.97809   | 0.41811   | 84°    |       |
|        | 15'  | 0.99406   | 1.0887    | 1.98811   | 2.1773    | 2.98217   | 3.2660    | 3.97623   | 4.3547    | 45°    |       |
|        | 30'  | 0.99357   | 1.1320    | 1.98714   | 2.2641    | 2.98072   | 3.3961    | 3.97429   | 4.5281    | 30°    |       |
|        | 45'  | 0.99307   | 1.1754    | 1.98614   | 2.3507    | 2.97921   | 3.5261    | 3.97227   | 4.7015    | 15°    |       |
|        | 7°   | 0.99255   | 0.12187   | 1.98509   | 0.24374   | 2.97764   | 0.36561   | 3.97018   | 0.48748   | 83°    |       |
|        | 15'  | 0.99200   | 1.2620    | 1.98401   | 2.5240    | 2.97601   | 3.7860    | 3.96802   | 5.0480    | 45°    |       |
|        | 30'  | 0.99144   | 1.3053    | 1.98289   | 2.6105    | 2.97433   | 3.9158    | 3.96598   | 5.2210    | 30°    |       |
|        | 45'  | 0.99087   | 1.3485    | 1.98173   | 2.6970    | 2.97260   | 4.0455    | 3.96346   | 5.3940    | 15°    |       |
|        | 8°   | 0.99027   | 0.13917   | 1.98054   | 0.27835   | 2.97080   | 0.41752   | 3.96107   | 0.55699   | 82°    |       |
|        | 15'  | 0.98965   | 1.4349    | 1.97930   | 2.8699    | 2.96905   | 4.3048    | 3.95861   | 5.7397    | 45°    |       |
|        | 3°   | 0.98901   | 0.14673   | 1.97835   | 0.29346   | 2.96753   | 0.44019   | 3.95671   | 0.56692   | 81°    | 7     |
|        | 45'  | 0.98802   | 1.4781    | 1.97703   | 2.9562    | 2.96505   | 4.4433    | 3.95460   | 5.9124    | 30°    |       |
|        | 1°   | 0.98736   | 1.5212    | 1.97672   | 3.0425    | 2.96308   | 4.5637    | 3.95245   | 6.0849    | 15°    |       |
|        | 9°   | 0.98679   | 0.15643   | 1.97538   | 0.31287   | 2.96107   | 0.46930   | 3.95075   | 0.61574   | 81°    |       |
|        | 15'  | 0.98600   | 1.6074    | 1.97399   | 3.2149    | 2.95909   | 4.8223    | 3.94799   | 6.4297    | 45°    |       |
|        | 30'  | 0.98529   | 1.6505    | 1.97257   | 3.3010    | 2.95886   | 4.9514    | 3.94514   | 6.6019    | 30°    |       |
|        | 45'  | 0.98455   | 1.6935    | 1.97111   | 3.3870    | 2.95667   | 5.0805    | 3.94222   | 6.7740    | 15°    |       |
|        | 10°  | 0.98381   | 0.17365   | 1.96962   | 0.34730   | 2.95442   | 0.52094   | 3.93923   | 0.69459   | 80°    |       |
|        | 15'  | 0.98304   | 1.7794    | 1.96808   | 3.5589    | 2.95212   | 5.3383    | 3.93616   | 7.1177    | 45°    |       |
|        | 30'  | 0.98225   | 1.8224    | 1.96651   | 3.6447    | 2.94976   | 5.4671    | 3.93302   | 7.2894    | 30°    |       |
|        | 45'  | 0.98145   | 1.8652    | 1.96490   | 3.7305    | 2.94735   | 5.5957    | 3.92980   | 7.4610    | 15°    |       |
|        | 11°  | 0.98163   | 0.19081   | 1.96325   | 0.38162   | 2.94488   | 0.57243   | 3.92651   | 0.76324   | 79°    |       |
|        | 1°   | 0.98079   | 0.19599   | 1.96157   | 0.39018   | 2.94236   | 0.58527   | 3.92314   | 0.78036   | 45°    | 7     |
|        | 30'  | 0.97997   | 1.9937    | 1.95985   | 3.9874    | 2.93977   | 5.9810    | 3.91970   | 7.9747    | 30°    |       |
|        | 45'  | 0.97905   | 2.0364    | 1.95809   | 4.0728    | 2.93714   | 6.1093    | 3.91618   | 8.1457    | 15°    |       |
|        | 12°  | 0.97815   | 0.20791   | 1.95630   | 0.41582   | 2.93444   | 0.62374   | 3.91259   | 0.83165   | 78°    |       |
|        | 15'  | 0.97723   | 2.1218    | 1.95446   | 4.2436    | 2.93169   | 6.3653    | 3.90892   | 8.4871    | 45°    |       |
|        | 30'  | 0.97630   | 2.1644    | 1.95259   | 4.3288    | 2.92889   | 6.4932    | 3.90518   | 8.6576    | 30°    |       |
|        | 45'  | 0.97534   | 2.2070    | 1.95068   | 4.4139    | 2.92603   | 6.6209    | 3.90137   | 8.8279    | 15°    |       |
|        | 13°  | 0.97437   | 0.22495   | 1.94874   | 0.44990   | 2.92311   | 0.67485   | 3.89748   | 0.89980   | 77°    |       |
|        | 15'  | 0.97338   | 2.2920    | 1.94676   | 4.5840    | 2.92014   | 6.8760    | 3.89352   | 9.1680    | 45°    |       |
|        | 30'  | 0.97237   | 2.3345    | 1.94474   | 4.6689    | 2.91711   | 7.0034    | 3.88948   | 9.3378    | 30°    |       |
|        | 45'  | 0.97134   | 2.3769    | 1.94268   | 4.7537    | 2.91403   | 7.1306    | 3.88537   | 9.5074    | 15°    |       |
|        | 14°  | 0.97030   | 0.24192   | 1.94059   | 0.48384   | 2.91089   | 0.72577   | 3.88118   | 0.96769   | 76°    |       |
|        | 1°   | 0.96903   | 0.24298   | 1.94006   | 0.48596   | 2.91009   | 0.72894   | 3.88013   | 0.97192   | 6      | 6     |
|        | 15'  | 0.96823   | 2.4615    | 1.93846   | 4.9231    | 2.90769   | 7.3846    | 3.87692   | 9.9461    | 45°    |       |
|        | 30'  | 0.96715   | 2.5038    | 1.93630   | 5.0076    | 2.90444   | 7.5114    | 3.87259   | 1.00152   | 30°    |       |
|        | 45'  | 0.96705   | 2.5460    | 1.93409   | 5.0920    | 2.90114   | 7.6381    | 3.86818   | 1.01841   | 15°    |       |
|        | 15°  | 0.96593   | 0.25882   | 1.93185   | 0.51764   | 2.89778   | 0.77646   | 3.86370   | 1.03528   | 75°    |       |
| point  | deg. | dep.      | dif. lat. | dep.      | dif. lat. | dep.      | dif. lat. | dep.      | dif. lat. | deg.   | point |
| Course |      | Dist. 1   |           | Dist. 2   |           | Dist. 3   |           | Dist. 4   |           | Course |       |



TRAVERSE TABLE.

| Course |      | Dist. 5   |        | Dist. 6   |        | Dist. 7   |        | Dist. 8   |        | Dist. 9   |        | Course |        |
|--------|------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|--------|--------|
| points | deg. | dif. lat. | dep.   | dif. lat. | dep.   | dif. lat. | dep.   | dif. lat. | dep.   | dif. lat. | dep.   | deg.   | points |
| 0      | 0°   | 5.0000    | 0.0000 | 6.0000    | 0.0000 | 7.0000    | 0.0000 | 8.0000    | 0.0000 | 9.0000    | 0.0000 | 90°    | 8      |
|        | 15'  | 5.0000    | 0218   | 5.9999    | 0262   | 6.9999    | 0305   | 7.9999    | 0349   | 8.9999    | 0393   | 45'    |        |
|        | 30'  | 4.9998    | 0436   | 5.9998    | 0524   | 6.9997    | 0611   | 7.9997    | 0698   | 8.9997    | 0785   | 30'    |        |
|        | 45'  | 4.9996    | 0654   | 5.9995    | 0785   | 6.9994    | 0916   | 7.9993    | 1047   | 8.9992    | 1178   | 15'    |        |
| 1      | 0°   | 4.9992    | 0.0873 | 5.9991    | 0.1047 | 6.9989    | 0.1222 | 7.9988    | 0.1396 | 8.9986    | 0.1571 | 89°    |        |
|        | 15'  | 4.9988    | 1091   | 5.9986    | 1309   | 6.9983    | 1527   | 7.9981    | 1745   | 8.9979    | 1963   | 45'    |        |
|        | 30'  | 4.9983    | 1309   | 5.9979    | 1571   | 6.9976    | 1832   | 7.9973    | 2094   | 8.9969    | 2356   | 30'    |        |
|        | 45'  | 4.9977    | 1527   | 5.9972    | 1832   | 6.9967    | 2138   | 7.9963    | 2443   | 8.9958    | 2748   | 15'    |        |
| 2      | 0°   | 4.9970    | 0.1745 | 5.9963    | 0.2094 | 6.9957    | 0.2443 | 7.9951    | 0.2792 | 8.9945    | 0.3141 | 88°    |        |
|        | 15'  | 4.9961    | 1963   | 5.9954    | 2356   | 6.9946    | 2748   | 7.9938    | 3141   | 8.9931    | 3533   | 45'    |        |
|        | 30'  | 4.9952    | 2181   | 5.9943    | 2617   | 6.9933    | 3053   | 7.9924    | 3490   | 8.9914    | 3926   | 30'    |        |
|        | 45'  | 4.9942    | 2399   | 5.9931    | 2879   | 6.9919    | 3358   | 7.9908    | 3838   | 8.9896    | 4318   | 15'    |        |
| 3      | 0°   | 4.9940    | 0.2453 | 5.9928    | 0.2944 | 6.9916    | 0.3435 | 7.9904    | 0.3925 | 8.9892    | 0.4416 | 87°    |        |
|        | 15'  | 4.9931    | 0.2617 | 5.9918    | 0.3140 | 6.9904    | 0.3664 | 7.9890    | 0.4187 | 8.9877    | 0.4710 | 87°    |        |
|        | 30'  | 4.9920    | 2835   | 5.9904    | 3402   | 6.9887    | 3668   | 7.9871    | 4535   | 8.9855    | 5102   | 45'    |        |
|        | 45'  | 4.9907    | 3052   | 5.9888    | 3663   | 6.9869    | 4273   | 7.9851    | 4884   | 8.9832    | 5404   | 30'    |        |
| 4      | 0°   | 4.9893    | 3270   | 5.9872    | 3924   | 6.9850    | 4578   | 7.9829    | 5232   | 8.9807    | 5886   | 15'    |        |
|        | 15'  | 4.9878    | 0.3488 | 5.9854    | 0.4185 | 6.9829    | 0.4883 | 7.9805    | 0.5581 | 8.9781    | 0.6278 | 86°    |        |
|        | 30'  | 4.9863    | 3705   | 5.9835    | 4447   | 6.9808    | 5188   | 7.9780    | 5929   | 8.9753    | 6670   | 45'    |        |
|        | 45'  | 4.9846    | 3923   | 5.9815    | 4708   | 6.9784    | 5492   | 7.9753    | 6277   | 8.9723    | 7061   | 30'    |        |
| 5      | 0°   | 4.9828    | 4140   | 5.9794    | 4668   | 6.9760    | 5797   | 7.9725    | 6625   | 8.9691    | 7453   | 15'    |        |
|        | 15'  | 4.9810    | 0.4358 | 5.9772    | 0.5229 | 6.9734    | 0.6101 | 7.9696    | 0.6972 | 8.9658    | 0.7844 | 85°    |        |
|        | 30'  | 4.9790    | 4575   | 5.9748    | 5490   | 6.9706    | 6405   | 7.9664    | 7320   | 8.9622    | 8235   | 45'    |        |
|        | 45'  | 4.9770    | 4792   | 5.9724    | 5751   | 6.9678    | 6709   | 7.9632    | 7668   | 8.9586    | 8626   | 30'    |        |
| 6      | 0°   | 4.9750    | 0.4901 | 5.9711    | 0.5881 | 6.9663    | 0.6861 | 7.9615    | 0.7841 | 8.9567    | 0.8822 | 85°    |        |
|        | 15'  | 4.9748    | 5009   | 5.9698    | 6011   | 6.9648    | 7013   | 7.9597    | 8015   | 8.9547    | 9017   | 15'    |        |
|        | 30'  | 4.9726    | 0.5226 | 5.9671    | 0.6272 | 6.9617    | 0.7317 | 7.9566    | 0.8362 | 8.9507    | 0.9408 | 84°    |        |
|        | 45'  | 4.9703    | 5443   | 5.9643    | 6532   | 6.9584    | 7621   | 7.9525    | 8709   | 8.9465    | 0.9798 | 45'    |        |
| 7      | 0°   | 4.9679    | 5660   | 5.9614    | 6792   | 6.9550    | 7924   | 7.9486    | 9056   | 8.9421    | 1.0188 | 30'    |        |
|        | 15'  | 4.9653    | 5877   | 5.9584    | 7052   | 6.9515    | 8228   | 7.9445    | 9403   | 8.9376    | 0.578  | 15'    |        |
|        | 30'  | 4.9627    | 0.6093 | 5.9553    | 0.7312 | 6.9478    | 0.8531 | 7.9404    | 0.9750 | 8.9329    | 1.0968 | 83°    |        |
|        | 45'  | 4.9600    | 6310   | 5.9520    | 7572   | 6.9440    | 8834   | 7.9360    | 1.0066 | 8.9280    | 1.358  | 45'    |        |
| 8      | 0°   | 4.9572    | 6526   | 5.9487    | 7832   | 6.9401    | 9137   | 7.9316    | 0.442  | 8.9230    | 1.747  | 30'    |        |
|        | 15'  | 4.9543    | 6743   | 5.9452    | 8091   | 6.9361    | 9440   | 7.9269    | 0.788  | 8.9178    | 2.137  | 15'    |        |
|        | 30'  | 4.9513    | 0.6959 | 5.9416    | 0.8350 | 6.9319    | 0.9742 | 7.9221    | 1.1134 | 8.9124    | 1.2526 | 82°    |        |
|        | 45'  | 4.9483    | 7175   | 5.9379    | 8610   | 6.9276    | 1.0044 | 7.9172    | 1.479  | 8.9069    | 2.914  | 45'    |        |
| 9      | 0°   | 4.9459    | 0.7337 | 5.9351    | 0.8804 | 6.9242    | 1.0271 | 7.9134    | 1.738  | 8.9026    | 1.3206 | 81°    |        |
|        | 15'  | 4.9451    | 7390   | 5.9341    | 8869   | 6.9231    | 0.347  | 7.9121    | 1.825  | 8.9011    | 3.303  | 30'    |        |
|        | 30'  | 4.9418    | 7606   | 5.9302    | 9127   | 6.9185    | 0.649  | 7.9069    | 2.170  | 8.8953    | 3.691  | 15'    |        |
|        | 45'  | 4.9384    | 0.7822 | 5.9261    | 0.9386 | 6.9138    | 1.0950 | 7.9015    | 1.2515 | 8.8892    | 1.4079 | 81°    |        |
| 10     | 0°   | 4.9350    | 8037   | 5.9220    | 9645   | 6.9090    | 1.252  | 7.8960    | 2.659  | 8.8830    | 4.677  | 45'    |        |
|        | 15'  | 4.9314    | 8252   | 5.9177    | 0.9903 | 6.9040    | 1.553  | 7.8903    | 3.204  | 8.8766    | 4.854  | 30'    |        |
|        | 30'  | 4.9278    | 8467   | 5.9133    | 1.0161 | 6.8989    | 1.854  | 7.8844    | 3.548  | 8.8700    | 5.241  | 15'    |        |
|        | 45'  | 4.9240    | 0.8685 | 5.9088    | 1.0419 | 6.8937    | 1.2155 | 7.8785    | 1.3892 | 8.8633    | 1.5628 | 80°    |        |
| 11     | 0°   | 4.9202    | 8897   | 5.9042    | 0.677  | 6.8883    | 2.456  | 7.8723    | 4.235  | 8.8564    | 6.015  | 45'    |        |
|        | 15'  | 4.9163    | 9112   | 5.8995    | 0.934  | 6.8828    | 2.756  | 7.8660    | 4.579  | 8.8493    | 6.401  | 30'    |        |
|        | 30'  | 4.9123    | 9326   | 5.8947    | 1.191  | 6.8772    | 3.057  | 7.8596    | 4.922  | 8.8421    | 6.787  | 15'    |        |
|        | 45'  | 4.9081    | 0.9540 | 5.8898    | 1.1449 | 6.8714    | 1.3357 | 7.8530    | 1.5265 | 8.8346    | 1.7173 | 79°    |        |
| 12     | 0°   | 4.9039    | 0.9755 | 5.8847    | 1.1705 | 6.8655    | 1.3656 | 7.8463    | 1.5607 | 8.8271    | 1.7558 | 45'    |        |
|        | 15'  | 4.9006    | 0.9968 | 5.8795    | 1.662  | 6.8595    | 3.956  | 7.8394    | 5.949  | 8.8193    | 7.943  | 30'    |        |
|        | 30'  | 4.8952    | 1.0182 | 5.8743    | 2.219  | 6.8533    | 4.255  | 7.8324    | 6.291  | 8.8114    | 8.328  | 15'    |        |
|        | 45'  | 4.8907    | 1.0396 | 5.8689    | 1.2475 | 6.8470    | 1.4554 | 7.8252    | 1.6633 | 8.8033    | 1.8712 | 78°    |        |
| 13     | 0°   | 4.8862    | 0.609  | 5.8634    | 2.731  | 6.8406    | 4.852  | 7.8178    | 6.974  | 8.7951    | 9.096  | 45'    |        |
|        | 15'  | 4.8815    | 0.822  | 5.8578    | 2.986  | 6.8341    | 5.151  | 7.8104    | 7.315  | 8.7867    | 9.480  | 30'    |        |
|        | 30'  | 4.8767    | 1.035  | 5.8521    | 3.242  | 6.8274    | 5.449  | 7.8027    | 7.656  | 8.7781    | 9.863  | 15'    |        |
|        | 45'  | 4.8719    | 1.1248 | 5.8465    | 1.3497 | 6.8206    | 1.5747 | 7.7950    | 1.7996 | 8.7693    | 2.0246 | 77°    |        |
| 14     | 0°   | 4.8669    | 1.460  | 5.8403    | 3.752  | 6.8137    | 6.044  | 7.7870    | 8.336  | 8.7604    | 0.628  | 45'    |        |
|        | 15'  | 4.8618    | 1.672  | 5.8342    | 4.007  | 6.8066    | 6.341  | 7.7790    | 8.676  | 8.7513    | 1.010  | 30'    |        |
|        | 30'  | 4.8567    | 1.884  | 5.8281    | 4.261  | 6.7994    | 6.638  | 7.7707    | 9.015  | 8.7421    | 1.392  | 15'    |        |
|        | 45'  | 4.8515    | 1.2096 | 5.8218    | 1.4515 | 6.7921    | 1.6935 | 7.7624    | 1.9354 | 8.7327    | 2.1773 | 76°    |        |
| 15     | 0°   | 4.8502    | 1.2149 | 5.8202    | 1.4579 | 6.7902    | 1.7009 | 7.7603    | 1.9438 | 8.7303    | 2.1868 | 75°    |        |
|        | 15'  | 4.8462    | 2.308  | 5.8154    | 4.769  | 6.7846    | 7.231  | 7.7538    | 1.9692 | 8.7231    | 2.154  | 45'    |        |
|        | 30'  | 4.8407    | 2.519  | 5.8089    | 5.023  | 6.7770    | 7.527  | 7.7452    | 2.0030 | 8.7133    | 2.534  | 30'    |        |
|        | 45'  | 4.8352    | 2.730  | 5.8023    | 5.276  | 6.7693    | 7.822  | 7.7364    | 0.368  | 8.7034    | 2.914  | 15'    |        |
|        | 15°  | 4.8296    | 1.2941 | 5.7956    | 1.5529 | 6.7615    | 1.8117 | 7.7274    | 2.0706 | 8.6933    | 2.3294 | 75°    |        |

TRAVERSE TABLE.

| Course |      | Dist. 1   |         | Dist. 2   |         | Dist. 3   |         | Dist. 4   |         | Course |        |
|--------|------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|--------|--------|
| points | deg. | dif. lat. | dep.    | dif. lat. | dep.    | dif. lat. | dep.    | dif. lat. | dep.    | deg.   | points |
|        | 15°  | 0.95593   | 0.25882 | 1.93185   | 0.51764 | 2.89778   | 0.77646 | 3.86370   | 1.03528 | 75°    |        |
|        | 15'  | 96479     | 26320   | 92957     | 52606   | 89436     | 78909   | 85915     | 05212   | 45'    |        |
|        | 30'  | 96363     | 26724   | 92726     | 53448   | 89089     | 80172   | 85452     | 06895   | 30'    |        |
|        | 45'  | 96246     | 27144   | 92491     | 54288   | 88737     | 81432   | 84982     | 08576   | 15'    |        |
|        | 16°  | 0.96126   | 0.27564 | 1.92252   | 0.55127 | 2.88379   | 0.82691 | 3.84505   | 1.10255 | 74°    |        |
|        | 15'  | 96005     | 27983   | 92010     | 55966   | 88015     | 83949   | 84200     | 11932   | 45'    |        |
|        | 30'  | 95882     | 28402   | 91764     | 56803   | 87646     | 85205   | 83528     | 13606   | 30'    |        |
|        | 45'  | 95757     | 28820   | 91514     | 57639   | 87271     | 86459   | 83079     | 15279   | 15'    |        |
| 1 1/2  |      | 0.95694   | 0.29028 | 1.91388   | 0.58057 | 2.87082   | 0.87085 | 3.82776   | 1.16114 |        | 6 1/2  |
|        | 17°  | 0.95630   | 0.29237 | 1.91261   | 0.58474 | 2.86891   | 0.87712 | 3.82522   | 1.16949 | 73°    |        |
|        | 15'  | 95502     | 29654   | 91004     | 59308   | 86506     | 88962   | 82008     | 18617   | 45'    |        |
|        | 30'  | 95372     | 30071   | 90743     | 60141   | 86115     | 90212   | 81487     | 20282   | 30'    |        |
|        | 45'  | 95240     | 30486   | 90479     | 60973   | 85719     | 91459   | 80058     | 21946   | 15'    |        |
|        | 18°  | 0.95106   | 0.30902 | 1.90211   | 0.61803 | 2.85317   | 0.92705 | 3.80423   | 1.23607 | 72°    |        |
|        | 15'  | 94970     | 31316   | 89940     | 62633   | 84910     | 93949   | 79880     | 25266   | 45'    |        |
|        | 30'  | 94832     | 31730   | 89665     | 63461   | 84497     | 95191   | 79329     | 26922   | 30'    |        |
|        | 45'  | 94693     | 32144   | 89386     | 64288   | 84079     | 96432   | 78772     | 28576   | 15'    |        |
|        | 19°  | 0.94552   | 0.32557 | 1.89104   | 0.65114 | 2.83656   | 0.97670 | 3.78207   | 1.30227 | 71°    |        |
|        | 15'  | 94409     | 32969   | 88818     | 65938   | 83227     | 0.98907 | 77636     | 31876   | 45'    |        |
|        | 30'  | 94264     | 33381   | 88528     | 66761   | 82792     | 1.00142 | 77057     | 33523   | 30'    |        |
| 1 1/2  |      | 0.94154   | 0.33689 | 1.88309   | 0.67378 | 2.82463   | 1.01067 | 3.76618   | 1.34756 |        | 6 1/2  |
|        | 45'  | 94118     | 33792   | 88235     | 67583   | 82353     | 01375   | 76470     | 35167   | 15'    |        |
|        | 20°  | 0.93969   | 0.34202 | 1.87979   | 0.68404 | 2.81908   | 1.02606 | 3.75877   | 1.36808 | 70°    |        |
|        | 15'  | 93819     | 34612   | 87638     | 69223   | 81457     | 03835   | 75227     | 38447   | 45'    |        |
|        | 30'  | 93677     | 35021   | 87334     | 70041   | 81002     | 05062   | 74669     | 40083   | 30'    |        |
|        | 45'  | 93514     | 35429   | 87027     | 70858   | 80541     | 06287   | 74054     | 41716   | 15'    |        |
|        | 21°  | 0.93358   | 0.35837 | 1.86716   | 0.71674 | 2.80074   | 1.07510 | 3.73432   | 1.43347 | 69°    |        |
|        | 15'  | 93201     | 36244   | 86402     | 72488   | 79602     | 08731   | 72803     | 44975   | 45'    |        |
|        | 30'  | 93042     | 36650   | 86084     | 73300   | 79125     | 09950   | 72167     | 46600   | 30'    |        |
|        | 45'  | 92881     | 37056   | 85762     | 74111   | 78643     | 11167   | 71524     | 48223   | 15'    |        |
|        | 22°  | 0.92718   | 0.37461 | 1.85437   | 0.74921 | 2.78155   | 1.12382 | 3.70874   | 1.49843 | 68°    |        |
|        | 15'  | 92554     | 37865   | 85108     | 75730   | 77662     | 13595   | 70216     | 51459   | 45'    |        |
|        | 30'  | 0.92388   | 0.38268 | 1.84776   | 0.76537 | 2.77164   | 1.14805 | 3.69552   | 1.53073 | 30'    |        |
|        | 45'  | 92220     | 38671   | 84440     | 77342   | 76660     | 16013   | 68880     | 54684   | 15'    |        |
|        | 23°  | 0.92050   | 0.39073 | 1.84101   | 0.78146 | 2.76151   | 1.17219 | 3.68202   | 1.56292 | 67°    |        |
|        | 15'  | 91879     | 39474   | 83758     | 78949   | 75637     | 18423   | 67516     | 57898   | 45'    |        |
|        | 30'  | 91706     | 39875   | 83412     | 79750   | 75118     | 19625   | 66824     | 59500   | 30'    |        |
|        | 45'  | 91531     | 40275   | 83062     | 80549   | 74593     | 20824   | 66125     | 61099   | 15'    |        |
|        | 24°  | 0.91355   | 0.40674 | 1.82709   | 0.81347 | 2.74064   | 1.22021 | 3.65418   | 1.62695 | 66°    |        |
|        | 15'  | 91176     | 41072   | 82352     | 82144   | 73529     | 23116   | 64705     | 64288   | 45'    |        |
|        | 30'  | 90995     | 41469   | 81992     | 82939   | 72988     | 24408   | 63985     | 65877   | 30'    |        |
|        | 45'  | 90814     | 41866   | 81629     | 83732   | 72443     | 25598   | 63257     | 67464   | 15'    |        |
|        | 25°  | 0.90631   | 0.42062 | 1.81262   | 0.84524 | 2.71892   | 1.26785 | 3.62523   | 1.69047 | 65°    |        |
|        | 15'  | 90446     | 42457   | 80891     | 85314   | 71337     | 27971   | 61782     | 70627   | 45'    |        |
| 2 1/2  |      | 0.90309   | 0.42556 | 1.80798   | 0.85511 | 2.71197   | 1.28263 | 3.61596   | 1.71022 |        | 5 1/2  |
|        | 30'  | 90259     | 43051   | 80517     | 86102   | 70776     | 29153   | 61034     | 72204   | 30'    |        |
|        | 45'  | 90107     | 43445   | 80140     | 86889   | 70290     | 30334   | 60279     | 73778   | 15'    |        |
|        | 26°  | 0.89879   | 0.43837 | 1.79759   | 0.87674 | 2.69638   | 1.31511 | 3.59518   | 1.75348 | 64°    |        |
|        | 15'  | 89687     | 44229   | 79375     | 88458   | 69062     | 32687   | 58749     | 76915   | 45'    |        |
|        | 30'  | 89493     | 44620   | 78987     | 89240   | 68480     | 33859   | 57974     | 78479   | 30'    |        |
|        | 45'  | 89298     | 45010   | 78596     | 90020   | 67894     | 35030   | 57192     | 80039   | 15'    |        |
|        | 27°  | 0.89101   | 0.45399 | 1.78201   | 0.90798 | 2.67302   | 1.36197 | 3.56403   | 1.81596 | 63°    |        |
|        | 15'  | 88902     | 45787   | 77803     | 91575   | 66705     | 37362   | 56607     | 83150   | 45'    |        |
|        | 30'  | 88701     | 46175   | 77402     | 92350   | 66103     | 38525   | 54804     | 84699   | 30'    |        |
|        | 45'  | 88499     | 46561   | 76998     | 93123   | 65496     | 39684   | 53995     | 86246   | 15'    |        |
|        | 28°  | 0.88295   | 0.46949 | 1.76590   | 0.93894 | 2.64884   | 1.40841 | 3.53179   | 1.87789 | 62°    |        |
| 2 1/2  |      | 0.88192   | 0.47140 | 1.76384   | 0.94279 | 2.64576   | 1.41419 | 3.52769   | 1.88559 |        | 5 1/2  |
|        | 15'  | 88089     | 47332   | 76178     | 94664   | 64267     | 41996   | 52356     | 89328   | 45'    |        |
|        | 30'  | 87882     | 47716   | 75763     | 95432   | 63645     | 43148   | 51527     | 90864   | 30'    |        |
|        | 45'  | 87673     | 48099   | 75345     | 96198   | 63018     | 44297   | 50691     | 92396   | 15'    |        |
|        | 29°  | 0.87462   | 0.48481 | 1.74924   | 0.96662 | 2.62386   | 1.45443 | 3.49848   | 1.93924 | 61°    |        |
|        | 15'  | 87259     | 48862   | 74499     | 97224   | 61749     | 46586   | 48998     | 95448   | 45'    |        |
|        | 30'  | 87046     | 49242   | 74071     | 97885   | 61107     | 47727   | 48142     | 96969   | 30'    |        |
|        | 45'  | 86820     | 49622   | 73640     | 98485   | 60480     | 48865   | 47280     | 98487   | 15'    |        |
|        | 30°  | 0.86603   | 0.50000 | 1.73205   | 1.00000 | 2.59808   | 1.50000 | 3.46410   | 2.00000 | 60°    |        |

TRAVERSE TABLE.

| Course | Dist. 5 |           |        | Dist. 6   |        |           | Dist. 7 |           |        | Dist. 8   |      |           | Dist. 9 |           |      | Course |      |
|--------|---------|-----------|--------|-----------|--------|-----------|---------|-----------|--------|-----------|------|-----------|---------|-----------|------|--------|------|
|        | deg.    | dif. lat. | dep.   | dif. lat. | dep.   | dif. lat. | dep.    | dif. lat. | dep.   | dif. lat. | dep. | dif. lat. | dep.    | dif. lat. | dep. |        | deg. |
| 15°    | 4.8296  | 1.2941    | 5.7956 | 1.5529    | 6.7615 | 1.8117    | 7.7274  | 2.0706    | 8.6933 | 2.3294    | 75°  |           |         |           |      |        |      |
| 15'    | 8239    | 3152      | 7887   | 5782      | 7535   | 8412      | 7183    | 1042      | 6831   | 3673      | 45'  |           |         |           |      |        |      |
| 30'    | 8182    | 3362      | 7818   | 6034      | 7454   | 8707      | 7090    | 1379      | 6727   | 4051      | 30'  |           |         |           |      |        |      |
| 45'    | 8123    | 3572      | 7747   | 6286      | 7372   | 9001      | 6996    | 1715      | 6621   | 4430      | 15'  |           |         |           |      |        |      |
| 16°    | 4.8063  | 1.3782    | 5.7676 | 1.6538    | 6.7288 | 1.9295    | 7.6901  | 2.2051    | 8.6514 | 2.4807    | 74°  |           |         |           |      |        |      |
| 15'    | 8002    | 3991      | 7603   | 6790      | 7203   | 9588      | 6804    | 2386      | 6404   | 5185      | 45'  |           |         |           |      |        |      |
| 30'    | 7941    | 4201      | 7529   | 7041      | 7117   | 1.9881    | 6706    | 2721      | 6294   | 5561      | 30'  |           |         |           |      |        |      |
| 45'    | 7879    | 4410      | 7454   | 7292      | 7030   | 2.0174    | 6606    | 3056      | 6181   | 5938      | 15'  |           |         |           |      |        |      |
| 17°    | 4.7847  | 1.4514    | 5.7416 | 1.7417    | 6.6986 | 2.0320    | 7.6555  | 2.3223    | 8.6125 | 2.6126    | 63°  |           |         |           |      |        |      |
| 15'    | 7751    | 4827      | 7301   | 7792      | 6851   | 0758      | 6402    | 3792      | 5952   | 6689      | 45'  |           |         |           |      |        |      |
| 30'    | 7686    | 5035      | 7223   | 8042      | 6760   | 1049      | 6297    | 4056      | 5835   | 7064      | 30'  |           |         |           |      |        |      |
| 45'    | 7620    | 5243      | 7144   | 8292      | 6668   | 1341      | 6192    | 4389      | 5716   | 7438      | 15'  |           |         |           |      |        |      |
| 18°    | 4.7553  | 1.5451    | 5.7063 | 1.8541    | 6.6574 | 2.1631    | 7.6085  | 2.4721    | 8.5595 | 2.7812    | 72°  |           |         |           |      |        |      |
| 15'    | 7485    | 5658      | 6982   | 8790      | 6479   | 1921      | 5976    | 5053      | 5473   | 8185      | 45'  |           |         |           |      |        |      |
| 30'    | 7416    | 5865      | 6899   | 9038      | 6383   | 2211      | 5866    | 5384      | 5349   | 8557      | 30'  |           |         |           |      |        |      |
| 45'    | 7347    | 6072      | 6816   | 9286      | 6285   | 2501      | 5754    | 5715      | 5224   | 8930      | 15'  |           |         |           |      |        |      |
| 19°    | 4.7276  | 1.6278    | 5.6731 | 1.9534    | 6.6186 | 2.2790    | 7.5641  | 2.6045    | 8.5097 | 2.9301    | 71°  |           |         |           |      |        |      |
| 15'    | 7204    | 6485      | 6645   | 1.9781    | 6086   | 3078      | 5527    | 6375      | 4968   | 2.9672    | 45'  |           |         |           |      |        |      |
| 30'    | 7132    | 6690      | 6558   | 2.0028    | 5985   | 3366      | 5411    | 6705      | 4838   | 3.0043    | 30'  |           |         |           |      |        |      |
| 45'    | 7077    | 1.6844    | 5.6493 | 2.0213    | 6.5908 | 2.3582    | 7.5324  | 2.6951    | 8.4739 | 3.0320    | 64°  |           |         |           |      |        |      |
| 20°    | 4.6985  | 1.7101    | 5.6382 | 2.0521    | 6.5778 | 2.3941    | 7.5175  | 2.7362    | 8.4572 | 3.0782    | 70°  |           |         |           |      |        |      |
| 15'    | 6919    | 7306      | 6291   | 0767      | 5673   | 4228      | 5055    | 7689      | 4437   | 1151      | 45'  |           |         |           |      |        |      |
| 30'    | 6834    | 7510      | 6200   | 1012      | 5567   | 4515      | 4934    | 8017      | 4300   | 1519      | 30'  |           |         |           |      |        |      |
| 45'    | 6757    | 7715      | 6108   | 1257      | 5459   | 4800      | 4811    | 8343      | 4162   | 1866      | 15'  |           |         |           |      |        |      |
| 21°    | 4.6679  | 1.7918    | 5.6015 | 2.1502    | 6.5351 | 2.5086    | 7.4686  | 2.8669    | 8.4022 | 3.2253    | 69°  |           |         |           |      |        |      |
| 15'    | 6600    | 8122      | 5920   | 1746      | 5241   | 5371      | 4561    | 8995      | 3881   | 2619      | 45'  |           |         |           |      |        |      |
| 30'    | 6521    | 8325      | 5825   | 1990      | 5129   | 5655      | 4433    | 9320      | 3738   | 2985      | 30'  |           |         |           |      |        |      |
| 45'    | 6440    | 8528      | 5729   | 2233      | 5017   | 5939      | 4305    | 9645      | 3593   | 3350      | 15'  |           |         |           |      |        |      |
| 22°    | 4.6359  | 1.8730    | 5.5631 | 2.2476    | 6.4903 | 2.6222    | 7.4175  | 2.9969    | 8.3447 | 3.3715    | 68°  |           |         |           |      |        |      |
| 15'    | 6277    | 8932      | 5532   | 2719      | 4788   | 6505      | 4043    | 3.0292    | 3299   | 4078      | 45'  |           |         |           |      |        |      |
| 30'    | 6194    | 1.9134    | 5.5433 | 2.2961    | 6.4672 | 2.6788    | 7.3910  | 3.0615    | 8.3149 | 3.4442    | 30'  |           |         |           |      |        |      |
| 45'    | 6110    | 9336      | 5332   | 3203      | 4554   | 7070      | 3776    | 0937      | 2998   | 4804      | 15'  |           |         |           |      |        |      |
| 23°    | 4.6025  | 1.9537    | 5.5230 | 2.3444    | 6.4435 | 2.7351    | 7.3640  | 3.1258    | 8.2845 | 3.5166    | 67°  |           |         |           |      |        |      |
| 15'    | 5940    | 9737      | 5127   | 3685      | 4315   | 7632      | 3503    | 1580      | 2691   | 5527      | 45'  |           |         |           |      |        |      |
| 30'    | 5853    | 1.0937    | 5.024  | 3925      | 4194   | 7912      | 3365    | 1900      | 2535   | 5887      | 30'  |           |         |           |      |        |      |
| 45'    | 5766    | 2.0137    | 4919   | 4165      | 4072   | 8192      | 3225    | 2220      | 2378   | 6247      | 15'  |           |         |           |      |        |      |
| 24°    | 4.5677  | 2.0337    | 5.4813 | 2.4404    | 6.3948 | 2.8472    | 7.3084  | 3.2539    | 8.2219 | 3.6666    | 66°  |           |         |           |      |        |      |
| 15'    | 5588    | 0536      | 4706   | 4643      | 3823   | 8750      | 2941    | 2858      | 2059   | 6965      | 45'  |           |         |           |      |        |      |
| 30'    | 5498    | 0735      | 4598   | 4882      | 3697   | 9029      | 2797    | 3175      | 1879   | 7322      | 30'  |           |         |           |      |        |      |
| 45'    | 5407    | 0933      | 4489   | 5120      | 3570   | 9306      | 2651    | 3493      | 1733   | 7679      | 15'  |           |         |           |      |        |      |
| 25°    | 4.5315  | 2.1115    | 5.4378 | 2.5357    | 6.3442 | 2.9583    | 7.2505  | 3.3809    | 8.1568 | 3.8036    | 65°  |           |         |           |      |        |      |
| 15'    | 5223    | 1328      | 4267   | 5594      | 3312   | 9860      | 2356    | 4125      | 1401   | 8391      | 45'  |           |         |           |      |        |      |
| 30'    | 5129    | 1526      | 4155   | 5831      | 3181   | 3.0136    | 2207    | 4441      | 1233   | 8746      | 30'  |           |         |           |      |        |      |
| 45'    | 5035    | 1722      | 4042   | 6067      | 3049   | 0411      | 2056    | 4756      | 1063   | 9100      | 15'  |           |         |           |      |        |      |
| 26°    | 4.4940  | 2.1919    | 5.3928 | 2.6302    | 6.2916 | 3.0686    | 7.1904  | 3.5070    | 8.0891 | 3.9453    | 64°  |           |         |           |      |        |      |
| 15'    | 4844    | 2114      | 3812   | 6537      | 2781   | 0960      | 1750    | 5383      | 0715   | 3.9806    | 45'  |           |         |           |      |        |      |
| 30'    | 4747    | 2310      | 3696   | 6772      | 2645   | 1234      | 1595    | 5696      | 0544   | 4.0158    | 30'  |           |         |           |      |        |      |
| 45'    | 4649    | 2505      | 3579   | 7006      | 2509   | 1507      | 1438    | 6008      | 0368   | 0509      | 15'  |           |         |           |      |        |      |
| 27°    | 4.4550  | 2.2700    | 5.3460 | 2.7239    | 6.2370 | 3.1779    | 7.1281  | 3.6319    | 8.0191 | 4.0859    | 63°  |           |         |           |      |        |      |
| 15'    | 4451    | 2894      | 3341   | 7472      | 2231   | 2051      | 1121    | 6630      | 8.0012 | 1209      | 45'  |           |         |           |      |        |      |
| 30'    | 4351    | 3087      | 3221   | 7705      | 2091   | 2322      | 0961    | 6940      | 7.9831 | 1557      | 30'  |           |         |           |      |        |      |
| 45'    | 4249    | 3281      | 3099   | 7937      | 1949   | 2593      | 0799    | 7249      | 6949   | 1905      | 15'  |           |         |           |      |        |      |
| 28°    | 4.4147  | 2.3474    | 5.2977 | 2.8168    | 6.1806 | 3.2863    | 7.0636  | 3.7558    | 7.9465 | 4.2252    | 62°  |           |         |           |      |        |      |
| 15'    | 44096   | 2.3570    | 5.2915 | 2.8284    | 6.1734 | 3.2998    | 7.0554  | 3.7712    | 7.9373 | 4.2246    | 54°  |           |         |           |      |        |      |
| 30'    | 4045    | 3666      | 2853   | 8399      | 1662   | 3132      | 0471    | 7866      | 9280   | 2599      | 45'  |           |         |           |      |        |      |
| 45'    | 3941    | 3858      | 2729   | 8630      | 1517   | 3401      | 0305    | 8173      | 9094   | 2944      | 30'  |           |         |           |      |        |      |
| 29°    | 4.3731  | 2.4240    | 5.2477 | 2.9089    | 6.1223 | 3.3937    | 6.9970  | 3.8785    | 7.8716 | 4.3633    | 61°  |           |         |           |      |        |      |
| 15'    | 3625    | 4431      | 2350   | 9317      | 1075   | 4203      | 9800    | 9090      | 8525   | 3976      | 45'  |           |         |           |      |        |      |
| 30'    | 3518    | 4621      | 2221   | 9545      | 0925   | 4470      | 9628    | 9394      | 8332   | 4318      | 30'  |           |         |           |      |        |      |
| 45'    | 3410    | 4811      | 2092   | 9773      | 0774   | 4735      | 9456    | 3.9697    | 8138   | 4659      | 15'  |           |         |           |      |        |      |
| 30°    | 4.3301  | 2.5000    | 5.1962 | 3.0000    | 6.0622 | 3.5000    | 6.9282  | 4.0000    | 7.7942 | 4.5000    | 60°  |           |         |           |      |        |      |

| Course |      | Dist. 1   |         | Dist. 2   |         | Dist. 3   |         | Dist. 4   |         | Course |        |
|--------|------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|--------|--------|
| points | deg. | dif. lat. | dep.    | dif. lat. | dep.    | dif. lat. | dep.    | dif. lat. | dep.    | deg.   | points |
|        | 30°  | 0.86693   | 0.50000 | 1.73205   | 1.00000 | 2.59808   | 1.50000 | 3.46410   | 2.00000 | 60°    |        |
|        | 15'  | 86384     | 50377   | 72767     | 00755   | 59151     | 51132   | 45534     | 01510   | 45'    |        |
|        | 30'  | 86163     | 50754   | 72326     | 01508   | 58489     | 52262   | 44652     | 03015   | 30'    |        |
|        | 45'  | 85941     | 51129   | 71881     | 02259   | 57822     | 53388   | 43763     | 04517   | 15'    |        |
| 2      | 31°  | 0.85773   | 0.51410 | 1.71546   | 1.02821 | 2.57319   | 1.54231 | 3.43091   | 2.05641 | 59°    | 5      |
|        | 15'  | 85491     | 51877   | 70982     | 03755   | 56474     | 55632   | 41965     | 07509   | 45'    |        |
|        | 30'  | 85264     | 52250   | 70528     | 04500   | 55792     | 56750   | 41056     | 08999   | 30'    |        |
|        | 45'  | 85035     | 52621   | 70070     | 05243   | 55106     | 57864   | 40141     | 10486   | 15'    |        |
|        | 32°  | 0.84805   | 0.52922 | 1.69610   | 1.05984 | 2.54413   | 1.58976 | 3.39219   | 2.11968 | 58°    |        |
|        | 15'  | 84573     | 53361   | 69146     | 06723   | 53718     | 60084   | 38291     | 13446   | 45'    |        |
|        | 30'  | 84339     | 53730   | 68678     | 07460   | 53017     | 61190   | 37357     | 14920   | 30'    |        |
|        | 45'  | 84104     | 54097   | 68208     | 08195   | 52312     | 62292   | 36416     | 16390   | 15'    |        |
|        | 33°  | 0.83867   | 0.54464 | 1.67734   | 1.08928 | 2.51601   | 1.63392 | 3.35468   | 2.17856 | 57°    |        |
|        | 15'  | 83629     | 54829   | 67257     | 09659   | 50886     | 64488   | 34514     | 19317   | 45'    |        |
|        | 30'  | 83389     | 55194   | 66777     | 10387   | 50166     | 65581   | 33554     | 20775   | 30'    |        |
|        | 45'  | 83147     | 0.55557 | 1.66794   | 1.11114 | 2.49441   | 1.66671 | 3.32588   | 2.22228 | 15'    | 5      |
|        | 34°  | 0.82904   | 0.55919 | 1.65808   | 1.11839 | 2.48711   | 1.67558 | 3.31615   | 2.23677 | 56°    |        |
|        | 15'  | 82659     | 56280   | 65318     | 12561   | 47977     | 68841   | 30636     | 25122   | 45'    |        |
|        | 30'  | 82413     | 56641   | 64825     | 13281   | 47238     | 69922   | 29650     | 26562   | 30'    |        |
|        | 45'  | 82165     | 57000   | 64329     | 13999   | 46494     | 70999   | 28659     | 27999   | 15'    |        |
|        | 35°  | 0.81915   | 0.57358 | 1.63830   | 1.14715 | 2.45746   | 1.72073 | 3.27661   | 2.29431 | 55°    |        |
|        | 15'  | 81664     | 57715   | 63328     | 15429   | 44992     | 73144   | 26657     | 30858   | 45'    |        |
|        | 30'  | 81412     | 58070   | 62823     | 16141   | 44235     | 74211   | 25646     | 32281   | 30'    |        |
|        | 45'  | 81157     | 58425   | 62315     | 16850   | 43472     | 75275   | 24630     | 33700   | 15'    |        |
|        | 36°  | 0.80902   | 0.58779 | 1.61803   | 1.17557 | 2.42705   | 1.76336 | 3.23607   | 2.35114 | 54°    |        |
|        | 15'  | 80644     | 59131   | 61289     | 18262   | 41933     | 77832   | 22578     | 36524   | 45'    |        |
|        | 30'  | 80386     | 59482   | 60771     | 18965   | 41157     | 78447   | 21543     | 37929   | 30'    |        |
|        | 45'  | 80125     | 0.59570 | 1.60642   | 1.19140 | 2.40962   | 1.78710 | 3.21283   | 2.38280 | 15'    | 4      |
|        | 37°  | 0.79864   | 0.60182 | 1.59727   | 1.20363 | 2.39591   | 1.80545 | 3.19454   | 2.40726 | 53°    |        |
|        | 15'  | 79600     | 60529   | 59200     | 21059   | 38801     | 81588   | 18401     | 42118   | 45'    |        |
|        | 30'  | 79335     | 60876   | 58671     | 21752   | 38006     | 82628   | 17341     | 43505   | 30'    |        |
|        | 45'  | 79069     | 61222   | 58138     | 22443   | 37207     | 83665   | 16276     | 44887   | 15'    |        |
|        | 38°  | 0.78801   | 0.61566 | 1.57602   | 1.23132 | 2.36403   | 1.84698 | 3.15204   | 2.46265 | 52°    |        |
|        | 15'  | 78532     | 61909   | 57063     | 23819   | 35595     | 85728   | 14127     | 47638   | 45'    |        |
|        | 30'  | 78261     | 62251   | 56522     | 24503   | 34782     | 86754   | 13043     | 49006   | 30'    |        |
|        | 45'  | 77988     | 62592   | 55977     | 25185   | 33965     | 87777   | 11954     | 50369   | 15'    |        |
|        | 39°  | 0.77715   | 0.62932 | 1.55429   | 1.25864 | 2.33144   | 1.88796 | 3.10858   | 2.51728 | 51°    |        |
|        | 15'  | 77439     | 63271   | 54879     | 26541   | 32318     | 89811   | 99757     | 53082   | 45'    |        |
|        | 30'  | 77162     | 63608   | 54325     | 27216   | 31487     | 90823   | 88650     | 54431   | 30'    | 4      |
|        | 45'  | 76884     | 63944   | 53768     | 27888   | 30653     | 91832   | 77537     | 55776   | 15'    |        |
|        | 40°  | 0.76604   | 0.64279 | 1.53209   | 1.28558 | 2.29813   | 1.92836 | 3.06418   | 2.57115 | 50°    |        |
|        | 15'  | 76323     | 64612   | 52646     | 29225   | 28790     | 93837   | 65293     | 58450   | 45'    |        |
|        | 30'  | 76041     | 64945   | 52081     | 29890   | 28122     | 94834   | 54162     | 59779   | 30'    |        |
|        | 45'  | 75756     | 65276   | 51513     | 30552   | 27269     | 95828   | 43026     | 61104   | 15'    |        |
|        | 41°  | 0.75471   | 0.65606 | 1.50942   | 1.31212 | 2.26413   | 1.96818 | 3.01884   | 2.62424 | 49°    |        |
|        | 15'  | 75184     | 65935   | 50368     | 31869   | 25552     | 97804   | 300736    | 63738   | 45'    |        |
|        | 30'  | 74906     | 66262   | 49791     | 32524   | 24687     | 98786   | 209582    | 65048   | 30'    |        |
|        | 45'  | 74626     | 66588   | 49211     | 33176   | 23817     | 99764   | 98423     | 66353   | 15'    |        |
|        | 42°  | 0.74314   | 0.66913 | 1.48629   | 1.33826 | 2.22943   | 2.00739 | 2.97258   | 2.67652 | 48°    |        |
|        | 15'  | 74022     | 67237   | 48044     | 34473   | 22065     | 01710   | 96087     | 68947   | 45'    | 4      |
|        | 30'  | 73728     | 67559   | 47455     | 35118   | 21183     | 02677   | 94911     | 70236   | 30'    |        |
|        | 45'  | 73432     | 67880   | 46865     | 35760   | 20297     | 03640   | 93729     | 71520   | 15'    |        |
|        | 43°  | 0.73135   | 0.68200 | 1.46271   | 1.36400 | 2.19406   | 2.04600 | 2.92541   | 2.72799 | 47°    |        |
|        | 15'  | 72837     | 68518   | 45674     | 37037   | 18511     | 05555   | 91348     | 74073   | 45'    |        |
|        | 30'  | 72537     | 68835   | 45075     | 37671   | 17612     | 06506   | 90150     | 75342   | 30'    |        |
|        | 45'  | 72236     | 69151   | 44473     | 38303   | 16709     | 07454   | 88946     | 76605   | 15'    |        |
|        | 44°  | 0.71934   | 0.69466 | 1.43868   | 1.38932 | 2.15802   | 2.08398 | 2.87736   | 2.77863 | 46°    |        |
|        | 15'  | 71630     | 69779   | 43260     | 39558   | 14891     | 09337   | 86521     | 79116   | 45'    |        |
|        | 30'  | 71325     | 70091   | 42650     | 40182   | 13975     | 10273   | 85300     | 80364   | 30'    |        |
|        | 45'  | 71019     | 70401   | 42037     | 40803   | 13056     | 11204   | 84074     | 81606   | 15'    |        |
| 4      | 45°  | 0.70711   | 0.70711 | 1.41421   | 1.41421 | 2.12132   | 2.12132 | 2.82843   | 2.82843 | 45°    | 4      |

TRAVERSE TABLE.

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| Course | points | Dist. 5 |            | Dist. 6 |            | Dist. 7 |            | Dist. 8    |            | Dist. 9 |            | Course  | points |            |         |      |            |         |      |
|--------|--------|---------|------------|---------|------------|---------|------------|------------|------------|---------|------------|---------|--------|------------|---------|------|------------|---------|------|
|        |        | deg.    | diff. lat. | dep.    | diff. lat. | dep.    | diff. lat. | dep.       | diff. lat. | dep.    | diff. lat. |         |        | dep.       |         |      |            |         |      |
| 30°    | 30'    | 4.3301  | 2.5000     | 5.1952  | 3.0000     | 6.0622  | 3.5000     | 6.9282     | 4.0000     | 7.7942  | 4.5000     | 60°     |        |            |         |      |            |         |      |
|        | 15'    | 3192    | 5189       | 1830    | 0226       | 0468    | 5264       | 9107       | 0302       | 7745    | 5340       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 3081    | 5377       | 1698    | 0452       | 0314    | 5528       | 8930       | 0603       | 7547    | 5678       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 2970    | 5565       | 1564    | 0678       | 0158    | 5791       | 8753       | 0903       | 7347    | 6016       | 15'     |        |            |         |      |            |         |      |
|        | 2 1/2  | 4.2886  | 2.5705     | 5.1464  | 3.0846     | 6.0041  | 3.5987     | 6.8618     | 4.1128     | 7.7196  | 4.6269     | 5 1/2   |        |            |         |      |            |         |      |
| 31°    | 15'    | 4.2858  | 2.5752     | 5.1430  | 3.0902     | 6.0002  | 3.6053     | 6.8573     | 4.1203     | 7.7145  | 4.6353     | 50°     |        |            |         |      |            |         |      |
|        | 30'    | 2746    | 5939       | 1295    | 1126       | 5.9844  | 6314       | 8393       | 1502       | 6942    | 6690       | 45'     |        |            |         |      |            |         |      |
|        | 45'    | 2632    | 6125       | 1158    | 1350       | 9685    | 6575       | 8211       | 1800       | 6738    | 7025       | 30'     |        |            |         |      |            |         |      |
|        | 3 1/2  | 4.2402  | 2.6466     | 5.0883  | 3.1795     | 5.9363  | 3.7094     | 6.7844     | 4.2394     | 7.6324  | 4.7693     | 58°     |        |            |         |      |            |         |      |
|        | 15'    | 2286    | 6681       | 0744    | 2017       | 9201    | 7353       | 7658       | 2689       | 6116    | 8025       | 45'     |        |            |         |      |            |         |      |
| 32°    | 30'    | 2170    | 6865       | 0603    | 2238       | 9037    | 7611       | 7471       | 2984       | 5905    | 8357       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 2052    | 7049       | 0462    | 2458       | 8873    | 7868       | 7283       | 3278       | 5694    | 8688       | 15'     |        |            |         |      |            |         |      |
|        | 3 3/4  | 4.1934  | 2.7232     | 5.0320  | 3.2678     | 5.8707  | 3.8125     | 6.7094     | 4.3571     | 7.5480  | 4.9018     | 57°     |        |            |         |      |            |         |      |
|        | 15'    | 1814    | 7415       | 0177    | 2898       | 8540    | 8381       | 6903       | 3863       | 5266    | 9346       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 1694    | 7597       | 5.0033  | 3116       | 8372    | 8636       | 6711       | 4155       | 5050    | 4.9674     | 30'     |        |            |         |      |            |         |      |
| 33°    | 45'    | 4.1573  | 2.7779     | 4.9888  | 3.3334     | 5.8203  | 3.8890     | 6.6518     | 4.4446     | 7.4832  | 5.0001     | 15'     | 5      |            |         |      |            |         |      |
|        | 3 1/2  | 4.1452  | 2.7966     | 4.9742  | 3.3552     | 5.8033  | 3.9144     | 6.6323     | 4.4735     | 7.4613  | 5.0327     | 56°     |        |            |         |      |            |         |      |
|        | 15'    | 1329    | 8140       | 9595    | 3768       | 7861    | 9396       | 6127       | 5024       | 4393    | 0652       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 1206    | 8320       | 9448    | 3984       | 7689    | 9648       | 5930       | 5312       | 4171    | 0977       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 1082    | 8500       | 9299    | 4200       | 7515    | 3.9900     | 5732       | 5600       | 3948    | 1300       | 15'     |        |            |         |      |            |         |      |
| 35°    | 4.0958 | 2.8679  | 4.9149     | 3.4415  | 5.7341     | 4.0150  | 6.5532     | 4.5886     | 7.3724     | 5.1622  | 55°        |         |        |            |         |      |            |         |      |
|        | 15'    | 0832    | 8857       | 8998    | 4629       | 7165    | 0400       | 5331       | 6172       | 3498    | 1943       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 0706    | 9035       | 8847    | 4842       | 6988    | 0649       | 5129       | 6456       | 3270    | 2263       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 0579    | 9212       | 8694    | 5055       | 6810    | 0897       | 4926       | 6740       | 3042    | 2582       | 15'     |        |            |         |      |            |         |      |
|        | 3 1/2  | 4.0451  | 2.9389     | 4.8541  | 3.5267     | 5.6631  | 4.1145     | 6.4721     | 4.7023     | 7.2812  | 5.2901     | 54°     |        |            |         |      |            |         |      |
| 36°    | 15'    | 0322    | 9565       | 8387    | 5479       | 6451    | 1392       | 4516       | 7305       | 2580    | 3218       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 0193    | 9741       | 8231    | 5689       | 6270    | 1638       | 4309       | 7586       | 2347    | 3534       | 30'     |        |            |         |      |            |         |      |
|        | 4 1/2  | 4.0060  | 2.9785     | 4.8192  | 3.5742     | 5.6225  | 4.1699     | 6.4257     | 4.7656     | 7.2289  | 5.3613     | 48°     |        |            |         |      |            |         |      |
|        | 15'    | 4.0063  | 2.9916     | 8075    | 5899       | 6088    | 1883       | 4100       | 7866       | 2113    | 3849       | 15'     |        |            |         |      |            |         |      |
|        | 3 3/4  | 3.9932  | 3.0091     | 4.7918  | 3.6109     | 5.5904  | 4.2127     | 6.3891     | 4.8145     | 7.1877  | 5.4163     | 53°     |        |            |         |      |            |         |      |
| 37°    | 15'    | 9800    | 0265       | 7760    | 6318       | 5720    | 2371       | 3680       | 8424       | 1640    | 4476       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 9668    | 0438       | 7601    | 6526       | 5535    | 2613       | 3468       | 8701       | 1402    | 4789       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 9534    | 0611       | 7441    | 6733       | 5348    | 2855       | 3255       | 8977       | 1162    | 5100       | 15'     |        |            |         |      |            |         |      |
|        | 3 1/2  | 3.9401  | 3.0783     | 4.7281  | 3.6940     | 5.5161  | 4.3096     | 6.3041     | 4.9253     | 7.0921  | 5.5410     | 52°     |        |            |         |      |            |         |      |
|        | 15'    | 9266    | 0955       | 7119    | 7146       | 4972    | 3337       | 2825       | 9528       | 0879    | 5718       | 45'     |        |            |         |      |            |         |      |
| 38°    | 30'    | 9130    | 1126       | 6956    | 7351       | 4783    | 3576       | 2609       | 4.9801     | 0435    | 6026       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 8994    | 1296       | 6793    | 7555       | 4592    | 3815       | 2391       | 5.0074     | 0190    | 6333       | 15'     |        |            |         |      |            |         |      |
|        | 3 3/4  | 3.8857  | 3.1466     | 4.6629  | 3.7759     | 5.4400  | 4.4052     | 6.2127     | 5.0346     | 6.9943  | 5.6639     | 51°     |        |            |         |      |            |         |      |
|        | 15'    | 8720    | 1635       | 6464    | 7962       | 4207    | 4289       | 1951       | 0616       | 6995    | 6943       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 8651    | 1720       | 6381    | 3.8064     | 5.4111  | 4.4408     | 6.1841     | 5.0751     | 6.9571  | 5.7095     | 48°     |        |            |         |      |            |         |      |
| 39°    | 45'    | 8581    | 1804       | 6297    | 8165       | 4014    | 4525       | 1730       | 0886       | 9446    | 7247       | 30'     |        |            |         |      |            |         |      |
|        | 4 1/2  | 8442    | 1977       | 6131    | 8366       | 3819    | 4761       | 1507       | 1155       | 9196    | 7550       | 15'     |        |            |         |      |            |         |      |
|        | 40°    | 8302    | 3.2139     | 4.5963  | 3.8567     | 5.3623  | 4.4995     | 6.1284     | 5.1423     | 6.8944  | 5.7851     | 50°     |        |            |         |      |            |         |      |
|        | 15'    | 8162    | 2306       | 5794    | 8767       | 3426    | 5229       | 1059       | 1690       | 8691    | 8151       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 8020    | 2472       | 5624    | 8967       | 3228    | 5461       | 0832       | 1956       | 8437    | 8450       | 30'     |        |            |         |      |            |         |      |
| 41°    | 45'    | 7878    | 2638       | 5454    | 9166       | 3030    | 5693       | 0605       | 2221       | 8181    | 8748       | 15'     |        |            |         |      |            |         |      |
|        | 3 1/2  | 3.7735  | 3.2803     | 4.5283  | 3.9364     | 5.2830  | 4.5924     | 6.0377     | 5.2485     | 6.7924  | 5.9045     | 49°     |        |            |         |      |            |         |      |
|        | 15'    | 7592    | 2967       | 5110    | 9561       | 2629    | 6154       | 6.0147     | 2748       | 7666    | 9341       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 7448    | 3131       | 4937    | 9757       | 2427    | 6383       | 5.9916     | 3010       | 7406    | 9636       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 7303    | 3294       | 4763    | 3.9953     | 2224    | 6612       | 9685       | 3271       | 7145    | 5.9929     | 15'     |        |            |         |      |            |         |      |
| 42°    | 3 1/2  | 3.7157  | 3.3457     | 4.4599  | 4.0148     | 5.2020  | 4.6839     | 5.9452     | 5.3530     | 6.6883  | 6.0222     | 48°     |        |            |         |      |            |         |      |
|        | 15'    | 7048    | 3.3578     | 4.4457  | 4.0294     | 5.1867  | 4.7009     | 5.9276     | 5.3725     | 6.6686  | 6.0440     | 44°     |        |            |         |      |            |         |      |
|        | 30'    | 7011    | 3618       | 4413    | 0342       | 1815    | 7066       | 9217       | 3789       | 6620    | 0513       | 45'     |        |            |         |      |            |         |      |
|        | 45'    | 6864    | 3780       | 4237    | 0535       | 1609    | 7291       | 8982       | 4047       | 6355    | 0803       | 30'     |        |            |         |      |            |         |      |
|        | 3 3/4  | 6716    | 3940       | 4059    | 0728       | 1403    | 7516       | 8746       | 4304       | 6089    | 1092       | 15'     |        |            |         |      |            |         |      |
| 43°    | 3.6568 | 4.1000  | 4.3881     | 4.0920  | 5.1195     | 4.7740  | 5.8508     | 5.4560     | 6.5822     | 6.1380  | 67°        |         |        |            |         |      |            |         |      |
|        | 15'    | 6419    | 4259       | 3702    | 1111       | 0986    | 7963       | 8270       | 4815       | 5553    | 1260       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 6269    | 4418       | 3522    | 1301       | 0776    | 8185       | 8030       | 5068       | 5284    | 1952       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 6118    | 4576       | 3324    | 1491       | 0565    | 8406       | 7789       | 5321       | 5013    | 2236       | 15'     |        |            |         |      |            |         |      |
|        | 3 1/2  | 3.5973  | 3.4733     | 4.3160  | 4.1680     | 5.0354  | 4.8626     | 5.7547     | 5.5573     | 6.4741  | 6.2519     | 46°     |        |            |         |      |            |         |      |
| 44°    | 15'    | 5815    | 4890       | 2978    | 1867       | 5.0141  | 8845       | 7304       | 5823       | 4467    | 2801       | 45'     |        |            |         |      |            |         |      |
|        | 30'    | 5663    | 5045       | 2795    | 2055       | 4.9928  | 9064       | 7060       | 6073       | 4193    | 3082       | 30'     |        |            |         |      |            |         |      |
|        | 45'    | 5500    | 5201       | 2611    | 2241       | 4.9713  | 9281       | 6815       | 6321       | 3917    | 3361       | 15'     |        |            |         |      |            |         |      |
|        | 4 1/2  | 3.5355  | 3.5355     | 4.2426  | 4.2426     | 4.9497  | 4.9497     | 5.6560     | 5.6560     | 6.3647  | 6.3640     | 45°     | 4      |            |         |      |            |         |      |
|        | Course | points  | deg.       | dep.    | diff. lat. | Dist. 5 | dep.       | diff. lat. | Dist. 6    | dep.    | diff. lat. | Dist. 7 | dep.   | diff. lat. | Dist. 8 | dep. | diff. lat. | Dist. 9 | deg. |



|    |      | Latitude. |       |       |       |       |       |       |       |       |       |       |       |    |
|----|------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
|    | 0°   | 1°        | 2°    | 3°    | 4°    | 5°    | 6°    | 7°    | 8°    | 9°    | 10°   | 11°   | 12°   |    |
| 0  | 0.0  | 60.0      | 120.0 | 180.1 | 240.3 | 300.4 | 360.7 | 421.1 | 481.6 | 542.2 | 603.1 | 664.1 | 725.3 | 0  |
| 1  | 1.0  | 61.0      | 121.0 | 181.1 | 241.2 | 301.4 | 361.7 | 422.1 | 482.6 | 543.3 | 604.1 | 665.1 | 726.3 | 1  |
| 2  | 2.0  | 62.0      | 122.0 | 182.1 | 242.2 | 302.4 | 362.7 | 423.1 | 483.6 | 544.3 | 605.1 | 666.1 | 727.4 | 2  |
| 3  | 3.0  | 63.0      | 123.0 | 183.1 | 243.2 | 303.4 | 363.7 | 424.1 | 484.6 | 545.3 | 606.2 | 667.2 | 728.4 | 3  |
| 4  | 4.0  | 64.0      | 124.0 | 184.1 | 244.2 | 304.4 | 364.7 | 425.1 | 485.6 | 546.3 | 607.2 | 668.2 | 729.4 | 4  |
| 5  | 5.0  | 65.0      | 125.0 | 185.1 | 245.2 | 305.4 | 365.7 | 426.1 | 486.6 | 547.3 | 608.2 | 669.2 | 730.5 | 5  |
| 6  | 6.0  | 66.0      | 126.0 | 186.1 | 246.2 | 306.4 | 366.7 | 427.1 | 487.6 | 548.3 | 609.2 | 670.2 | 731.5 | 6  |
| 7  | 7.0  | 67.0      | 127.0 | 187.1 | 247.2 | 307.4 | 367.7 | 428.1 | 488.6 | 549.3 | 610.2 | 671.2 | 732.5 | 7  |
| 8  | 8.0  | 68.0      | 128.0 | 188.1 | 248.2 | 308.4 | 368.7 | 429.1 | 489.6 | 550.3 | 611.2 | 672.2 | 733.5 | 8  |
| 9  | 9.0  | 69.0      | 129.0 | 189.1 | 249.2 | 309.4 | 369.7 | 430.1 | 490.7 | 551.4 | 612.2 | 673.3 | 734.6 | 9  |
| 10 | 10.0 | 70.0      | 130.0 | 190.1 | 250.2 | 310.4 | 370.7 | 431.1 | 491.7 | 552.4 | 613.2 | 674.3 | 735.6 | 10 |
| 11 | 11.0 | 71.0      | 131.0 | 191.1 | 251.2 | 311.4 | 371.7 | 432.1 | 492.7 | 553.4 | 614.2 | 675.3 | 736.6 | 11 |
| 12 | 12.0 | 72.0      | 132.0 | 192.1 | 252.2 | 312.4 | 372.7 | 433.1 | 493.7 | 554.4 | 615.3 | 676.3 | 737.6 | 12 |
| 13 | 13.0 | 73.0      | 133.0 | 193.1 | 253.2 | 313.4 | 373.7 | 434.2 | 494.7 | 555.4 | 616.3 | 677.3 | 738.6 | 13 |
| 14 | 14.0 | 74.0      | 134.0 | 194.1 | 254.2 | 314.4 | 374.7 | 435.2 | 495.7 | 556.4 | 617.3 | 678.4 | 739.6 | 14 |
| 15 | 15.0 | 75.0      | 135.0 | 195.1 | 255.2 | 315.4 | 375.7 | 436.2 | 496.7 | 557.4 | 618.3 | 679.4 | 740.7 | 15 |
| 16 | 16.0 | 76.0      | 136.0 | 196.1 | 256.2 | 316.4 | 376.8 | 437.2 | 497.7 | 558.4 | 619.3 | 680.4 | 741.7 | 16 |
| 17 | 17.0 | 77.0      | 137.0 | 197.1 | 257.2 | 317.5 | 377.8 | 438.2 | 498.7 | 559.4 | 620.3 | 681.4 | 742.7 | 17 |
| 18 | 18.0 | 78.0      | 138.0 | 198.1 | 258.2 | 318.5 | 378.8 | 439.2 | 499.8 | 560.5 | 621.3 | 682.4 | 743.7 | 18 |
| 19 | 19.0 | 79.0      | 139.0 | 199.1 | 259.2 | 319.5 | 379.8 | 440.2 | 500.8 | 561.5 | 622.4 | 683.5 | 744.8 | 19 |
| 20 | 20.0 | 80.0      | 140.0 | 200.1 | 260.2 | 320.5 | 380.8 | 441.2 | 501.8 | 562.5 | 623.4 | 684.5 | 745.8 | 20 |
| 21 | 21.0 | 81.0      | 141.0 | 201.1 | 261.2 | 321.5 | 381.8 | 442.2 | 502.8 | 563.5 | 624.4 | 685.5 | 746.8 | 21 |
| 22 | 22.0 | 82.0      | 142.0 | 202.1 | 262.2 | 322.5 | 382.8 | 443.2 | 503.8 | 564.5 | 625.4 | 686.5 | 747.8 | 22 |
| 23 | 23.0 | 83.0      | 143.0 | 203.1 | 263.2 | 323.5 | 383.8 | 444.2 | 504.8 | 565.5 | 626.4 | 687.5 | 748.9 | 23 |
| 24 | 24.0 | 84.0      | 144.0 | 204.1 | 264.2 | 324.5 | 384.8 | 445.2 | 505.8 | 566.6 | 627.4 | 688.6 | 749.9 | 24 |
| 25 | 25.0 | 85.0      | 145.0 | 205.1 | 265.2 | 325.5 | 385.8 | 446.2 | 506.8 | 567.6 | 628.5 | 689.6 | 750.9 | 25 |
| 26 | 26.0 | 86.0      | 146.0 | 206.1 | 266.2 | 326.5 | 386.8 | 447.2 | 507.8 | 568.6 | 629.5 | 690.6 | 751.9 | 26 |
| 27 | 27.0 | 87.0      | 147.0 | 207.1 | 267.2 | 327.5 | 387.8 | 448.2 | 508.8 | 569.6 | 630.5 | 691.6 | 752.9 | 27 |
| 28 | 28.0 | 88.0      | 148.0 | 208.1 | 268.2 | 328.5 | 388.8 | 449.2 | 509.8 | 570.6 | 631.5 | 692.6 | 753.9 | 28 |
| 29 | 29.0 | 89.0      | 149.0 | 209.1 | 269.2 | 329.5 | 389.8 | 450.2 | 510.9 | 571.6 | 632.5 | 693.6 | 755.0 | 29 |
| 30 | 30.0 | 90.0      | 150.0 | 210.1 | 270.2 | 330.5 | 390.8 | 451.2 | 511.9 | 572.6 | 633.5 | 694.7 | 756.0 | 30 |
| 31 | 31.0 | 91.0      | 151.0 | 211.1 | 271.2 | 331.5 | 391.8 | 452.2 | 512.9 | 573.7 | 634.6 | 695.7 | 757.1 | 31 |
| 32 | 32.0 | 92.0      | 152.0 | 212.1 | 272.2 | 332.5 | 392.9 | 453.2 | 513.9 | 574.7 | 635.6 | 696.7 | 758.1 | 32 |
| 33 | 33.0 | 93.0      | 153.0 | 213.1 | 273.2 | 333.5 | 393.9 | 454.2 | 514.9 | 575.7 | 636.6 | 697.7 | 759.1 | 33 |
| 34 | 34.0 | 94.0      | 154.0 | 214.1 | 274.2 | 334.5 | 394.9 | 455.2 | 515.9 | 576.7 | 637.6 | 698.7 | 760.1 | 34 |
| 35 | 35.0 | 95.0      | 155.0 | 215.1 | 275.2 | 335.5 | 395.9 | 456.2 | 516.9 | 577.7 | 638.6 | 699.8 | 761.2 | 35 |
| 36 | 36.0 | 96.0      | 156.0 | 216.1 | 276.2 | 336.5 | 396.9 | 457.2 | 517.9 | 578.7 | 639.6 | 700.8 | 762.2 | 36 |
| 37 | 37.0 | 97.0      | 157.0 | 217.1 | 277.2 | 337.5 | 397.9 | 458.2 | 518.9 | 579.7 | 640.7 | 701.8 | 763.2 | 37 |
| 38 | 38.0 | 98.0      | 158.0 | 218.2 | 278.2 | 338.5 | 398.9 | 459.2 | 520.0 | 580.8 | 641.7 | 702.8 | 764.2 | 38 |
| 39 | 39.0 | 99.0      | 159.0 | 219.2 | 279.2 | 339.6 | 399.9 | 460.2 | 521.0 | 581.8 | 642.7 | 703.8 | 765.2 | 39 |
| 40 | 40.0 | 100.0     | 160.0 | 220.2 | 280.2 | 340.6 | 400.9 | 461.2 | 522.0 | 582.8 | 643.7 | 704.9 | 766.3 | 40 |
| 41 | 41.0 | 101.0     | 161.0 | 221.2 | 281.2 | 341.6 | 401.9 | 462.2 | 523.0 | 583.8 | 644.7 | 705.9 | 767.3 | 41 |
| 42 | 42.0 | 102.0     | 162.0 | 222.2 | 282.2 | 342.6 | 402.9 | 463.2 | 524.0 | 584.8 | 645.8 | 706.9 | 768.3 | 42 |
| 43 | 43.0 | 103.0     | 163.0 | 223.2 | 283.2 | 343.6 | 403.9 | 464.2 | 525.0 | 585.8 | 646.8 | 707.9 | 769.3 | 43 |
| 44 | 44.0 | 104.0     | 164.0 | 224.2 | 284.2 | 344.6 | 404.9 | 465.2 | 526.0 | 586.8 | 647.8 | 708.9 | 770.4 | 44 |
| 45 | 45.0 | 105.0     | 165.0 | 225.2 | 285.2 | 345.6 | 405.9 | 466.2 | 527.0 | 587.9 | 648.8 | 710.0 | 771.4 | 45 |
| 46 | 46.0 | 106.0     | 166.0 | 226.2 | 286.2 | 346.6 | 407.0 | 467.2 | 528.0 | 588.9 | 649.8 | 711.0 | 772.4 | 46 |
| 47 | 47.0 | 107.0     | 167.0 | 227.2 | 287.2 | 347.6 | 408.0 | 468.2 | 529.0 | 589.9 | 650.8 | 712.0 | 773.4 | 47 |
| 48 | 48.0 | 108.0     | 168.0 | 228.2 | 288.2 | 348.6 | 409.0 | 469.2 | 530.0 | 590.9 | 651.9 | 713.1 | 774.5 | 48 |
| 49 | 49.0 | 109.0     | 169.0 | 229.2 | 289.2 | 349.6 | 410.0 | 470.2 | 531.0 | 591.9 | 652.9 | 714.1 | 775.5 | 49 |
| 50 | 50.0 | 110.0     | 170.0 | 230.2 | 290.2 | 350.6 | 411.0 | 471.2 | 532.0 | 592.9 | 653.9 | 715.1 | 776.5 | 50 |
| 51 | 51.0 | 111.0     | 171.0 | 231.2 | 291.2 | 351.6 | 412.0 | 472.2 | 533.0 | 593.9 | 654.9 | 716.1 | 777.5 | 51 |
| 52 | 52.0 | 112.0     | 172.0 | 232.2 | 292.2 | 352.6 | 413.0 | 473.2 | 534.0 | 595.0 | 655.9 | 717.1 | 778.6 | 52 |
| 53 | 53.0 | 113.0     | 173.0 | 233.2 | 293.2 | 353.6 | 414.0 | 474.2 | 535.0 | 596.0 | 657.0 | 718.2 | 779.6 | 53 |
| 54 | 54.0 | 114.0     | 174.0 | 234.2 | 294.2 | 354.6 | 415.0 | 475.2 | 536.0 | 597.0 | 658.0 | 719.2 | 780.6 | 54 |
| 55 | 55.0 | 115.0     | 175.0 | 235.2 | 295.2 | 355.6 | 416.0 | 476.2 | 537.0 | 598.0 | 659.0 | 720.2 | 781.7 | 55 |
| 56 | 56.0 | 116.0     | 176.0 | 236.2 | 296.2 | 356.6 | 417.0 | 477.2 | 538.0 | 599.0 | 660.0 | 721.2 | 782.7 | 56 |
| 57 | 57.0 | 117.0     | 177.0 | 237.2 | 297.2 | 357.6 | 418.0 | 478.2 | 539.0 | 600.0 | 661.0 | 722.2 | 783.7 | 57 |
| 58 | 58.0 | 118.0     | 178.0 | 238.2 | 298.2 | 358.6 | 419.0 | 479.2 | 540.0 | 601.0 | 662.1 | 723.2 | 784.7 | 58 |
| 59 | 59.0 | 119.0     | 179.0 | 239.2 | 299.2 | 359.7 | 420.0 | 480.2 | 541.0 | 602.1 | 663.1 | 724.2 | 785.8 | 59 |
| 60 | 60.0 | 120.0     | 180.0 | 240.2 | 300.2 | 360.7 | 421.1 | 481.2 | 542.0 | 603.1 | 664.1 | 725.2 | 786.8 | 60 |

|    |       | Latitude. |       |        |        |        |        |        |        |        |        |        |     |  |
|----|-------|-----------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|--|
|    |       | 13°       | 14°   | 15°    | 16°    | 17°    | 18°    | 19°    | 20°    | 21°    | 22°    | 23°    | 24° |  |
| 0  | 786.8 | 848.5     | 910.5 | 972.7  | 1035.3 | 1098.2 | 1161.5 | 1225.1 | 1289.2 | 1353.7 | 1418.6 | 1484.1 | 0   |  |
| 1  | 787.8 | 849.5     | 911.5 | 973.8  | 1036.3 | 1099.3 | 1162.5 | 1226.2 | 1290.3 | 1354.8 | 1419.7 | 1485.2 | 1   |  |
| 2  | 788.8 | 850.6     | 912.6 | 974.8  | 1037.4 | 1100.3 | 1163.6 | 1227.3 | 1291.3 | 1355.8 | 1420.8 | 1486.3 | 2   |  |
| 3  | 789.9 | 851.6     | 913.6 | 975.9  | 1038.4 | 1101.4 | 1164.7 | 1228.3 | 1292.4 | 1356.9 | 1421.9 | 1487.3 | 3   |  |
| 4  | 790.9 | 852.6     | 914.6 | 976.9  | 1039.5 | 1102.4 | 1165.7 | 1229.4 | 1293.5 | 1358.0 | 1423.0 | 1488.4 | 4   |  |
| 5  | 791.9 | 853.6     | 915.7 | 978.0  | 1040.5 | 1103.5 | 1166.8 | 1230.4 | 1294.5 | 1359.0 | 1424.1 | 1489.5 | 5   |  |
| 6  | 792.9 | 854.7     | 916.7 | 979.0  | 1041.6 | 1104.5 | 1167.8 | 1231.5 | 1295.6 | 1360.1 | 1425.1 | 1490.6 | 6   |  |
| 7  | 794.0 | 855.7     | 917.7 | 980.0  | 1042.6 | 1105.6 | 1168.9 | 1232.6 | 1296.7 | 1361.2 | 1426.2 | 1491.7 | 7   |  |
| 8  | 795.0 | 856.7     | 918.8 | 981.1  | 1043.7 | 1106.6 | 1170.0 | 1233.6 | 1297.8 | 1362.3 | 1427.3 | 1492.8 | 8   |  |
| 9  | 796.0 | 857.8     | 919.8 | 982.1  | 1044.7 | 1107.7 | 1171.0 | 1234.7 | 1298.8 | 1363.4 | 1428.4 | 1493.9 | 9   |  |
| 10 | 797.1 | 858.8     | 920.8 | 983.2  | 1045.8 | 1108.7 | 1172.1 | 1235.8 | 1299.9 | 1364.5 | 1429.5 | 1495.0 | 10  |  |
| 11 | 798.1 | 859.8     | 921.9 | 984.2  | 1046.8 | 1109.8 | 1173.1 | 1236.8 | 1301.0 | 1365.6 | 1430.6 | 1496.1 | 11  |  |
| 12 | 799.1 | 860.9     | 922.9 | 985.2  | 1047.9 | 1110.8 | 1174.2 | 1237.9 | 1302.0 | 1366.7 | 1431.7 | 1497.2 | 12  |  |
| 13 | 800.1 | 861.9     | 923.9 | 986.3  | 1048.9 | 1111.9 | 1175.2 | 1239.0 | 1303.1 | 1367.7 | 1432.8 | 1498.3 | 13  |  |
| 14 | 801.2 | 862.9     | 925.0 | 987.3  | 1049.9 | 1112.9 | 1176.3 | 1240.0 | 1304.2 | 1368.8 | 1433.9 | 1499.4 | 14  |  |
| 15 | 802.2 | 864.0     | 926.0 | 988.4  | 1051.0 | 1114.0 | 1177.4 | 1241.1 | 1305.3 | 1369.9 | 1434.9 | 1500.5 | 15  |  |
| 16 | 803.2 | 865.0     | 927.0 | 989.4  | 1052.0 | 1115.0 | 1178.4 | 1242.2 | 1306.3 | 1370.9 | 1436.0 | 1501.6 | 16  |  |
| 17 | 804.2 | 866.0     | 928.1 | 990.4  | 1053.1 | 1116.1 | 1179.5 | 1243.2 | 1307.4 | 1372.0 | 1437.1 | 1502.7 | 17  |  |
| 18 | 805.3 | 867.1     | 929.1 | 991.5  | 1054.1 | 1117.1 | 1180.5 | 1244.3 | 1308.5 | 1373.1 | 1438.2 | 1503.8 | 18  |  |
| 19 | 806.3 | 868.1     | 930.1 | 992.5  | 1055.2 | 1118.2 | 1181.6 | 1245.4 | 1309.6 | 1374.2 | 1439.3 | 1504.9 | 19  |  |
| 20 | 807.3 | 869.1     | 931.2 | 993.6  | 1056.2 | 1119.2 | 1182.7 | 1246.4 | 1310.6 | 1375.3 | 1440.4 | 1506.0 | 20  |  |
| 21 | 808.4 | 870.1     | 932.2 | 994.6  | 1057.3 | 1120.3 | 1183.7 | 1247.5 | 1311.7 | 1376.4 | 1441.5 | 1507.1 | 21  |  |
| 22 | 809.4 | 871.1     | 933.3 | 995.6  | 1058.3 | 1121.3 | 1184.8 | 1248.6 | 1312.8 | 1377.4 | 1442.6 | 1508.2 | 22  |  |
| 23 | 810.4 | 872.2     | 934.3 | 996.7  | 1059.4 | 1122.4 | 1185.8 | 1249.6 | 1313.8 | 1378.5 | 1443.7 | 1509.3 | 23  |  |
| 24 | 811.4 | 873.2     | 935.3 | 997.7  | 1060.4 | 1123.4 | 1186.9 | 1250.7 | 1314.9 | 1379.6 | 1444.8 | 1510.4 | 24  |  |
| 25 | 812.5 | 874.3     | 936.3 | 998.8  | 1061.4 | 1124.5 | 1188.0 | 1251.8 | 1316.0 | 1380.7 | 1445.8 | 1511.5 | 25  |  |
| 26 | 813.5 | 875.3     | 937.4 | 999.8  | 1062.5 | 1125.5 | 1189.0 | 1252.8 | 1317.1 | 1381.8 | 1446.9 | 1512.6 | 26  |  |
| 27 | 814.5 | 876.3     | 938.4 | 1000.8 | 1063.5 | 1126.6 | 1190.1 | 1253.9 | 1318.2 | 1382.8 | 1448.0 | 1513.7 | 27  |  |
| 28 | 815.5 | 877.4     | 939.5 | 1001.9 | 1064.6 | 1127.6 | 1191.1 | 1255.0 | 1319.3 | 1383.9 | 1449.1 | 1514.8 | 28  |  |
| 29 | 816.6 | 878.4     | 940.5 | 1002.9 | 1065.6 | 1128.7 | 1192.2 | 1256.1 | 1320.3 | 1385.0 | 1450.2 | 1515.9 | 29  |  |
| 30 | 817.6 | 879.4     | 941.6 | 1004.0 | 1066.7 | 1129.7 | 1193.2 | 1257.1 | 1321.4 | 1386.1 | 1451.3 | 1517.0 | 30  |  |
| 31 | 818.6 | 880.5     | 942.6 | 1005.0 | 1067.7 | 1130.8 | 1194.3 | 1258.2 | 1322.5 | 1387.2 | 1452.4 | 1518.1 | 31  |  |
| 32 | 819.6 | 881.5     | 943.6 | 1006.1 | 1068.8 | 1131.8 | 1195.4 | 1259.2 | 1323.5 | 1388.3 | 1453.5 | 1519.2 | 32  |  |
| 33 | 820.7 | 882.5     | 944.7 | 1007.1 | 1069.8 | 1132.9 | 1196.4 | 1260.3 | 1324.6 | 1389.4 | 1454.6 | 1520.3 | 33  |  |
| 34 | 821.7 | 883.6     | 945.7 | 1008.1 | 1070.9 | 1134.0 | 1197.5 | 1261.4 | 1325.7 | 1390.4 | 1455.7 | 1521.4 | 34  |  |
| 35 | 822.7 | 884.6     | 946.7 | 1009.2 | 1072.0 | 1135.1 | 1198.5 | 1262.4 | 1326.7 | 1391.5 | 1456.7 | 1522.5 | 35  |  |
| 36 | 823.8 | 885.6     | 947.8 | 1010.2 | 1073.0 | 1136.1 | 1199.6 | 1263.5 | 1327.8 | 1392.6 | 1457.8 | 1523.6 | 36  |  |
| 37 | 824.8 | 886.6     | 948.8 | 1011.3 | 1074.1 | 1137.2 | 1200.7 | 1264.6 | 1328.9 | 1393.7 | 1458.9 | 1524.7 | 37  |  |
| 38 | 825.8 | 887.7     | 949.9 | 1012.3 | 1075.1 | 1138.2 | 1201.7 | 1265.6 | 1330.0 | 1394.8 | 1460.0 | 1525.8 | 38  |  |
| 39 | 826.9 | 888.7     | 950.9 | 1013.4 | 1076.2 | 1139.3 | 1202.8 | 1266.7 | 1331.1 | 1395.8 | 1461.1 | 1526.9 | 39  |  |
| 40 | 827.9 | 889.8     | 951.9 | 1014.4 | 1077.2 | 1140.3 | 1203.9 | 1267.8 | 1332.1 | 1396.9 | 1462.2 | 1528.0 | 40  |  |
| 41 | 828.9 | 890.8     | 953.0 | 1015.4 | 1078.3 | 1141.4 | 1204.9 | 1268.8 | 1333.2 | 1398.0 | 1463.3 | 1529.1 | 41  |  |
| 42 | 829.9 | 891.8     | 954.0 | 1016.5 | 1079.3 | 1142.4 | 1206.0 | 1269.9 | 1334.3 | 1399.1 | 1464.4 | 1530.2 | 42  |  |
| 43 | 830.9 | 892.9     | 955.0 | 1017.5 | 1080.4 | 1143.5 | 1207.1 | 1271.0 | 1335.3 | 1400.2 | 1465.5 | 1531.3 | 43  |  |
| 44 | 832.0 | 893.9     | 956.1 | 1018.6 | 1081.4 | 1144.6 | 1208.1 | 1272.1 | 1336.4 | 1401.3 | 1466.6 | 1532.4 | 44  |  |
| 45 | 833.0 | 894.9     | 957.1 | 1019.6 | 1082.5 | 1145.6 | 1209.2 | 1273.1 | 1337.5 | 1402.4 | 1467.7 | 1533.5 | 45  |  |
| 46 | 834.1 | 896.0     | 958.1 | 1020.6 | 1083.5 | 1146.7 | 1210.2 | 1274.2 | 1338.6 | 1403.4 | 1468.8 | 1534.6 | 46  |  |
| 47 | 835.1 | 897.0     | 959.2 | 1021.7 | 1084.6 | 1147.7 | 1211.3 | 1275.3 | 1339.7 | 1404.5 | 1469.9 | 1535.7 | 47  |  |
| 48 | 836.1 | 898.1     | 960.2 | 1022.7 | 1085.6 | 1148.8 | 1212.4 | 1276.3 | 1340.7 | 1405.6 | 1470.9 | 1536.8 | 48  |  |
| 49 | 837.2 | 899.1     | 961.3 | 1023.8 | 1086.7 | 1149.9 | 1213.4 | 1277.4 | 1341.8 | 1406.7 | 1472.0 | 1537.9 | 49  |  |
| 50 | 838.2 | 900.1     | 962.3 | 1024.8 | 1087.7 | 1150.9 | 1214.5 | 1278.5 | 1342.9 | 1407.8 | 1473.1 | 1539.0 | 50  |  |
| 51 | 839.2 | 901.2     | 963.4 | 1025.9 | 1088.8 | 1152.0 | 1215.5 | 1279.5 | 1344.0 | 1408.8 | 1474.2 | 1540.1 | 51  |  |
| 52 | 840.2 | 902.2     | 964.4 | 1026.9 | 1089.8 | 1153.0 | 1216.6 | 1280.6 | 1345.1 | 1409.9 | 1475.3 | 1541.2 | 52  |  |
| 53 | 841.3 | 903.2     | 965.5 | 1028.0 | 1090.9 | 1154.1 | 1217.7 | 1281.7 | 1346.1 | 1411.0 | 1476.4 | 1542.3 | 53  |  |
| 54 | 842.3 | 904.3     | 966.5 | 1029.0 | 1091.9 | 1155.1 | 1218.7 | 1282.8 | 1347.2 | 1412.1 | 1477.4 | 1543.4 | 54  |  |
| 55 | 843.3 | 905.3     | 967.5 | 1030.1 | 1093.0 | 1156.2 | 1219.8 | 1283.8 | 1348.3 | 1413.2 | 1478.6 | 1544.5 | 55  |  |
| 56 | 844.4 | 906.3     | 968.6 | 1031.1 | 1094.0 | 1157.2 | 1220.9 | 1284.9 | 1349.4 | 1414.3 | 1479.7 | 1545.6 | 56  |  |
| 57 | 845.4 | 907.4     | 969.6 | 1032.2 | 1095.1 | 1158.3 | 1221.9 | 1286.0 | 1350.5 | 1415.4 | 1480.8 | 1546.7 | 57  |  |
| 58 | 846.4 | 908.4     | 970.7 | 1033.2 | 1096.1 | 1159.4 | 1223.0 | 1287.1 | 1351.5 | 1416.5 | 1481.9 | 1547.8 | 58  |  |
| 59 | 847.5 | 909.4     | 971.7 | 1034.3 | 1097.2 | 1160.4 | 1224.1 | 1288.1 | 1352.6 | 1417.5 | 1483.0 | 1548.9 | 59  |  |
| 60 | 848.5 | 910.5     | 972.7 | 1035.3 | 1098.2 | 1161.5 | 1225.1 | 1289.2 | 1353.7 | 1418.6 | 1484.1 | 1550.0 | 60  |  |

|    |        | Latitude. |        |        |        |        |        |        |        |        |        |    |
|----|--------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
|    | 25°    | 26°       | 27°    | 28°    | 29°    | 30°    | 31°    | 32°    | 33°    | 34°    | 35°    |    |
| 0  | 1550.0 | 1616.5    | 1683.5 | 1751.2 | 1819.4 | 1888.4 | 1958.0 | 2028.4 | 2099.5 | 2171.5 | 2244.3 | 0  |
| 1  | 1551.1 | 1617.6    | 1684.6 | 1752.3 | 1820.6 | 1889.5 | 1959.2 | 2029.6 | 2100.7 | 2172.7 | 2245.5 | 1  |
| 2  | 1552.2 | 1618.7    | 1685.8 | 1753.4 | 1821.7 | 1890.7 | 1960.4 | 2030.7 | 2101.9 | 2173.9 | 2246.8 | 2  |
| 3  | 1553.3 | 1619.8    | 1686.9 | 1754.6 | 1822.9 | 1891.9 | 1961.6 | 2031.9 | 2103.1 | 2175.1 | 2248.0 | 3  |
| 4  | 1554.4 | 1620.9    | 1688.0 | 1755.7 | 1824.0 | 1893.0 | 1962.7 | 2033.1 | 2104.3 | 2176.3 | 2249.2 | 4  |
| 5  | 1555.5 | 1622.0    | 1689.1 | 1756.8 | 1825.2 | 1894.1 | 1963.9 | 2034.3 | 2105.5 | 2177.5 | 2250.4 | 5  |
| 6  | 1556.6 | 1623.2    | 1690.3 | 1758.0 | 1826.3 | 1895.3 | 1965.0 | 2035.5 | 2106.7 | 2178.7 | 2251.6 | 6  |
| 7  | 1557.7 | 1624.3    | 1691.4 | 1759.1 | 1827.5 | 1896.5 | 1966.2 | 2036.7 | 2107.9 | 2180.0 | 2252.9 | 7  |
| 8  | 1558.8 | 1625.4    | 1692.5 | 1760.2 | 1828.6 | 1897.6 | 1967.4 | 2037.8 | 2109.1 | 2181.2 | 2254.1 | 8  |
| 9  | 1559.9 | 1626.5    | 1693.6 | 1761.4 | 1829.7 | 1898.8 | 1968.5 | 2039.0 | 2110.3 | 2182.4 | 2255.3 | 9  |
| 10 | 1561.0 | 1627.6    | 1694.8 | 1762.5 | 1830.9 | 1899.9 | 1969.7 | 2040.2 | 2111.5 | 2183.6 | 2256.5 | 10 |
| 11 | 1562.1 | 1628.7    | 1695.9 | 1763.6 | 1832.0 | 1901.1 | 1970.9 | 2041.4 | 2112.7 | 2184.8 | 2257.8 | 11 |
| 12 | 1563.3 | 1629.8    | 1697.0 | 1764.8 | 1833.2 | 1902.3 | 1972.0 | 2042.6 | 2113.9 | 2186.0 | 2259.0 | 12 |
| 13 | 1564.4 | 1631.0    | 1698.1 | 1765.9 | 1834.3 | 1903.4 | 1973.2 | 2043.8 | 2115.1 | 2187.2 | 2260.2 | 13 |
| 14 | 1565.5 | 1632.1    | 1699.3 | 1767.0 | 1835.5 | 1904.6 | 1974.4 | 2044.9 | 2116.3 | 2188.4 | 2261.4 | 14 |
| 15 | 1566.6 | 1633.2    | 1700.4 | 1768.2 | 1836.6 | 1905.7 | 1975.6 | 2046.1 | 2117.5 | 2189.6 | 2262.7 | 15 |
| 16 | 1567.7 | 1634.3    | 1701.5 | 1769.3 | 1837.8 | 1906.9 | 1976.8 | 2047.3 | 2118.7 | 2190.8 | 2263.9 | 16 |
| 17 | 1568.8 | 1635.4    | 1702.6 | 1770.5 | 1838.9 | 1908.1 | 1977.9 | 2048.5 | 2119.8 | 2192.0 | 2265.1 | 17 |
| 18 | 1569.9 | 1636.5    | 1703.8 | 1771.6 | 1840.1 | 1909.2 | 1979.1 | 2049.7 | 2121.0 | 2193.3 | 2266.3 | 18 |
| 19 | 1571.0 | 1637.6    | 1704.9 | 1772.7 | 1841.2 | 1910.4 | 1980.2 | 2050.8 | 2122.2 | 2194.4 | 2267.5 | 19 |
| 20 | 1572.1 | 1638.8    | 1706.0 | 1773.9 | 1842.4 | 1911.5 | 1981.4 | 2052.0 | 2123.4 | 2195.7 | 2268.8 | 20 |
| 21 | 1573.2 | 1639.9    | 1707.1 | 1775.0 | 1843.5 | 1912.7 | 1982.6 | 2053.2 | 2124.6 | 2196.9 | 2270.0 | 21 |
| 22 | 1574.3 | 1641.0    | 1708.3 | 1776.1 | 1844.6 | 1913.8 | 1983.7 | 2054.4 | 2125.8 | 2198.1 | 2271.2 | 22 |
| 23 | 1575.4 | 1642.1    | 1709.4 | 1777.2 | 1845.8 | 1915.0 | 1984.9 | 2055.6 | 2127.0 | 2199.3 | 2272.5 | 23 |
| 24 | 1576.5 | 1643.2    | 1710.5 | 1778.4 | 1846.9 | 1916.2 | 1986.1 | 2056.8 | 2128.2 | 2200.5 | 2273.7 | 24 |
| 25 | 1577.6 | 1644.3    | 1711.6 | 1779.5 | 1848.1 | 1917.3 | 1987.3 | 2058.0 | 2129.4 | 2201.7 | 2274.9 | 25 |
| 26 | 1578.7 | 1645.5    | 1712.8 | 1780.6 | 1849.2 | 1918.5 | 1988.4 | 2059.1 | 2130.6 | 2203.0 | 2276.1 | 26 |
| 27 | 1579.8 | 1646.6    | 1713.9 | 1781.8 | 1850.4 | 1919.6 | 1989.6 | 2060.3 | 2131.8 | 2204.2 | 2277.4 | 27 |
| 28 | 1580.9 | 1647.7    | 1715.0 | 1783.0 | 1851.5 | 1920.8 | 1990.8 | 2061.5 | 2133.0 | 2205.4 | 2278.6 | 28 |
| 29 | 1582.1 | 1648.8    | 1716.1 | 1784.1 | 1852.7 | 1921.9 | 1992.0 | 2062.7 | 2134.2 | 2206.6 | 2279.8 | 29 |
| 30 | 1583.2 | 1649.9    | 1717.3 | 1785.2 | 1853.8 | 1923.1 | 1993.1 | 2063.9 | 2135.4 | 2207.8 | 2281.0 | 30 |
| 31 | 1584.3 | 1651.0    | 1718.4 | 1786.4 | 1855.0 | 1924.3 | 1994.3 | 2065.1 | 2136.6 | 2209.0 | 2282.3 | 31 |
| 32 | 1585.4 | 1652.2    | 1719.5 | 1787.5 | 1856.1 | 1925.4 | 1995.5 | 2066.2 | 2137.8 | 2210.2 | 2283.5 | 32 |
| 33 | 1586.5 | 1653.3    | 1720.7 | 1788.6 | 1857.2 | 1926.6 | 1996.6 | 2067.4 | 2139.0 | 2211.4 | 2284.7 | 33 |
| 34 | 1587.6 | 1654.4    | 1721.8 | 1789.8 | 1858.4 | 1927.8 | 1997.8 | 2068.6 | 2140.2 | 2212.7 | 2286.0 | 34 |
| 35 | 1588.7 | 1655.5    | 1722.9 | 1790.9 | 1859.6 | 1928.9 | 1999.0 | 2069.8 | 2141.4 | 2213.9 | 2287.2 | 35 |
| 36 | 1589.8 | 1656.6    | 1724.0 | 1792.1 | 1860.7 | 1930.1 | 2000.2 | 2071.0 | 2142.6 | 2215.1 | 2288.4 | 36 |
| 37 | 1590.9 | 1657.8    | 1725.2 | 1793.2 | 1861.9 | 1931.3 | 2001.3 | 2072.2 | 2143.8 | 2216.3 | 2289.7 | 37 |
| 38 | 1592.0 | 1658.9    | 1726.3 | 1794.3 | 1863.0 | 1932.4 | 2002.5 | 2073.4 | 2145.0 | 2217.5 | 2290.9 | 38 |
| 39 | 1593.1 | 1660.0    | 1727.4 | 1795.5 | 1864.2 | 1933.6 | 2003.7 | 2074.5 | 2146.2 | 2218.7 | 2292.1 | 39 |
| 40 | 1594.3 | 1661.1    | 1728.6 | 1796.6 | 1865.3 | 1934.7 | 2004.9 | 2075.7 | 2147.4 | 2219.9 | 2293.3 | 40 |
| 41 | 1595.4 | 1662.2    | 1729.7 | 1797.8 | 1866.5 | 1935.9 | 2006.0 | 2076.9 | 2148.6 | 2221.2 | 2294.6 | 41 |
| 42 | 1596.5 | 1663.3    | 1730.8 | 1798.9 | 1867.6 | 1937.1 | 2007.2 | 2078.1 | 2149.8 | 2222.4 | 2295.8 | 42 |
| 43 | 1597.6 | 1664.5    | 1731.9 | 1800.0 | 1868.8 | 1938.2 | 2008.4 | 2079.3 | 2151.0 | 2223.6 | 2297.0 | 43 |
| 44 | 1598.7 | 1665.6    | 1733.1 | 1801.2 | 1869.9 | 1939.4 | 2009.6 | 2080.5 | 2152.2 | 2224.8 | 2298.3 | 44 |
| 45 | 1599.8 | 1666.7    | 1734.2 | 1802.3 | 1871.1 | 1940.5 | 2010.7 | 2081.7 | 2153.4 | 2226.0 | 2299.5 | 45 |
| 46 | 1600.9 | 1667.8    | 1735.3 | 1803.5 | 1872.2 | 1941.7 | 2011.9 | 2082.9 | 2154.6 | 2227.2 | 2300.7 | 46 |
| 47 | 1602.0 | 1669.0    | 1736.5 | 1804.6 | 1873.4 | 1942.9 | 2013.1 | 2084.0 | 2155.8 | 2228.5 | 2302.0 | 47 |
| 48 | 1603.1 | 1670.1    | 1737.6 | 1805.7 | 1874.5 | 1944.0 | 2014.3 | 2085.2 | 2157.0 | 2229.7 | 2303.2 | 48 |
| 49 | 1604.2 | 1671.2    | 1738.7 | 1806.9 | 1875.7 | 1945.2 | 2015.4 | 2086.4 | 2158.2 | 2230.9 | 2304.4 | 49 |
| 50 | 1605.4 | 1672.3    | 1739.9 | 1808.0 | 1876.8 | 1946.4 | 2016.6 | 2087.6 | 2159.4 | 2232.1 | 2305.7 | 50 |
| 51 | 1606.5 | 1673.4    | 1741.0 | 1809.2 | 1878.0 | 1947.5 | 2017.8 | 2088.8 | 2160.7 | 2233.3 | 2306.9 | 51 |
| 52 | 1607.6 | 1674.5    | 1742.2 | 1810.3 | 1879.2 | 1948.7 | 2019.0 | 2090.0 | 2161.9 | 2234.6 | 2308.1 | 52 |
| 53 | 1608.7 | 1675.7    | 1743.3 | 1811.4 | 1880.3 | 1949.9 | 2020.2 | 2091.2 | 2163.1 | 2235.8 | 2309.4 | 53 |
| 54 | 1609.8 | 1676.8    | 1744.4 | 1812.6 | 1881.5 | 1951.0 | 2021.3 | 2092.4 | 2164.3 | 2237.0 | 2310.6 | 54 |
| 55 | 1610.9 | 1677.9    | 1745.5 | 1813.7 | 1882.6 | 1952.2 | 2022.5 | 2093.6 | 2165.5 | 2238.2 | 2311.8 | 55 |
| 56 | 1612.0 | 1679.1    | 1746.6 | 1814.9 | 1883.8 | 1953.4 | 2023.7 | 2094.8 | 2166.7 | 2239.4 | 2313.1 | 56 |
| 57 | 1613.1 | 1680.2    | 1747.8 | 1816.0 | 1884.9 | 1954.5 | 2024.9 | 2096.0 | 2167.9 | 2240.7 | 2314.3 | 57 |
| 58 | 1614.2 | 1681.3    | 1748.9 | 1817.2 | 1886.1 | 1955.7 | 2026.0 | 2097.1 | 2169.1 | 2241.9 | 2315.5 | 58 |
| 59 | 1615.3 | 1682.4    | 1750.0 | 1818.3 | 1887.2 | 1956.9 | 2027.2 | 2098.3 | 2170.3 | 2243.1 | 2316.8 | 59 |
| 60 | 1616.5 | 1683.5    | 1751.2 | 1819.4 | 1888.4 | 1958.0 | 2028.4 | 2099.5 | 2171.5 | 2244.3 | 2318.0 | 60 |



| i  | Latitude. |        |        |        |        |        |        |        |        |        |        | i  |
|----|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
|    | 36°       | 37°    | 38°    | 39°    | 40°    | 41°    | 42°    | 43°    | 44°    | 45°    | 46°    |    |
| 0  | 2318.0    | 2392.6 | 2468.3 | 2545.0 | 2622.6 | 2701.6 | 2781.7 | 2863.1 | 2945.8 | 3030.0 | 3115.6 | 0  |
| 1  | 2319.2    | 2393.9 | 2469.5 | 2546.2 | 2624.0 | 2703.0 | 2783.1 | 2864.5 | 2947.2 | 3031.4 | 3117.0 | 1  |
| 2  | 2320.5    | 2395.1 | 2470.8 | 2547.5 | 2625.3 | 2704.3 | 2784.4 | 2865.8 | 2948.6 | 3032.8 | 3118.5 | 2  |
| 3  | 2321.7    | 2396.4 | 2472.1 | 2548.8 | 2626.6 | 2705.6 | 2785.8 | 2867.2 | 2950.0 | 3034.2 | 3119.9 | 3  |
| 4  | 2323.0    | 2397.7 | 2473.4 | 2550.1 | 2627.9 | 2706.9 | 2787.1 | 2868.5 | 2951.4 | 3035.6 | 3121.4 | 4  |
| 5  | 2324.2    | 2398.9 | 2474.6 | 2551.4 | 2629.2 | 2708.3 | 2788.5 | 2870.0 | 2952.8 | 3037.0 | 3122.8 | 5  |
| 6  | 2325.4    | 2400.2 | 2475.9 | 2552.7 | 2630.5 | 2709.6 | 2789.8 | 2871.3 | 2954.2 | 3038.4 | 3124.2 | 6  |
| 7  | 2326.7    | 2401.4 | 2477.1 | 2554.0 | 2631.9 | 2710.9 | 2791.2 | 2872.7 | 2955.6 | 3039.8 | 3125.7 | 7  |
| 8  | 2327.9    | 2402.7 | 2478.5 | 2555.3 | 2633.2 | 2712.2 | 2792.5 | 2874.1 | 2957.0 | 3041.3 | 3127.1 | 8  |
| 9  | 2329.1    | 2403.9 | 2479.7 | 2556.6 | 2634.5 | 2713.5 | 2793.8 | 2875.4 | 2958.3 | 3042.7 | 3128.5 | 9  |
| 10 | 2330.4    | 2405.2 | 2481.0 | 2557.8 | 2635.8 | 2714.9 | 2795.1 | 2876.8 | 2959.8 | 3044.1 | 3130.0 | 10 |
| 11 | 2331.6    | 2406.4 | 2482.2 | 2559.1 | 2637.1 | 2716.2 | 2796.5 | 2878.2 | 2961.1 | 3045.5 | 3131.5 | 11 |
| 12 | 2332.9    | 2407.7 | 2483.5 | 2560.4 | 2638.4 | 2717.5 | 2797.9 | 2879.5 | 2962.5 | 3047.0 | 3133.0 | 12 |
| 13 | 2334.1    | 2409.0 | 2484.8 | 2561.7 | 2639.7 | 2718.9 | 2799.3 | 2880.9 | 2963.9 | 3048.4 | 3134.5 | 13 |
| 14 | 2335.3    | 2410.2 | 2486.1 | 2563.0 | 2641.0 | 2720.2 | 2800.6 | 2882.3 | 2965.3 | 3049.8 | 3135.8 | 14 |
| 15 | 2336.6    | 2411.5 | 2487.4 | 2564.3 | 2642.3 | 2721.5 | 2802.0 | 2883.7 | 2966.7 | 3051.2 | 3137.2 | 15 |
| 16 | 2337.8    | 2412.7 | 2488.6 | 2565.6 | 2643.6 | 2722.9 | 2803.3 | 2885.0 | 2968.1 | 3052.6 | 3138.7 | 16 |
| 17 | 2339.0    | 2414.0 | 2489.9 | 2566.9 | 2644.9 | 2724.2 | 2804.7 | 2886.4 | 2969.5 | 3054.1 | 3140.1 | 17 |
| 18 | 2340.3    | 2415.2 | 2491.2 | 2568.2 | 2646.3 | 2725.5 | 2806.0 | 2887.8 | 2970.9 | 3055.5 | 3141.6 | 18 |
| 19 | 2341.5    | 2416.5 | 2492.4 | 2569.5 | 2647.6 | 2726.8 | 2807.3 | 2889.1 | 2972.3 | 3056.9 | 3143.0 | 19 |
| 20 | 2342.8    | 2417.8 | 2493.7 | 2570.7 | 2648.9 | 2728.2 | 2808.8 | 2890.5 | 2973.7 | 3058.3 | 3144.5 | 20 |
| 21 | 2344.0    | 2419.0 | 2495.0 | 2572.0 | 2650.3 | 2729.5 | 2810.1 | 2891.9 | 2975.1 | 3059.7 | 3145.9 | 21 |
| 22 | 2345.3    | 2420.3 | 2496.3 | 2573.3 | 2651.5 | 2730.8 | 2811.4 | 2893.3 | 2976.5 | 3061.2 | 3147.4 | 22 |
| 23 | 2346.5    | 2421.5 | 2497.6 | 2574.6 | 2652.8 | 2732.2 | 2812.8 | 2894.7 | 2977.9 | 3062.6 | 3148.8 | 23 |
| 24 | 2347.7    | 2422.8 | 2498.8 | 2575.9 | 2654.1 | 2733.5 | 2814.1 | 2896.0 | 2979.3 | 3064.0 | 3150.3 | 24 |
| 25 | 2349.0    | 2424.0 | 2500.1 | 2577.2 | 2655.5 | 2734.8 | 2815.5 | 2897.4 | 2980.7 | 3065.4 | 3151.7 | 25 |
| 26 | 2350.2    | 2425.3 | 2501.4 | 2578.5 | 2656.8 | 2736.2 | 2816.8 | 2898.8 | 2982.1 | 3066.9 | 3153.2 | 26 |
| 27 | 2351.5    | 2426.5 | 2502.7 | 2579.8 | 2658.1 | 2737.5 | 2818.2 | 2900.2 | 2983.5 | 3068.3 | 3154.6 | 27 |
| 28 | 2352.7    | 2427.8 | 2503.9 | 2581.1 | 2659.4 | 2738.8 | 2819.5 | 2901.5 | 2984.9 | 3069.7 | 3156.1 | 28 |
| 29 | 2354.0    | 2429.1 | 2505.2 | 2582.4 | 2660.7 | 2740.2 | 2820.9 | 2902.9 | 2986.3 | 3071.1 | 3157.5 | 29 |
| 30 | 2355.2    | 2430.3 | 2506.5 | 2583.7 | 2662.0 | 2741.5 | 2822.3 | 2904.3 | 2987.7 | 3072.6 | 3159.0 | 30 |
| 31 | 2356.5    | 2431.6 | 2507.8 | 2585.0 | 2663.3 | 2742.9 | 2823.6 | 2905.7 | 2989.1 | 3074.0 | 3160.4 | 31 |
| 32 | 2357.7    | 2432.9 | 2509.0 | 2586.3 | 2664.6 | 2744.2 | 2825.0 | 2907.1 | 2990.5 | 3075.4 | 3161.9 | 32 |
| 33 | 2358.9    | 2434.1 | 2510.3 | 2587.6 | 2666.0 | 2745.5 | 2826.3 | 2908.4 | 2991.9 | 3076.9 | 3163.3 | 33 |
| 34 | 2360.2    | 2435.4 | 2511.6 | 2588.9 | 2667.3 | 2746.9 | 2827.7 | 2909.7 | 2993.3 | 3078.3 | 3164.8 | 34 |
| 35 | 2361.4    | 2436.7 | 2512.9 | 2590.2 | 2668.6 | 2748.2 | 2829.0 | 2911.2 | 2994.7 | 3079.7 | 3166.2 | 35 |
| 36 | 2362.7    | 2437.9 | 2514.2 | 2591.5 | 2669.9 | 2749.5 | 2830.4 | 2912.6 | 2996.1 | 3081.1 | 3167.7 | 36 |
| 37 | 2363.9    | 2439.2 | 2515.4 | 2592.8 | 2671.2 | 2750.9 | 2831.7 | 2914.0 | 2997.5 | 3082.6 | 3169.1 | 37 |
| 38 | 2365.2    | 2440.4 | 2516.7 | 2594.1 | 2672.5 | 2752.2 | 2833.1 | 2915.3 | 2998.9 | 3084.0 | 3170.6 | 38 |
| 39 | 2366.4    | 2441.7 | 2518.0 | 2595.4 | 2673.9 | 2753.5 | 2834.5 | 2916.7 | 3000.3 | 3085.4 | 3172.0 | 39 |
| 40 | 2367.6    | 2443.0 | 2519.3 | 2596.7 | 2675.2 | 2754.9 | 2835.8 | 2918.1 | 3001.8 | 3086.9 | 3173.5 | 40 |
| 41 | 2368.9    | 2444.2 | 2520.5 | 2598.0 | 2676.5 | 2756.2 | 2837.2 | 2919.5 | 3003.2 | 3088.3 | 3175.0 | 41 |
| 42 | 2370.2    | 2445.5 | 2521.8 | 2599.3 | 2677.8 | 2757.6 | 2838.6 | 2920.9 | 3004.6 | 3089.7 | 3176.4 | 42 |
| 43 | 2371.4    | 2446.8 | 2523.1 | 2600.5 | 2679.1 | 2758.9 | 2839.9 | 2922.3 | 3006.0 | 3091.2 | 3177.9 | 43 |
| 44 | 2372.6    | 2448.0 | 2524.4 | 2601.9 | 2680.5 | 2760.2 | 2841.3 | 2923.6 | 3007.4 | 3092.6 | 3179.3 | 44 |
| 45 | 2373.9    | 2449.3 | 2525.7 | 2603.2 | 2681.8 | 2761.5 | 2842.6 | 2925.0 | 3008.8 | 3094.0 | 3180.8 | 45 |
| 46 | 2375.1    | 2450.6 | 2527.0 | 2604.5 | 2683.1 | 2762.9 | 2844.0 | 2926.4 | 3010.2 | 3095.5 | 3182.3 | 46 |
| 47 | 2376.4    | 2451.8 | 2528.3 | 2605.8 | 2684.4 | 2764.3 | 2845.4 | 2927.8 | 3011.6 | 3096.9 | 3183.7 | 47 |
| 48 | 2377.6    | 2453.1 | 2529.5 | 2607.1 | 2685.7 | 2765.6 | 2846.7 | 2929.1 | 3013.0 | 3098.3 | 3185.2 | 48 |
| 49 | 2378.9    | 2454.3 | 2530.8 | 2608.4 | 2687.1 | 2766.9 | 2848.1 | 2930.6 | 3014.4 | 3099.7 | 3186.6 | 49 |
| 50 | 2380.1    | 2455.6 | 2532.1 | 2609.7 | 2688.4 | 2768.3 | 2849.5 | 2932.0 | 3015.8 | 3101.2 | 3188.1 | 50 |
| 51 | 2381.4    | 2456.9 | 2533.4 | 2611.0 | 2689.7 | 2769.6 | 2850.8 | 2933.3 | 3017.2 | 3102.6 | 3189.6 | 51 |
| 52 | 2382.6    | 2458.1 | 2534.7 | 2612.3 | 2691.0 | 2771.0 | 2852.2 | 2934.7 | 3018.7 | 3104.1 | 3191.0 | 52 |
| 53 | 2383.9    | 2459.4 | 2536.0 | 2613.6 | 2692.3 | 2772.3 | 2853.5 | 2936.1 | 3020.1 | 3105.6 | 3192.5 | 53 |
| 54 | 2385.1    | 2460.7 | 2537.2 | 2614.9 | 2693.7 | 2773.7 | 2854.9 | 2937.5 | 3021.5 | 3107.0 | 3194.0 | 54 |
| 55 | 2386.4    | 2461.9 | 2538.5 | 2616.2 | 2695.0 | 2775.0 | 2856.3 | 2938.9 | 3022.9 | 3108.4 | 3195.4 | 55 |
| 56 | 2387.6    | 2463.2 | 2539.8 | 2617.5 | 2696.3 | 2776.3 | 2857.7 | 2940.3 | 3024.3 | 3109.8 | 3196.9 | 56 |
| 57 | 2388.9    | 2464.5 | 2541.1 | 2618.8 | 2697.6 | 2777.7 | 2859.0 | 2941.7 | 3025.7 | 3111.2 | 3198.4 | 57 |
| 58 | 2390.2    | 2465.8 | 2542.4 | 2620.1 | 2699.0 | 2779.0 | 2860.5 | 2943.1 | 3027.1 | 3112.7 | 3199.8 | 58 |
| 59 | 2391.4    | 2467.0 | 2543.6 | 2621.4 | 2700.3 | 2780.4 | 2861.7 | 2944.4 | 3028.5 | 3114.1 | 3201.3 | 59 |
| 60 | 2392.6    | 2468.3 | 2545.0 | 2622.6 | 2701.6 | 2781.7 | 2863.1 | 2945.8 | 3030.0 | 3115.6 | 3202.7 | 60 |

|    |        | Latitude. |        |        |        |        |        |        |        |        |        |     |  |
|----|--------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|--|
|    |        | 47°       | 48°    | 49°    | 50°    | 51°    | 52°    | 53°    | 54°    | 55°    | 56°    | 57° |  |
| 0  | 3202.7 | 3291.5    | 3382.1 | 3474.5 | 3568.8 | 3665.2 | 3763.8 | 3864.6 | 3968.0 | 4073.9 | 4182.6 | 0   |  |
| 1  | 3204.2 | 3293.0    | 3383.6 | 3476.0 | 3570.4 | 3666.8 | 3765.4 | 3866.3 | 3969.7 | 4075.7 | 4184.5 | 1   |  |
| 2  | 3205.7 | 3294.5    | 3385.1 | 3477.6 | 3572.0 | 3668.4 | 3767.1 | 3868.0 | 3971.5 | 4077.5 | 4186.3 | 2   |  |
| 3  | 3207.1 | 3296.0    | 3386.7 | 3479.1 | 3573.6 | 3670.1 | 3768.8 | 3869.7 | 3973.2 | 4079.3 | 4188.1 | 3   |  |
| 4  | 3208.6 | 3297.5    | 3388.2 | 3480.7 | 3575.2 | 3671.7 | 3770.4 | 3871.5 | 3975.0 | 4081.1 | 4190.0 | 4   |  |
| 5  | 3210.1 | 3299.0    | 3389.7 | 3482.3 | 3576.8 | 3673.3 | 3772.1 | 3873.2 | 3976.7 | 4082.9 | 4191.8 | 5   |  |
| 6  | 3211.5 | 3300.5    | 3391.3 | 3483.8 | 3578.4 | 3675.0 | 3773.7 | 3874.9 | 3978.4 | 4084.7 | 4193.7 | 6   |  |
| 7  | 3213.0 | 3302.0    | 3392.8 | 3485.4 | 3579.9 | 3676.6 | 3775.4 | 3876.6 | 3980.2 | 4086.4 | 4195.5 | 7   |  |
| 8  | 3214.5 | 3303.5    | 3394.3 | 3487.0 | 3581.5 | 3678.2 | 3777.1 | 3878.3 | 3982.0 | 4088.2 | 4197.3 | 8   |  |
| 9  | 3215.9 | 3305.0    | 3395.8 | 3488.5 | 3583.1 | 3679.8 | 3778.7 | 3880.0 | 3983.7 | 4090.0 | 4199.2 | 9   |  |
| 10 | 3217.4 | 3306.5    | 3397.4 | 3490.1 | 3584.7 | 3681.5 | 3780.4 | 3881.7 | 3985.4 | 4091.8 | 4201.0 | 10  |  |
| 11 | 3218.9 | 3308.0    | 3398.9 | 3491.6 | 3586.3 | 3683.1 | 3782.1 | 3883.4 | 3987.2 | 4093.6 | 4202.9 | 11  |  |
| 12 | 3220.3 | 3309.5    | 3400.4 | 3493.2 | 3587.9 | 3684.7 | 3783.8 | 3885.1 | 3988.9 | 4095.4 | 4204.7 | 12  |  |
| 13 | 3221.8 | 3311.0    | 3402.0 | 3494.7 | 3589.5 | 3686.4 | 3785.4 | 3886.6 | 3990.7 | 4097.2 | 4206.6 | 13  |  |
| 14 | 3223.3 | 3312.5    | 3403.5 | 3496.3 | 3591.1 | 3688.0 | 3787.1 | 3888.5 | 3992.5 | 4099.0 | 4208.4 | 14  |  |
| 15 | 3224.8 | 3314.0    | 3405.0 | 3497.9 | 3592.7 | 3689.6 | 3788.8 | 3890.2 | 3994.2 | 4100.8 | 4210.3 | 15  |  |
| 16 | 3226.2 | 3315.5    | 3406.6 | 3499.4 | 3594.3 | 3691.3 | 3790.4 | 3892.0 | 3996.0 | 4102.6 | 4212.1 | 16  |  |
| 17 | 3227.7 | 3317.0    | 3408.1 | 3501.0 | 3595.9 | 3692.9 | 3792.1 | 3893.7 | 3997.7 | 4104.4 | 4214.0 | 17  |  |
| 18 | 3229.2 | 3318.5    | 3409.6 | 3502.6 | 3597.5 | 3694.5 | 3793.8 | 3895.4 | 3999.5 | 4106.2 | 4215.8 | 18  |  |
| 19 | 3230.7 | 3320.0    | 3411.1 | 3504.1 | 3599.1 | 3696.2 | 3795.5 | 3897.1 | 4001.2 | 4108.0 | 4217.7 | 19  |  |
| 20 | 3232.1 | 3321.5    | 3412.7 | 3505.7 | 3600.7 | 3697.8 | 3797.1 | 3898.8 | 4003.0 | 4109.8 | 4219.5 | 20  |  |
| 21 | 3233.6 | 3323.0    | 3414.2 | 3507.3 | 3602.3 | 3699.4 | 3798.8 | 3900.5 | 4004.7 | 4111.6 | 4221.4 | 21  |  |
| 22 | 3235.1 | 3324.5    | 3415.7 | 3508.8 | 3603.9 | 3701.1 | 3800.5 | 3902.2 | 4006.5 | 4113.4 | 4223.2 | 22  |  |
| 23 | 3236.6 | 3326.0    | 3417.3 | 3510.4 | 3605.5 | 3702.7 | 3802.2 | 3904.0 | 4008.3 | 4115.2 | 4225.1 | 23  |  |
| 24 | 3238.0 | 3327.5    | 3418.8 | 3512.0 | 3607.1 | 3704.3 | 3803.8 | 3905.7 | 4010.0 | 4117.1 | 4227.0 | 24  |  |
| 25 | 3239.5 | 3329.0    | 3420.4 | 3513.5 | 3608.7 | 3706.0 | 3805.5 | 3907.4 | 4011.8 | 4118.9 | 4228.8 | 25  |  |
| 26 | 3241.0 | 3330.6    | 3421.9 | 3515.1 | 3610.3 | 3707.6 | 3807.2 | 3909.1 | 4013.5 | 4120.7 | 4230.6 | 26  |  |
| 27 | 3242.5 | 3332.1    | 3423.5 | 3516.7 | 3611.9 | 3709.3 | 3808.9 | 3910.8 | 4015.3 | 4122.5 | 4232.5 | 27  |  |
| 28 | 3244.0 | 3333.6    | 3425.0 | 3518.3 | 3613.6 | 3710.9 | 3810.5 | 3912.5 | 4017.1 | 4124.3 | 4234.4 | 28  |  |
| 29 | 3245.4 | 3335.1    | 3426.5 | 3519.8 | 3615.1 | 3712.6 | 3812.2 | 3914.3 | 4018.8 | 4126.1 | 4236.2 | 29  |  |
| 30 | 3246.9 | 3336.6    | 3428.0 | 3521.4 | 3616.7 | 3714.2 | 3813.9 | 3916.0 | 4020.6 | 4127.9 | 4238.1 | 30  |  |
| 31 | 3248.4 | 3338.1    | 3429.6 | 3523.0 | 3618.4 | 3715.8 | 3815.6 | 3917.7 | 4022.4 | 4129.7 | 4240.0 | 31  |  |
| 32 | 3249.9 | 3339.6    | 3431.1 | 3524.6 | 3620.0 | 3717.5 | 3817.3 | 3919.4 | 4024.1 | 4131.5 | 4241.8 | 32  |  |
| 33 | 3251.4 | 3341.1    | 3432.7 | 3526.1 | 3621.6 | 3719.1 | 3819.0 | 3921.2 | 4025.9 | 4133.3 | 4243.7 | 33  |  |
| 34 | 3252.8 | 3342.6    | 3434.2 | 3527.7 | 3623.2 | 3720.8 | 3820.6 | 3922.9 | 4027.7 | 4135.2 | 4245.5 | 34  |  |
| 35 | 3254.3 | 3344.1    | 3435.8 | 3529.3 | 3624.8 | 3722.4 | 3822.3 | 3924.6 | 4029.4 | 4137.0 | 4247.4 | 35  |  |
| 36 | 3255.8 | 3345.7    | 3437.3 | 3530.8 | 3626.4 | 3724.1 | 3824.0 | 3926.3 | 4031.2 | 4138.8 | 4249.3 | 36  |  |
| 37 | 3257.3 | 3347.2    | 3438.8 | 3532.4 | 3628.0 | 3725.7 | 3825.7 | 3928.1 | 4033.0 | 4140.6 | 4251.1 | 37  |  |
| 38 | 3258.8 | 3348.7    | 3440.4 | 3534.0 | 3629.6 | 3727.4 | 3827.4 | 3929.8 | 4034.8 | 4142.4 | 4253.0 | 38  |  |
| 39 | 3260.3 | 3350.2    | 3441.9 | 3535.6 | 3631.3 | 3729.0 | 3829.1 | 3931.5 | 4036.5 | 4144.2 | 4254.9 | 39  |  |
| 40 | 3261.7 | 3351.7    | 3443.5 | 3537.1 | 3632.8 | 3730.7 | 3830.8 | 3933.2 | 4038.3 | 4146.1 | 4256.7 | 40  |  |
| 41 | 3263.2 | 3353.2    | 3445.0 | 3538.7 | 3634.4 | 3732.3 | 3832.4 | 3935.0 | 4040.0 | 4147.9 | 4258.6 | 41  |  |
| 42 | 3264.7 | 3354.7    | 3446.6 | 3540.3 | 3636.1 | 3734.0 | 3834.1 | 3936.7 | 4041.8 | 4149.7 | 4260.5 | 42  |  |
| 43 | 3266.2 | 3356.2    | 3448.1 | 3541.9 | 3637.7 | 3735.6 | 3835.8 | 3938.4 | 4043.6 | 4151.5 | 4262.3 | 43  |  |
| 44 | 3267.7 | 3357.8    | 3449.7 | 3543.5 | 3639.3 | 3737.3 | 3837.5 | 3940.2 | 4045.4 | 4153.4 | 4264.2 | 44  |  |
| 45 | 3269.2 | 3359.3    | 3451.2 | 3545.0 | 3640.9 | 3738.9 | 3839.2 | 3941.9 | 4047.2 | 4155.2 | 4266.1 | 45  |  |
| 46 | 3270.7 | 3360.8    | 3452.8 | 3546.6 | 3642.5 | 3740.6 | 3840.9 | 3943.6 | 4049.0 | 4157.0 | 4268.0 | 46  |  |
| 47 | 3272.1 | 3362.3    | 3454.3 | 3548.2 | 3644.1 | 3742.2 | 3842.6 | 3945.4 | 4050.7 | 4158.8 | 4269.8 | 47  |  |
| 48 | 3273.6 | 3363.8    | 3455.8 | 3549.8 | 3645.8 | 3743.9 | 3844.3 | 3947.1 | 4052.5 | 4160.7 | 4271.7 | 48  |  |
| 49 | 3275.1 | 3365.4    | 3457.4 | 3551.4 | 3647.4 | 3745.5 | 3846.0 | 3948.8 | 4054.3 | 4162.5 | 4273.6 | 49  |  |
| 50 | 3276.6 | 3366.9    | 3459.0 | 3553.0 | 3649.0 | 3747.2 | 3847.7 | 3950.6 | 4056.1 | 4164.3 | 4275.5 | 50  |  |
| 51 | 3278.1 | 3368.4    | 3460.5 | 3554.6 | 3650.6 | 3748.8 | 3849.4 | 3952.3 | 4057.8 | 4166.1 | 4277.4 | 51  |  |
| 52 | 3279.6 | 3369.9    | 3462.0 | 3556.1 | 3652.2 | 3750.5 | 3851.1 | 3954.0 | 4059.6 | 4168.0 | 4279.2 | 52  |  |
| 53 | 3281.1 | 3371.4    | 3463.6 | 3557.7 | 3653.8 | 3752.2 | 3852.8 | 3955.8 | 4061.4 | 4169.8 | 4281.1 | 53  |  |
| 54 | 3282.6 | 3373.0    | 3465.2 | 3559.3 | 3655.5 | 3753.8 | 3854.4 | 3957.5 | 4063.2 | 4171.6 | 4283.0 | 54  |  |
| 55 | 3284.1 | 3374.5    | 3466.7 | 3560.9 | 3657.1 | 3755.5 | 3856.1 | 3959.3 | 4065.0 | 4173.5 | 4284.9 | 55  |  |
| 56 | 3285.6 | 3376.0    | 3468.3 | 3562.5 | 3658.7 | 3757.1 | 3857.8 | 3961.0 | 4066.8 | 4175.3 | 4286.8 | 56  |  |
| 57 | 3287.1 | 3377.5    | 3469.8 | 3564.0 | 3660.3 | 3758.8 | 3859.5 | 3962.7 | 4068.5 | 4177.1 | 4288.6 | 57  |  |
| 58 | 3288.5 | 3379.0    | 3471.4 | 3565.6 | 3662.0 | 3760.4 | 3861.2 | 3964.5 | 4070.3 | 4179.0 | 4290.5 | 58  |  |
| 59 | 3290.0 | 3380.6    | 3473.0 | 3567.2 | 3663.6 | 3762.1 | 3862.9 | 3966.2 | 4072.1 | 4180.8 | 4292.4 | 59  |  |
| 60 | 3291.5 | 3382.1    | 3474.5 | 3568.8 | 3665.2 | 3763.8 | 3864.6 | 3968.0 | 4073.9 | 4182.6 | 4294.3 | 60  |  |



| 1  | Latitude. |        |        |        |        |        |        |        |        |        | 1      |     |
|----|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|
|    | 58°       | 59°    | 60°    | 61°    | 62°    | 63°    | 64°    | 65°    | 66°    | 67°    |        | 68° |
| 0  | 4294.3    | 4409.1 | 4527.4 | 4649.2 | 4775.0 | 4904.9 | 5039.4 | 5178.8 | 5323.5 | 5474.0 | 5630.8 | 0   |
| 1  | 4296.2    | 4411.1 | 4529.4 | 4651.3 | 4777.1 | 4907.1 | 5041.7 | 5181.2 | 5326.0 | 5476.6 | 5633.5 | 1   |
| 2  | 4298.1    | 4413.0 | 4531.4 | 4653.4 | 4779.3 | 4909.4 | 5044.0 | 5183.5 | 5328.4 | 5479.1 | 5636.2 | 2   |
| 3  | 4300.0    | 4415.0 | 4533.4 | 4655.4 | 4781.4 | 4911.6 | 5046.3 | 5185.9 | 5330.9 | 5481.7 | 5638.8 | 3   |
| 4  | 4301.9    | 4416.9 | 4535.4 | 4657.5 | 4783.5 | 4913.8 | 5048.6 | 5188.3 | 5333.4 | 5484.3 | 5641.5 | 4   |
| 5  | 4303.7    | 4418.9 | 4537.4 | 4659.6 | 4785.6 | 4916.0 | 5050.9 | 5190.7 | 5335.8 | 5486.9 | 5644.2 | 5   |
| 6  | 4305.6    | 4420.8 | 4539.4 | 4661.6 | 4787.8 | 4918.2 | 5053.1 | 5193.1 | 5338.3 | 5489.4 | 5646.9 | 6   |
| 7  | 4307.6    | 4422.8 | 4541.4 | 4663.7 | 4789.9 | 4920.4 | 5055.4 | 5195.4 | 5340.8 | 5492.0 | 5649.6 | 7   |
| 8  | 4309.4    | 4424.7 | 4543.4 | 4665.8 | 4792.1 | 4922.6 | 5057.7 | 5197.8 | 5343.2 | 5494.5 | 5652.3 | 8   |
| 9  | 4311.3    | 4426.7 | 4545.4 | 4667.8 | 4794.2 | 4924.8 | 5060.0 | 5200.2 | 5345.7 | 5497.1 | 5654.9 | 9   |
| 10 | 4313.2    | 4428.6 | 4547.4 | 4669.9 | 4796.3 | 4927.0 | 5062.3 | 5202.6 | 5348.2 | 5499.7 | 5657.6 | 10  |
| 11 | 4315.1    | 4430.6 | 4549.4 | 4672.0 | 4798.5 | 4929.2 | 5064.6 | 5204.9 | 5350.7 | 5502.3 | 5660.3 | 11  |
| 12 | 4317.0    | 4432.5 | 4551.4 | 4674.1 | 4800.6 | 4931.5 | 5066.9 | 5207.3 | 5353.1 | 5504.9 | 5663.0 | 12  |
| 13 | 4318.9    | 4434.5 | 4553.5 | 4676.1 | 4802.8 | 4933.7 | 5069.2 | 5209.7 | 5355.6 | 5507.4 | 5665.7 | 13  |
| 14 | 4320.8    | 4436.4 | 4555.5 | 4678.2 | 4804.9 | 4935.9 | 5071.5 | 5212.1 | 5358.1 | 5510.0 | 5668.4 | 14  |
| 15 | 4322.7    | 4438.4 | 4557.5 | 4680.3 | 4807.1 | 4938.1 | 5073.8 | 5214.5 | 5360.6 | 5512.6 | 5671.1 | 15  |
| 16 | 4324.6    | 4440.3 | 4559.5 | 4682.4 | 4809.2 | 4940.3 | 5076.1 | 5216.9 | 5363.1 | 5515.2 | 5673.8 | 16  |
| 17 | 4326.5    | 4442.3 | 4561.5 | 4684.5 | 4811.4 | 4942.6 | 5078.4 | 5219.3 | 5365.6 | 5517.8 | 5676.5 | 17  |
| 18 | 4328.4    | 4444.2 | 4563.5 | 4686.5 | 4813.5 | 4944.8 | 5080.7 | 5221.6 | 5368.0 | 5520.4 | 5679.2 | 18  |
| 19 | 4330.3    | 4446.2 | 4565.5 | 4688.6 | 4815.7 | 4947.0 | 5083.0 | 5224.0 | 5370.5 | 5523.0 | 5681.9 | 19  |
| 20 | 4332.2    | 4448.2 | 4567.6 | 4690.7 | 4817.8 | 4949.2 | 5085.3 | 5226.4 | 5373.0 | 5525.6 | 5684.6 | 20  |
| 21 | 4334.1    | 4450.1 | 4569.6 | 4692.8 | 4820.0 | 4951.5 | 5087.6 | 5228.8 | 5375.5 | 5528.1 | 5687.3 | 21  |
| 22 | 4336.0    | 4452.1 | 4571.6 | 4694.9 | 4822.1 | 4953.7 | 5090.0 | 5231.2 | 5378.0 | 5530.8 | 5690.0 | 22  |
| 23 | 4338.0    | 4454.1 | 4573.6 | 4697.0 | 4824.3 | 4955.9 | 5092.3 | 5233.6 | 5380.5 | 5533.3 | 5692.7 | 23  |
| 24 | 4339.8    | 4456.0 | 4575.7 | 4699.1 | 4826.4 | 4958.2 | 5094.6 | 5236.0 | 5383.0 | 5535.9 | 5695.5 | 24  |
| 25 | 4341.8    | 4458.0 | 4577.7 | 4701.1 | 4828.6 | 4960.4 | 5096.9 | 5238.4 | 5385.5 | 5538.6 | 5698.2 | 25  |
| 26 | 4343.7    | 4460.0 | 4579.7 | 4703.2 | 4830.8 | 4962.6 | 5099.2 | 5240.8 | 5388.0 | 5541.2 | 5700.9 | 26  |
| 27 | 4345.6    | 4461.9 | 4581.7 | 4705.3 | 4832.9 | 4964.9 | 5101.5 | 5243.2 | 5390.5 | 5543.8 | 5703.6 | 27  |
| 28 | 4347.5    | 4463.9 | 4583.8 | 4707.4 | 4835.1 | 4967.1 | 5103.8 | 5245.7 | 5393.0 | 5546.4 | 5706.3 | 28  |
| 29 | 4349.4    | 4465.9 | 4585.8 | 4709.5 | 4837.3 | 4969.4 | 5106.2 | 5248.1 | 5395.5 | 5549.0 | 5709.1 | 29  |
| 30 | 4351.3    | 4467.8 | 4587.8 | 4711.6 | 4839.4 | 4971.6 | 5108.5 | 5250.5 | 5398.0 | 5551.6 | 5711.8 | 30  |
| 31 | 4353.2    | 4469.8 | 4589.9 | 4713.7 | 4841.6 | 4973.8 | 5110.8 | 5252.9 | 5400.5 | 5554.2 | 5714.5 | 31  |
| 32 | 4355.1    | 4471.8 | 4591.9 | 4715.8 | 4843.8 | 4976.1 | 5113.1 | 5255.3 | 5403.0 | 5556.8 | 5717.3 | 32  |
| 33 | 4357.1    | 4473.7 | 4593.9 | 4717.9 | 4845.9 | 4978.3 | 5115.5 | 5257.7 | 5405.5 | 5559.4 | 5720.1 | 33  |
| 34 | 4359.0    | 4475.7 | 4596.0 | 4720.0 | 4848.1 | 4980.6 | 5117.8 | 5260.1 | 5408.1 | 5562.1 | 5722.7 | 34  |
| 35 | 4360.9    | 4477.7 | 4598.0 | 4722.1 | 4850.3 | 4982.8 | 5120.1 | 5262.6 | 5410.6 | 5564.7 | 5725.5 | 35  |
| 36 | 4362.8    | 4479.7 | 4600.0 | 4724.2 | 4852.4 | 4985.1 | 5122.4 | 5265.0 | 5413.1 | 5567.3 | 5728.2 | 36  |
| 37 | 4364.7    | 4481.6 | 4602.1 | 4726.3 | 4854.6 | 4987.3 | 5124.8 | 5267.4 | 5415.6 | 5569.9 | 5730.9 | 37  |
| 38 | 4366.7    | 4483.6 | 4604.1 | 4728.4 | 4856.8 | 4989.6 | 5127.1 | 5269.8 | 5418.1 | 5572.6 | 5733.7 | 38  |
| 39 | 4368.6    | 4485.6 | 4606.2 | 4730.5 | 4859.0 | 4991.8 | 5129.4 | 5272.2 | 5420.6 | 5575.2 | 5736.4 | 39  |
| 40 | 4370.5    | 4487.6 | 4608.2 | 4732.6 | 4861.1 | 4994.1 | 5131.8 | 5274.7 | 5423.2 | 5577.8 | 5739.2 | 40  |
| 41 | 4372.4    | 4489.6 | 4610.2 | 4734.7 | 4863.3 | 4996.3 | 5134.1 | 5277.1 | 5425.7 | 5580.4 | 5741.9 | 41  |
| 42 | 4374.3    | 4491.5 | 4612.3 | 4736.8 | 4865.5 | 4998.6 | 5136.5 | 5279.5 | 5428.2 | 5583.1 | 5744.7 | 42  |
| 43 | 4376.3    | 4493.5 | 4614.3 | 4739.0 | 4867.7 | 5000.8 | 5138.8 | 5282.0 | 5430.8 | 5585.7 | 5747.5 | 43  |
| 44 | 4378.2    | 4495.5 | 4616.4 | 4741.1 | 4869.9 | 5003.1 | 5141.1 | 5284.4 | 5433.3 | 5588.4 | 5750.2 | 44  |
| 45 | 4380.1    | 4497.5 | 4618.4 | 4743.2 | 4872.0 | 5005.4 | 5143.5 | 5286.8 | 5435.8 | 5591.0 | 5752.9 | 45  |
| 46 | 4382.1    | 4499.5 | 4620.5 | 4745.3 | 4874.3 | 5007.6 | 5145.8 | 5289.3 | 5438.4 | 5593.6 | 5755.7 | 46  |
| 47 | 4384.0    | 4501.5 | 4622.5 | 4747.4 | 4876.4 | 5009.9 | 5148.2 | 5291.7 | 5440.9 | 5596.3 | 5758.5 | 47  |
| 48 | 4385.9    | 4503.4 | 4624.5 | 4749.5 | 4878.6 | 5012.2 | 5150.5 | 5294.1 | 5443.4 | 5598.9 | 5761.2 | 48  |
| 49 | 4387.8    | 4505.4 | 4626.5 | 4751.6 | 4880.8 | 5014.4 | 5152.9 | 5296.6 | 5446.0 | 5601.6 | 5764.0 | 49  |
| 50 | 4389.8    | 4507.4 | 4628.5 | 4753.7 | 4883.0 | 5016.7 | 5155.2 | 5299.0 | 5448.5 | 5604.2 | 5766.8 | 50  |
| 51 | 4391.7    | 4509.4 | 4630.5 | 4755.9 | 4885.2 | 5018.9 | 5157.6 | 5301.5 | 5451.1 | 5606.9 | 5769.5 | 51  |
| 52 | 4393.7    | 4511.4 | 4632.5 | 4758.0 | 4887.3 | 5021.2 | 5160.0 | 5303.9 | 5453.6 | 5609.6 | 5772.3 | 52  |
| 53 | 4395.6    | 4513.4 | 4634.5 | 4760.1 | 4889.6 | 5023.5 | 5162.3 | 5306.4 | 5456.1 | 5612.2 | 5775.1 | 53  |
| 54 | 4397.5    | 4515.4 | 4636.5 | 4762.2 | 4891.8 | 5025.8 | 5164.6 | 5308.8 | 5458.7 | 5614.8 | 5777.9 | 54  |
| 55 | 4399.4    | 4517.4 | 4638.5 | 4764.4 | 4894.0 | 5028.0 | 5167.0 | 5311.2 | 5461.2 | 5617.5 | 5780.6 | 55  |
| 56 | 4401.4    | 4519.4 | 4640.5 | 4766.5 | 4896.2 | 5030.3 | 5169.4 | 5313.7 | 5463.8 | 5620.2 | 5783.4 | 56  |
| 57 | 4403.3    | 4521.4 | 4642.5 | 4768.6 | 4898.4 | 5032.6 | 5171.7 | 5316.2 | 5466.3 | 5622.9 | 5786.2 | 57  |
| 58 | 4405.3    | 4523.4 | 4644.5 | 4770.7 | 4900.5 | 5034.9 | 5174.1 | 5318.6 | 5468.9 | 5625.5 | 5789.0 | 58  |
| 59 | 4407.2    | 4525.4 | 4646.5 | 4772.9 | 4902.7 | 5037.1 | 5176.4 | 5321.1 | 5471.4 | 5628.2 | 5791.8 | 59  |
| 60 | 4409.1    | 4527.4 | 4648.5 | 4775.0 | 4904.9 | 5039.4 | 5178.8 | 5323.5 | 5474.0 | 5630.8 | 5794.6 | 60  |

|    |        | Latitude. |        |        |        |        |        |        |        |        |        |        |    |    |
|----|--------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|----|
|    |        | 69°       | 70°    | 71°    | 72°    | 73°    | 74°    | 75°    | 76°    | 77°    | 78°    | 79°    |    |    |
| 0  | 5794.6 | 5965.9    | 6145.7 | 6334.8 | 6534.4 | 6745.7 | 6970.3 | 7210.1 | 7467.2 | 7744.6 | 8045.7 | 8371.0 | 0  | 1  |
| 1  | 5797.4 | 5968.8    | 6148.8 | 6338.1 | 6537.9 | 6749.4 | 6974.2 | 7214.2 | 7471.7 | 7749.4 | 8051.0 | 8376.7 | 1  | 2  |
| 2  | 5800.1 | 5971.8    | 6151.9 | 6341.3 | 6541.3 | 6753.0 | 6978.1 | 7218.3 | 7476.1 | 7754.2 | 8056.2 | 8381.3 | 2  | 3  |
| 3  | 5802.9 | 5974.7    | 6154.9 | 6344.6 | 6544.7 | 6756.6 | 6981.9 | 7222.5 | 7480.6 | 7759.0 | 8061.5 | 8386.0 | 3  | 4  |
| 4  | 5805.7 | 5977.6    | 6158.0 | 6347.8 | 6548.1 | 6760.3 | 6985.8 | 7226.6 | 7485.0 | 7763.9 | 8066.7 | 8390.7 | 4  | 5  |
| 5  | 5808.5 | 5980.6    | 6161.1 | 6351.1 | 6551.6 | 6763.9 | 6989.7 | 7230.8 | 7489.5 | 7768.7 | 8072.0 | 8395.4 | 5  | 6  |
| 6  | 5811.3 | 5983.5    | 6164.2 | 6354.3 | 6555.0 | 6767.6 | 6993.6 | 7235.0 | 7494.0 | 7773.6 | 8077.3 | 8400.1 | 6  | 7  |
| 7  | 5814.2 | 5986.4    | 6167.3 | 6357.6 | 6558.5 | 6771.2 | 6997.5 | 7239.1 | 7498.5 | 7778.4 | 8082.6 | 8404.8 | 7  | 8  |
| 8  | 5817.0 | 5989.4    | 6170.4 | 6360.8 | 6561.9 | 6774.9 | 7001.4 | 7243.3 | 7503.0 | 7783.3 | 8087.9 | 8409.5 | 8  | 9  |
| 9  | 5819.8 | 5992.3    | 6173.5 | 6364.1 | 6565.3 | 6778.6 | 7005.3 | 7247.5 | 7507.4 | 7788.1 | 8093.2 | 8414.2 | 9  | 10 |
| 10 | 5822.6 | 5995.3    | 6176.6 | 6367.4 | 6568.8 | 6782.2 | 7009.2 | 7251.7 | 7511.9 | 7793.0 | 8098.5 | 8418.9 | 10 | 11 |
| 11 | 5825.4 | 5998.2    | 6179.7 | 6370.6 | 6572.3 | 6785.8 | 7013.1 | 7255.8 | 7516.5 | 7797.9 | 8103.8 | 8423.6 | 11 | 12 |
| 12 | 5828.2 | 6001.2    | 6182.8 | 6373.9 | 6575.7 | 6789.6 | 7017.0 | 7260.0 | 7521.0 | 7802.8 | 8109.2 | 8428.3 | 12 | 13 |
| 13 | 5831.0 | 6004.1    | 6185.9 | 6377.2 | 6579.2 | 6793.2 | 7020.9 | 7264.2 | 7525.5 | 7807.7 | 8114.5 | 8433.0 | 13 | 14 |
| 14 | 5833.8 | 6007.1    | 6189.0 | 6380.4 | 6582.6 | 6796.9 | 7024.9 | 7268.4 | 7530.0 | 7812.6 | 8119.9 | 8437.7 | 14 | 15 |
| 15 | 5836.7 | 6010.0    | 6192.1 | 6383.7 | 6586.1 | 6800.6 | 7028.8 | 7272.6 | 7534.5 | 7817.5 | 8125.2 | 8442.4 | 15 | 16 |
| 16 | 5839.5 | 6013.0    | 6195.2 | 6387.0 | 6589.6 | 6804.3 | 7032.7 | 7276.8 | 7539.1 | 7822.4 | 8130.6 | 8447.1 | 16 | 17 |
| 17 | 5842.3 | 6016.0    | 6198.3 | 6390.3 | 6593.1 | 6807.9 | 7036.6 | 7281.1 | 7543.6 | 7827.3 | 8136.0 | 8451.8 | 17 | 18 |
| 18 | 5845.1 | 6018.9    | 6201.4 | 6393.6 | 6596.5 | 6811.6 | 7040.6 | 7285.3 | 7548.2 | 7832.2 | 8141.3 | 8456.5 | 18 | 19 |
| 19 | 5848.0 | 6021.9    | 6204.5 | 6396.9 | 6600.0 | 6815.4 | 7044.5 | 7289.5 | 7552.7 | 7837.2 | 8146.7 | 8461.2 | 19 | 20 |
| 20 | 5850.8 | 6024.9    | 6207.7 | 6400.2 | 6603.5 | 6819.1 | 7048.5 | 7293.7 | 7557.3 | 7842.1 | 8152.1 | 8465.9 | 20 | 21 |
| 21 | 5853.6 | 6027.8    | 6210.8 | 6403.4 | 6607.0 | 6822.8 | 7052.4 | 7298.0 | 7561.8 | 7847.1 | 8157.5 | 8470.6 | 21 | 22 |
| 22 | 5856.5 | 6030.8    | 6213.9 | 6406.7 | 6610.5 | 6826.4 | 7056.4 | 7302.2 | 7566.4 | 7852.0 | 8163.0 | 8475.3 | 22 | 23 |
| 23 | 5859.3 | 6033.8    | 6217.0 | 6410.1 | 6614.0 | 6830.2 | 7060.3 | 7306.4 | 7571.0 | 7857.0 | 8168.4 | 8480.0 | 23 | 24 |
| 24 | 5862.2 | 6036.8    | 6220.1 | 6413.4 | 6617.5 | 6833.9 | 7064.3 | 7310.7 | 7575.5 | 7861.9 | 8173.8 | 8484.7 | 24 | 25 |
| 25 | 5865.0 | 6039.8    | 6223.3 | 6416.7 | 6621.0 | 6837.6 | 7068.3 | 7315.0 | 7580.1 | 7866.9 | 8179.2 | 8489.4 | 25 | 26 |
| 26 | 5867.8 | 6042.7    | 6226.5 | 6420.0 | 6624.5 | 6841.3 | 7072.2 | 7319.2 | 7584.7 | 7871.9 | 8184.7 | 8494.1 | 26 | 27 |
| 27 | 5870.7 | 6045.7    | 6229.6 | 6423.3 | 6628.0 | 6845.1 | 7076.2 | 7323.5 | 7589.3 | 7876.9 | 8190.0 | 8498.8 | 27 | 28 |
| 28 | 5873.5 | 6048.7    | 6232.7 | 6426.6 | 6631.5 | 6848.8 | 7080.2 | 7327.7 | 7593.9 | 7881.9 | 8195.6 | 8503.5 | 28 | 29 |
| 29 | 5876.4 | 6051.7    | 6235.9 | 6429.9 | 6635.0 | 6852.5 | 7084.2 | 7332.0 | 7598.5 | 7886.9 | 8201.1 | 8508.2 | 29 | 30 |
| 30 | 5879.2 | 6054.7    | 6239.0 | 6433.3 | 6638.5 | 6856.2 | 7088.2 | 7336.3 | 7603.2 | 7891.9 | 8206.6 | 8512.9 | 30 | 31 |
| 31 | 5882.1 | 6057.7    | 6242.2 | 6436.6 | 6642.0 | 6860.0 | 7092.3 | 7340.6 | 7607.8 | 7896.9 | 8212.1 | 8517.6 | 31 | 32 |
| 32 | 5885.0 | 6060.7    | 6245.4 | 6439.9 | 6645.6 | 6863.8 | 7096.3 | 7344.9 | 7612.4 | 7902.0 | 8217.6 | 8522.3 | 32 | 33 |
| 33 | 5887.8 | 6063.7    | 6248.5 | 6443.2 | 6649.1 | 6867.5 | 7100.2 | 7349.2 | 7617.0 | 7907.0 | 8223.1 | 8527.0 | 33 | 34 |
| 34 | 5890.7 | 6066.7    | 6251.7 | 6446.6 | 6652.6 | 6871.3 | 7104.1 | 7353.5 | 7621.7 | 7912.0 | 8228.6 | 8531.7 | 34 | 35 |
| 35 | 5893.6 | 6069.7    | 6254.8 | 6449.9 | 6656.2 | 6875.0 | 7108.2 | 7357.8 | 7626.3 | 7917.0 | 8234.1 | 8536.4 | 35 | 36 |
| 36 | 5896.4 | 6072.7    | 6258.0 | 6453.3 | 6659.7 | 6878.8 | 7112.2 | 7362.1 | 7631.0 | 7922.1 | 8239.7 | 8541.1 | 36 | 37 |
| 37 | 5899.3 | 6075.7    | 6261.3 | 6456.6 | 6663.3 | 6882.6 | 7116.3 | 7366.4 | 7635.7 | 7927.2 | 8245.2 | 8545.8 | 37 | 38 |
| 38 | 5902.2 | 6078.8    | 6264.4 | 6460.0 | 6666.8 | 6886.3 | 7120.3 | 7370.7 | 7640.3 | 7932.3 | 8250.8 | 8550.5 | 38 | 39 |
| 39 | 5905.0 | 6081.8    | 6267.5 | 6463.3 | 6670.4 | 6890.1 | 7124.3 | 7375.0 | 7645.0 | 7937.4 | 8256.3 | 8555.2 | 39 | 40 |
| 40 | 5907.9 | 6084.8    | 6270.7 | 6466.7 | 6673.9 | 6893.9 | 7128.4 | 7379.4 | 7649.7 | 7942.4 | 8261.9 | 8560.0 | 40 | 41 |
| 41 | 5910.8 | 6087.8    | 6273.9 | 6470.0 | 6677.4 | 6897.6 | 7132.4 | 7383.7 | 7654.4 | 7947.5 | 8267.5 | 8564.7 | 41 | 42 |
| 42 | 5913.7 | 6090.8    | 6277.1 | 6473.4 | 6681.0 | 6901.5 | 7136.4 | 7388.1 | 7659.0 | 7952.6 | 8273.1 | 8569.4 | 42 | 43 |
| 43 | 5916.6 | 6093.8    | 6280.2 | 6476.7 | 6684.6 | 6905.3 | 7140.5 | 7392.4 | 7663.7 | 7957.7 | 8278.7 | 8574.1 | 43 | 44 |
| 44 | 5919.4 | 6096.9    | 6283.4 | 6480.1 | 6688.2 | 6909.1 | 7144.5 | 7396.8 | 7668.4 | 7962.8 | 8284.3 | 8578.8 | 44 | 45 |
| 45 | 5922.3 | 6099.9    | 6286.6 | 6483.5 | 6691.7 | 6912.9 | 7148.6 | 7401.2 | 7673.2 | 7968.0 | 8289.9 | 8583.5 | 45 | 46 |
| 46 | 5925.2 | 6103.0    | 6289.8 | 6486.9 | 6695.3 | 6916.7 | 7152.7 | 7405.5 | 7677.9 | 7973.1 | 8295.5 | 8588.2 | 46 | 47 |
| 47 | 5928.1 | 6106.0    | 6293.0 | 6490.2 | 6698.9 | 6920.5 | 7156.7 | 7409.0 | 7682.6 | 7978.2 | 8301.1 | 8592.9 | 47 | 48 |
| 48 | 5931.0 | 6109.0    | 6296.3 | 6493.6 | 6702.5 | 6924.3 | 7160.8 | 7414.3 | 7687.3 | 7983.4 | 8306.7 | 8597.6 | 48 | 49 |
| 49 | 5933.9 | 6112.1    | 6299.4 | 6497.0 | 6706.1 | 6928.1 | 7164.9 | 7418.6 | 7692.1 | 7988.5 | 8312.4 | 8602.3 | 49 | 50 |
| 50 | 5936.8 | 6115.1    | 6302.6 | 6500.4 | 6709.7 | 6931.9 | 7169.0 | 7423.0 | 7696.8 | 7993.7 | 8318.1 | 8607.0 | 50 | 51 |
| 51 | 5939.7 | 6118.2    | 6305.8 | 6503.8 | 6713.2 | 6935.7 | 7173.1 | 7427.4 | 7701.5 | 7998.9 | 8323.8 | 8611.7 | 51 | 52 |
| 52 | 5942.6 | 6121.2    | 6309.1 | 6507.2 | 6716.8 | 6939.6 | 7177.2 | 7431.8 | 7706.3 | 8004.0 | 8329.4 | 8616.4 | 52 | 53 |
| 53 | 5945.5 | 6124.3    | 6312.3 | 6510.6 | 6720.4 | 6943.4 | 7181.2 | 7436.2 | 7711.1 | 8009.2 | 8335.1 | 8621.1 | 53 | 54 |
| 54 | 5948.4 | 6127.3    | 6315.5 | 6514.0 | 6724.0 | 6947.2 | 7185.3 | 7440.6 | 7715.8 | 8014.4 | 8340.8 | 8625.8 | 54 | 55 |
| 55 | 5951.3 | 6130.4    | 6318.7 | 6517.4 | 6727.7 | 6951.1 | 7189.5 | 7445.1 | 7720.6 | 8019.6 | 8346.5 | 8630.5 | 55 | 56 |
| 56 | 5954.2 | 6133.4    | 6322.0 | 6520.8 | 6731.3 | 6954.9 | 7193.6 | 7449.5 | 7725.4 | 8024.8 | 8352.2 | 8635.2 | 56 | 57 |
| 57 | 5957.1 | 6136.5    | 6325.1 | 6524.2 | 6734.9 | 6958.8 | 7197.7 | 7453.0 | 7730.2 | 8030.0 | 8357.9 | 8639.9 | 57 | 58 |
| 58 | 5960.0 | 6139.6    | 6328.2 | 6527.6 | 6738.5 | 6962.6 | 7201.8 | 7458.3 | 7735.0 | 8035.2 | 8363.7 | 8644.6 | 58 | 59 |
| 59 | 5962.9 | 6142.6    | 6331.6 | 6531.0 | 6742.1 | 6966.5 | 7205.9 | 7462.8 | 7739.8 | 8040.5 | 8369.4 | 8649.3 | 59 | 60 |
| 60 | 5965.9 | 6145.7    | 6334.8 | 6534.4 | 6745.7 | 6970.3 | 7210.1 | 7467.2 | 7744.6 | 8045.7 | 8375.2 | 8654.0 | 60 |    |

MERIDIONAL PARTS.

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|    |        | Latitude. |        |         |         |         |         |         |         |         |    |  |
|----|--------|-----------|--------|---------|---------|---------|---------|---------|---------|---------|----|--|
|    | 80°    | 81°       | 82°    | 83°     | 84°     | 85°     | 86°     | 87°     | 88°     | 89°     |    |  |
| 0  | 8375.2 | 8739.1    | 9145.5 | 9605.8  | 10136.9 | 10764.6 | 11532.5 | 12522.1 | 13916.4 | 16299.6 | 0  |  |
| 1  | 8381.0 | 8745.5    | 9152.6 | 9614.0  | 10146.5 | 10776.1 | 11546.9 | 12541.3 | 13945.2 | 16337.3 | 1  |  |
| 2  | 8386.7 | 8751.9    | 9159.9 | 9622.3  | 10156.1 | 10787.7 | 11561.3 | 12560.5 | 13974.2 | 16416.1 | 2  |  |
| 3  | 8392.5 | 8758.3    | 9167.1 | 9630.5  | 10165.7 | 10799.2 | 11575.8 | 12579.9 | 14003.5 | 16475.9 | 3  |  |
| 4  | 8398.3 | 8764.7    | 9174.3 | 9638.8  | 10175.4 | 10810.8 | 11590.3 | 12599.4 | 14033.0 | 16536.8 | 4  |  |
| 5  | 8404.1 | 8771.2    | 9181.6 | 9647.1  | 10185.1 | 10822.5 | 11605.1 | 12619.0 | 14062.8 | 16598.7 | 5  |  |
| 6  | 8409.9 | 8777.6    | 9188.8 | 9655.4  | 10194.8 | 10834.2 | 11619.6 | 12638.7 | 14092.8 | 16661.8 | 6  |  |
| 7  | 8415.7 | 8784.1    | 9196.1 | 9663.7  | 10204.5 | 10845.9 | 11634.4 | 12658.5 | 14123.1 | 16726.0 | 7  |  |
| 8  | 8421.6 | 8790.6    | 9203.4 | 9672.1  | 10214.3 | 10857.7 | 11649.2 | 12678.5 | 14153.7 | 16791.5 | 8  |  |
| 9  | 8427.4 | 8797.1    | 9210.7 | 9680.5  | 10224.1 | 10869.5 | 11664.0 | 12698.5 | 14184.5 | 16858.3 | 9  |  |
| 10 | 8433.3 | 8803.6    | 9218.1 | 9688.9  | 10233.9 | 10881.4 | 11678.9 | 12718.7 | 14215.6 | 16926.4 | 10 |  |
| 11 | 8439.1 | 8810.1    | 9225.4 | 9697.3  | 10243.8 | 10893.2 | 11693.9 | 12739.0 | 14247.0 | 16995.8 | 11 |  |
| 12 | 8445.0 | 8816.6    | 9232.8 | 9705.7  | 10253.6 | 10905.1 | 11709.0 | 12759.4 | 14278.7 | 17066.7 | 12 |  |
| 13 | 8450.9 | 8823.2    | 9240.2 | 9714.2  | 10263.5 | 10917.1 | 11724.1 | 12779.9 | 14310.7 | 17139.1 | 13 |  |
| 14 | 8456.8 | 8829.7    | 9247.5 | 9722.6  | 10273.5 | 10929.1 | 11739.3 | 12800.6 | 14343.0 | 17213.0 | 14 |  |
| 15 | 8462.7 | 8836.3    | 9255.0 | 9731.1  | 10283.5 | 10941.2 | 11754.6 | 12821.4 | 14375.6 | 17288.6 | 15 |  |
| 16 | 8468.6 | 8842.9    | 9262.4 | 9739.7  | 10293.5 | 10953.3 | 11769.9 | 12842.3 | 14408.5 | 17365.8 | 16 |  |
| 17 | 8474.5 | 8849.5    | 9269.8 | 9748.2  | 10303.5 | 10965.4 | 11785.3 | 12863.3 | 14441.7 | 17444.9 | 17 |  |
| 18 | 8480.4 | 8856.1    | 9277.3 | 9756.8  | 10313.5 | 10977.6 | 11800.7 | 12884.5 | 14475.2 | 17525.8 | 18 |  |
| 19 | 8486.4 | 8862.7    | 9284.7 | 9765.3  | 10323.6 | 10989.8 | 11816.3 | 12905.8 | 14509.1 | 17608.6 | 19 |  |
| 20 | 8492.3 | 8869.3    | 9292.2 | 9773.9  | 10333.7 | 11002.1 | 11831.9 | 12927.2 | 14543.3 | 17693.5 | 20 |  |
| 21 | 8498.3 | 8876.0    | 9299.7 | 9782.6  | 10343.9 | 11014.4 | 11847.5 | 12948.7 | 14577.9 | 17780.5 | 21 |  |
| 22 | 8504.3 | 8882.6    | 9307.3 | 9791.2  | 10354.0 | 11026.8 | 11863.3 | 12970.4 | 14612.8 | 17869.8 | 22 |  |
| 23 | 8510.2 | 8889.2    | 9314.8 | 9799.9  | 10364.2 | 11039.2 | 11879.1 | 12992.3 | 14648.0 | 17961.5 | 23 |  |
| 24 | 8516.2 | 8896.0    | 9322.3 | 9808.6  | 10374.5 | 11051.6 | 11895.0 | 13014.4 | 14683.7 | 18055.7 | 24 |  |
| 25 | 8522.2 | 8902.7    | 9329.9 | 9817.3  | 10384.7 | 11064.1 | 11911.0 | 13036.4 | 14719.7 | 18152.5 | 25 |  |
| 26 | 8528.2 | 8909.4    | 9337.5 | 9826.0  | 10395.1 | 11076.6 | 11927.0 | 13058.6 | 14756.1 | 18252.2 | 26 |  |
| 27 | 8534.3 | 8916.1    | 9345.1 | 9834.8  | 10405.4 | 11089.2 | 11943.1 | 13081.0 | 14792.8 | 18354.9 | 27 |  |
| 28 | 8540.3 | 8922.8    | 9352.7 | 9843.5  | 10415.7 | 11101.8 | 11959.3 | 13103.6 | 14830.0 | 18460.6 | 28 |  |
| 29 | 8546.3 | 8929.6    | 9360.4 | 9852.4  | 10426.1 | 11114.5 | 11975.6 | 13126.3 | 14867.6 | 18569.8 | 29 |  |
| 30 | 8552.4 | 8936.3    | 9368.0 | 9861.2  | 10436.5 | 11127.2 | 11991.9 | 13149.1 | 14905.6 | 18682.5 | 30 |  |
| 31 | 8558.5 | 8943.1    | 9375.7 | 9870.0  | 10447.0 | 11140.0 | 12008.3 | 13172.1 | 14944.0 | 18799.0 | 31 |  |
| 32 | 8564.5 | 8949.9    | 9383.4 | 9878.9  | 10457.4 | 11152.8 | 12024.8 | 13195.3 | 14982.8 | 18919.7 | 32 |  |
| 33 | 8570.5 | 8956.7    | 9391.1 | 9887.8  | 10468.0 | 11165.7 | 12041.4 | 13218.6 | 15022.1 | 19044.7 | 33 |  |
| 34 | 8576.7 | 8963.5    | 9398.8 | 9896.7  | 10478.5 | 11178.6 | 12058.1 | 13242.1 | 15061.9 | 19174.4 | 34 |  |
| 35 | 8582.8 | 8970.3    | 9406.5 | 9905.6  | 10489.1 | 11191.6 | 12074.8 | 13265.7 | 15102.1 | 19309.3 | 35 |  |
| 36 | 8588.9 | 8977.2    | 9414.3 | 9914.6  | 10499.7 | 11204.6 | 12091.6 | 13289.5 | 15143.8 | 19449.6 | 36 |  |
| 37 | 8595.1 | 8984.0    | 9422.1 | 9923.6  | 10510.3 | 11217.6 | 12108.5 | 13313.5 | 15186.9 | 19595.9 | 37 |  |
| 38 | 8601.2 | 8990.9    | 9429.8 | 9932.6  | 10521.0 | 11230.7 | 12125.5 | 13337.6 | 15225.6 | 19748.7 | 38 |  |
| 39 | 8607.4 | 8997.8    | 9437.7 | 9941.6  | 10531.7 | 11243.9 | 12142.6 | 13361.9 | 15267.8 | 19908.7 | 39 |  |
| 40 | 8613.5 | 9004.7    | 9445.5 | 9950.7  | 10542.5 | 11257.1 | 12159.7 | 13386.4 | 15310.5 | 20076.4 | 40 |  |
| 41 | 8619.7 | 9011.6    | 9453.3 | 9959.7  | 10553.2 | 11270.4 | 12177.0 | 13411.0 | 15353.8 | 20252.7 | 41 |  |
| 42 | 8625.9 | 9018.5    | 9461.3 | 9968.8  | 10564.0 | 11283.7 | 12194.3 | 13435.9 | 15397.6 | 20438.6 | 42 |  |
| 43 | 8632.1 | 9025.4    | 9469.1 | 9978.0  | 10574.9 | 11297.0 | 12211.7 | 13460.9 | 15441.9 | 20635.1 | 43 |  |
| 44 | 8638.3 | 9032.4    | 9477.0 | 9987.1  | 10585.8 | 11310.5 | 12229.2 | 13486.1 | 15486.9 | 20843.5 | 44 |  |
| 45 | 8644.5 | 9039.3    | 9484.9 | 9996.3  | 10596.7 | 11323.9 | 12246.8 | 13511.4 | 15532.4 | 21065.4 | 45 |  |
| 46 | 8650.7 | 9046.3    | 9492.8 | 10005.5 | 10607.6 | 11337.5 | 12264.5 | 13537.0 | 15578.6 | 21302.6 | 46 |  |
| 47 | 8656.9 | 9053.3    | 9500.8 | 10014.7 | 10618.6 | 11351.0 | 12282.3 | 13562.7 | 15625.3 | 21557.3 | 47 |  |
| 48 | 8663.2 | 9060.3    | 9508.7 | 10024.0 | 10629.7 | 11364.6 | 12300.1 | 13588.7 | 15672.8 | 21832.5 | 48 |  |
| 49 | 8669.5 | 9067.3    | 9516.7 | 10033.2 | 10640.9 | 11378.3 | 12318.1 | 13614.9 | 15720.8 | 22131.6 | 49 |  |
| 50 | 8675.7 | 9074.3    | 9524.7 | 10042.5 | 10651.8 | 11392.1 | 12336.2 | 13641.2 | 15769.6 | 22459.3 | 50 |  |
| 51 | 8682.0 | 9081.4    | 9532.7 | 10051.8 | 10662.9 | 11405.9 | 12354.3 | 13667.8 | 15819.1 | 22821.5 | 51 |  |
| 52 | 8688.3 | 9088.4    | 9540.8 | 10061.2 | 10674.0 | 11419.7 | 12372.5 | 13694.5 | 15869.3 | 23226.4 | 52 |  |
| 53 | 8694.6 | 9095.5    | 9548.9 | 10070.6 | 10685.2 | 11433.6 | 12390.9 | 13721.6 | 15920.2 | 23685.4 | 53 |  |
| 54 | 8700.9 | 9102.6    | 9556.9 | 10080.0 | 10696.5 | 11447.6 | 12409.3 | 13748.7 | 15971.9 | 24215.4 | 54 |  |
| 55 | 8707.3 | 9109.7    | 9565.0 | 10089.4 | 10707.7 | 11461.6 | 12427.9 | 13776.1 | 16024.4 | 24842.1 | 55 |  |
| 56 | 8713.6 | 9116.8    | 9573.2 | 10098.8 | 10719.0 | 11475.7 | 12446.5 | 13803.7 | 16077.7 | 25609.2 | 56 |  |
| 57 | 8719.9 | 9124.0    | 9581.3 | 10108.3 | 10730.4 | 11489.8 | 12465.3 | 13831.5 | 16131.8 | 26598.2 | 57 |  |
| 58 | 8726.3 | 9131.1    | 9589.5 | 10117.8 | 10741.8 | 11504.0 | 12484.1 | 13859.6 | 16186.8 | 27992.4 | 58 |  |
| 59 | 8732.7 | 9138.3    | 9597.6 | 10127.3 | 10753.2 | 11518.2 | 12503.0 | 13887.9 | 16242.7 | 30375.0 | 59 |  |
| 60 | 8739.1 | 9145.5    | 9605.8 | 10136.9 | 10764.6 | 11532.5 | 12522.1 | 13916.4 | 16299.6 | inf.    | 60 |  |



| Mid. Lat. | Difference of Latitude. |     |     |     |     |     |     |     |     |      |      |      |      |      |      |      |      |      |      |      | Mid. Lat. |
|-----------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|-----------|
|           | 10°                     | 20° | 30° | 40° | 50° | 60° | 70° | 80° | 90° | 100° | 110° | 120° | 130° | 140° | 150° | 160° | 170° | 180° | 190° | 200° |           |
| 0         | 1                       | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 0         |
| 15        | 0                       | 1   | 2   | 3   | 4   | 6   | 9   | 12  | 15  | 19   | 23   | 27   | 31   | 35   | 40   | 45   | 51   | 58   | 66   | 74   | 15        |
| 16        | 0                       | 1   | 2   | 3   | 4   | 6   | 9   | 12  | 15  | 18   | 22   | 26   | 30   | 34   | 38   | 43   | 49   | 56   | 63   | 71   | 16        |
| 17        | 0                       | 1   | 2   | 3   | 4   | 6   | 8   | 11  | 14  | 17   | 21   | 25   | 28   | 32   | 37   | 42   | 48   | 54   | 61   | 68   | 17        |
| 18        | 0                       | 1   | 2   | 3   | 4   | 6   | 8   | 11  | 14  | 17   | 20   | 24   | 27   | 31   | 36   | 41   | 46   | 52   | 58   | 66   | 18        |
| 19        | 0                       | 1   | 2   | 3   | 4   | 6   | 7   | 10  | 13  | 16   | 19   | 23   | 26   | 30   | 34   | 40   | 45   | 50   | 56   | 63   | 19        |
| 20        | 0                       | 1   | 2   | 3   | 4   | 6   | 7   | 9   | 12  | 15   | 18   | 22   | 25   | 29   | 33   | 38   | 43   | 48   | 54   | 60   | 20        |
| 21        | 0                       | 1   | 2   | 3   | 4   | 6   | 7   | 9   | 12  | 15   | 18   | 21   | 25   | 29   | 33   | 37   | 42   | 47   | 53   | 58   | 21        |
| 22        | 0                       | 1   | 2   | 3   | 4   | 6   | 7   | 9   | 12  | 15   | 17   | 20   | 24   | 28   | 32   | 36   | 41   | 46   | 51   | 56   | 22        |
| 23        | 0                       | 1   | 2   | 3   | 4   | 6   | 7   | 9   | 12  | 15   | 17   | 20   | 24   | 28   | 32   | 36   | 40   | 45   | 50   | 55   | 23        |
| 24        | 0                       | 1   | 2   | 3   | 4   | 6   | 7   | 9   | 11  | 14   | 16   | 19   | 23   | 27   | 31   | 35   | 39   | 44   | 48   | 53   | 24        |
| 25        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 16   | 19   | 23   | 27   | 31   | 35   | 39   | 43   | 47   | 52   | 25        |
| 26        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 16   | 19   | 22   | 26   | 30   | 34   | 38   | 42   | 47   | 52   | 26        |
| 27        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 8   | 11  | 14   | 16   | 19   | 22   | 26   | 30   | 33   | 38   | 42   | 46   | 51   | 27        |
| 28        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 25   | 29   | 33   | 37   | 41   | 46   | 51   | 28        |
| 29        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 25   | 29   | 32   | 36   | 41   | 45   | 50   | 29        |
| 30        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 25   | 28   | 32   | 36   | 41   | 45   | 50   | 30        |
| 31        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 25   | 28   | 32   | 36   | 41   | 45   | 50   | 31        |
| 32        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 25   | 28   | 31   | 36   | 41   | 45   | 50   | 32        |
| 33        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 24   | 27   | 31   | 35   | 40   | 44   | 49   | 33        |
| 34        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 24   | 27   | 31   | 35   | 40   | 44   | 49   | 34        |
| 35        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 24   | 27   | 31   | 35   | 40   | 44   | 49   | 35        |
| 36        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 24   | 27   | 31   | 35   | 40   | 44   | 49   | 36        |
| 37        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 24   | 27   | 31   | 35   | 40   | 44   | 49   | 37        |
| 38        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 24   | 27   | 31   | 36   | 40   | 45   | 50   | 38        |
| 39        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 21   | 25   | 28   | 32   | 36   | 41   | 45   | 50   | 39        |
| 40        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 22   | 25   | 28   | 32   | 36   | 41   | 45   | 50   | 40        |
| 41        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 22   | 25   | 28   | 32   | 37   | 41   | 45   | 50   | 41        |
| 42        | 0                       | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  | 13   | 15   | 18   | 22   | 26   | 29   | 33   | 37   | 42   | 46   | 51   | 42        |
| 43        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 16   | 19   | 23   | 26   | 30   | 34   | 38   | 42   | 46   | 51   | 43        |
| 44        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 16   | 19   | 23   | 27   | 30   | 34   | 38   | 43   | 47   | 52   | 44        |
| 45        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 16   | 19   | 23   | 27   | 31   | 35   | 39   | 43   | 47   | 52   | 45        |
| 46        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 16   | 19   | 23   | 27   | 31   | 35   | 39   | 44   | 48   | 53   | 46        |
| 47        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 16   | 20   | 23   | 27   | 31   | 35   | 40   | 44   | 49   | 54   | 47        |
| 48        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 16   | 20   | 23   | 27   | 31   | 35   | 40   | 45   | 50   | 55   | 48        |
| 49        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 17   | 21   | 24   | 28   | 32   | 36   | 41   | 45   | 51   | 57   | 49        |
| 50        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 17   | 21   | 24   | 28   | 32   | 36   | 41   | 46   | 52   | 58   | 50        |
| 51        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 11  | 14   | 17   | 21   | 24   | 28   | 32   | 37   | 42   | 47   | 53   | 59   | 51        |
| 52        | 0                       | 1   | 2   | 3   | 4   | 5   | 7   | 9   | 12  | 15   | 18   | 22   | 25   | 29   | 33   | 37   | 42   | 48   | 54   | 60   | 52        |
| 53        | 0                       | 1   | 2   | 3   | 4   | 6   | 7   | 9   | 12  | 15   | 18   | 22   | 25   | 29   | 33   | 38   | 43   | 49   | 55   | 61   | 53        |
| 54        | 0                       | 1   | 2   | 3   | 4   | 6   | 8   | 10  | 13  | 16   | 19   | 23   | 26   | 30   | 34   | 39   | 44   | 50   | 56   | 62   | 54        |
| 55        | 0                       | 1   | 2   | 3   | 4   | 6   | 8   | 10  | 13  | 16   | 19   | 23   | 26   | 30   | 35   | 40   | 45   | 51   | 57   | 63   | 55        |
| 56        | 0                       | 1   | 2   | 3   | 4   | 6   | 8   | 10  | 13  | 16   | 20   | 24   | 27   | 31   | 36   | 41   | 46   | 52   | 58   | 64   | 56        |
| 57        | 0                       | 1   | 2   | 3   | 4   | 6   | 8   | 11  | 14  | 17   | 20   | 24   | 28   | 32   | 37   | 42   | 48   | 54   | 60   | 66   | 57        |
| 58        | 0                       | 1   | 2   | 3   | 4   | 6   | 9   | 11  | 14  | 17   | 21   | 25   | 29   | 33   | 38   | 44   | 50   | 55   | 62   | 68   | 58        |
| 59        | 0                       | 1   | 2   | 3   | 4   | 6   | 9   | 12  | 15  | 18   | 22   | 26   | 30   | 34   | 39   | 45   | 51   | 57   | 64   | 70   | 59        |
| 60        | 0                       | 1   | 2   | 3   | 4   | 6   | 9   | 12  | 15  | 19   | 23   | 27   | 31   | 35   | 40   | 46   | 52   | 59   | 66   | 73   | 60        |
| 61        | 0                       | 1   | 2   | 3   | 5   | 7   | 9   | 12  | 15  | 19   | 23   | 27   | 31   | 36   | 41   | 47   | 54   | 61   | 68   | 75   | 61        |
| 62        | 0                       | 1   | 2   | 3   | 5   | 7   | 9   | 12  | 16  | 20   | 24   | 28   | 32   | 37   | 42   | 49   | 56   | 63   | 70   | 78   | 62        |
| 63        | 0                       | 1   | 2   | 4   | 5   | 7   | 9   | 13  | 16  | 20   | 24   | 29   | 33   | 39   | 44   | 51   | 58   | 65   | 72   | 81   | 63        |
| 64        | 0                       | 1   | 2   | 4   | 6   | 8   | 9   | 13  | 17  | 21   | 25   | 29   | 34   | 40   | 46   | 53   | 60   | 67   | 74   | 84   | 64        |
| 65        | 0                       | 1   | 2   | 4   | 6   | 8   | 10  | 13  | 17  | 21   | 25   | 30   | 35   | 41   | 48   | 55   | 62   | 69   | 77   | 87   | 65        |
| 66        | 0                       | 1   | 2   | 4   | 6   | 8   | 10  | 14  | 18  | 22   | 26   | 31   | 37   | 43   | 50   | 58   | 65   | 72   | 81   | 91   | 66        |
| 67        | 0                       | 1   | 2   | 4   | 6   | 8   | 11  | 15  | 18  | 23   | 27   | 33   | 38   | 45   | 53   | 60   | 67   | 76   | 85   | 95   | 67        |
| 68        | 0                       | 1   | 2   | 4   | 6   | 8   | 11  | 15  | 19  | 24   | 28   | 34   | 40   | 48   | 55   | 62   | 70   | 79   | 90   | 99   | 68        |
| 69        | 0                       | 1   | 2   | 5   | 6   | 9   | 12  | 16  | 20  | 25   | 30   | 36   | 42   | 50   | 58   | 65   | 73   | 83   | 94   | 104  | 69        |
| 70        | 0                       | 1   | 3   | 5   | 6   | 9   | 13  | 17  | 21  | 26   | 31   | 38   | 44   | 52   | 60   | 68   | 77   | 88   | 99   | 110  | 70        |
| 71        | 0                       | 1   | 4   | 6   | 7   | 9   | 13  | 18  | 22  | 27   | 33   | 40   | 46   | 55   | 63   | 72   | 82   | 92   | 104  | 116  | 71        |
| 72        | 0                       | 1   | 4   | 6   | 8   | 10  | 14  | 19  | 23  | 29   | 35   | 42   | 49   | 58   | 66   | 76   | 87   | 98   | 110  | 124  | 72        |

*Logarithms of use in computing Compound Interest for long periods of time.*

| Num.    | Log.               | Num.    | Log.               | Num.    | Log.               |
|---------|--------------------|---------|--------------------|---------|--------------------|
| 1.00125 | .00054 25290 92294 | 1.04250 | .01807 60636 45795 | 1.08375 | .03492 91104 84267 |
| 1.00250 | .00108 43812 92220 | 1.04375 | .01859 64884 91658 | 1.08500 | .03542 97381 84548 |
| 1.00375 | .00162 55582 86737 | 1.04500 | .01911 62904 47073 | 1.08625 | .03592 97894 56723 |
| 1.00500 | .00216 60617 56508 | 1.04625 | .01963 54710 01316 | 1.08750 | .03642 92656 26675 |
| 1.00625 | .00270 58933 75925 | 1.04750 | .02015 40316 38333 | 1.08875 | .03692 81680 15720 |
| 1.00750 | .00324 50548 13147 | 1.04875 | .02067 19738 36757 | 1.09000 | .03742 64979 40624 |
| 1.00875 | .00378 35477 30127 | 1.05000 | .02118 92990 69938 | 1.09125 | .03792 42567 13626 |
| 1.01000 | .00432 13737 82643 | 1.05125 | .02170 60088 05969 | 1.09250 | .03842 14456 42459 |
| 1.01125 | .00485 85346 20329 | 1.05250 | .02222 21045 07706 | 1.09375 | .03892 80660 30370 |
| 1.01250 | .00539 50318 86706 | 1.05375 | .02273 75876 32799 | 1.09500 | .03941 41191 76137 |
| 1.01375 | .00593 08672 19212 | 1.05500 | .02325 24596 33711 | 1.09625 | .03990 96063 74097 |
| 1.01500 | .00646 60422 49232 | 1.05625 | .02376 67219 57749 | 1.09750 | .04040 45289 14159 |
| 1.01625 | .00700 05586 02125 | 1.05750 | .02428 03760 47080 | 1.09875 | .04089 88880 81828 |
| 1.01750 | .00753 44178 97258 | 1.05875 | .02479 34233 38763 | 1.10000 | .04139 26851 58225 |
| 1.01875 | .00806 76217 48033 | 1.06000 | .02530 58652 64770 | 1.10125 | .04188 59214 20104 |
| 1.02000 | .00860 01717 61918 | 1.06125 | .02581 77032 52009 | 1.10250 | .04237 85891 38762 |
| 1.02125 | .00913 20695 40472 | 1.06250 | .02632 89387 22349 | 1.10375 | .04287 07165 85625 |
| 1.02250 | .00966 33166 79379 | 1.06375 | .02683 95730 92644 | 1.10500 | .04336 22780 21130 |
| 1.02375 | .01019 39147 68475 | 1.06500 | .02734 96077 74757 | 1.10625 | .04385 32837 05882 |
| 1.02500 | .01072 38653 91773 | 1.06625 | .02785 90441 75579 | 1.10750 | .04434 37348 95107 |
| 1.02625 | .01125 31701 27497 | 1.06750 | .02836 78836 97061 | 1.10875 | .04483 36328 39783 |
| 1.02750 | .01178 18305 48107 | 1.06875 | .02887 61277 36229 | 1.11000 | .04532 29787 86657 |
| 1.02875 | .01230 98482 20326 | 1.07000 | .02938 37776 85210 | 1.11125 | .04581 17739 78270 |
| 1.03000 | .01282 72247 05172 | 1.07125 | .02989 08349 31255 | 1.11250 | .04630 00196 59969 |
| 1.03125 | .01336 39615 57982 | 1.07250 | .03039 73008 56762 | 1.11375 | .04678 77170 44931 |
| 1.03250 | .01389 06603 28439 | 1.07375 | .03090 31768 39299 | 1.11500 | .04727 48673 84179 |
| 1.03375 | .01441 55225 60603 | 1.07500 | .03140 84642 51624 | 1.11625 | .04776 14718 96603 |
| 1.03500 | .01494 03497 92937 | 1.07625 | .03191 31644 61711 | 1.11750 | .04824 75318 03974 |
| 1.03625 | .01546 45435 58330 | 1.07750 | .03241 72788 32769 | 1.11875 | .04873 30483 23968 |
| 1.03750 | .01598 81053 84130 | 1.07875 | .03292 08087 23266 | 1.12000 | .04921 80226 70182 |
| 1.03875 | .01651 10367 92167 | 1.08000 | .03342 37554 86950 | 1.12125 | .04970 24560 52148 |
| 1.04000 | .01703 33392 98780 | 1.08125 | .03392 61204 72871 | 1.12250 | .05018 63496 75361 |
| 1.04125 | .01755 50144 14844 | 1.08250 | .03442 79050 25403 | 1.12375 | .05066 97047 41285 |

*Table for converting Common into Hyperbolic Logarithms.*

|   |          |       |       |       |       |
|---|----------|-------|-------|-------|-------|
| 1 | 2.30258  | 50929 | 94045 | 68401 | 79915 |
| 2 | 4.60517  | 01859 | 88091 | 36803 | 59829 |
| 3 | 6.90775  | 52789 | 82137 | 05205 | 39744 |
| 4 | 9.21034  | 03719 | 76182 | 73607 | 19658 |
| 5 | 11.51292 | 54649 | 70228 | 42008 | 99573 |
| 6 | 13.81551 | 05579 | 64274 | 10410 | 79487 |
| 7 | 16.11809 | 56509 | 58319 | 78812 | 59402 |
| 8 | 18.42068 | 07439 | 52365 | 47214 | 39316 |
| 9 | 20.72326 | 58369 | 46411 | 15616 | 19231 |

*Table for converting Hyperbolic into Common Logarithms.*

|   |         |       |       |       |       |
|---|---------|-------|-------|-------|-------|
| 1 | 0.43429 | 44819 | 03251 | 82765 | 11289 |
| 2 | 0.86858 | 89638 | 06503 | 65530 | 22578 |
| 3 | 1.30288 | 34457 | 09755 | 48295 | 33868 |
| 4 | 1.73717 | 79276 | 13007 | 31060 | 45157 |
| 5 | 2.17147 | 24095 | 16259 | 13825 | 56446 |
| 6 | 2.60576 | 68914 | 19510 | 96590 | 67735 |
| 7 | 3.04006 | 13733 | 22762 | 79355 | 79024 |
| 8 | 3.47435 | 58552 | 26014 | 62120 | 90314 |
| 9 | 3.90865 | 03371 | 29266 | 44886 | 01603 |

*Lengths of Circular Arcs in decimal parts of Radius.*

|                |        |       |       |       |    |        |       |       |       |     |        |       |       |       |
|----------------|--------|-------|-------|-------|----|--------|-------|-------|-------|-----|--------|-------|-------|-------|
| 1 <sup>o</sup> | .01745 | 32925 | 19943 | 29577 | 1' | .00029 | 08882 | 08665 | 72160 | 1'' | .00000 | 48481 | 36811 | 09536 |
| 2              | .03490 | 65850 | 39886 | 59154 | 2  | .00058 | 17764 | 17331 | 44319 | 2   | .00000 | 96962 | 73622 | 19072 |
| 3              | .05235 | 97775 | 59829 | 88731 | 3  | .00087 | 26646 | 25997 | 16479 | 3   | .00001 | 45444 | 10433 | 26608 |
| 4              | .06981 | 31700 | 79773 | 18308 | 4  | .00116 | 35528 | 34662 | 88638 | 4   | .00001 | 93925 | 47244 | 38144 |
| 5              | .08726 | 64625 | 99716 | 47885 | 5  | .00145 | 44410 | 43328 | 60798 | 5   | .00002 | 42406 | 84055 | 47680 |
| 6              | .10471 | 97551 | 19659 | 77402 | 6  | .00174 | 53292 | 51994 | 32958 | 6   | .00002 | 90888 | 20866 | 57216 |
| 7              | .12217 | 30476 | 39603 | 07038 | 7  | .00203 | 62174 | 60660 | 05117 | 7   | .00003 | 39369 | 57677 | 66752 |
| 8              | .13962 | 63401 | 59546 | 36615 | 8  | .00232 | 71056 | 69325 | 77277 | 8   | .00003 | 87850 | 94488 | 76288 |
| 9              | .15707 | 96326 | 79489 | 66192 | 9  | .00261 | 79938 | 77991 | 49437 | 9   | .00004 | 36332 | 31299 | 85824 |



*Common Logarithms of Numbers, carried to thirty places of decimals.*

| N. | Log.                                  | N.  | Log.                                  |
|----|---------------------------------------|-----|---------------------------------------|
| 2  | 0.30102 99956 63981 19521 37388 94724 | 43  | 1.63346 84555 79586 52640 50881 53229 |
| 3  | 0.47712 12547 19662 43729 50279 03255 | 47  | 1.67209 78579 35717 46441 42193 99449 |
| 4  | 0.60205 99913 27962 39042 74777 89449 | 53  | 1.72427 58696 00789 04563 29922 91627 |
| 5  | 0.69897 00043 37618 80478 62611 05276 | 59  | 1.77085 20116 42144 19026 06563 84535 |
| 6  | 0.77815 12503 83643 63250 87667 97980 | 61  | 1.78532 98350 10767 03388 57485 13757 |
| 7  | 0.84509 80400 14256 83071 22162 58593 | 67  | 1.82607 48027 00826 43414 91316 29226 |
| 8  | 0.90308 99869 91943 58564 12166 84173 | 71  | 1.85125 83487 19075 28609 28294 35035 |
| 9  | 0.95424 25094 39324 87459 00558 06510 | 73  | 1.86332 28601 20455 90107 43869 00470 |
| 11 | 1.04139 26851 58225 04075 01999 71243 | 79  | 1.89762 70912 29044 42799 48213 86478 |
| 12 | 1.07918 12460 47624 82772 25056 92704 | 83  | 1.91907 80923 76073 90383 27603 52027 |
| 13 | 1.11394 33523 06836 76920 65051 57942 | 89  | 1.94939 00666 44912 78472 35433 69702 |
| 17 | 1.23044 89213 78273 92854 01698 94328 | 97  | 1.98677 17342 66244 85178 43618 11666 |
| 19 | 1.27875 36009 52828 96153 63334 75757 | 101 | 2.00432 13737 82642 57427 51881 78223 |
| 23 | 1.36172 78360 17592 87886 77771 12251 | 103 | 2.01283 72247 05172 20517 10711 94580 |
| 29 | 1.46239 79978 98956 08733 28467 62969 | 107 | 2.02938 37776 85209 64083 45412 39461 |
| 31 | 1.49136 10938 34272 67966 67041 00118 | 109 | 2.03742 64979 40623 63520 05133 07614 |
| 37 | 1.56820 17240 66994 99680 84506 89539 | 113 | 2.05307 84434 83419 72279 52270 28609 |
| 41 | 1.61278 38567 19735 49450 94118 49968 | 127 | 2.10380 37209 55956 86424 69874 21827 |

*Numbers often used in calculation.*

$i$  = Base of Napier's System of Logarithms = 2.71828 18284 59045 23536 02874 71353

$i + i = 0.36787 94412$ ,  $\log i = 1.56570 55180 96748 17234 88710 81083$

$M$  = com. log.  $i$  = Mod. of Com. Sys. of Log. = 0.43429 44819 03251 82765 11289 18917

$i + M = i + \text{com. log. } i$  = hyp. log. of 10 = 2.30258 50929 94045 68401 79914 54684

$r$  = Ratio of Circum. to Diameter of a Circle = 3.14159 26535 89793 23846 26433 83280

$i + r = 0.31830 98862$ ,  $\log r = 1.50285 01273 05866 14564 87317 11709$

com. log.  $r = 0.49714 98726 94133 85435 12682 88291$

hyp. log.  $r = 1.14472 98858 49400 17414 34273 51353$

$r^2 = 9.869604 401089$ ,  $i + r^2 = 0.10132 11836$ ,  $\sqrt{r} = 1.77245 38509$

Arc of same length as Radius =  $180^\circ + r = 10800' + r = 648000'' + r$

$180^\circ + r = 57^\circ .295779513$ ,  $\log = 1.75812 26324 09172$

$10800' + r = 3437' .7467708$ ,  $\log = 3.53627 38827 92816$

$648000'' + r = 206264'' .80625$ ,  $\log = 5.31422 51331 76459$

Length of Arc  $1'' = 0.00000 48481 36811 09535 99358 99141$  in parts of Radius,

$= r + 648000$ ,  $\log = 4 68557 48668 23540 51953$

$\sin 1'' = 0.00000 48481 36811$ ,  $\log = 4.68557 48668$

$\sin 2'' = 0.00000 96962 73622$ ,  $\log = 4.98660 48624$

$\sin 3'' = 0.00001 45444 1043$ ,  $\log = 5.16299 61215$

$\sin 4'' = 0.00001 93925 4724$ ,  $\log = 5.28763 48580$

$\sin 5'' = 0.00002 42406 8405$ ,  $\log = 5.38454 48710$

$\sin 9'' = 0.00004 36332 3129$ ,  $\log = 5.63981 73762$

$\sin 10'' = 0.00004 84813 6809$ ,  $\log = 5.68557 48665$

$\sin 11'' = 0.00005 33295 0490$ ,  $\log = 5.72696 75518$

$\sin 12'' = 0.00005 81776 4170$ ,  $\log = 5.76475 61125$

$\sin 1' = 0.00009 08882 046$ ,  $\log = 6.46372 61109$

$\sin 12' = 0.00349 06514 15$ ,  $\log = 7.54990 64811$

$\sin 1^\circ = 0.01745 24064$ ,  $\log = 8.24185 53184$

Tropical Year = 365<sup>d</sup>. 5<sup>h</sup>. 48<sup>m</sup>. 47<sup>s</sup>. 588 = 365<sup>d</sup>. 242217456,  $\log = 2.5625810$

Sidereal Year = 365<sup>d</sup>. 6<sup>h</sup>. 9<sup>m</sup>. 10<sup>s</sup>. 742 = 365<sup>d</sup>. 256374332,  $\log = 2.5625978$

24<sup>h</sup> Sol. T. = 24<sup>h</sup> 3<sup>m</sup> 56<sup>s</sup>. 555335 Sid. T. = 24<sup>h</sup> X 1.00273791,  $\log 1.002 \dots = 0.0011874$

24<sup>h</sup> Sid. T. = 24<sup>h</sup> - 3<sup>m</sup> 55<sup>s</sup>. 90944 Sol. T. = 24<sup>h</sup> X 0.9972696,  $\log 0.997 \dots = 9.9988126$

Accel<sup>n</sup> of Stars in Sol. day = 3<sup>m</sup> 56<sup>s</sup>. 555335 Sid. T. = 236<sup>s</sup>. 555335,  $\log = 2.3739328$

Accel<sup>n</sup> of Stars in Sol. day = 3<sup>m</sup> 55<sup>s</sup>. 90944 Sol. T. = 235<sup>s</sup>. 90944,  $\log = 2.3727453$

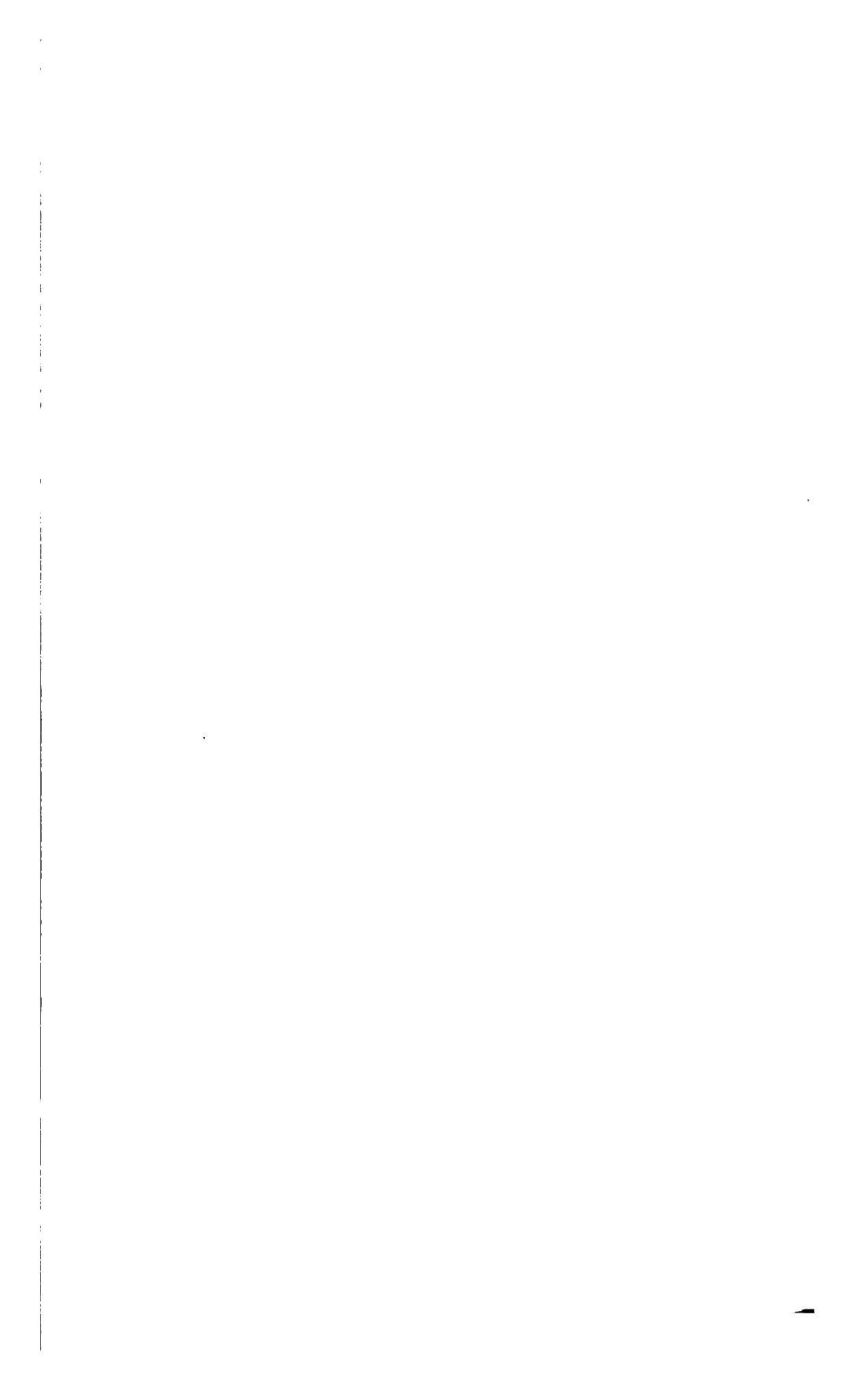
Length of sec. pend. in inch. at Lond. 39.13929, Paris 39.1285, New York 39.1012

$g$  = Accel. Force of Gravity at London = 32.1908 Eng. feet,  $\log = 1.5077315$

1 cubic inch of water (Bar. 30 inch. Fahr. Therm. 62<sup>o</sup>),

= 252.458 - 7000 in Avoir. pounds = 252.458 in Troy grains,  $\log = 2.4021892$

British imperial gallon = 277.274 cubic inches,  $\log = 2.4429091$











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