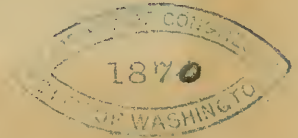THE

EXAMINER

OR

TEACHER'S AID.

DESIGNED TO

ASSIST CANDIDATES FOR TEACHERS' CERTIFICATES IN PREPARING
FOR EXAMINATION;

ALSO

PUPILS IN REVIEWING THEIR STUDIES, TEACHERS IN EXAMINING
THEIR CLASSES, AND NORMAL SCHOOLS AND TEACHERS'
INSTITUTES, IN CLASS AND DRILL EXERCISES.

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PREFACE.

Having been an examiner for many years, the author has watched, with the deepest interest, the results developed in the examination of hundreds, nay thousands, of candidates for the Teacher's profession. While some of them have been gratifying, most have been sufficiently surprising and painful.

The facts are these:

1st. A considerable number of those applying, from year to year, are rejected, because they *totally fail* to sustain the requisite examination.

2d. A larger number *barely* pass the ordeal, and receive certificates scarcely less discreditable than would be rejection itself.

3d. Quite 25 per cent. of the remainder pass the required examination about half as well as they ought, and receive certificates accordingly.

4th. Not more than 10 per cent., hardly more than 5 per cent. of the whole, secure the highest testimonials of scholarship which the law puts fairly within the reach of all.

Why is this? A few, doubtless, are *mentally* disqualified; and the business of teaching is the last in which they should have thought of engaging. But the great mass of candidates remains, and the question still urges itself, Why should so many of these continue to disgrace themselves, and disappoint their friends, by failure to sustain a reputable examination? Why should the great majority of them continue to subject themselves to the trouble and expense of a re-examination every 4, 6, 9, or 12 months, when they might have exemption from all this for a much longer period?

Convinced that there is no necessity for this state of things, and that he who shall point out a reasonable method of avoiding it will be doing an acceptable service, the author has prepared this work, earnestly hoping that it will contribute, in some degree, at least, to a higher and more thorough grade of qualification on the part of candidates for the important and responsible position of the Teacher.

A different course might have been adopted. A volume much larger might have been filled with *lists of questions*—lists, if not *identical with*, at least *similar to* those which are submitted to candidates in the examination-room. These might all have been answered *seriatim*, or a separate *key* furnished.

But this would have presented to candidates only the most superficial aid, while it would have left the chief difficulty untouched. What candidates need is not the ability merely to answer correctly certain questions which the examiners may submit to them, but a comprehensive yet definite knowledge of the branches they propose to teach. Having this qualification, it matters little what questions may be asked, provided only they are proper and relevant.

To aid candidates in securing such a preparation is the main object of the EXAMINER. In its preparation, this has been kept constantly in view; and it is believed that those who avail themselves of it, in the manner intended, will find future examinations, not a terrible weariness of the flesh, a dread, and a torment, but a pleasant exercise, a delight, and a triumph.

Another want I have sought to supply, viz.: *a convenient manual for reviewing the common branches in schools.*

Reviewing, as ordinarily practiced, is irksome and almost profitless. It is going over the same ground very much in the same way, but without the stimulus of novelty. Rather let the teacher insist on thoroughness from the very first, and at every step, and then, at the proper time, supply his pupils with the means and method of testing their actual attainments, and supplying their deficiencies. It is hoped that the EXAMINER will be found peculiarly adapted to this end.

Kindred to this might be mentioned its fitness as an *auxiliary* work, in the conduct of Teachers' Institutes and Normal Schools. But words on this point need not be multiplied.

THE AUTHOR.

CONTENTS.

SUGGESTIONS TO CANDIDATES.

REMEMBER that the object of the examination which the law requires you to pass, before you can be legally authorized to teach in any public school, is not to puzzle or harass you in any manner whatever. It is simply to ascertain whether you have such an acquaintance with the branches specified as shall qualify you to *teach* them. You see, therefore, on what your success as a candidate must depend.

You may and ought to be fully qualified to sustain a satisfactory examination. The books which treat of the branches specified lie within your reach. You profess to have studied them. You understand, therefore, where the requisite knowledge is to be found. Have you mastered it? If called upon to point out, distinctly and accurately, the difference between a vowel and a consonant, between a palatal and a lingual, between prose and poetry, can you do it?

EXAMINERS will wish to know whether you can teach the various vowel and consonant sounds; and they will want you to *show* this, by actually making and illustrating them. Can you do it? In a similar manner, they will test your knowledge of Geography. They may ask you why the Polar Circles and the Tropics are located where they are, rather than elsewhere; or, in what direction Iceland is from the North Pole, Australia from the South Pole, etc. Are you fully prepared to answer these, and other questions that may be propounded to you on this topic?

Of course, you will expect to be subjected to a similar scrutiny in relation to English Grammar and Arithmetic. Hence, it is urged that you examine yourselves, and so familiarize your minds with each topic, that neither the questions here named, nor any others of a proper character, may find you unprepared. You can do this; indeed, you can hardly avoid doing it, *if* you pursue the course indicated in the EXAMINER.

There are presented in the following pages, not *the* questions that will meet you in the examination-room, but rather such as will test your knowledge of the several branches upon which you must be examined; and these are accompanied by such references as will enable you to supply, by proper study, your deficiencies.

In using this work, in many cases, where there is more than ordinary scholarship or experience, it may answer merely to read the questions in the order in which they are presented, answering them mentally, as you proceed, being sure, however, not to pass *one* unanswered. When you come to a question calling for information which you can not readily furnish, avail yourselves of the *reference*, and *so study* it as to enable you to answer, not only that question, but any similar one that may be submitted to you.

But a surer, and therefore a better method will be to supply yourselves with paper, pencil, and the requisite authorities, and resolutely determine to answer, *in writing*, every question found in the Examiner. This is decidedly preferable, especially for two reasons:

1st. It will serve to render your knowledge definite, fixed, and satisfactory, and therefore always available.

2d. Because written examinations are fast becoming more and more common, and will doubtless soon be generally adopted.

Candidates, therefore, should accustom themselves to this mode of answering questions on all topics, and should study to do this with clearness, neatness, and dispatch. With such a preparation, you need not fear to enter any examination-room.

During the time of your examination, observe the following directions:

1st. Have your mind fixed exclusively on the business before you.

2d. In no case resort to books, or your fellow-candidates for aid.

3d. In your reading exercises be deliberate and natural.

4th. Be careful of your spelling, penmanship, punctuation, and capitals.

5th. Do not delay too long on questions you can not answer, if, unfortunately, you find such; rather pass them, leaving a corresponding blank in your manuscript.

6th. Cheerfully comply with all Rules and Regulations established by the Examiners.

THE EXAMINER.

PART I.

ORTHOGRAPHY.

REMARK.—The following references in questions on Orthography are to DE WOLF'S INSTRUCTIVE SPELLER, McGUFFEY'S ECLECTIC SPELLING BOOK, and PINNEO'S ANALYTICAL GRAMMAR. To distinguish the first of these from the second, when the former is referred to, the contraction *Sp.* is used; when the latter, *Mc Sp.*

1. How would you define ORTHOGRAPHY? See Webster's Unabridged Dictionary.

2. Of what does it treat, and what does it teach? Gr.* p. 7, ART. 4.

LETTERS AND THEIR SOUNDS.

3. What is a LETTER? Gr. p. 7, ART. 4.

4. What is the *power* of a letter in distinction from its name?

Ans. Its sound in the word to which it belongs.

5. How many letters belong to the English alphabet? Gr. p. 8, ART. 5.

6. What is the origin of the term *alphabet?*

Ans. It is derived from *Alpha* and *Beta*, the names of the first and second letters of the Greek alphabet.

7. Into what two general classes are the letters of the English alphabet divided? Gr. p. 8, ART. 5.

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*The following contractions are frequently used in this work: Sp. for Speller; Rr. for Reader; Gr. for Grammar; P. for Page; Art. for Article; L. for Lesson; Pr. for Paragraph; C. for Column; Pt. for Part; Ex. for Example; Exc. for Exception; R. for Rule; N. for Note; Rk. for Remark; and Dem. for Demonstration.

8. How do the letters and elementary sounds of the language compare as to number?   Sp. p. 5,—2.

9. Describe first a *vowel*, and then a *consonant*.   Sp. p. 5,—4 and 5.

10. How would you write the first ten letters of the alphabet, first in Roman, second in Italic, third in Script, and fourth in Old English letters?

11. How do you spell the names of the last ten letters of the alphabet?   See Webster's Dictionary.

12. What, respectively, are *tonics, atonics, vocals, subvocals,* and *aspirates?*   Sp. p. 5 and 6,—4, 5, 6, and 7.

13. How many and what letters represent *vowel* sounds? Sp. p. 6,—3.

14. How many and what letters represent *consonant* sounds? Sp. p. 6,—4.

15. Which letters are never used as consonants?   Sp. p. 6.

REMARK.—We are taught in nearly every work which treats of Orthography, that *W* and *Y* are sometimes vowels. Why are we not also, with the same uniformity, taught that *E, I, O,* and *U* are sometimes consonants? Ought not such words as *union* (yūn-yŏn) to remove all doubt as to the consonant use of *I* and *U,* and such words as *righteous* (right-yus) and *one* (wŭn) to determine the same thing as to *E* and *O?* Hence, *A* is the only letter (if, indeed, it be entirely true of *it*) which is *always* a vowel.

16. Which of the letters, respectively, are *labials, dentals, palatals,* and *nasals?*   Sp. p. 9, Table, etc.

On what is this classification founded?

Ans. On the vocal organs most prominent in their utterance.

17. The consonants are sometimes classified as *mutes* and *semi-vowels.* Give three examples of each.   Mc Sp. p. 8.

18. Which letters are called *liquids,* and why?   Mc Sp. p. 8.

19. How many and what sounds have *A, E, I, O,* and *U?* Sp. p. 8, Table, etc.

20. When are *W* and *Y* to be considered consonants, and when vowels?   Sp. p. 6, I and II.

21. Exemplify, by two examples, the different sounds of each of the vowels.   Sp. p. 14.

22. Define a *proper diphthong,* an *improper,* a *proper triph-*

thong, an *improper,* a *digraph,* and a *trigraph,* and give two examples of each. Mc Sp. p. 6, and Sp. p. 6,—5, 6, and 7.

23. Which of the consonants represent but one sound? Sp. p. 48, L. xcviii.

24. What sounds has *D?* Sp. p. 48, L. xcviii, *D.*

25. What sounds has *G,* and in what circumstances do· they occur? Sp. p. 48, L. xcix.

26. What sounds has *J?* Sp. p. 49, L. c.

27. What sounds have *N* and *Ng?* Sp. p. 49, L. c and ci.

28. Describe the sounds of *Z.* Sp. p. 49, L. ci, *Z.*

29. When has *F* the sound of *V?* Sp. p. 50, L. cii, *F.*

30. What sounds has *T,* and in what circumstances do they occur? Sp. p. 50, L. cii, *T.*

31. Describe the sounds of *Th.* Sp. p. 50, L. cii, *Th.*

32. What sounds are represented by *S,* and in what circumstances do they respectively occur? Sp. p. 50, L. ciii, *S.*

33. What sounds has *Ch,* and with what words can you illustrate each? Sp. p. 50, L. ciii, *Ch.*

34. Give examples illustrating the four sounds of *C.* Sp. p. 51, L. civ, *C.*

35. Describe and exemplify by suitable words, the sounds of *Gh.* Sp. p. 51, L. cv, *Gh.*

36. Describe the sounds of *X,* and give such words as shall illustrate each. Sp. p. 52, L. cvi.

37. Classify the letters in the word *exalted,* and describe the sounds belonging to each in this word. Sp. p. 52, L. cvii.

38. What sounds has *Ph,* and what other letters will properly represent them? Sp. p. 52, L. cvi, *Ph.*

39. What sound has *e* in *allied* and· *betrayed; o* in *weapon* and *crimson; n* in *kiln* and *limn; t* in *bustle* and *castle; i* in *failed* and *claimed; k* in *knot* and *known;* and *g* in *design* and *poignant?* Sp. p. 53, L. cviii, cix, and cx.

40. Point out the silent letters in *catarrh, light, league, taught, mosque, psalm,* and *slaughter.* Sp. p. 53, L. cx.

41. When are *g* and *k* silent? Sp. p. 54, L. cxiii.

42. What letters may be substituted for *u* in *statue, culture, pasture* and *fortune,* and yet preserve the pronunciation? Sp. p. 54, L. cxi.

43. What sound has *s* in *surely, issue, fissure,* and *nauseous?* Sp. p. 54, L. CXII.

44. What combination of letters can you substitute for *t, c,* and *s,* respectively, in *location, suspicious,* and *conclusion,* without altering the proper pronunciation? Sp. p. 55, L. CXIV.

45. How may pupils be best taught to utter correctly and with facility the various vowel and consonant sounds? Sp. p. 10, L. I, and p. 18, L. XXI and XXII.

Ans. By persistent practice, the teacher always first showing how it ought to be done.

46. When should capitals be used in composition? Sp. p. 168, Chapter XLIV.

47. Each of the following sentences contains one or more words needing correction in respect to capitals. Copy them in the order here given, correcting where necessary.

1. The boy appealed to Worcester's dictionary of the english Language.
2. the proper use of capitals is always to be Observed.
3. The fear of the lord is the beginning of Wisdom.
4. Washington, the american general, was a christian.
5. I live as i list, and I do as i please.
6. o, cruel, relentless spirit of war!
7. Those who attack others should remember the old proverb, they that live in glass houses, etc.
8.   No eye beheld when william plunged
                   young edmund in the stream;
             No human ear but William's heard
                   young edmund's drowning scream.

SYLLABLES.

1. What is a SYLLABLE? Sp. p. 7,—1.

2. How may the number of syllables a word contains always be known?

Ans. There are always as many syllables in a word as there are distinct sounds made in correctly pronouncing it.

3. How are words classified in regard to the number of syllables they contain? Sp. p. 7,—2.

4. Give three examples of each of these classes. Sp. p. 7,—2.

5. In dividing words into syllables, how should the consonants be disposed of?

Ans. They should be connected in the same syllables with the vowels or diphthongs, which they modify in enunciation.

6. When two vowels come together, not making a diphthong, how should they be disposed of in syllabification?

Ans. They should be put into different syllables.

7. In forming words into syllables, how should such derivatives, and grammatical terminations as *less, ly, ed,* and *ing,* be disposed of?

Ans. They should form separate syllables excepting in the case of *ed* when *e* is silent.

8. What rule applies to the syllabification of *prefixes?*

Ans. Generally, the same as above stated.

9. When for the want of room words are divided at the ends of lines, what rule applies?

Ans. Syllables are never to be divided.

Words and Spelling.

1. What is a WORD? Sp. p. 5,—1, and p. 6,—1.

2. Define a *primitive,* a *derivative,* a *simple,* and a *compound* word. Mc Sp. p. 14.

3. Give examples of each of the three classes of words. Mc Sp. p. 14.

4. How are derivative words formed? Sp. p. 78, L. XLIV.

5. What derivative words can be formed from the primitive word *move,* and what is the meaning of each? Sp. p. 125, Chapter I.

6. What is the difference, if any, between a primitive and radical word? Sp. p. 125, Chapter I.

7. When is the hyphen requisite, and when not, in the formation of compound words?

Ans. Permanent compounds, as *bookseller* and *schoolmaster,* do not require the hyphen; but temporary compounds do, as *glass-house* and *negro-merchant.*

8. What do you consider the best method of teaching spelling?

Ans. Any method which requires the younger pupils to *print,* and

the older ones to *write*, their spelling lessons, is a good one; and that which calls into requisition most frequently the slate and the blackboard, in such exercises, is the *best* method.

9. Define a *prefix* and a *suffix*.　Sp. p. 83, L. LIV, and p. 108, L. CXIV.

10. What words double their final consonant on taking an additional syllable beginning with a vowel?　Sp. p. 79, R. 1.

11. Why is final *x* an exception to this rule?

Ans. Because it is not a single consonant, being equivalent to *ks*.

12. In what class of words is the final consonant *not* doubled on taking an additional syllable?　Sp. p. 79, R. 2.

13. What words retain double *l* in forming their derivatives?　Sp. p. 80, Rk. 1.

14. What rule applies to the spelling of derivatives made from *full*, and other words ending in double *l*, when they form permanent compounds?　Sp. p. 80, Rk. 2.

15. What changes take place in words ending in *ant* or *ent*, when they take the suffixes *ce* or *cy*, and in those ending in *ate*, when they take the suffix *cy?*　Sp. p. 80, Rk. 3.

16. How are words ending in *er* or *or* changed, when they take a suffix beginning with a vowel?　Sp. p. 80, Rk. 4.

17. When does final *y* change into *i* on taking suffixes?　Sp. p. 81, R. 3.

18. What exceptions to this rule can you name?　Sp. p. 81, Exc. 1 and 2.

19. In what circumstances does final *y* remain unchanged on taking suffixes?　Sp. p. 81, R. 4.

20. What words drop final *y?*　Sp. p. 81, R. 4, Exc.

21. When is final *e* rejected, and if *i* precede *e*, into what is it changed before the suffix *ing?*　Sp. p. 82, R. 5.

22. Mention the exceptions to this rule.　Sp. p. 82, Exc. 1 and 2.

23. What is done with words ending in *le*, when they take the suffix *ly?*　Sp. p. 82, Rk. 1.

24. When words ending in *ble* take the suffix *ity*, what changes are necessary?　Sp. p. 82, Rk. 2.

25. What generally becomes of *e* final before a suffix beginning with a consonant?　Sp. p. 82, R. 6.

26. Can you mention five words in which *e* final is dropped on taking a suffix beginning with a consonant?   Sp. p. 82, L. LIII.

Note.—In common with other Examiners, the compiler has often been amazed at the ignorance of candidates in relation to the foregoing elementary, yet fundamental, topic. There is no excuse for deficiency here. An hour's study will enable one to master the subject. Candidates may rest assured that they can furnish no more favorable introduction to Examiners than a full and minute acquaintance with the *letters and their sounds;* while a marked deficiency here is always a sufficient cause for rejection.

READING.

REMARKS.—Reading, like singing, must be taught mainly by example. The pupil, in order to understand and practice them, must *hear* the different styles frequently exemplified. Without this, didactic instruction is of little use.

It is through the *ear alone* that vivid impressions, as to the *tone, pitch, modulation, accent, emphasis,* and *inflection,* proper to be observed in any case, can be made. Hence, he who would teach reading must himself know *how* to read, and be able to show others how to read. To acquire the ability requisite for this, nothing can be more beneficial than frequent and persevering practice *aloud,* upon exercises illustrating the Principles of Elocution.

☞ The following references in the questions on Reading, are all to McGUFFEY'S NEW SIXTH ECLECTIC READER.

1. Define Articulation, Inflection, Accent, Emphasis, Enunciation, and Pronunciation.   See Webster's Dictionary.

2. What are the principal faults to be guarded against in articulating words?   Rr. p. 15–18, 1, 2, 3, 4, and 5.

3. What specific directions can you give for acquiring a good *articulation*?   Rr. p. 19–23.

4. What forms of *inflection* are to be observed in reading? Rr. p. 23, Inflection.

5. What marks are usually employed to indicate the *rising* and *falling* inflection?   Rr. p. 23, Inflection.

6. When *both* inflections occur on the same syllable or word, what is the combination called?   Rr. p. 24, Inflection.

7. What characters are employed to indicate the rising and falling *circumflex*, respectively? Rr. p. 24, Inflection.

8. Describe the *monotone*. Rr. p. 24, 2d Pr.

9. What inflection is proper for the language of *emphasis?* Rr. p. 27, R. II.

10. What inflection is proper at the close of clauses and sentences, making complete sense in themselves? Rr. p. 26, R. I.

11. With what inflection should questions, which can not be answered by *yes* or *no*, be asked? Rr. p. 27, R. III.

12. When questions are emphatic or repeated, what inflection is proper? Rr. p. 28, Exc.

13. What specific directions can you give for the use of the rising inflection? Rr. p. 28–32.

14. When are both the rising and falling inflections required in the same sentence? Rr. p. 32–36.

15. Copy the following sentences, and indicate, in the proper manner, the inflections requisite for each:

1. It is sown a natural body; it is raised a spiritual body.
2. Does he speak rationally or irrationally?
3. Let us retract when we *can*, not when we *must*.
4. He deserved punishment rather than pity.
5. The knowledge, the power, the wisdom, the goodness of God, must all be unbounded.
6. I protest against this measure, as cruel, oppressive, tyrannous, and vindictive.
7. He was esteemed for his kindness, his intelligence, his self-denial, and his active benevolence.
8. Joy, grief, fear, anger, pity, scorn, hate, jealousy, and love, stamp assumed distinction upon the player.

16. Describe a *parenthesis*, and the manner of reading what it contains. Rr. p. 37, R. XII.

17. What does the *circumflex* usually express? Rr. p. 38, R. XIII.

18. To what kind of subjects is the *monotone* properly confined? Rr. p. 38, R. XIV.

19. Define Accent and Emphasis, and describe their uses. Rr. p. 39, Accent and Emphasis.

20. How are accented syllables usually indicated? Rr. p. 39, Accent, etc.

21. What determines the proper accent of words? Rr. p. 39, Common usage.

22. What is the *secondary* accent of words? Rr. p. 40.

23. In how many ways may words and phrases be emphasized? Rr. p. 40, Emphasis.

24. By what is the comparative degree of emphasis indicated? Rr. p. 40, Emphatic Words, etc.

25. Define Absolute Emphasis. Rr. p. 41, Where the emphasis, etc.

26. Describe Relative Emphasis. Rr. p. 41, Relative Emphasis.

27. When words, which are the same in part of their formation, are contrasted, how is the emphasis expressed, as in the sentence, " There is a great difference between giving and *forgiving?*" Rr. p. 42, Emphasis and Accent.

28. How is inflection sometimes affected by emphasis? Rr. p. 43, Emphasis and Inflection.

29. When you desire to give to a phrase *great* force of expression, what is the method of doing it? Rr. p. 43, Emphatic Phrase.

30. How may pauses be employed to render words more emphatic? Rr. p. 44, Emphatic Pause.

31. What directions can you give for reading verse correctly? Rr. p. 45, iv.

32. What is the chief difference between the proper method of reading poetry and prose? Rr. p. 45, iv.

33. In reading verse, where the melody and correct accent come in conflict, which must yield? Rr. p. 46, Accent and Emphasis.

34. What pauses are to be observed in reading poetry? Rr. p. 48 and 49, Poetic Pauses.

35. How is the *cesural pause* indicated?
Ans. Usually not at all.

36. When *similes* occur in poetry, how should they be read? Rr. p. 50, Simile.

37. What directions can you give for the cultivation of the voice? Rr. p. 51–55.

38. What, for the management of the voice? Rr. p. 56.

Ex.—2.

39. What rules can you give to direct in the use of gesture? Rr. p. 57–59.

40. Mention what you consider the characteristics of good reading, and state your method of teaching it.

ENGLISH GRAMMAR.

ETYMOLOGY.

REMARK.—The great desideratum for candidates, in relation to this part of English Grammar, is a clear understanding of the *nature* of the several PARTS OF SPEECH, and of the *properties* which belong to each. This attained, and there is little difficulty about parsing, or in aught else connected with the subject.

☞ The following references in the questions on Grammar, are all to PINNEO'S ANALYTICAL GRAMMAR.

1. What is embraced in ETYMOLOGY?   Gr. p. 8, ART. 8.

2. From what is the term Etymology derived?   Gr. p. 8, ART. 8.

3. What is the propriety of the term?   Gr. p. 8, ART. 9.

4. How many, and what PARTS OF SPEECH are there in the English Language?   Gr. p. 20, ART. 49.

5. Define *parsing*.   Gr. p. 21, ART. 50.

6. Parse in detail the following:
Successful pupils study their lessons faithfully, and strive to perform all the tasks assigned to them. O, that all were such!   Gr. p. 21, ART. 50, Model for Parsing.

7. What do you understand by the *properties* or *modifications* of any part of speech?   Gr. p. 23, ART. 52.

THE NOUN.

8. Define a NOUN.   Gr. p. 23, ART. 53.

9. Into what two general classes are nouns divided?   Gr. p. 23, ART. 54.

10. On what is this classification founded?   Gr. p. 9, ART. 17–20.

11. When do *proper* nouns become *common*, and why? Gr. p. 23, ART. 54 and Rem.

12. Define a *collective*, an *abstract*, a *verbal*, and a *participial* noun.   Gr. p. 23, ART. 55 and 56.

13. How may a common noun become proper?

Ans. By prefixing the adjective *the*, as The Park, The Square, etc.

14. Show how any *word*, *sign*, *phrase*, or *sentence*, may become a noun.   Gr. p. 24, ART. 57.

15. What *properties* belong to nouns?   Gr. p. 24, ART. 58.

PERSON.

16. How are nouns distinguished as to PERSON?   Gr. p. 24, ART. 59.

17. How many persons have nouns, and what is denoted by each?   Gr. p. 24, ART. 60–63.

18. How may a person speak of himself in the third person, and what would be an example?   Gr. p. 24, ART. 63, Rem.

19. What is the second step in parsing?   Gr. p. 24, ART. 64.

20. Parse accordingly the nouns in the following:

1. I, General Jackson, will take the responsibility.
2. Do you love Grammar, William?
3. Mary recited her lesson well.   Gr. p. 25, Exercises xx and xxi.

GENDER.

21. What does GENDER denote, and why so called?   Gr. p. 25, ART. 65 and 66.

22. How many and what genders are applied to nouns, and what does each denote?   Gr. p. 26, ART. 67–74.

23. Describe the different methods of distinguishing the masculine and feminine genders.   Gr. p. 26, ART. 75.

24. Give the *feminine* of bachelor, buck, drake, earl, friar, swan, wizard, administrator, czar, emperor, hero, landgrave, marquis, sultan, and gentleman.

Give the *masculine* of goose, roe, miss, ewe, madam, abbess, donna, maid-servant, and landlady.   Gr. p. 27 and 28, 1st, 2d, and 3d.

25. What kind of nouns may be spoken of in the neuter, or in their own gender?   Gr. p. 28, Rem. 2.

26. Of what gender is *man* in this sentence, " Man is mortal," and *cat* in this, " The cat belongs to the feline species?" Gr. p. 28, Rem. 3.

27. Can you give an example of neuter nouns used as masculine and feminine?   Gr. p. 28, Rem. 4.

28. Of what gender, generally, are inanimate objects, representing things remarkable for their *strength, power, greatness,* or *sublimity;* and those remarkable for their *beauty, timidity, productiveness,* or *loveliness?*   Gr. p. 28, Rem. 5.

NUMBER.

29. Define NUMBER as a property of the noun.   Gr. p. 30, ART. 76.

30. What numbers have nouns generally, and what is denoted by each?   Gr. p. 30, ART. 77–81.

31. How is the plural usually formed?   Gr. p. 30, ART. 82.

32. When is it proper, in forming the plural, to add *es* to the singular?   Gr. p. 30, Rem. 1.

33. How are the plurals of nouns whose singular ends in *f* or *fe* formed?   Gr. p. 30, Rem. 2.

34. What exceptions are there to this rule?   Gr. p. 30, Rem. 2, N.

35. What rule applies to the formation of the plural of nouns ending in *y* preceded by a consonant, except proper names?   Gr. p. 30, Rem. 3.

36. How did the singular of such words formerly end? Gr. p. 30, Rem. 3, N.

37. Give the *plural* of child, mouse, woman, cow, brother, penny, sow, sheep, deer, datum, erratum, medium, phenomenon, analysis, axis, crisis, alumnus, focus, genius, radius, apex, index, genus, stamen, cherub, seraph, beau, monsieur, bandit, and virtuoso. Gr, p. 31–33, ART. 83.

38. Mention some nouns used only in the singular number. Gr. p. 33, ART. 83, Rem. 1.

39. When do the names of substances have the plural? Gr. p. 33, ART. 83, Rem. 1, N.

40. What nouns are used only in the plural?   Gr. p. 33, ART. 83, Rem. 2.

41. How do you form the plural of cupful, mouthful, spoonful, son-in-law, knight-errant, and court-martial?   Gr. p. 33, Art. 83, Rem. 3.

42. Give the plural of *s, a, b,* 5, and 10; also, of *and* and *if,* when used as nouns.   Gr. p. 33, Art. 83, Rem. 4, N.

43. Which of the following is the proper plural form : the Misses Bingham, or the Miss Binghams; the Lords Bishop of Durham and St. Davids, or the Lord Bishops of Durham and St. Davids; Miss Clark and Brown, or the Misses Clark and Brown; Mr. Jones and Davis, or Messrs. Jones and Davis?   Gr. p. 33, Art. 83, Rem. 5.

44. What proper names are plural?   Gr. p. 34, Art. 83, Rem. 6.

45. What singular nouns are sometimes used as plural? Gr. p. 34, Art. 83, Rem. 7.

CASE.

46. How would you define CASE as the property of a noun? Gr. p. 35, Art. 84.

47. What is the meaning of case in respect to nouns? Gr. p. 35, Art. 85.

48. How many, and what cases have nouns?   Gr. p. 35, Art. 86.

49. What does the NOMINATIVE CASE denote, and why is it so called?   Gr. p. 35, Art. 87 and 88.

50. What relation does the nominative case sustain to the verb?   Gr. p. 36, Rem. 1, and Exp.

51. In what circumstances may a verb have more than one nominative?   Gr. p. 36, Rem. 2–5.

52. How may the nominative be readily known?   Gr. p. 36, Art. 89.

53. Parse the nominatives in the following :

Wit is often an enemy; kindness always makes friends.   Gr. p. 37, Exercise xxx.

54. What does the POSSESSIVE CASE denote?   Gr. p. 38, Art. 90.

55. What is the meaning of the term in relation to case ? Gr. p. 38, Art. 91.

56. How is the possessive case generally formed? Gr. p. 38, Art. 92.

57. What is the sign of the possessive case, and of what is it a contraction? Gr. p. 38, Art. 92, Exp.

58. When should s after the apostrophe be omitted in the possessive case? Gr. p. 38, Art. 92, Rem. 1.

59. In forming the possessive case of *compound* nouns, where is the sign usually placed? Gr. p. 38, Art. 92, Rem.

60. How do plural nouns that do not end in *e*, usually form the possessive case?

Ans. In the same manner as their singular, as *man's* and *men's.*

61. Give the possessive case, singular and plural, of Ann, George, desk, fox, ox, child, tree, friend, fly, sheep, mouse, son-in-law, conscience, and teacher. Gr. p. 39, Exercise XXXII.

62. What does the Objective Case denote, and why is it so called? Gr. p. 39, Art. 93, 94.

63. What relation does this case sustain to the verb? Gr. p. 39, Art. 95.

64. By what case are transitive verbs and prepositions generally followed? Gr. p. 40, Art. 95, Rem. 1.

65. Point out the objective cases in the following:

He brought chairs, tables, and beds into the house, because he needed furniture.

66. Can the objective case ever become the subject of a verb? If so, give an example. Gr. p. 40, Art. 95, Rem. 4.

67. When is a noun in the Independent Case? Gr. p. 42, Art. 96.

68. Why is this case so called? Gr. p. 42, Art. 97.

69. In what respect do other authors differ in relation to this case? Gr. p. 42, Art. 97, Rem. 2.

70. What is the propriety, if any, in having the independent case? Gr. p. 42, Art. 97, Rem. 2.

71. In the following, which nouns are in the independent case, and why?

Children, friends, neighbors, pity me. Gr. p. 42, Exercise XXXVIII.

DECLENSION OF NOUNS.

72. What is meant by the DECLENSION of a noun? Gr. p. 43, ART. 98.

73. Decline, in both numbers, the following nouns: verb, sentence, words, exclamation, Jane, man, woman, journey, chimney, conscience, half, staff, ox, box, lady, deer, and base. Gr. p. 43, Exercise XL.

74. Parse in full the following:

God's eyes are upon all men, and see their inmost thoughts. Gr. p. 43, Exercise XLI.

PRONOUNS.

1. What is a PRONOUN? Gr. p. 45, ART. 99.

2. What is the word for which a pronoun stands called, and why? Gr. p. 46, ART. 100.

3. What properties have pronouns? Gr. p. 46, ART. 101.

4. Into what classes are pronouns divided? Gr. p. 46, ART. 102.

PERSONAL PRONOUNS.

5. What are PERSONAL PRONOUNS, and why are they so called? Gr. p. 46, ART. 103, 104.

6. Name and decline the personal pronouns. Gr. p. 46 and 47, ART. 105.

7. When are the possessives, *mine, thine, yours, hers, ours,* and *theirs,* used instead of *my, thy,* etc? Gr. p. 47, ART. 105, Rem. 1.

8. What was formerly the usage as to *mine* and *thine?* Gr. p. 47, Rem. 2.

9. To what is the use of *thou,* as the singular of the second personal pronoun, now confined? Gr. p. 47, Rem. 3.

10. To whom, respectively, are *I, you,* and *we,* applied? Gr. p. 48, Rem. 4.

11. To which of the pronouns is gender applied, and why? Gr. p. 48, Rem. 5.

12. By what are the gender, number, and person of pronouns determined? Gr. p. 48, Rem. 6.

13. What are COMPOUND PERSONAL PRONOUNS? Gr. p. 48, ART. 106.

14. What case do they lack, and for what are they used? Gr. p. 48, Rem. 1 and 2.

15. Point out and parse the pronouns in the following:

Samuel lost his book, but mine is safe. He rendered himself useful.   Gr. p. 48, Exercise XLIII.

RELATIVE PRONOUNS.

16. What is a RELATIVE PRONOUN?   Gr. p. 49, ART. 107.

17. Give a list of the relative pronouns.   Gr. p. 49, ART. 108.

18. What is the proper usage as to each?   Gr. p. 49 and 50, ART. 109–111.

19. In what circumstances is the relative *that* to be preferred?   Gr. p. 50, Rem. 1.

20. What other parts of speech is *that*, sometimes?   Gr. p. 50, ART. 112, Rem. 2.

21. Write a sentence containing *that*, used as a relative, an adjective, and a conjunction.

22. Describe the use of *as* and *than*, as relatives.   Gr. p. 50, ART. 113.

23. Parse the relatives in the following:

1. This is the lady of whom I spoke.
2. The man that was sick.
3. He kept what belonged to him.
4. Whoever will, may come.

INTERROGATIVE PRONOUNS.

24. Which are the INTERROGATIVE PRONOUNS, and why are they so called?   Gr. p. 51 and 52, ART. 114, 115.

25. Where is the antecedent of an interrogative pronoun found?   Gr. p. 52, Rem. 2.

26. Give an example in which *what, which*, and their *compounds*, are interrogative *adjective* pronouns.   Gr. p. 52, ART. 116.

27. Parse the pronouns in the following:

Who is that boy, and what books does he study?   Gr. p. 52, Exercise XLV.

ADJECTIVES.

1. What is an ADJECTIVE, and for what used? Gr. p. 54, ART. 117.

2. How may adjectives be classified? Gr. p. 54 and 55, Rem. 1–3.

3. Give an example showing that *adjectives* may be used as *nouns*. Gr. p. 55, Rem. 4.

4. How are *other* and *one* declined? Gr. p. 55, Rem. 5.

5. What are the plurals of *this* and *that?* Gr. p. 55, Rem. 6.

6. Of what is the word *none* composed, and what is its number? Gr. p. 55, Rem. 7.

7. Of what modifications are most adjectives susceptible, and why? Gr. p. 55, ART. 118, 119.

8. How many degrees of comparison are there, and what does each denote? Gr. p. 55 and 56, ART. 120–126.

9. How are adjectives of *one* syllable compared to denote increase of quality? Gr. p. 56, ART. 127.

10. If of *more* than one syllable, how are they compared? Gr. p. 56, ART. 128.

11. What does the superlative *most*, with the adjective *a*, express? Gr. p. 56, ART. 128, Rem.

12. What adjectives of two syllables are often compared by *er* and *est?* Gr. p. 57, ART. 129.

13. To denote *decrease* of quality, how are adjectives compared? Gr. p. 57, ART. 130.

14. Mention such adjectives as are irregularly compared. Gr. p. 57, ART. 131.

15. Give an example of forming the *superlative* by adding *most.* Gr. p. 57, Rem. 1.

16. How may a degree *below the positive* be sometimes expressed? Gr. p. 57, Rem. 2.

17. What adjectives can not be compared, and why? Gr. p. 57, Rem. 3.

18. Compare, both by increase and decrease, the following: stupid, many, good, great, generous, studious, large, pretty, noble, hospitable, ill, near, old, and far. Gr. p. 57, ART. 131.

Ex.—3.

19. Parse the adjectives in the following :

1. The greatest men are not always the best men.
2. A more beautiful landscape never was seen.
3. Time moves on most rapid wings.
4. We have seen a square field of most perfect grain.
5. The water was saltish, and the sky bluish.
6. The smallest was hindmost.   Gr. p. 58, Exercise LI.

THE VERB.

REMARKS.—The VERB is less frequently and fully comprehended than any other part of speech. Its *nature* is as distinct as that of the noun, adjective, or adverb, and there is no excuse for confounding it with other parts of speech. But its distinctions and modifications are far more numerous, and are more apt to blend with one another, than in any other case. Hence, a greater degree of study and attention is necessary to thoroughly master it.

The terms Transitive and Intransitive, Regular and Irregular, Active and Passive, and the distinctions of Mode, Tense, Number, and Person, grow out of the nature of things, and are not less comprehensible than they are scientific. Let no one, who would be a *Teacher*, aim at any thing less than a perfect mastery of the subject; and then there need be no fear of the result of *any* examination.

1. What is a VERB?   Gr. p. 60, ART. 132.

2. Into what two kinds are they divided?   Gr. p. 60, ART. 133.

3. How may the one be distinguished from the other? Gr. p. 60, ART. 134, 135.

4. Which of these classes requires both a subject and an object?   Gr. p. 60, ART. 136.

5. What is generally requisite in using the *intransitive* verb?   Gr. p. 60, ART. 137.

6. What *modifications* or *properties* belong to verbs?   Gr. p. 61, ART. 138.

7. In what respect may person and number be said to belong to verbs?   Gr. p. 61, ART. 139, 140.

8. What *forms* of the verb have no person and number? Gr. p. 61, ART. 140, Rem.

MODE.

9. Define MODE, and show what it means in relation to verbs.   Gr. p. 62, ART. 141, 142.

10. How many, and what modes are in general use? Gr. p. 62, ART. 143.

11. For what is the INDICATIVE MODE used, and why is it so called? Gr. p. 62, ART. 144, 145.

12. What does the POTENTIAL MODE denote, and why is it so called? Gr. p. 63, ART. 146, 147.

13. What are the *signs* of the potential mode? Gr. p. 63, ART. 147.

14. What is the office of the SUBJUNCTIVE MODE, and why is it so designated? Gr. p. 63, ART. 148, 149.

15. How are the tenses of this mode formed, and what is its sign? Gr. p. 63, ART. 150 and Rem.

16. How does the IMPERATIVE MODE represent an action, and why is it so called? Gr. p. 64, ART. 151, 152.

17. In what way does the INFINITIVE MODE express an action? Gr. p. 64, ART. 153.

18. What is the *sign* of the infinitive mode? Gr. p. 64, ART. 154, Rem.

19. Describe the PARTICIPIAL MODE, or PARTICIPLE. Gr. p. 65, ART. 155.

20. What is the propriety of designating the *participle* as the *participial mode,* and how is it parsed? Gr. p. 65, ART. 156, N. and Rem. 2.

21. Besides these general modes of expressing an action, how are more particular ones denoted? Gr. p. 65, Gen. Rem.

22. Give the verb *study* in the third per. sing. of each of the modes. Gr. p. 65, Exercise LV.

TENSE.

23. What does TENSE in relation to grammar mean? P. 66, ART. 157.

24. What is the propriety of this term? P. 66, ART. 158.

25. How many and what general divisions of time are there? P. 66, ART. 159.

26. What divisions are indicated by the following?

I teach; I taught; I will teach. P. 67, Exercise LVII.

27. How many, and what tenses are arranged under these three general divisions? P. 67, ART. 160.

28. What reasons can be given for this arrangement? P. 67, Art. 161.

29. What does the PRESENT TENSE denote, and what particulars does it include grammatically? P. 68, Art. 162 and Rem.

30. What does the FIRST PAST TENSE denote? P. 68, Art. 163.

31. What does the SECOND PAST TENSE denote? P. 69, Art. 164.

32. What is the sign of this tense? P. 69, Rem. 1.

33. What objections are there to calling this the *present* perfect tense? P. 69, Rem. 2.

34. To what period of time may this tense refer? P. 69, Rem. 3,—1, 2, 3, 4.

35. What time is denoted by the THIRD PAST TENSE, and what is its sign? P. 69, Art. 165, Rem. 1.

36. What does the FIRST FUTURE TENSE denote, and what is its sign? P. 70, Art. 166 and Rem.

37. Describe the SECOND FUTURE TENSE and its sign. P. 70, Art. 167, Rem. 1.

38. Explain the proper usage and force of *shall* and *will*, in connection with this tense. P. 70, Rem. 2, 3, 4.

39. How are more particular distinctions of time indicated? P. 71, Gen. Rem.

40. Give the verb *seek* in each of the tenses of the indicative mode. P. 71, Exercise LX.

41. Name the tenses of the potential mode. P. 71, Art. 168.

42. Give the verb *learn* in each of the tenses of the potential mode, third per. sing. P. 71, Art. 168.

43. Give the same verb in all the tenses of the subjunctive mode, third per. sing. P. 72, Art. 169.

44. What peculiarities are there in some of the tenses of this mode? P. 72, Art. 169, Rem. 1, 2.

45. What are the tenses of the imperative mode? P. 72, Art. 170.

46. How does it appear that the only tense of the imperative mode is *not* the *present* tense? P. 72, Art. 170, Rem. 1.

47. How many persons has the imperative mode, and why? P. 72, Art. 170, Rem. 2.

48. What are the tenses of the infinitive mode?   P. 72, ART. 171.

49. What, of the participial mode?   P. 73, ART. 172.

AUXILIARY VERBS.

50. What are AUXILIARY VERBS, and why are they so called?   P. 73, ART. 173, 174.

51. Name as many of them as you can, specifying the tenses in which they are respectively used.   P. 73, ART. 175.

CONJUGATION OF A VERB.

52. What is meant by the CONJUGATION of a verb?   P. 73, ART. 176.

53. What is the propriety of the use of the term?   P. 73, ART. 177.

54. What is the *short* method of conjugating a verb?   P. 73, ART. 178.

55. Conjugate *learn* and *go*, according to the latter method. P. 73, Exercise LXI.

56. Give the verb *walk* through all its *modes, tenses, numbers*, and *persons*.   P. 74–76, ART. 179.

57. Describe the *progressive* and *emphatic* forms of using verbs.   P. 77, ART. 180, 181.

58. What is the *interrogative* form?   P. 77, ART. 182.

59. Parse the verbs in the following:

Had he known his danger, he would have been on his guard.   P. 77, Exercise LXII.

REGULAR AND IRREGULAR VERBS.

60. What is a REGULAR VERB?   P. 81, ART. 183.

61. Define an IRREGULAR VERB.   P. 82, ART. 184.

62. Which of the following verbs are regular, and which irregular: *awake, learn, beat, build, forgive, share, save, bend, have, return, write, cost, dwell?*   P. 82–84, Art. 185.

VOICE.

63. What is VOICE as used in grammar?   P. 85, ART. 186, 187.

64. What verbs have two voices, and how are these voices designated? P. 85, Art. 188.

65. How would you distinguish between the *active* and *passive* voices? P. 85, Art. 189, 190.

66. Why is the passive voice so designated? P. 85, Art. 191.

67. In changing the active voice into the passive, what is the effect on the subject and object of the verb respectively? P. 86, Rem. 1.

68. What verbs only have *voice*, and why? P. 86, Rem. 2.

69. Change the active voice to the passive, and the passive voice to the active, in the following:

I crossed the lake. The avaricious are never satisfied. P. 86, Exercise LXXIII, LXXIV.

70. Give the verb *to be*, and the passive voice of the verb *desire* through all their modes and tenses. P. 87–93, Art. 193.

71. What are DEFECTIVE VERBS? P. 96, Art. 195.

72. Mention as many of them as you can. P. 96, Art. 196.

73. Define a UNIPERSONAL VERB. P. 96, Art. 197.

74. Why are they so designated? P. 96, Art. 198.

75. By what other name are they designated by other grammarians? P. 96, Rem. 1.

76. With what kind of verbs are *methinks, methought, meseems*, to be classed? P. 97, Rem. 3.

77. Define a COMPOUND VERB, and show how it should be parsed. P. 97, Art. 199.

78. Are such verbs as *overflow, withstand*, etc., compound verbs or not? P. 97, Art. 199, Rem.

79. Parse the verbs in the following:

In summer it often rains, and it becomes us not to expose ourselves unnecessarily.

THE ADVERB.

1. What is an ADVERB? P. 99, Art. 200.

2. Under what heads are adverbs arranged? P. 99, Rem. 1.

3. What is a CONJUNCTIVE ADVERB? P. 99, ART. 200, Rem. 2.

4. When are certain adverbs termed *expletives?* P. 99, ART. 200, Rem. 3.

5. How are adverbs formed from adjectives and nouns? P. 99, ART. 200, Rem. 4.

6. Define an adverbial phrase. P. 100, Rem. 5.

7. Of what modifications are adverbs susceptible? P. 100, ART. 201.

8. Compare *soon, well, wisely, manfully, much,* and *suddenly.* P. 100, ART. 201.

9. Parse the *adverbs* in the following:

Study perseveringly and you will triumph most assuredly. P. 100, Exercise LXXXI.

THE PREPOSITION.

1. Define a PREPOSITION, and describe its nature and uses. P. 101, ART. 202 and Exp.

2. In such expressions as " God dwells above," " He looks around," what are *above* and *around?* P. 101, Rem. 2.

3. How are prepositions sometimes contracted ? P. 101, Rem. 3.

THE CONJUNCTION.

1. What is a CONJUNCTION? P. 102, ART. 203.

2. How does the *office* of prepositions differ from that of conjunctions? P. 102, ART. 203, Rem.

THE INTERJECTION.

1. What is an INTERJECTION? P. 102, ART. 204.

2. What are the grammatical relations of interjections? P. 102, ART. 204, Rem. 1.

3. How may other parts of speech become interjections? P. 102, ART. 204, Rem. 2.

4. Mention the different parts of speech for which the following words are used: *play, present, as, but, since, much, save, than, what, yet, then, either, however,* and *worth.* P. 103, ART. 205.

SYNTAX.

1. Of what does SYNTAX treat, and what is the meaning of the term?   P. 108, ART. 213, 214.

2. Define first a sentence, then a phrase.   P. 108, ART. 215, 216.

3. What two topics are embraced in syntax?   P. 108, ART. 217.

ANALYSIS.

REMARKS.—Among those who have given little or no attention to ANALYSIS, there seems to be a prejudice against it. Hence, it not unfrequently happens that pupils and candidates *parse well*, but *analyze miserably*. Yet, the latter is not less important or useful than the former. It is quite as *scholarly* to be able to tell what the *subject* of a sentence is, as what its *nominative* is; to be able to select from a complicated sentence all that belongs to the *subject*, and all that belongs to the *attribute* or *predicate*, and to arrange and dispose of each in a neat and scientific manner.

The grammarian, who, in parsing, quickly and correctly distinguishes adjectives and adverbs, and assigns them their proper places as qualifiers, does well. But does not he do better, who also, in analyzing, can distinguish at once every *adjective modifier* and every *adverbial modifier*, however numerous and varied the words composing them, and assign to each its appropriate office as a constituent element of the sentence?

It need hardly be added that quite as much intellectual culture and insight into the genius of our language must result from the constant practice of the latter, as of the former.

But argument here is unnecessary. Those who would be *grammarians*, in the proper sense of the term, do not so much need to be convinced of the importance of analysis, as to be inspired with a determination thoroughly to memorize its definitions, master its principles, and apply both in persevering practice. Let the candidate do this, and his prejudice, and conscious inability too, will vanish, and the most difficult exercises in analysis will become an easy and pleasing task.

1. Define ANALYSIS.   P. 109, ART. 218.

2. What is meant by the analysis of a sentence, and why is it so called?   P. 109, ART. 219, 220.

3. How are words treated, respectively, under Etymology and under Analysis?   P. 109, ART. 220, Exp.

4. What is the smallest number of words of which a sentence can consist? P. 109, Art. 221.

5. What are the ESSENTIAL ELEMENTS of a sentence? P. 109, Art. 221.

6. How may these be modified? P. 109, 110, Art. 221.

7. By what terms are these modifiers called? P. 110, 2 and Exp.

8. When words are used merely for the purpose of connecting other words, what are they called? P. 110, 3 and Exp.

9. What other class of words is not included in these three, and what are they called? P. 110, 4.

10. Into what four kinds may words be divided, analytically considered? P. 111, Art. 222.

11. What is to be understood by the essential elements of a sentence? P. 111, Art. 223.

12. Define the SUBJECT of a sentence, and give an example. P. 111, Art. 224.

13. What do you understand by the ATTRIBUTE, or PREDICATE, of a sentence? P. 111, Art. 225.

14. Designate the subject and attribute, respectively, of the following sentences :

The flower grows. The race is extinct. Have you heard? Where is virtue? God is love. The earth is round. Shall we go? He brought good news. P. 111, Art. 226.

15. Designate the modifiers in the following sentences :

A tall person is very conspicuous. Constitutional questions generally require much and patient investigation. P. 113, Art. 227.

16. Point out the connecting elements, or connectives, in the following sentences :

The General sailed from Boston, landed at Annapolis, and passing through Baltimore, came with great speed to Washington.

By climbing up three flights of stairs, he reached the upper story, and passed through the skylight on to the roof.

What a world of mystery is this in which we live! I strain my eyes, and yet the sight reaches but a very little way; but within the compass of that little, I see God working in every thing for the good of them that love him. P. 114, Art. 228, Rem.

17. Point out the INDEPENDENT ELEMENTS in the following:

My son! be not weary in well doing. There was one good man there. Alas! that we are so negligent! P. 115, ART. 229, and Exp.

18. How many, and what *kinds* of sentences are there? P. 115, ART. 230.

19. Define a SIMPLE SENTENCE. P. 115, ART. 231.

20. Describe first the *grammatical,* and second the *general* subject of a sentence. P. 116, ART. 233, 236.

21. Why is the grammatical subject so designated? P. 116, ART. 234.

22. Of what must the grammatical subject consist? P. 116, ART. 235, and Exp.

23. How does the *general* subject differ from the *grammatical?* P. 117, ART. 236.

24. Why is the *general* subject so called, and why is this designation preferable to *logical* subject? P. 117, ART. 236, 237, and Exp.

25. Point out the grammatical and general subjects in the following sentences :

All truly competent teachers will succeed. Small wages usually procure small abilities. The hope of doing good is a powerful motive to action. P. 117, ART. 238.

26. When is the subject both grammatical and general? P. 117, ART. 238, Rem.

27. By what may the grammatical subject be modified? P. 117, 118, ART. 239,—1, 2, 3, 4, 5, and 6.

28. Give a sentence illustrating each of the subject modifiers. P. 118, ART. 240, Exercises.

29. How are *subject modifiers* themselves modified? P. 119, ART. 241,—1, 2, 3, and 4.

30. Give four examples illustrating this. P. 120, Exercise XCIII.

31. Describe the attribute of a sentence. P. 121, ART. 242.

32. What is the *grammatical attribute,* and why is it so called? P. 121, ART. 243, 244.

33. Of what may the grammatical attribute consist? P. 121,—1, 2, 3, Rem. and Exp.

34. What is the *general* (or logical) *attribute* of a sentence, and why is it so called?   P. 123, Art. 247, 248, N.

35. Point out the *general* and *grammatical* attributes in the following sentences:

School teaching is laborious. Every competent teacher understands his business. True education contemplates the thorough culture both of the mind and heart.   P. 123, Art. 249, and Rem.

36. How may the grammatical attribute be modified?   P. 124, Art. 250,—1, 2, 3, 4, 5, 6, 7, and Rem.

37. Analyze the following sentences:

We should aim to cultivate all our faculties, mental and moral. Pupils should be taught to enunciate all the vowel and consonant sounds distinctly, and with facility. The power of genius in teachers or pupils can never supersede the necessity of industry and perseverance.   P. 124, 125, Exercise xcv.

38. How may words in the *independent* case be modified? P. 125, Art. 251.

39. Which are the modifiers of the independent case in the following?

May success attend you, O my beloved pupils!   P. 125, Exercise xcvi.

40. What directions can you give to aid pupils in acquiring a clear and systematic method of analysis?   P. 126, 128, Rem. 1 and 2, and Exp.

41. Define a COMPLEX SENTENCE.   P. 128, Art. 252, and Rem.

42. What term is applied to such sentences by others? P. 128, Art. 254, Rem.

43. Write and analyze three complex sentences.   P. 129, Exercise xcix.

44. What is a COMPOUND SENTENCE?   P. 131, Art. 255.

45. How are simple or complex sentences united to form compound ones?   P. 131, Art. 256,—1, 2, 3.

46. What are the sentences forming compound sentences sometimes called?   P. 131, Art. 257.

47. Describe a *dependent member*, and a *leading clause*. P. 131, Art. 258, 259.

48. Analyze the following sentence:

I do not intend, by the introduction of these remarks, to impute to the author any thing more or less than what his own words imply; except those inaccuracies and deficiencies which still disgrace his work as a literary performance, and which, of course, escaped his notice.   P. 132, Rem. 1, and Exercise cii.

49. Define an ABRIDGED SENTENCE.   P. 134, ART. 260.

50. How may sentences be abridged?   P. 134, 135, ART. 261.

51. Analyze and parse the following:

His being a miserable scholar is no wonder.   The sun rising, the clouds were scattered.   P. 135, Exercise ciii.

SYNTHESIS.

1. Define SYNTHESIS, and give the meaning of the term. P. 137, ART. 262, 263.

2. What does it include?   P. 137, ART. 264.

3. By what term is the relation of words to each other expressed?   P. 138, ART. 265.

4. What is meant by the *government* and *agreement* of words?   P. 138, ART. 266, 267.

5. What words are *understood* in the following?

Teachers must be examined in Reading, Writing, Geography, Arithmetic, and English Grammar.   P. 138, 139, ART. 270.

6. Define ELLIPSIS in grammar.   P. 138, ART. 268, 269.

RULE I.—APPOSITION.

7. When a noun or a pronoun is added to explain another noun, by what rule is the former parsed?   P. 141, R. i, Exp. and Rem.

8. Analyze and parse the following:

The most powerful nations of Europe—France, Russia, Spain, and Germany, were in league with one another.   P. 141, Exercise civ.

9. Correct where necessary the following:

I received a letter from my uncle, him that was here lately.   Dennis, the gardener, him that gave me the flowers yesterday, has promised another bouquet.   P. 143, Exercise cv.

RULE II.—POSSESSIVE CASE.

10. What is the rule to be applied in parsing the possessive case?   P. 144, R. II.

11. In what circumstances is the governing noun understood or omitted?   P. 144, Rem. 1, 2.

12. What directions can you give for the use or omission of the sign ('s) of the possessive?   P. 145, Rem. 3, 4, 5, 6, 7.

13. Correct the following where necessary:

Mans chief end is to glorify God and enjoy him forever. The books are neither her's, nor their's, nor our's. After my friend leaving, I returned. Jane's sister's husband's house is convenient. The boy was rewarded for his constantly obeying. We were for our parts much gratified. Were John's and Mary's parents the same? John and Jame's books were lost.   P. 148, Exercise CVIII.

14. Analyze and parse the following:

Touched by thy hand, the picture's beauty fully appears.   P. 146, Exercise CVII.

RULE III.—OBJECTIVE CASE.

15. Give the rule for the government of the objective case by a *transitive verb*.   P. 149, R. III.

16. Give an example of a transitive verb governing two objective cases.   P. 149, Rem. 1, and Exp.

17. In what instances do *intransitive* verbs govern the objective case?   P. 149, Rem. 2.

18. Give an example of the *passive voice* being followed by the objective case.   P. 149, Rem. 3.

19. In what circumstances are transitive verbs used *intransitively?*   P. 149, Rem. 4.

20. Give suitable examples, showing that an infinitive, a phrase, or a sentence, may be the object of a transitive verb. P. 150, Rem. 5, and Exp.

21. When does the *objective* case become the *subject* of a verb?   P. 150, Rem. 6, and Exp.

22. Analyze and parse the following:

He once studied grammar, but he has forgotten much of what he once knew.   P. 150, Exercise CX.

23. Correct the following where necessary:

Who shall we send? The teachers allowed my brother and I to

leave. He that is idle and listless, reprove sharply. Being weary, he sat him down. We were shown several beautiful pictures. These are friends who we should cordially receive.   P. 151, 152, Exercise cxi.

RULE IV.—PREPOSITIONS.

24. What rule applies to the government of the objective case after *prepositions?*   P. 153, R. iv.

25. Give three examples showing that prepositions may be understood.   P. 153, Rem. 1.

26. What other office besides *governing* do prepositions perform?   P. 153, Rem. 2.

27. Give examples showing that infinitives, phrases, and sentences may be objects of prepositions.   P. 153, Rem. 3.

28. In what circumstances is *than* a preposition?   P. 153, Rem. 4.

29. Analyze and parse the following:

After studying one evening very late at night, on a very difficult problem, I fell into a restless sleep, in which I dreamed for a long time of promising him my best efforts to make a picture like his, and worth as much at least.   P. 153, Exercise cxiii.

30. Correct the following where necessary:

Between you and I, let there be no quarrel. I know no one who I lent the book to. Education is finding its way among every kind of persons.   P. 155, Errors and Exp.

RULE V.—INDEPENDENT CASE.

31. State the rule applicable to the independent case. P. 156, R. v.

32. Analyze and parse the following:

Our patriot forefathers! what think ye of these times?   P. 156, Exercise cxvi.

RULE VI.—PRONOUNS.

33. State the rule for the agreement of pronouns with their antecedents.   P. 158, R. vi.

34. Where there are two or more antecedents, what should be the *number* of the pronoun, and with which should it agree in person?   P. 158, 159, Rem. 1, 2, 3, 4.

35. When is the pronoun *it* used without any obvious *antecedent?*   P. 159, Rem. 5, 6, and Exp.

36. Give an example in which *it* may have a sentence, and *which* a name, as *antecedent.* P. 159, Rem. 6, and Exp.

37. Which of the pronouns are often used without antecedents? P. 159, Rem. 7.

38. When may a singular antecedent have a singular or plural pronoun referring to it? P. 159, Rem. 8.

39. When *inanimate* objects are personified, of what gender should the pronouns referring to them be? P. 160, Rem. 10.

40. What is true of the gender of the pronoun in *interrogative sentences?* P. 160, Rem. 11.

41. On what does the *case* of pronouns depend? P. 160, Rem. 12.

42. Analyze and parse the following:

He, who first taught the principles of Christianity, knew well what would be the consequences. P. 160, Exercise cxviii.

43. Correct the following where necessary:

Every teacher must pursue their own course. What he did, he now regrets it. He caught the monkey whom I bought. She has two sisters, one of which I saw. Virtue and religion seek to extend itself. Neither Mary nor Jane will show themselves to-day. The office and its emoluments whom he gained, availed him nothing. Who is he who arrived to-day? P. 161, 162, Exercise cxix.

RULE VII.—ADJECTIVES.

44. What rule applies to adjectives? P. 163, R. vii, and Exp.

45. Give *three* examples showing that the adjective may be understood, or may be used as a noun. P. 163, Rem. 1, and Exp.

46. Show by example that the adjective may qualify a word, phrase, or sentence, used as a noun. P. 163, Rem. 2, and Exp.

47. How may adjectives be used abstractly? P. 164, Rem. 3, and Exp.

48. What is the proper usage of *this* and *that*, when they point out objects near or remote? P. 164, Rem. 4.

49. Which adjectives require nouns with a *singular* meaning? P. 164, Rem. 5, and N.

50. Explain the peculiar use of *many* with *a.*   P. 164, Rem. 6.

51. What class of nouns retains the *singular* form with a *plural* meaning, and when?   P. 164, Rem. 7.

52. Give examples showing that a *plural* noun with its adjective may be used in a *singular* sense.   P. 164, Rem. 8.

53. What is the proper usage of the word *means* with *this* and *that, these* and *those?*   P. 164, Rem. 8, N.

54. Show how an adjective may qualify another adjective and noun conjointly, or another adjective.   P. 165, Rem. 9, and Exp.

55. In what circumstances are adjectives used, wholly or in part, *adverbially?*   P. 165, Rem. 10, and Exp.

56. Where things are compared, when are the comparative and superlative used respectively?   P. 165, Rem. 11.

57. In what respect are *participles* parsed like adjectives? P. 165, Rem. 12.

58. Analyze and parse the following:

The intelligent and zealous teacher watches every favorable opportunity to encourage studious habits and right feelings in the minds and hearts of his pupils.

59. Correct the following where necessary:

Bring me them scissors. The cars have been known to run sixty mile an hour. Pupils should be polite to each other. Which of the two is the oldest. Of the four, the younger was the more remarkable. He is the chiefest apostle. He built a new elegant house. He spoke very fluent, and read appropriately. Tell them girls to come quick. Let each one come forward in their turn. Did either of the scholars help you?   P. 167, 168.

RULE VIII.—NOMINATIVE CASE.

60. What rule applies to the disposal of the nominative case?   P. 169, R. VIII, and Exp.

61. In what mode of the verb is the nominative generally understood?   P. 169, Rem. 1.

62. Of what may the nominative consist?   P. 169, Rem. 2.

63. What must be the number of the verb having two or more nouns taken together as *nominatives?*   P. 169, Rem. 3, and N.

64. If the nominatives are of different persons, with which must the verb agree?   P. 170, N. 2.

65. When two or more nominatives in the singular are considered *separately*, of what number must the verb be?   P. 170, Rem. 4.

66. If the nominatives are of different persons or numbers, what rule regulates the verb in these respects?   P. 170, Rem. 4, N.

67. Of what number must the verb be, when the nominative is a noun of multitude?   P. 170, Rem. 5.

68. Describe the *nominative absolute*.   P. 170, Rem. 6.

· 69. With which does the verb agree, when it has a nominative both before and after it?   P. 170, Rem. 7.

70. Analyze and parse the following:

The nation rose as one man, and went forth to meet the enemy. The teacher having been examined, received her certificate. The pupils having recited, the teacher went home.   P. 171, Exercise cxxiv.

71. Correct the following where necessary:

They was taken suddenly. The choice of officers were deferred. That it is the duty of the teacher both to teach and govern, admit of no doubt. The committee was divided in opinion. There are a drove of cattle. Patience and perseverance conquers all things. Industry, not idle habits, are to be commended. Every lesson and every recitation tend to strengthen and enlarge the mind. Intelligence with refinement and religion adorn her character. Neither you nor I is concerned in it.   P. 172, Errors, and Exercise cxxv.

72. What verbs have the same case after as before them, and when?   P. 174, R. ix, and Exp.

73. What terms may be applied to the noun after the verb? P. 174, Rem. 1.

74. Are the nominatives *before* and *after* the verb always arranged in the same way?   P. 174, Rem. 2.

75. How would you parse the word *orator* in the following expressions?

To be an orator requires practice. To be thought an orator is pleasant. His being an orator gives him influence. His being thought an orator is strange.   P. 174, 175, Rem. 3, 4.

Ex.—4.

76. Analyze and parse the following:

English grammar is not a difficult study, if systematically pursued. We think it a profitable study. Its being thought a difficult study has created a prejudice against it.   P. 175, Exercise cxxvii.

77. Correct the following where necessary:

We thought it was him. Whom do men say that I am? It was not me, but it was them. Who do you think it to be?   P. 176, Exercise cxxviii.

RULE X.—INFINITIVE MODE.

78. What is the rule for the government of the infinitive mode?   P. 177, R. x.

79. In what other way may the infinitive be governed? P. 177, Rem. 1.

80. In what circumstances is it used independently?   P. 177, Rem. 2.

81. After what verbs is the sign *to* omitted?   P 177, Rem. 3.

82. When the infinitive takes a subject, in what case is that subject?   P. 177, Rem. 4.

83. When is the infinitive used as a noun?   P. 177, 178, Rem. 5.

84. Analyze and parse the following:

Pupils should always be required to study what is most profitable, all things considered; and the teacher should require them to be thoroughly studied.   P. 178, Exercise cxxx.

85. Correct the following where necessary:

No one need to consider himself neglected. Who that knows the truth dares to deny it? He wished to have had the pleasure of seeing you. We all expected to have done differently.   P. 179, 180, Errors 1, 2, 3, and Exp.

RULE XI.—PARTICIPLES.

86. What is the rule for parsing participles?   P. 181, R. xi, 1, 2, 3, 4, and Exp.

87. What else can you state as to the proper grammatical usage, in respect to participles?   P. 181, Rem. 1, 2, 3, 4, and Exp.

88. Analyze and parse the following:

In pursuing a course of study, under a well educated instructor,

there is both pleasure and profit; and, having accomplished our task, we may be contented.

89. Correct the following where necessary:

By discussing of this subject we shall get at the truth. I have never saw him, but she seen him yesterday. He fell into the water, and was drownded. A careful teacher will not allow any shirking in study. I had rather lose my right hand than do it. What harm in women knowing these things? P. 183, 185, Errors, Exercises.

RULE XII.—ADVERBS.

90. What is the rule for parsing adverbs? P. 186, R. XII.

91. Show how adverbs may qualify prepositions, and be used as nouns. P. 186, 187, Rem. 1, 2, and Exp.

92. What is true of the qualifying power of the adverbs *yes, no,* and *amen?* P. 187, Rem. 3.

93. What is the effect of two negatives in the same sentence or clause? P. 187, Rem. 4, and Exp.

94. Analyze and parse the following:

Gradually, though often imperceptibly, the boy grew in stature. P. 187, Exercise CXXXVII.

95. Correct the following where necessary:

He lived useful, and died peaceful. That lesson was easy got. Agreeable to his promise, he came. The words sounded harshly. He was brought into a dilemma, where he had cause to be alarmed. It is still uncertain whether he will succeed or no. He spoke words suitably to them. P. 188, 189, Errors and Exercises.

RULE XIII.—CONJUNCTIONS.

96. What is the rule for conjunctions? P. 190, R. XIII.

97. What offices in common do relative pronouns and conjunctive adverbs perform? P. 190, Rem. 2.

98. Which conjunctions sometimes denote apposition? P. 191, Rem. 3.

99. Give the conjunctions that are generally used as correlated pairs. P. 191, Rem. 4.

100. Analyze and parse the following:

Let there be no quarrel between ourselves and our neighbors, because we are all members of the same great family, and no one can justly set himself up as entitled to more consideration than another. P. 191, Exercise CXL.

101. Correct the following where necessary:

Mary was a good scholar, and even better *than* Kate. I can get neither this lesson or that. I wish you may learn rapidly. I could not desire but he might come. He has little more of the man besides the name. I am not certain if he be the man.   P. 192, 193, Errors and Exercises.

102. What is to be particularly observed in the construction of sentences?   P. 194, R. xiv.

ARRANGEMENT OF WORDS.

103. What should generally be the position of the *nominative* and its dependent words, in relation to the verb?   P. 199, R. i.

104. What are the principal exceptions to this rule?   P. 199, 200, Exc. 1, 2, 3, 4, 5.

105. What should be the position of the *possessive* in relation to the governing word generally?   P. 200, R. ii, and Rem.

106. What should be the position of the *objective* in relation to its verb or preposition?   P. 200, R. iii.

107. What exceptions are there to this rule?   P. 200, Exc.

108. In what case may a preposition be at a greater or less distance from the object?   P. 200, Rem.

109. What is the position generally of the *independent* case in a sentence?   P. 200, R. iv.

110. What is the position of one noun in *apposition*, in relation to the other?   P. 201, R. v.

111. When pronouns of different persons occur in the same sentence, what position should they occupy respectively?   P. 201, R. vi.

112. How should the relative pronoun stand in relation to its antecedent?   P. 201, R. vii.

113. What is the proper position of the relative *that* in relation to its governing word?   P. 202, R. viii.

114. Interrogative pronouns should generally occupy what place in sentences?   P. 202, R. ix.

115. What is the usual position of the adjective?   P. 202, R. x.

116. What are the exceptions to this rule ? P. 202, 203, Exc. 1, 2, 3, 4, 5.

117. What is the relative authority for such expressions as the " *two last,*" the " *two first,*" and the " *last two,*" and the " *first two?* " P. 203, Exp.

118. What is the position generally of *the, an, a,* in relation to other adjectives ? P. 203, R. XI.

119. What exception to this ? P. 203, Exc.

120. What rule regulates the position of participles ? P. 203, R. XII.

121. On what does the difference of idea depend in such phrases as the following ?

A new pair of shoes, and a pair of new shoes; gentlemen's black gloves, and black gentlemen's gloves. P. 203, R. XIII.

122. What rule applies to the position of the verb in relation to its *subject* and *object?* P. 204, R. XIV.

123. What is the place generally of the infinitive mode in relation to its governing word ? P. 204, R. XV.

124. What direction should be given for the position of the adverb ? P. 204, R. XVI.

125. What are the prominent exceptions to this rule ? P. 204, 205, Exc. 1, 2, 3, 4, 5.

126. What should be the position of the preposition ? P. 205, R. XVII.

127. What is the usual position of conjunctions in relation to the sentences or words they connect ? P. 205, R. XVIII, and Rem.

PUNCTUATION.

1. Of what does PUNCTUATION treat ? P. 206, ART. 272.

2. What do the *marks* or *points* in composition denote ? P. 206, ART. 272.

3. Make, and write opposite their names, respectively, the characters denoting pauses. P. 206, ART. 272.

4. What pauses are required in *short* sentences ? P. 206, R. I.

5. By what pause are the members of compound sentences separated ? P. 206, R. II.

6. Punctuate the following :

That journey is long which comes not to an end.

7. In what circumstances should a COMMA *precede* the verb in simple sentences?   P. 207, R. III.

8. Punctuate the following :

An elephant of enormous size blocked up the way.

9. When do adverbs and adverbial phrases require the comma?   P. 207, R. IV.

10. Punctuate the following :

A few teachers nevertheless appreciate the importance of correct punctuation.

11. When a noun in apposition has words connected with it, how is it punctuated?   P. 207, R. V.

12. Punctuate the following :

Cicero the orator and philosopher was made consul.

13. What punctuation is required where there is a noun followed by dependent words?   P. 207, R. VI.

14. Punctuate the following :

A pupil curious to know the reason of things is apt to be very inquisitive.

15. Where a verb is understood, what must be the punctuation?   P. 207, R. VII.

16. Punctuate the following :

Some teachers regard their duties as a delight others a heavy task.

17. In sentences where the nominative absolute, the infinitive independent, and the case independent occur, what should be the punctuation?   P. 207, R. VIII.

18. Punctuate the following :

The enemy having been conquered peace was secured.   To tell you the truth I am not prepared.   Our Father who art in heaven.

19. Where three or more words occur in the same construction, what should be the punctuation?   P. 207, R. IX.

20. Punctuate the following :

She was a strict though an amiable and successful teacher.   The Scriptures exhort reprove and urge us to obedience.

21. Where there are only two words thus connected, and

the conjunction is omitted, or the words are antithetical, what should be the punctuation? P. 207, R. IX, Exc.

22. Punctuate the following:

Honesty and uprightness are his. A river deep yet clear smooth yet rapid divides the country.

23. Where pairs of words occur, what punctuation is required? P. 208, R. X.

24. Punctuate the following:

The high and the low the bond and the free the learned and the unlearned.

25. In inverted clauses, what should be the punctuation? P. 208, R. XI.

26. Punctuate the following:

To most pupils grammar is apt to be irksome.

27. In sentences containing the relative pronoun and its antecedent, what punctuation is proper? P. 208, R. XII.

28. Punctuate the following:

The teacher who is faithful in his appropriate sphere can not fail to be appreciated.

29. What is the comparative length of the pause indicated by the SEMICOLON, and what general directions can you give for its use? P. 208, R. XIII.

30. Punctuate the following:

I am monarch of all I survey
My right there is none to dispute.

31. What is the comparative length of the pause indicated by the COLON, and what are its uses? P. 208, R. XIV.

32. Punctuate the following:

Study punctuation It is of great value to be able to use it rightly As he drew near the close of life he said I have finished my course.

33. What is the length relatively of the pause indicated by the PERIOD, and what are its uses? P. 208, R. XV.

34. What do the INTERROGATION and EXCLAMATION points respectively indicate? P. 208.

35. Punctuate the following:

Would you teach the young or would you lie idle Alas it is too late

36. For what is the DASH properly used?   P. 208.

37. Give an example illustrating its use.

38. Make the other marks or characters used in composition, and, in connection with each, describe as briefly as possible its use.   P. 209.

PROSODY.

1. Of what does PROSODY treat?   P. 210.

2. Of what does *poetry* consist, and how does it differ from prose?   P. 211.

3. What two things are requisite for poetic measure?   P. 211, 1st, 2d.

4. How many, and what kinds of poetry are there?   P. 211.

5. What is the meaning of *verse?*   P. 211.

6. Define each of the following poetic terms: a *couplet* or distich, a *triplet*, a *stanza*, and a *foot*.   P. 211.

7. On what does the *poetic foot* depend in Latin and Greek poetry?   P. 211.

8. In English poetry, what determines the kind of feet? P. 211.

9. *How many* and *what kinds* of poetic feet are there? P. 211.

10. Which of these are most in use?   P. 212, Exp.

11. Of what kind of feet is the *Trochaic* verse composed, where does the accent fall, and to what class of subjects is it adapted?   P. 212.

12. Describe *Iambic* verse, and the style to which it is adapted.   P. 212.

13. How many syllables are contained in one line of this kind of verse, and to which of our *meters* does it correspond? P. 212.

14. When a line or verse contains five Iambic feet, what kind of measure is it called?   P. 212.

15. When a line contains six feet, what is it called?   P. 212, Iambic verse, 6, Exp.

16. When seven feet, what? and when divided into lines of *four* or *three* feet alternately, to which of our *higher meters* does it correspond?   P. 213.

17. Describe *Anapestic* verse, and give an example to illustrate its nature and accent.   P. 213.

18. Describe, and illustrate by example, *Dactylic* verse. P. 213.

19. Describe poetry composed of *mixed* feet.   P. 213.

20. Are there other pauses to be observed in poetry besides those indicated by the usual pause marks, and if so, what are they called, where applied, and for what purpose ?   P. 214.

21. What is meant by *Poetic License*, and how is it applied in practice ?   P. 214.

DEFINITIONS.

Define the following words :

1. Straight and strait; foul and fowl; bruise and brews; broach and brooch; steak and stake; gait and gate; loan and lone.

2. Awl and all; quire and choir; dye and die; style and stile; great and grate; peak and pique and peek; canon and cannon.

3. Carat and carrot; seller and cellar; rice and rise; principle and principal; lean and lien; auger and augur; raised and razed; pier and peer.

ABBREVIATIONS.

Define the ABBREVIATIONS in the first column, and give the abbreviations for the *terms* in the second :

1. A. B.	1. Africa.
2. A. M.	2. Austria.
3. A. C.	3. Canada East.
4. A. D.	4. British America.
5. B. D.	5. Denmark.
6. Ad Lib.	6. England.
7. D. G.	7. Germany.
8. D. D.	8. Great Britain.
9. e. g.	9. Greece.
10. et al.	10. Italy.
11. H. J. C.	11. London.
12. Ibid.	12. North America.
13. Id.	13. Nova Scotia.
14. i. e.	14. Porto Rico.

15. I. H. S.	15. South America.
16. I. N. R. I.	16. January.
17. LL. D.	17. April.
18. M. D.	18. September.
19. Nem. Con.	19. October.
20. P. M.	20. November.
21. P. S.	21. December.
22. Q. E. D.	22. New Orleans.
23. q. v.	23. Long Island.
24. U. S. A.	24. Baltimore.
25. Al.	25. Washington Territory.
26. Del.	26. Vermont.
27. Ia.	27. Pennsylvania.
28. Neb.	28. Oregon.
29. N. Y.	29. Doctor of Sacred Theology.
30. N. H.	30. Guatimala.
31. L. I.	31. Norway.
32. Mo.	32. Dakota.
33. Md.	33. Ireland.
34. Ind.	34. Postscript.
35. Ky.	35. Unknown.
36. Or.	36. Afternoon.
37. Tex.	37. Forenoon.
38. Prox.	38. New England.
39. Ult.	39. East Indies.
40. Inst.	40. New Brunswick.

REMARKS.—In concluding PART I of the EXAMINER, it may not be improper to remark, that a great majority of candidates display a lamentable degree of ignorance, or a censurable disregard, of *punctuation* and the proper use of *capitals*.

A manuscript, thus written, carries its own condemnation with it; for, if it be meritorious in other respects, its blemishes here are not only intolerable *in themselves*, but they force upon the Examiner the conviction that the pupils of such a teacher, if they ever learn to write even a letter with ordinary propriety, neatness, and perspicuity, must do it *in spite* of his instruction and example, not in *consequence* of them.

On the other hand, where a teacher's manuscript is characterized by *neatness* of *penmanship* and correctness of *spelling*, *capitalization*, and *punctuation*, these, of themselves, will secure for it a most favorable reception, and greatly atone for many minor deficiences.

PART II.

ARITHMETIC.

REMARK.—In reviewing for examination in Arithmetic, both pupils and candidates are too apt to attend principally to the more difficult and abstruse parts of the subject. But the judicious Examiner will desire, first of all, to understand whether the candidate has mastered the definitions, and comprehends fully the simpler principles and operations. If found ignorant *here*, any skill shown in the mere solution of intricate problems will pass for little in the estimation of the Examiner. Therefore, let every candidate be *sure* that he is thoroughly acquainted with the arithmetical *definitions* and *axioms*, and with *Notation*, *Numeration*, and the other *Fundamental Rules*.

☞ The following references in the questions on Arithmetic are all to RAY'S HIGHER ARITHMETIC.

DEFINITIONS.

1. What is QUANTITY, arithmetically considered? ART. 1.

2. Define MATHEMATICS. ART. 2.

3. What are the fundamental branches of mathematics? ART. 3.

4. Define ARITHMETIC. ART. 4.

5. Define PROBLEM, THEOREM, COROLLARY, DEMONSTRATION, and AXIOM. ART. 5–12.

6. Give five of the most important axioms. ART. 12, 1–5.

7. Give the *signs* used in arithmetic, and explain their import and use. ART. 13–19.

8. What is the *difference*, if any, between $(7+3)\times3$, and $7+3\times3$? ART. 19.

9. What is a *unit*? ART. 20.

10. What is *number*? ART. 21.

11. What is the *unit* of a number? ART. 21.

12. When have units a relative character? ART. 21.

13. When are numbers *abstract*, and when *concrete?* Illustrate by three examples of each.   Art. 22.

14. On what is arithmetic founded, and what are its rules and processes?   Art. 23.

NUMERATION.

1. Define respectively NUMERATION and NOTATION. Art. 24.

2. How are the various numbers represented?   Art. 25.

3. What are significant figures?   Art. 25, Rem.

4. Explain the formation of numbers above 9.   Art. 26.

5. How are the words *eleven, twelve, thirteen, fourteen* derived?   Art. 26, Rem.

6. On what does the size or value of a unit depend? Art. 27.

7. Arrange the figure 8 so that it shall express units of the *first, third, fifth,* and *sixth* orders.   Art. 28.

8. What are the *fundamental principles* on which our system of Notation is based?   Art. 30.

9. How many orders make one period in the common or French method of Numeration, and how are they designated? Art. 32.

10. What names are applied to the first *twenty* periods? Art. 33.

11. What is the rule for Numeration?   Art. 35.

12. Express in words the number represented by 985432-101234567890987654321.   Art. 35.

NOTATION.

1. Give the rule for NOTATION.   Art. 36.

2. Express in figures the following number:

Nine hundred decillions, seventy nonillions, six octillions, forty septillions, fifty quadrillions, two hundred and four trillions, ten millions, forty thousand and sixty.   Art. 36.

3. Explain the English method of Numeration.   Art. 37.

4. Express in words, according to this method of Numeration, the following number: 4321098765432198765432l. Art. 37.

5. How are numbers represented in the *Roman Notation?* ART. 38.

6. What letters are used for this purpose, and by what principle is their value determined? ART. 38,—1st, 2d, and 3d.

7. Express in words the following values: VI, IV, IX, XIX, XX, $\overline{X}$, $\overline{MM}$, $\overline{C}$. ART. 38.

ADDITION.

1. Define ADDITION. ART. 39.

2. What is the result obtained by addition called? ART. 39.

3. What numbers *only* can be added together? ART. 40.

4. How may numbers of different names be added together, as, for example, 6 robins, 5 larks, and 7 blackbirds? ART. 40.

5. Describe the process of adding *simple* numbers. ART. 40, Sol.

6. What is the rule derived from this process? ART. 40, R.

7. What are the methods of proving addition? ART. 41.

SUBTRACTION.

1. Define SUBTRACTION. ART. 42.

2. What are the numbers used in subtraction called? ART. 42.

3. What is the meaning of these terms? ART. 42.

4. What is the result obtained called? ART. 42.

5. Are numbers of any kind susceptible of subtraction? ART. 43.

6. Describe the process of subtraction. ART. 44, Sol.

7. Give the rule for subtraction. ART. 44.

8. How would you prove subtraction? ART. 44.

9. From Pittsburg to New Orleans is 1999 miles; from Pittsburg to Memphis, 1260 miles; and from Cincinnati to New Orleans is 1523 miles; how far is it from Cincinnati to Pittsburg, from Cincinnati to Memphis, and from Memphis to New Orleans? ART. 44, Ex. 31.

10. To what number must 65 be added four times to make the sum 297? ART. 45, Ex. 8.

MULTIPLICATION.

1. Define MULTIPLICATION.   ART. 46.

2. To what numbers, respectively, are the terms *multiplicand, multiplier*, and *product* applied ?   ART. 46.

3. Describe the process of multiplication. ART. 46.

4. What are the multiplier and multiplicand together called?   ART. 46.

5. Prove that the product of two numbers is the same, whichever factor is the multiplier.   ART. 47.

6. Prove that the product is always of the same name as the multiplicand.   ART. 48.

7. Which of the factors must always be an abstract number, and why?   ART. 49.

8. What rule applies to multiplication when the multiplier does not exceed 12?   ART. 50, R. etc.

9. What rule applies when the multiplier exceeds 12? ART. 51, R. etc.

10. Describe the process of multiplication in this case. ART. 51, Sol.

11. What are the methods of proof for multiplication? ART. 51, Proof.

12. Is it essential to use the figures of the multiplier in regular order?   ART. 52.

13. What is a *composite* number?   ART. 53.

14. What rule is especially applicable to multiplication by composite numbers?   ART. 53, R.

15. Multiply 9765 by the factors of 35.   ART. 53, Ex. 3.

16. What is the rule applicable when the multiplier is 1, with ciphers annexed?   ART. 54, R.

17. What is the process of multiplication and the rule, when there are ciphers at the right of one or both factors? ART. 55, R.

18. What is a convenient rule for multiplying, when the multiplier is a little less than 10, 100, 1000, etc.?   ART. 56, R.

19. Find the product of 2055416×992 according to this process. ART. 56, Ex. 14.

20. Describe that method of contraction in multiplication

which consists of deriving the partial products, when possible, from each other, and give the rule for it. ART. 57, R. and Sol.

21. Find the product of 750764×315135 by this method of contraction. ART. 57 Ex. 7.

DIVISION.

1. How would you define DIVISION? ART. 58.

2. Define the *divisor, dividend, quotient,* and *remainder.* ART. 58.

3. Whence the significance of these terms? ART. 58, N.

4. What relation do the *divisor* and *quotient* in division bear to the *factors* in multiplication? ART. 59.

5. How many and what methods are there of expressing division? ART. 59.

6. Prove that division is a short method of making several subtractions. ART. 60.

7. Which two terms in division must always be of the same denomination? ART. 60, Cor. 1.

8. What kind of a number must the quotient always be, and why? ART. 60, Cor. 2.

9. In what respect will the remainder always correspond with the dividend? ART. 60, Cor. 3.

10. What are the process and rule for division, when the divisor does not exceed 12? ART. 61, and Sol.

• 11. How would you prove division? ART. 61, Proof, etc.

12. To what two classes do all questions in division belong? ART. 62,—I, II.

13. How is *short division* performed? ART. 63.

14. Describe the process for the performance of *long division.* ART. 64, Sol.

15. Give the rule derived from this process. ART. 64, R.

16. When the product in any case is greater than the partial dividend from which it is to be subtracted, what is true of the quotient figure? ART. 64, N. 1.

17. When the remainder, after subtraction, is greater than the divisor, what is thus shown to be true of the quotient figure? ART. 64, N. 2.

18. With what does the order of each quotient figure correspond? ART. 64, N. 3.

19. What number multiplied by 109, and 98 added to the product, will give 106700? ART 65, Ex. 27.

20. $(5369 \times 5369) - (4986 \times 4986) \div (5369 - 4986) =$ what? ART. 65, Ex. 16.

21. What are the process and rule for division when the divisor is a composite number? ART. 66, Sol. and R.

22. Prove the correctness of that part of the rule which applies to finding the true remainder. ART. 66, Dem.

23. What is the process and what the rule when the divisor is 1 with ciphers annexed? ART. 67, Anal. R.

24. What is the process and what the rule when there are ciphers on the right of the divisor? ART. 68, R., etc.

25. What is the process and what the rule when the divisor wants but little of being 100, 1000, 10000, etc.? ART. 69, R., etc.

26. Find the quotient of $24206778 \div 989$ by this process. ART. 69, Ex. 2.

27. Prove that multiplying either factor of a product multiplies the product by the same number. ART. 70.

28. Prove that dividing either factor of a product divides the product by the same number. ART. 71.

29. Prove that multiplying one factor of a product and dividing the other factor by the same number, does not alter the product. ART. 72.

30. What is the effect on the quotient of multiplying the dividend, or dividing the divisor? ART. 73.

31. Prove that dividing the dividend or multiplying the divisor by any number divides the quotient by that number. ART. 74.

32. Prove that multiplying both dividend and divisor by the same number does not change the quotient. ART. 75.

33. What is the process of multiplying by any simple part of 100, 1000, 10000, etc.? ART. 76, R.

34. Find by this process the product of $10724 \times 16\frac{2}{3}$. ART. 76, Ex. 4.

35. What is a short method of multiplying by any number whose digits are alike? ART. 77, R., etc.

36. Find the product of 281257×555555 by this process. ART. 77, Ex. 2.

37. What is the short process of dividing by a number ending in any simple part of 100, 1000, etc.? ART. 78.

38. Find by this process the quotient of 1510337264÷43750. ART. 78, Ex. 2.

39. What is the short method of dividing by any number whose digits are alike? ART. 79, R.

40. Find by this process the quotient of 376802902÷7770. ART. 79, Ex. 2.

41. Of what number is 103 both divisor and quotient? ART. 87, Ex. 4.

42. A horse worth $85, and 3 cows at $18 each, were exchanged for 14 sheep, and $41 in money; at how much each were the sheep valued? ART. 87, Ex. 17.

43. A speculator had 140 acres of land, which he might have sold at $210 an acre, and gained $6300; but afterward, he sold at a loss of $5600: how much an acre did it cost him, and how much an acre did he sell it for? ART. 87, Ex. 21.

PROPERTIES OF NUMBERS.

1. What is an *integer?* ART. 88,—1.

2. Define a *prime* and a *composite* number. ART. 88,— 3 and 4.

3. When are two numbers prime to each other? ART. 88,—5.

4. Define an *even* and an *odd* number. ART. 88,—6 and 7.

5. What is a *divisor* of a number? ART. 88,—8.

6. When is one number divisible by another? ART. 88,—9.

7. What is the *multiple* of a number? ART. 88,—10, 1st and 2d.

8. By what are *composite* numbers exactly divisible? ART. 88,—11.

9. What are the *prime factors* of numbers? ART. 88,— 12, 1st, 2d.

10. Define an *aliquot* part of a number. ART. 88,—13.

FACTORING.

1. On what principles does *factoring* depend?   ART. 89.

2. What numbers only are divisible by 2?   ART. 90, Prop. I.

3. When are numbers divisible by 4?   ART. 90, Prop. II.

4. Prove that numbers ending in 0 or 5 *only*, are divisible by 5.   ART. 90, Prop. III.

5. By what are numbers ending in 0, 00, etc., divisible? ART. 90, Prop. IV.

6. A composite number is divisible by what?   ART. 90, Prop. V.

7. How does every prime number end?   ART. 90, Prop. VI.

8. What is the process, and what the rule for finding the prime factors of a composite number?   ART. 91, R. and 2.

9. Find the prime factors of 36414 and of 10010.   ART. 91, Ex. 17 and 18.

10. What are the prime factors common to 210 and 315?   ART. 91, Ex. 23.

11. What is the rule for finding *all* the divisors of any composite number?   ART 92, and R.

12. Find *all* the divisors of 196.   ART. 92, Ex. 3.

GREATEST COMMON DIVISOR.

1. What is the difference between a *common* and the *greatest common* divisor of two or more numbers?   ART. 93, Rem. 1, 2.

2. By what process do you find the greatest common divisor of two or more numbers?   ART. 94, R. I.

3. What rule derived from this process?   ART. 94, R. I.

4. Find the greatest common divisor of 90 and 150; also of 84, 126, and 210.   ART. 94, Ex. 5, 10.

5. What rule is better adapted to finding the greatest common divisor of large numbers?   ART. 95, R. II.

6. Can you demonstrate this rule?   ART. 95, Dem.

7. Find the greatest common divisor of 816, 1360, 2040, and 4080.   ART. 95, R. II, Ex. 13.

LEAST COMMON MULTIPLE.

8. Define a *common* multiple, and the *least common* multiple. ART. 96, and Rem.

9. Give the process and then the rule for finding the least common multiple of two or more numbers. ART. 97, R. I.

10. Find the least common multiple of 12, 18, and 24, by this process. ART. 97, Ex. 4.

11. What other rule can you give for finding the least common multiple of two or more numbers? ART. 98, R. II.

12. What is the necessity of dividing by a prime rather than a composite number? ART. 98, N.

13. There are still in common use another process and rule for the same thing; what are they? ART. 99, R. III.

14. Find the least common multiple of 15, 24, 40, and 140, by both the last two rules. ART. 99, Ex. 8.

15. Explain the mode of proving the operations under the fundamental rules, by casting out the 9's and 11's. ART. 100.

16. Show its application to Addition, Subtraction, Multiplication, and Division, respectively. ART. 100.

CANCELLATION.

1. How do you define CANCELLATION? ART. 101.

2. Describe the process of cancellation. ART. 101, Sol.

3. Give the *rule* applicable to this operation. ART. 102.

4. If, after cancellation, no factors remain in the divisor, what will make the quotient? ART. 102, N. 1.

5. Between what *factors only* can cancellation take place? ART. 102, N. 2.

6. With what other process is it identical? ART. 102, N. 3.

7. Solve by cancellation the following: I exchanged 8 barrels of molasses, each containing 33 gallons, at 40 cents a gallon, for 10 chests of tea, each containing 24 pounds; what was the cost to me of the tea per pound? ART. 102, Ex. 2.

8. Find the quotient by cancellation of $(15 \times 24 \times 112 \times 40 \times 10) \div (25 \times 36 \times 56 \times 90)$. ART. 102, Ex. 4.

COMMON FRACTIONS.

1. What is a FRACTION, and whence is the term derived? ART. 103.

2. On what does the *name* of a fraction and the size of its parts depend?   ART. 104.

3. Can you prove this?   ART. 104.

4. Into what classes are fractions divided?   ART. 105.

5. How is a COMMON FRACTION expressed?   ART. 105.

6. What are the terms of a fraction, and what name is applied to each, and why?   ART. 105.

7. In what *two ways* may a fraction be considered, whose numerator is greater than 1?   ART. 106.

8. When a fraction is considered as an expression of *unexecuted* division, what respectively are the *divisor*, *dividend*, and *quotient?*   ART. 106.

9. How should fractions be read?   ART. 107, R.

10. What is the process of writing fractions?   ART. 108, R.

11. Express in words the following: $\frac{6}{7}, \frac{13}{26}, \frac{117}{206}, \frac{120}{1200}$.

12. Express in figures the following: *seven elevenths, nine fourteenths, one hundred and eight thousandths.*   ART. 107.

13. How may a whole number be expressed as a fraction? ART. 108.

14. When is the value of a fraction less than 1?   ART. 109, Prop. 1.

15. When is it equal to 1?   ART. 109, Prop. 2.

16. When is it greater than 1?   ART. 109, Prop. 3.

17. How many, and what kinds of fractions are there? ART. 110, Def. 1–6.

18. Give two examples of each.   ART. 110, Def. 1–6.

19. How can you show that $\frac{1}{2}$ of $\frac{1}{2} = \frac{1}{4}$, and that $\frac{1}{6}$ of $\frac{1}{2} = \frac{1}{12}$? ART. 111, Dem.

20. What is the effect of multiplying the numerator of a fraction?   ART. 112.

21. What is the effect of dividing the numerator of a fraction?   ART. 113.

22. What is the effect of multiplying or dividing the denominator of a fraction?   ART. 114, 115.

23. What is the effect of multiplying or dividing both terms of a fraction by the same number?   Art. 116, 117.

24. Prove that these *propositions* are true.   Art. 117, Dem. 1–6.

25. How many and what ways are there of multiplying and dividing a fraction, and of changing its form without altering its value?   Art. 117, Rem.

REDUCTION OF FRACTIONS.

1. What is meant by the *reduction of fractions?*   Art. 118.

2. When is a fraction said to be in its lowest terms?   Art. 119.

3. What is the process, and what the rule of reducing fractions to their lowest terms?   Art. 119, R.

4. Express $\frac{32}{56}$ and $\frac{667}{783}$ in their lowest terms.   Art. 119, Ex. 2, 8.

5. Give the rule for reducing an improper fraction to a whole or mixed number.   Art. 120, R.

6. What numbers respectively $= \frac{1295}{37}$ and $\frac{4260}{13}$?   Art. 120, Ex. 5, 8.

7. Describe the manner of reducing a whole or mixed number to an improper fraction.   Art. 121.

8. What improper fractions $= 109\frac{9}{19}$ and $5\frac{207}{211}$?   Art. 121, Ex. 7, 8.

9. How are whole numbers reduced to fractions having a given denominator?   Art. 122.

10. Find a fraction whose denominator is $29 =$ to 19.   Art. 122, Ex. 4.

11. By what rule are compound fractions reduced to simple ones?   Art. 123, R.

12. What does $\frac{3}{4}$ of $\frac{8}{9}$ of $\frac{4}{7}$ of $8\frac{3}{4}$ equal, reduced to its simplest form?   Art. 123, Ex. 10.

13. Reduce $\frac{12}{13}$ of $\frac{9}{16}$ of $\frac{7}{18}$ of $\frac{10}{21}$ of $1\frac{4}{35}$ to a simple fraction in its lowest terms.   Art. 123, Ex. 13.

14. Give the rule for changing fractions of different denominators into equivalent fractions having a *common* denominator.   Art. 124, R.

15. Prove that the results obtained by this rule are true. ART. 124; Dem.

16. Reduce $\frac{2}{3}$, $\frac{1}{2}$ of $3\frac{1}{2}$, $\frac{2}{3}$ of $\frac{3}{5}$, to equivalent fractions having a common denominator. ART. 124, Ex. 5.

17. When the terms of the fractions are small, and one denominator is a multiple of another, how may they be reduced to a common denominator? ART. 125.

18. Apply this process to the reduction of $\frac{3}{4}$, $\frac{4}{5}$, $\frac{9}{10}$, and $\frac{11}{20}$, to a common denominator. ART. 125, Ex. 3.

19. By what process are fractions of different denominators reduced to equivalent fractions of the *least* common denominator? ART. 126, R.

20. If any of the fractions are not in their lowest terms, what must be done *first?* ART. 126, N. 1.

21. What must be done with compound fractions, and whole or mixed numbers? ART. 126, N. 2.

22. When pupils are acquainted with the principles involved, what part of the process may be omitted? ART. 126, N. 3.

23. What is the object of this reduction of fractions? ART. 126, N. 4.

24. What will the fractions $\frac{2}{3}$, $\frac{6}{10}$, $\frac{3}{4}$ of $\frac{14}{15}$, and $\frac{34}{60}$ be, when reduced to their least common denominator? ART. 126, Ex. 6.

ADDITION OF FRACTIONS.

1. What is the *addition* of fractions? ART. 127.

2. What is the rule and what the process for this? ART. 127, R.

3. Give a demonstration of this rule. ART. 127, Dem.

4. What steps are preliminary to the process? ART. 127, N. 1, 2.

5. What is the sum of $\frac{3}{4}+1\frac{1}{3}+\frac{4}{7}$ and $1\frac{3}{4}$? ART. 127, Ex. 14.

SUBTRACTION OF FRACTIONS.

1. Define *subtraction* of fractions. ART. 128.

2. Give the process and rule for this. ART. 128, Sol. and R.

3. What steps are preliminary to the subtraction?   Art. 128, N.

4. How may mixed numbers be dealt with in the subtraction of fractions?   Art. 129.

5. $7\frac{5}{12} - 3\frac{1}{2} =$ what? After selling $\frac{4}{7}$ of $\frac{5}{8} + \frac{1}{5}$ of $\frac{3}{7}$ of a farm, what part remains?   Art. 129, Ex. 12 and 20.

6. $5\frac{1}{5} - 2\frac{5}{6} + \frac{13}{2} - 3\frac{3}{10} + 3\frac{1}{12} + 8\frac{1}{9} - 16\frac{1}{4} =$ what?   Art. 129, Ex. 22.

MULTIPLICATION OF FRACTIONS.

1. Describe the process of *multiplying* fractions.   Art. 130.

2. What operations does it embrace?   Art. 130,—1, 2, 3.

3. What is the general rule for this?   Art. 130, Gen. R.

4. In what two ways may you multiply a fraction by a whole number?   Art. 130, Cor. i.

5. What is the method of multiplying a whole number by a fraction?   Art. 130, Cor. ii.

6. $\frac{2}{3}$ of $5\frac{2}{5} \times \frac{3}{5}$ of $3\frac{1}{3} =$ what?   Art. 130, Ex. 21.

7. What must be paid for $\frac{3}{5}$ of $\frac{2}{3}$ of a lot of ground that cost $18\frac{3}{4}$?   Art. 130, Ex. 30.

DIVISION OF FRACTIONS.

1. Define *division* of fractions.   Art. 131.

2. What operations does it embrace?   Art. 131,—1, 2, 3.

3. Give the *general* rule for the division of fractions. Art. 131, Gen. R.

4. Demonstrate the correctness of this rule.   Art. 131, Dem. 1st, 2d.

5. In what other form might the rule be given?   Art. 131, Hence, etc.

6. What rule is there for dividing a fraction by a whole number?   Art. 131, Cor. i.

7. What, for dividing a whole number by a fraction? Art. 131, Cor. ii.

8. Before dividing, what must be done with compound fractions and mixed numbers?   Art. 131, N. 1, 2.

9. $\frac{3}{4}$ of $\frac{1}{2} \div \frac{1}{4}$ of $\frac{2}{3} =$ what?   Art. 131, Ex. 18.

10. $2\frac{5}{8} \times \frac{4}{5}$ of $19\frac{1}{3} \div 4\frac{5}{6} \times \frac{3}{10}$ of $8 =$ what?   Art. 131, Ex. 26.

COMPLEX FRACTIONS.

1. What is the process of reducing *complex* fractions to *simple* ones?　　ART. 132.

2. $\frac{2\frac{5}{14}}{2\frac{2}{21}}$ = what?　$\frac{7}{10} \times \frac{4\frac{1}{4}}{8}$ = what?　$\frac{2\frac{4}{11}}{2\frac{3}{5}} \div \frac{2\frac{7}{11}}{8\frac{7}{10}}$ = what?　ART. 132, Ex. 4, 7, 12.

GREATEST COMMON DIVISOR OF FRACTIONS.

1. What is the rule for finding the *greatest common divisor* of fractions?　　ART. 133, R.

2. If the numerators and denominators are prime to each other, what will be the greatest common divisor of the numbers?　　ART. 133, N.

3. How can the greatest common divisor of more than two fractions be obtained?　　ART. 133, N. 2.

4. Find the greatest common divisor of $44\frac{4}{9}$, $546\frac{2}{3}$, and 3160. ART. 133, Ex. 8.

LEAST COMMON MULTIPLE OF FRACTIONS.

1. Give the process and rule for finding the *least common multiple* of fractions.　　ART. 134, R.

2. Find the least common multiple of $8\frac{1}{6}$, $10\frac{8}{9}$, $5\frac{13}{15}$, $6\frac{5}{12}$, and $\frac{2}{3}$. ART. 134, Ex. 7.

3. If a railroad car runs $112\frac{3}{4}$ miles in $5\frac{1}{6}$ hours, what is that per hour?　　ART. 135, Ex. 32.

4. A 63 gallon cask is $\frac{5}{8}$ full; $9\frac{1}{2}$ gallons being drawn off, how full will it be?　　ART. 135, Ex. 37.

DECIMAL FRACTIONS.

1. From what does a DECIMAL FRACTION derive its name, and why is it so called?　　ART. 136.

2. What is the *notation* of decimal fractions?　　ART. 136.

3. What are the advantages of this notation?　　ART. 136.

4. What is the *denominator* of any decimal fraction? ART. 136.

5. What are the figures to the right of the decimal point called?　　ART. 137.

6. What terms are applied to the point? ART. 137.

7. Define a *pure*, a *mixed*, and a *complex decimal*. ART. 137.

8. How are the places in decimals named? ART. 138.

9. In what *direction* and *ratio* do the decimal places increase and decrease? ART. 139.

10. What is the rule for reading decimals, and why? ART. 140,—1st, 2d.

11. How may mixed decimals be *read?* ART. 140.

12. Give the rule for *writing* decimals. ART. 141.

13. Write out in common language the following: 61.001001, $73002.1\frac{4}{5}$, $.0000000\frac{1}{9}$, 1000000.0303.

14. Express in figures the following: Fifty-four million units and four millionths. Four million and four millionths.

15. In what respect does the *notation* of decimal fractions differ chiefly from that of common fractions? ART. 142.

16. What is the effect of annexing or cutting off decimal ciphers from the *right* of any number? ART. 143.

17. What is the effect of removing the *point* in decimals to the *right?* ART. 144.

18. What is the effect of removing the *point* in decimals to the *left?* ART. 145.

REDUCTION OF DECIMALS.

1. What is the process for changing a decimal into its equivalent common fraction of the simplest form? ART. 146, R.

2. In reducing such fractions to their lowest terms, to what numbers are the divisors limited, and why? ART. 146, N.

3. Change $.87\frac{1}{2}$, $.43\frac{3}{4}$, .390625, respectively, into their equivalent common fractions reduced to their lowest terms. ART. 146, Ex. 22, 30, 10.

4. Give the process and the rule for converting any common fraction into a decimal. ART. 147, N.

5. Change respectively into their equivalent decimals the following: $\frac{13}{256}$, $.015\frac{1}{4}$. ART. 147, Ex. 9, 13.

6. When annexing ciphers does not render the numerator
  Ex.—6.

exactly divisible by the denominator, how is that fact usually indicated, and what are such decimals called? ART. 148.

7. Reduce $\frac{7}{27}$, and $10\frac{29}{48}$ to decimals. ART. 148, Ex. 1, 2.

ADDITION OF DECIMALS.

1. What is the method of adding decimals, and what the rule? ART. 149, Sol. and R.

2. If among those to be added there are *complex* decimals, what is to be done with them? ART. 149, N.

3. Four times $4.067\frac{7}{8} + .000\frac{1}{2} =$ what? 35 units + 35 tenths + 35 hundredths + 35 thousandths = what? ART. 149, Ex. 11, 13.

SUBTRACTION OF DECIMALS.

1. Describe the process and give the rule for the subtraction of decimals. ART. 150, Sol., R., and N.

2. $.65007 - \frac{1}{2} =$ what? 1875 thousandths $- 1\frac{7}{8}$ units = what? $100 - .64\frac{1}{6} =$ what? ART. 150, Ex. 7, 16, 18.

MULTIPLICATION OF DECIMALS.

1. Give the rule for the multiplication of decimal numbers. ART. 151.

2. Can you demonstrate the truth of the rule? ART. 151, Dem.

3. 42 units $\times$ 42 tenths = what? $43.7004 \times .008 =$ what? ART. 151, Ex. 19, 14.

4. What is the process and what the rule for multiplying decimals by 10, 100, 1000, etc.? ART. 152, Case I, R., N.

5. Find the product of $.075 \times 100$; also of 16.083×10. ART. 152, Ex. 2, 4.

6. How may the work be shortened when the product of two decimals is required, but not beyond a certain number of decimal places? ART. 153, Case II, R., N.

7. Find the product of $4.804136 \times .010759$ to 6 decimal places ART. 153, Ex. 5.

DIVISION OF DECIMALS.

1. What is the rule for the division of decimals? ART. 154, R., N.

2. 2401 ÷ 21.4375 = what? .000001 ÷ .01 = what? ART. 154, Ex. 14, 27.

3. When the dividend is less than the divisor, how may the quotient be expressed? ART. 155.

4. 1÷5.5, and .13⅓÷2.4=what common fraction, respectively? ART. 155, Ex. 2, 3.

5. How can you always easily determine the denomination of the first figure of the quotient? ART. 156.

6. What are the methods of contraction applicable to the division of decimals? ART. 157.

7. What method of contraction is applicable to dividing a decimal by 10, 100, 1000, etc.? ART. 157, Case I, R., N.

8. Find the quotient of 2001.2÷100, by this process. ART. 157, Ex. 4.

9. What form of contraction is applicable where you are required to reserve a certain number of decimals in the quotient? ART. 158, Case II, R., N., Rem.

10. Find by this process the quotient of 100÷3.7320508. ART. 158, Ex. 8.

11. What is the process of contraction when you divide by a decimal little less than 1, reserving a certain number of decimal places in the quotient? ART. 159, Case III, R.

12. Find by this process the quotient of 52546.35÷.99¾ to 3 decimal places. ART. 159, Ex. 4.

CIRCULATING DECIMALS.

1. What are *circulating* decimals? ART. 160.

2. Only what common fractions can be changed into *terminate fractions?* ART. 160, Prop. I.

3. What will be found true of every *interminate* decimal, arising from the conversion of a common fraction, if the division is carried far enough? ART. 161, Prop. II.

4. Define the following terms applicable to circulating decimals : 1. A *repetend ;* 2. A *pure circulate ;* 3. A *mixed circulate ;* 4. A *simple repetend ;* 5. A *compound repetend ;* 6. A *similar repetend ;* 7. A *dissimilar repetend ;* 8. *Similar* and *conterminous repetends.* ART. 163.

5. How is a *pure circulate* reduced to a common fraction? Art. 165, R.

6. How is a *mixed circulate* reduced to a common fraction? Art. 166, R.

7. What is the rule for adding circulates? Art. 168, R.

8. What rule applies to the subtraction of circulates? Art. 169, R.

9. Give the rule for the multiplication of circulates. Art. 170, R.

10. Give the rule for the division of circulates. Art. 171, R., N.

11. Reduce $.3\dot{1}$, $.208\dot{3}$, and $.0902\dot{7}$ to common fractions. Art. 166, Ex. 5, 10, 14.

12. $3.488\dot{4} + 1.63\dot{7} + 130.8\dot{1} + .06\dot{6} =$ what? Art. 168, Ex. 9.

13. $10.056\dot{3} - 8.2\dot{7} =$ what? Art. 169, Ex. 5.

14. $714.3\dot{2} \times 3.45\dot{6} =$ what? Art. 170, Ex. 3.

15. What is the quotient of $90.520374\dot{9} \div 6.75\dot{4}$? Art. 171, Ex. 4.

COMPOUND NUMBERS.

1. How would you define a COMPOUND NUMBER, and by what other name is it frequently called? Art. 173.

2. Give the table of Linear Measure, and describe its use. Art. 174, N. 1, 2.

3. Give the table of Mariners' Measure, and describe its use. Art. 175, N.

4. Give the table of Surveyors' and Engineers' Measure, and describe its use. Art. 176, N. 1, 2.

5. Give the table of Cloth Measure, and describe its use. Art. 177, N. 1, 2.

6. What is the standard of all Linear Measure? Art. 178.

7. Give the history of the introduction and perfection of the measure. Art. 178, Rem.

8. What is the use of Square Measure? Art. 179.

9. What is a *Square*, and on what does the size or name of any square depend? Art. 179.

10. Describe the *unit* by which all surfaces are measured. Art. 180.

11. What is a *rectangle*, and what is the method of ascertaining its size or area? ART. 180, R.

12. Give the table of Square Measure. ART. 180.

13. What is Land Measure, and what its use? ART. 181, N.

14. For what is Solid Measure used, and why is it also called Cubic Measure? ART. 182.

15. What is the *unit* by which all solids are measured? ART. 183.

16. Describe a *rectangular* solid, and how the size or solidity of such solids is obtained? ART. 183.

17. Give the rule applicable to the operation. ART. 183, R.

18. Give the tables of *round timber*, *hewn timber*, *shipping*, *fire-wood*, *plank measure*, and *masonry*. ART. 183, N. 1–4.

19. Give the table and describe the use of Troy or Mint Measure. ART. 184, Rem. 1–4.

20. For what is Diamond Weight used, and what is the table? ART. 185.

21. In what two ways is the *carat* used? ART. 185, Rem.

22. Give the table and use of Apothecaries' Weight. ART. 186.

23. What is the table of Avoirdupois or Commercial Weight? ART. 187.

24. How many pounds respectively in the Quarter of Great Britain and of the United States? ART. 187, N. 2.

25. How does the pound Avoirdupois differ from the pound Troy? ART. 187, Rem.

26. Explain the terms *gross* and *net* weight. ART. 187, N. 4.

27. Give the table and describe the use of Wine or Liquid Measure. ART. 189, N. 1, 2.

28. What is the *standard unit* of Liquid Measure? ART. 190.

29. Describe Ale and Beer Measure, and give the table. ART. 191, N.

30. What is the capacity of the Beer gallon? ART. 191, Rem.

31. What is the use and what the table of Dry Measure? ART. 192.

32. What is the *unit* of Dry Measure?   ART. 193.

33. What is the comparative capacity of the Wine, Beer, and Dry gallon, in cubic inches?   ART. 194.

34. What is the table and what the use of Apothecaries' Fluid Measure?   ART. 195, N. 1, 2.

35. Give the table for the Measure of Time.   ART. 196.

36. What changes have been made from time to time, to regulate the year?   ART. 196.

37. By what rule may Leap years be ascertained?   ART. 196, R.

38. Describe the Gregorian Calendar, and state the time of its adoption in England, and the consequences.   ART. 196.

39. What is the origin of the names of the 7th, 8th, 9th, and 10th months?   ART. 197.

40. Give the Miscellaneous Table.   ART. 198.

41. Give the table applicable to *paper* and *books*.   ART. 199.

42. What is the table and what the use of Circular Measure?   ART. 200, N.

43. What relation does Time bear to Longitude?   ART. 201, N.

44. Give the table of United States or Federal Money. ART. 202, N.

45. When was the Federal Currency authorized, and what are its advantages?   ART. 203.

46. What is the usual method of reading United States Money?   ART. 203.

47. What are the National coins of the United States, and what is their weight and alloy respectively?   ART. 204.

48. Describe the term *carat* as applied to the purity or fineness of gold.   ART. 205.

49. Give the table of English or Sterling Money.   ART. 206, N. 1–3.

50. Whence the origin of the symbols used for this money? ART. 206, Rem. 1.

51. Describe the standard gold, silver, and copper coins of English Money.   ART. 206, Rem. 2.

52. Describe the currencies of the several States.   Art. 207.

53. Describe the French system of weights and measures. Art. 208.

54. What is the *unit* of Long Measure in France?   Art. 209, N.

55. Describe the French Surface Measure.   Art. 210, N.

56. Describe the French Solid Measure.   Art. 211, N.

57. What is the *unit* of weight in France, and what the table?   Art. 212, N.

58. What is the French table of Dry and Liquid Measure? Art. 213, N.

59. Describe French Money.   Art. 215.

REDUCTION OF COMPOUND NUMBERS.

1. Describe Reduction of Compound Numbers.   Art. 218.

2. What is the general rule for this operation?   Art. 218, Gen. R.

3. Describe Reduction *ascending* and *descending*.   Art. 219, Sol. and Rem.

4. Change 192 sq. in. to sq. yd.; change 36 yd. to Ells Flemish; change .216 gr. to oz. Troy; change 256 roods to sq. chains. Art. 219.

5. What is the process and what the rule for reducing a compound number to a simple one of any denomination? Art. 220, Sol., R., and N.

6. Change 9 mi., 22 rd., 10.6175 ft., to fur.; change 4 ʒ, 2 Ɣ, 15.5 gr., to lb.; change 1 T., 6 cwt., 1 qr., 24 lb., 2 oz., 4¾ dr., to lb.; change 6 yr., 44 da., 8 hr., 35 min., to wk.; change 20 eagles, $6, 1 dime, 2½ ct., to $; change £304, 19 s., 2½ d., to £.   Art. 220.

7. How many ounces of gold weigh as much as a pound of lead?   Art. 220, Ex. 92.

8. Give the process and rule for the reduction of a simple number of any denomination to a compound number. Art. 221, R., N., and Rem.

9. If the simple given number is a common or decimal fraction, what then is the process and what the rule?   Art. 222, Sol., R., and N.

10. Change 1811.0625 sq. ft. to a compound number; change 931$\frac{17}{32}$ A.; change 4.2045 cu. yd.; change £ .555.   ART. 222.

11. What would be the advantages of having our tables of weights and measures placed on a decimal basis?   ART. 222, Rem.

12. Describe the method of adding compound numbers, and give the rule.   ART. 223, Sol., R., and N.

13. Find the sum of $\frac{5}{6}$ C.; $\frac{3}{8}$ cu. ft.; 1000 cu. in.   ART. 223, Ex. 9.

14. 4 gal. 3 gills + 10 gal. 3 qt. 1$\frac{1}{2}$ pt. + 8 gal. $\frac{2}{3}$ pt. + 5.64 gal. + 2.3 qt. + 1.27 pt. + $\frac{3}{5}$ gill = what?   ART. 223, Ex. 15.

15. 27° 14′ 55.24″ + 9° 18$\frac{1}{4}$′ + 1° 15$\frac{1}{3}$′ + 116° 44′ 23.8″ = what? ART. 223, Ex. 21.

16. Describe the process of subtracting compound numbers, and give the rule for the same.   ART. 224, Sol. and R.

17. 4 yd. 2 qr. 1 na. 1$\frac{3}{4}$ in. — 1.35 yd. = what?   ART. 224, Ex. 3.

18. What is the difference between Sept. 22d, 1855, and July 1st, 1856?   ART. 224, Ex. 30.

19. 180° — 161° 34′ 11.8″ = what?   ART. 224, Ex. 35.

20. $12 6 ct. 8$\frac{1}{3}$ m.—$5 43 ct. 2$\frac{1}{2}$ m. = what?   ART. 224, Ex. 42.

21. How does the multiplication of simple numbers differ from the multiplication of compound numbers?   ART. 225.

22. What is the general rule applicable to this operation? ART. 225, Gen. R.

23. What is the process and what the rule applicable to the multiplication of a compound number by a simple one? ART. 226, Sol., R., and N.

24. 6 E. E. 4 qr. 3.44 na. × 28 = what?   ART. 226, Ex. 7.

25. 5 sq. yd. 8 sq. ft. 106 sq. in. × 13 = what?   ART. 226, Ex. 8.

26. $1072 9 ct. 2 m. × 424 = what?   ART. 226, Ex. 20.

27. £215 16 s. 2$\frac{1}{4}$ d. × 75 = what?   ART. 226, Ex. 21.

28. What is the process of changing difference of *time* into difference of *longitude?*   ART. 227, Sol. and R.

29. How may cancellation be applied to the solution of such problems?   ART. 227, Rem.

30. When it is 1 A. M. at Constantinople, it is 11 h. 13 min. 25$\frac{7}{15}$ sec. P. M. of the previous day at Paris, and the longitude of Paris is 2° 20′ 22″ E.: what is that of Constantinople?   ART. 227, Ex. 10.

31. In what respects, if at all, does the division of simple numbers differ from that of compound numbers? ART. 228.

32. What is the general rule for dividing a compound number by any simple number, whole or fractional? ART. 229, Gen. R.

33. Give the process and rule for dividing a compound number by a simple whole number. ART. 230, Sol., R., N.

    34. 88 lb. 16 pwt. 17.6 gr. ÷ 54 = what? ART. 230, Ex. 9.
    35. 600 T. 7 cwt. 86 lb. ÷ 29.06 = what? ART. 230, Ex. 11.
    36. 152° 46′ 2″ ÷ 9 = what? ART. 230, Ex. 18.

37. Give the process and rule applicable to the change of difference of longitude to difference of time. ART. 231, Sol., R., N.

38. What is the time at Cambridge, Eng., (long. 5′ 21″ E.), when it is 9 P. M. at Cambridge, Mass. (long. 71° 7′ 21″ W.)? ART. 231, Ex. 6.

39. When it is 7 A. M. at Washington (long. 77° 1′ 30″ W.) what time is it at Mexico (long. 99° 5′ W.)? ART. 231, Ex. 7.

40. Describe the method of dividing one compound number by another similar compound number, the quotient being an abstract number. ART. 232, Sol. and R.

41. A comet moves 8° 17′ 22½″ in one day; in what time will it complete the circuit of the heavens, or 360°? ART. 232, Ex. 6.

42. How many half-crowns, each worth 2 s. 6 d., are in £18 7 s. 10¾ d.? ART. 232, Ex. 8.

ALIQUOT PARTS.

1. Define ALIQUOT PARTS, its use, and the method of its application. ART. 233, 234, Sol.

2. Give the process when the multiplicand is a compound number. ART. 234, Sol. 2d.

3. Explain the application of aliquot parts when the product is to be in United States money. ART. 234, Sol. 3d.

4. Give the rule for the application of aliquot parts. ART. 235.

5. If a man is 2 hr. 25 min. 38 sec. in digging a cu. yd. of earth, how long will he be in digging 44 cu. yd. 22 cu. ft.? ART. 235, Ex. 18.

    Ex.—7.

6. Describe the making out of bills in United States money by aliquot parts, when the prices of the items are given in State currencies.   Art. 236, Sol.

7. 87⅞ yd. of carpet, at 10 s. 5 d. a yd., cost what in New England currency?   Art. 236, Ex. 10.

8. 2 bu. 3 pk. 6 qt. of dried peaches cost what in New York currency, at 17 s. 8 d. a bu.?   Art. 237, Ex. 3.

9. 23 rd. 10½ ft. of fencing, at 20 s. a rd., cost what in Pennsylvania currency?   Art. 238, Ex. 6.

10. 43 lb. of butter, at 1 s. 4½ d. a lb., cost what in South Carolina currency?   Art. 239, Ex. 3.

11. 7 gal. 1 qt. of honey, at 6 s. 10 d. a gal., cost what in Canada currency?   Art. 240, Ex. 1.

RATIO AND PROPORTION.

1. Define Ratio according to its arithmetical use.   Art. 242.

2. Between what quantities *only* can ratio exist?   Art. 242.

3. What kind of a number is ratio, and what does it show?   Art. 242.

4. How is the ratio of two numbers indicated?   Art. 243.

5. What names are applied to each number separately, and to both of them combined?   Art. 243.

6. Define a *simple* and a *compound* ratio.   Art. 243.

7. Which of the terms is the *antecedent,* and which the *consequent* of a ratio?   Art. 243.

8. On what does the value of a ratio depend?   Art. 243.

9. By what rule is the value of any ratio found?   Art. 243, R.

10. How do the French and English methods of finding the ratio of two numbers differ?   Art. 243, N.

11. Since the *value* of a ratio is equal to the consequent divided by the antecedent, what follows?   Art. 243.

12. Find the ratio of 3 lb. 10 oz. 6 pwt. 10½ gr. to 2 lb. 14¾ pwt.   Art. 243, Ex. 7.

13. If the antecedent is 7, and the ratio 1½, what is the consequent?   Art. 243, Ex. 17.

14. If the consequent is 6 yd. 2 ft. 8½ in., and the ratio is 3⅓, what is the antecedent?   Art. 243, Ex. 20.

15. What are termed increasing, and what decreasing ratios? ART. 244.

16. How are they formed from the same numbers? ART. 244.

17. Form an increasing ratio with $5\frac{1}{2}$ and $4\frac{3}{4}$; and with 3 yd. 2 ft. and 3 yd. 1 ft. 5 in. ART. 244, Ex. 1.

18. What is the effect on the ratio of multiplying the consequent or dividing the antecedent? ART. 245, 1st.

19. What is the effect on the ratio of multiplying the antecedent or dividing the consequent? ART. 245, 2d.

20. What is the effect of multiplying or dividing both terms of a ratio by the same number? ART. 245, 3d.

21. Define PROPORTION. ART. 246.

22. What *signs* are used to indicate proportion? ART. 246, Rem.

23. What is a *continued* proportion? ART. 246.

24. How many antecedents and consequents has each proportion, and which of the terms are the one, and which the other? ART. 246.

25. Which of the terms in a proposition are called *means*, which *extremes*, and which *proportional*? ART. 246.

26. What is the difference between *ratio* and *proportion*, as shown by their relations and results respectively? ART. 246.

27. When are *three* numbers in proportion, and what names are then applied to the second and third terms? ART. 246.

28. What is the meaning of *variation* as applied to proportion? ART. 247.

29. How can you determine whether any given proportion is true? ART. 248.

30. Are the following proportions, or not? 7 : 10 :: 8 : 12; 4 : 3 :: 24 : 18; 25 lb. Tr. : 24 lb. Av. :: 6 : 7. ART. 248, Ex. 1, 11.

31. What is true of every proportion, in relation to the product of the means and the product of the extremes? ART. 249.

32. Can you prove the truth of this? · ART. 249, Dem.

33. One extreme and both means being given, how do you find the other extreme? ART. 249, Cor. I.

34. One mean and both extremes being given, how do you find the other mean ?   Art. 249, Cor. ii.

35. Find the unknown terms in the following proportions :

$3\frac{3}{4}$: ( ) :: $1\frac{1}{2}$: 2; 12 yd. 3 qr. : 46 yd. 3 qr. :: ( ) : 6 T. 1 cwt.; ( ) : 4 hr. 30 min. :: $2\frac{1}{2}$ mi. : 3.375 mi.; $16 : 45 ct. :: 1 lb. 9 oz. Av. : ( ).   Art. 249, Ex. 1, 3, 5, 8.

SIMPLE PROPORTION.

1. Define Simple Proportion.   Art. 250.

2. What other name is often applied to simple proportion? Art. 250.

3. What kind of questions only are capable of being solved by proportion?   Art. 250, Rem.

4. Give the rules for solving problems by simple proportion.   Art. 250, R.

5. Solve the following, *indicating*, by the proper arithmetical signs, your process in each :

If a horse draw 25 bu. of coal, each 80 lb., how many bushels of coke, each 96 lb., can he draw? If I gain $92.54 on $1156.75 worth of sugar, how much must I sell to gain $67.32? If $\frac{2}{9}$ of a yd. of cloth cost 3\frac{1}{5}$, what is $\frac{3}{4}$ of an E. E. worth?   Art. 250, Ex. 12, 30, 37.

COMPOUND PROPORTION.

1. Define Compound Proportion.   Art. 251.

2. How does compound proportion differ from simple proportion?   Art. 251.

3. What is the method of solving questions by this operation?   Art. 251, Sol.

4. Give such rules as you can for the solution of questions by compound proportion.   Art. 251, R.

5. State and solve the following, *indicating* the process in each case by the proper arithmetical signs :

If 12 men mow 25 A. of grass in 2 days of $10\frac{1}{2}$ hours each, how many hours a day must 14 men work to mow an 80 A. field in 6 days?   Art. 251, Ex. 5.

6. If the use of $3750 for 8 mon. is worth $68.75, what sum is that whose use for 2 yr. and 4 mon. is worth $250?   Art. 251, Ex. 8.

7. If 150000 bricks are used for a house whose walls average 1½ ft. thick, 30 ft. high, and 216 ft. long, how many will build one with walls 2 ft. thick, 24 ft. high, and 324 ft. long? ART. 251, Ex. 14.

PER CENTAGE.

1. From what is the term PER CENTAGE derived, and what operations does it embrace? ART. 252.

2. To what kinds of business is it applied? ART. 252.

3. What is the general rule for per centage? ART. 252, Gen. R.

4. What is the process of finding any given per cent. of a given number? ART. 253, N. and Sol.

5. Give the rule applicable to the same. ART. 253, R.

6. What character or sign is generally used by business men for the word "per cent."? ART. 253, Rem. 2.

7. What is 42 % of $1250? ART. 253, Ex. 3.

8. Find 180 % of 4⅖. ART. 253, Ex. 6.

9. How much is 18¾ % of a cargo that weighs 416 T. 15 cwt. 20 lb.? ART. 253, Ex. 16.

10. Find 1000 % of $5.43¾. ART. 253, Ex. 21.

11. A owed B a sum of money; at one time he paid him 40 % of it; afterward he paid him 25 % of what he owed, and finally he paid him 20 % of what he then owed: how much does he still owe? ART. 253, Ex. 29.

12. 8 % of 62½ % of 150 % of $462.50 = what? ART. 253, Ex. 37.

13. What is the process and what the rule, where two numbers are given, to find the rate per cent. one is of the other? ART. 254, Sol. and R.

14. What is the form of proof applicable to this process? ART. 254, Proof.

15. When is reduction, as a preliminary step, necessary? ART. 254, Sug.

16. 15 ct. are how many per cent. of $2? ART. 254, Ex. 3.

17. ⅝ ct. are how many per cent. of $¼? ART. 254, Ex. 7.

18. $7.29 are what per cent. of $216? ART. 254, Ex. 18.

19. 16 bu. 3 pk. are what % of 7.125 pk.? ART. 254, Ex. 21.

20. If $\frac{5}{12}$ of a ship be sold, what % of it remains? ART. 254, Ex. 29.

21. How many per cent. of his time does a man lose who sleeps 7 hr. out of every 24?   Art. 254, Ex. 34.

22. If the enrollment of scholars is 1162, and the average attendance is 999, what is the per cent. of absence?

23. What is the process of finding a number when a certain per cent. of it is given?   Art. 255, Sol. and R.

24. What is the proof applicable to this operation?   Art. 255, Proof.

25. $3.80 is 5 % of what sum?   Art. 255, Ex. 2.

26. $10.75 is $3\frac{1}{3}$ % of what sum?   Art. 255, Ex. 9.

27. 162 men are $4\frac{4}{5}$ % of how many?   Art. 255, Ex. 11.

28. The enemy shot 12 of our men, which was $2\frac{2}{3}$ % of the whole; how many escaped?   Art. 255, Ex. 23.

29. A farmer gave his daughter, as her marriage portion, 65 A. 2 R. 26 P. of land, which was 3 % of all he owned; how much had he?   Art. 255, Ex. 29.

30. A owning 60 % of a ship, sells $7\frac{1}{2}$ % of his share for $2500; what the value of the ship?   Art. 255, Ex. 36.

31. When a number is given which is a given per cent. more or less than another, how do you find that other? Art. 256, Sol. and R.

32. What is the form of proof applicable in this case? Art. 256, Proof.

33. 96 da. is 100 % more than what number of days?   Art. 256, Ex. 5.

34. A coat cost $32, the trimmings cost 70 % less, and the making 50 % less than the cloth; what did each cost?   Art. 256, Ex. 16.

35. If I give away $42\frac{6}{7}$ % of my money and have $2 left, what had I at first?   Art. 256, Ex. 22.

36. In a school 5 % of the pupils are always absent, and the attendance is 570; how many enrolled, and how many absent? Art. 256, Ex. 25.

APPLICATIONS OF PER CENTAGE.

1. Are the words *per cent.* as applicable to any other quantity as to money?   Art. 257, Rem. 1.

2. What are the advantages of using rate per cent. in business transactions over other ratios?   Art. 257, Rem. 2.

3. Explain the terms *gain* and *loss*.   Art. 258.

4. What is the general rule applicable to questions of this kind?   ART. 258, Gen. R.

5. What is the standard of comparison?   ART. 258, N.

6. The quantity on which the gain or loss accrues, and the rate of gain or loss being given, how do you find the actual gain or loss?   ART. 259, Analysis.

7. If my rate of gain is 25 %, how must I mark goods that cost 15 ct. a yard?   ART. 259, Ex. 1.

8. If I must lose 20 % on goods damaged, how should I mark those that cost me $8.10 a yd.?   ART. 259, Ex. 2.

9. The cost of publishing a book is 50 ct. a copy; if the expense of selling it be 10 % of this, and the profit 25 %, what must it sell for per copy?   ART. 259, Ex. 9.

10. A gave $4850 for his house, and offers to sell it for 20 % less; what is his price?   ART. 259, Ex. 13.

11. What is the process of finding the rate of the gain or loss, the quantity on which the gain or loss accrues and the gain or loss being given?   ART. 260, Rem. and Analysis.

12. If I buy at $1 and sell at $4, how many per cent. do I gain?   ART. 260, Ex. 4.

13. If I buy at $4 and sell at $1, how many per cent. do I lose?   ART. 260, Ex. 5.

14. A log 1 ft. 6 in. thick is sawn into 13 boards, each $1\frac{1}{4}$ in. thick; what per cent. is wasted?   ART. 260, Ex. 12.

15. A having failed, pays B $1750 instead of $2500, which he owed; what % does B lose?   ART. 260, Ex. 19.

16. Bought a lot of glass; lost 15 % by breakage; at what % above cost must I sell the remainder to clear 20 % on the whole? ART. 260, Ex. 23.

17. The gain or loss and the rate of gain or loss being given, how do you find the quantity on which the gain or loss accrues?   ART. 261, Analysis and Rem.

18. If I sell tea at $13\frac{1}{3}$ % gain, I make thereby 10 ct. a lb.; how much a lb. did I give?   ART. 261, Ex. 3.

19. I gained this year $2400, which is 120 % of my gain last year, and that is $44\frac{4}{9}$ % of my gain the year before; what were my gains the two previous years?   ART. 261, Ex. 6.

20. The dogs killed 40 of my sheep, which was $4\frac{1}{6}$ % of my flock; how many had I left?   ART. 261, Ex. 7.

21. When the quantity after gain or loss has accrued and the rates of gain or loss are given, how do you find the quantity on which gain or loss accrues?   Art. 262, Sol. and Rem.

22. Sold out for $952.82, and lost thereby 12 %; what was the cost, and what would I have got if I had sold out at a gain of 12 %?   Art. 262, Ex. 3.

23. The population of a village increased 50 % each year on the previous one, for 4 successive years, and, at the end of the 5th, was 405; what was it at the end of each previous year?   Art. 262, Ex. 7.

COMMISSION AND BROKERAGE.

1. What is the business of a commission merchant, agent, or factor?   Art. 263.

2. When such an one lives in a different country, or part of the country from his employer, what is he frequently called? What terms are applied to the goods sent to him to be sold, and what to the person sending them?   Art. 263.

3. What is meant by the *commission* in such transactions, and how is it estimated?   Art. 263.

4. How does *brokerage* differ from *commission?*   Art. 263.

5. What, in this case, is the standard of commission, and what are the *net* proceeds of a sale?   Art. 263.

6. When the amount of sale, purchase, or collection, and the *rate* of commission are given, how do you find the commission?   Art. 265, Anal. and Rem.

7. A lawyer having a debt of $1346.50 to collect, compromises by taking 80 %, and charges 5 % for his fee; what is his *fee*, and what the *net proceeds?*   Art. 265, Ex. 5.

8. A broker sells for me 10 hhd. of sugar (9256 lb.) at 5 ct. a lb., what is his brokerage at $\frac{3}{4}$ %, and what my proceeds?   Art. 265, Ex. 13.

9. What does a tax-gatherer get for collecting a tax of $37850 at 3 %, and how much does he pay over?   Art. 265, Ex. 16.

10. How do you find the *rate* of commission where the commission and the amount of sale, purchase, or collection, are given?   Art. 266, Sug.

11. Bought flour for A; my whole bill was $5802.57, including charges $76.85, and commission $148.72; what was the rate of commission?   Art. 266, Ex. 4.

12. A tax-gatherer is paid $3711 for collecting a tax of $74220; what was the rate allowed him?   Art. 266, Ex. 10.

13. When the commission and rate of commission are given, how do you find the sum on which the commission is charged? Art. 267, N. and Sug.

14. A pork merchant charged 15 % commission, and cleared $2376.15 after paying out $1206.75 for all the expenses of packing; how many lb. of pork did he pack, if it cost $4\frac{1}{2}$ ct. a lb.? Art. 267, Ex. 3.

15. Paid $64.05 for selling coffee, which was $\frac{7}{8}$ % brokerage; what were the net proceeds?   Art. 267, Ex. 5.

16. When you have the rate of commission, and the net proceeds, or the whole cost, how do you find the sum on which the commission is charged?   Art. 268, N. and Sol.

17. Sent $1000 to buy a carriage, commission $2\frac{1}{2}$ %; what must the carriage cost?   Art. 268, Ex. 2.

18. Sold 2000 hams (20672 lb.); commission $2\frac{1}{2}$ %, guarantee $2\frac{3}{4}$ %, net proceeds due consignor $2448.34; for what did the hams sell per lb.?   Art. 268, Ex. 5.

19. Sold 1400 bbl. of flour at $6.20 a bbl.; invested the proceeds in sugar, as per order, reserving my commissions, 4 % for selling, and $1\frac{1}{2}$ % for buying, and the expense of shipping, $34.16; how much did I invest in sugar?   Art. 268, Ex. 12.

STOCKS AND DIVIDENDS.

1. What is a joint stock company, and what the business generally transacted by it?   Art. 269.

2. Define the terms *Capital, Stock, Shares, Certificate, Stockholders, Shareholders, Dividend, Rate of Dividend,* and explain their uses.   Art. 269.

3. When the *stock* and the *rate* of dividend are given, how do you find the dividend?   Art. 269, Case I.

4. A telegraph company, with a capital of $75000, declares a dividend of 7 %, and has a surplus of $6500; what has it earned? Art. 269, Ex. 7.

5. I own 24 shares of stock ($25 each) in a coal company,

which declares a dividend of 6 % ; I take my dividend in coal at 8 ct. a bushel; how much do I get?   ART. 269, Ex. 8.

6. When the *stock* and *dividend* are given, how do you find the *rate* of dividend?   ART. 270.

7. The receipts of a canal company, whose stock is $3650000, in one year are $256484; the outlay is $79383; what rate of dividend can it declare?   ART. 270, Ex. 3.

8. The *dividend* and the *rate* of dividend being given, how do you find the stock corresponding?   ART. 271, Case III.

9. A man gets $94.50 as a 7 % dividend; how many shares of stock ($50 each) has he?   ART. 271, Ex. 2.

10. The *dividend* and the *increase* being given, how do you find the original investment?   ART. 272.

11. Having received two dividends in stock, one of 5 %, the other of 8 %, my stock is increased to 567 shares; how many shares had I at first?   ART. 272, Ex. 2.

PAR, DISCOUNT, AND PREMIUM.

1. Define *Par, Discount, Premium, Money, Stocks, Drafts, Bills of Exchange, Bonds, Checks.*   ART. 273.

2. Describe respectively the *par* and *real value* of money, stocks, bonds, and drafts.   ART. 274.

3. When stocks, money, bonds, drafts, etc., are worth their face, what is said to be their value?   ART. 274.

4. When are they said to be at a discount, and when at a premium?   ART. 274.

5. Define *Discount, Premium, Rate of Discount,* and *Rate of Premium.*   ART. 275.

6. What is the standard of comparison from which the discount or premium is to be determined?   ART. 276.

7. Having the *par value*, and the *rate* of *premium* or *discount* given, how do you find the premium or discount? ART. 276, Gen. R., Case I, N.

8. Find the cost of 47 shares railroad stock ($50 each) at 30 % discount.   ART. 276, Ex. 4.

9. What is the difference between a draft on Philadelphia of $8651.40, at $1\frac{1}{4}$ % premium, and one on New Orleans for the same amount, at $\frac{1}{2}$ % discount?   ART. 276, Ex. 13.

10. If I buy 364 shares of stock ($50 each) at 16 % discount, brokerage $\frac{3}{8}$ %, and sell them at 10 % premium, brokerage $\frac{3}{4}$ %, what will be my gain?   ART. 276, Ex. 17.

11. When you have the *face*, and the *discount* or *premium*, how do you find the rate of discount or premium?   ART. 277, Case II, N.

12. Bought 112 shares of railroad stock ($50 each) for $3640; what was the rate of discount?   ART. 277, Ex. 3.

13. If the stock in last example yield 8 % dividend, what is my rate of gain?   ART. 277, Ex. 4.

14. If I sell the same stock of $5936, what rate of premium is that, and what rate of gain?   ART. 277, Ex. 5.

15. If I count my dividend as part of the gain, what is my *rate* of gain?   ART. 277, Ex. 6.

16. When you have the *discount* or *premium*, and the *rate* of *discount* or *premium* given, how do you find the *face*? ART. 278, Case III, N.

17. The discount at $7\frac{1}{2}$ % on stocks was $93.75; how many shares, at $50 each, were sold?   ART. 278, Ex. 3.

18. The premium on a draft at $\frac{7}{8}$ % was $10.36; what was the face?   ART. 278, Ex. 6.

19. If I buy uncurrent bank notes at 10 % discount, $2\frac{1}{2}$ % brokerage, and sell them at par, gaining thereby $348.75, what was the face of the notes?   ART. 278, Ex. 10.

20. When you have the *real value* and the *rate* of *premium* or *discount* given, how do you find the *face* of the drafts, stock, etc.?   ART. 279, Case IV, N.

21. Exchanged 17 railroad bonds ($500 each) 25 % below par, for bank stock, at $6\frac{1}{4}$ % premium; how many shares ($100 each) did I get?   ART. 279, Ex. 5.

22. How large a draft, at $1\frac{1}{4}$ % premium, is worth 54 city bonds ($100 each), at 12 % discount?   ART. 279, Ex. 8.

INSURANCE.

1. How many, and what kinds of INSURANCE are there? ART. 280.

2. Define *Fire* and *Marine Insurance*.   ART. 280.

3. How is property conveyed by railroads insured?   ART. 280.

4. Define each of the following terms: *Underwriter, Outdoor Insurance, Policy, Premium, Rate of Insurance, Taking a Risk.* ART. 281.

5. When the *rate of insurance* and the *amount insured* are given, how do you find the *premium?* ART. 282, Case I.

6. I insured goods, invoiced at $32760, for 3 months at $\frac{8}{10}$ %; what is the premium? ART. 282, Ex. 4.

7. An insurance company, having a risk of $25000 dollars at $\frac{9}{10}$ %, reinsured $10000 at $\frac{4}{5}$ % with another office, and $5000 at 1 % with another; how much premium did it clear above what it paid? ART. 282, Ex. 7.

8. When you have the *amount insured* and the *premium* given, how do you find the rate of insurance? ART. 283, Case II.

9. A vessel is insured for $42000; $18000 at $2\frac{1}{2}$ %, $15000 at $3\frac{4}{5}$ %, and the rest at $4\frac{2}{3}$ %; what was the rate of the whole? ART. 283, Ex. 4.

10. I took a risk at $1\frac{1}{2}$ %; reinsured $\frac{2}{5}$ of it at 2 %, and $\frac{1}{4}$ of it at $2\frac{1}{2}$ %; what rate of insurance do I get on what was left? ART. 283, Ex. 6.

11. When you have the *premium* and the rate of *insurance* given, how do you find the amount? ART. 284, Case III.

12. Paid $42.30 for insuring $\frac{5}{8}$ of my house at $\frac{9}{10}$ %; what is the house worth? ART. 284, Ex. 3.

13. Took a risk at 2 %; reinsured $10000 of it at $2\frac{1}{8}$ %, and $8000 at $1\frac{3}{4}$ %; my share of the premium was $207.50; what sum was insured? ART. 284, Ex. 6.

14. When you have the *rate of insurance* and the *amount of property to be insured* given, how do you find the amount to be insured, so as to cover both property and premium? ART. 285, Case IV, Anal.

15. What is the practical rule for insuring both property and premium? ART. 285, Prac. R.

16. I am insured to cover my library, worth $1856.20, at $\frac{6}{10}$ %; what was my premium? ART. 285, Ex. 3.

17. What sum must be insured to cover property to the value of $4840 at $\frac{3}{4}$ %, and what was the premium? ART. 285, Ex. 4.

TAXES.

1. What are *direct*, and what *indirect* taxes?   ART. 286.

2. Define a *property-tax* and a *poll-tax*, and tell how they are estimated.   ART. 286.

3. The *taxable property* and the *rate* of *taxation* being given, how do you find the property-tax?   ART. 286, Case I, N.

4. A's property is assessed at $3800; the rate of taxation is 96 ct. on the $100; what is his whole tax if he pays a poll-tax of $1?   ART. 286, Ex. 2.

5. What is the tax on property assessed at $10424.50, and two polls at $1.50 each?   ART. 286, Ex. 6.

6. When the *taxable* property and the *tax* are given, how do you find the rate of taxation?   ART. 287, Case II, N.

7. The taxable property in a town of 1742 polls is $6814320. A tax of $66913.54 is proposed. If the poll-tax of $1.25 is levied, what should be the rate of taxation?   ART. 287, Ex. 2.

8. A's tax is $53.46; he pays for 3 polls at $1.50 each, and owns $8704 taxable property; what is the rate of taxation?   ART. 287, Ex. 4.

9. When the *tax* and the *rate of taxation* are given, how do you find the assessed value of property?   ART. 288, Case III, and N.

10. A corporation pays $564.42 tax at the rate of $\frac{46}{100}$ % on the $100; find its capital.   ART. 288, Ex. 2.

11. A's income is 16 % of his capital; he is taxed $2\frac{1}{2}$ % of his income, and pays $26.04; what is his capital?   ART. 288, Ex. 5.

12. Sold a lot for $7599, which was cost and 2 % besides paid for tax; what was the cost?   ART. 289, Ex. 2.

DUTIES OR CUSTOMS.

1. Define DUTIES or CUSTOMS, and mention their kinds. ART. 290.

2. What are *Ad Valorem* duties, *Specific* duties, and *Invoices?*   ART. 290.

3. What are the allowances made in specific duties called? ART. 290.

4. Define *Draft, Tare, Gross Weight, Net Weight, Leakage,* and *Breakage.*   ART. 291.

5. What is the *rule* for calculating *Specific Duties?*   Art. 292, and N.

6. What rule is applicable to all questions involving duties, ad valorem, and why?   Art. 293, and Rem.

7. What is the duty on 50 drums of figs, each weighing 57 lb., draft as usual, tare 20 lb. to the cwt., at $12 a cwt.?   Art. 293, Ex. 5.

8. What is the duty on oil-cloth 40 yd. long, and 3 yd. 2 ft. 8 in. wide, worth 75 ct. a sq. yd., at 30 % ad valorem?   Art. 293, Ex. 12.

9. When the *invoice* of the goods and the *duty* are given, how do you find the rate of duty?   Art. 294, Case II.

10. If laces invoiced at $7618.75, cost when landed $9142.50, what is the rate of duty?   Art. 294, Ex. 2.

11. When the *duty* and the *rate* of *duty* are given, how do you find the invoice?   Art. 295, Case III.

12. The duty on 1800 yd. of silk was $337.50 at 25 % ad valorem; what was the invoice price per yd., and what must I charge per yd. to clear 20 %?   Art. 295, Ex. 2.

13. When you have the cost in store, the rate ad valorem, *and other charges*, how do you ascertain the invoice?   Art. 296, Case IV.

14. French cloths, after paying 30 % duty, and other charges, $73.80, cost in store $7389.03; what were they invoiced at?   Art. 296, Ex. 1.

INTEREST.

1. Define Interest.   Art. 297.

2. What is meant by the Principal and what by the Amount?   Art. 297.

3. When is interest payable?   Art. 298.

4. What is the *rate* of interest, and why so called?   Art. 299.

5. If no rate of interest is specified, what is it understood to be?   Art. 299.

6. If a higher rate of interest is charged than the law allows, what is it called; and what is the consequence to the party so charging?   Art. 299.

7. Give the legal rate of interest in the several States. ART. 300.

8. Define *Simple* and *Compound Interest.*   ART. 301.

9. Which of the two is the more favorable to the debtor, and why?   ART. 301.

10. How does Simple Interest differ from other applications of per centage?   ART. 302.

11. What four quantities are embraced in every question of interest, and which of them is to be taken as the standard of comparison?   ART. 303.

12. Any three of these quantities being given, how do you find the fourth?   ART. 303, Gen. R.

13. The principal, rate of interest, and time being given, how do you find the interest?   ART. 304, R. and N.

14. Where the rate of interest is greater or less than 6%, what methods are applicable?   ART. 304.

15. What other methods can you give for finding interest? ART. 305–307.

16. What practical rules can you give applicable to calculations in interest?   ART. 307, R. 1 and 2, N.

17. Where the interest is calculated, as in New York, in some other parts of the United States, and in Great Britain, for 365 days in the year, what deduction must be made from the interest when calculated for 360 days in the year?   ART. 308.

18. The simple interest of $1461.85 for 6 yr. 7 mon. and 4 days at 10 % = what?   ART. 308, Ex. 6.

19. The amount of $757.35 for 117 days at $1\frac{1}{2}$ % a month = what?   ART. 308, Ex. 27.

20. Find the simple interest of $7302.85 for 365 da. at 6 %, counting 360 da. to the year.   ART. 308, Ex. 38.

21. If I borrow $1000000 in New York at 7 %, and lend it at 7 % in Ohio, what do I gain in 180 da. ?   ART. 308, Ex. 41.

22. What is the interest of $3416.20 at 6 %, from February 3, 1859, to August 9, 1863?   ART. 308, Ex. 48.

23. The simple interest of £493 16 s. 8 d. for 1 yr. 8 mon. = what?   ART. 308, Ex. 54, Sug.

24. When the principal, interest, and time are given, how do you find the rate?   ART. 309, R. and N.

25. How do you prove the correctness of your calculations in this case?   ART. 309, Proof.

26. If I borrow $5000 for 7 yr. 6 mo. 28 da., and return $10000, what is the rate of interest?   ART. 309, Ex. 3.

27. At what rate will any sum quadruple itself in 6 or 18 years?   ART. 309, Ex. 6.

28. A house that cost $8250 rents for $750 a year; the insurance is $\frac{6}{10}$ %, and the repairs $\frac{1}{2}$ % every year; what rate of interest does it pay?   ART. 309, Ex. 11.

29. When the interest, rate, and time are given, how do you find the principal?   ART. 310, R. and N.

30. What is the method of proof applicable?   ART. 310, Proof.

31. $45 a mon. at 9 % will require what principal?   ART. 310, Ex. 3.

32. If I receive $146.05 interest in 7 mon. and 14 da. at 6 %, what is the principal?   ART. 310, Ex. 7.

33. If the amount, rate, and time are given, how do you find the principal?   ART. 311, R., N., and Sol.

34. What is the mode of proof?   ART. 311, Proof.

35. What principal in 10 mon. 26 da. will amount to $2718.96 at 10 %?   ART. 311, Ex. 2.

36. What principal at 7 % will amount to $562.07, in 79 da. (365 da. to a yr.)?   ART. 311, Ex. 4.

PRESENT WORTH.

1. What is meant by PRESENT WORTH?   ART. 312.

2. Define clearly the difference between discount as applied to present worth, and as applied to Commission and Brokerage, etc.   ART. 312.

3. Find the present worth and discount of $1476.81, due in 4 mon. and 11 da., at 6 %.   ART. 312, Ex. 2.

4. I can sell property for $7500 cash, or $4250 payable in 6 mon., and $4000 payable in 1 yr.; which should I prefer, and what do I gain by it, if money is worth 12 % to me?   ART. 312, Ex. 6.

5. When the principal, rate, and interest are given, by what process do you find the time?   ART. 313, R., N., and Sol.

6. What is the method of proof applicable? ART. 313, Proof.

7. How long will it take $1374.50, at 10 %, to pay a debt of $1480.78? ART. 313, Ex. 7.

8. How long would it take $175.12 to produce $6.43, interest at 6 %? ART. 313, Ex. 9.

9. How long would it take $415.38 to produce $10.69 interest in New York at 7 %? ART. 313, Ex. 10.

10. By what *formula* may compound proportion be applied to the solution of all problems in interest, except those involving present worth? ART. 314.

BANKING.

1. Define BANKS and BANKING. ART. 316.

2. What is the meaning of a *Promissory Note?* ART. 317.

3. What terms are applied respectively to the person who signs the note, to the person to whom the money is promised, and to the owner of the note? ART. 317.

4. When is a promissory note negotiable? ART. 317.

5. In what circumstances may a negotiable note pass from hand to hand, with or without indorsement? ART. 317.

6. What things are essential to the validity of a promissory note? ART. 317.

7. What is meant by the face of a note? ART. 317.

8. What words must a note contain in order to draw interest from date? ART. 317.

9. If it does not contain these words, when does it begin to draw interest? ART. 317.

10. What is meant by the *day of maturity*, in reference to promissory notes? ART. 317, Rem.

11. How may the *liability* of indorsers of notes be destroyed? ART. 317.

12. What is meant by *protesting* a note? ART. 317.

13. What kind of notes are legally due when presented? ART. 318.

14. If a day of payment is specified in a note, when is it really due, and by what rule may that day be found? ART. 318, N.

Ex.—8.

15. What is meant by *discounting* notes?   ART. 319.

16. What must characterize a note in order to be discounted?   ART. 319.

17. What are the *proceeds* or *cost* of a note?   ART. 319.

18. What is the *discount?*   ART. 319.

19. What is meant by the *time to run?*   ART. 319.

20. How is the time to run taken by banks, and why? ART. 319, Rem.

21. In determining the day of maturity and the time to run, what kind of a table is useful?   ART. 320.

22. What rule for finding the proceeds and discount of a note of short date has custom sanctioned?   ART. 321, Case I, R.

23. What is the distinction between *bank* discount and *true* discount?   ART. 321, N. 1.

24. Which is the greater, bank or true discount?   ART. 321, N. 2.

25. In calculating discount on notes, how may the operation be often shortened?   ART. 321, N. 3.

26. Find the day of maturity, the time to run, and the proceeds of the following notes:

1962\frac{45}{100}$.   NEW YORK, *July* 26, 1863.

Value received, four months after date, I promise to pay B. Thomas, or order, one thousand nine hundred sixty-two $\frac{45}{100}$ dollars, at the Chemical Bank.   E. WILLIAMS.

Discounted August 26, at 7 %.   ART. 321, Ex. 3.

27. 804\frac{39}{100}$.   COLUMBUS, *August* 12, 1854.

Three months after date, I promise to pay, at the City Bank of Columbus, eight hundred four $\frac{39}{100}$ dollars, to the order of Irwin and Lee, value received.   J. NEEDHAM.

Discounted September 3, at 6 %.   ART. 321, Ex. 6.

28. What is the effect if the words *jointly* and *severally* are, or are not, in a note?   ART. 321, Rem.

29. Draw a note for $3886, payable one month after date, with C. McKnight as payee, in which T. Monroe and J. Foster shall be held jointly and severally for its payment.   ART. 321, Ex. 7.

30. Draw a note with two signers, in which they can be held for its payment as a company only.   ART. 321, Ex. 8.

31. What is the simplest process you are acquainted with for finding the rate of interest when a note is discounted? ART. 322, R. and Sol.

32. When a 60 da. note is discounted at 6 % and 8 % per annum, what is the rate of interest? ART. 322, Ex. 2.

33. Which are the most profitable to a discounter, notes for a short or a long time, and why? ART. 322, Rem.

34. How does discounting notes resemble calculations in simple interest? ART. 323.

35. The proceeds, time, and rate of discount being given, by what process and rule do you find the face of the note? ART. 323, R. and Sol.

36. How may you prove your work? ART. 323, Proof.

37. What is the face of a note for 6 mon. discounted at 10 %, which yields $4850? ART. 323, Ex. 5.

38. What is the face of a 30 da. and 90 da. note, which, discounted at 6 %, will net $1000? ART. 323, Ex. 8.

39. What is the process of finding the rate of discount corresponding to a given rate of interest? ART. 324, R. and Sol.

40. What rate of discount, on 60 da. notes, will yield 10, 12, and 18 % interest per annum? ART. 324, Ex. 2.

PARTIAL PAYMENTS.

1. Define PARTIAL PAYMENTS. ART. 325.

2. Give the United States rule for calculating partial payments. ART. 325, U. S. R.

3. $1750. NEW YORK, *November* 22, 1852.
For value received, two years after date, I promise to pay to the order of Spencer and Ward, seventeen hundred and fifty dollars, with interest at 7 %. JACOB WINSTON.
Indorsed, Nov. 25, 1854, $500; July 18, 1855, $50; Sept. 1, 1855, $600; Dec. 28, 1855, $75. What was due Feb. 10, 1856? ART. 325, Ex. 4.

4. What is the *Connecticut Rule* applicable to partial payments? ART. 326.

5. What is the *Vermont Rule?* ART. 327.

EXCHANGE.

1. Define EXCHANGE.   ART. 328.

2. When is exchange *Foreign*, and when *Home*, *Domestic*, or *Inland?*   ART. 328.

3. Define a *Bill of Exchange*, a *Sight Bill*, and a *Time Bill*. ART. 328.

4. Define, also, the *Drawer*, *Drawee*, *Payee*, and *Holder* of a bill of exchange.   ART. 328.

5. How does the owner or holder of a bill of exchange become responsible for its payment?   ART. 328.

6. What is a special indorsement on a bill of exchange? ART. 328.

7. When the indorsement is blank, what is done?   ART. 328.

8. What is meant by *Acceptor* and *Acceptance*, in transactions of this kind?   ART. 328.

9. In what respects is a bill of exchange like a promissory note?   ART. 329.

10. Write first an inland, and then a foreign draft.   ART. 330.

11. Are the words *value received* essential to a bill of exchange?   ART. 330, N. 1.

12. What is done with bills of foreign exchange to meet the difficulty should one be lost?   ART. 330, N. 2.

13. Explain the rate of exchange, and show on what it depends.   ART. 331.

14. How do the calculations connected with foreign, differ from those connected with home exchange?   ART. 332.

15. What is meant by the *par of exchange*, and on what does it depend?   ART. 332.

16. What is the *course of exchange*, and on what does it depend?   ART. 332.

17. When the course of exchange is known, how is the cost of a bill found?   ART. 332.

18. If the rate of exchange is given, how?   ART. 332.

19. What is true as to the rate or course of exchange being given, in respect to different countries?   ART. 332, N. 1.

20. In comparing U. S. money with sterling money, what form of reckoning is still customary, and why? ART. 332, N. 2.

21. When is sterling money actually par, above, and below par? ART. 332, N. 2.

22. What is the cost of a 30 da. bill on New Orleans, for $7216.85 at $\frac{3}{8}$ % discount, interest off at 6 %? ART. 334, Ex. 2.

23. What must be the face of a draft to cost $2000 at $\frac{5}{8}$ % premium? ART. 334, Ex. 5.

24. What is the cost in New York of a draft on London for £2748 11 s. 6 d., at 10 % premium? ART. 335, Ex. 1.

25. What is the face of a draft on Philadelphia, costing £1500, at $9\frac{1}{4}$ % premium for sterling? ART. 335, Ex. 4.

26. What will be the cost at Lisbon of a draft on the United States for $3542.60, at 1 milree = $1.28? ART. 335, Ex. 13.

27. Define exchange, *Direct and Circular.* ART. 336.

28. What is meant by *Arbitration of Exchange?* ART. 336.

29. What is meant by the *Chain Rule* applicable to calculations in exchange? ART. 337.

30. If 3 men do as much as 7 women, and 10 women as much as 27 boys, and 42 boys as much as 75 girls, and 36 girls can bind 500 sheaves in an hour, how many can 12 men bind in an hour? ART. 337, Ex. 10.

ACCOUNTS CURRENT.

1. Define an ACCOUNT CURRENT. ART. 338.

2. Give an example of a *bank* account current, containing 6 or 8 items on the Dr., and the same number on the Cr. side. ART. 338.

3. Explain the columns on each side of the account, and show how the account is settled. ART. 338.

4. Give the rules for such settlement. ART. 338, R.

5. What is the rule for balancing a *merchant's* account current? ART. 339, R. and Rem.

6. Define STORAGE ACCOUNTS, and give the rule for their settlement. ART. 340, and R.

EQUATION OF PAYMENTS.

1. Describe what is meant by EQUATION OF PAYMENTS. ART. 341.

2. Give the process and the rule for finding the *average*, where there are only *debits*.   ART. 341, Sol. and R.

3. What is the method of proof?   ART. 341, Proof.

4. What the process and rule where there are *credits* as well as *debits?*   ART. 342, Sol. and R.

5. When will the balance draw interest, and when suffer discount?   ART. 342, Rem.

6. I owe $912 due Oct. 16, and $500 due Dec. 20.   If I pay the first Oct. 1, 15 da. before it is due, when should I pay the last?   ART. 343, Ex. 6.

7. I buy property for $12000, $\frac{1}{3}$ in cash, and the balance in two equal payments, at 3 and 6 months.   I pay $\frac{1}{4}$ down, and the balance in 3 equal payments at equal intervals; what is the interval?   ART. 243, Ex. 13.

COMPOUND INTEREST.

1. What is COMPOUND INTEREST, and how does it differ from Simple Interest?   ART. 345.

2. In what respect is Compound Interest like Simple Interest?   ART. 346.

3. When the *principal, time,* and *rate* are given, how do you find the compound interest and amount?   ART. 347, Case I, Sol., R., and N.

4. The compound interest of $13062.50, for 1 yr. 10 mon. 12 da., payable quarterly, at 8 % = what?   ART. 347, Ex. 2.

5. If I start with $5000, and increase my capital 15 % every year, what will it be in 6 years?   ART. 347, Ex. 8.

6. What is the use of *tables* in computing compound interest?   ART. 348.

7. Find, by a suitable table, the compound interest and amount of $9401.50, for 19 yr. 4 mon., at 9 %, payable semi-annually.   ART. 348, Ex. 14.

8. The *principal, time,* and *interest* being given, how do you find the rate?   ART. 349, Case II, R. and N.

9. At what rate will $2813.50 amount to $13276.03, in 17 yr. 7 mon. and 14 da. int. semi-annually?   ART. 349, Ex. 4.

10. At what rate will any sum double itself by compound interest, in 8 and 10 years?   ART. 349, Ex. 6.

11. The *compound interest*, the *time*, and *rate* being given, how do you find the principal?   · ART. 350, R.

12. What sum in 6 yr. 2 mon. will yield $1625.75, compound interest at 7 %, payable semi-annually?   ART. 350, Ex. 2.

13. When the *compound amount*, the *time*, and *rate* are given, how do you find the principal?   ART. 351, R. and N.

14. How do you prove the correctness of such calculations? ART. 351, Proof.

15. What principal, in 7 yr., at 4 % compound interest, will amount to $27062.85?   ART. 351, Ex. 1.

16. Find the present worth of $14625.70, due in 5 yr. 9 mon., at 6 % compound interest, payable semi-annually.   ART. 351, Ex. 2.

17. When the *principal*, *rate*, and *compound interest*, or *amount* are given, how do you find the time?   ART. 352, Case v, R.

18. What is the mode of proof?   ART. 352, Proof.

19. In what time will $8000 amount to $12000, at 6 % compound interest?   ART. 352, Ex. 1.

20. In what time will $5200 draw $1308 compound interest, at 6 %, payable semi-annually?   ART. 352, Ex. 3.

ANNUITIES.

1. To what is Compound Interest principally applicable? ART. 353.

2. Define an ANNUITY.   ART. 353.

3. What are comprised under *annuity?*   ART. 353.

4. Whence the derivation of the term?   ART. 353.

5. Define a *Perpetuity*, an *Annuity Certain*, and a *Contingent Annuity*.   ART. 353.

6. What is meant by an *immediate* annuity, and a *deferred* annuity, or an annuity *in reversion?*   ART. 354.

7. Define the terms *forborne* or *final value* of an annuity, the *present value* of an annuity, the *initial value* of an annuity, and its *present value*.   ART. 354.

8. When does an annuity properly begin?   ART. 354.

9. When the *rate*, the *payment*, and the *interval* are given, how do you find the initial value of a perpetuity?   ART. 355, R. and N.

10. What must I pay for a perpetual lease of $756.40 a year, to secure 8 % interest? ART. 355, Ex. 2.

11. What is the initial value of a perpetual leasehold of $1600 a year, payable semi-annually, allowing 5 % interest, payable annually? ART. 355, Ex. 4.

12. When the *payment*, the *interval*, the *rate*, and the *time the perpetuity is deferred* are given, how do you find the present value of a deferred perpetuity? ART. 356, Sol. and R.

13. Find the present value of the reversion of a perpetuity of $540 a year, deferred 10 yr., interest 6 %. ART. 356, Ex. 3.

14. How do you find the present value of an *annuity certain*, when the *rate*, the *payment*, the *interval*, and the *time to run* are given? ART. 357, R. and N.

15. Find the present value of an annuity of $826.50, to commence in 3 yr., and run 13 yr. 9 mon., interest 6 %, payable semi-annually. ART. 357, Ex. 5.

16. When the *payment*, the *interval*, the *rate*, and the *time to run* are given, how do you find the final or forborne value of an annuity? ART. 358, Sol., R., Rem.

17. A pays $25 a year for tobacco; how much better off would he have been in 40 yr. if he had invested it at 10 % per annum? ART. 358, Ex. 2.

18. B pays $150 a year to have his life insured for $5000; if he dies in 20 yr. does the insurance company gain or lose by him, and how much? ART. 358, Ex. 5.

19. When the *rate*, *time to run*, and the *present* or *final value* of an annuity are given, how do you find the payment? ART. 360, R., N., and Sol.

20. How much a year should I pay to receive $15000 at the end of 17 yr., interest 7 % ? ART. 360, Ex. 2.

21. When the *payment*, the *rate*, and *present value* of an annuity are given, how do you find the time it runs? ART. 361, Sol., R., and N.

22. In how many years can a debt of $22000, drawing 7 % interest, be discharged by a sinking fund of $2500 a year? ART. 361, Ex. 3.

23. When the *payment, time to run,* and *present value* of an annuity are given, how do you find the rate of interest? Art. 362, R.

24. If $9000 is paid for an *immediate* annuity of $750, to run 20 yr., what is the rate? Art. 362, Ex. 1.

CONTINGENT ANNUITIES.

1. What are comprised in Contingent Annuities? Art. 363.

2. Explain life-insurance, and the following terms connected with it: *Annual Premium, Bills of Mortality, Expectation of Life.* Art. 363.

3. How do you find the value of a given annuity on the life of a person whose age is known? Art. 364, R. and N.

4. What must be paid for a life annuity of $650 a year, by a person aged 72 yr., interest 7 %? Art. 364, Ex. 1.

5. What is the process of finding how large a life annuity can be purchased for a given sum, by a person whose age is known? Art. 365, R.

6. How large an annuity can be purchased for $1200, age 43, interest 5 %? Art. 365, Ex. 2.

7. What are the process and rule for finding the present value of the *reversion* of a given annuity; that is, what remains of it, after the death of the possessor, whose age is known? Art. 366, R. and N.

8. Find the present value of the reversion of a lease of $1600 a year, for 40 yr., after the death of A aged 62, interest 7 %. Art. 366, Ex. 3.

9. What are the method and rule for finding the single and annual premium, paid by one of a given age to secure a given sum at death? Art. 367, R. and N.

10. Find the single and the annual premium necessary to secure $1000 at the death of a person aged 32, allowing interest at 5 %. Art. 367, Ex. 1.

11. If the holder of a life-insurance policy wishes to sell it, or surrender it to the company, how may he ascertain its value? Art. 368, R.

Ex.—9.

12. What the value of a policy when the premium in it is $74, the premium now, $82, age 42 yr., int. 5 % ?   ART. 368, Ex. 2.

PROPORTIONAL PARTS.

1. Give the process and rule for dividing any number into *proportional parts.*   ART. 369, Sol., R., and N.

2. Divide 60 apples among 3 boys in proportion to their ages, which are 7, 10, and 13.   ART. 369, Ex. 2.

3. $\frac{2}{9}$ of A's money is equal to $\frac{2}{5}$ of B's, and both have $222; how much has each?   ART. 369, Ex. 4.

4. Divide the cost of a supper, $4.50, among 3 persons, in proportion to their money; A has $100, B $75, and C $125.   ART. 369, Ex. 7.

5. Divide 1065 in the proportion of 3, 5, and 7, also in the proportion of $\frac{1}{3}$, $\frac{1}{5}$, and $\frac{1}{7}$.   ART. 369, Ex. 11.

6. Pewter is 112 parts tin, 15 lead, and 6 brass; how much of each ingredient in 2 lb. 1 oz. 4 dr. of pewter?   ART. 369, Ex. 14.

PARTNERSHIP.

1. Define PARTNERSHIP.   ART. 370.

2. Define *firm, house,* or *company, capital, stock,* and *dividend.*   ART. 370.

3. What is meant by SIMPLE FELLOWSHIP, and COMPOUND FELLOWSHIP?   ART. 370, Rem.

4. How will you divide the gain or loss, when each partner's stock has been employed for the same time?   ART. 370, Case I, Sol., R.

5. A pasture rents for $160; A puts in 24 cattle, B 20, C 60, D 96, and they pay in proportion; what does each pay?   ART. 370, Ex. 3.

6. A, B, and C, in partnership, have capital respectively $19200, $24000, and $32400; they sell out for $100000; how much does each get?   ART. 370, Ex. 9.

7. A, B, and C have a joint capital stock of $27000; neither withdraws from the firm, and when they dissolved A had $20000, B $16000, and C $12000; what sum did each contribute?   ART. 370, Ex. 12.

8. What modification of this process is necessary when the capital of the partners is employed for different times?   ART. 371, Sol.

9. What rule is applicable in this case?   ART. 371, R.

10. What is the method of proof?   ART. 371, Proof.

11. A and B are partners, each contributing $1000; after 3 months, A withdraws $400, which B advances; the same is done after 3 months more; their year's gain is $800; what should each get?   ART. 371, Ex. 4.

12. A's gain is $1800, B's $2250, C's 3200; A's capital was employed 6 mon., B's 9 mon., and C's 1 yr. and 4 mon.; how much of the capital, $27450, did each own?   ART. 371, Ex. 15.

BANKRUPTCY.

1. Define a BANKRUPT.   ART. 372.

2. Define the terms *assignee* and *pro rata*.   ART. 372.

3. What is the rule for dividing the property of a bankrupt?   ART. 372, R. and N.

4. A bankrupt's estate is worth $16000; his debts are $47500. The assignee charges 5 %. What is paid on the dollar; what does B get, whose claim is $3650?   ART. 372, Ex. 3.

GENERAL AVERAGE.

1. What is meant by the term GENERAL AVERAGE, and to what, and how is it applied?   ART. 373.

2. In estimating the expenses of repairs or losses, etc., how are the goods on board ship, and the freight, valued?   ART. 373.

3. What deduction is made, and from what, for seamen's wages?   ART. 373.

4. If the loss is for repairs, what is done?   ART. 373.

5. Give the rule applicable to general average.   ART. 373, R.

6. The brig Adams, of New York, bound to New Orleans, suffered damage, $480, and loss of cargo, $5600. The vessel was valued at $18800; the freight, $3200; the cargo, $29600. Divide the loss, and settle A's account, who shipped $14400, and lost $1800. ART. 373, Ex. 2.

RATE BILLS FOR SCHOOLS.

1. What are RATE BILLS, and what is the rule for making them out?   ART. 374, R. and N.

2. The salary of a teacher is $35 per month; the other expenses for 1 quarter, $6.80; the public money is $10.20; the whole number of days of attendance is 1120; what is the rate per day, and what is E's bill, who has sent 48 days?   ART. 374, Ex. 4.

ALLIGATION.

1. Define ALLIGATION, and state its use.   ART. 375.

2. What term is applied to the result obtained by alligation?   ART. 375.

3. The cost and quantity of each ingredient being known, how do you find the average price of a mixture?   ART. 375, Sol., R., and N.

4. Find the average price of 40 hogs at $8 each, 30 at $10 each, 16 at $12.50, and 54 at $11.75 each.   ART. 375, Ex. 2.

5. Find the specific gravity of a compound of 15 lb. of copper, specific gravity $7\frac{3}{4}$; 8 lb. of zinc, specific gravity $6\frac{7}{8}$; and $\frac{1}{4}$ lb. of silver, specific gravity $10\frac{1}{2}$.   ART. 375, Ex. 4.

6. By what process do you find what proportion of several ingredients, whose prices are known, must be used to form a mixture of a given price?   ART. 376^a, Anal., N.

7. What is the method of proof?   ART. 376^a, Proof.

8. What relative quantities of tea, worth 25, 27, 30, 32, and 45 ct. per lb., must be taken for a mixture worth 28 ct. per lb.?   ART. 376^a, Ex. 2.

9. What relative quantities of pure gold (24 carats), and 18 carats, and 20 carats, must be taken to make 22 carat gold?   ART. 376^a, Ex. 7.

10. When the prices of the ingredients, and the quantity and prices of the mixture are given, how do you find the quantity of each ingredient?   ART. 376^b, Sol. and R.

11. What is the method of PROOF?   ART. 376^b, Proof.

12. How much gold, 15 carats fine, 20 carats fine, and pure, will make a ring 18 carats fine, weighing 4 pwt. 16 gr.?   ART. 376^b, Ex. 2.

13. The price of the mixture, the prices of the ingredients, and the quantity of one ingredient being given, how do you find the quantities of the other ingredients, and of the mixture?   ART. 377, R., N., and Sol.

14. A jeweler has 3 pwt. 9 gr. of old gold, 16 carats fine; how much United States gold, $21\frac{2}{5}$ carats fine, must be mixed with it to make it 18 carats fine? ART. 377, Ex. 3.

15. When the price of the mixture, the price of each ingredient, and the quantities of two or more ingredients are given, how do you find the quantities of the remaining ingredients, and of the mixture? ART. 378, Sol., R.

16. What is the mode of proof applicable? ART. 378, Proof.

17. How much water, with 3 pt. of alcohol 96 % strong, and 8 pt. 78 %, will make a mixture 60 % strong? ART. 378, Ex. 2.

18. When the quantity and price of the mixture, the quantities and prices of one or more ingredients, and the prices of the remaining ingredients are given, how do you find the quantities of the remaining ingredients? ART. 379, Sol., R.

19. What quantities of tea, at 25 ct. and 35 ct. a lb., with 14 lb. at 30 ct., and 20 lb. at 50 ct., and 6 lb. at 60 ct., will make 56 lb. at 40 ct.? ART. 379, Ex. 2.

INVOLUTION.

1. Define INVOLUTION. ART. 380.

2. Describe a *power* and its *root*. ART. 380.

3. What is meant by the *degree* of a power, and how is the degree indicated? ART. 380.

4. How are the different powers of numbers designated? ART. 380.

5. What is the process of finding any power of any number? ART. 381, R. and N.

6. When the exponent of a required power is a composite number, by what short process may the required result be obtained? ART. 382.

7. To what is any power of a common fraction equal, and what is the process of finding it? ART. 383.

8. How do you find any power of a decimal? ART. 384.

9. The fifth power of 6 = what? ART. 384, Ex. 3.

10. 1^{10} = what? ART. 384, Ex. 5.

11. The fifth power of $\frac{7}{8}$ = what? ART. 384, Ex. 8.

12. The third power of .046 = what? ART. 384, Ex. 11.

13. $(7.62\frac{1}{2})^2$ = what? ART. 384, Ex. 14.

EVOLUTION.

1. Define EVOLUTION.   ART. 385.
2. What other name is given to the operation?   ART. 385.
3. How are *degrees* applied to *roots?*   ART. 386.
4. What signs are used to indicate the various roots of numbers?   ART. 387.
5. Indicate in both ways the square root of 7; the cube root of 5; and the fourth root of 64.   ART. 387.
6. To what is any root of 1 equal?   ART. 387, N.

THE SQUARE ROOT.

1. Define the SQUARE ROOT of a number.   ART. 388.
2. If the root of a number can not be *exactly* obtained, what is that number called?   ART. 388.
3. What relation does the *number* of figures in the square root of a number bear to those in that number?   ART. 389.
4. If a number is composed of tens and units, of what will its square consist?   ART. 389, Prop.
5. Give the process and the rule for finding the square root of any number.   ART. 390, R. and N.
6. Find the square root of 49098049.   ART. 390, Ex. 6.
7. $\sqrt{185640625} = $ what?   ART. 390, Ex. 7.
8. $\sqrt{386^3} = $ what?   ART. 390, Ex. 12.
9. To what is the square root of a common fraction equal?   ART. 391.
10. What is the process of finding the square root of a common fraction and of a mixed number?   ART. 391, N. 1, 2.
11. $\sqrt{\frac{4}{7}}$; $\sqrt{\frac{176}{275}}$; $\sqrt{90\frac{5}{8}} = $ what respectively?   ART. 391, Ex. 1, 3, 6.
12. What is the process of finding the square root of decimals?   ART. 392, N. 1, 2, 3.
13. Extract the square root of 2.135 to thousandths place.   ART. 392, Ex. 3.
14. $\sqrt{\frac{7}{8}}$ in decimal hundredths = what?   ART. 392, Ex. 2.
15. What is the rule for the contracted method of extracting the square root of decimals?   ART. 392, R.
16. To what is the extraction of the square root applicable?   ART. 393–397.

17. By what rule do you find the side of a square of a given area?   ART. 393, Sol. and R.

18. What length of fencing will be necessary for a square field containing 8 A. 2 R. 9 P.?   ART. 393, Ex. 2.

19. What is a *triangle?*   ART. 394.

20. Describe a *right angled triangle*, and also its *hypotenuse*. ART. 394.

21. How do you find the length of the hypotenuse, when the length of the perpendicular sides are known?   ART. 395, Sol. and R.

22. What is the method of finding either of the perpendicular sides, when the other side and hypotenuse are given? ART. 396, Sol. and R.

23. What is saved by following the diagonal instead of the sides of a rectangle which are respectively 69 and 92 rods?   ART. 396, Ex. 3.

24. A boat in crossing a river 500 yd. wide drifted with the current 360 yd.; how far did it go?   ART. 396, Ex. 4.

25. Similar figures are in what ratio to each other?   ART. 397.

26. What follows from this?   ART. 397, 1st and 2d.

27. One square is $12\frac{1}{4}$ times another; how many times does the side of the *first* contain the side of the *second?*   ART. 397, Ex. 1.

CUBE ROOT.

1. Define the CUBE ROOT of a number.   ART. 398.

2. What is an *imperfect cube*, and to within what may any cube root be found?   ART. 398.

3. The cube of any number composed of tens and units will consist of what orders?   ART. 399, Prop.

4. Can you demonstrate the truth of this?   ART. 399, Dem.

5. Describe the process and give the rule applicable to the extraction of the cube root.   ART. 400, R. and N.

6. Find the cube root of 7301384.   ART. 400, Ex. 3.

7. What signs indicate that the cube root is to be extracted?   ART. 398.

8. $\sqrt[3]{782^5} =$ what?   ART. 400, Ex. 8.

9. How do you find the cube root of a common fraction? Art. 401, R. 1.

10. Give the process and the rule for finding the cube root of decimals.   Art. 402, R. and N.

. 11. $\sqrt[3]{\frac{4}{9}}$, $\sqrt[3]{\frac{45}{75}}$, and $\sqrt[3]{\frac{2808}{43875}}$ = what respectively?   Art. 401, Ex. 1, 3, 5.

12. $\sqrt[3]{32.65}$ = what?   Art. 403, Ex. 3.

13. Describe the contracted method of finding the cube root of decimals.   Art. 403.

14. $\sqrt[3]{\frac{2}{3}}$ = what, expressed decimally?   Art. 403, Ex. 10.

15. Give a rule for finding the side of a cube containing a given solidity.   Art. 404, R.

16. Find the side of a cube equal to a rectangular solid 14 ft. 5 in. long, 6 ft. 8 in. wide, and 3 ft. 2 in. high.   Art. 404, Ex. 2.

17. What relation do similar solids bear to each other, and what follows from this relation?   Art. 405, 1st and 2d.

18. The lengths of two similar solids are 4 in. and 50 in.; the first contains 16 cu. in., what does the second contain?   Art. 405, Ex. 1.

19. What is *Horner's* method of extracting any root?   Art. 406, R.

20. How may that process be often shortened?   Art. 407.

21. When the index of the root to be extracted is a composite number, how may the process be shortened?   Art. 407.

SERIES.

1. Define a Series.   Art. 408.

2. The numbers which form a series are called what? Art. 408.

3. What is meant by the terms *Ascending Series* and *Descending Series*, and what are the *Extremes*?   Art. 408.

4. Describe Arithmetical Series.   Art. 409.

5. What is the process for finding the last, or any term, of an arithmetical series, when the first term, common difference, and the number of terms, are known?   Art. 410, R.

6. Find the 18th term of the series 100, 96, etc. Art. 410, Ex. 2.

7. Find the 64th term of the series $3\frac{1}{2}$, $5\frac{3}{4}$, etc.   Art. 410, Ex. 3.

8. The last term, common difference, and number of terms being known, how do you find the first term? ART. 411, R. and N.

9. What will be the first term of the series 68, 71, etc., having 19 terms? ART. 411, Ex. 1.

10. Find the first term of the series $18\frac{3}{4}$, $12\frac{1}{2}$, $6\frac{1}{4}$, having 365 terms. ART. 411, Ex. 3.

11. How do you find the common difference when the extremes and number of terms are known? ART. 412, R.

12. Find the common difference of a series whose extremes are $4\frac{1}{2}$ and $20\frac{3}{4}$, and number of terms 14. ART. 412, Ex. 2.

13. Find the common difference of a series whose 44th term is 150, and 19th term 30. ART. 412, Ex. 3.

14. The extremes and common difference being known, how do you find the number of terms? ART. 413, R.

15. What is the number of terms in a series whose extremes are 3 and $10\frac{1}{2}$, and common difference $\frac{3}{8}$? ART. 413, Ex. 2.

16. What is the method of inserting a given number of arithmetical means between two given numbers? ART. 414, R.

17. Insert 5 arithmetical means between 6 and 30. ART. 414, Ex. 2.

18. Insert 4 arithmetical means between 2 and 3. ART. 414, Ex. 4.

19. The extremes and number of terms being known, how do you find the sum of an arithmetical series? ART. 415, R. and N.

20. What is the sum of the arithmetical series 1, 2, 3, etc., having 10000 terms? ART. 415, Ex. 3.

21. Find the sum of the arithmetical series 4.12, 17.25, 30.38, etc., having 250 terms. ART. 415, Ex. 6.

GEOMETRIC SERIES.

1. How is a GEOMETRIC SERIES formed? ART. 416.

2. What is the fixed number by which you multiply called? ART. 416.

3. What is the process of finding the last, or any term, of a geometric series, when the first term, the common ratio, and the number of terms are known? ART. 417, R. and N.

4. Find the last term of the series 2, 5, $12\frac{1}{2}$, having 6 terms. ART. 417, Ex. 2.

5. What is the 10th term in a series whose first term is 4, and common ratio 3?   ART. 417, Ex. 4.

6. When the last term, number of terms, and common ratio are known, how do you find the first term?   ART. 418, R. and N.

7. Find the first term in a series whose 9th term is 576, and common ratio 3.   ART. 418, Ex. 3.

8. How do you find the common ratio when the extremes and number of terms are known?   ART. 419, R.

9. Find the common ratio of a series whose first term is 8, and 4th term 512.   ART. 419, Ex. 1.

10. What is the method of inserting a given number of geometric means between two given numbers?   ART. 420, R.

11. Insert 4 geometric means between 6 and 192.   ART. 420, Ex. 2.

12. What is the process by which to find the sum of all the terms in a geometric series, when the extremes and common ratio are known?   ART. 421, R., N.

13. Find the sum of 16384, 8192, etc., to 20 terms.   ART. 421, Ex. 2.

14. If the 4th term of a series be 216, the 8th term $42\frac{2}{3}$, and the number of terms 10, what is the sum of them all?   ART. 421, Ex. 7.

PERMUTATIONS.

1. What do you understand by PERMUTATION, in an arithmetical sense?   ART. 422.

2. How can you find the number of changes possible with a given number of objects, using them all each time?   ART. 422, R.

3. How many changes are possible with the letters that compose the word *anthem?*   ART. 422, Ex. 2.

4. In how many different ways may the 8 notes of an octave be written?   ART. 422, Ex. 4.

5. By what process can you find the number of permutations of a given number of objects, using a given number less than all each time?   ART. 423, R.

6. How many changes can be made with 5 letters, using 2 each time?   ART. 423, Ex. 2.

COMBINATIONS.

1. What are COMBINATIONS, in an arithmetical sense? ART. 424.

2. What is the process of finding the number of combinations possible, with a given number of objects, using a given number of them each time?   ART. 424, R.

3. How many combinations of 9 letters are possible, taken 4 in each set?   ART. 424, Ex. 2.

SYSTEMS OF NOTATION.

1. What is the *radix* of any System of Notation?   ART. 425.

2. What is the *radix* of the ordinary, or decimal system? ART. 425.

3. How do you change a number in the decimal system to any other system whose radix is known?   ART. 426, R. and N.

4. Change 8764 in the decimal system to such numbers as have 2, 5, and 9 as a radix, respectively.   ART. 426, Ex. 1.

5. How can you reduce a number in any system whose radix is known, to the decimal system?   ART. 427, R.

6. Reduce 7056341 in the system whose radix is 8, and 201221 in the system whose radix is 3, to the decimal system.   ART. 427, Ex. 1.

7. By what process can you change a number in any system whose radix is known, to any other system whose radix is known?   ART. 428, R.

8. Change 4210532 from the system whose radix is 6, to another whose radix is 4.   ART. 428, Ex. 1.

DUODECIMALS.

1. What is the radix of the *duodecimal* system, and to what practical purposes is this system mostly applied?   ART. 429.

2. What is the unit of the system, and what are its various denominations called?   ART. 429.

3. What general rule applies to all operations under this system? ART. 430, R.

4. How are the units and parts of units indicated in this system; or, in other words, what are the symbols applied to the different denominations? ART. 430, Rem.

5. 3 ft. 2′ 6″+1 ft. 8″ 10‴+4 ft. 7′ 9‴ = what? ART. 430, Ex. 1.

6. 20 ft. 10″—14 ft. 9′ 7″ 8‴ = what? ART. 430, Ex. 2.

7. What is the surface of a floor 32 ft. 8′ 4″ long by 21 ft. 6′ 8″ wide? ART. 430, Ex. 5.

8. What is the solidity of a log 16 ft. 2′ 4″ long by 1 ft. 9′ wide and 10′ 6″ thick? ART. 430, Ex. 6.

9. 14 ft. 3′ 11″ 4‴÷8 = what? ART. 430, Ex. 7.

10. How long must a board be that is 1 ft. 5′ wide, to contain 19 sq. ft. 1′ 2‴ 7⁗? ART. 430, Ex. 12.

MENSURATION OF SURFACES.*

1. What is a *parallelogram?* ART. 431.

2. If the adjacent sides are perpendicular to each other, what term is applied to the figure? ART. 431.

3. What is the method of finding the area of any parallelogram, rectangle, or square? ART. 431, R. and N.

4. Define a *triangle*, its *base* and *altitude*. ART. 432.

5. What is the process of finding the area of a triangle with the base and altitude given? ART. 432, R.

6. What is the process of finding the area of a triangle with the three sides given? ART. 432, R.

7. What is a *trapezoid?* ART. 433.

8. How do you find the area of a trapezoid? ART. 433, R. and N.

9. What rule can you give for finding the area of any irregular figure bounded by four or more straight lines? ART. 434, R.

10. How is *Plasterers'*, *Painters'*, and *Pavers'* work computed? ART. 435.

11. What is a *circle*, and what is meant by the *diameter* and the *radius?* ART. 436.

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*For problems in Mensuration, such as all candidates should be able to solve readily, see RAY'S HIGHER ARITHMETIC and RAY'S THREE THOUSAND TEST EXAMPLES.

12. How is the circumference of a circle found from the diameter? ART. 437, R. and N.

13. What is the method of finding the diameter of a circle from its circumference? ART. 438, R.

14. How is the *area* of a circle found from its diameter, or from its circumference? ART. 439, R.

15. How do you find the area of a circle from the circumference and diameter? ART. 439, R. 3.

16. With what rule for finding the area of a triangle is this one identical, and why? ART. 439, N.

17. How is the diameter or circumference of a circle found from the area? ART. 440, R.

MENSURATION OF SOLIDS.

1. Define a *prism*. ART. 441.

2. Of what forms may the bases of this solid be, and how is it designated accordingly? ART. 441.

3. When is the prism called a *parallelopiped*, and when a *cylinder?* ART. 441.

4. What is the *altitude* of a prism? ART. 441.

5. What is the process of finding the solidity of any prism or cylinder? ART. 442, N.

6. Describe a *pyramid*. ART. 443.

7. Why may a pyramid be called triangular, quadrangular, etc.? ART. 443.

8. If the base is a circle, what is the solid called? ART. 443.

9. What is the *altitude* of a pyramid or cone, and what is the *vertex?* ART. 443.

10. How do you find the solidity of any pyramid or cone? ART. 444, R.

11. Define a *right* prism, or *right* cylinder, and state where on the base the altitude falls. ART. 445.

12. Define the *surface* of a solid, the *convex* surface, and the *slant hight*. ART. 446.

13. What is the process of finding the convex surface of a right prism, or right cylinder? ART. 447, R. and N.

14. How do you find the convex surface of a right pyramid, or right cone? ART. 448, R. and N.

15. Define a *sphere* or *globe,* its *center, diameter,* and *radius.* ART. 449.

16. How do you find the surface of a sphere from its diameter?   ART. 450, R. and N.

17. How is the solidity of a sphere found from its diameter; also from its surface and diameter?   ART. 451, R. and N.

18. Describe the *frustum* of a pyramid or cone, also its altitude and slant hight.   ART. 452.

19. By what method is the convex surface of a frustum of a right pyramid or right cone found?   ART. 453, R. and N.

20. What is the rule for finding the solidity of a frustum of a right pyramid, or frustum of a right cone?   ART. 454, R.

MASONS' AND BRICKLAYERS' WORK.

1. How is the work of *Masons* and *Bricklayers* measured? ART. 455.

2. How do you find the number of perches in a piece of masonry?   ART. 456, R. and N.

GAUGING.

1. What is meant by *gauging?*   ART. 457.

2. What is the process of gauging any vessel in the form of a *rectangular solid, cylinder, frustum* of a cone, etc. ?   ART. 457, R. and N.

3. How do you find the contents in gallons of a cask or barrel ?   ART. 458, R. and N.

TUNNAGE OF VESSELS.

1. What is the *Carpenters' Rule* for ascertaining the tunnage of vessels ?   ART. 459.

2. What is the *Government Rule* for the same purpose? ART. 459, Gov. Rule.

3. What is a still more accurate method?   ART. 460, R. and N.

MECHANICAL POWERS.

1. Name the MECHANICAL POWERS.   ART. 461.

2. Define *power, weight,* and *friction,* as applied to machinery.   ART. 461.

3. What is the ratio usually allowed of friction to the power applied? ART. 461.

4. What is the proportion by which to compare the power and weight in a machine? ART. 462, R. and N.

5. Define the *lever* and its *fulcrum*. ART. 463.

6. How many and what kinds of levers are there? ART. 463, 1st, 2d, 3d.

7. By what rule do you determine the relative power and weight in any lever? ART. 464, R. and N.

8. The *wheel* and *axle* being a sort of lever, explain severally the *fulcrum* and *lever*, and *how* and *where* the power and weight act. ART. 465.

9. What is the proportion applicable to the wheel and axle? ART. 465, R. and N.

10. Explain the *inclined plane* and its uses. ART. 466.

11. By what rule are calculations thereon made? ART. 466, R.

12. Define the *screw*. ART. 467.

13. How is the power applied, and the weight moved? ART. 467.

14. What proportion is applicable to calculations on this power? ART. 467, R. and N.

15. Explain the *pulley*. ART. 468.

16. What advantage arises from using a *single* pulley? ART. 468.

17. In a system of pulleys, what advantage is gained, and how? ART. 468.

18. What proportion is applicable to calculations on this power? ART. 468, R.

19. Define the *wedge*, and explain the method of making calculations thereon. ART. 468, N.

20. By what rule is the pressure of the steam, in pounds, on each square inch of the surface of the boiler of a steam-engine, ascertained? ART. 469, R. and N.

21. How is the horse-power of a steam-engine found? ART. 469, Prob. 2, R., and N.

PART III.

GEOGRAPHY.

☞ The following references in the questions on Geography are all to MITCHELL'S NEW INTERMEDIATE GEOGRAPHY.

DEFINITIONS.

1. From what is the term GEOGRAPHY derived?   P. 5, C. 1.

2. What is the *import* of the term?   P. 5, C. 1.

3. What is the meaning of the word *planet?*   P. 5, C. 1.

4. How many, and what planets are there in our system?

Ans. The names of the eight planets, in the order of their relative proximity to the sun, are *Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus,* and *Neptune.*

5. Into what three departments is geography divided? P. 5, C. 2.

6. Define Physical or Natural Geography.   P. 5, C. 2.

7. What is meant by the Natural Divisions of the Earth? P. 5, C. 2.

8. How much is included in Physical Geography?   P. 5, C. 2.

9. What is included in Mathematical Geography?   P. 5, C. 2.

10. Define Political Geography.   P. 5, C. 2.

DIVISIONS OF THE LAND.

1. Name the principal divisions of the LAND.   P. 6, C. 1.

2. Define a *Continent.*   P. 6, C. 1.

3. How many and what continents are there?   P. 6, C. 1.

4. What does the Eastern Continent include?   P. 6, C. 1.

5. Define an *Island.*   P. 6, C. 1.

6. Describe a *Peninsula*, and give the etymology of the word. P. 6, C. 2.

7. What is an *Isthmus?* P. 6, C. 2.

8. Describe a *Cape* and a *Promontory*, and name the difference between them. P. 6, C. 2.

9. What is a *Coast* or *Shore?* P. 6, C. 2.

10. Describe *Hills* and *Mountains*. P. 6, C. 2.

11. Describe a *Mountain Chain* or *Range*. P. 6, C. 2.

12. From what is the hight of mountains measured? P. 6, C. 2.

13. Describe a *Volcano* and its *Crater*. P. 7, C. 1.

14. How large the number of volcanoes? P. 7, C. 1.

15. What is a *Valley?* P. 7, C. 1.

16. Describe a *Plain*. P. 7. C. 1.

DIVISIONS OF WATER.

1. What are the natural divisions of *Water?* P. 7, C. 1.

2. Define an *Ocean* and a *Sea*, and state the difference between them. P. 7, C. 1 and 2.

3. Into what parts is the ocean divided, and how are they designated? P. 7, C. 2.

4. How do these compare in magnitude? P. 7, C. 2.

5. Describe a *Lake*. P. 7, C. 2.

6. What kind of water do lakes contain? P. 7, C. 2.

7. Define a *Gulf*, *Bay*, *Strait*, and *Sound*. P. 7, C. 2.

8. Define a *River*. P. 7, C. 2.

9. What are the *Banks* of a river, and how distinguished from each other? P. 7, C. 2.

10. How are rivers *formed?* P. 8, C. 1.

11. What is a *Tributary* or *Affluent?* P. 8, C. 1.

12. Describe a *Cataract*. P. 8, C. 1.

13. What is a *Delta*, and why so called? P. 8, C. 1.

14. What is a *Frith* or *Estuary?* P. 8, C. 1.

RACES OF MANKIND.

1. How many *Races of Men* are there? P. 8, C. 2.

2. What race is generally found among the civilized nations of Europe and America? P. 8, C. 2.

Ex.—10.

3. Where is the *Mongolian* race found?   P. 8, C. 2.

4. Where is the *Black* race found?   P. 8, C. 2.

5. What part of the world is inhabited by the *Red* race? P. 8, C. 2.

6. What is the remaining race, and where found?   P. 8, C. 2.

MOTIONS OF THE EARTH.

☞ The most marked deficiencies in geographical knowledge which the author has observed on the part of those whom he has examined, have related to the few simple *astronomical* facts necessarily involved in geography. This has appeared the more surprising, because these facts are so *few* and *simple*. They are quite as easily understood, and, certainly, far more easily remembered, than most of the details of *descriptive geography*. In short, there is no good reason why any candidate should even *partially* fail, in this part of his examination.

1. What is the *exact* shape of the earth?   P. 9, C. 1.

2. What are the proofs that the earth is spherical?

Ans. Three common and satisfactory proofs are the following :

1st. The highest parts of a ship are seen *first* in the distance ; and, as she approaches nearer, the lower part comes into view.

2d. Many navigators have sailed constantly in one general direction, either east or west, and thus returned to the place from which they started.

3d. The shadow which the earth casts on the moon, during a lunar eclipse, is circular. Neither of these things could happen unless the earth were round.

3. How many and what motions has the earth? P. 9, C. 1.

4. How are they designated?

Ans. That of the earth on its axis is called the *diurnal*, and that around the sun is called its *annual* motion.

5. Describe the *axis* of the earth.   P. 9, C. 1.

6. What is the *effect* of the motion of the earth on its axis?   P. 9, C. 1.

7. In what *direction* is this motion of the earth, and what time is requisite for its revolution?   P. 9, C. 1.

8. What *effects* are produced by the revolution of the earth around the sun?   P. 9, C. 1.

9. What is the circumference of the earth?   P. 9, C. 1.

10. What is the *diameter* of the earth?   P. 9, C. 1.

11. Which is the greater, the Equatorial or Polar diameter of the earth?

Ans. The equatorial diameter is about twenty-six miles greater.

12. How much nearer the center of the earth is the North Pole than any point on the Equator? 13 miles.

13. What is a *Great Circle* of the earth? P. 9, C. 2.

14. What is a *Small Circle?* P. 9, C. 2.

15. Describe the *Equator.* P. 9, C. 2.

16. Describe the *Tropics.* P. 9, C. 2.

17. Why are the *Polar Circles* located just $23\frac{1}{2}$ degrees, rather than a few degrees further north or south from the poles?

Ans. Because it is found that the sun, when furthest *north* of the equator, shines $23\frac{1}{2}$ degrees beyond the North Pole, and when furthest south of the equator, it shines $23\frac{1}{2}$ degrees beyond the South Pole. The circles are intended to mark the limit of the sun's rays in these directions.

18. What causes this?

Ans. The obliquity of the earth's axis, which is always inclined $23\frac{1}{2}$ degrees to the plane of the earth's orbit.

19. What are the names of the polar circles? P. 9, C. 2.

20. Define *Latitude.* P. 9, C. 2.

21. How many and what kinds of Latitude are there, and from what are they reckoned? P. 9, C. 2.

22. Define *Longitude.* P. 9, C. 2.

23. What kinds of Longitude are there, and how are they designated? P. 9, C. 2.

24. How is Latitude represented on *Maps?* P. 9, C. 2.

25. How are distances in Latitude reckoned? P. 9, C. 2.

26. What places have *no* Latitude, and where is the highest degree of north and south Latitude? P. 10, C. 1.

27. How many miles in a degree of Latitude? P. 10, C. 1.

28. How are the Tropics distinguished from each other, and where are they located? P. 9, C. 2.

29. How many degrees from the Equator to either Tropic, and why just that distance? P. 10, C. 1.

30. What lines on maps represent Longitude? P. 10, C. 1.

31. How are they designated, and why?   P. 10, C. 1.

32. How is Longitude reckoned?   P. 10, C. 1.

33. How many degrees of Longitude encircle the globe? P. 10, C. 1.

34. From what points is Longitude usually measured? P. 10, C. 1.

35. In what directions is Longitude measured, and how is that measured in one direction distinguished from that measured in the other?   P. 10, C. 2.

36. What is the highest degree of Longitude?   P. 10, C. 2.

37. How is the world usually represented by a map?   P. 10, C. 2.

38. What particulars does a good map present?   P. 10, C. 2.

39. Describe the *Mariners' Compass*.   P. 10, C. 2.

40. Which are the *Cardinal* points?   P. 10, C. 2.

41. What is the best method of teaching pupils how to find the Cardinal points?   P. 10, C. 2.

42. How many points of the compass are there?   P. 10, C. 2.

THE ZONES.

1. What is a *Zone?*   P. 10, C. 2.

2. How many Zones are there, and how are they designated?   P. 10, C. 2.

3. Where are the *Frigid* Zones, and why are they so called? P. 10, C. 2.

4. What circles bound the *Temperate* Zones?   P. 10, C. 2.

5. Bound and locate the *Torrid* Zone.   P. 10, C. 2.

6. Why is the climate of the Torrid Zone hot?   P. 11, C. 1.

7. How wide is the Torrid Zone?   P. 11, C. 1.

8. Describe the days and nights of this zone.   P. 11, C. 1.

9. What is the time of sunrise and sunset in this zone? P. 11, C. 1.

10. What are the seasons of the Torrid Zone?   P. 11, C. 1.

11. What of the *Animal* and *Vegetable Kingdoms* of this zone?   P. 11, C. 1.

12. What can you say of its human inhabitants?   P. 11, C. 1.

13. What is the climate of the Temperate Zones, and why of that character?   P. 11, C. 1.

14. What is the width of the Temperate Zones?   P. 11, C. 1.

15. Describe the seasons of these zones, and state the cause of the difference between *these* and those of the Frigid Zones. P. 11, C. 1.

16. Describe the animals of the Temperate Zones.   P. 11, C. 2.

17. What are their vegetable productions?   P. 11, C. 2.

18. Why is it much colder in the Frigid Zones than in the others?   P. 11, C. 2.

19. How long are the days and nights of the Frigid Zones? P. 11, C. 2.

20. Describe the animals and people of these zones.   P. 11, C. 2.

21. Draw a map of the world which shall represent,

1st. Both Hemispheres; 2d. The Equator; 3d. The Tropics ; 4th. The Polar Circles; 5th. The Poles; 6th. A Meridian Circle passing through Greenwich, England, and another through Washington, United States, *all in their appropriate places;* and 7th. The outlines of the Continents, of Iceland, and of New Zealand.

POLITICAL GEOGRAPHY.

1. Into how *many* and *what* classes are men divided? P. 12, C. 1.

2. What is meant by the *savage state?*   P. 12, C. 1.

3. What examples of mankind, in this state, can you give? P. 12, C. 1.

4. Of what useful arts are such ignorant?   P. 12, C. 1.

5. How are they usually governed?   P. 12, C. 1.

6. Describe the *barbarous state.*   P. 12, C. 1.

7. What is the mode of life characteristic of this state? P. 12, C. 1.

8. Describe the knowledge and employments of those in this state.   P. 12, C. 2.

9. Give examples of people in this state.   P. 12, C. 2.

10. Describe the *half-civilized state.*   P. 12, C. 2.

11. What people are of this state?   P. 12, C. 2.

12. Describe *civilized* and *enlightened* nations.   P. 12, C. 2.

13. What nations are simply civilized, and what are both civilized and enlightened?   P. 12, C. 2.

14. How are countries classified politically?   P. 13, C. 1.

15. Describe an Empire, and illustrate by examples.   P. 13, C. 1.

16. How do Kingdoms differ from Empires? Give two examples of the former.   P. 13, C. 1.

17. Describe a Republic, and illustrate by examples.   P. 13, C. 1.

18. What are Principalities and Duchies?   P. 13, C. 1.

19. How are different countries divided with a view to their government?   P. 13, C. 1.

20. Define respectively a City, Town, Capital, and County Town or Seat.   P. 13, C. 1.

FORMS OF GOVERNMENT.

1. What is the true object of government?   P. 13, C. 1.

2. Define a *form* of government.   P. 13, C. 1.

3. What are the principal forms of government?   P. 13, C. 1.

4. Describe a Monarchy.   P. 13, C. 2.

5. Describe the two kinds of Monarchy.   P. 13, C. 2.

6. What is an Aristocracy?   P. 13, C. 2.

7. With what is it usually associated in modern times? P. 13, C. 2.

8. What is a *Democracy?*   P. 13, C. 2.

9. How do the people govern?   P. 13, C. 2.

10. How are the persons chosen for this purpose designated? P. 13, C. 2.

11. Describe a Republican form of government, and show how it differs from a Democracy?   P. 13, C. 2.

12. How is the Chief Magistrate designated?   P. 13, C. 2.

13. Where is the best form of a Republican government found?   P. 13, C. 2.

14. What are the striking differences between Emperors or Kings and the President of the United States?   P. 14, C. 1.

LANGUAGES AND DIALECTS.

1. How would you define *Language?*   P. 14, C. 1.

2. How came there to be a difference of language among mankind?   P. 14, C. 1.

3. How many distinct languages are now known to be in use?   P. 14, C. 1.

4. What is a *dialect*, in distinction from a language? P. 14, C. 1.

5. How many different dialects are known to be in use? P. 14, C. 1.

6. What language is spoken the most widely?   P. 14, C. 1.

7. In what language are the most books and newspapers published?   P. 14, C. 2.

8. What other languages much employed?   P. 14, C. 2.

9. What is true of the extent to which the French language is spoken?   P. 14, C. 2.

10. For what is the German language remarkable?   P. 14, C. 2.

11. To what extent is the Spanish language spoken?   P. 14, C. 2.

12. Where is the Italian language spoken, and for what is it important?   P. 14, C. 2.

13. What is the difference between civilized and uncivilized nations in respect to language?   P. 14, C. 2.

SYSTEMS OF RELIGION.

1. How is religion to be accounted for among mankind? P. 14, C. 2.

2. Define Religion.   P. 15, C. 1.

3. What is true as to the kinds and characters of existing religions?   P. 15, C. 1.

4. How may a religion be known to be false?   P. 15, C. 1.

5. What distinguishes the Pagan religion, and what nations practice it?   P. 15, C. 1.

NOTE.—Paganism is mainly distinguished by enjoining the worship of idols.

6. How would you describe the Mohammedan religion? P. 15, C. 1.

7. In what countries is this religion largely practiced?
P. 15, C. 1.

8. Who are the Jews, and what is their religion?   P.
15, C. 1.

9. Where are they now found, and what is their number?
P. 15, C. 1.

10. What religions require or tolerate human sacrifices?
P. 15, C. 1.

11. Do Pagans always offer human sacrifices?   P. 15, C. 2.

12. Who are cannibals?   P. 15, C. 2.

13. Which is the only true religion?   P. 15, C. 2.

14. What are its chief characteristics?   P. 15, C. 2.

15. In what are its doctrines revealed?   P. 15, C. 2.

16. Into what classes are believers in Christianity divided?
P. 15, C. 2.

DESCRIPTIVE GEOGRAPHY.

1. What is the relative extent of Land and Water on the
surface of the earth?   P. 17, C. 1.

2. What Meridian usually divides the earth into the Eastern
and Western Hemispheres?

Ans. The Meridian that cuts Iceland into about equal parts., Of
course, any other Meridian would divide the earth into two Hemi-
spheres, but not in such a way as to present the Continents *undivided.*

3. What navigators have approached nearest the North
and South Poles respectively?   P. 17, C. 1,–3.

4. By what is the earth divided into the Northern and
Southern Hemispheres?   P. 17, C. 1,–3.

5. Mention the Grand Divisions of the earth.   P. 17, C. 2,–5.

6. What is the entire population of the globe, and how
many belong to each of the races of mankind?   P. 17, C. 2,–6.

7. Which is the largest, and which the smallest of the
Grand Divisions?   P. 17, C. 2,–7.

8. What proportion of the land surface of the earth be-
longs to America, and for what is it noted?   P. 17, C. 2,–7.

9. What Grand Divisions are located on the Western Hemi-
sphere?   P. 19, C. 1,–1.

10. How is North America divided?   P. 19, C. 1,–1.

11. Which is the principal country in North America, and for what is it distinguished? P. 19, C. 1,–4.

12. Describe South America.   P. 19, C. 1,–5.

13. What is Oceanica, by whom inhabited, and what is its state in respect to civilization? P. 19, C. 1,–6.

14. Describe the Antarctic Continent.   P. 19, C. 1,–7.

THE EASTERN HEMISPHERE.

1. What Grand Divisions are contained in the Eastern Hemisphere? P. 19, C. 2,–1.

2. Describe Europe.   P. 19, C. 2,–2.

3. Describe Asia.   P. 19, C. 2,–3.

4. What are the peculiarities of Africa? P. 19, C. 2,–4.

5. What is Australia, by what name was it formerly known, and for what is it now distinguished? P. 19, C. 2,–5.

6. Locate the Baltic, Caspian, and Black Seas. P. 18, Map.

7. What strait connects the Mediterranean Sea and the Atlantic Ocean? P. 18, Map.

8. Through what countries respectively do the Arctic and Antarctic Circles pass? P. 18, Map.

9. What sea is there between the Chinese Empire and Japan? P. 18, Map.

10. What channel between Africa and Madagascar? P. 18, Map.

11. What sea west of Corea? P. 18, Map.

12. Between what countries is the Persian Gulf? P. 18, Map.

13. What and where is Ceylon? P. 18, Map.

14. Mention the capes on the west coast of Africa. P. 18, Map.

15. Where are the islands of Mauritius and Bourbon? P. 18, Map.

16. Locate Papua and the Caroline Islands. P. 18, Map.

17. What direction from the North Pole is Iceland? P. 18, Map.

18. Locate the isthmus of Suez. P. 18, Map.

19. Where is Central America, Balize, Yucatan? P. 20, Map.

Ex.—11.

NORTH AMERICA.

1. Bound North America, and give its distance from north to south in miles, and its area in square miles.   P. 22, C. 1,–1.

2. For what is North America distinguished, and what is its principal mountain range?   P. 22, C. 1,–2.

3. What are the political divisions of North America? P. 22, C. 1,–3.

4. What is the *position*, and what the *extent* of Russian America?   P. 22, C. 1,–1.

5. Describe its natural features and products.   P. 22, C. 1,–2.

6. What are the population and settlements of Russian America?   P. 22, C. 2,–3.

7. To what government do *Greenland* and *Iceland* belong? P. 22, C. 2,–1.

8. Bound British America, and give its extent.   P. 22, C. 2,–1.

9. What is its population, and how is it governed?   P. 22, C. 2,–4.

10. Describe Canada.   P. 23, C. 1,–1.

11. What separates the greater part of its southern portion from the United States?   P. 24, Map.

12. What is the number and character of the population of Canada?   P. 23, C. 1,–4.

13. Locate its capital, also its chief towns.   P. 23, C. 1,-5.

14. Which is the largest city of British America, and for what is it distinguished?   P. 23, C. 1,–5.

15. Describe the government and religion of Canada.   P. 23, C. 2,–6.

16. What and where is Nova Scotia?   P. 25, C. 2,–1.

17. Describe its natural features, products, and population. P. 25, C. 2,–2, 3, and 4.

18. Locate its capital and chief towns.   P. 25, C. 2,–5.

19. What are its government and religion?   P. 25, C. 2,–6.

20. Locate and bound Newfoundland.   P. 24, Map.

21. Locate and bound New Brunswick.   P. 24, Map.

22. Describe the extent, natural features, products, population, etc., of Newfoundland.   P. 26, C. 1,–1, 2, 3, 4.

23. Where is Prince Edward's Island? P. 26, C. 1,–1.

24. Describe its natural features, products, population, chief towns, government, and religion. P. 26 and 27, C. 1 and 2.

25. Where are Anticosti and the Magdalene Islands? P. 24, Map.

26. What river separates Canada East from Canada West? P. 24, Map.

27. What lake near the center of Canada East? P. 24, Map.

28. What river unites Lake Superior and Lake Huron? P. 24, Map.

29. Locate Lake St. Peter. P. 24, Map.

30. Describe Cape Canso. P. 24, Map.

31. Locate Capes Bauld, Race, and Ray. P. 24, Map.

32. Where is Belle Isle? P. 24, Map.

33. Locate Placentia, Trinity, and Conception Bays. P. 24, Map.

UNITED STATES.

1. Bound the United States. P. 29, Map.

2. Give its length, breadth, and area in miles. P. 30, C. 1,–2.

3. Between what degrees of latitude does it lie, and what is its climate? P. 30, C. 1,–3.

4. Into what *three* distinct sections is it divided? P. 30, C. 1,–4.

5. Describe the natural features of the United States. P. 30, C. 1,–5.

6. How does its climate compare with that of European countries in the same latitude? P. 30, C. 1,–6.

7. Describe its productions, manufactures, commerce, population, and language. P. 30, C. 2, and P. 31, C. 1.

8. How many States were there originally, and how many are there now? P. 31, C. 1,–12.

9. Name and locate the principal cities of the United States. P. 31, C. 1,–13.

10. Describe the government of the United States, and of the several States, and point out the relations of the latter to the former. P. 31, C. 2,–14, 15, 16.

11. Into what *three* departments is the Federal government divided, and what are the functions of each? P. 31, C. 2,–15.

12. What is the prevailing religion of the United States? P. 31, C. 2,–17.

13. What is the condition of education in the United States? P. 31, C. 2,–18.

NEW ENGLAND STATES.

1. What States are classed together in this division?

2. Describe the boundaries of *Maine*, its size and area. P. 33, C. 1,–1.

3. Describe its natural features, products, population, and chief towns. P. 33, C. 1 and 2,–2, 3, 4, 5.

4. Describe the Penobscot, Kennebec, and Androscoggin Rivers. P. 32, Map.

5. What is the outlet of Moosehead Lake? P. 32, Map.

6. Locate the principal bays of Maine. P. 32, Map.

7. Between what is New Hampshire situated? P. 32, Map.

8. What its capital, and where situated? P. 32, Map.

9. What river separates it from Vermont? P. 32, Map.

10. Describe the Merrimac River. P. 32, Map.

11. What mountains in New Hampshire, and what is their principal peak? P. 32, Map.

12. How does New Hampshire compare with Maine in extent? P. 33, C. 1,–1.

13. What are its natural features, products, population, and chief towns? P. 33 and 34, C. 2 and 1,–2, 3, 4, 5.

14. Give the boundaries of Vermont. P. 32, Map.

15. What range of mountains passes through the State from north to south? P. 32, Map.

16. Locate and describe Lake Champlain. P. 32, Map.

17. Describe the extent, natural features, products, population, and chief towns of Vermont. P. 34, C. 1 and 2.

18. What rivers flow into Lake Champlain? P. 32, Map.

19. What is the name and highest peak of the Green Mountain chain? P. 34, C. 1,–2.

20. Give the boundaries of Massachusetts. P. 32, Map.

21. What river crosses this State from north to south? P. 32, Map.

22. What river enters this State on the north and empties into the Atlantic Ocean? P. 32, Map.

23. Mention and locate the principal bays of this State on the Atlantic coast.   P. 32, Map.

24. Locate the mountains of Massachusetts.   P. 32, Map.

25. Give the position and extent of Mass.   P. 34, C. 2,–1.

26. Describe its natural features, products, population, and chief towns.   P. 34 and 35,–2, 3, 4, 5.

27. Why is Massachusetts often called the Bay State ?   P. 34, C. 2,–2.

28. What are the boundaries, and what the comparative size of Rhode Island?   P. 32, Map.

29. What and where are its capitals?   P. 32, Map.

30. Give the position and area of R. Island.   P. 35, C. 1,–1.

31. Describe its natural features, products, population, and chief towns.   P. 35, C. 1,–2, 3, 4, 5.

32. Mention the principal capes, bays, and islands of Rhode Island.   P. 32, Map.

33. For what is Newport distinguished ? .   P. 35, C. 2,–5.

34. What are the boundaries of Connecticut?   P. 32, Map.

35. Describe its principal rivers?   P. 32, Map.

36. What and where are its capitals?   P. 32, Map.

37. What are its extent, natural features, products, population, and chief towns?   P. 35, C. 2,–1, 2, 3, 4, 5.

38. For what is New Haven noted?   P. 35, C. 2,–5.

MIDDLE STATES.

1. What States are generally classed together in this division?   P. 36, Map.

2. Give the boundaries and area of New York.   P. 37, C. 1,–1.

3. Describe its natural features, products, population, and chief towns.   P. 37 and 38, C. 1 and 2,–2, 3, 4, 5.

4. In what part of New York are the Adirondack Mountains?   P. 36, Map.

5. Describe the principal rivers of New York.   P. 36, Map.

6. Locate the Catskill Mountains.   P. 36, Map.

7. For what is the Niagara River distinguished, where does it rise, in what direction flow, and into what empty? P. 36, Map.

8. What and where is the capital?   P. 38, C. 1,–5.

9. How is the city of New York distinguished?   P. 38, C. 1,–5.

10. What and where the principal islands belonging to this State?   P. 36, Map.

11. Locate the United States Military Academy.   P. 38, C. 1,–5.

12. Mention and locate its lakes.   P. 36, Map.

13. What lake on the eastern boundary?   P. 36, Map.

14. What are the boundaries, position, and extent of New Jersey?   P. 38, C. 1,–1.

15. Describe the natural features, products, population, and chief towns of New Jersey.   P. 38, C. 1,–2, 3, 4, 5.

16. For what are Freehold, Cape May, Long Branch, and Atlantic City distinguished?   P. 38, C. 1,–5.

17. What rivers separate New Jersey from New York and Pennsylvania?   P. 36, Map.

18. What are the mountains of New Jersey?   P. 36, Map.

19. Describe the Raritan.   P. 36, Map.

20. Locate Princeton, Amboy, Newark, Trenton, Camden, Cape May.   P. 36, Map.

21. Give the boundaries, position, and extent of Pennsylvania.   P. 38, C. 2,–1.

22. Describe its natural features, products, population, and chief towns.   P. 38, C. 2,–2, 3, 4, 5.

23. What is there peculiar about the rivers of this State? P. 38, C. 2,–2.

24. What and where is the capital?   P. 36, Map.

25. Which is the largest city of Pennsylvania, and for what is it famous?   P. 38, C. 2,–5.

26. Describe the rise, direction, and mouth of three of the largest rivers of Pennsylvania.   P. 36, Map.

27. What are its principal ranges of mountains, and what is their general direction?   P. 36, Map.

28. Bound Delaware and give its area.   P. 39, C. 1,–1.

29. Describe its natural features, products, population, and chief towns.   P. 39, C. 1,–2, 3, 4, 5.

30. What are its principal capes and bays?   P. 36, Map.

SOUTHERN STATES.

1. Name the Southern States.

2. Give the boundaries, extent, and position of Maryland. P. 39, C. 1,–1.

3. Describe its natural features, products, population, and chief cities.   P. 39, C. 1,–2, 3, 4, 5.

4. On what river is the capital?   P. 39, C. 1,–5.

5. For what distinguished?   P. 39, C. 1,–5.

6. Which is the largest city of Maryland, and where is it located?   P. 39, C. 1,–5.

7. What large bay nearly divides the State?   P. 40, Map.

8. What rivers empty into Chesapeake Bay?   P. 40, Map.

9. Locate Hagerstown, Frederick, Cumberland, and Easton. P. 40, Map.

10. Describe the District of Columbia.   P. 39, C. 1.

11. Give the boundaries, position, and extent of Virginia. P. 39, C. 2,–1.

12. Describe the natural features, products, population, and chief towns of Virginia.   P. 39, C. 2,–2, 3, 4, 5.

13. Locate and describe the Natural Bridge.   P. 39, C. 2,–2.

14. On what river is Mount Vernon, and for what is it distinguished?   P. 39, C. 2,–5.

15. What river separates Virginia from Maryland?   P. 40, Map.

16. What large bay on the east of Virginia?   P. 40, Map.

17. Describe the James River, and mention the principal towns on its banks.   P. 40, Map.

18. What ranges of mountains pass through Virginia, and what is their general direction?   P. 40, Map.

19. What large river on the north-west of Virginia?   P. 40, Map.

20. What range of mountains on the south-west? P. 40, Map.

21. Locate Petersburg, Lynchburg, Fredericksburg, Parkersburg.   P. 40, Map.

22. What are the boundaries, position, and extent of North Carolina?   P. 39, C. 2,–1.

23. Describe its natural features, products, population, and chief towns.   P. 41, C. 1 and 2,–2, 3, 4, 5.

24. What two large sounds are situated in this State? P. 40, Map.

25. What is the capital of North Carolina, and where located? P. 41, C. 2,–5.

26. Where is Roanoke Island? P. 40, Map.

27. Name and locate the capes on the Atlantic coast. P. 40, Map.

28. Describe Cape Fear River. P. 40, Map.

29. What ranges of mountains in the western part of North Carolina? P. 40, Map.

30. Locate Newbern, Beaufort, Washington. P. 40, Map.

31. Bound South Carolina, and give its position and extent. P. 41, C. 2,–1.

32. Describe its natural features, products, population, and chief towns. P. 41, C. 2,–2, 3, 4, 5.

33. Name and locate its capital. P. 41, C. 2,–5.

34. Which is its chief city of commerce? P. 41, C. 2,–5.

35. Where are Forts Moultrie and Sumter situated? P. 41, C. 2,–5.

36. What river separates South Carolina from Georgia? P. 40, Map.

37. What rivers empty into Charleston Bay? P. 40, Map.

38. What two rivers join to form the Santee? P. 40, Map.

39. In what part of the State of South Carolina is King's Mountain situated? P. 40, Map.

40. What bays and capes of this State are on the Atlantic coast? P. 40, Map.

41. What are the boundaries, position, and extent of Georgia? P. 43, C. 1,–1.

42. Describe its natural features, products, population, and chief towns. P. 43, C. 1,–2, 3, 4, 5.

43. Describe Stone Mountain. P. 43, C. 1,–2.

44. What is the capital of Georgia, and where is it situated? P. 43, C. 2,–5.

45. Which of the towns of Georgia are most noted for manufactures? P. 43, C. 2,–5.

46. What mountains are situated in the northern part of Georgia? P. 42, Map.

47. Describe Savannah.   P. 42, Map.

48. What swamp in Southern Georgia?   P. 42, Map.

49. Locate Macon, Columbus, Augusta, Atlanta, Athens, Dahlonega.   P. 42, Map.

50. What mountains in Northern Georgia?   P. 42, Map.

51. What the position and area of Florida?   P. 44, C. 1,–1.

52. Describe its natural features, products, population, and chief towns.   P. 44, C. 1,–2, 3, 4, 5.

53. What and where is the capital?   P. 44, C. 1,–5.

54. Locate and describe the Everglades.   P. 44, C. 1,–2.

55. For what is St. Augustine famous?   P. 44, C. 1,–5.

56. Locate Pensacola, Apalachicola, and Key West, and state what is peculiar to each.   P. 44, C. 1,–5.

57. Give the rise, direction, and mouth of the Apalachicola, Suwanne, and the St. John Rivers.   P. 42, Map.

58. Where are the Florida Reefs, and what sound between them and Cape Sable?   P. 42, Map.

59. What and where are the principal lakes of Florida? P. 42, Map.

60. Locate the Marquesas and Dry Tortugas.   P. 42, Map.

61. Name and locate the principal bays and capes of Florida.   P. 42, Map.

62. Bound Alabama, and give its area.   P. 44. C. 1,–1.

63. Describe its natural features, products, population, and chief towns.   P. 44, C. 1,–2, 3, 4, 5.

64. Name and locate the capital, and the largest city of Alabama.   P. 44, C. 2,–5.

65. Locate respectively Huntsville, Tuscumbia, and Wetumpka.   P. 42, Map.

66. What river flows through the northern part of Alabama?   P. 42, Map.

67. What two rivers form the Mobile?   P. 42, Map.

68. What range of mountains enters the northern part of this State?   P. 42, Map.

69. What bays are there on the Atlantic coast of Alabama? P. 42, Map.

70. What are the boundaries and area of Mississippi?   P. 44, C. 2,–1.

71. Describe the natural features, products, population, and chief towns of Mississippi.   P. 44, C. 2,–2, 3, 4, 5.

72. What and where is its capital?   P. 44, C. 2,–5.

73. What is the chief city of the State?   P. 44, C. 2,–5.

74. What gulf forms part of the southern boundary of Mississippi?   P. 42, Map.

75. What river forms the western boundary?   P. 42, Map.

76. Describe Pearl River and the Pascagoula; also, locate Natchez, Holly Springs, and Vicksburg.   P. 42, Map.

77. Bound Tennessee, and give its area.   P. 44, C. 2,–1.

78. Describe its natural features, products, population, and chief cities.   P. 44, C. 2,–2, 3, 4, 5.

79. What are the boundaries respectively of East, Middle, and West Tennessee?   P. 44, C. 2,–2.

80. Name and locate the capital of Tennessee.   P. 44, C. 2,–5.

81. Locate and describe respectively Memphis, Knoxville, Murfreesboro, Chattanooga, and Shelbyville.   P. 42, Map.

82. Name and describe the mountains of Tennessee.   P. 42, Map.

83. Give the names and directions respectively of its principal rivers.   P. 42, Map.

84. What are the position and extent of Louisiana?   P. 45, C. 1,–1.

85. Describe its natural features, products, population, and chief towns.   P. 45, C. 1,–2, 3, 4, 5.

86. When, from whom, and for what price, was the territory of this State purchased?   P. 45, C. 1,–4.

87. Locate its capital, and give its name.   P. 45, C. 1,–5.

88. What and where is the chief city?   P. 45, C. 1,–5.

89. Describe the battle fought there in 1815.   P. 45, C. 1,–5.

90. What and where are the principal rivers of this State?   P. 46, Map.

91. What river forms most of the western boundary of Louisiana?   P. 46, Map.

92. Name and locate the principal lakes of this State.   P. 46, Map.

93. Locate Plaquemine, Point Coupee, Natchitoches, Opelousas, and Franklin, respectively.   P. 46, Map.

94. What and where are the principal bays on the gulf coast? · P. 46, Map.

95. Give the boundaries, position, and extent of Texas. P. 45, C. 2,–1.

96. Describe its natural features, products, population, and chief towns.   P. 45, C. 2,–2, 3, 4, 5.

97. How does Texas compare in size with the other States of the Union?   P. 45, C. 2,–1.

98. What and where is the capital?   P. 45, C. 2,–5.

99. When was Texas admitted into the Union, and what was it just previous to that event?   P. 45, C. 2,–4.

100. For what is Brownsville noted?   P. 45, C. 2,–5.

101. What river forms much of the northern boundary of Texas?   P. 46, Map.

102. What river forms the south-western boundary?   P. 46, Map.

103. Name and locate the principal bays of Texas on the gulf coast.   P. 46, Map.

104. Locate Galveston, Indianola, Corpus Christi, and Houston.   P. 46, Map.

WESTERN STATES.

1. What States are usually classed in this division?

2. Bound and give the extent of Arkansas. P. 47, C. 2,–1.

3. Describe its natural features, products, population, and chief towns.   P. 47, C. 2,–2, 3, 4, 5.

4. What are its chief curiosities?   P. 47, C. 2,–3.

5. What and where is the capital?   P. 47, C. 2,–5.

6. Give the rise, direction, and the mouth of Big Black River, Little Red, St. Francis, Wishita.   P. 46, Map.

7. Locate respectively Magnolia, Huntsville, Clinton, Benton, Marion, Osceola, Hot Springs.   P. 46, Map.

8. Bound Michigan, and describe its position and extent. P. 47, C. 2,–1.

9. Describe its natural features, products, population, and chief towns.   P. 47, C. 2,–2, 3, 4, 5.

10. Where are the pictured rocks of this State? P. 47, C. 2,–2.

11. What and where is the capital? P. 47, C. 2,–5.

12. Which is the principal city, and where is it located? P. 47, C. 2,–5.

13. What lakes surround it on three sides? P. 48, Map.

14. Locate Saginaw, Green Bay. P. 48, Map.

15. What river unites Lakes Superior and Huron? P. 48, Map.

16. What strait unites Lakes Huron and Michigan? P. 48, Map.

17. Where does Thunder Bay River empty? Au Sable River? Cheboygan? Manistee? St. Joseph's? P. 48, Map.

18. Locate Ann Arbor, Lansing, Kalamazoo, Saginaw. P. 48, Map.

19. Give the boundaries and area of Ohio. P. 49, C. 1,–1.

20. Describe its natural features, products, population, and chief towns. P. 49, C. 2,–2, 3, 4, 5.

21. What and where is the capital? P. 49, C. 2,–5.

22. What and where is the largest city? P. 49, C. 2,–5.

23. Describe the Cuyahoga River, Muskingum, Scioto, Miami, and Maumee. P. 48, Map.

24. Describe the Ohio River. P. 48, Map.

25. Locate Cleveland, Zanesville, Dayton, Chillicothe, Steubenville, Newark, Marietta. P. 48, Map.

26. Bound and give the area of Indiana. P. 51, C. 1,–1.

27. Describe its natural features, products, population, and chief towns. P. 51, C. 1,–2, 3, 4, 5.

28. What and where is the capital? P. 51, C. 1,–5.

29. What river flows between Indiana and Kentucky? P. 48, Map.

30. What river between Indiana and Illinois? P. 48, Map.

31. Locate Michigan City, Fort Wayne, Terre Haute, Madison, Evansville. P. 48, Map.

32. Give the boundaries and area of Kentucky. P. 51, C. 1,–1.

33. Describe its natural features, products, population, and chief towns. P. 51, C. 2,–2, 3, 4, 5.

34. What and where is the greatest natural curiosity of Kentucky? P. 51, C. 2,–2.

35. Who was the first white settler of Kentucky, and when did he go there? P. 51, C. 2,–4.

36. What and where is the capital? P. 51, C. 2,–5.

37. What river separates this State from Ohio, Indiana, and Illinois? P. 48, Map.

38. What rivers of Kentucky empty into the Ohio? P. 48, Map.

39. Where do the Tennessee and Cumberland Rivers empty? P. 48, Map.

40. Locate Louisville, Lexington, Covington, Paris, Bowling Green, the Mammoth Cave. P. 48, Map.

41. Give the boundaries and area of Illinois. P. 52, C. 1,–1.

42. Describe its natural features, products, population, and chief towns. P. 52, C. 1,–2, 3, 4, 5.

43. What rivers and lake form a great portion of the boundaries of Illinois? P. 50, Map.

44. What and where is its capital? P. 51, C. 2,–5.

45. For what is Chicago distinguished? P. 51, C. 2,–5.

46. Describe the Illinois River, Kaskaskia, Sangamon, Little Wabash. P. 50, Map.

47. Locate Bloomington, Rock Island, Cairo, Alton, Nauvoo, Galena. P. 50, Map.

48. Bound Missouri and give its area. P. 52, C. 1,–1.

49. Describe its natural features, products, population, and chief towns. P. 52, C. 1 and 2,–2, 3, 4, 5.

50. What and where is the capital? P. 52, C. 2,–5.

51. What the most populous and commercial city? P. 52, C. 2,–5.

52. Describe the principal rivers. P. 50, Map.

53. Locate Iron Mountain, Pilot Knob. P. 50, Map.

54. Locate St. Louis, Lexington, Hannibal, New Madrid. P. 50, Map.

55. What the position and extent of Iowa? P. 52. C. 2,–1.

56. Describe its natural features, products, population, and chief towns. P. 52, C. 2,–2, 3, 4, 5.

57. What and where is the capital? P. 52, C. 2,–5.

58. What rivers flow along its eastern and western boundaries? P. 50, Map.

59. Locate Dubuque, De Witt, Sioux City, Fairfield, Marengo, Keokuk. P. 50, Map.

60. Give the boundaries and area of Wisconsin. P. 53, C. 1,–1.

61. Describe its natural features, products, population, and chief towns. P. 53, C. 1,–2, 3, 4, 5.

62. What and where is its capital? P. 53, C. 1,–5.

63. Describe the Fox, Wisconsin, Chippewa, and St. Croix Rivers. P. 50, Map.

64. What lakes border on Wisconsin? P. 50, Map.

65. What lakes in the interior? P. 50, Map.

66. Where is Racine, Sheboygan, Superior, Sparta, Falls of St. Croix? P. 50, Map.

67. Give the boundaries and area of Minnesota. P. 53, C. 2,–1.

68. Describe its natural features, products, population, and chief towns. P. 53, C. 2,–2, 3, 4, 5.

69. Describe St. Anthony's Falls, the Falls of Minnehaha, the Maiden's Rock, Fountain Cave. P. 53, C. 2,–2.

70. When was Minn. admitted to the Union? P. 53, C. 2,–4.

71. What and where is the capital? P. 53, C. 2,–5.

72. What lake borders on this State? P. 50, Map.

73. What rivers are there on the eastern and western boundaries; in what direction do they flow, and where empty? P. 50, Map.

74. Where does the Mississippi rise and flow? P. 50, Map.

75. Locate Burlington, Buchanan, Fond du Lac, Forest City, Minneapolis, Fort Abercrombie. P. 50, Map.

76. What lakes in the interior of the State? P. 50, Map.

77. What the boundaries and extent of California? P. 56, C. 1,–1.

78. Describe its natural features, products, population, and chief towns. P. 56, C. 1,–2, 3, 4, 5.

79. What and where is the capital? P. 56, C. 1,–5.

80. What two rivers flow into San Francisco Bay? P. 54, Map.

81. What lake in the interior?   P. 54, Map.

82. Name and locate its principal bays on the Pacific coast. P. 54, Map.

83. Where is the gold region?   P. 54, Map.

84. What ranges of mountains pass through California from north to south?   P. 54, Map.

85. Locate San Francisco, Monterey, San Diego, Marysville, and Yuba City.   P. 54, Map.

86. What the extent and position of Oregon?   P. 56, C. 1,–1.

87. Describe its natural features, products, population, and chief cities.   P. 56, C. 2,–2, 3, 4, 5.

88. What and where is its capital?   P. 56, C. 2,–5.

89. What ranges of mountains traverse it?   P. 54, Map.

90. What river forms its northern boundary?   P. 54, Map.

91. Describe the Willamette, Umpqua, Rogue, and Owyhee Rivers.   P. 54, Map.

92. Locate Astoria, Portland, Oregon City, Dallas.   P. 54, Map.

93. How is Kansas bounded, and what is its area?   P. 56, C. 2,–1.

94. What and where is its capital?   P. 54, Map.

95. Describe Nebraska, and name its capital.   P. 57, C. 1.

96. What the position and extent of Dakota?   P. 56, C. 2.

97. Give the boundaries and principal features of Utah.   P. 56, C. 2.

98. Describe Washington Territory.   P. 56, C. 2.

99. Give the position, extent, capital, and important places of New Mexico, Arizona.   P. 57, C. 1.

100. Describe the Indian Territory.   P. 57, C. 2.

MEXICO AND YUCATAN.

1. What the position and extent of Mexico?   P. 59, C. 2,–1.

2. Describe its natural features, products, population, and chief towns.   P. 59 and 60.

3. Name and locate the principal volcanoes of Mexico. P. 59, C. 2,–2.

4. Describe its capital.   P. 60, C. 1,–5.

5. What river between Mexico and Texas? P. 58, Map.

6. What gulfs on the east, west, and south-west of Mexico? P. 58, Map.

7. Name and locate the principal capes of Mexico on the Pacific coast. P. 58, Map.

8. What ranges of mountains in Mexico? P. 58, Map.

9. What islands on the coast? P. 58, Map.

10. Locate and briefly describe Yucatan. P. 61, C. 1.

CENTRAL AMERICA, ETC.

1. Describe the position, extent, natural features, products, population, chief towns, government, and religion of Central America. P. 61, C. 1 and 2,–1, 2, 3, 4, 5, 6.

2. Describe the political divisions comprised in Central America. P. 61, C. 1,–1.

3. What are their capitals? P. 58, Map.

4. Where is Lake Nicaragua? P. 58, Map.

5. Locate and describe the Balize. P. 61, C. 2.

6. Name the principal Bay Islands. P. 58, Map.

7. Where and what is the Mosquito Territory? P. 61, C. 2.

8. Describe the Isthmus of Panama. P. 61, C. 2.

9. What the position and extent of the West Indies? P. 63, C. 1,–1.

10. From what is the name derived? P. 63, C. 1,–1.

11. What subordinate groups of Islands are included in the West India Islands? P. 63, C. 1,–2.

12. Describe the position, extent, natural features, products, etc., of the Bahama Islands. P. 63, C. 1.

13. To whom does this group belong? *Ans.* The British.

14. Describe the position, extent, natural features, products, population, and government of the Greater Antilles. P. 63, C. 1 and 2,–1, 2, 3, 4, 5, 6.

15. To whom does Hayti belong, and what are the prominent facts in its history? P. 63, C. 2.

16. To whom does Porto Rico belong, and in what direction is it from Hayti? P. 63, C. 2.

17. Describe the Lesser Antilles. P. 63, C. 2.

18. Where are the Caribbee Islands, and to whom do they belong?   P. 63, C. 2.

SOUTH AMERICA.

1. What are the boundaries of South America, and what is its area?   P. 66, C. 1,–1.

2. For what is South America noted?   P. 66, C. 1,–2.

3. What of its earthquakes and volcanoes?   P. 66, C. 1,–3.

4. What is the general aspect of the country, and what are its products?   P. 66, C. 1,–4.

5. What are its native animals?   P. 66, C. 1,–5.

6. Describe the population, government, and religion of South America.   P. 66, C. 2,–6, 7, 8.

7. By whom and when was it discovered and colonized? P. 66, C. 2,–9.

8. What political divisions does it comprise?   P. 64, Map.

9. Through which of these divisions does the equator pass? P. 64, Map.

10. Which of them border on the Atlantic Ocean, on the Pacific?   P. 64, Map.

11. Which are washed by the Caribbean Sea?   P. 64, Map.

12. Which are wholly inland?   P. 64, Map.

13. Describe the mountains of South America.   P. 64, Map.

14. Describe the Amazon, Madeira, Magdalena, San Francisco, and Paraguay Rivers.   P. 64, Map.

15. Locate the Island of Juan Fernandez, St. Felix, Falkland Islands.   P. 64, Map.

16. Locate Cape Blanco, St. Frio, North, St. Roque.   P. 64, Map.

17. Where is Terra del Fuego, and what strait separates it from the main land?   P. 64, Map.

18. Bound and give the area, natural features, products, population, chief towns, government, and religion of New Grenada.   P. 66 and 67, C. 1 and 2,–1, 2, 3, 4, 5, 6.

19. What and where is the capital?   P. 67, C. 1,–5.

20. Bound and give the area, natural features, products, population, chief towns, government, and religion of Venezuela.   P. 67, C. 1,–1, 2, 3, 4, 5, 6.

Ex.—12.

21. Name and locate the capital.   P. 67, C. 1,–5.

22. Describe, as above, Guiana.   P. 67, C. 1 and 2,–1, 2, 3, 4, 5, 6.

23. Into what parts is Guiana divided, and to what nations does it belong?   P. 67, C. 1,–1.

24. Name and locate the capital of each.   P. 67, C. 2,–5.

25. Describe Brazil.   P. 67, C. 2,–1, 2, 3, 4, 5, 6.

26. What are the boundaries, extent, etc., of Paraguay? P. 68, C. 1,–1, 2, 3, 4, 5, 6.

27. Give the boundaries, extent, etc., of Uruguay.   P. 68, C. 1,–1, 2, 3, 4, 5, 6.

28. Describe the boundaries, extent, etc., of La Plata.   P. 68, C. 1 and 2,–1, 2, 3, 4, 5, 6.

29. What is the relation which Buenos Ayres sustains to the Argentine Republic?   P. 68, C. 2,–6.

30. Describe Patagonia.   P. 68, C. 2.

31. What are the boundaries, extent, etc., of Chili?   P. 69, C. 1,–1, 2, 3, 4, 5, 6.

32. For what is Chili noted?   P. 69, C. 1,–2.

33. Where and what is its capital?   P. 69, C. 1,–5.

34. Describe Bolivia.   P. 69, C. 1,–1, 2, 3, 4, 5, 6.

35. Describe the boundaries, extent, etc., of Peru.   P. 69, C. 1 and 2,–1, 2, 3, 4, 5, 6.

36. What do you know of Equador?   P. 69, C. 2,–1, 2, 3, 4, 5, 6.

EUROPE.

1. Give the boundaries, area, degrees of latitude between which it lies, general aspect, principal ranges of mountains, population, political divisions and their capitals, and the state of civilization and education in EUROPE.   P. 72 and 73, C. 1 and 2,–1, 2, 3, 4, 5, 6, 7, 8, 9.

2. Which of the nations of Europe constitute the Five Great Powers?   P. 73. C. 1,–12.

3. Give the boundaries, area, natural features, products, population, chief towns, capital, government, and religion of Russia in Europe.   P. 73, C. 1 and 2,–1, 2, 3, 4, 5, 6.

4. What and where are the principal mountains, rivers, and seas of Russia?   P. 70, Map.

5. What and where is the Crimea?   P. 70, Map.

6. Describe Lapland.   P. 73, C. 2.

7. What are included in the United Kingdom of Great Britain and Ireland?   P. 75, C. 1,–1, 2.

8. Describe its government and colonies.   P. 75, C. 1,–3, 4.

9. Give the boundaries, extent, etc., of Scotland.   P. 75 and 76, C. 1,–1, 2, 3, 4, 5, 6.

10. What and where are its principal islands, mountains, lakes, friths, and rivers?   P. 74, Map.

11. Give the boundaries, extent, etc., of England.   P. 76, C. 1 and 2,–1, 2, 3, 4, 5, 6.

12. Name and locate its principal mountains, rivers, channels, bays, and islands.   P. 74, Map.

13. What and where is its capital?   P. 75, C. 2,–5.

14. Describe the position, boundaries, etc., of Wales.   P. 77, C. 1,–1, 2, 3, 4, 5, 6.

15. Locate the Bristol Channel, St. George's, Menai Straits. P. 74, Map.

16. Give the boundaries, extent, etc., of Ireland.   P. 77, C. 2,–1, 2, 3, 4, 5, 6.

17. What and where are the principal lakes, rivers, bays, and mountains of Ireland?   P. 74, Map.

18. By what is Ireland separated from England and Scotland?   P. 74, Map.

19. Describe the position, extent, etc., of Norway and Sweden.   P. 80, C. 1,–1, 2, 3, 4, 5, 6.

20. What and where are their principal mountains, rivers, seas, lakes, gulfs, and islands?   P. 70, Map.

21. What and where are Skager Rack, Cattegat, Aland Islands, Oland, and Gothland?   P. 70, Map.

22. Give the boundaries, area, etc., of Spain.   P. 80, C. 1 and 2,–1, 2, 3, 4, 5, 6.

23. Describe Portugal in a similar manner.   P. 81, C. 1,–1, 2, 3, 4, 5, 6.

24. Describe its rivers and mountains.   P. 70, Map.

25. Give the boundaries, extent, etc., of France.   P. 81, C. 1 and 2,–1, 2, 3, 4, 5, 6.

26. Describe its principal rivers, mountains, bays, and channels.   P. 78, Map.

27. Describe the position, extent, etc., of Holland.   P. 81 and 82, C. 1 and 2,–1, 2, 3, 4, 5, 6.

28. Locate its principal rivers, seas, and islands. P. 78, Map.

29. Describe, in a similar manner, Belgium.   P. 82, C. 1 and 2,–1, 2, 3, 4, 5, 6.

30. Give the extent, boundaries, etc., of Denmark.   P. 82, C. 2,–1, 2, 3, 4, 5, 6.

31. Describe Germany and the German Confederation.   P. 82, C. 2,–1, 2, 3.

32. Give the position, extent, etc., of Prussia.   P. 83, C. 1,–1, 2, 3, 4, 5, 6.

33. What and where are its principal rivers and mountains, and what sea on the north?   P. 78, Map.

34. Give the extent, boundaries, etc., of Austria.   P. 83, C. 1 and 2,–1, 2, 3, 4, 5, 6.

35. Name and locate its principal mountains, rivers, lakes, and seas.   P. 78, Map.

36. What do you know of the position, extent, etc., of Switzerland?   P. 83 and 84, C. 2 and 1,–1, 2, 3, 4, 5, 6.

37. Bound Italy.   P. 78, Map.

38. What minor divisions in Italy?   P. 84, C. 2,–3.

39. Describe Sardinia, Venice, Tuscany, Parma, Modena, States of the Church, Two Sicilies.   P. 84, C. 2,–3.

40. For what is Italy famous?   P. 84, C. 2,–3.

41. Describe the boundaries, extent, etc., of Turkey in Europe.   P. 85, C. 1,–1, 2, 3, 4, 5, 6.

42. What seas on the east and west?   P. 78, Map.

43. Describe its chief mountains and rivers.   P. 78, Map.

44. Give a description of Greece, embracing the usual details.   P. 85, C. 1 and 2,–1, 2, 3, 4, 5, 6.

ASIA.

1. Describe the boundaries, general aspect, products, and population of ASIA.   P. 88, C. 1,–1, 2, 3, 4.

2. Describe the position, extent, natural features, products, population, capital, larger towns, government, and religion of Asiatic Russia.   P. 88, C. 2,–1, 2, 3, 4, 5, 6.

3. What do you know of its principal rivers, mountains, seas, gulfs, and straits?   P. 86, Map.

4. Give the boundaries, extent, etc., of China.   P. 88 and 89, C. 1 and 2,–1, 2, 3, 4, 5, 6.

5. Give the principal mountains, rivers, seas, islands, and bays of the Chinese Empire.   P. 86, Map.

6. Describe Japan, naming its position, extent, etc.   P. 89, C. 1 and 2,–1, 2, 3, 4, 5, 6.

7. Of what islands does it consist?   P. 89, C. 1,–1.

8. What the capital, and where situated?   P. 89, C. 2,–5.

9. What are the boundaries, position, extent, etc., of India? P. 89, 90, C. 2 and 1,–1, 2, 3, 4, 5, 6.

10. Name and locate its principal mountains, rivers, islands, bays, and capes.   P. 86, Map.

11. How is Turkestan bounded, and what its extent, population, products, etc.?   P. 90, C. 1,–1, 2, 3, 4, 5, 6.

12. Locate and briefly describe Afghanistan and Beloochistan.   P. 90, C. 2,–1, 2, 3, 4, 5, 6.

13. Give the boundaries, extent, products, etc., of Persia. P. 90, C. 2,–1, 2, 3, 4, 5, 6.

14. Describe the boundaries, area, natural features, etc., of Arabia.   P. 91, C. 1,–1, 2, 3, 4, 5, 6.

15. What waters make Arabia a peninsula?   P. 86, Map.

16. Describe the position, extent, etc., of Turkey in Asia. P. 91, C. 1 and 2,–1, 2, 3, 4, 5, 6.

17. Give its principal rivers, mountains, seas, gulfs, and bays.   P. 86, Map.

18. What do you know of Georgia in Asia?   P. 91, C. 2.

AFRICA.

1. Give a general description of AFRICA, mentioning its political divisions, physical features, inhabitants, animal kingdom, productions, and religion.   P. 94, C. 1,–1, 2, 3, 4.

2. Name and locate the Barbary States.   P. 94, C, 1,–1.

3. Describe their comparative size, natural features, products, population, government, and religion.   P. 94, C. 1 and 2,–1, 2, 3, 4.

4. What are the position and extent of Egypt?   P. 94, C. 2,–1.

5. For what works of an ancient race is Egypt famous? P. 94, C. 2,–1.

6. Describe its natural features, products, population, government, and religion.　　P. 94, C. 2,–2, 3, 4.

7. What are the boundaries, extent, etc., of Nubia and Abyssinia?　　P. 95, C. 1,–1, 2, 3, 4.

8. Name the countries on the eastern coast of Africa.　　P. 95, C. 1 and 2,–1, 2, 3, 4.

9. Describe Cape Colony.　　P. 95.

10. Name and locate the countries on the western coast. P. 95, C. 2,–1, 2, 3, 4.

11. What divisions constitute Central Africa?　　P. 95.

12. Describe Soudan and Ethiopia.　　P. 95, C. 2,–2, 3.

OCEANICA.

1. Define and bound Oceanica.　　P. 97, C. 2,–1.

2. What groups of islands are embraced in Oceanica? P. 97, C. 2,–1.

3. Whence the terms *Malaysia*, *Australasia*, and *Polynesia?* P. 97, C. 2,–2.

4. Give the names of the islands embraced in Malaysia; also, their natural features, products, population, chief towns, government, and religion.　　P. 97, C. 2,–1, 2, 3, 4, 5, 6.

5. What islands constitute Australasia?　　P. 98, C. 1,–1.

6. Describe their natural features, products, population, larger towns, government, and religion.　　P. 98, C. 1 and 2,–2, 3, 4, 5, 6.

7. What are the principal groups of islands embraced in Polynesia?　　P. 98, C. 2,–1.

8. Describe their natural features, products, population, chief towns, government, and religion.　　P. 98, C. 2,–2, 3, 4.

NOTE.—Questions on Local and Descriptive Geography might be added to an almost indefinite extent; but the foregoing are deemed sufficient, as serving to indicate the character of information which all candidates for the teacher's position ought to possess, in regard to this important branch of study.

EXAMINATION.

REMARK.—For the benefit of such candidates as have never been examined, a list of questions is subjoined *similar* to those they may expect to meet in the examination-room. The object is to furnish some idea of the topics usually presented.

1. What is your name and post-office address *in full?*
2. What is your native State?
3. Have you been examined before? If so, where, and by whom?
4. For how long a period was your last certificate given?
5. Have you testimonials of a good moral character?
6. Which letters are consonants, and which are vowels in the following words: *union, folio, righteous?*
7. Write out, in *words*, the following number: 00908070605040-302010003.
8. What proofs have you that the earth is round?
9. How many yards of cloth, at $7, $8, and $9 per yd., the quantity of each kind being the same, can you buy for $1800?
10. A and B start from the same point and travel in opposite directions, A at the rate of 30 mi., and B at the rate of 44 mi. per day; how far apart will they be at the end of 21 days?
11. When is *P* silent?
12. What are the prime factors of 6200?
13. Into what zones is the earth divided, and what are the boundaries, and what the width of each?
14. What is the greatest common divisor of 720, 1008, and 1152?
15. Annex *ing* to name and sue; *able* to blame and sale; *y* to fleece and grease; and *ous* to membrane.
16. What is the least common multiple of 6, 7, 2, and 17?
17. Name, and give an example of each kind of common fractions.
18. What countries, oceans, islands, and large rivers, are crossed by the Tropic of Cancer?
19. Reduce $\frac{4}{10}$, $\frac{5}{20}$, and $2\frac{1}{45}$ to the least common denominator.
20. $\left(\dfrac{5}{3\frac{1}{2}} + \frac{1}{2} \text{ of } \frac{2}{3} \text{ of } \frac{2}{5} \text{ of } 20 \right) \div \dfrac{3\frac{1}{4}}{6\frac{1}{2}} = $ what?
21. The following are abbreviations of what words: Rom., Rev., Ps., Chron., Phil., Do., Dr., Eph., Fr., U. S., Mo., Ia., Sen., Vs.?
22. A bought of B $13\frac{1}{2}$ tuns of hay at $9 per tun; and of C $15\frac{2}{5}$ tuns at $10.50 per tun. He then sold to D 9 tuns at $12 per tun, and the rest to E at $13 per tun. Did he gain or lose by the operation, and how much?

23. How many degrees from the Arctic to the Antarctic Circle?

24. .00001728 ÷ 2.4 = what?

25. Express in words .01013.

26. Analyze and parse in full the following:

"To exhort the weak, and to encourage each other to be valiant, is one way to acquit ourselves like men."

27. $\frac{9}{75}$ of a day equals what, expressed in hours, minutes, and seconds?

28. 14 ft. 7′ 2″ × 6 ft. 3′ 5″ = what?

29. Bound California; name and locate its capital; describe its mountains, rivers, bays, and capes.

30. $7\frac{3}{5}$ % of 345 gal. = what?

31. What is the annual premium on a house insured for $4680, at $\frac{1}{4}$ of 1 per cent.?

32. Give the 2d person plural, 3d past tense, passive voice, of the verb *encourage*; also the 2d past tense, infinitive mode, passive voice, of the verb *exhort*.

33. $5\frac{1}{4} + 13\frac{2}{5} + 23\frac{1}{3}$ tuns = how many?

34. What is the interest, at $5\frac{1}{2}$ %, of $425.50, from January 8 until November 20, 1863?

35. Write a sentence containing the case independent, and one containing the case absolute.

36. In what time will $140, at 7 %, gain $10.8616 interest?

37. What is the highest degree of north latitude reached by navigators, and who attained it?

38. If 6 horses in 9 days eat 70 bu. of oats, how many will be required to eat 280 bu. in 27 days?

39. Bound the Chinese Empire, give its area and population, and describe its mountains, rivers, and seas.

40. $\sqrt{\frac{48}{147}}$ = what?

41. Why is the Tropic of Cancer located just where it is?

42. Which is the warmer zone, that north of the Arctic Circle, or that south of the Antarctic Circle?

43. $\sqrt{5.4756}$ = what?

44. $\sqrt[3]{704697}$ = what?

45. $\overline{\text{M M V}} + \text{M D C C L I X} + 1860 - 6006$ = what?

46. Bought eggs at 4 ct. a dozen; for how much must I sell them to gain 25 %?