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A course of study in arithmetic, with answers to the ...

Franklin Sherman
Hoyt

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A COURSE OF STUDY IN ARITHMETIC

WITH

ANSWERS TO
THE EVERYDAY ARITHMETIC

BY

FRANKLIN S. HOYT

AND

HARRIET E. PEET



BOSTON NEW YORK CHICAGO
HOUGHTON MIFFLIN COMPANY
The Riverside Press Cambridge

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The Riverside Press
CAMBRIDGE, MASSACHUSETTS
U. S. A.

Gift
Prof. Karpenko
2-4-1932

A COURSE OF STUDY IN ARITHMETIC

GENERAL SUGGESTIONS

CHANGE IN POINT OF VIEW IN TEACHING ARITHMETIC

In the past few years there has been almost a complete change of point of view in teaching arithmetic. From the aim of mental discipline, we have turned to one of practical efficiency; from beginning with formal drills, we have learned to start with concrete situations; from leading a child blindly through years of meaningless work, we have come to follow a child's interests and needs. Further, while devoting the major part of the work to children of average ability, we have learned how to make careful provision, also, for both the children who are unusually talented and for those who have been retarded in their development.

USE OF TEXTBOOKS

To organize the work in arithmetic from this new point of view is of necessity difficult. It is for this reason that, although no text can hope to take the place entirely of a teacher's own creative work, a teacher must depend largely upon a book for her general plan and for most of her material.

To use the *Everyday Arithmetic* effectively, teachers should first study the text to get: —

1. *The plan of organization.* The work of the first six grades is organized for the mastery of the essential processes and their application to situations with which the children are familiar; the work of the seventh and eighth grades, for a knowledge of common business forms and the application of the essential processes in the study of the more common aspects of business, industry, and other community interests.

2. *The emphasis laid upon the essential processes, and the differentiation of these from others of less importance.* Throughout the texts, the emphasis is laid on the essential processes: addition, subtraction, multiplication, and division with integers; common business fractions, and decimals (of three and four places or less); percentage in its most common applications; useful

measurements. These topics, after they have once been taught, are reviewed yearly and their mastery assured.

3. *The breaking down, for the sake of economy, of the artificial divisions between processes and between "cases."* The work is graded with unusual care, but, at the same time, it is so arranged as to do away with artificial distinctions between processes and also to do away with a multiplicity of rules. Subtraction is first taught as a form of addition; the same form is used for both short and long division; the work with integers, United States money, and decimals is kept in close relation; fractions, ratio, and per cents are shown to be different means of expressing the same numerical relation; denominate numbers are taught, in the main, as applications of other processes.

4. *The relation of exercises for skill to studies in application.* The new processes are each developed through a concrete study followed by drill exercises and then later by studies in application. By this arrangement, it is made possible to maintain a unity of concrete and abstract work and yet lay the necessary emphasis on one aspect of the work at a time. To understand this plan, study, for example, *Everyday Arithmetic*, Part Two, chapter III, or Part Three, chapter I. Note the introductory studies at the beginning of the chapter, the concentration on the process work in the middle of the chapter, and, then, at the end of the chapter, the studies in application.

5. *The grouping of problems by situations.* To give a sense of reality to the problems and to prevent the confusion in a child's mind that comes from jumping rapidly from one situation to another while he is struggling with arithmetical relations, the books group the problems by situations much as they occur in life. This not only makes the problem, as it should be, a means to a practical end, but it minimizes the difficulties of interpretation of language and gives the pupils cumulative power in mastering problems as they commonly occur in ordinary transactions.

6. *The provision for meeting the needs of children varying in ability.* For the most capable pupils, beginning with Part Two, the books provide optional problems that are starred throughout the text. Sometimes these problems are involved and require original thinking, patience, and perseverance; at other times, they are such as give the pupils valuable training by requiring investigation. For backward pupils, the text provides supplementary practice in the essential processes so that these pupils, by extra effort, may come up to the required standard of the grade to which they belong.

TEACHING A NEW PROCESS

Most teachers prefer to develop each new arithmetical process from the blackboard and to use the corresponding work in the book as a means of fixing in the minds of the pupils that which is being taught. In these exercises, it should be remembered that a child grasps a topic more clearly if he is allowed to work it out in such a way as to acquire it by right of discovery, that is, if he is taught inductively. It should be remembered, also, that the children, at times, may be led to understand a principle involved, but that which is of more importance is acquiring a method of work. It is, in general, the *how* not the *why* which interests children and which, for that reason, should be emphasized. The steps in teaching a new process are: (1) A study of the problem or situation requiring the new process; (2) the working out of the new process; (3) concentration on the process for skill; (4) learning when to use the new process in working out studies in application involving the new process with a number of other processes.

ACCURACY IN COMPUTING

Accuracy in computing is dependent, in the first place, upon the automatic mastery of the fundamental facts. These facts should be taught so that they can be used without hesitation. In adding 7, 8, and 9, for example, 15 and then 24 should immediately flash before the pupil's mind. In multiplying 48 by 8, a child should think in rapid succession 64, 32, 38, 384. This mastery is acquired not so much by drills on the facts as facts as by constant practice in process work.

In the second place, accuracy in computing is dependent upon the habit of writing numbers neatly in straight rows and columns, the habit of working rapidly and at the same time carefully, and upon that of testing all answers. Effort should be made to arouse the ambition of the pupils in these matters and to hold them to clearly defined standards.

PREVENTION OF BAD HABITS

Some of the bad habits that cause children to be slow or inaccurate, or both, in figuring are: the habit of counting on the fingers, or in other ways, often concealed; the moving of the lips in computing; the writing out of the changes in the minuend in subtraction; the writing of numbers to be "carried" in addition, multiplication, and division; the writing of other numbers that can be carried readily in the mind. These habits are all easily formed, but are difficult to break.

To prevent finger counting and the moving of lips, children should be forced to do their work so rapidly that there is no time for it. To prevent the writing of unnecessary figures in all the operations, the children should be trained from the beginning to do all "borrowing" and "carrying" in their heads and encouraged to write as few figures as possible in their work. Teachers should be careful not to give the pupils, even in an explanation, a wasteful form that can be imitated. In subtraction, for example, the use of sticks and diagrams, such as those suggested on page 56, *Everyday Arithmetic*, Part One, can be used without the danger of a child's forming a bad habit; whereas an explanation requiring the crossing off of figures and substituting others is liable, unless safeguarded, to lead pupils to adopt this wasteful method of performing the process.

COMPUTING WITHOUT A PENCIL

Much of the computing of everyday life is done without a pencil. Every one is called upon frequently to verify, in this way, the total of a bill, the amount of change due, and other computations. This makes it important that the children have continual practice in this form of work and that they be encouraged in written work as well to write as few figures as possible. The use in *Everyday Arithmetic* of the directions "With pencil," "Without pencil," "Use pencil only when needed," will develop an increasing independence of the pencil.

THE SOLUTION AND ANALYSIS OF PROBLEMS

The failure of much of the problem work in our schools is due not so much to the failure of the pupils to think logically as to their inability to interpret the language of the problems and to picture the conditions. The *Everyday Arithmetic* has tried to do away with this difficulty by grouping problems about single centers and by using pictures profusely. Preliminary informal discussions of the topics used in the problems will also help the pupils to overcome difficulties that come from this cause.

Another source of difficulty that has existed in the past was that of forcing set forms of analysis upon the pupils. This, however, has very largely been done away with. We have learned that the result was only one of confusion in a child's mind and that our best way of helping him is to let him do that which seems to be the natural thing for him to do. From the children in the primary grades, answers only to problems should be expected. With the children in the middle grades, when an explanation is necessary, a child may be asked to tell how he got his result, but he should

be left to choose his own language. From the children in the upper grades, work may be required in steps with the logical sequences worked out as they occur in a series of equations or statements.

In solving problems children should be trained, as early as possible, to look through a problem to get an approximate result. This develops in the pupils ability to think consecutively and it also makes them less content with foolish or unreasonable answers.

THE RECITATION PERIOD

To do justice to other aspects of the work and at the same time to give pupils the necessary daily practice for skill in computing, the recitation period must be carefully planned. In general, except in the case of the seventh and eighth grades, about one third of the usual half hour recitation period should be given to spirited drill and the other two thirds to teaching new work and to clearing up difficulties. A good program to follow is: (1) In connection with the collection of papers, a discussion of the difficulties met with by the pupils; (2) a spirited exercise for the mastery of processes or for the solution of "mental" problems; (3) the teaching of new work and the careful assignment of seat or home work. (Many teachers find it preferable to assign the new lesson at the beginning of the class period rather than at the close when the necessary explanation may be unduly hurried.)

Such a program must be varied from time to time, but certain things should be kept in mind. The recitation period should be largely a teaching period, and not a period for written work that can be done at other times. The drills should be kept brief and not allowed to lose their value by being prolonged beyond the point where the pupils feel a zest in them.

WRITTEN WORK

Papers should be neatly written and the forms used by men in business followed. To prevent mistakes, careful attention should be given to the alignment of figures in rows and columns. To be easily interpreted, the work should be arranged in an orderly form and the answer labeled so that it can be readily distinguished. To save time and to follow the usual custom of men in the world of business and industry, denominations of terms should be omitted, except when there is a reason for including them, as in the case of writing the final result.

For example, in solving the following problem the labeling should be

that shown below; that is, the work should be kept abstract, the answer only being labeled with a denomination: —

What is the price per front foot of a house lot with a frontage of 48 ft. selling for \$720?

$$\begin{array}{r}
 15 \\
 48 \overline{)720} \\
 \underline{48} \\
 240 \\
 \underline{240}
 \end{array}$$

Price per front foot, \$15.

SUPPLEMENTARY PROBLEMS

Although the *Everyday Arithmetic* is unusually rich in problem material, no textbook can hope to supply all the problems that a class should solve, nor would it be a wise thing for a book to attempt it. Much of the work should grow out of a child's immediate environment and current interests. A teacher should be continually on the watch for available material for problems that would be of special value to her class. The children should be encouraged to bring in data that can be used. School, playground, home and community interests will all be found fruitful sources for this purpose.

In selecting topics for this supplementary work for the lower grades, care should be taken to find those that are within the experience of the children and have value for them. It is unwise to attempt work that is difficult from the standpoint of content while children are mastering the processes. This work should be left for the upper grades. Care too should be taken to vary the work often so that no topic grows threadbare from over-use. At all times, it should be kept in mind that the chief purpose of the studies in application is that of vitalizing the work and of giving the pupils facility in applying number to actual situations. They should be used not merely as a means of acquiring information, but to broaden the pupil's power of using number. (Note suggestions for supplementary work throughout the *Everyday Arithmetic*; also in the following outline of work by grades.)

GRADE ONE

AIM: The building up informally through experience of a knowledge of counting, of measuring, and of other processes that help a child to gain clear and correct ideas of the fundamental concepts upon which number is based.

THE TENDENCY TO DELAY FORMAL TEACHING OF NUMBER WORK

The tendency of most progressive schools is to delay the formal teaching of number until the children, through experience, have not only laid a good foundation for the work, but have gained a sufficient command of language to make the approach without difficulty. It is generally held that a child should first encounter number incidentally and be led to think facts and relations as they occur in use before taking up a study of number as such; and, that, in the end, a child is more intelligent in his number work and makes greater progress if he is allowed to make this informal approach to the subject.

It is for this reason that the teaching of number, except for the matter of counting, some work in measuring and in the recognition of number in small groups of objects, is delayed until the second grade and, in some schools, until the third grade.

LEARNING TO COUNT

Children entering the first grade are usually familiar with the names in order of numbers to ten or twenty, but many of the pupils are quite inaccurate in counting objects and in recognizing different numbers. This ability, which is fundamental in developing later ideas of number, is fostered by playing kindergarten games requiring counting and by making the most of opportunities for counting as they arise in the schoolroom. The distribution and collection of material offers an incentive for this work and a good training in it. Picture cards and domino cards are also useful for this purpose.

LEARNING TO MEASURE

The best training that the schoolroom can offer in measuring is that which arises in construction work. The children become familiar with the

foot and inch in making toys and articles for Christmas and other holidays. This work should be simple and not require too fine an adjustment on the part of the pupils.

THE FIRST COMBINATIONS OF NUMBER

When number is taught in the first grade, the work other than that in counting, measuring, and the recognition of small groups of objects is usually confined to addition facts as they occur in numbers to ten and their corresponding subtraction facts. These are taught so that such facts as $1 + 1 = 2$, $2 + 1 = 3$, $5 + 5 = 10$ are recognized as they occur objectively, but not necessarily in themselves as abstract facts. The subtraction taught is wisely confined to additive subtraction, that is to subtraction as a form of addition. The problem in addition $2 + 3 = ?$ is turned about and made one in additive subtraction when the problem reads $2 + ? = 5$. (See pages 1 to 51, Hoyt and Peet, *First Year in Number*.)

GRADE TWO

(OPTIONAL TEXTBOOKS: Hoyt and Peet, *First Year in Number*, in the hands of the pupils; *Everyday Arithmetic*, Part One, in the hands of the teacher.)

AIMS: To lay a foundation in experience for later work in number; to become familiar with number facts and processes in numbers to twenty through daily use in games, contests, manual work, and other activities of children; to read and write numbers to one hundred and to make simple computations with them.

FIRST QUARTER¹

(*First Year in Number*, pages 1-59)

1. Study of coins: (a) the handling of the cent, nickel, and dime for practice in counting and to learn the equivalent values of the coins; (b) the making of toy money and learning to compute sums to ten. Reading and writing of numbers to twenty.

2. The use of domino cards, picture study, and number games for the mastery of the fundamental facts in addition as they occur in numbers to twelve; also for the study of the corresponding facts in subtraction expressed in additive form only. The meaning of two times, one half; three times, one third; four times, one fourth.

¹ The outline of the work by quarters used here for each grade was prepared by the teachers in the State Normal School, Salem, Massachusetts.

3. Practice in measuring with inches in making toys for a toy shop, and in making paper bags and money boxes for a miniature grocery.

SECOND QUARTER

(*First Year in Number*, pages 60-76)

1. Study of the clock face to tell time by the hour hand. Construction of a clock face. (See *First Year in Number*, pages 60-62.)

2. Making domino cards for home play. Construction work in preparing for the celebration of Christmas.

3. Plays, games, and formal drills for further mastery of the fundamental facts as they occur in numbers to twenty: (a) the fundamental facts in addition from $1 + 1$ to $9 + 9$; (b) the corresponding facts in subtraction, expressed in additive form; (c) multiplication and division facts which the children naturally work out for themselves. Single column addition.

THIRD QUARTER

(*First Year in Number*, pages 77-105)

1. Review of subtraction facts in their additive form. Expressing subtraction with the minus sign.

2. Counting by tens and building numbers to one hundred.

3. Practice in addition and subtraction by endings. Single-column addition.

4. Learning to use the numbers 2, 3, and 4 in multiplication and division.

FOURTH QUARTER

(*First Year in Number*, pages 106-129)

1. Review of telling time by the hour. Study of the clock face to tell time by the half-hour, the quarter-hour, and the minute.

2. Continual practice in using the fundamental facts that occur in numbers to twenty; in single-column addition; in adding and subtracting by endings; and in counting by 2's, 3's, 4's, and 5's.

3. Study of street-car travel; collecting fares; telling the time for the cars. Solving problems in buying seeds for a garden; in mailing letters; and in running errands.

THE PROCESS OF GENERALIZATION AND ABSTRACTION

While a child is working with coins, the ruler, the clock, and with number games, he will continually encounter the same number facts and will

unconsciously make generalizations. From the fact that 2 cents and 3 cents make 5 cents, and 2 spots and 3 spots on a domino card make 5 spots, and that 2 pencils put with 3 pencils make 5 pencils, he will learn that 2 of anything put with 3 of the same kind of thing make 5 of that thing; that is, he will come by the process of generalization to the abstract fact that 2 and 3 are 5. The essential thing in this process of generalization is that the child meet the same combination first with one kind of objects and then with other kinds, so that the fact will lose its close association with any one thing and be thought of as a fact in itself.

SUMMARIZING NUMBER FACTS

As a child's knowledge of number grows he becomes interested in number relations and wants to puzzle them out. When a child reaches this point, it will be found helpful to use formal material for counters and work out different number relations. These summaries should be so arranged that the child makes definite progress. After he has had a start in finding sums, he may begin and work out the number facts in the number five, then in six, then in seven, and so on, dwelling only on those facts which it is natural for him to work out by himself.

NUMBER GAMES

Number games, if rightly selected and wisely used, are an unending resource, not only in developing number concepts, but in aiding the children in mastering number facts.

For the building up of a concept of number some of the most useful games are those played with domino cards, with domino picture cards, games of matching cards, and many others the descriptions of which may be found in various studies on the subject. For drilling on number facts, the most practical games are those played with flash cards of various kinds. (See games in *First Year in Number*; also, in *Everyday Arithmetic*, Part One.)

BRIEF SUGGESTIONS

1. To bring the work into close relation with the experiences of the children, begin the teaching of number with activities requiring the use of number such as practice in making change, measuring in construction work, playing number games, and telling time.
2. See that the children develop an idea of number by thinking number in things and not merely by memorizing meaningless facts.

3. Use a variety of units so as to lead a child to generalize the number facts he encounters and to enable him to go readily from concrete facts to abstract facts and from abstract facts back to concrete ones.

4. Make haste slowly.

5. Organize the work carefully so as to include not only informal studies but, at the appropriate stage, summaries and formal studies.

GRADE THREE

AIMS: To develop through concrete studies a knowledge of facts and processes in numbers of one, two, three, and four figures; to acquire skill in their use.

FIRST QUARTER

(*Everyday Arithmetic*, Part One, exercises 1-48)

1. Review, through games and plays, of the fundamental facts in numbers to twenty.

2. Practice in addition and subtraction by endings and in single-column addition. Counting by groups. The use of the numbers 2, 3, 4, and 5 in multiplication and division.

3. Through finding school membership and other similar facts, the study of addition of numbers containing two and three figures: (a) addition without reduction; (b) addition with reduction. Steps: —

(1) 24	(2) 243	(3) 38	(4) 261	(5) 244
<u>32</u>	124	<u>24</u>	<u>362</u>	325
	<u>21</u>			<u>145</u>

4. Application of facts and processes taught to concrete problems in measuring with the foot rule and yard stick; in measuring with the pint and quart; in weighing by ounces and pounds.

SECOND QUARTER

(*Everyday Arithmetic*, Part One, exercises 49-72)

1. Study of making change with coins: (a) keeping toy banks; (b) making change from a quarter, a half-dollar, and a dollar; (c) filling out deposit slips for school banking; (d) making price lists for a school store.

2. A study of subtraction: (a) without reduction; (b) with reduction. Steps: —

(1) 537	(2) 642	(3) 428	(4) 643	(5) 402	(6) 500
<u>225</u>	<u>126</u>	<u>162</u>	<u>166</u>	<u>126</u>	<u>123</u>

3. Continual practice in single-column addition and in addition and subtraction by endings for an automatic mastery of number facts. Counting by groups. A mastery of the multiplication and division facts with the numbers 6 and 7.

4. Practice in written addition and subtraction in problems in school banking, a schoolroom store, buying Christmas presents and other interests of the children.

THIRD QUARTER

(*Everyday Arithmetic*, Part One, exercises 73-94)

1. Through problems in finding perimeters and other distances, the study of multiplication with one figure in the multiplier: (a) without reduction; (b) with reduction. Steps: —

$$\begin{array}{r} (1) \ 22 \\ \underline{3} \end{array} \quad \begin{array}{r} (2) \ 423 \\ \underline{2} \end{array} \quad \begin{array}{r} (3) \ 36 \\ \underline{2} \end{array} \quad \begin{array}{r} (4) \ 142 \\ \underline{4} \end{array} \quad \begin{array}{r} (5) \ 254 \\ \underline{3} \end{array}$$

2. Short division: (a) without reduction; (b) with reduction; (c) as a means of finding a part. Steps: —

$$\begin{array}{r} (1) \ 3\overline{)69} \\ (2) \ 2\overline{)408} \\ (3) \ 4\overline{)52} \\ (4) \ 3\overline{)126} \\ (5) \ 2\overline{)212} \\ (6) \ 5\overline{)775} \\ (7) \ \frac{1}{2} \text{ of } 540 = ? \end{array}$$

3. Continual practice in single-column addition and in addition and subtraction by endings for an automatic mastery of the processes. Counting by groups. Learning to use 8 and 9 in multiplication and division.

4. Solution of one-step problems based on measurements, on making purchases, and on other topics.

FOURTH QUARTER

(*Everyday Arithmetic*, Part One, exercises 95-112)

1. Study of the clock and calendar: (a) the Roman numerals; (b) telling time by the hour and minute; (c) writing dates; (d) the table of time.

2. Continual practice in single-column addition, in addition and subtraction by endings, and in using the fundamental facts in multiplication and division.

3. Review of fundamental processes by solving problems in gardening, in making purchases, in a study of the postal service and other topics.

REVIEW OF THE FIRST STEPS IN NUMBER

The first chapter of Part One, *Everyday Arithmetic*, reviews the first steps in number. The work presupposes that pupils have had experience

in counting and measuring and that they have been taught the forty-five fundamental facts in addition, the eighty-one subtraction facts, and the multiplication and division facts as they occur in numbers to twenty. The addition and subtraction facts are reviewed in three groups. Group one contains combinations of 1, 2, 3, 4, 5, and 6 in numbers to twelve, just as they occur on a set of dominoes. Group two contains the doubles $6 + 6$, $7 + 7$, $8 + 8$, $9 + 9$ and the combinations most easily grasped when related to them. Group three completes the study. In this review, the subtraction facts are taught in their relation to corresponding facts in addition; the facts in multiplication are also developed from addition; and those in division from those in multiplication.

THE FUNDAMENTAL PROCESSES

In teaching the four fundamental processes, addition, subtraction, multiplication, and division, the process to be given the most emphasis is addition. It is not only the process that is used most commonly in everyday life and the one most difficult in which to acquire skill, but it is the one upon which a knowledge of two of the other processes is more or less dependent.

LEARNING TO ADD

In learning to add, a child must master the fundamental combinations from $1 + 1$ to $9 + 9$; he must extend this knowledge to addition by endings so as to know, for example, from $8 + 5$ the sum of $18 + 5$, $28 + 5$, $38 + 5$, etc., and from $7 + 6$, the sum of $17 + 6$, $27 + 6$, etc.; he must be able to carry numbers in his mind as he adds a single column of figures; he must be able, also, to combine numbers of several orders when there is no reduction from one order to another; and then, finally, he must be able to add numbers of several figures where reduction is required.

These different stages in the development of the process should not be isolated. The fundamental facts and addition by endings must first be dwelt upon as facts, but the normal way of mastering them is to meet them again and again as they recur in column addition.

In developing or reviewing the fundamental facts, it is natural to write each sum first with symbols in the form of a statement rather than to indicate the addition by writing the figures in a column; that is, to write $2 + 3 = 5$ rather than $\frac{2}{+3}$. But this should be emphasized at first only, and later the column form be the one largely used.

SINGLE-COLUMN ADDITION

In the first work in single-column addition, care should be taken to include only numbers of the smallest value, such, for example, as 1, 2, and 3. In writing numbers at the blackboard, it will be found a good plan to write the number at the base of the column first and build upwards. This will enable the children to form the habit early of "adding up and testing down." In this work a child should be trained to use as few words as possible. For example, in adding a column containing 2, 5, 4, and 3, he should say, *seven, eleven, fourteen*; not, *2 and 5 are 7, and 4 are 11, and 3 are 14*. Let him group numbers in adding, if he does it of his own accord, but do not teach him to do so.

ADDITION BY ENDINGS

In teaching pupils to add by endings (see footnote, page 26, *Everyday Arithmetic*, Part One), care must be taken not to let the work go into a "sing-song." To have pupils recite tables, such as $2 + 3 = 5$, $12 + 3 = 15$, $22 + 3 = 25$ and so on to $92 + 3 = 95$, is a waste of time. The work is valuable only as it serves its end in column addition and therefore should be kept in close relation to this end. It should be taught in such a way as to lead a child, when in column work he hesitates at $29 + 7$, to think from the fact that $9 + 7 = 16$, the right hand figure in his sum is 6.

ADDING NUMBERS CONTAINING TWO OR MORE FIGURES

In teaching a pupil to add numbers containing two or more figures, only enough attention should be given to the analysis of the numbers into units, tens, and hundreds, to explain reduction. After the explanation has been made, the analysis should be dropped and the adding done with the fewest possible words. If a teacher prefers, the analysis may be omitted altogether.

LEARNING TO SUBTRACT

The fundamental facts of subtraction are most easily taught in relation to the corresponding facts in addition. They should be taught at first in this form only: $2 + ? = 5$, $3 + ? = 5$, etc.; but as soon as the children are thoroughly trained in thinking what number must be put with one number to make another, the pupils may be taught to use the minus sign. This transition should be made before the pupils reach the third grade.

In teaching subtraction with numbers of two and three figures, both the language and the method of work are so much simpler when subtraction is taught as subtraction than when taught by the so-called Austrian method, that the former is given the preference in the text. If, however, a teacher prefers, the latter may be substituted for it and the following form of explanation used.

$$32 - 18 = ?$$

$$\begin{array}{r} 32 \\ 18 \\ \hline 14 \end{array}$$

In this problem, since it is impossible to find a number that added to 8 gives 2, the number 10 is added to the 2 in the minuend and also to the 1 ten in the subtrahend. The problem is then solved by addition in this way: Since 8 and 4 make 12, the first figure in the answer is 4. Since 2 and 1 make 3, the second figure in the answer is 1. The difference is 14.

STUDY OF MULTIPLICATION

Skill in multiplication depends upon the mastery of the multiplication facts, usually taught in tables, and upon a child's ability to carry a reduction in his mind and to add the number obtained to the succeeding product. The idea of multiplication is easily developed in its relation to addition (see *Everyday Arithmetic*, Part One, pages 8 and 9). The practice in mastering the fundamental facts from 1×1 to 12×12 may be given in tables and by playing games, but as soon as possible the largest amount of drill should come from practice in multiplying numbers of several orders.

STUDY OF DIVISION

Just as the fundamental facts in subtraction are most easily taught in relation to the corresponding addition facts, the fundamental facts in division are most easily taught in their relation to the ones in multiplication. From the fact that 3 times 5 is 15, a child sees that there are 3 fives in 15, and therefore that $15 \div 5$ is 3; also that $\frac{1}{3}$ of 15 is 5.

Division troubles children more than any of the other three processes. For this reason the work should be carefully planned. In preparation for teaching the process, it will be found helpful to give the pupils a careful training in uneven division (see *Everyday Arithmetic*, Part One, pages 61 and 102).

The process of division is always the same, but the problems to be solved

by division are of two distinct types: namely, (1) finding a part; (2) finding how many times one number is contained in another. Since a part is always of the same kind as the whole to which it belongs, in finding a part by division, the quotient is of the same denomination as the dividend. Taking one half of \$240, or dividing \$240 by 2, gives a number of *dollars* as an answer. In finding how many times one number is contained in another, the quotient is always abstract. In dividing \$240 by \$120, the quotient is 2; in other words, \$120 is contained in \$240, 2 *times*.

Since the process used is the same in finding the quotient for the two types of problems, a child should not be taught to distinguish the two forms, — at least, not consciously to know that he is distinguishing them, — for the simple reason that if his attention is called to them he will grow confused. A teacher, however, should have very clearly in mind with which type of problem she is dealing at any one time.

BRIEF SUGGESTIONS

1. Arouse the interest of pupils in number by the frequent use of games, by varying the forms of drill, and by personal enthusiasm.

2. Make the books count. Teach topics from the blackboard and then turn to the books and use them to help fix the work in the minds of the pupils.

3. Prevent the formation of bad habits such as finger counting. (See page 3 of this *Manual*; also, the footnote, page 54, Part One, *Everyday Arithmetic*.)

4. Carefully supervise all written work.

5. Teach the pupils to use as few words as possible in computing.

6. Make the problem work real to the children by talking over the pictures in the book with them and by making suggestions here and there that will cause the children to connect the work with their own experiences.

7. In solving problems require answers only from the children. See that this work moves quickly and is enjoyed by all.

8. For supplementary work in problems, choose topics of current interest to pupils.

9. Encourage pupils to think out problems of their own from price lists and other data written on the blackboard. Results may be given in the form of statements and the problem itself be omitted. For example, instead of asking how many two-cent stamps can be bought for 20¢, the pupil makes the statement, "10 two-cent stamps can be bought for 20¢."

GRADE FOUR

AIMS: Acquisition of skill in the four fundamental processes through the solution of problems based on school and community interests and through daily drills. A knowledge of the fractional part through use.

FIRST QUARTER

(*Everyday Arithmetic*, Part Two, chapters I-II)

1. Review of addition and subtraction. The work is based on games, and on school and playground interests, and covers: (a) a review of the fundamental facts; (b) addition and subtraction by endings; (c) adding by rows and by columns; (d) addition and subtraction of numbers of three and four figures; (e) addition and subtraction of United States money.

2. Review of multiplication and division. This work is based on problems in buying, and covers: (a) a review of the fundamental facts in multiplication and division; (b) the reading and writing of numbers of six figures; (c) multiplication with one figure in the multiplier; (d) short division.

Field for automatic mastery in computing: the numbers 2, 3, 4, and 5 in adding, subtracting, multiplying, and in dividing.

Topics suggested for supplementary problems: School banking; buying school outfits; buying fall clothing.

SECOND QUARTER

(*Everyday Arithmetic*, Part Two, chapters III-IV)

1. Practice in the four fundamental processes continued through a study of the farm. Measuring farm produce, such as milk, fruit, vegetables, and grain. Weighing produce. Measuring land. New processes taught: (a) multiplication where the multiplier ends in one or more zeros; (b) multiplication with two figures in the multiplier; (c) first steps in long division.

2. A schoolroom store: (a) review of computing with coins; (b) making out bills; (c) selling a fractional part of a dozen; of a pound; of a yard.

Field for automatic mastery: the numbers through 6 in addition, subtraction, multiplication, and division.

Topics suggested for supplementary problems: Buying groceries for Thanksgiving; buying Christmas presents; buying coal and other household supplies.

THIRD QUARTER

(*Everyday Arithmetic*, Part Two, chapter V)

Continual practice in the fundamental processes in connection with a schoolroom ticket-office and problems in travel: (a) buying tickets; (b) time in travel. Expressing facts using large numbers. Multiplication with three figures in the multiplier. Practice in long division.

Field for automatic mastery: the numbers through 8 in addition, subtraction, multiplication, and division.

Topics suggested for supplementary problems: Current school interests; the city fire department; the street and park department.

FOURTH QUARTER

(*Everyday Arithmetic*, Part Two, chapters VI-VII)

1. Study of the fractional part of an inch in construction work: (a) measuring, using such parts of an inch as halves, fourths, and eighths; (b) learning to add and subtract, using these same fractional parts of an inch.

2. Garden measurements: (a) linear measurements; (b) areas.

3. Finding the cubical contents of boxes and other rectangular prisms.

4. Measuring temperature.

5. Review.

Field for automatic mastery: the numbers through 9 in addition, subtraction, multiplication, and division.

Topics suggested for supplementary practice: Poultry raising; selling garden produce; fitting out a boys' camp; planning a summer trip.

ACQUIRING SKILL IN THE FUNDAMENTAL PROCESSES

The main work of the fourth grade is that of acquiring skill in the fundamental processes. The success of the work is, therefore, largely dependent upon the careful grading of the work and upon developing in the children habits that will make them accurate.

ADDITION AND SUBTRACTION

For method of work in addition and subtraction, see pages 13-14 of this *Manual*; also footnote, page 7, *Everyday Arithmetic*, Part Two.

MULTIPLICATION

The one process that usually gives trouble in fourth-grade work is that of the mastery of the fundamental facts used in multiplying. It is often found

that hours of drill in the multiplication tables seem to have but little effect upon the ability of the pupils to multiply. The work does not seem to carry over and become effective. For this reason, it will be found economical of the energy of both pupils and teacher, if after a preliminary review of the tables, a major part of the time be devoted to practice in the process itself. When the children seem weak in knowledge of a certain group of facts the work should be arranged accordingly. If, for example, they do not know the table of sevens, problems in multiplication containing the number seven should be given frequently until the facts are mastered. (See multiplication problems, page 44, *Everyday Arithmetic*, Part Two.)

LONG DIVISION

Long division is the most complicated of the processes and gives trouble unless the work is carefully graded so that the pupils meet with but one difficulty at a time. At first, the numbers chosen should be such as give the children no trouble to manipulate, so that the attention of the pupils may be put on the succession of steps. As an aid in learning these steps, it is helpful first to show that long division is the same process as short division, with all the work written out. This can be done and the order of work taught by solving a number of short division problems by long division. After this work has been given, problems should be used containing such divisors as 20, 21, 22, 30, and 31 with dividends chosen that will give such quotients as 212, 321, 22, 2331. Using these numbers makes it almost impossible for the pupils to get into troublesome situations for which they are unprepared. The exercises in long division in *Everyday Arithmetic* have been carefully planned in accordance with the above ideals.

The process of long division should be taught through imitation without an attempt to explain such matters, for example, as the denomination of the figures in the quotient. The following is a good program of work: (1) The teacher demonstrates a problem explaining her method of work; (2) the teacher solves a number of other problems, the pupils directing her wherever they are able to do so; (3) one of the pupils works at the blackboard, the other children watching; (4) the teacher again demonstrates the process and a number of the pupils try at the blackboard. This program of work is followed until the majority of the pupils have a fairly clear idea of the process. When this stage is reached, a class exercise can be given, but not until this time arrives. For grading of the work, see *Everyday Arithmetic*, Part Two, pages 56, 57, 58, 59, 91, 92.

Throughout the study, it should be remembered that it is better for pupils to become well grounded in the simpler types of problems and to

keep their confidence in their ability to solve the problems than it is to have them cover a wider range of work and meet difficulties with which they are unable to cope.

BRIEF SUGGESTIONS

1. See that all work is made to connect with a child's experience. For example, teach each new process as a means of solving a problem based upon a familiar situation.

2. Encourage the pupils in making original problems and in otherwise thinking out number relations for themselves.

3. In working for skill, lay the emphasis on process work rather than on table drills and the mastery of single facts.

4. Keep the pupils confident and enthusiastic. Do not, for example, use arithmetic as a punishment.

5. Prevent the use of unnecessary words in computing; also the writing of unnecessary figures.

6. Cultivate in the children the habit of testing answers.

7. See that problem work and concrete number have their due proportion of the time and that the work does not degenerate into a mechanical drill.

8. In solving problems require answers only for "oral" work. In written work, occasionally ask pupils to explain how an answer is found. Encourage the pupils to make clear concise statements but do not force them to follow a set form of analysis.

GRADE FIVE

Arms: Further development of skill in the fundamental processes; a knowledge of common fractions; the use of decimals of two and three orders.

FIRST QUARTER

(Everyday Arithmetic, Part Three, chapters I-II)

1. Review, through daily drills and the use of such problem centers as fitting out a playground and paying household bills: (a) addition and subtraction; (b) multiplication; (c) division, with particular attention given to the mastery of long division.

2. A careful foundation laid for the study of common fractions: practice (a) in finding fractional parts; (b) in grouping and separating parts; (c) in changing the name of a part.

3. Meaning of: terms of a fraction, numerator, denominator, proper fraction, improper fraction, mixed number. Reduction of a fraction to lower terms. Raising a fraction to higher terms. Reduction of mixed numbers and of improper fractions.

4. Reviews and tests.

Topics suggested for supplementary problems: Ordering a day's supply from the grocer; buying school outfits; purchasing books for a boy's and a girl's library.

SECOND QUARTER

(*Everyday Arithmetic*, Part Three, chapters III-IV)

1. Study of addition and subtraction of fractions: (a) addition of like fractions; (b) subtraction of like fractions; (c) addition and subtraction of unlike fractions; (d) addition and subtraction of mixed numbers.

2. Study of multiplication and division of fractions: (a) multiplication of a fraction by a fraction, an integer by a fraction and a fraction by an integer; (b) multiplication of mixed numbers; (c) division of a number by a fraction; (d) division of mixed numbers.

3. Reviews and tests.

Topics suggested for supplementary problems: Finding the cost of a meal; the cost of a cake; ordering a Thanksgiving dinner; finding the amount of material required for Christmas gifts; finding the cost of the material; finding the amount saved by making gifts; buying Christmas decorations.

THIRD QUARTER

(*Everyday Arithmetic*, Part Three, chapters V-VI)

1. Use of large numbers: (a) reading and writing large numbers taken from the study of geography; (b) the zero in multiplication and division; (c) practice in solving problems based on studies in geography and travel.

2. Study of United States money and other uses of decimals: (a) the mill in United States money; (b) the four fundamental processes in United States money; (c) reading and writing of decimals of one, two, and three orders; (d) addition and subtraction of decimals; (e) multiplication of decimals; (f) division of a decimal by an integer.

3. Reviews and tests.

Topics suggested for supplementary problems: Studies in geography; local and long-distance travel.

FOURTH QUARTER

(*Everyday Arithmetic*, Part Three, chapters VII–VIII)

1. Continuation of the study of common fractions: (a) common aliquot parts of a dollar; (b) expressing a comparison; (c) review of the four fundamental processes with fractions.

2. Study of measurements: (a) linear measure; (b) square measure; (c) weight and number.

3. General review of year's work through studies in furnishing a house.

4. Tests.

Topics suggested for supplementary problems: Buying garden tools; buying equipments for other purposes.

LAYING A CAREFUL FOUNDATION FOR NEW TOPICS

The difficulties arising in the work in the fifth grade are due largely to the fact that formal treatment of the main topics, common and decimal fractions, are given before the pupils have had the necessary experience upon which to base the work. For this reason, teachers should conscientiously follow the plan of the text of carefully laying a foundation for each of the topics before taking up the work formally. See *Everyday Arithmetic*, Part Three, pages 28–39; also pages 92–98.

SKILL IN COMPUTING

The mastery of the work of the fifth grade can be secured only by daily spirited practice. It will help in making this practice effective if the children are trained to work at all times rapidly but at the same time carefully, and if they early form the habit of testing all answers. Time limits will be found helpful in this grade; also frequent tests of various kinds that make it possible for a child to measure his own progress. (See page 3 of this *Manual*; also footnotes, pages 25 and 26, *Everyday Arithmetic*, Part Three.)

SOLUTION AND ANALYSIS OF PROBLEMS

A pupil in the fifth grade should be taught to think through a problem before solving it, to work out its solution independently, and if an explanation is necessary, to explain the method of solution in his own language. (See page 4 of this *Manual*.)

Some of the devices that help a child in developing his power in reasoning out solutions of problems are: (1) much practice in solving problems with-

out the use of a pencil (see footnote, page 26, *Everyday Arithmetic*, Part Three); (2) finding approximate results; (3) practice in going through sets of problems telling how they should be done but without solving them at the time; (4) tests beginning with a simple problem and leading by gradual steps into more and more involved ones.

BRIEF SUGGESTIONS

1. Lay a careful foundation for each main topic of the year's work.
2. With the help of the books, plan each lesson carefully, so as to have definitely in mind the points to be made and the order of work to be followed.
3. Teach new topics from the blackboard. Use books to fix, in the minds of the pupils, the topics being taught.
4. Explain processes carefully, but do not expect pupils to give back your explanations. The pupils should be made intelligent in number, but it should be remembered that the chief aim of the fifth-grade work is not so much an understanding of principles as a thorough mastery of processes.
5. Vary the difficulty of the problem work so that the pupils do not meet too many difficulties at any one time. For example, the pupils should be led to solve two and three step problems in their work with integers and United States money, but in the addition of unlike fractions where the process used is involved, the problems should be kept simple.

GRADE SIX

AIMS: Proficiency (1) in computing with integers, with decimals of three and four places, with common fractions, and with per cents; (2) in solving two- and three-step problems based on school and playground interests, on the support and care of the home, and on the study of geography and community interests.

FIRST QUARTER

(*Everyday Arithmetic*, Part Four, chapters I-III)

1. Study of bills, accounts, and everyday problems in buying; exercises for skill in the fundamental processes with integers and with United States money; finding averages.
2. The use of large numbers in reading geographical and newspaper statistics; problems in areas and populations.
3. Study of decimals: (a) reading and writing decimals of six places;

(b) addition and subtraction of decimals; (c) multiplication of decimals; (d) division of decimals.

4. Reviews and tests.

Topics suggested for supplementary problems: School banking; spending an allowance; current geographical interests.

SECOND QUARTER

(*Everyday Arithmetic*, Part Four, chapters IV-V)

1. Review of common fractions with special attention given to their use in drawing and manual work.

2. Study of the "whole and part" in preparation for work in percentage: (a) finding the ratio of two numbers; (b) finding a part of a number when the whole is given; (c) finding the whole number when the part is given.

3. Reviews and tests.

Topics suggested for supplementary problems: Current projects in manual arts; running a newspaper route; other individual enterprises of pupils.

THIRD QUARTER

(*Everyday Arithmetic*, Part Four, chapter VI)

1. A study of percentage: (a) the meaning of per cent; (b) finding a percentage; (c) fractional equivalents for per cents; (d) learning to use fractional equivalents for per cents whenever it is convenient to do so.

2. Use of percentage in problems in buying goods at a discount; in selling goods at retail; in money at interest.

3. Expressing a comparison as a per cent; finding the number upon which a percentage is based.

4. Reviews and tests.

Topics suggested for supplementary problems: School athletics; other records.

FOURTH QUARTER

(*Everyday Arithmetic*, Part Four, chapters VII-VIII)

1. Study of linear and square measure through schoolroom measurements and athletic records: (a) estimating and computing distances and areas; (b) reduction of one denomination to that of another; (c) using compound numbers in addition, subtraction, multiplication, and division.

2. Measuring cubical contents.

3. Computing time: (a) finding differences in time in hours and minutes; the reading of railway time-tables; (b) study of the calendar; (c) subtraction of dates.

4. General review of year's work through studies in wage-earning, the management of a farm, and through problem tests.

Topic suggested for supplementary problems: The study of a local industry.

THE MAIN TASK

But few new arithmetical topics are taught in the sixth grade. Its main task, except for the work in percentage, is the acquirement of skill in the processes already taught. The pupils, by the end of the year, should be able to compute accurately with integers, common fractions, decimals, and per cents, and be able to solve all of the main types of problems that are commonly met in everyday transactions. In this work for proficiency in essential processes, the pupils should broaden their methods of work by showing more personal initiative than in previous years, and by working with greater independence. A premium should be put at all times not only upon accuracy and speed in computing, but upon the discovery of original and economical ways of solving problems. (See pages 3, 4, and 5 of this *Manual*.)

THE WORK IN DECIMALS

The fundamental processes with decimals are easily mastered with the exception of division. The one thing that gives trouble in this process is the placing of the decimal point in the quotient when dividing a decimal or integer by a decimal. But one method should be given for this, and the process taught mechanically. (See *Everyday Arithmetic*, Part Four, pages 36 and 37.) If the method chosen is that of "clearing the divisor," the habit of crossing out of decimal points in the dividend and divisor and writing in new ones should be discouraged. With either method, it will be found helpful to give careful attention to the alignment of figures so that no confusion will arise from mistaking the position of a figure.

RATIO AND PERCENTAGE

In mastering arithmetical processes that are frequently used, it is unnecessary for the pupil to think through any reasoning involved in them. In learning to add, for example, the essential thing is practice in the process from a mechanical standpoint and not an understanding of the reductions involved. With processes that are only occasionally used, such as some of those in percentage, the case is different. These must be grasped intellectually so that the mind can again command them by a process of reasoning. To recall a formula that has been seldom used is difficult. To think

out a method of work from an understanding of the subject is comparatively easy.

In teaching percentage, it will be found economical to put it in the class of topics to be mastered by a thorough understanding rather than wholly by mechanical drill. In preparation for the study, the pupils should be made familiar with the three types of problems involved, through a study of the "whole and the part." (See *Everyday Arithmetic*, Part Four, chapter V.) With this study as a basis, the pupils should be led to think out all the relations involved and to work out the problems by analysis, leaving formula and mechanical methods for a later year, when the mind has had sufficient experience to be ready for thus summarizing the work. The main emphasis of the study should, of course, be put upon the type of problem most commonly met — the "first case" in percentage.

PROBLEM WORK

Pupils in the sixth grade should begin to show power in interpreting problems, in estimating answers when there is a reason for doing so, and in getting correct results. The pupils should also begin now to use a series of equations or statements showing the different steps in the solution of a problem and to take advantage of cancellation whenever it will shorten the work. (See explanations, *Everyday Arithmetic*, Part Four, pages 95, 96.)

BRIEF SUGGESTIONS

1. Train the pupils to work rapidly, but at the same time carefully.
2. Hold pupils to a high standard of accuracy.
3. Encourage pupils to make short cuts which they themselves discover.
4. Whenever suitable occasions arise, have pupils give approximate results.
5. In drill work, lay the emphasis on integers, fractions of small denomination, decimals of three figures or less, and upon the most common uses of per cents.
6. See that pupils are not only proficient in computing, but that they develop ability in *using* number as a tool.
7. Encourage pupils to bring in data for problems and to work out studies based on their own surroundings and community interests.

GRADE SEVEN

AIMS: The seventh grade marks the beginning of new aims in the study of arithmetic. In the first six grades, the work covers the essential processes and their applications to familiar experiences. In the seventh and eighth grades, the work aims to train the pupils in the uses of arithmetic as it is applied to common aspects of business, industry, and other phases of community life. Through this study, the pupils should gain ability to interpret problems; to estimate answers; to state answers in reasonable form; to choose economical methods of work; to compute accurately and with reasonable speed; and otherwise to become proficient in using number as a tool.

FIRST QUARTER

(*Everyday Arithmetic*, Part Five, chapters I-III)

1. Review of the essential processes with integers and common fractions, with special attention to accuracy and speed in computing and to the solution of practical problems.
2. The use of large numbers in statistics taken from geography and history.
3. Review of decimals. Problems showing the value of decimals.
4. Review of percentage. The use of the equation in percentage.

SECOND QUARTER

(*Everyday Arithmetic*, Part Five, chapters IV-V)

1. Discussion of the meaning of business and the different kinds carried on in the community.
2. Selling goods at retail: (a) gross and net profit; (b) discount.
3. Selling goods at wholesale: (a) commission; (b) double discounts.
4. The manufacture and sale of goods.
5. Shipping goods: (a) by parcel post; (b) by express; (c) by freight.
6. Protection against loss: (a) fire insurance; (b) life insurance.

THIRD QUARTER

(*Everyday Arithmetic*, Part Five, chapters VI-VII)

1. Opening a bank account: (a) filling out a deposit slip; (b) filling out and indorsing a check; (c) keeping a record of deposits and withdrawals.
2. Money at interest: (a) finding interest for a given number of years

and months; (b) finding interest for a given number of days; (c) finding interest between dates; (d) finding the rate, time, and principal in interest.

3. An account in a savings bank: (a) meaning of compound interest; (b) use of compound interest table.

4. Study of geometric form in measurements: (a) use of lines and angles; (b) quadrilaterals; (c) triangles; (d) circles; (e) rectangular prisms.

FOURTH QUARTER

(*Everyday Arithmetic*, Part Five, chapters VIII-IX)

1. Measurements continued; a study of building a house.

2. General review of year's work through problem tests and studies in civics

COMMUNITY NEEDS AND STANDARDS

All the work should conform to actual conditions and usage in the community, and the standards of accuracy and efficiency that are required in the business and industrial world should be insisted on in the schoolroom. A problem should not be marked 80% "because it contains only a slight mistake." In business a problem is right or wrong and a succession of errors may cost a man his place. In the higher grammar grades, absolutely accurate work should be expected from pupils; if many mistakes occur, either the lesson assignments are too difficult and should be made easier, or pupils need more drill on the essential processes, or their ambition needs to be quickened.

SHORT CUTS

The work in the *Everyday Arithmetic* is designed to train pupils to an increasing independence of the pencil. Definite training is given in simple "short-cuts" that business men have found useful, and encouragement is given to pupils to use these. Do not require set forms for either the solution or the explanation of problems; insist only on clear, direct methods, accuracy of statement and in results, and neatness and legibility in written work.

APPROXIMATION OF ANSWERS

Pupils should be trained to express all their answers in businesslike form. It is customary in business transactions to express answers in dollars and cents to the nearest cent — five mills or over is called another cent; less than five mills is discarded. Other decimals may generally be approximated, in the same way, in the third decimal place. Some answers — averages, per capita distributions, etc. — of course require more exact fractions.

(See also suggestions for teaching the Eighth-Grade Work, page 30 of this *Manual*.)

GRADE EIGHT

GENERAL AIMS: Ability to interpret data; to estimate results; to choose economical methods of work; to compute accurately and with reasonable speed.

Social and economic aims: Skill in solving the simple practical problems of everyday life; knowledge of common business forms and methods; insight into some of the simpler quantitative phases of the home, the community, and the business and industrial world.

FIRST QUARTER

(Everyday Arithmetic, Part Six, chapters I-III)

1. Exercises for skill in the fundamental processes.
2. Common business forms: bills and invoices; accounts; inventories; contracts.
3. The transmission of money: (a) by registered mail and express; (b) by postal money orders and express orders; (c) by bank checks and drafts; (d) by telegram and cable. Sending money to foreign countries.

SECOND QUARTER

(Everyday Arithmetic, Part Six, chapters IV-VI)

1. Saving and investing money: (a) savings banks; (b) real estate; (c) stocks and bonds; (d) investments in business.
2. Borrowing and loaning money: (a) promissory notes; (b) bank discount.
3. Collecting money: (a) itemized bill and monthly statement; (b) the commercial draft; (c) collecting agencies.

THIRD QUARTER

(Everyday Arithmetic, Part Six, chapters VII-X)

1. Support of the government and its expenditures. National government: (a) what our national government does for us; (b) import duties; internal revenue; income tax. State and local governments: (a) what our state and local governments do for us; (b) taxes on real estate; personal property.
2. Useful measurements: (a) finding the cubical contents, or volume, of boxes, bins, and other solids; (b) measuring heat; air pressure; power in

machines; velocity of sound and light; gas and electricity; (c) the metric system.

3. Powers and roots.

4. Ratio and proportion.

FOURTH QUARTER

(*Everyday Arithmetic*, Part Six, chapters XI–XII)

1. General review of grammar-school arithmetic: (a) integers, fractions, and decimals; (b) the algebraic equation as a useful tool in solving problems; (c) percentage; (d) applications of percentage; (e) measurements.

2. Civic and industrial studies.

HOW TO MAKE THE WORK REAL

All antiquated topics and unusual problems that have too long encumbered the study of arithmetic should be omitted, and pupils should be brought into contact with the local problems of the life about them. It will be found that the *Everyday Arithmetic* takes a long step in advance in this respect. The information given and the problems, as well, have been gathered from the workaday world. Moreover, throughout the year's work, there are frequent directions and suggestions that pupils should make a first-hand study of local conditions and gather material for original problems based on conditions and prices that prevail in the community. The more fully this aspect of the work is taken advantage of, the more valuable will be the result. The best way to learn about a bank is to visit a bank (see Part Five, chapter VI); the best lesson in taxes is a study of the local taxation system (see Part Six, chapter VII).

OMISSIONS

Teachers should feel free to omit topics or problems, both required and optional, that have little value for their pupils. Although the effort has been made to select for the *Everyday Arithmetic* topics and problems of the greatest value to the majority of pupils, obviously some of the material will be of less value to pupils in a given locality than to pupils in other places.

(Read carefully, also, suggestions for teaching the Seventh-Grade Work, page 28 of this *Manual*.)

**ANSWERS
TO
EVERYDAY ARITHMETIC**

NOTE : The page references in connection with exercise numbers in the following pages are to the pages in *Every-day Arithmetic* on which the problems under the various exercises begin.

Answers to problems involving business transactions are approximated to the nearest cent: that is, five or more mills are called another cent ; sums less than five mills are discarded. This rule, however, does not apply to averages, per capita costs, etc.

EVERYDAY ARITHMETIC

ANSWERS — PART ONE

Ex. 43, p. 50	3. 831 mi.	20. 804	3. 473	Ex. 53, p. 60
1. 63, 76, 94	4. 792	21. 892	4. 282	1. 81
2. 52	5. 552	Ex. 49, p. 56	5. 292	2. 91
3. 61	6. 246	1. 17	6. 191	3. 61
4. 146	7. 556 mi.	2. 14	7. 104	4. 180
5. 66	8. 797 tons	3. 57	Ex. 51, p. 58	5. 380
6. 96	9. 625	4. 15	1. 291; 174	6. 272
7. 383	Ex. 46, p. 52	5. 28	2. 622	7. 91
Ex. 44, p. 51	1. 82	6. 38	3. 291	8. 51
1. 50	2. 173	7. 56	4. 191	9. 60
2. 81	3. 84	8. 68	5. 321	10. 270
3. 90	4. 336	9. 34	6. 419	11. 371
4. 101	5. 523	10. 78	7. 139	12. 851
5. 54	6. 155	11. 15	8. 314	13. 482
6. 182	7. 129	12. 47	9. 494	14. 781
7. 82	8. 135	13. 68	10. 83	15. 442
8. 63	9. 452	14. 68	11. 180	16. 682
9. 50	10. 485	15. 33	12. 344	17. 526
10. 361	11. 96	16. 28	13. 344	18. 515
11. 392	12. 94	17. 17	14. 717	19. 25
12. 325	13. 156	18. 25	15. 473	20. 42
13. 645	14. 691	19. 35	16. 660	21. 44
14. 527	15. 915	20. 16	Ex. 52, p. 59	22. 53
15. 526	Ex. 47, p. 54	Ex. 50, p. 57	1. 30	23. 250
16. 917	11. 199	I	2. 56	24. 234
17. 572	12. 251	1. 17	3. 78	25. 64
18. 435	13. 252	2. 16	4. 60	26. 67
19. 462	14. 233	3. 15	5. 932	27. 38
20. 726	15. 264	4. 18	6. 71	28. 46
21. 934	16. 244	II, p. 58	7. 682	29. 146
Ex. 45, p. 52	17. 891	1. 52	8. 18	30. 227
1. 608	18. 919	2. 682	9. 16	31. 55
2. 866	19. 794		10. 172	32. 55
				33. 45

34. 186
35. 682
36. 462
37. 81
38. 639
39. 727
40. 962
41. 512
42. 381
43. 53
44. 233
45. 35
46. 256

Ex. 55, p. 63

10. 232
11. 240
12. 266
13. 294
14. 255
15. 283

Ex. 63, p. 75

I

1. \$6.89
2. \$9.41
3. \$9.70
4. \$7.71
5. \$1.63
6. \$4.40
7. \$6.43
8. \$3.53
9. \$4.08
10. \$9.36
11. \$1.75
12. \$2.10
13. \$4.65
14. \$2.40
15. \$4.50
16. \$1.75

17. \$1.35
18. \$2.05

II, p. 76

1. \$.94
2. \$.83
3. \$15.00
4. \$37.00
5. \$6.99
6. \$2.50
7. \$3.70
8. \$2.07
9. \$8.70
10. \$15.60

11. \$3.34
12. \$4.20
13. \$3.38
14. \$3.39
15. \$2.03
16. \$3.09
17. \$6.56
18. \$2.14
19. \$7.07
20. \$5.82

Ex. 65, p. 78

2. 60¢
3. 78¢
4. \$1.88
5. \$2.57
6. \$.50
7. \$1.07
8. \$.70
9. \$1.05
10. \$.22

Ex. 67, p. 83

1. 286; 279;
254
2. 86
3. 62

4. 260
5. 95
6. 92
7. 508
8. 315
9. 3407

Ex. 68, p. 84

1. 65¢
2. 75¢
3. \$4.15
4. 25¢
5. \$2.75
6. 31¢
7. \$3.02
8. \$3.25
9. \$1.50
10. \$4.50
11. \$.50
12. \$1.25
13. \$1.50
14. \$4.50
15. \$4.25
16. \$1.75
17. \$.75

18. \$2.25
19. \$1.50
20. \$3.20
21. \$.55
22. \$2.57

Ex. 69, p. 85

25. 40
26. 109
27. 91
28. 92
29. 173
30. 3424
31. 1100
32. 958
33. 610

34. 1102
35. 5122
36. \$10.37
37. \$9.62
38. \$10.55
39. \$11.43
40. \$34.53
41. \$2.17
42. \$1.44
43. \$1.84
44. \$2.58
45. \$6.26

Ex. 70, p. 87

11. 315
12. 235
13. 336
14. 257
15. 273
16. 239

Ex. 73, p. 92

III

1. 484
2. 366; 426
3. 846 ft.
4. 488 ft.
5. 216 yd.

Ex. 74, p. 92

1. 86
2. 486
3. 608
4. 2644
5. 4868
6. 46
7. 690
8. 966
9. 3906

10. 6990
11. 90
12. 808
13. 800
14. 4800
15. 6306
16. 280
17. 2048
18. 408
19. 8408
20. 8480
21. 108
22. 1460
23. 1684
24. 2648
25. 8426

Ex. 75, p. 93

1. 34 in.
2. 56 ft.
3. 254 yd.
4. 892 mi.
5. 75 ft.
6. 72 in.
7. 152 ft.

Ex. 76, p. 93

I

1. 28
2. 54
3. 72
4. 436
5. 375
6. 565
7. 32
8. 76
9. 65
10. 672
11. 450
12. 672

II, p. 94	2. 3717	4. 32	II, p. 106	8. 300
1. 328	3. \$11.32	5. 423	1. 64	9. 109
2. 813	4. \$3.06	6. 24	2. 66	10. 102
3. 1528	5. 726	7. 34	3. 52	11. 201
4. 568	6. 692	8. 431	4. 54	12. 600
5. 755	7. 1140	9. 404	5. 73	13. 300
6. 1920	8. \$3.82	10. 430	6. 31	14. 350
7. 652	9. \$8.52	11. 23	7. 34	15. 303
8. 432	10. \$23.24	12. 31	8. 31	16. 105½
9. 1092	Ex. 79, p. 97	13. 120	9. 32	17. 103½
17. 120	11. \$6.75	14. 231	10. 31	18. 101½
18. 128	12. \$2.60	15. 103	11. 21	19. 750
19. 115	13. 75¢	16. 21	12. 30	20. 1130
20. 72	14. 72¢	17. 22	13. 32	21. 2240
21. 168	15. \$7.70	18. 210	14. 21	22. 1130
22. 120	16. \$1.08	19. 101	15. 22	23. 1240½
23. 184	17. 76¢	20. 201	III, p. 107	24. 113½
24. 1365	Ex. 80, p. 98	Ex. 85, p. 105	1. 271	25. 404
25. 1056	10. 246	1. 47, 26, 24	2. 162	26. 150
26. 4026	11. 268	2. 29	3. 142	27. 2030
27. 5490	12. 284	3. 24	4. 277	28. 330
28. 285	13. 308	4. 23	5. 113	29. 1020
29. 2548	14. 347	Ex. 86, p. 106	6. 132	30. 3750
30. 2250	15. 292	I	7. 133	Ex. 87, p. 108
31. 9728	Ex. 82, p. 101	1. 27	8. 377	I
32. 12,900	1st. F.'s side,	2. 13	9. 492	10. 211
33. 402	138	3. 14	10. 224	11. 336
34. 3129	M.'s side,	4. 16	11. 121	12. 180
35. 2144	147	5. 15	12. 238	13. 250
36. 6850	2d. F.'s side,	6. 16	13. 133	14. 32
37. 8435	128	7. 18	14. 244	15. 24
Ex. 77, p. 95	M.'s side,	8. 15	15. 142	16. 43
1. \$1.36	185	9. 17	IV, p. 107	17. 55
2. \$1.65	Ex. 84, p. 104	10. 14	1. 120	18. 22
3. \$76	II	11. 14	2. 204	19. 23
4. \$1.50	1. 312	12. 39	3. 200	20. 42
5. \$4.60	2. 423	13. 17	4. 150	21. 54
6. \$11.00	3. 121	14. 18	5. 130	22. 125 lb.,
Ex. 78, p. 95		15. 17	6. 110½	60 yd.,
1. 545			7. 40	202 mi.

II, p. 109	4. \$6.75	30. 1865	Ex. 107, p. 131	24. 33
1. \$2.40	5. \$3.00	31. 22	2. 25 in.	25. 233 $\frac{1}{4}$
2. \$2.70	6. \$2.60	32. \$43.75	3. 5 in.	26. 103
3. \$2.50	7. \$1.30	33. \$14.88	4. 60¢	27. \$17.57
4. \$3.20	Ex. 90, p. 111	34. 745	5. 30¢	28. \$2.27
5. \$4.00	10. 293	35. \$5.23	Ex. 109, p. 133	29. \$8.52
6. \$2.40	11. 303	36. \$9.60	1. 97	30. \$20.95
7. \$2.10	12. 304	37. \$4.20	2. \$700	31. \$2.13
8. \$3.30	13. 305	38. 1312	3. \$654	32. \$2.11
9. \$2.40	14. 366	39. 54	4. \$10,000	33. \$43.80
Ex. 88, p. 109	15. 327	40. \$4.70	5. 154	34. \$4.86
1. \$8.08	Ex. 93, p. 113	41. \$2.60	6. 300 ft.	II, p. 138
2. \$5.61	1. 46	Ex. 94, p. 115	7. 6300 gal.	31. 848 ft.
3. \$7.02	2. 384	17. \$1.20	Ex. 110, p. 134	32. 96 hr.
4. \$16.90	3. 584	18. \$5.60	2. 138 mi.	33. 493
5. \$6.25	4. 595	19. \$7.96	3. 62	34. 45 da.
6. \$2.48	5. 1345	20. \$1.50	4. 156	35. \$3.52
7. \$2.43	6. \$.91	21. \$5.25	5. 26	36. \$2.25
8. \$1.72	7. \$7.70	Ex. 104, p. 128	6. \$250;	37. \$4.25
9. \$4.66	8. \$5.82	4. 34 $\frac{1}{2}$ wk.	\$337	Ex. 112, p. 139
10. \$6.48	9. \$7.83	5. 15 $\frac{1}{2}$ wk.	Ex. 111, p. 136	I
11. \$6.75	10. \$8.38	6. 17 $\frac{1}{2}$ wk.	I	1. 4632
12. \$5.76	11. 64	7. 30 $\frac{1}{2}$ wk.	7. 746	2. 2748
13. \$17.50	12. 104	Ex. 106, p. 130	8. 1342	3. \$3.03
14. \$10.50	13. \$4.52	2. Perime-	9. 933	4. \$4.86
15. \$2.20	14. \$2.77	ter, 220ft.	10. 5579	5. 2434
16. \$4.35	15. \$3.57	3. 7 wk.; 8	11. 11,441	6. 1488
17. \$2.20	16. 261	wk. 4 da.;	12. 517	7. \$6.96
18. \$1.30	17. 2712	9 wk.; 9	13. 641	8. 162
19. \$8.63	18. \$48.80	wk. 2 da.;	14. 644	9. 22
20. \$2.60	19. \$50.82	10 wk.;	15. 171	10. \$1.30
21. \$2.96	20. \$39.69	21 wk. 3	16. 1836	II, p. 140
22. \$2.80	21. 221	da.	17. 1280	11. 225 ft.
23. \$1.80	22. 62	4. 72	18. 2070	12. 72
24. \$3.28	23. 102	5. 66	19. 819	13. \$4.90
25. \$6.40	24. \$2.80	6. \$7.50	20. 4164	14. 25 da.
26. \$1.80	25. \$1.32	7. \$.75;	21. 8592	15. \$1.54
Ex. 89, p. 110	26. 240	\$6.00	22. 221	16. \$2.05
1. \$1.25	27. 158	8. 15; 30	23. 124	
2. \$.25	28. 1504	9. \$2.25		
3. 25 days	29. 66			

ANSWERS—PART TWO

Ex. 7, p. 8	7. 2944	30. 2539	11. 302	17,720
3. 230	8. 588	31. \$1.19	12. 150	12,325
4. 568	9. 141	32. \$1.92	13. 248	\$173.60
5. \$5.14	10. 1575	33. \$11.54	14. 401	4th Column
Ex. 8, p. 9	11. 3604	34. \$13.78	15. 105	180,000
1. 1997	12. 6813	35. \$33.74	16. 501	48,252
2. 13,879	Ex. 11, p. 12	Ex. 13, p. 15	Ex. 24, p. 30	16,800
3. 14,651	1. 377	II	4. 864 bbl.	30,240
4. 17,310	2. 566	2. 108 ft.	5. 568 lb.	\$185.10
5. 20,677	3. 298	6. 104 ft.	6. 2592 bu.	5th Column
6. \$17.19	4. 1778	7. 18 ft.	7. \$26.22	21,329
7. \$66.11	5. 3976	8. 216 in., or	8. 1200	16,856
8. \$151.60	6. 6758	18 ft.	9. 360 lb.	23,989
9. \$626.94	7. 3649	9. 32 ft.	10. \$12.50	58,730
10. \$1136.44	8. \$3.28	10. 68 in., or 5	11. \$2.24	\$492.80
\$592.56	9. \$6.76	ft. 8 in.	12. \$1.40	Ex. 26, p. 32
\$67.45	10. \$11.72	11. 36 ft.	13. \$8.55	I
\$390.72	Ex. 12, p. 13	Ex. 15, p. 18	14. \$2.45	4. 15; 29; 60;
\$99.11	13. 2497	11. 76 ft.	15. 22¢	53
\$768.92	14. 2987	12. 1144 ft.	Ex. 25, p. 31	5. 25 yd.
\$79.52	15. 16,996	13. \$20.73	1st Column	6. 18
Ex. 9, p. 11	16. 22,897	14. \$29.27	1248	7. 24
3. 272	17. 19,695	15. \$24.72	896	II, p. 33
4. 114	18. 13,000	Ex. 16, p. 19	1380	1. 120 yd.
5. \$1.44	19. 7587	1. 303	1092	2. \$28; 36¢;
6. \$3.76	20. 13,999	2. 247	\$9.76	41 ft.
7. 116	21. 14,908	3. 98	2d Column	4. \$1.20
8. 35	22. 15,578	4. 204	951	5. 62¢
9. \$5.50	23. \$120.12	5. 808	735	6. \$7.50
Ex. 10, p. 11	24. \$587.21	6. 504	1032	Ex. 27, p. 34
3. 342	25. \$1401.67	7. 698	1368	1. 244
4. 414	26. 522	8. 895	\$11.34	2. 230
5. 3485	27. 627	9. 1998	3d Column	3. 401
6. 1406	28. 663	10. 5998	10,715	4. \$13.22
	29. 1198		21,120	

5. 123	3. \$1.62	32. 640 $\frac{1}{2}$	14. 3983	8. 6000 lb.
6. 350 $\frac{1}{2}$	4. \$1.87	33. 8192	15. 6146	9. $\frac{1}{2}$ T.
7. 1020	5. \$1.50	34. \$4.31	16. 4886	10. 1 $\frac{1}{2}$ T.
8. \$10.31	6. \$2.52	35. \$5.92 $\frac{1}{2}$	17. 56,686	11. 200 lb.
9. 3827	7. \$6.35	36. \$161.50	18. 49,623	Ex. 36, p. 51
10. 488	8. 11 wk. 6	Ex. 30, p. 39	19. 182 $\frac{1}{2}$	II
11. 1102	da.	11. \$33.75	20. 457 $\frac{1}{2}$	16. 2730
12. \$8.23	9. 15 wk.	12. \$8.76	21. 644	17. 2720
13. 134 $\frac{1}{2}$	Ex. 29, p. 37	13. \$9.23	22. 2763	18. 14,600
14. 445 $\frac{1}{2}$	1. 20,000	14. \$2.75	23. 4944	19. 8500
15. 301 $\frac{1}{2}$	2. 300,000	15. \$.85	24. \$227.15	20. 31,600
16. \$22.12	3. 1725	16. \$4.10	25. \$61.32	21. 186,900
17. 362 $\frac{1}{2}$	4. 23,840	17. \$3.17	26. \$118.86	22. 513,000
18. 3500	5. 250,908	Ex. 31, p. 41	Ex. 35, p. 48	23. 172,000
19. 306	6. 2571	14. 51¢	II	24. 186,000
20. \$13.22 $\frac{1}{2}$	7. 3062	15. \$1.82	7. 64¢	25. 720,000
21. 133	8. 3088	16. \$8.65	8. \$1.00	26. 280,000
22. 1210	9. 18,108	17. \$2.11	9. 10¢	27. 387,000
23. 1322	10. 33,652	18. \$10.00	10. 25¢	Ex. 38, p. 53
24. 44,823 $\frac{1}{2}$	11. 11,092	19. \$8.00	11. \$1.60	1. 429
25. 3261 $\frac{1}{2}$	12. 12,385	20. \$2.78	13. 24 qt.	2. 924
26. 2460	13. 5899	Ex. 32, p. 43	14. 2 pk.	3. 704
27. 1234	14. 6886	11. \$41.21	15. 16 qt.	4. 2873
28. 935	15. 12,594	12. \$2.02	16. 6 pk.	5. 2952
29. 443	16. 11,625	13. \$43.45	17. 9 bu.	6. 448
30. 32,610	17. \$232.73	14. \$2.75	18. 1 bu.	7. 234
31. 1304	18. \$737.64	15. \$29.25	19. 13 qt.	8. \$16.20
32. 706	19. 117	Ex. 33, p. 44	20. 11 pk.	9. 86
33. 504	20. 91,506	4. 3881	21. 48 qt.	10. \$94.50
34. 501	21. 81,106	5. 3722	22. \$1.12	11. \$18
35. 610	22. 90,731	6. 3743	23. 96¢	12. 946
36. \$4.15	23. \$10.50	7. 4242	24. 60¢	13. 195
37. \$12.02	24. \$6.50	8. 3466	25. \$3.25	14. 182
38. 175	25. \$119.80	9. 171	26. \$8.82	15. 504
39. 122 $\frac{1}{2}$	26. 21,624	10. 123	27. \$2.00	16. 4872
40. 115	27. \$296.01	11. 2486	28. \$1.00	17. 3124
41. 84	28. \$384.45	12. 6045	III, p. 49	18. 6603
Ex. 28, p. 35	29. \$746.40	13. 3438	6. 120 lb.	19. 3168
1. \$1.16	30. 218		7. 1200 lb.	20. 9984
2. \$2.31	31. 213			

21. 9522	25. 11,662	4. 14	5. 420 bu.	4. \$170.50
22. 53,724	26. 104,576	5. 21 da.	6. \$1870	5. \$1,040.75
23. 100,386	27. 175 $\frac{1}{2}$	6. 32 mi.	7. 31 T.	6. 3252
24. 13,524	28. 449	7. 232	8. 3000;	7. 11,572
25. 3416	29. 999	8. 21 $\frac{1}{2}$	21,000	8. 26,693
26. 6195	30. 330	9. 12	9. 1500;7500	9. 61,155
27. 5412	31. 423	10. 121	Ex. 43, p. 61	10. 48,393
28. 40,672	32. 241	11. 231	1. 11	11. 18,880
29. 57,600	33. 324	12. 321	2. 116	12. 18,741
30. 8650	34. 548	13. 321	3. \$750	13. 9011
31. 15,282	35. \$87.91	14. 212	4. \$744	14. 11,270
32. 16,872	36. \$1139.43	15. 322	5. \$108	15. 25,761
33. 24,444	37. \$14.03	16. 220 $\frac{1}{2}$	6. \$121.50;	16. 17,059
34. 102,864	38. \$20.37	17. 212	\$20.80	17. 50,343
35. 239,616	39. \$310.08	18. 231	7. \$1744.30	18. 1390
Ex. 39, p. 55	40. \$531.52	19. 12	8. 23	19. 879
1. 8922	41. \$2374.40	20. 121	9. 8	20. 158
2. 500,000	42. \$7.47	21. 212	10. \$4.48	21. 5515
3. 44,303	Ex. 40, p. 56	22. 213	11. 722 lb.	22. 3373
4. \$20.08	I	23. 11	12. \$190	23. 1920
5. \$309.05	1. 2433	24. 12	Ex. 44, p. 62	24. 97,800
6. 3491	2. 2345	25. 21	1. 160 A.	25. 950,000
7. 15,578	1396	26. 31	2. 174	26. 10,104
8. 37,094	325	27. 22	3. 240 rd.	27. 12,032
9. 32,880	II, p. 57	28. 31	4. 23	28. 18,768
10. 182,256	1. 213	29. 22	5. \$505	29. \$86.40
11. 37,351	2. 123	30. 31	6. 33 bu.	30. \$357.60
12. 22,111	3. 12	31. 21	7. 24 bu.	31. \$1815
13. 19,310	4. 212	32. 22	8. \$665	32. 121
14. 58,662	5. 121 $\frac{1}{2}$	33. 23	9. \$180	33. 214
15. 43,361	6. 213	34. 21	10. \$558	34. 120
16. 90,504	7. 43 $\frac{1}{2}$	35. 212	11. \$262.50	35. 12
17. 8393	8. 213 $\frac{7}{8}$	36. 213	12. \$1605	36. 323
18. 774	III, p. 58	37. 2321	13. 10,560 ft.	37. 332
19. 654	1. 312	38. 2322	Ex. 45, p. 63	38. 2321
20. 3571	2. 42; 231;	Ex. 42, p. 60	1. 10,093	39. 324
21. 4622	31	1. 25 A.	2. 75,008	40. 500
22. 3255	3. 124	2. 25 A.	3. 200,200	41. \$128.89
23. 160,940		3. 1200 bu.		42. \$904.17
24. 157,200		4. 440 bu.		43. \$224.80
				44. \$17.36

45. \$162.24	23. 21 A	409,275	2,503,268	6. 201
46. \$1.04 $\frac{1}{2}$	24. \$3360	360,825	3,498,748	7. 301
47. \$3.14	25. \$193	339,150	10. 226,305	8. 302
48. \$2.03		8. 255,258	164,970	9. 301
	Ex. 54, p. 80	86,064	478,695	10. 300
Ex. 47, p. 68	17. \$52.50	126,814	1,505,175	11. 20
1. \$4.08	18. \$8.73	318,828	4,553,795	12. 23
2. Am't due,	19. \$5.02	283,294	11. 851,851	13. 20
\$2.71	20. \$6.30			14. 24
3. \$2.83	21. \$18.50	Ex. 60, p. 91	Ex. 61, p. 91	15. 31
4. \$12.73		1. 34,884	1. 22 mi.	16. 23 $\frac{1}{11}$
5. \$21.46	Ex. 56, p. 83	83,636	2. 24 mi.	17. 210
6. \$7.58	2. 34¢	24,522	3. 42 mi.	18. 404
7. \$7.57	3. 80¢	103,284	4. 17 mi.	19. 310
8. \$8.52	4. \$1.42	2. 11,648 lb.	5. 62 mi.	20. 311 $\frac{7}{11}$
9. \$19.60	5. 30¢	3. 1,071,840	6. 31	II, p. 93
10. \$.77	6. 32¢	ft.	7. 213	1. 30
11. \$1.10	7. 34¢	4. 79,800 bu.	8. 27	2. 20 bbl.
	8. 30¢	5. 32,844	9. 321	3. 400 bu.
Ex. 53, p. 76	9. 46¢	21,726	10. 531	4. 30
I	Ex. 59, p. 90	135,048	11. 22	5. 270
1. 125,747	1. 45,368	247,962	12. 32 $\frac{1}{5}$	6. 102
2. \$177.83	37,752	326,808	13. 213	7. 27
3. 4205	29,962	6. 28,826	14. 121 $\frac{1}{11}$	8. 59
4. 2660	68,586	47,299	15. 2321	9. 28
5. \$52.58	2. 150,380	247,863	16. 231	10. 323 $\frac{1}{11}$
6. 53,515	3. \$128.80	491,666	17. 28	11. 65
7. 27,600	4. \$954	495,929	18. 37 $\frac{1}{11}$	12. 213
8. 9752	5. 51,759	7. 126,048	19. 121 $\frac{7}{11}$	13. 30 $\frac{1}{11}$
9. 1209 $\frac{1}{2}$	110,973	88,072	20. 2311	14. 2331 $\frac{4}{11}$
10. 312	49,842	287,244	21. 124	15. 624
	116,298	324,816	Ex. 62, p. 92	16. 50 $\frac{1}{11}$
II, p. 78	80,514	542,168	I	17. 402
16. \$3.70	6. 79,344	8. 121,946	1. 41; 30;	18. 352
17. \$2.52	105,496	161,920	200; 20;	19. 21
18. \$3.00	61,944	408,848	101	20. 42
19. \$2.26	80,736	1,230,592	2. 24 hr.	21. 220
20. \$18	216,224	2,365,550	3. 16 da.	22. 8
21. 104 ft.	7. 192,525	556,012	4. 24 mi.	23. 3
22. \$60	118,150	186,349	5. 30 mi.	24. 203

25. $14\frac{7}{11}$	13. \$97.50	13. 179,139	19. 220	9. \$1000
26. 300	14. \$2.00	14. 517,600	20. 340	10. \$150
27. 123	Ex. 65, p. 97	15. 5832	21. 203	Ex. 84, p. 128
28. 248	1. 3300 mi.	16. 15,128	22. 321	21. 13°
29. 49	2. 100 hr., or	17. 125,562	23. 122	22. 18°
30. 250	4 da. 4 hr.	18. 76,500	24. \$28.68	23. 18°
31. 3060	3. 295 mi.	19. 194,626	25. \$12.57	24. 22°
Ex. 63, p. 94	4. 225 mi.	20. 249,194	26. \$888.30	25. 20°
4. 3431	5. 1344 mi.	21. 1,449,198	27. \$2.25	26. 4 and 5 mi.
5. 3943	6. \$26.50	22. 12	28. \$3.42	point. 1
6. 4244	7. \$23.50	23. 321	Ex. 81, p. 121	and 2 mi.
7. 3525	8. \$166.05	24. 121	III	point.
8. 4535	Ex. 66, p. 98	25. 323	1. 290 ft.	Ex. 86, p. 131
9. 444	1. 3196 mi.	26. 120	2. \$8.70	22. $83\frac{1}{2}$ yd.
10. 505	2. 125 mi.	27. 2321	3. 1600 sq.	23. 1058 ft.
11. 676	3. $639\frac{1}{2}$ mi.	28. 425	ft.	24. 4000 sq.ft.
12. 8757	4. 528 mi.	29. 2043	4. 1500 sq.	25. 96 hr.
13. 1412	5. 75,240 mi.	Ex. 68, p. 100	ft.	26. 2640 ft.
14. 3844	6. 1401	1. 6000 mi.	750 sq. ft.	27. \$507
15. 3624	7. \$72.50	2. 2889 mi.	5. 400 sq. ft.	28. \$56
16. 25,920	\$145	3. 471 mi.	6. Dif. = 100	29. \$25.38
17. 26,576	8. \$167.50	4. 4 da.; 10	sq. ft.	30. \$2.50
18. 58,968	9. 160 hr.,	da.; 20 da.	7. 5250 sq.ft.	31. \$61.20
19. 5432	or 6 da.	Ex. 70, p. 103	8. \$787.50	32. \$16.70
20. 700,800	16 hr.	4. 4111	Ex. 82, p. 122	33. \$14,478.75
21. 57,112	Ex. 67, p. 99	5. 4213	1. 40,000 sq.	34. 520
22. 175,680	1. 212,120	6. 4024	ft.	35. \$71.50
23. 318	2. 300,213	7. 4445	2. 50,000 sq.	36. 50¢
24. 647	3. 7,000,000	8. 4356	ft.	37. \$17.82
25. 21	4. 5,500,000	9. 23	3. 11,250 sq.	38. \$1500
26. 213	5. 2,300,240	10. 355	ft.	39. 36¢
27. 33	6. 11,280	11. 444	11,250 sq.	40. \$25.75
28. 24	7. 77,358	12. 606	ft.	41. 540 mi.
29. $123\frac{1}{2}$	8. 238,405	13. 787	7500 sq.ft.	42. 42 hr.
30. 312	9. 1,482,838	14. 2925	6. 5000sq.ft.	43. $4\frac{7}{8}$ mi.,
Ex. 64, p. 96	10. 6451	15. 8064	7. 8250sq.ft.	or 4 mi.
10. 577	11. 44,085	16. 38,250	8. 12,750 sq.	710 yd.
11. 95	12. 318,238	17. 30,888	ft.	44. $86\frac{1}{2}$
12. \$3.05		18. 86,724		45. 1147 mi.

46. 252 $\frac{1}{2}$ hr., or 10 da. 12 hr. 37 min.	3. 3317	II, p. 134	8. \$67,800
Ex. 87, p. 134	4. 547	1. \$60.95	9. \$25
I	5. 676	2. \$1979.53	Ex. 88, p. 135
1. 177,483	6. 71,808	3. \$4.98	11. 1120 ft.
2. 160,712	7. 149,100	4. \$4.28	12. 7200 sq.ft.
	8. 2816	5. \$11.86	13. 62 mi.
	9. 1953	6. \$678	14. \$4.80
	10. 406 $\frac{1}{11}$	7. \$99	

SUPPLEMENTARY PRACTICE

Products	Products	Products	Products
Col. I, p. 136	(c) 207,360	(f) 744,408	(i) 8,691,840
(a) 16,632	(d) 131,283	(g) 2,042,590	(j) 6,601,875
(b) 33,992	(e) 1,036,800	(h) 2,225,687	(k) 1,833,435
(c) 73,944	(f) 1,285,998	(i) 2,916,864	(l) 1,019,610
(d) 112,266	(g) 941,050	(j) 3,428,750	(m) 11,118,119
(e) 184,800	(h) 1,148,367	(k) 9,229,140	(n) 12,361,728
(f) 305,613	(i) 746,568	(l) 2,278,800	(o) 13,694,274
(g) 1,118,040	(j) 1,012,500	(m) 20,277,875	(p) 23,258,720
(h) 244,398	(k) 3,070,548	(n) 3,024,928	(q) 6,161,750
(i) 1,418,112	(l) 6,123,810	(o) 4,136,517	(r) 5,810,856
(j) 289,075	(m) 9,340,951	(p) 6,829,648	(s) 1,609,600
(k) 5,051,970	(n) 10,285,056	(q) 10,339,000	(t) 25,366,290
(l) 831,810	(o) 11,290,752	(r) 18,890,408	(u) 1,869,168
(m) 684,635	(p) 8,614,512	(s) 5,401,600	(v) 6,112,485
(n) 888,320	(q) 8,732,115	(t) 10,640,730	(w) 8,453,921
(o) 1,509,354	(r) 5,614,272	(u) 15,632,778	(x) 11,317,500
(p) 2,670,360	(s) 17,625,960	(v) 18,800,415	Col. V, p. 136
(q) 3,112,725	(t) 10,892,880	(w) 32,423,104	(a) 88,560
(r) 10,340,484	(u) 8,002,050	(x) 16,881,550	(b) 180,838
(s) 2,956,800	(v) 6,561,000	Col. IV, p. 136	(c) 314,936
(t) 4,659,937	(w) 8,557,164	(a) 54,324	(d) 348,741
(u) 13,446,972	(x) 26,730,850	(b) 98,623	(e) 2,706,000
(v) 467,955	Col. III, p. 136	(c) 64,392	(f) 1,356,075
(w) 11,092,620	(a) 91,158	(d) 122,301	(g) 3,571,920
(x) 12,705,000	(b) 103,411	(e) 6,237,200	(h) 3,253,350
Col. II, p. 136	(c) 81,024	(f) 7,098,336	(i) 7,439,040
(a) 58,320	(d) 68,382	(g) 8,033,916	(j) 4,996,875
(b) 31,759	(e) 506,400	(h) 5,321,740	(k) 4,035,015

Products	Quotients	Quotients	Quotients	Quotients
(l) 4,428,000	(k) 6930	(d) $1620\frac{1}{2}$	(v) 3240	(o) $3798\frac{1}{11}$
(m) 2,364,060	810	$45\frac{1}{3}\frac{1}{4}$	450	$297\frac{1}{2}\frac{1}{2}$
(n) 4,408,864	(l) $924\frac{7}{10}$	(e) 2592	(w) 3564	(p) 5908
(o) 10,048,025	$120\frac{1}{11}$	160	539	476
(p) 2,183,378	(m) $712\frac{1}{11}$	(f) $2916\frac{2}{11}$	(x) $10,692\frac{1}{11}$	(q) 8440
(q) 2,259,740	$95\frac{3}{11}$	$189\frac{1}{11}$	$1650\frac{1}{11}$	$581\frac{1}{11}\frac{1}{11}$
(r) 17,761,200	(n) $867\frac{1}{11}$	(g) $1944\frac{1}{11}$		(r) 13,082
(s) 7,872,920	$120\frac{4}{11}$	$132\frac{1}{11}$	Col. III	1178
(t) 6,203,218	(o) 1386	(h) $2170\frac{1}{11}$	p. 136	(s) 3376
(u) 7,066,920	198	$154\frac{1}{11}$	(a) $2532\frac{1}{11}$	320
(v) 28,643,625	(p) 2310	(i) $1296\frac{1}{11}$	$36\frac{1}{11}$	(t) 6330
(w) 44,298,450	340	$96\frac{1}{11}$	(b) $2110\frac{1}{11}$	615
(x) 49,200,000	(q) 2541	(j) 1620	$35\frac{1}{11}$	(u) $8862\frac{1}{11}$
	385	125	(c) 1266	$882\frac{1}{11}$
	(r) 7161	(k) 4212	24	(v) $9284\frac{1}{11}$
	1178	351	(d) $844\frac{1}{11}$	$990\frac{1}{11}$
Col. I, p. 136	(s) 1848	(l) $6804\frac{1}{11}$	$18\frac{1}{11}$	(w) 13,504
(a) 462	320	$630\frac{1}{11}$	(e) 1266	1568
12	(t) $2772\frac{1}{11}$	(m) $9720\frac{1}{11}$	60	(x) $6752\frac{1}{11}$
(b) $693\frac{1}{11}$	$492\frac{1}{11}$	$930\frac{1}{11}$	(f) 1688	$800\frac{1}{11}$
$21\frac{1}{11}$	(u) 7623	(n) 10044	84	
(c) $1155\frac{1}{11}$	1386	992	(g) $4220\frac{1}{11}$	Col. IV, p. 136
$40\frac{1}{11}$	(v) $231\frac{1}{11}$	(o) 10,368	$220\frac{1}{11}$	(a) 1509
(d) 1386	$45\frac{1}{11}$	1056	(h) $4207\frac{1}{11}$	18
54	(w) 4620	(p) 7452	$229\frac{1}{11}$	(b) $2012\frac{1}{11}$
(e) 462	980	782	(i) 5064	$28\frac{1}{11}$
40	(x) 5082	(q) $7128\frac{1}{11}$	288	(c) 1006 $\frac{1}{11}$
(f) 693	1100	$770\frac{1}{11}$	(j) 5486	$16\frac{1}{11}$
63		(r) 3888	325	(d) $1509\frac{1}{11}$
(g) 2310	Col. II, p. 136	456	(k) 12,660	$27\frac{1}{11}$
220	(a) 1620	(s) $11,016\frac{1}{11}$	810	(e) 15,593
(h) 462	30	$1360\frac{1}{11}$	(l) 2532	620
46	(b) $648\frac{1}{11}$	(t) 6480	180	(f) 16,096
(i) 2462	$14\frac{1}{11}$	820	(m) $21,100\frac{1}{11}$	672
$255\frac{1}{11}$	(c) 3240	(u) $4536\frac{1}{11}$	$1550\frac{1}{11}$	(g) 16,599
(j) $462\frac{1}{11}$	80	$588\frac{1}{11}$	(n) $2954\frac{1}{11}$	726
$50\frac{1}{11}$			$224\frac{1}{11}$	

¹ The quotient given first under each letter is the one found by using the divisor in the column at the left: the quotient given second is the one found by using the divisor at the top of the column.

Quotients ¹	Quotients	Quotients	Products
(h) 10,060 460	(b) 3690 $\frac{4}{5}$ 42 $\frac{4}{5}$	(u) 4006 $\frac{4}{5}$ 273 $\frac{4}{5}$	(k) 90,948,412 (l) 109,420,045
(i) 15,090 720	(c) 4920 $\frac{7}{8}$ 64 $\frac{7}{8}$	(v) 14,145 1035	(m) 38,880,000 (n) 69,943,125
(j) 10,563 525	(d) 4305 $\frac{3}{4}$ 63 $\frac{3}{4}$	(w) 18,450 1470	(o) 105,470,250
(k) 2515 135	(e) 6765 220	(x) 19,680 1600	Col. VIII, p. 137
(l) 1132 $\frac{2}{5}$ 67 $\frac{2}{5}$	(f) 3075 105	Products	(a) 43,200,000 (b) 49,219,875
(m) 11,569 $\frac{11}{15}$ 713 $\frac{11}{15}$	(g) 7380 264	Col. VI, p. 137	(c) 84,483,680 (d) 152,161,590
(n) 12,072 768	(h) 6150 230	(a) 2,073,600 (b) 1,500,000	(e) 30,107,168 (f) 17,400,500
(o) 12,575 $\frac{1}{11}$ 825 $\frac{1}{11}$	(i) 12,915 504	(c) 4,915,200 (d) 10,590,510	(g) 51,868,080 (h) 65,629,250
(p) 20,120 1360	(j) 7995 325	(e) 26,492,928 (f) 31,003,784	(i) 116,818,728 (j) 614,411,840
(q) 5030 350	(k) 5535 243	(g) 69,120,000 (h) 91,511,750	(k) 677,897,852 (l) 218,838,750
(r) 4024 304	(l) 4920 240	(i) 32,707,584 (j) 39,323,840	(m) 233,319,960 (n) 219,822,345
(s) 1006 80	(m) 2460 124	(k) 47,285,100 (l) 53,868,000	(o) 210,947,625
(t) 15,090 1230	(n) 4305 $\frac{11}{15}$ 224 $\frac{11}{15}$	(m) 44,870,400 (n) 127,909,505	Col. IX, p. 137
(u) 1059 $\frac{1}{11}$ 88 $\frac{1}{11}$	(o) 9225 495	(o) 141,750,000	(a) 98,208,000 (b) 6,875,000
(v) 3018 $\frac{1}{11}$ 270 $\frac{1}{11}$	(p) 1888 $\frac{1}{11}$ 104 $\frac{1}{11}$	Col. VII, p. 137	(c) 28,180,320 (d) 29,108,730
(w) 3521 343	(q) 1844 $\frac{1}{11}$ 104 $\frac{1}{11}$	(a) 2,160,000 (b) 12,890,625	(e) 25,412,128 (f) 355,244,432
(x) 4527 450	(r) 12,300 760	(c) 1,344,000 (d) 3,307,500	(g) 25,353,840 (h) 28,910,250
Col. V, p. 136	(s) 4920 $\frac{1}{10}$ 320 $\frac{1}{10}$	(e) 11,300,128 (f) 38,374,656	(i) 149,913,192 (j) 292,875,840
(a) 2460 24	(t) 3690 $\frac{4}{5}$ 246 $\frac{4}{5}$	(g) 38,880,000 (h) 145,314,750	(k) 339,492,908 (l) 98,768,385
		(i) 146,132,376 (j) 168,964,160	(m) 627,206,400 (n) 351,714,000 (o) 340,312,500

¹ See footnote, page 11.

Products	Products	Quotients	Quotients
Col. X, p. 137	(e) 349,928,550	(e) 528	(h) $2325\frac{2}{5}$
(a) 107,520,000	(f) 357,409,475	4928	$23,250\frac{2}{5}$
(b) 179,249,664	(g) 265,420,800	(f) $576\frac{1}{2}$	(i) $1501\frac{1}{2}$
(c) 194,745,600	(h) 75,600,000	$5568\frac{1}{2}$	$18,734\frac{1}{2}$
(d) 260,100,000	(i) 823,996,800	(g) 1200	(j) $1650\frac{1}{2}$
(e) 311,047,650	(j) 396,900,000	12,000	$21,120\frac{1}{2}$
(f) 335,743,775	(k) 871,200,000	(h) $1464\frac{17}{50}$	(k) $825\frac{1}{2}$
(g) 36,495,360	(l) 2,359,296,000	$15,251\frac{1}{2}$	$10,957\frac{1}{2}$
(h) 288,056,500	(m) 2,239,488,000	(i) 336	(l) $975\frac{1}{5}$
(i) 187,302,090	(n) 2,928,830,400	4368	$13,065\frac{1}{5}$
(j) 529,209,975	(o) 265,420,800	(j) $384\frac{1}{5}$	(m) 300
(k) 595,332,650	Col. XIII, p. 137	$5120\frac{1}{5}$	4320
(l) 825,753,600	(a) 625,600,000	(k) $428\frac{1}{2}$	(n) 525
(m) 1,069,977,600	(b) 18,523,520	5934	7665
(n) 3,527,193,600	(c) 3,175,200	(l) 480	(o) $750\frac{1}{5}$
(o) 9,332,121,600	(d) 650,250,000	6700	$11,250\frac{1}{5}$
Col. XI, p. 137	(e) 578,700,000	(m) $346\frac{1}{2}$	Col. VIII
(a) 168,000,000	(f) 568,575,000	5193	p. 137
(b) 407,385,600	(g) 497,673,120	(n) $960\frac{2}{5}$	(a) 3000
(c) 13,230,000	(h) 1,890,000,000	$14,601\frac{1}{2}$	2400
(d) 3,984,375	(i) 374,544,000	(o) 1008	(b) $315\frac{1}{5}$
(e) 45,565,650	(j) 595,350,000	15,750	$2625\frac{1}{5}$
(f) 67,693,675	(k) 2,395,800,000	Col. VII	(c) $3300\frac{2}{5}$
(g) 17,280,000	(l) 2,949,120,000	p. 137	$3520\frac{2}{5}$
(h) 225,000,000	(m) 5,598,720,000	(a) 150	(d) $3450\frac{1}{5}$
(i) 409,657,500	(n) 7,322,076,000	720	$4830\frac{1}{5}$
(j) 454,783,350	(o) 3,981,353,280	(b) 825	(e) $600\frac{1}{5}$
(k) 242,000,000	Quotients ¹	4125	$896\frac{1}{5}$
(l) 921,600,000	Col. VI, p. 137	(c) $52\frac{1}{2}$	(f) $750\frac{1}{5}$
(m) 38,880,000	(a) 144	336	1160
(n) 639,697,500	720	(d) 75	$900\frac{1}{2}$
(o) 760,320,000	(b) 96	630	$1440\frac{1}{2}$
Col. XII, p. 137	500	(e) $225\frac{1}{5}$	(h) $1050\frac{1}{5}$
(a) 69,120,000	(c) 192	$2017\frac{1}{2}$	$1750\frac{1}{5}$
(b) 170,007,680	1280	(f) $712\frac{1}{2}$	(i) $1200\frac{1}{5}$
(c) 101,606,400	(d) $240\frac{1}{5}$	$1616\frac{1}{5}$	$2496\frac{1}{5}$
(d) 156,060,000	2101	(g) 675	(j) $6000\frac{1}{5}$
	$7\frac{1}{5}$	6480	$12,800\frac{1}{5}$

¹ See footnote, page 11.

Quotients ¹	Quotients	Quotients	Quotients	Quotients
(k) $6150_{\frac{1}{3}\frac{1}{2}}$ 13,612 $\frac{1}{10}$	(l) $880_{\frac{1}{3}\frac{1}{2}}$ 1340 $\frac{1}{2}\frac{1}{10}$	(n) 5376 90,720	Col. XII, p. 137 (a) 432 1200	Col. XIII p. 137 (a) 3910 4344 $\frac{1}{2}$
(l) 1950 4355	(m) $4839\frac{1}{2}$ 7919 $\frac{1}{10}$	(o) 10,126 202,520	(b) $1001_{\frac{1}{10}\frac{1}{2}}$ 2865 $\frac{1}{2}$	(b) $109_{\frac{1}{10}\frac{1}{2}}$ 124 $\frac{1}{2}$
(m) $1800_{\frac{1}{10}\frac{1}{2}}$ 4320 $\frac{1}{2}$	(n) 2640 4380	Col. XI, p. 137 (a) 1050 5600	(c) 576 1680	(c) 18 21
(n) $1650_{\frac{1}{3}\frac{1}{2}}$ 4015 $\frac{1}{10}$	(o) 2420 4125	(b) 2400 13,184	(d) 864 2550	(d) 3600 4250
(o) $1500_{\frac{1}{10}\frac{1}{2}}$ 3750 $\frac{1}{10}$	Col. X, p. 137 (a) 672 5600	(c) 75 420	(e) $1728_{\frac{1}{10}\frac{1}{2}}$ $5400_{\frac{1}{10}\frac{1}{2}}$	(e) $2857\frac{1}{2}$ 3572 $\frac{1}{2}$
Col. IX p. 137 (a) 6820 3720	(b) 1056 9064	(d) $22_{\frac{1}{10}\frac{1}{2}}$ 125	(f) $1584_{\frac{1}{10}\frac{1}{2}}$ $5225_{\frac{1}{10}\frac{1}{2}}$	(f) 2520 3325
(b) 440 250	(c) 1104 9660	(e) $225_{\frac{1}{10}\frac{1}{2}}$ $1350_{\frac{1}{10}\frac{1}{2}}$	(g) 1152 3840	(g) $2160_{\frac{1}{10}\frac{1}{2}}$ $2880_{\frac{1}{10}\frac{1}{2}}$
(c) $1100_{\frac{1}{10}\frac{1}{2}}$ $800_{\frac{1}{10}\frac{1}{2}}$	(d) 1440 12,750	(f) $300_{\frac{1}{10}\frac{1}{2}}$ $1900_{\frac{1}{10}\frac{1}{2}}$	(h) $302\frac{1}{2}$ 1050	(h) 7560 10,500
(d) $660_{\frac{1}{10}\frac{1}{2}}$ $630_{\frac{1}{10}\frac{1}{2}}$	(e) $1536_{\frac{1}{10}\frac{1}{2}}$ $14,400_{\frac{1}{10}\frac{1}{2}}$	(g) 75 480	(i) 3168 11,220	(i) 1440 2040
(e) $506_{\frac{1}{10}\frac{1}{2}}$ $515_{\frac{1}{10}\frac{1}{2}}$	(f) $1488_{\frac{1}{10}\frac{1}{2}}$ $14,725_{\frac{1}{10}\frac{1}{2}}$	(h) 900 6000	(j) 1440 5250	(j) 2160 3150
(f) $6600_{\frac{1}{10}\frac{1}{2}}$ $6960_{\frac{1}{10}\frac{1}{2}}$	(g) $158\frac{1}{2}$ 1584	(i) 1575 10,710	(k) 2880 11,000	(k) 7920 12,100
(g) $440_{\frac{1}{10}\frac{1}{2}}$ $480_{\frac{1}{10}\frac{1}{2}}$	(h) $1152_{\frac{1}{10}\frac{1}{2}}$ $12,002_{\frac{1}{10}\frac{1}{2}}$	(j) $1650_{\frac{1}{10}\frac{1}{2}}$ $11,550_{\frac{1}{10}\frac{1}{2}}$	(l) 5760 25,600	(l) 7200 12,800
(h) $462_{\frac{1}{10}\frac{1}{2}}$ $525_{\frac{1}{10}\frac{1}{2}}$	(i) $720_{\frac{1}{10}\frac{1}{2}}$ 7651 $\frac{1}{2}$	(k) 800 5866 $\frac{1}{2}$	(m) 4320 21,600	(m) 10,800 21,600
(i) $1540_{\frac{1}{10}\frac{1}{2}}$ 2184 $\frac{1}{10}$	(j) $1920_{\frac{1}{10}\frac{1}{2}}$ $21,000_{\frac{1}{10}\frac{1}{2}}$	(l) 2250 19,200	(n) 4464 25,110	(n) 11,160 25,110
(j) $2860_{\frac{1}{10}\frac{1}{2}}$ $4160_{\frac{1}{10}\frac{1}{2}}$	(k) $1968_{\frac{1}{10}\frac{1}{2}}$ $22,550_{\frac{1}{10}\frac{1}{2}}$	(m) 75 720	(o) 288 1920	(o) $4320_{\frac{1}{10}\frac{1}{2}}$ $11,520_{\frac{1}{10}\frac{1}{2}}$
(k) $3080_{\frac{1}{10}\frac{1}{2}}$ $4648_{\frac{1}{10}\frac{1}{2}}$	(l) 2016 26,880	(n) 975 10,530		
	(m) 2064 30,960	(o) 825 10,560		

¹ See footnote, page 11.

ANSWERS—PART THREE

Ex. 2, p. 4	27. \$459.15	7. 12,896 bu.	11. \$2.88	2. 328
7. \$67.35	28. \$952.27	8. 98,496 yd.	12. \$3.40	361 $\frac{1}{2}$
8. \$11.00	29. \$1023.47	9. \$54		87 $\frac{1}{2}$
9. \$2.50	30. \$214.13	10. 18,810 lb.	Ex. 7, p. 15	3. 52 $\frac{1}{2}$ wk.
10. \$52.15	31. \$358.27	11. \$17.10	1. 704	4. 13 mo.
11. \$63.15	32. \$546.09	12. 2352 lb.	2. 966	5. 1760 yd.
12. \$4.20	33. \$2.85	13. \$12.80	3. 900	6. 284
13. \$10.80	34. \$5.15		4. 4800	7. 203
Ex. 3, p. 9	35. \$1.88	II, p. 14	5. 2668	8. 320
IV	36. \$2.02	3. 35,776	6. 3388	9. 89 $\frac{1}{2}$
1. 1244	37. \$4.56	4. 249,492	7. 4224	10. 384
2. 1438	38. \$9.31	5. 32,768	8. 8772	11. 2004
3. 19,424	39. \$6.25	6. 42,875	9. 11,050	12. 320
4. 17,743	40. \$5.76	7. 44,394	10. 10,290	13. 896 $\frac{1}{2}$
5. 22,454	41. \$32.64	8. 324,075	11. 79,212	14. 976
6. 2383	42. 1st sum,	9. 9936	12. 86,700	15. 850
7. 2990	\$3790.02;	10. 27,608	13. 159,210	16. 987 $\frac{1}{2}$
8. 38,497	2d sum,	11. 728,356	14. 136,359	17. 5080
9. 22,128	the same	12. 1,318,638	15. 26,576	18. 672 $\frac{1}{2}$
10. 28,527	Ex. 4, p. 11	13. 250,047	16. 5092	19. 225
11. 163	6. \$27; \$117	14. 1,009,320	17. 6942	20. 2040
12. 154	7. \$13.80	III, p. 14	18. 8526	21. 769 $\frac{1}{2}$
13. 4153	8. \$4.40	1. 1098 lb.	19. 6873	22. 302
14. 6805	9. 45¢;	147 yd.	20. 19,008	23. 595
15. 6837	\$21.60	\$18.72	21. 39,498	24. 379
16. 269	10. \$2.00	\$18.75	22. 50,463	25. 278
17. 534	11. \$920.40	\$6100	23. 77,472	26. 996
18. 1658	Ex. 6, p. 13	2. \$1.92	24. 54,431	27. 4031
19. 7216	I	3. \$1.14	25. 54,264	28. 9070
20. 7564	1. 384 doz.	4. \$11	26. 550,128	
21. \$42.41	2. 2272 ft.	5. \$7.84	27. 174,783	Ex. 9, p. 17
22. \$224.64	3. 4704 lb.	6. \$4.80	28. 140,553	I
23. \$119.43	4. \$77	7. \$1.50	29. 625,612	1. 213; 31;
24. \$475.54	5. \$39,650	8. \$1.68	30. 5,717,376	310
25. \$2928	6. 11,248 bbl.	9. \$3.15	Ex. 8, p. 15	2. 11
26. \$236.64		10. \$1.20	1. 828 $\frac{1}{2}$ mi.	3. \$12

4. \$125	5. 21 mi.	17. 4 bbl.	7. 11,931	5. $18\frac{1}{8}$ mi.
5. \$102	6. 35 mi.	18. 8 yd.	8. 4187	6. 13
6. 42 bu.	Ex. 10, p. 20	Ex. 12, p. 23	9. 9231	7. 5
7. 243	1. 32	6. \$6.33	10. 16,350	8. $7\frac{1}{2}$
8. 322	2. $123\frac{1}{11}$	7. 60¢	11. 14,104	9. $5\frac{1}{2}$
9. 211	3. 135	8. \$4.95	12. 135; 608;	10. $5\frac{1}{2}$
10. 218	4. 140	9. 92¢	161; 339;	11. $13\frac{3}{4}$
11. 233	5. 314	10. \$6.03	167; 317	12. $18\frac{1}{2}$
12. $146\frac{7}{8}$	6. 220		13. 220; 199;	13. $10\frac{1}{2}$
13. $231\frac{1}{4}$	7. 214 $\frac{5}{8}$	Ex. 13, p. 24	208; 1538;	14. $9\frac{9}{16}$
14. 33	8. 308	1. 55¢	261; 1034	15. $17\frac{1}{2}$
15. 221	9. 120	2. \$2.90	14. a. 68,643	16. $69\frac{1}{16}$
16. $140\frac{1}{4}$	10. 4213	3. \$2.40	b. 94,656	17. $74\frac{5}{8}$
17. 2134	11. $104\frac{1}{4}$	4. \$31	c. 49,491	Ex. 33, p. 50
18. 21	12. 130	5. \$480	d. 242,452	II
19. 1321	13. 208	6. \$958	e. 95,472	2. $4\frac{1}{2}$; $4\frac{1}{2}$; $6\frac{1}{2}$
20. 2312	14. $85\frac{5}{8}$	7. \$300	f. 436,554	3. 36 in.
21. 324	15. 403	8. \$570	15. g. $213\frac{1}{11}$	4. $3\frac{1}{2}$ in.
II, p. 19	16. 403	9. \$388	i. 46	5. $\frac{1}{2}$ yd.
1. 250	17. $589\frac{11}{16}$	Ex. 14, p. 25	j. 108	6. $5\frac{3}{4}$
2. 120	18. 700	I	k. $421\frac{2}{3}$	7. $2\frac{3}{4}$
3. 231	19. 2020	1. 15,665	l. 277	8. $18\frac{1}{2}$
4. 442	20. $85\frac{5}{8}$	2. 18,889	Ex. 15, p. 27	9. $5\frac{3}{4}$
5. 246	21. 684	3. 3046	9. \$3.19	10. $9\frac{1}{11}$
6. 320	22. 365	4. 2498	10. \$3.55	11. $1\frac{1}{2}$
7. 201	23. 1232	5. 2216	11. 35 da.	12. $5\frac{3}{4}$
8. 203	24. 3100	6. 3976	12. \$69.84	13. $7\frac{1}{2}$
9. 104	25. $873\frac{1}{4}$	7. 69,240	13. \$35; \$140	14. $5\frac{1}{2}$
10. 2042	26. $1015\frac{1}{4}$	8. 6075	14. \$300	15. $8\frac{1}{2}$
11. 2340	27. $2010\frac{7}{8}$	9. 632	15. \$78.02	16. $22\frac{1}{2}$
12. 3201	28. 483	10. 25	Ex. 32, p. 49	17. $48\frac{1}{2}$
13. 1500	29. $873\frac{7}{8}$	II, p. 25	II	18. $82\frac{1}{2}$
14. 2320	30. $3164\frac{3}{4}$	1. 2391	2. $12\frac{1}{2}$	19. $42\frac{1}{2}$
15. 3421	Ex. 11, p. 22	2. 4118	14 $\frac{1}{2}$	Ex. 35, p. 53
III, p. 19	14. \$2.36	3. 4182	23	1. $\frac{1}{16}$; $1\frac{1}{16}$; $\frac{1}{16}$
2. $211\frac{1}{8}$	15. \$3.35	4. 7642	3. $15\frac{1}{2}$ lb.	2. $\frac{3}{8}$; $\frac{1}{8}$; $1\frac{1}{8}$
452	16. To Mr. J's	5. 48,823	4. $19\frac{1}{2}$ lb.	3. $1\frac{1}{2}$ mi.
276 $\frac{1}{8}$	Credit,	6. 11,353		4. $1\frac{1}{8}$ lb.
3. \$25	\$7.05			5. $\frac{1}{16}$ lb.
4. \$42				

6. $\frac{3}{4}$ lb.
 7. $1\frac{1}{2}$
 8. $1\frac{1}{4}$
 9. $1\frac{1}{10}$
 10. $1\frac{1}{2}$
 11. $2\frac{1}{2}$
 12. $1\frac{1}{2}$
 13. $1\frac{1}{2}$
 14. $1\frac{3}{8}$
 15. $1\frac{1}{8}$
 16. $1\frac{1}{2}$
 17. $1\frac{1}{2}$
 18. $\frac{1}{8}$
 19. $\frac{1}{2}$
 20. $1\frac{1}{2}$
 21. $1\frac{1}{2}$
 22. $1\frac{1}{10}$
 23. $1\frac{1}{10}$
 24. $1\frac{1}{2}$

Ex. 36, p. 54

1. $17\frac{1}{2}$; 19
 2. $11\frac{1}{2}$ mi.
 3. $19\frac{3}{4}$ mi.
 4. $20\frac{3}{4}$
 5. $24\frac{1}{2}$
 6. $10\frac{1}{10}$
 7. $5\frac{1}{8}$
 8. $80\frac{1}{8}$
 9. $31\frac{1}{2}$
 10. $30\frac{1}{2}$
 11. $19\frac{1}{2}$
 12. $7\frac{1}{10}$
 13. $19\frac{3}{4}$
 14. $15\frac{1}{2}$
 15. $47\frac{3}{4}$
 16. $1\frac{1}{10}$; $200\frac{1}{2}$

Ex. 37, p. 55

1. $13\frac{1}{2}$; $10\frac{1}{10}$;
 $6\frac{1}{10}$; $6\frac{1}{2}$

2. $2\frac{1}{2}$ ft.
 3. $7\frac{1}{2}$ mi.
 4. $7\frac{1}{2}$ lb.
 5. $11\frac{1}{2}$
 6. $16\frac{1}{2}$
 7. $102\frac{1}{2}$
 8. $76\frac{1}{2}$
 9. $60\frac{1}{10}$
 10. $100\frac{1}{2}$
 11. $24\frac{1}{2}$
 12. $114\frac{1}{2}$
 13. $24\frac{1}{2}$
 14. $150\frac{1}{2}$
 15. $72\frac{1}{2}$
 16. $204\frac{1}{2}$
 17. $42\frac{1}{2}$
 18. $14\frac{1}{2}$

Ex. 38, p. 57

II

1. $8\frac{1}{2}$
 2. $3\frac{1}{2}$
 3. $2\frac{1}{2}$
 4. $14\frac{1}{2}$
 5. $14\frac{1}{2}$
 6. $2\frac{1}{2}$
 7. $3\frac{1}{2}$
 8. $5\frac{1}{2}$
 9. $23\frac{1}{2}$
 10. $27\frac{1}{2}$
 11. $22\frac{1}{2}$
 12. $50\frac{1}{2}$
 13. $35\frac{1}{2}$
 14. $24\frac{1}{2}$
 15. $39\frac{1}{2}$
 16. $4\frac{1}{2}$
 17. $10\frac{1}{10}$
 18. $18\frac{1}{2}$
 19. $39\frac{1}{2}$
 20. $35\frac{1}{2}$

21. $21\frac{1}{2}$ yd.
 22. $1\frac{1}{2}$ rd.
 23. $2\frac{1}{2}$ ft.

Ex. 39, p. 58

I

1. $\frac{3}{4}$
 2. $1\frac{1}{2}$
 3. $\frac{1}{2}$
 4. $\frac{1}{2}$
 5. $\frac{1}{2}$
 6. $1\frac{1}{2}$
 7. $1\frac{1}{10}$
 8. $1\frac{1}{2}$
 9. $1\frac{1}{2}$
 10. $6\frac{1}{2}$
 11. $13\frac{1}{2}$
 12. $16\frac{1}{2}$
 13. $12\frac{1}{2}$
 14. $20\frac{1}{2}$
 15. $13\frac{1}{10}$
 16. $23\frac{1}{2}$
 17. $25\frac{1}{2}$
 18. $9\frac{1}{2}$
 19. $14\frac{1}{10}$
 20. $28\frac{1}{2}$
 21. $19\frac{1}{2}$
 22. $11\frac{1}{2}$
 23. $10\frac{1}{10}$
 24. $21\frac{1}{2}$
 25. $28\frac{1}{2}$
 26. $15\frac{1}{2}$
 27. $22\frac{1}{2}$
 28. $21\frac{1}{2}$
 29. $16\frac{1}{2}$
 30. $22\frac{1}{2}$

II, p. 58

31. $\frac{1}{2}$
 32. $\frac{1}{2}$

33. $\frac{3}{4}$
 34. $1\frac{1}{2}$
 35. $1\frac{1}{2}$
 36. $1\frac{1}{2}$
 37. $1\frac{1}{2}$
 38. $1\frac{1}{2}$
 39. $6\frac{1}{2}$
 40. $11\frac{1}{2}$
 41. $5\frac{1}{2}$
 42. $16\frac{1}{2}$
 43. $9\frac{1}{2}$
 44. $16\frac{1}{2}$
 45. $14\frac{1}{2}$
 46. $22\frac{1}{2}$
 47. $15\frac{1}{2}$
 48. $5\frac{1}{2}$
 49. $4\frac{1}{2}$
 50. $5\frac{1}{2}$
 51. $6\frac{1}{2}$
 52. $4\frac{1}{2}$
 53. $23\frac{1}{2}$
 54. $20\frac{1}{2}$

Ex. 40, p. 59

1. $3\frac{1}{2}$ mi.
 2. $10\frac{1}{2}$ mi.
 3. $1\frac{1}{2}$ mi.
 4. $\frac{1}{2}$ mi.
 5. $37\frac{1}{2}$ min.
 6. $\frac{3}{4}$ mi.
 7. $4\frac{1}{2}$ sec.
 8. $1\frac{1}{2}$ min.

Ex. 41, p. 60

1. $17\frac{1}{2}$ sec.
 2. $2\frac{1}{2}$ sec.
 3. $13\frac{1}{2}$ sec.
 4. $1\frac{1}{10}$ mi.
 5. $\frac{1}{2}$ min.
 6. $1\frac{1}{2}$ ft.
 7. $1\frac{1}{2}$ ft.

Ex. 42, p. 61

I

3. $31\frac{1}{2}$
 4. $17\frac{1}{2}$
 5. $10\frac{1}{2}$
 6. $28\frac{1}{2}$
 7. $6\frac{1}{2}$
 8. $11\frac{1}{2}$
 9. $14\frac{1}{2}$
 10. $17\frac{1}{2}$
 11. $10\frac{1}{10}$

II, p. 61

Sums and Differences

3. 10 ; $3\frac{1}{2}$
 4. $12\frac{1}{2}$; $4\frac{1}{2}$
 5. $16\frac{1}{2}$; $2\frac{1}{2}$
 6. $23\frac{1}{2}$; $14\frac{1}{2}$
 7. $7\frac{1}{2}$; $1\frac{1}{2}$
 8. $26\frac{1}{2}$; $2\frac{1}{2}$
 9. $82\frac{1}{2}$; $8\frac{1}{2}$
 10. $96\frac{1}{2}$; $38\frac{1}{2}$
 11. $47\frac{1}{2}$; $21\frac{1}{2}$
 12. $54\frac{1}{2}$; $25\frac{1}{2}$
 13. $72\frac{1}{2}$; $23\frac{1}{2}$
 14. $120\frac{1}{2}$;
 $30\frac{1}{2}$

Ex. 44, p. 65

III

1. $3\frac{1}{2}$; $2\frac{1}{2}$;
 $7\frac{1}{2}$; $2\frac{1}{2}$; $3\frac{1}{2}$
 2. $7\frac{1}{2}$ yd.
 3. 3 yd.
 4. $15\frac{1}{2}$ ¢ (16ϕ)
 5. $16\frac{1}{2}$ ¢ (17ϕ)
 6. $\frac{3}{4}$
 7. $1\frac{1}{2}$

8. $1\frac{1}{2}$	15. $6\frac{3}{4}$	4. $6\frac{1}{2}$ yd.	5. 85 in.; $7\frac{1}{2}$	8. 30
9. $4\frac{1}{2}$	16. 6	5. 2	ft.	9. 22
10. $4\frac{1}{2}$	17. $2\frac{3}{4}$	6. 31¢	6. 33 in.; $24\frac{1}{2}$	10. 36
11. $4\frac{1}{2}$	18. $1\frac{3}{4}$	7. $2\frac{1}{2}$ yd.; $2\frac{1}{2}$	in.; $57\frac{1}{2}$ in.	11. 56
12. $1\frac{1}{2}$	Ex. 45, p. 67	yd.; 2 yd.	7. 30¢	12. 49
13. $5\frac{1}{2}$	I	8. \$1.46	8. 60¢	13. 72
14. $7\frac{1}{2}$	11. $10\frac{1}{2}$	Ex. 46, p. 69	Ex. 47, p. 71	14. $1\frac{1}{2}$
15. $5\frac{1}{2}$	12. $7\frac{1}{2}$	I	I	15. $\frac{7}{8}$
16. $1\frac{1}{2}$	13. $12\frac{3}{8}$	1. 14 ft; $62\frac{1}{2}$	1. $1\frac{1}{2}$; $1\frac{1}{2}$; $2\frac{1}{2}$;	16. $1\frac{1}{2}$
17. $7\frac{1}{2}$	14. $12\frac{3}{8}$	in.; 15¢ ;	$3\frac{1}{2}$; $4\frac{1}{2}$	17. $\frac{1}{2}$
18. $6\frac{1}{2}$	15. $16\frac{1}{2}$	$42\frac{3}{4}\text{¢}$; $15\frac{1}{2}$	2. $7\frac{1}{2}$ yd.	18. $\frac{1}{2}$
19. $4\frac{1}{2}$	16. $14\frac{1}{2}$	gal.	3. 7 yd.	19. $\frac{1}{2}$
20. $4\frac{1}{2}$	17. $8\frac{1}{2}$	2. 33 in.	4. $4\frac{1}{2}$ yd.	Ex. 49, p. 75
21. $3\frac{1}{2}$	18. $10\frac{1}{2}$	49 in.	5. $\frac{1}{2}$	1. $7\frac{1}{2}$
22. $3\frac{1}{2}$	19. $8\frac{1}{2}$	3. 69 in.	6. $\frac{1}{2}$	2. $17\frac{1}{2}$
23. $9\frac{1}{2}$	20. $8\frac{1}{2}$	4. $25\frac{1}{2}\text{¢}$	7. $\frac{1}{2}$	3. 18
24. $2\frac{1}{2}$	21. $10\frac{1}{2}$	20. $37\frac{1}{2}$	8. $4\frac{1}{2}$	4. 12
25. $5\frac{1}{2}$	22. $11\frac{1}{2}$	21. $33\frac{1}{2}$	9. 3	5. 15
26. $9\frac{1}{2}$	23. $4\frac{1}{2}$	22. 100	10. $4\frac{1}{2}$	6. $9\frac{1}{2}$
27. $6\frac{1}{2}$	24. $7\frac{1}{2}$	23. 75	11. $1\frac{1}{2}$	7. 10
28. $9\frac{1}{2}$	25. $8\frac{1}{2}$	24. 50	12. $\frac{1}{2}$	8. 12
29. $5\frac{1}{2}$	26. $17\frac{1}{2}$	25. 100	13. $6\frac{1}{2}$	9. 39
30. $\frac{3}{2}$	27. $11\frac{1}{2}$	26. $62\frac{1}{2}$	14. 4	10. $2\frac{1}{2}$
31. $10\frac{1}{2}$	28. $9\frac{1}{2}$	27. $297\frac{1}{2}$	15. 9	11. $2\frac{1}{2}$
32. $18\frac{1}{2}$	29. $\frac{1}{2}$	28. 360	16. 8	12. $1\frac{1}{2}$
IV, p. 67	30. $\frac{1}{2}$	29. 792	17. 52	13. $\frac{1}{2}$
1. $\frac{1}{2}$	31. 96	30. 135	18. 34	14. 6
2. $\frac{1}{2}$	32. 60	31. 105	19. $43\frac{1}{2}$	15. $3\frac{1}{2}$
3. 9	33. 56	32. 140	20. $431\frac{1}{2}$	16. 9
4. $\frac{1}{2}$	34. $18\frac{1}{2}$	33. 775	Ex. 48, p. 74	17. 10
5. $\frac{1}{2}$	35. 96	34. 5085	III	18. $7\frac{1}{2}$ (8)
6. $\frac{1}{2}$	36. 280	35. 3672	1. 12; 15; 32;	19. $68\frac{1}{2}$
7. 4	37. $112\frac{1}{2}$	36. $170\frac{1}{2}$	49; $\frac{1}{2}$	20. 392
8. 18	38. $12\frac{1}{2}$	II, p. 70	2. 12	Ex. 50, p. 76
9. 25	39. $1\frac{1}{2}$	I	3. 8	I
10. 18	II, p. 68	1. 12 in.	4. 8	1. $12\frac{1}{2}$
11. 100	1. 35¢	2. 23 in.	5. 20	2. $8\frac{1}{2}$
12. 140	2. 20¢	3. $25\frac{1}{2}$ in.	6. 16	3. $5\frac{1}{2}$
13. $\frac{2}{3}$	3. $3\frac{1}{2}$ yd.	4. $36\frac{1}{2}$ in.	7. 28	4. $4\frac{1}{2}$
14. $\frac{3}{2}$				5. $7\frac{1}{2}$

6. 450
7. 168
8. $1\frac{1}{2}$
9. $15\frac{1}{2}$
10. 2

II, p. 76

1. $8\frac{1}{2}$
2. $19\frac{1}{2}$
3. $15\frac{1}{2}$
4. $9\frac{1}{2}$
5. $55\frac{1}{2}$
6. $17\frac{1}{2}$
7. 180
8. 660
9. $\frac{1}{2}$
10. $\frac{1}{2}$
11. 6
12. 16
13. $\frac{1}{2}$
14. 13
15. 52
16. 116
17. $\frac{1}{2}$
18. $\frac{1}{2}$
19. 1
20. 2
21. 20
22. 6
23. $\frac{1}{2}$
24. 5
25. $4\frac{1}{2}$
26. 14
27. $\frac{1}{2}$
28. $3\frac{1}{2}$
29. $\frac{1}{2}$
30. $\frac{1}{2}$

Ex. 51, p. 77

1. 11 ft.
2. 37 ft.

3. $2\frac{1}{2}$ yd.
4. 6
5. $14\frac{1}{2}$ yd.
6. $3\frac{1}{2}$ yd.

Ex. 52, p. 77

1. 7 yd.
2. \$4.79
3. 63¢
4. $17\frac{1}{2}$ ¢
5. \$13
6. 80 da.
7. $\frac{1}{2}$ ¢
8. \$41.30;
80¢

Ex. 53, p. 79

16. 21 da.
17. \$2.50
18. \$52

Ex. 55, p. 83

I

13. 6500
14. 19,280
15. 21,750
16. 194,400
17. 70,200
18. 192,000
19. 121,600
20. 522,000
21. \$320
22. \$825
23. \$3296
24. \$25,320

III, p. 84

1. 5
2. 12
3. 24

4. 3
5. 25
6. 200
7. 50
8. 30
9. 5
10. 300
11. 350
12. $2\frac{1}{2}$
13. 4 hr.
14. 6 da.
15. 90
16. 250 T.
17. \$3
18. 100 mi.

Ex. 56, p. 85

I

1. 94,443
2. 177,102
3. 7418
4. 46,502
5. 5,840,100
6. 283,176
7. 75,392
8. 8294½
9. 120
10. $281\frac{1}{2}$

II, p. 85

1. 4842
2. 5514
3. 38,288
4. 87,300
5. 1,015,015
6. 58,903
7. 14,739
8. 65,375
9. 77,877
10. 169,423

11. 411,036
12. 353,606
13. 548
606
20,509
2568
23,057
14. 385,200
356,400
2,163,600
7,892,100
15. 35,096
108,504
100,098
16. 5; 30; 28;
342; 207

Ex. 57, p. 86

1. $7(6\frac{1}{2})$
2. 2300
3. 3160
4. Flour,
49,000 lb.
Potatoes,
40,000 lb.
Sugar,
10,000 lb.
Coffee,
3000 lb.
Tea,
1000 lb.
Cheese,
1500 lb.
Soap,
2500 lb.
5. 3690
6. 4750 T.
1850 T.
7. $4\frac{1}{2}$ da.,
or 4 da. 2
hr. 35 min.

Ex. 58, p. 88

2. 4030 mi.
3. 82 hr.
4. 15,840 ft.
5. 4344 ft.
6. 75 mi.
7. 651 mi.
8. 20 hr.; 5
hr.
9. 1128 mi.

Ex. 59, p. 89

1. 14,441 mi.
2. 16,218 mi.
3. 42,227 mi.
4. 15,493 mi.
5. 433 da.
6. 219 da.
7. $192\frac{1}{2}$
mi., or
about 193
mi.
8. 613 mi.

Ex. 60, p. 91

6. \$82,500
7. 625 mi.
8. 1739 mi.
9. 54 mi.
10. 1200 mi.
11. \$13,440
12. $18\frac{1}{2}$ da.

Ex. 62, p. 94

3. \$13.798
4. \$1.195
5. \$14.79
6. \$18.475
7. \$11.258
8. \$3.75
9. \$7.02

10. \$1.05
11. \$.023
12. \$.022
13. \$.125
14. \$.185
15. \$.027
16. \$.025

Ex. 63, p. 94

2. \$.46
3. \$.38
4. \$.68
5. \$1.125
6. \$.245
7. \$.379
8. \$.5.125
9. \$28.392
10. \$.762
11. \$.6.144
12. \$.5.355
13. \$.35

Ex. 64, p. 95

I

3. \$5.25
4. \$2.75
5. 93¢
6. \$1.75
7. \$2.25
8. \$3.20
9. \$6.25
10. \$12.50
11. \$.013
12. \$.075
13. \$.125
14. \$.814
15. \$2.281
16. \$1.80
17. \$.305
18. \$.325

19. \$2.007
20. \$.311

II, p. 96

2. 115
3. 48
4. 188
5. 625
6. 200
7. 300
8. 50
9. 20
10. 80

III, p. 96

1. 60 da.
2. 45 da.; 80 da.
3. 7 wk.
4. 16 wk.

Ex. 65, p. 97

1. \$2.40;
\$.157
2. \$1.56
3. \$.840
4. \$2.40
5. 4¢
6. 18¢; 17¢
7. \$3.54

Ex. 68, p. 102

I

3. \$48.529
4. 28.997 mi.
5. 3.677 lb.
6. 1030.518
7. \$.6.27
8. 5.104 ft.
9. 1.125 T.
10. 8.26 A.

11. 4.525 T.
12. 6.575 T.
13. 1.125 T.

II, p. 102

1. 2.74
2. 2.176
3. 2.467
4. 20.859
5. 93.01
6. 541.325
7. 23.721
8. 20.735
9. 668.18
10. 354.625
11. .706
12. .058
13. 41.4
14. 12.1
15. 57.23
16. 47.44
17. .546
18. 6.72
19. 7.08
20. 22.06
21. 5.8
22. 5.625

Ex. 69, p. 104

1. .072
8.84
7.26
.642
2. 5.68 T.
3. 113.75 mi.
4. 53.7 mi.
5. 847 T.
6. 8.96
7. 72.9
8. .684
9. 6.48

10. .372
11. 69.42
12. 1693.6
13. 19.452
14. .126
15. .024
16. 42.6
17. 59.36
18. 6.594
19. .208
20. 10.152

Ex. 70, p. 105

4. \$.25
5. \$.125
6. \$.1.13
7. \$.322
8. \$.2.10
9. \$.321
10. .32
11. .125
12. 8.2
13. 55.1
14. 1.1
15. 2.31
16. .25
17. 1.2
18. 2.31
19. 24.3
20. .112
21. 1.024
22. 64.15 mi.
23. 455.2 mi.
24. 40.12 mi.

- Ex. 71, p. 105
1. 3.267
2. 179.65
3. 45.019
4. 1256.375
5. 194.388

6. .25
7. .28
8. 1.73
9. 47.84
10. 65.55
11. 16.5
12. 1.67
13. 14.56
14. 2.118
15. 202.08
16. 156
17. 950
18. 3700
19. 1792.8
20. 38.25
21. .375
22. .065
23. 2.312
24. 9.95
25. .85
26. 1.212+
27. 16.255
28. .977
29. 2.31
30. .321
31. 32.26
32. 23.21

Ex. 72, p. 106

1. 17.5 min.
2. 7 mi.
3. \$.245
4. \$.4.50
5. \$.125
6. \$.4.125
7. \$18
8. \$.2.50

Ex. 73, p. 107

1. 120.075 mi.

2. 11.25 mi.	17. (a) 247.25	23. 14 $\frac{1}{2}$	Ex. 82, p. 119	11. 33 $\frac{3}{4}$ sq. ft.
3. \$7.50	(b) 1.1536	24. 11 $\frac{1}{2}$	7. 18 in.	12. 12 sq. ft.
4. 50¢; \$1.50	(c) 22.752	25. $\frac{1}{10}$	8. 21 in.	13. 11 $\frac{1}{2}$ sq. yd.
5. \$13.95	(d) 4.977	26. 32	9. 31 in.	14. 60 $\frac{1}{2}$ sq. yd.
6. \$.0375	(e) 74.932	27. 88	10. 45 in.	15. 45 $\frac{3}{4}$ sq. yd.
Ex. 74, p. 108	18 (f) 16.95	28. 93 $\frac{3}{4}$	11. 44 in.	16. 240 sq. rd.
I	(g) .209	29. 93	12. 13 ft.	17. 90 sq. ft.
2. 1.56	(h) .71	30. 33 $\frac{3}{10}$	13. 16 $\frac{1}{2}$ ft.	18. 21 sq. yd.
3. 44.67	(i) 8.8	31. 20 $\frac{1}{2}$	14. 33 ft.	19. \$10.80
4. 5.435	(j) 3.41	32. 72	15. 6 $\frac{1}{2}$ ft.	Ex. 86, p. 124
5. 0.8	Ex. 75, p. 109	33. $\frac{5}{8}$	16. 8 $\frac{1}{2}$ ft.	6. 144 sq. ft.
6. 8.155	7. 16.125 lb.	34. 25	17. 6 $\frac{1}{2}$ yd.	7. 224 sq. ft.
7. 8.25	8. \$6.75	35. 66 $\frac{2}{3}$	18. 33 $\frac{1}{2}$ yd.	8. 168 sq. ft.
8. 114.048	9. 386.75 mi.	36. 1 $\frac{1}{2}$	19. 4 yd.	9. 4000 sq.ft.
9. 30.59	10. \$14.67	37. 3.494	20. 2 $\frac{1}{2}$ yd.	10. 1500 sq.ft.
10. 3.377	11. 18.81 mi.	38. 1.622	21. 1760 yd.	11. 4800 sq.ft.
11. .31	Ex. 79, p. 115	39. \$35.875	22. 41 $\frac{1}{2}$ ft.	12. 610 sq. ft.
12. 1.22	I	40. 45.696	23. 10 yd. by 20 yd.	67 $\frac{7}{8}$ sq.yd.
II, p. 108	1. 47 $\frac{1}{10}$	41. .027	24. 55 ft.	13. 157.25 sq. ft.
5. 37.186	2. 10.382	42. 2.925	25. 1980 ft.	175.75 sq. ft.
6. 63.055	3. 21 $\frac{1}{2}$	43. .72	26. 3960 ft.	14. Areas,
7. 15.967	4. 14.296	44. .96	Ex. 83, p. 120	9 $\frac{1}{2}$ sq. ft.
8. 51.856	5. $\frac{1}{10}$	Ex. 80, p. 117	3. 101 ft.	12 $\frac{1}{2}$ sq. ft.
9. 1587.946	6. 54	19. 5 $\frac{1}{2}$, or about 5 $\frac{1}{2}$	4. Pansy bed 14 ft.	20 $\frac{1}{2}$ sq. ft.
10. 101.302	7. 7 $\frac{1}{2}$	20. 20 $\frac{3}{4}$ yd.	S.P. 16 ft.	25 $\frac{1}{2}$ sq. ft.
11. 33.076	8. 15.836	21. 31 $\frac{1}{2}$ yd.	M. 20 ft.	26 $\frac{1}{2}$ sq. ft.
12. 127.191	9. 23 $\frac{1}{2}$	22. \$3.58	G. 22 ft.	33 $\frac{3}{4}$ sq. ft.
13. 713.302	10. .32	23. \$2.00	P. 23 $\frac{1}{2}$ ft.	In paths,
14. 781.133	II, p. 115	Ex. 81, p. 118	R. 25 $\frac{1}{2}$ ft.	149 sq. ft.
15. 5.381	16. 39 $\frac{5}{12}$	6. 16¢	5. 4 rows.	Ex. 89, p. 127
2.68	17. 12 $\frac{1}{2}$	7. 75¢	6. 12 plants	I
7.751	18. 25 $\frac{5}{10}$	8. 20¢	7. 48 plants	1. 1,407,669
3.64	19. .806	9. 10 $\frac{3}{4}$ yd.	Ex. 85, p. 123	2. 306,150
6.417	20. 14.888	10. 17 $\frac{1}{2}$ yd.	7. 36 sq. in.	3. 6793
16. 4.625	21. 13.717	11. 8 yd.	8. 216 sq. in.	4. 74,236
13.05	22. 12 $\frac{1}{2}$	12. \$11	9. 36 sq. ft.	5. 751,625
4.52		13. 500 doz.	10. 12 sq. ft.	
2.058				
11.63				

6. 764,784	3. 807	Ex. 91, p. 130	III, p. 133	5. \$1.60
7. 4,534,600	4. 5.66	I	1. \$34.22	6. \$12.50
8. 455,168	5. .625	1. \$39.70	2. 9 mo.	7. \$7.57
9. $53\frac{1}{4}$	6. 346.5	2. $7\frac{1}{2}$ yd.	3. \$7.50	
10. 163	7. 16.38	3. 94¢	4. 6	V, p. 134
II, p. 128	8. 1625	4. 96¢	5. \$1.98	\$82.62
1. $17\frac{1}{4}$	9. 8.28	5. \$15.10	6. $13\frac{1}{4}$ yd.	
2. $18\frac{1}{4}$	10. 35.185	6. \$10.22	7. \$3.18	
3. $7\frac{1}{4}$	11. 55	7. \$66.92	8. \$46.88	Ex. 92, p. 135
4. $17\frac{1}{4}$	12. \$1.50	II, p. 131	IV, p. 133	11. \$6.03
5. 96	Ex. 90, p. 128	1. \$54.50	1. 2; 3	12. \$3.46
6. 111	1. \$23.40	2. \$37	2. \$3.33	13. \$6.83
7. 224	2. \$31.50	3. \$43	3. No. 1. 84	14. \$631.80
8. 15	\$27.72	4. \$8.70	in.	15. 12
9. 64	3. \$82.62	5. \$26.90	No. 2. 69	16. $3\frac{1}{4}$ yd.
10. $5\frac{1}{4}$	4. \$8.43	6. 36	in.	17. 114.57
III, p. 128	5. \$5.25	7. \$6.05	No. 3. $74\frac{1}{2}$	mi.
1. 3.378	6. \$5.25	8. \$67.95	in.	18. \$693.50
2. 243.495	7. \$10.50	9. \$211.15	4. 240 in.; 20	19. 3,300 ft.
	8. \$101.55		ft.	\$9.90

SUPPLEMENTARY PRACTICE

Addition	Addition	Addition	Subtraction	Subtraction
p. 136	17. $89\frac{3}{4}$	33. \$654.21	Ex. II, p. 138	48,212
1. 2334	18. $88\frac{1}{4}$	34. \$1199.63	933	15,686
2. 1727	19. $60\frac{1}{4}$	35. \$647.66	1812	6,797
3. 1799	20. $791\frac{1}{4}$	Subtraction	4024	80,870
4. 2040	21. $1919\frac{1}{4}$	Ex. I, p. 138	2701	94,369
5. 2501	22. \$357.63	215	5149	72,458
6. 2603	23. \$281.73	404	8258	60,848
7. 2621	24. \$420.58	320	6295	Ex. IV, p. 138
8. 3447	25. \$406.54	99	7477	1252
9. 3022	26. \$3811.64	688	566	1827
10. 3024	27. \$205.85	986	655	8138
12. 68	28. \$467.63	542	Ex. III, p. 138	7479
13. $106\frac{1}{4}$	29. \$532.63	657	52,931	2781
14. $62\frac{1}{4}$	30. \$182.34	861	40,023	8940
15. $365\frac{1}{4}$	31. \$610.03	457	29,144	6563
16. $836\frac{1}{4}$	32. \$778.14			

Subtraction	Subtraction	Subtraction	Multiplication and Division	Multiplication and Division
3694	Ex. IX, p. 138	Ex. XV, p. 138	(c) 1,231,475	(d) 52,346,345
4005	\$5.50	$9\frac{1}{16}; 1\frac{1}{16};$	(d) 670,096	(e) 2,659,992
5316	\$6.625	$15\frac{1}{4}; 17\frac{1}{4};$	(e) 1,234,079	Ex. IX, p. 139
Ex. V, p. 138	\$3.375	$3\frac{1}{2}; 17\frac{1}{2};$	Ex. IV, p. 139	(a) 31,230
33,110	\$4.217	$8\frac{1}{4}; 21\frac{1}{4};$	(a) 32,528	(b) 43,650
14,648	\$5.875	Ex. XVI, p. 138	(b) 29,488	(c) 251,010
26,259	\$5.297	$25\frac{1}{4}; 50\frac{1}{4};$	(c) 211,736	(d) 177,840
40,034	Ex. X, p. 138	$8\frac{1}{2}; 23\frac{1}{2};$	(d) 570,684	(e) 1,422,810
82,861	\$5.313	$37\frac{1}{4}; 47\frac{1}{4};$	(e) 691,448	(f) 2,771,820
95,573	\$3.468	$35\frac{1}{16}; 95\frac{1}{16};$	(f) 584,364	Ex. X, p. 139
8392	\$1.528	Ex. XVII	Ex. V, p. 139	By 70
59,926	\$3.628	p. 138	(a) 369,900	(a) 24,290
71,805	\$2.048	$4\frac{1}{16}; 33\frac{1}{16};$	(b) 2,031,075	(b) 33,950
66,487	\$3.428	$42\frac{1}{2}; 54\frac{1}{16};$	(c) 6,173,550	(c) 195,230
Ex. VI, p. 138	Ex. XI, p. 138	$50\frac{1}{16}; 63\frac{1}{16};$	(d) 2,475,225	(d) 138,320
\$6.44	$7\frac{1}{2}; 25;$	$10\frac{1}{16}; 24\frac{1}{16};$	(e) 5,329,800	(e) 1,106,630
\$5.59	$3\frac{1}{2}; 4\frac{1}{2};$	Multiplication and Division	Ex. VI, p. 139	(f) 2,155,860
\$3.15	$20\frac{1}{2}; 62\frac{1}{2};$	Ex. I, p. 139	(a) 275,200	By 800
\$3.75	$29\frac{1}{2}; 51\frac{1}{2};$	(a) 49,248	(b) 460,800	(a) 277,600
\$5.75	Ex. XII, p. 138	(b) 18,846	(c) 541,600	(b) 388,000
\$7.16	$3\frac{1}{2}; 18\frac{1}{2};$	(c) 307,584	(d) 647,200	(c) 2,231,200
Ex. VII, p. 138	$12\frac{1}{2}; 6\frac{1}{2};$	(d) 357,372	(e) 639,200	(d) 1,580,800
\$5.50	$2\frac{1}{2}; 33\frac{1}{2};$	(e) 398,952	(f) 543,200	(e) 12,647,200
\$3.73	$4\frac{1}{2}; 8\frac{1}{2};$	(f) 4,869,558	Ex. VII, p. 139	(f) 24,638,400
\$4.35	Ex. XIII, p. 138	Ex. II, p. 139	(a) 362,490	By 304
\$9.25	$50; 33\frac{1}{2};$	(a) 623,322	(b) 322,500	(a) 105,488
\$19.25	$66\frac{1}{2}; 7\frac{1}{2};$	(b) 145,962	(c) 495,704	(b) 147,440
\$13.17	$83\frac{1}{2}; 26\frac{1}{2};$	(c) 461,754	(d) 58,308	(c) 847,856
Ex. VIII, p. 138	$7\frac{1}{2}; 19\frac{1}{2};$	(d) 2,774,196	(e) 694,794	(d) 600,704
\$5.02	Ex. XIV, p. 138	(e) 1,131,588	(f) 852,002	(e) 4,805,936
\$37.06	$15\frac{1}{2}; 4\frac{1}{2};$	(f) 2,597,022	Ex. VIII, p. 139	(f) 9,362,592
\$20.52	$10\frac{1}{2}; 22\frac{1}{2};$	Ex. III, p. 139	(a) 1,966,679	By 96
\$53.77	$39\frac{1}{2}; 2\frac{1}{2};$	(a) 677,908	(b) 4,341,094	(a) 33,312
\$25.39	$8\frac{1}{2}; 27\frac{1}{2};$	(b) 990,822	(c) 13,82,057	(b) 46,560
\$50.45				

Multiplication and Division	Multiplication and Division	Multiplication and Division	Multiplication and Division	Multiplication and Division
(c) 267,744	(d) 707	(c) $506\frac{1}{8}\frac{1}{5}$	(d) 50	(d) $1344\frac{1}{15}$
(d) 189,696	(e) 8302	(d) $66\frac{1}{2}\frac{1}{5}$	187 $\frac{1}{2}$	$6615\frac{1}{2}\frac{1}{5}$
(e) 1,517,664	(f) $86\frac{1}{2}$	(e) 700	(e) 270	(e) $2304\frac{1}{15}$
(f) 2,956,608	(g) 68	(f) $44\frac{1}{2}$	900	$10,080\frac{1}{7}\frac{1}{5}$
By 789	(h) 4200	(g) 872	(f) 3024	(f) 19,296
(a) 273,783	(i) 9000	(h) 964	1440	12,060
(b) 382,665	(j) 4009	(i) $84\frac{1}{2}\frac{1}{5}$	(g) $1267\frac{1}{2}$	(g) 10,140
(c) 2,200,521	(k) 3214	(j) $92\frac{1}{2}$	360	3780
(d) 1,559,064	Ex. XIII, p. 139	(k) 684	(h) $160\frac{1}{2}\frac{1}{5}$	(h) 3840
(e) 12,473,301	(a) 1202	Ex. XVI ¹	$201\frac{1}{2}\frac{1}{5}$	630
(f) 24,299,622	(b) 3454	p. 140	Ex. XVIII ¹	Ex. XX, ¹ p. 140
By 1500	(c) $65\frac{1}{2}\frac{1}{5}$	(a) 75	p. 140	(a) $501\frac{1}{2}\frac{1}{5}$
(a) 520,500	(d) 720	360	(a) 26	$2500\frac{1}{2}\frac{1}{5}$
(b) 727,500	(e) 1190	(b) 144	520	(b) $1081\frac{1}{2}\frac{1}{5}$
(c) 4,183,500	(f) $3307\frac{1}{2}\frac{1}{5}$	480	(b) $151\frac{1}{2}$	$3750\frac{1}{2}\frac{1}{5}$
(d) 2,964,000	(g) 1092	(c) $240\frac{1}{2}\frac{1}{5}$	2100	(c) 592
(e) 23,713,500	(h) 375	$600\frac{1}{2}\frac{1}{5}$	(c) $201\frac{1}{2}$	$15,416\frac{1}{2}$
(f) 46,197,000	(i) 604	(d) $704\frac{1}{2}\frac{1}{5}$	2100	(d) 320
Ex. XI, p. 139	(j) 912	$1320\frac{1}{2}\frac{1}{5}$	(d) $37\frac{1}{2}\frac{1}{5}$	6250
(a) 346	(k) 1447	(e) 101	294 $\frac{1}{2}$	(e) $792\frac{1}{2}\frac{1}{5}$
(b) 544	Ex. XIV, p. 139	$168\frac{1}{2}$	(e) $187\frac{1}{2}$	$13,750\frac{1}{2}\frac{1}{5}$
(c) 1635	(a) $213\frac{1}{2}\frac{1}{5}$	(f) 5544	1300	(f) $5040\frac{1}{2}\frac{1}{5}$
(d) 7342	(b) 403	1320	(f) 1764	$12,500\frac{1}{2}\frac{1}{5}$
(e) 8779	(c) 712	(g) 5070	1750	(g) 4225
(f) $2005\frac{1}{2}\frac{1}{5}$	(d) 118	720	(g) $185\frac{1}{2}\frac{1}{5}$	6250
(g) 7219	(e) 900	(h) $2880\frac{1}{2}\frac{1}{5}$	110	(h) 1920
(h) $6147\frac{1}{2}\frac{1}{5}$	(f) $45\frac{1}{2}\frac{1}{5}$	$1801\frac{1}{2}\frac{1}{5}$	(h) $84\frac{1}{2}\frac{1}{5}$	1250
(i) $7161\frac{1}{2}\frac{1}{5}$	(g) $74\frac{1}{2}\frac{1}{5}$	Ex. XVII ¹	22	Ex. XXI, p. 140
(j) 2508	(h) 85	p. 140	Ex. XIX, ¹ p. 140	(a) 45
(k) 48	(i) 29	(a) 60	(a) 275	(b) 200
Ex. XII, p. 139	(j) 807	576	3465	(c) 75
(a) 2134	(k) $54\frac{1}{2}\frac{1}{5}$	(b) $227\frac{1}{2}\frac{1}{5}$	(b) 720	(d) 200
(b) 5413	Ex. XV, p. 139	$1515\frac{1}{2}$	(b) 6300	(e) $62\frac{1}{2}$
(c) 620	(a) 26	(c) 72	(c) 624	(f) $86\frac{1}{2}$
	(b) $324\frac{1}{2}\frac{1}{5}$	360	4095	(g) \$2.80

¹ The quotient given first under each letter is the one found by using the divisor at the top of the column; the quotient given second is the one found by using the divisor at the left.

Multiplication and Division	Multiplication and Division	Multiplication and Division	Multiplication and Division	Multiplication and Division
(h) \$3.75	(f) 1201 $\frac{1}{2}$	(f) 1 $\frac{3}{4}$	(b) 40	Ex. XXV, p. 140
(i) \$2.70	(g) \$1.50	(e) 5 $\frac{1}{2}$	(c) $\frac{1}{24}$	(a) 10
Ex. XXII	(h) \$8.75	(f) 41 $\frac{3}{4}$	(d) 2 $\frac{1}{16}$	(b) 9
p. 140	(i) \$6.00	(g) 1 $\frac{1}{2}$	(e) 2 $\frac{1}{2}$	(c) 19 $\frac{1}{2}$
(a) 500	Ex. XXIII	(h) 1 $\frac{1}{4}$	(f) $\frac{1}{12}$	(d) 5
(b) 280	p. 140	(i) 2 $\frac{3}{4}$	(g) 36	(e) 4
(c) 390	(a) $\frac{1}{12}$	Ex. XXIV	(h) 40	(f) 12
(d) 116	(b) $\frac{1}{2}$	p. 140	(i) $\frac{5}{16}$	(g) 12
(e) 50	(c) $\frac{1}{12}$	(a) 18		(h) 12
				(i) 14

ANSWERS—PART FOUR

Ex. 1, p. 2

II

4. \$1.84
5. \$41.84
6. \$1.12
7. \$40.17
8. \$1.74
9. \$128.43
10. \$2.30
11. \$1.67
12. \$3.70

Ex. 2, p. 8

5. 2027
6. 3141
7. 3778
8. 12,877
9. 30,201
10. 3538
11. 5299
12. 5236
13. 19,671
14. 58,738
15. 2438
16. 7285
17. 2577
18. 66,576
19. 1648
20. 1606
21. 75,567
22. 10,989
23. 2335
24. 2628
25. 64,696
26. 142,345
27. 26,569

28. 50,805

29. 36,537

30. 456,449

31. 45,569

32. 419,676

33. 207,927

34. 255,974

35. \$9189.38

\$9625.95

36. \$14,965.71

\$4111.95

Ex. 3, p. 11

4. Am't due,
\$6.05
7. \$4.70
8. \$82.80
9. \$23.19
10. \$19.58
11. \$28.45

Ex. 4, p. 13

3. 1988
4. 57,420
5. 17,577
6. 38,844
7. 65,184
8. 51,792
9. 708,684
10. 1,487,246
11. 235,248
12. 148,656
13. 1,291,856
14. 520
15. 1028 $\frac{1}{2}$
16. 225
17. 62 $\frac{1}{10}$

18. 37

19. 188 $\frac{1}{2}$

20. 6208 $\frac{1}{4}$

21. 808

22. 786

23. 485 $\frac{1}{2}$

24. 320

Ex. 5, p. 14

II

1. \$16.50
2. \$23.86 $\frac{1}{2}$
3. \$79.04 $\frac{1}{2}$
4. \$6.82 $\frac{1}{2}$
6. \$18.33 $\frac{1}{2}$

Ex. 6, p. 15

I

1. 1,696,812
2. 167,433
3. 32,140
4. 10,202
5. 80,998
6. 3,598,382
7. 4,620,990
8. 126 $\frac{1}{2}$
9. 507
10. 467 $\frac{1}{10}$

II, p. 15

1. 2400
2. 3830
3. 4008
4. 7741
5. 229,297
6. 71,954
7. 5673
8. 16,689

9. 21,606

10. 29,905

11. 101,449

12. (a) 2346

(b) 2128

(c) 2239

(d) 2141

(e) 1558

(f) 147

13. (a) 61,248

(b) 80,214

(c) 70,557

(d) 79,083

(e) 129,802

(f) 252,561

14. (g) 303 $\frac{1}{10}$

(h) 221 $\frac{1}{10}$

(i) 13 $\frac{1}{10}$

(j) 150 $\frac{1}{10}$

(k) 216

(l) 774 $\frac{1}{10}$

Ex. 7, p. 16

1. 34 hr.
2. \$24.35
3. \$11.40
4. \$6.90
5. \$9.65
6. \$15.55
7. \$3.36
8. \$10.39
9. \$3.85
10. \$16.92
11. \$1.75;
28 $\frac{1}{2}$ wk.
12. \$67.60;
\$549.25

Ex. 9, p. 21

2. 324,988 sq. mi.
3. Excess,
40,366 sq. mi.
4. 18,258 sq. in.
5. Me., Ver., Mass.,
Conn., or the 5
smallest
8. 3,617,673 sq. mi.
9. 125,197 sq. mi.
10. 3,743,306 sq. mi.
11. 119,184 sq. mi.

Ex. 10, p. 23

1. 91,974 sq. mi.
2. Sup., $19\frac{1}{2}$ hr.
Mich., $17\frac{1}{2}$ hr.
Huron, $13\frac{1}{2}$ hr.
Erie, $12\frac{1}{2}$ hr.
Ont., $9\frac{1}{2}$ hr.
3. 326 ft.
4. 163 ft.
5. 355 ft.
8. About $4\frac{1}{2}$ ($4\frac{1}{2}$)
times Ontario; $1\frac{1}{2}$
($1\frac{1}{2}$) times Hu-
ron; $1\frac{1}{2}$ ($1\frac{1}{2}$) times
Mich.; $3\frac{1}{2}$ ($3\frac{1}{2}$)
times Erie

Ex. 11, p. 24

1. 268,720 sq. mi.
2. 5500 T.
3. 1056 yr.
4. 7392 yr.

Ex. 12, p. 25

1. Differences:
60 mi.
990 mi.
1160 mi.

1360 mi.

1800 mi.

2. 1140 mi.
3. $11\frac{1}{2}$, or about $11\frac{1}{2}$
da.
4. 1,257,000 sq. mi.
5. Area of Miss. =
 $4\frac{1}{2}$, or about $4\frac{1}{2}$
times Great Lakes
6. 1st Dif. = 693,700
sq. mi.
2d Dif. = 243,000
sq. mi.

Ex. 13, p. 26

1. 8000 ft.
8187 ft.
2. $1\frac{1}{2}$
3. 3 mi. 4624 ft.
5. 4683 ft. or about $\frac{1}{2}$
of a mile

Ex. 15, p. 31

I

3. 1.9744
36.734
519.944
4. .326; .6156; 1.21;
3.411; 3.63; 4.736
5. 929.96 mi.
6. 241.1 mi.
7. 544.601 T.
8. 101.978 T.

p. 31, continued

1. .872
2. 7.7802
3. 18.391
4. 42.293
5. 2.18268
6. 58.5056
7. 790.793

8. 3572.87995

9. 976.33965

10. 11.23
11. .8158
12. 3.239
13. 5.178
14. 2.93
15. 14.25
16. 1.158
17. 46.075
18. 22.275
19. 41.628
20. 457.328

Ex. 16, p. 23

5. 33.84 T.
.00072 mi.
\$.255
6. 228 mi.
7. 562 mi.
8. \$1.675; \$18.75
9. 35
10. 106.25
11. 99.36
12. 3
13. 65.4375
14. .09
15. .05
16. .0483
17. .00075
18. .0054
19. 40
20. 375
21. 8.4
22. 11.1
23. .012
24. .65205.

Ex. 17, p. 35

I

2. \$2.244

- 4.833+ ft.
2.159+ T.
2.4 mi.
3. $2.16\frac{2}{3}$ T.
4. \$.209+
5. \$.166
(\$1.656+)
6. 2.475
7. 3.18
8. 9.025
9. .0125
10. .00375
11. .0025
12. 2.5
13. 4.02
14. 2.025
15. .0625
16. 5.75
17. 4.125

III, p. 37

1. 2.44
2. 28.8
3. 2.4
4. 2.11
5. 27.1
6. 48.84
7. 1928.5
8. .003
9. .123
10. .21
11. 3.21
12. 2.13
13. 3.14
14. 2.340+
15. 4.25
16. 300
17. 2000
18. .04
19. 62.3 mi.
20. 65.24 mi.

21. 27.1 mi.
22. 22.125 mi.
23. 12.631+ mi.

IV, p. 38

1. 1.26
2. .247
3. 12.5
4. .144
5. 7.53
6. 217.2
7. 120
8. 4350
9. .082
10. .05
11. 2.12
12. .213
13. .0353+
14. 23.107+
15. 121
16. 33
17. 120
18. 2300
19. .012
20. .002
21. .203
22. 4.25
23. .02321
24. 2.4
25. 3.23
26. 623.959+
27. 31200
28. 23000
29. .012
30. .0051

Ex. 18, p. 38

I

2. \$51.076
3. 2.8
4. 101.425

5. 20.795
6. 11.173
7. 420
8. 186
9. 24.2
10. 40

II, p. 39

3. 362.887
4. 3119.195
5. 670.9239
6. .424
7. .582
8. .088
9. 10.284
10. 12.32
11. 7.625
12. 13.936
13. 24.66
14. 8.628
15. 7290
16. 313,700
17. 90
18. 1770
19. 1.71875
20. .010625
21. .14
22. 4327.5
23. .35
24. .95
25. 2.16
26. 9.475
27. 135
28. 23.4347
29. .31
30. 320
31. 23.1
32. 4400
33. .022
34. .003
35. 219

Ex. 19, p. 40

1. \$10; \$12.50
2. 60¢
3. 16¢
4. 62¢
5. \$18
6. \$5.85
7. 195.8 mi.
8. $7\frac{1}{2}$ hr.
9. 17.16+ mi.
per hour

Ex. 20, p. 41

I

1. 3240 mi.
1941 mi.
2. 1316 mi.
3. $75.93\frac{1}{2}$ hr.;
32.06 $\frac{1}{2}$ hr.
5. 20 hr.
6. 2 hr. 36 min.

II, p. 42

1. 985 mi.
889 mi.
2. 63.548+ hr.
57.354+ hr.
3. Dif. = 391 mi.
4. Totals:
671 ships
113,241,618 T.
133,559,508
bu.
408,093 bbl.
Averages:
223 $\frac{1}{2}$ ships
37,747,206 T.
44,519,836 bu.
136,031 bbl.

III, p. 43

1. 49.96 mi.

2. 40.04 mi.
3. 2281.319+
4. 1589.208
5. 423.2 hr.;
17.6 $\frac{1}{2}$ da., or 17
da. 15 hr. 12
min.

Ex. 21, p. 43

1. 75¢
2. 20 hr.
3. 21.5875 mi.
4. .26+ mi.;
26.094+ mi.

Ex. 23, p. 45

I

2. $\frac{3}{4}$
3. $\frac{1}{8}$
4. $\frac{1}{4}$
5. $\frac{1}{2}$
6. $\frac{9}{16}$
7. 35
8. $21\frac{1}{2}$
9. $14\frac{1}{2}$
10. $\frac{1}{2}$
11. $\frac{3}{4}$
12. $5\frac{1}{2}$
13. $3\frac{1}{2}$
14. $1\frac{1}{2}$ yd.
15. $3\frac{1}{2}$ yd.

II, p. 46

1. Length, $7\frac{3}{8}$ in.
Width, $5\frac{1}{8}$ in.
2. Length, 8 in.
Width, 6 in.
Length, $8\frac{3}{8}$ in.
Width, $6\frac{3}{8}$ in.
3. Height, $1\frac{3}{8}$ in.
Length, $4\frac{3}{8}$ in.
Width, $2\frac{1}{2}$ in.

Ex. 24, p. 47

I

1. $\frac{1}{8}$; $\frac{1}{4}$; $1\frac{1}{2}$
2. $1\frac{1}{2}$ yd.
3. $1\frac{1}{2}$ yd.; $1\frac{1}{2}$ yd.
4. $2\frac{1}{2}$ yd.
5. $\frac{1}{8}$
6. $1\frac{1}{2}$
7. $1\frac{5}{8}$
8. $\frac{1}{8}$
9. $\frac{3}{4}$
10. $\frac{1}{8}$
11. $\frac{3}{4}$
12. $1\frac{1}{8}$
13. $\frac{3}{4}$

II, p. 48

1. $11\frac{1}{8}$; $20\frac{1}{2}$
2. $33\frac{1}{2}$ ¢
3. $14\frac{1}{2}$ ¢
4. $6\frac{1}{2}$
5. $7\frac{1}{2}$
6. $28\frac{1}{8}$
7. 26
8. $42\frac{3}{8}$
9. $70\frac{3}{8}$
10. $40\frac{1}{2}$
11. $107\frac{7}{16}$

Ex. 25, p. 48

I

1. $6\frac{7}{8}$; $4\frac{1}{8}$; $9\frac{5}{8}$
2. $3\frac{5}{8}$ ft.
3. $\frac{1}{2}$ yd., or $19\frac{1}{2}$
in.
4. $18\frac{7}{8}$ yd.
5. $6\frac{1}{2}$
6. $11\frac{1}{2}$
7. $7\frac{5}{8}$
8. $30\frac{3}{8}$

9. $27\frac{1}{8}$

10. $42\frac{7}{8}$
11. $2\frac{1}{2}$
12. $15\frac{1}{8}$
13. $14\frac{3}{4}$
14. $16\frac{1}{2}$
15. $4\frac{1}{8}$
16. $28\frac{1}{8}$

II, p. 49

1. $2\frac{3}{8}$; $6\frac{3}{8}$; $5\frac{7}{8}$
2. $3\frac{1}{2}$ in.
3. $8\frac{1}{2}$ in.
4. $\frac{3}{4}$ yd.
5. $5\frac{1}{2}$
6. $10\frac{3}{8}$
7. $8\frac{1}{8}$
8. $20\frac{1}{2}$
9. $10\frac{1}{2}$
10. $17\frac{1}{2}$
11. $5\frac{1}{2}$
12. $11\frac{1}{2}$
13. $1\frac{1}{2}$
14. $14\frac{3}{8}$
15. $42\frac{1}{2}$
16. $8\frac{1}{2}$

Ex. 26, p. 50

Sums and
Differences

15. $19\frac{1}{2}$; $6\frac{1}{2}$
16. $22\frac{1}{2}$; $6\frac{7}{8}$
17. $22\frac{1}{2}$; $10\frac{7}{8}$
18. $26\frac{3}{8}$; $1\frac{1}{2}$
19. $44\frac{3}{8}$; $13\frac{1}{2}$
20. $21\frac{9}{8}$; $14\frac{1}{8}$
21. $37\frac{1}{2}$; $22\frac{3}{4}$

Ex. 27, p. 50

1. $6\frac{1}{2}$ in.
2. $\frac{1}{2}$ in.

3. $1\frac{1}{2}$ in.
4. Length, $2\frac{1}{2}$ in.;
width, $\frac{1}{2}$ in.
5. Length, $3\frac{1}{2}$ in.;
width, $2\frac{5}{8}$ in.
Length, $5\frac{1}{2}$ in.;
width, $3\frac{1}{2}$ in.
Length, $8\frac{1}{2}$ in.;
width, $2\frac{1}{2}$ in.
6. Length, $3\frac{1}{2}$ in.;
width, $1\frac{1}{2}$ in.
7. $\frac{7}{8}$ in.
8. $1\frac{1}{2}$ in.
9. $7\frac{1}{2}$ in.

Ex. 28, p. 52

1. Length, $21\frac{1}{2}$
in.;
width, 14 in.
2. Width, $11\frac{1}{2}$ in.;
length, $18\frac{1}{2}$ in.
3. $\frac{1}{2}$ in.
4. $\frac{3}{4}$ in.
5. Length, $7\frac{1}{2}$ in.;
width, $4\frac{1}{8}$ in.

Ex. 29, p. 54

II

1. 72; 80; 160
2. $\frac{1}{4}$
3. $1\frac{7}{8}$
4. $1\frac{5}{8}$
5. $\frac{1}{8}$
6. $\frac{9}{8}$
7. $1\frac{1}{8}$
8. $\frac{1}{8}$
9. $\frac{1}{8}$
10. $\frac{7}{8}$
11. $\frac{1}{8}$
12. $\frac{1}{8}$

13. $1\frac{1}{10}$
 14. $6\frac{1}{10}$
 15. $4\frac{1}{2}$
 16. $38\frac{1}{10}$
 17. $13\frac{1}{10}$
 18. $6\frac{1}{10}$
 19. $42\frac{1}{10}$

Ex. 30, p. 56

2. 21
 3. 30
 4. 48
 5. 5
 6. 24
 7. 306
 8. 160
 9. 24
 10. 560
 11. 120
 12. $\frac{2}{3}$
 13. $\frac{2}{3}$
 14. $\frac{2}{3}$
 15. $1\frac{1}{3}$
 16. $\frac{2}{3}$
 17. 80
 18. $3\frac{1}{2}$
 19. 1
 20. 120
 21. 100

Ex. 31, p. 56

I

3. 36
 4. 252
 5. 152
 6. $116\frac{2}{3}$
 7. 688
 8. 75
 9. 112
 10. 296
 11. $109\frac{1}{2}$
 12. $409\frac{2}{3}$

13. $1\frac{1}{2}$
 14. 2
 15. 5
 16. 5
 17. $5\frac{1}{2}$
 18. $14\frac{1}{2}$
 19. $10\frac{1}{2}$
 20. $7\frac{1}{2}$
 21. 125
 22. $143\frac{1}{2}$
 23. $291\frac{1}{2}$
 24. 70 yd.; 25 yd.
 25. $53\frac{1}{2}$
 26. 4 yd.
 27. \$18.69

III, p. 58

1. 80
 2. $86\frac{1}{2}$
 3. 100
 4. $280\frac{1}{2}$
 5. $2066\frac{1}{2}$
 6. $3412\frac{1}{2}$
 7. 120
 8. $25\frac{1}{2}$
 9. 196
 10. $153\frac{1}{2}$
 11. 2700
 12. $1029\frac{1}{2}$
 13. $\frac{1}{2}$
 14. $1\frac{1}{2}$
 15. 1
 16. $3\frac{1}{2}$
 17. $55\frac{1}{2}$
 18. $29\frac{1}{2}$
 19. $39\frac{1}{2}$
 20. $44\frac{1}{2}$
 21. 300
 22. $37\frac{1}{2}$
 23. 3125
 24. $353\frac{1}{2}$

Ex. 32, p. 59

I

4. 10; 18; 2; $\frac{1}{2}$;
 6; 7
 5. 8
 6. 16
 7. $4\frac{1}{2}$
 8. 14
 9. 6
 10. $10\frac{1}{2}$
 11. $\frac{2}{3}$
 12. 8
 13. 3
 14. 8
 15. $1\frac{1}{2}$
 16. 2
 17. 2
 18. $1\frac{1}{2}$
 19. $2\frac{1}{2}$
 20. $4\frac{1}{2}$
 21. 2
 22. $3\frac{1}{2}$
 23. 4

II, p. 60

1. 7; 15
 2. 5
 3. 8
 4. 5

III, p. 60

1. 12
 2. 48
 3. 25
 4. $28\frac{1}{2}$
 5. $266\frac{1}{2}$
 6. $158\frac{1}{2}$
 7. 4
 8. 6
 9. 9
 10. 4

11. $10\frac{1}{2}$
 12. $25\frac{1}{2}$
 13. $\frac{2}{3}$
 14. $\frac{2}{3}$
 15. $1\frac{1}{2}$
 16. 18
 17. $16\frac{1}{2}$
 18. $5\frac{1}{2}$
 19. $43\frac{1}{2}$
 20. 2
 21. $1\frac{1}{2}$
 22. $3\frac{1}{2}$
 23. $2\frac{1}{2}$
 24. $4\frac{1}{2}$

Ex. 33, p. 61

1. 12
 2. $2\frac{1}{2}$; 2
 3. $\frac{1}{2}$; $1\frac{1}{2}$
 4. 32; 4; $1\frac{1}{2}$
 5. $3\frac{1}{2}$; $1\frac{1}{2}$; $28\frac{1}{2}$
 6. $5\frac{1}{2}$; $\frac{2}{3}$
 7. $2\frac{1}{2}$; $1\frac{1}{2}$
 8. $13\frac{1}{2}$; 8
 9. $3\frac{1}{2}$; $34\frac{1}{2}$; 4

Ex. 34, p. 62

I

1. $1\frac{1}{2}$
 2. $59\frac{1}{2}$
 3. $16\frac{1}{2}$
 4. $6\frac{1}{2}$
 5. $2\frac{1}{2}$
 6. $65\frac{1}{2}$
 7. $17\frac{1}{2}$
 8. 9
 9. $1\frac{1}{2}$
 10. $1\frac{1}{2}$; $4\frac{1}{2}$

II, p. 62

10. $1\frac{1}{2}$
 11. $\frac{2}{3}$

12. $\frac{1}{4}$
13. $\frac{1}{2}$
14. $5\frac{1}{4}$
15. $1\frac{2}{5}$
16. 2
17. $6\frac{1}{2}$
18. 45
19. 450
20. 1728
21. $\frac{1}{2}$
22. $8\frac{7}{8}$
23. 70
24. 900

Ex. 35, p. 63

1. $8\frac{1}{2}'' \times 10\frac{1}{2}''$
2. $8'' \times 12''$
3. Drawing,
 $2'' \times 3''$
4. Length, $23\frac{1}{4}$ in.
Width, 12 in.
5. A to B, $21\frac{1}{8}''$
A to C, $51\frac{1}{8}''$
6. 8
7. Length, $11\frac{1}{2}''$
Width, $6''$
8. Length, $10''$
Width, $5\frac{1}{2}''$
9. $11\frac{1}{2}''$

Ex. 36, p. 64

1. $\frac{1}{2}$ in.
2. 9 ft. 1 in.
3. 9 in.
4. $\frac{1}{2}$ in.
5. $9\frac{1}{2}$ in.
6. $36'' \times 8''$
 $7\frac{1}{2}'' \times 7\frac{1}{2}''$
 $36'' \times 7\frac{1}{2}''$
7. $34\frac{1}{2}'' \times 7\frac{1}{2}''$
 $\times 7\frac{1}{2}''$

Ex. 37, p. 65

1. \$1.60
2. $2\frac{1}{2}\text{¢}$
3. $6\frac{1}{2}\text{¢}$
4. 21¢
5. $3\frac{3}{4}'' \times 3\frac{3}{4}''$
6. $5\frac{1}{4}'' \times 6\frac{1}{4}''$
7. $9\frac{1}{2}\text{¢}$
8. 3¢
9. $5\frac{1}{2}\text{¢}$; 32¢
10. $9\frac{1}{2}\text{¢}$
11. $10\frac{1}{2}\text{¢}$

Ex. 38, p. 68

II

2. .625
3. .875
4. .916+
5. .312+
6. .0416+
7. .428+
8. .025
9. .0125
10. .18
11. .12
12. .0714+
13. .636+
14. .055+
15. .466+
16. .013+
17. 1.375
18. 2.416+
19. 7.1875
20. 4.208+
21. 9.066+
22. 12.66 $\frac{2}{3}$
23. 8.83 $\frac{1}{3}$
24. 9.291+
25. 6.454+
26. 24.357+

III, p. 68

1. 1.85 in.; 16 ft.
2. 5.9 ft.
3. 6.625 yd.
4. .8
5. 1.65
6. 7.75
7. 16.675
8. .02
9. 9.1
10. 62.8
11. 87
12. 38.25
13. 29
14. 3.1
15. 482.5
16. $1\frac{1}{2}$
17. $\frac{1}{2}$
18. $22\frac{1}{2}$
19. 1.65
20. 2.2
21. $\frac{1}{2}$
22. 2862 $\frac{1}{2}$
23. 7437 $\frac{1}{2}$
24. 90
25. $6\frac{1}{2}$
26. $\frac{1}{2}$
27. 938.025
28. 66
29. 10
30. 29
31. 2
32. 301
33. 6.1
34. 21.428+
35. 45 ¢ ; $17\frac{1}{2}\text{¢}$
36. $2\frac{1}{2}$ ft.

IV, p. 69

1. $\frac{1}{2}$
2. $\frac{1}{2}$

3. $\frac{1}{2}$
4. $\frac{1}{2}$
5. $\frac{1}{2}$
6. $1\frac{1}{2}$
7. $2\frac{1}{2}$
8. $3\frac{1}{2}$
9. $4\frac{1}{2}$
10. $6\frac{1}{2}$
11. $\frac{1}{2}$
12. $\frac{1}{2}$
13. $\frac{1}{2}$
14. $\frac{1}{2}$
15. $\frac{1}{2}$
16. $\frac{1}{2}$
17. $\frac{1}{2}$
18. $\frac{1}{2}$
19. $\frac{1}{2}$
20. $\frac{1}{2}$
21. $8\frac{1}{2}$
22. $3\frac{1}{2}$
23. $14\frac{1}{2}$
24. $64\frac{1}{2}$
25. $18\frac{1}{2}$

Ex. 39, p. 70

6. $19\frac{1}{2}$ in.
7. $4\frac{1}{2}$ in.
8. \$1.36
9. 10
10. $5\frac{1}{2}$ ft.

Ex. 48, p. 85

I

1. 3945
- 255
- 2520
- 648
- 135.84
2. 168
3. \$50.70
4. 525; 315

5. 128; 144; 48	Ex. 51, p. 91	Ex. 53, p. 97	II, p. 99
6. \$.05	4. \$40; \$120	III	9. 14.4
II, p. 86	5. \$40; \$20	18. \$125	225
8. 430	6. \$16	19. 82,800	800
9. 1240	7. \$45	20. 7488	10. 560
10. 103.68	8. \$6	21. \$1500	12,000
11. 780.8	9. \$3	22. \$3000	6397½
12. 1728	10. \$18	23. \$252	11. 520
13. 220	11. \$180	24. 9300	6800
14. 586.92	12. \$309	25. 12,500	5908
15. 153.6	13. \$204	26. 9300	12. 1125
16. 294	14. \$2020	27. 9400	13. 21,800
17. 3000	15. \$525	28. 94,000	81,000
18. 134.4	16. \$816	29. 5376	14. 1225
19. 1260	17. \$4050	30. 5760	9540
20. 1050	18. \$439.88	31. 12,000	15. 66⅔ %
21. 321	Ex. 52, p. 93	32. 990	16. 16⅓ %
22. 5740	II	33. 19,800	17. 20 %
23. 11,250	1. 7⅞; 20 %	34. 2000	18. 75 %
24. 825	2. 1⅓; 28 %	35. 944	Ex. 55, p. 100
1500	3. 75¢	36. 6250	11. 684
6105	15 %	37. 7840	12. \$48.16
Ex. 49, p. 87	10 %	38. 2700	\$49,412.16
9. \$12.60	4. 20 %; 13⅓ %	39. 2400	13. 131,765.76
10. \$58.60	5. 20 %	40. 8450	14. 67 %
11. 12 wk.	III, p. 94	Ex. 54, p. 98	15. \$10,570.56
12. \$1.45	16. 33⅓ %	I	Ex. 56, p. 101
14. 70¢	17. 65 %	1. 210	7. \$1350
Ex. 50, p. 90	18. 40 %	2. 121	8. \$36.48
II	19. 50 %	3. 727.5	9. \$909
9. \$6.60	20. 60 %	4. 873.6	10. \$326
10. 4.50	21. 42⅔ %	5. 450	11. 12 %
11. 5¢	22. 88⅓ %	6. 1355.2	Ex. 57, p. 103
12. 48¢	23. 87½ %	7. 14,500	28. 333⅓ yd.
13. \$4.50	24. 20 %	8. 1305	29. 2640 ft.
\$1.20	25. 50 %	9. 75 %	30. 800 rd.
30¢	46⅔ %	10. 50 %	31. 198 ft.
14. \$2.52	112⅓ %		32. 550 yd.

33. $6\frac{2}{3}$ rd.
 34. 440 yd.
 35. $1\frac{1}{8}$, or
 1.5625, mi.
 36. $1\frac{1}{8}$, or
 1.893+, mi.

Ex. 58, p. 104

I

1. 31 ft. 9 in.
 34 ft. 6 in.
 2. 14 yd. 3 in.
 4 rd. $5\frac{1}{2}$ ft.
 3. 36 yd. 10 in.
 4. 46 yd. $1\frac{1}{2}$ ft.
 5. 25 ft. 8 in.
 6. 22 yd. 26 in.
 7. 15 rd. $4\frac{1}{2}$ ft.
 8. 17 rd. $7\frac{1}{2}$ ft.

II, p. 104

2. 2 ft. 2 in.
 5 ft. 6 in.
 3. 6 yd. 5 in.
 27 yd. 19 in.
 5 rd. 7 ft.
 4. $10\frac{1}{2}$ in.
 5. $8\frac{1}{2}$ in.
 1 ft. $7\frac{1}{2}$ in.
 7. 15 ft. 4 in.
 8. 21 ft. 8 in.
 9. 5 yd. 7 in.
 10. 14 yd. 23 in.
 11. 27 rd. 2 ft.

III, p. 106

1. 68 ft. 8 in.
 7 yd. 4 in.
 11 yd. 8 in.
 13 rd. $1\frac{1}{2}$ ft.

2. 26 ft. 8 in.
 25 yd. 15 in.
 3. 142 rd. 11 ft.
 4. 16 ft. 6 in.
 5. 10 yd. 4 in.
 6. 76 ft. 6 in.
 7. 586 ft.
 8. 54 rd. 3 yd.
 9. 57 rd. $15\frac{1}{2}$ ft.
 10. 405 rd.

IV, p. 106

1. 2 ft. 5 in.
 2 ft. 4 in.
 2 yd. $10\frac{1}{2}$ in.
 1 rd. 9 ft.
 2. 3 ft. 5 in.
 3. 5 ft. 8 in.
 3 ft. 8 in.
 4. 47 yd. $2\frac{1}{2}$ ft.
 5. 13 rd. $5\frac{1}{2}$ ft.

Ex. 59, p. 108

II

1. 320 sq. rd.
 2. 4840 sq. yd.
 43,560 sq. ft.
 3. 3025 sq. yd.
 21,780 sq. ft.
 6050 sq. yd.
 4. 8 A.
 5. $111\frac{1}{2}$ sq. yd.
 8 sq. rd.
 3 A.
 6. \$300
 7. \$356

III, p. 109

11. 720 sq. ft.
 12. \$504

13. 360 sq. ft.
 40 sq. yd.
 14. \$50
 15. \$37.50
 16. \$4.80
 17. \$10; \$7.38
 18. \$10.80
 19. 480 sq. rd.
 3 A.
 20. $10\frac{1}{2}$

Ex. 60, p. 111

6. $2\frac{1}{2}$ yd.
 7. $3\frac{1}{2}$ ft.
 8. 12 ft.
 9. 220 ft.
 10. 45 ft.
 11. 260 ft.
 12. 448 ft.
 13. 1100 yd.

Ex. 61, p. 111

I

1. 100 yd.
 50 yd.
 40 yd.
 2. 360 ft.
 120 yd.
 3. $53\frac{1}{2}$ yd.
 4. 210 ft.
 410 ft.
 5. 57600 sq. ft.
 86,100 sq. ft.
 6. \$861
 7. 1240 ft.
 8. $2''$ by $4\frac{1}{2}''$
 $2\frac{1}{2}''$ by $5\frac{1}{2}''$

II, p. 112

1. 78 ft. \times 36 ft.

2. 108 ft. \times 52 ft.
 3. \$16.56
 4. Sides, 7 ft.
 Ends, 11 ft.

Ex. 62, p. 113

1. 60 yd.
 $53\frac{1}{2}$ yd.
 2. 10; 44
 3. 100 ft.
 $33\frac{1}{2}$ yd.
 4. 600 sq. ft.
 $66\frac{2}{3}$ sq. yd.
 5. 5.4 sq. ft.

Ex. 63, p. 114

I

10. 12,000 cu. ft.
 11. 432 cu. ft.
 12. 1020 cu. ft.
 13. 45 cu. ft.
 14. 8640 cu. ft.

II, p. 115

3. 432 cu. in.
 3024 cu. in.
 4. $40\frac{1}{2}$ cu. ft.
 2 cu. ft.
 5. 4 cu. yd.
 $37\frac{1}{2}$ cu. yd.
 6. 864 cu. in.
 7. 900 cu. ft.
 $33\frac{1}{2}$ cu. yd.
 8. $44\frac{1}{2}$ cu. yd.
 9. 300 cu. yd.
 10. 400 cu. yd.
 \$200

Ex. 64, p. 116

I

1. 25 min.

2. 35 min.	15. 34 hr. 30 min.	19. 39 da. 19 hr.	5. \$444
3. 36 min.	16. 24 hr. 16 min.	43 min.	6. \$718.20
4. 32 min.	17. 8 hr. 15 min.	V, p. 123	7. \$262.50
5. 34 min.	18. 33 hr. 15 min.	1. 7 yr. 9 mo.	8. \$768.69
6. 3 hr. 30 min.	19. 14 hr. 45 min.	22 da.	9. \$656.01
7. 5 hr. 30 min.	20. 11 hr. 20 min.	2. 8 yr. 4 mo.	10. \$2212.20
8. 4 hr. 30 min.	21. 15 hr. 15 min.	3. 10 yr. 6 mo.	11. \$1583.97
9. 3 hr. 15 min.	22. 87 hr. 40 min.	22 da.	12. \$16.077+
10. 5 hr. 45 min.	III, p. 119	4. 10 yr. 3 mo.	II, p. 128
11. 4 hr. 30 min.	2. 2 da. 6 hr.	11 da.	1. 2 A.
12. 6 hr.	10 min.	5. 13 yr. 4 mo.	2. 3 A.
13. 7 hr. 40 min.	3. 12 hr. 25 min.	21 da.	18.9 A.
14. 6 hr. 45 min.	4. 1 da. 3 hr.	6. 14 yr. 16 da.	3. 13½ A.
15. 5 hr. 15 min.	23 min.	7. 2211.77+ yd.	4. 4800 sq. rd.
16. 6 hr.	5. 23 hr. 19 min.	Ex. 65, p. 124	5. 120 rd.
5 hr. 30 min.	1 da. 38 min.	2. 9 hr.	1980 ft.
4 hr. 45 min.	7. 6 hr. 27 min.	3. 43½¢	6. 240 rd.
17. 8 hr. 40 min.	29 sec.	4. 50¢	3960 ft.
18. 9 hr. 3 min.;	IV, p. 121	5. 55¢	III, p. 128
15 hr.	2. 20 da.	6. 55¢	1. \$33,000
17 min.	3. 30 da.	7. 62½¢	2. 1st yr.,
19. 58 min.	4. 44 da.	8. 38½¢	\$2490.17
20. 57 min.	30 da.	9. \$2.81	2d yr.,
22. 8½ hr.	35 da.	10. \$4.38	\$2387.89
II, p. 117	5. 28 da.	11. \$1.50	3d yr.,
1. 1 hr. 15 min.	6. 35 da.	12. 88¢	\$1536.50
2. No. 113, 2 hr.	7. 44 da.	13. \$4.25	4th yr.,
No. 105, 2 hr.	8. 16 da.	14. \$3.00	\$3947.14
10 min.	9. 59 da.	15. \$3.56	5th yr.,
No. 153, 2 hr.	10. 56 da.	16. \$1.96½	\$5197.61
5 min.	11. 21 da.	17. \$3.75	3. \$2707.44
3. No. 113	22 da.	18. \$3.02½	4. 108+%
7. 5 hr. 30 min.	12. 14 da.	19. \$3.10	Ex. 68, p. 130
5 hr. 10 min.	13. 21 da.	20. \$4.12½	1. \$47.20
No. 509	14. 8 da.	Ex. 67, p. 127	\$613.60
10. 5 hr. 35 min.	15. 126 da.	I	2. \$645.06+
11. 2 hr. 16 min.	16. 249 da.	1. \$22,500	\$995.31+
12. 5 hr. 12 min.	17. 66 da.	3. 30 bu.	3. \$34.80
13. 12 hr. 45 min.	18. 15 da.	4. \$2.57	\$23
14. 34 hr. 45 min.			

4. \$1135.125	Ex. 69, p. 131	12. 38 yd. 1 ft.	23. 720	36. $12\frac{1}{2}\%$
5. Earnings	I	13. .605+	24. $33\frac{1}{2}\%$	37. \$5635
at 30:	1. 58.343	14. 4.002	25. 4	38. \$3780
\$790.40	2. $11\frac{1}{8}$	15. $8\frac{1}{2}$	II, p. 134	39. \$365
\$1404.00	3. 8 yd. 2 in.	16. 195.5	28. \$30	40. \$44
\$2600.00	4. 15.648	17. $83\frac{1}{2}$	29. \$2.43	41. 42.49 mi.
Yearly	5. 3.917	18. 477	30. \$54.26	42. 2 yr. 11
Average:	6. $91\frac{1}{2}$	19. 2133 $\frac{1}{2}$	31. \$1.15	mo. 16 da.
\$645.06+	7. 292.75	20. 5740	32. \$4.31	43. 2 mi. 1654
\$995.31+	8. .4179	21. 5096	33. \$1050	yd.
\$1135.125	9. 765	12,740	34. \$21.47	44. 1.617+
7. 56+%	10. .77	22. 8730	35. \$29.16 $\frac{7}{8}$	mi.
30+%	11. 16	2700		

SUPPLEMENTARY PRACTICE

Addition	Addition	Subtraction	Subtraction	Subtraction
p. 136		Ex. II, p. 137		
1. \$47.90	24. 104.973	1. 46,569	2. 9635	4. \$7.65
2. \$159.95	25. 151.862	2. 14,700	3. 8921	5. \$10.58
3. \$7.839	26. 206 $\frac{1}{2}$	3. 2891	4. 83,138	Ex. VII, p. 137
4. \$1059.33	27. 170 $\frac{1}{2}$	4. 88	5. 18,889	1. \$2.25
5. \$413.418	28. 385 $\frac{1}{2}$	5. 21,277	6. 30,673	2. \$3.47
6. \$176.535	29. 1138 $\frac{1}{2}$	6. 65,115	7. 104,177	3. \$7.25
7. \$248.55	30. 1151 $\frac{1}{2}$	7. 37,936	8. 58,143	4. \$12.69
8. \$134.492	31. 514 $\frac{1}{2}$	8. 49,744	9. 19,346	5. \$90.88
9. \$137.84	32. 661 $\frac{1}{2}$	9. 68,453	Ex. V, p. 137	Ex. VIII, p. 137
10. \$266.15	33. 494 $\frac{1}{2}$	Ex. III, p. 137	1. 466	1. \$2.053
11. \$332.47	34. 603 $\frac{1}{2}$	1. 13,701	2. 27,278	2. \$.625
12. \$392.40	35. 779 $\frac{1}{2}$	2. 56,882	3. 66,297	3. \$4.375
13. 51.202	Subtraction	3. 44,943	4. 35,901	4. \$9.865
14. 3.643	Ex. I, p. 137	4. 75,630	5. 58,530	5. \$5.625
15. 43.582	1. 56,610	5. 77,428	6. 12,712	Ex. IX, p. 137
16. 408.821	2. 29,833	6. 69,354	7. 34,823	1. 7.249
17. 303.541	3. 48,025	7. 12,267	8. 73,655	2. 5.795
18. 143.829	4. 57,204	8. 33,196	9. 85,044	3. 3.375
19. 111.005	5. 20,469	9. 10,075	Ex. VI, p. 137	4. 4.427
20. 123.284	6. 11,748	Ex. IV, p. 137	1. \$5.02	5. 6.575
21. 122.94	7. 71,972	1. 19,135	2. \$2.47	
22. 22.169	8. 93,081		3. \$4.26	
23. 30.727	9. 84,097			

Subtraction	Multiplication and Division	Multiplication and Division	Multiplication and Division	Multiplication and Division
Ex. X, p. 137				
1. 6.012		4. 30	10. 27.162	5. 70
2. 109.942	Ex. I, p. 138	5. $3\frac{1}{4}$		6. $78\frac{1}{2}$
3. 34.796	1. 582,300	6. 323	Ex. VIII, p. 138	7. $14\frac{1}{2}$
4. 4.162	2. 44,872		1. 184	8. $10\frac{1}{2}$
5. 35.262	3. 73,402	Ex. V, p. 138	2. $337\frac{1}{2}$	9. 8.375
	4. 111,384	1. 55	3. 3125	10. 7.125
Ex. XI, p. 137	5. 83,926,932	2. 342	4. 240	
1. 25	6. 78,513,810	3. 207	5. 1500	Ex. XI, p. 138
2. $6\frac{1}{2}$	7. 44,831,868	4. 402	6. $2083\frac{1}{2}$	1. 32
3. $1\frac{1}{4}$	8. 6,404,643	5. 165	7. 18.5	2. 20
4. $219\frac{1}{2}$	Ex. II, p. 138	6. 16	8. 7.5	3. $\frac{1}{5}$
	1. \$80.82	Ex. VI, p. 138	9. .064	4. $\frac{1}{5}$
Ex. XII, p. 137	2. \$18	1. 0.2	10. 482.25	5. 10
1. $66\frac{1}{2}$	3. \$3.60	2. 0.6	Ex. IX, p. 138	6. $4\frac{1}{2}$
2. $20\frac{1}{2}$	4. \$2074.56	3. 18.128	1. 270	7. 75
3. $116\frac{1}{2}$	5. \$242.75	4. .0125	2. 495	8. 50
4. $50\frac{1}{2}$	6. \$3.50	5. 6.723	3. 1170	9. $8\frac{1}{2}$
	Ex. III, p. 138	6. 41.25	4. 2886	10. $1\frac{1}{2}$
Ex. XIII, p. 137	1. 1166.4	Ex. VII, p. 138	5. 1736	
1. $4\frac{1}{2}$	2. 7.2	1. 1101	6. 15,000	Ex. XII, p. 138
2. $35\frac{1}{5}$	3. 6472	2. 750	7. 5.28	1. $4\frac{1}{2}$
3. $96\frac{1}{5}$	4. 38.3104	3. 600	8. .875	2. $1\frac{1}{2}$
	5. .00075	4. 600	9. 32.98	3. $\frac{1}{2}$
Ex. XIV, p. 137	6. .0008366	5. 16.5	10. 165.9	4. 10
1. \$3.12 $\frac{1}{2}$	Ex. IV, p. 138	6. 148.804+	Ex. X, p. 138	5. $1\frac{1}{2}$
2. \$3.04 $\frac{1}{2}$	1. 78,920	7. 428.99+	1. $\frac{1}{2}$	6. $13\frac{1}{2}$
3. \$5.33 $\frac{1}{2}$	2. 7711 $\frac{1}{2}$	8. 24,300	2. $9\frac{1}{2}$	7. 9.5
4. \$1.06 $\frac{2}{3}$	3. 43	9. 10,366.6 $\frac{1}{2}$	3. $14\frac{7}{8}$	8. 42
			4. 25	9. 259.2
				10. 181

ANSWERS — PART FIVE

Ex. 2, p. 3

16. 5316
17. 5090
18. 4989
19. 5958
20. 6214
21. 5803
22. 6447
23. 6913
24. 7483
25. 8005
26. 7043
27. 7952
28. 7053
29. 7825
30. 7294
31. 8030
32. 7520
33. 7647
34. 43,556
35. 577,477
36. 377,667
37. 60,646
38. 256,978
39. 597,578
40. 726,757
41. 654,882
42. 68,569
43. 46,280
44. 107,668
45. 317,646
46. 424,429
47. 360,659
48. 108,287
49. 4,748,728
50. (a) \$1430.48
(b) \$200.22

- (c) \$903.21
- (d) \$2025.57
- (e) \$688.49
- (f) \$1101.75
- (g) \$779.29
- (h) \$25,572.80
- (i) \$105.50
- (j) \$1398.00
- (k) \$315.00
- (l) \$495.00
- (m) \$404.36
51. (a) \$7382.75
(b) \$8608.26
(c) \$5723.44
(d) \$2116.44
(e) \$11,588.78

52. \$35,419.67
53. \$2580.33

Ex. 3, p. 6

4. \$120.85
5. \$31.20
6. \$47.95
7. \$29.78
8. \$34.23
9. \$6.27
10. \$10.33

Ex. 5, p. 8

I

9. 1,651,648
10. \$399.12
11. 50
12. $765\frac{9}{14}$
13. $3356\frac{1}{4}$
14. $358\frac{1}{14}$

15. $381\frac{1}{2}$
16. $485\frac{1}{2}$
17. 976
18. $78\frac{1}{2}$
19. \$1.999+
20. \$2.497+

II, p. 9

1. \$2.05
2. \$200.65;
\$16.72
3. \$455
4. \$82.50
5. \$136.95
6. (a) \$1.11
(b) \$138.61

Ex. 6, p. 10

3. 210
4. 310
5. 1240
6. 3820
7. 3825
8. 4200
9. 2400
10. 1800
11. 39,200
12. 27,450
13. 1200
14. 2200
15. 900
16. 24,100
17. 19,625
18. 400
19. 3200
20. 23,100
21. 30,800

22. 23,333 $\frac{1}{3}$
23. 1000
24. 2100
25. 8200
26. 9300
27. 2237 $\frac{1}{2}$
28. 1100
29. 2100
30. 10,300
31. 7900
32. 6916 $\frac{1}{2}$

Ex. 7, p. 11

I

1. $3\frac{1}{2}$ in.
2. $1\frac{7}{8}$ in.
3. 8 in.
4. $5\frac{1}{2}$ in.
5. $15\frac{5}{8}$ yd.
6. $16\frac{1}{2}$ yd.
7. $38\frac{1}{16}$

II, p. 12

28. $11\frac{1}{16}$
29. $26\frac{1}{8}$
30. $53\frac{1}{8}$
31. $20\frac{1}{4}$
32. $12\frac{1}{4}$
33. $316\frac{1}{16}$
34. $255\frac{1}{16}$
35. $23\frac{1}{16}$
36. $2\frac{1}{16}$
37. $6\frac{1}{16}$
38. $12\frac{1}{16}$
39. $11\frac{1}{16}$
40. $5\frac{1}{16}$

41. $41\frac{1}{4}$
 42. $2\frac{1}{4}$
 43. $36\frac{1}{2}$
 44. 1052
 45. $1316\frac{7}{8}$
 46. $770\frac{1}{2}$
 47. $9231\frac{79}{100}$
 48. $18\frac{5}{8}$
 49. $77\frac{1}{4}$
 50. $24\frac{3}{8}$

III, p. 13

1. 320; 322; 1; 3
 3. $54\frac{1}{2}$; $84\frac{1}{2}$
 4. 74; 231; $3\frac{1}{2}$;
 $3\frac{1}{2}$; $6\frac{1}{2}$; 50
 5. 8775
 11,431
 31,250
 75,177
 6. $20\frac{1}{2}$
 9. 18; $17\frac{1}{2}$;
 $9\frac{1}{2}$; 12; 5

10. $\frac{5}{8}$
 11. $\frac{5}{8}$
 12. $11\frac{1}{2}$
 13. 15
 14. 63
 15. $71\frac{1}{2}$
 16. 444
 17. 516
 18. 2250
 19. $\frac{9}{8}$
 20. $1\frac{1}{2}$
 21. 40
 22. $134\frac{1}{2}$
 23. 17,290
 24. $66\frac{1}{2}$
 25. $7\frac{1}{2}$
 26. $6\frac{1}{2}$
 27. 9

28. $2\frac{1}{2}$
 29. $10\frac{1}{2}$
 30. $3\frac{1}{8}$
 31. $1782\frac{1}{2}$
 32. $96\frac{1}{2}$

Ex. 8, p. 15

22. $\frac{2}{5}$
 23. $\frac{1}{2}$
 24. $\frac{1}{2}$; $\frac{7}{8}$; $\frac{6}{7}$
 25. (a) $\frac{4}{10}$, or
 about $\frac{2}{5}$
 (b) $\frac{5}{10}$, or
 about $\frac{1}{2}$
 26. $\frac{1}{2}$; $\frac{1}{2}$
 27. $\frac{4}{5}$
 28. $\frac{5}{10}$
 29. $\frac{7}{10}$
 30. $1\frac{1}{2}$
 31. $1\frac{1}{2}$
 32. $1\frac{1}{2}$
 33. $1\frac{1}{10}$
 34. $3\frac{1}{2}$
 35. 6
 36. $5\frac{1}{2}$
 37. 3
 38. $\frac{1}{2}$
 39. $\frac{1}{2}$
 40. $\frac{1}{2}$
 41. $1\frac{1}{2}$
 42. 5600
 43. 10,000

Ex. 9, p. 17

I

1. 25
 2. 500
 3. 12
 4. 10
 5. 3600

6. 30
 7. 60
 8. $6\frac{1}{2}$
 9. 160
 10. 20
 11. 5115
 12. 22
 13. $7\frac{1}{2}$
 14. 8
 15. 150

II, p. 17

1. \$285
 $\$85.50$
 2. \$2.60
 3. \$.75
 4. \$15.90
 5. \$4.64
 6. \$36.50
 7. \$5.42 +
 8. \$11.60

Ex. 10, p. 18

I

1. $599\frac{1}{2}$
 2. $1223\frac{7}{8}$
 3. 9000
 4. $114\frac{1}{2}$
 5. 6
 6. 3110
 7. 23
 8. $\frac{7}{8}$; $\frac{5}{8}$
 9. 432
 10. 220

II, p. 19

13. $1\frac{1}{2}$
 14. $14\frac{5}{8}$
 15. $9\frac{1}{2}$

16. $8\frac{1}{2}$
 17. 400
 18. 1062
 19. 7
 20. $76\frac{1}{2}$
 21. $30\frac{1}{4}$
 22. 14
 23. $7.706+$, or
 $7\frac{1}{10}$
 24. $10\frac{1}{2}$
 25. 700
 26. $\frac{3}{4}$; $\frac{7}{8}$; $\frac{1}{2}$

Ex. 11, p. 19

1. \$7.50
 2. $75\frac{1}{2}$
 $\$16.75$
 3. $7\frac{1}{2}$
 4. $\$6.84+$
 5. $\$.006+$
 6. $\$2.04\frac{1}{2}$
 7. \$4.916
 8. \$123
 9. \$10
 10. \$16.83 +
 11. \$169.38

Ex. 12, p. 21

1. $24\frac{1}{2}$ lb.; $12\frac{1}{2}$ lb.
 2. \$.45; \$1.25;
 $\$1.58$
 4. 5 mills
 5. $5\frac{1}{2}$ ¢
 6. $8\frac{1}{2}$ ¢
 7. $23\frac{1}{2}$ ¢
 10. 24¢
 11. 4¢
 12. 6¢
 13. 75¢
 14. Loss, 10¢
 15. Loss, 35¢

Ex. 13, p. 22

1. \$1.55
2. \$4.18
3. \$5.74
4. \$1.91
5. $22\frac{1}{2}$ yd.
6. \$9.98
7. \$5.82

Ex. 14, p. 27

III

1. $4917\frac{1}{2}$ mi.
2. $4333\frac{7}{8}$ mi.
3. \$59,538.16 +
4. \$16,898.40
5. \$172,500
6. \$229,470
7. \$4435.20
8. \$12,935.20
9. 96.635 mi.
10. \$3,499,390,-
000

Ex. 17, p. 31

I

1. .625
3. 201.125 mi.
4. 539.425 ft.
154.175 yd.
5. \$7.75
8.25 mi.
87.76 A.
6. 3.125 T.
48.77 lb.
63.375 rd.
7. 25.475
8. 70.175
9. 110.3
10. 33.635

11. 186.025
12. 291.1745
13. 8.435
14. 224.82
15. 3.554
16. 11.46
17. .245
18. 32.872
19. 351.25
20. 7.875
21. 71.898
22. .478
23. 374.125
24. 924.9375

II, p. 32

1. 1.5 mi.
1.875 mi.
4. 265.625 mi.
510 mi.
5. 4250 lb.
239.25 ft.
39 hr.
20.728 + mi.
6. 25.911 mi.

11. 9
12. 31.5
13. 1.8
14. .0218 +
15. 18.5625
16. .00125
17. .00175
18. 3.5244
19. 4.8818 +

III, p. 33

1. 10.7 rd.
.765 rd.
3. 21.392 +
4. 3.125
5. .8755

6. .009 $\frac{1}{2}$
7. .495
8. $2.48\frac{1}{2}$
9. 32.8
10. .076 +
11. .0043
18. 10.993
583.25
32.4494
6.23946
19. 31.51
2.234
6.5843
12.37
.73062

IV, p. 35

1. .4
2. 1208.4
3. 1.23
4. 4
5. 3
6. .0004
7. 2420
8. 230,400
9. 200
10. 27.863 + mi.
11. 1609.7 +
12. .621 +
13. 21.3
14. 3.14
15. 2.321
16. .0036
17. .0006
18. .062
19. .0203
20. .0123
21. 37
22. 504
23. .0031
24. 2043

25. 425
26. 32,000
27. 150
28. 203
29. 8500
30. 993,125
31. 2.03
32. 24
33. 2340
34. .0192 +
35. .0001 +
36. 72
37. 675.068 +
38. 5,040,000
39. 26,482
40. 4020

V, p. 36

1. .375; .025; .12
2. 1.875
2.6
1.4166 +
3. .166 +
3.333 +
4.666 +
4. .09375
.0133 +
.214 +
5. 14.625
1.916 +
8.833 +
6. .0625
14.285 +
12.277 +
7. 29.85
8. 29.625
9. 607.5
10. 92.125
11. 4125
12. 2475
13. 10

14. 40

15. 48

Ex. 18, p. 37

I

17. \$.62575

18. \$.02695

19. \$.13925

20. \$1.008

21. \$.3471

22. \$.615

\$.0425

\$.01025

\$.1215

23. \$12.50

\$.750

\$.50

\$.250

24. \$.025

\$.375

\$.00375

\$.625

25. \$.625

26. \$10

27. \$300

28. \$1.00

29. \$.600

30. \$.125

31. \$.550

32. \$.560

33. \$.2375

34. \$.81.25

35. \$.23.33½

36. 80

37. 16

38. 40

39. 120

II, p. 38

1. \$.245

2. \$.13.38

3. \$.75

4. \$.6.02

5. \$.20.15

6. \$.9.94

7. \$.32.54

Ex. 19, p. 39

I

1. \$.1815

2. 425.7268

3. 3.725

4. \$.5.46

5. \$.22.50

6. 1325.5

7. 898.564

II, p. 40

1. .085; .0403;

104.055

2. \$.0875

\$.00875

\$.2455

3. 176.3952

4. \$.26.051

5. 55.875

6. 9.09½

7. 95.93

8. 334.325

9. 21.728

10. 1700

11. 14,250

12. 69.375

13. .00576

14. 21.4

15. .00008½

16. 199

17. 1.091+

18. 21

19. 42.898+

20. 50.6

21. .5225

22. 8.599

23. .1339

24. 165

25. 3000

26. 18,232.96½

27. 3.09

Ex. 20, p. 41

1. 14.7 bu.

1470 bu.

2. 15.2 bu.

28.7 bu.

3. \$.13.96½

4. 36,885,090.9+

5. \$.16.006+

6. 8.83+

7. 364,170.731

350,556.09

250,935.36

8. 114,076,642.-

3+ A.

\$.13.359+

Ex. 21, p. 42

2. (1)

(a) .45 in.

(b) 9.91 in.

(c) 10.9 in.

(d) 8.83 in.

(e) 2.92 in.

(2)

(a) 2.84 in.

(b) 38.47 in.

(c) 24.85 in.

(d) 33.7 in.

(e) 45.48 in.

3. Differences

(a) 42.64 in.

(b) 7.01 in.

(c) 20.63 in.

(d) 11.78 in.

Ex. 22, p. 44

II

1. 60,480

2. 47,520

4. 801,416

5. 135.8

5580

18,850.5

6. 42,499,860

7. 15,223.4

8. 1274

80,475

94,134

9. 4,960,000

10. 5292

11. 9447.8

73,784

3,960,000

1,187,500

Ex. 23, p. 47

III

25. 11,200

26. 15,100

27. 45,300

28. 32,820

29. 22,600

30. 85,000

31. 6325

32. 504

33. 4320

34. 31,800

35. 27,066½

36. 366,000

37. 200

IV, p. 48

10. 22.5

11. 21.87½

12. 101.5
13. 1560
14. 2150
15. 35
16. 990
17. 401.7
18. 13,818.4
19. 26,875

Ex. 24, p. 50

II

1. 60%
2. 45%; 21%;
28%
3. 81%; 19%
4. 20%
5. 37+ %
6. 42+ %
7. 79+ %
Italy, 68.9+ %
Can. 31.8+ %
Eng. 7+ %
8. Austria,
21+ %
Russia, 24+ %
Italy, 22+ %
Can. 6+ %
Eng. 3.6+ %

Ex. 25, p. 54

IV

1. \$540
2. \$814; \$1440;
3420
3. 33½%
4. 25%; 16½%;
20%
5. \$360; \$300;
\$150
6. \$146

7. 5½%
8. \$108

Ex. 26, p. 56

II

1. 4700
2. 328,000
1,250,000
3000
3. \$4500
4. \$250
5. \$2100
6. \$1640
\$18,750
\$28,000
7. \$14,000
8. 600
9. 5100
5000
10. \$37.50
\$23.00
\$12.60
11. 125,000
12. 3500
13. 4120
14. 2205
15. 2250
16. 980
17. 3000
18. 3660
19. 200.8
20. 350
21. 700
22. 400
23. 20,000
2760
937.5
24. 3000
4200
1680

25. 4800
26. 9000

Ex. 27, p. 57

I

1. \$21.52½
2. 6699
3. 315,966½
4. 13.6+ %
5. 125%
6. 2100
7. 50,000
8. 3300
9. 30.6+ %
10. 302.4

II, p. 58

1. 1104
2. 1220
3. 4347
4. 930.9
5. 6480
6. 240
7. 210.05
8. 40%
9. 12½%
10. 500%
11. 114½%
12. 70,000
13. 376
14. 816
15. 4830
16. 32,000
17. 1200
18. 3200
19. 25%
20. 90
21. 6300
10,500
22. 593.6
4860

- 517.5
685.075

23. 25
24. 427.5
48.15
391.7148
25. 3648

Ex. 29, p. 61

I

11. 33½%
12. \$8.87½
\$4.43½
13. \$6.75
14. \$4.25
\$7.50
15. 30½%
18½%
16. 12+ %; 19+ %

II, p. 63

8. \$11.50
9. \$37.50
\$13.50
\$56.25
10. 1½%
11. 20¢
12. \$2.25

Ex. 30, p. 65

I

1. \$2; \$3
2. \$38; \$57
3. \$733.75
4. \$3368.75
5. \$69,706.25
6. \$15,356.25
7. \$200,000

II, p. 66	7+%	4. \$248.85	Ex. 38, p. 88	7. \$558.61
1. 28%; 32%	15.1+%	5. \$912.90	I	8. \$1.20
2. \$686.70		6. \$2517		Ex. 39, p. 91
3. \$382.81	Ex. 32, p. 71	7. \$24	1. \$1.40	1. \$225.298
4. 1%	II	Ex. 36, p. 82	2. \$3.33	2. \$740.12
5. \$1.91		II	3. \$18	3. \$450.46
6. 35 $\frac{1}{2}$ %	1. \$1.12	3. \$12.95	4. \$4	4. \$928.43
7. \$28.35	2. \$16	IV, p. 84	5. \$27	5. \$1082.86
Ex. 31, p. 67	3. 90¢	4. Balances:	6. \$4.17	6. \$60.95
1. \$3.12 $\frac{1}{2}$	4. \$1.01	\$55.62	7. \$10.67	7. \$563.96
2. \$1.35	\$1.80	\$92.87	8. \$2016.67	8. \$1.72
3. \$4.97 $\frac{1}{2}$	5. \$2.88	\$74.45	9. \$8008	9. \$21.50
4. \$5.40;	6. \$1.05	\$64.85	10. \$9017.50	Ex. 40, p. 93
42 $\frac{1}{2}$ ¢	7. \$5.01	\$50.35	11. \$12,009.00	I
5. 63.5+%;	8. \$10.35	5. Balances:	II, p. 89	1. 5%
36.4+%	9. \$3.50	\$216.73	1. \$76	2. 6%
6. 36.7+%	12. 30¢	\$193.56	2. \$99	3. 4%
15.8+%	13. \$57.50	\$256.38	3. \$53.67	4. 10%
II, p. 68	14. \$50	6. Balances:	4. \$49.88	5. 5%
1. \$1.754+	15. \$46 $\frac{1}{2}$	\$72.22	5. \$17.33	6. 12%
2. \$2.20	16. \$0.486	\$68.78	6. \$99	7. 4%
\$4.46	17. \$6.70	\$93.47	7. \$211	8. 5%
3. 80¢	\$3350	\$84.28	8. \$738	9. 4 $\frac{1}{2}$ %
4. \$8.779	Ex. 34, p. 76	\$50.76	9. \$602.29	II, p. 93
5. 9.8+%	1. \$8	Ex. 37, p. 87	10. \$85.40	1. \$12,000
III, p. 68	2. \$14.08	III	11. \$343.13	2. \$12,500
1. \$.5706+	3. \$9.72	10. \$364	12. \$2026.81	3. \$10,000
2. \$.6536+	4. \$48; \$18	11. \$585.06	13. \$157.98 ¹	4. \$500;
3. \$.432	5. \$160	12. \$656.50	14. \$2412.70	\$6000;
4. \$1.3256+	6. \$3.00	13. \$896	III, p. 90	\$2000
5. \$.4645	7. \$450	14. \$615	1. \$61.64	5. \$4000
6. \$2.002+	8. 16 $\frac{1}{2}$ ¢; 16¢	15. \$910.13	2. \$55.89	6. \$8000
7. \$.2478+	9. \$5.00	16. \$4541.25	3. \$88.99	7. \$2000
8. 55¢	10. \$22.50	17. \$9843.75	4. \$41.10	8. \$1200
9. 37.8+%	11. \$133.20	18. \$37.97	5. \$123.29	III, p. 94
13.2+%	Ex. 35, p. 79	19. \$620.06	6. \$297.74	1. 8 yr.
	3. \$49.83			2. 2 yr.
	\$274.59			

¹ Computing time by subtraction of dates, \$153.65.

3. 5 yr.
4. 2 yr.
5. 3 yr.
6. 6 mo.
7. 2 yr. 6 mo.
8. 4 yr.

Ex. 41, p. 96**I**

8. \$337.50
9. \$2525
10. \$810
11. $5\frac{1}{4}\%$
12. \$24,000

II, p. 96

1. \$4.75
\$479.75
2. \$128.33
\$2128.33
3. \$18.75
\$1518.75
4. $2\frac{1}{4}\%$
5. $3\frac{1}{4}\%$
6. 4 mo.
7. $2\frac{1}{4}$ yr.
8. \$2000
9. \$33,750
10. $4\frac{1}{2}\%$

Ex. 43, p. 100**I**

9. 105 in.
10. 47 ft.
11. $18\frac{1}{2}$ ft.
12. 360 rd.
13. 275 rd.
14. $82\frac{1}{2}$ ft.
15. 1320 ft.
16. 2 mi.
17. 30.303+ rd.

18. 152 sq. in.
19. 1094 sq. ft.
20. 200 sq. rd.
21. 3 A.
22. 20.25 sq. ft.
23. 476.4375 sq.ft.
24. 20 sq. rd.
25. 37 cu. ft.
26. $37\frac{1}{4}$ cu. yd.
27. $1\frac{1}{2}$ cu. ft.

II, p. 101

1. 8 ft. 7 in.
2. 28 yd. 22 in.
5 rd. $4\frac{1}{2}$ ft.
1 A. 30 sq. rd.
3. 2 ft. 3 in.
4. 10 yd. 30 in.
 $15\frac{1}{2}$ ft.
640 ft.
40 sq. rd.
5. 43 rd. $7\frac{1}{2}$ ft.
6. 28 yd.
23 sq. yd. 3
sq. ft.
7. 4 yd. 30 in.
8. 21 yd. 21 in.
100 rd.
81 sq. in.
9. 45; 72; 48
10. 75 yd.; .25 A.;
 $.33\frac{1}{3}$ cu. ft.
11. 8.25 yd.
12. $8\frac{1}{2}$ rd.
13. 240 rd.
14. $\frac{1}{4}$ A., or 120
sq. rd.
15. $44\frac{1}{2}$ cu. ft.
16. $47\frac{1}{2}$ cu. yd.
17. 5.95 cu. in.

18. 8.25 yd.
19. 90 rd.
20. 105.1875
21. 5445 sq. ft.

Ex. 44, p. 103**II**

2. 5000 sq. ft.
3. \$450
4. 80 ft.
5. 60 ft.
6. \$11
7. \$18
8. 220 ft.
9. 16 rd.; \$85.80
10. 264 ft.
341 yd.
11. \$272.73
12. \$10.89

III, p. 104

4. 102 sq. in.
5. $32\frac{1}{2}$ sq. ft.
6. 1000 sq. yd.
7. \$337.50

IV, p. 105

6. 240 sq. in.;
 $1\frac{1}{2}$ sq. ft.
7. 35¢
8. 6500 sq. ft.
9. Dif.: 450 sq.ft.
10. 5 A.
11. \$137.50

Ex. 45, p. 108

7. 48 sq. in.
 $13\frac{1}{2}$ sq. in.
36 sq. ft.
8. 54 sq. ft.
9. $2\frac{1}{2}$ sq. yd.

10. $2\frac{1}{2}$ A.
11. 5 A.
12. $2\frac{1}{2}$ A.

Ex. 46, p. 110**II**

5. 73.827+ in.
6. $9.42+$ ft., or
9 ft. 5+ in.
7. 7 ft.
8. 31.416 ft., or
31 ft. 5 in.
9. $7.94+$ ft., or
about 7 ft.
 $11\frac{1}{2}$ in.

III, p. 112

3. 154 sq. in.
616 sq. ft.
4. $2.181+$ sq. ft.
5. 2827.44 sq. ft.
6. $34.9+$ sq. yd.
7. \$16.04

Ex. 47, p. 114

3. \$120
4. \$3.33
5. 768 bu.
6. 1152 bu.
7. 24 bu.
8. 768 bu.
9. 54 bu.
10. 816 bu.
11. $771.42+$ bu.
 $819.63+$ bu.
12. 4 ft.

Ex. 48, p. 115

1. $1\frac{1}{2}$ yd.
3. $4\frac{1}{16}$

4. 99
5. 60; 28; 56
7. $14'' \times 36\frac{1}{2}''$

Ex. 49, p. 116

1. 70¢
2. \$1.17
3. \$1.31
4. \$42.41
5. \$20.15
6. \$46.35

Ex. 50, p. 119

2. 36 ft.
40 ft.
3. 25 ft. 6 in.
29 ft. 6 in.
Rear, 19' 6"
Front, 30' 6"
Dormer, 21' 6"

Ex. 51, p. 120

1. 1092.5 sq. ft.
2. $242\frac{1}{2}$ cu. yd.
3. \$121.39
4. \$3.68
5. \$1.09
6. \$126.16
7. \$23.88
8. \$186.07
9. \$336.11

Ex. 52, p. 122

I

12. $213\frac{1}{2}$ bd. ft.
13. 480 bd. ft.
14. 756 bd. ft.

15. 720 bd. ft.
16. 288 bd. ft.
17. 36 bd. ft.
18. \$42; \$13.50;
\$40
19. \$14.40

II, p. 123

1. \$7.43
2. \$6.20
3. \$92.04
4. \$66.28
5. \$27.20
6. \$199.15

Ex. 53, p. 123

1. About 2200
sq. ft.
2. \$48
3. 684.9 sq. ft.
4. 1209.8 bd. ft.
5. \$107.38

Ex. 54, p. 124

1. 2072 sq. ft.
2. 20.72 squares
3. 16,576
4. 12,978
5. \$126.44
6. \$7.66

Ex. 55, p. 125

I

1. \$90
2. \$100
3. \$192
4. \$4

5. \$43.20
6. \$290.08
7. \$302.82
8. \$28.08
9. \$28
10. \$28.80
11. \$1582.45

II

1. \$66.67
2. \$195.06
3. \$2892.29

Ex. 56, p. 127

II

1. \$.041 +
2. \$43,361.19
3. 4050
40,500
4. 163 +; 22 +;
7 +
5. 132
6. $12\frac{1}{2}\%$
7. \$651,900

Ex. 57, p. 128

1. \$2.40
\$2400
2. $16\frac{1}{2}\%$; 20%;
10%
3. 68 + %
4. \$6,436 +
5. 46 + %
6. \$65,326
7. \$1,536,511
8. 84 + %

Ex. 58, p. 130

1. $1\frac{1}{2}$ T.; $3\frac{1}{2}$ T.
2. 5
3. 70¢
4. 70¢
5. \$17.50
6. $1\frac{1}{2}\%$
7. $8\frac{1}{4}\%$
8. $5833\frac{1}{3}$ mi.
9. $43\frac{1}{11}\%$

Ex. 59, p. 132

21. $19\frac{1}{2}$ bd. ft.
22. Loss, \$152.10
23. \$878
24. \$4
25. 9¢
26. 9.9 in.
27. 120 ft.
108½ yd.
28. 17.8 + da.
29. 416
30. 96,560,000
31. \$504.38
32. \$30.58
33. 23¢
34. \$5.60
\$8.40
\$1.40
\$1.40
\$2.80
\$1.40
\$5.60
Profit, \$1.40
35. $42\frac{1}{2}\%$; 25%
36. \$9000
37. \$5218
8.69 + %

SUPPLEMENTARY PRACTICE

p. 135	(c) 4888	Ex. VII, p. 136	(c) 189,500
1. \$228.37	(d) 38,777	35½; 479½;	(d) 165,833½
2. \$237.86	(e) 47,715	139½; 323½;	(e) 41.8
3. \$2979.94	(f) 79,530	259½; 999½	(f) .14
4. \$2250.10	Ex. II, p. 136	Ex. VIII, p. 136	(g) 129.9
5. \$31,532.52	(a) 25,662	1866½; 117½;	Ex. IV, p. 137
6. \$9570.86	(b) 16,574	387½; 176½;	(a) 220,000
7. \$3393.77	(c) 39,453	280½; 6½	(b) 105,000
8. \$7704.24	(d) 47,785	Ex. IX, p. 136	(c) 31,000
9. \$1540.94	(e) 8846	3.08½	(d) 646
10. \$7711.81	(f) 11,921	6.67½	(e) .96
11. \$1161.13	Ex. III, p. 136	2.395½	(f) 599
12. \$6146.04	(a) 646,587	19.16½	(g) 51,280
13. 42.489	(b) 732,278	14.66½	Ex. V, p. 137
14. 3.1455	(c) 458,469	9.45½	(a) 77,220
15. 161.278	(d) 124,356	Ex. I, p. 137	(b) 66,528
16. 4143.937	(e) 664,445	(a) 22,400	(c) 539,550
17. 312.843	(f) 158,835	(b) 119,850	(d) 885,258
18. 290.505	Ex. IV, p. 136	(c) 319,800	(e) 45,837
19. 771.083	(a) 11.389	(d) 994,950	(f) .7425
20. 989.574	(b) 14.323	(e) 1074.5	(g) 867.735
21. 738.937	(c) 2.425	(f) 181.6	Ex. VI, p. 137
22. 108.1745	(d) 5.6325	(g) 1370.625	(h) 326,890
23. 189.2225	(e) 60.525	Ex. II, p. 137	(i) 138,035
24. 834.6489	(f) 63.655	(a) 20,900	(j) 2,540,303
25. 741.547	Ex. V, p. 136	(b) 122,300	(k) 5,530,844
26. 2206	(a) 8.17	(c) 848,000	(l) 2,768,118
27. 1888½	(b) 97.544	(d) 91,250	(m) 2106.25
28. 2225½	(c) 127.22	(e) 483.6875	Ex. VII, p. 137
29. 1112½	(d) 27.421	(f) 74.65	(h) 1,727,258
30. 1223½	(e) 60.12	(g) .599	(i) 463,450
31. 1624½	(f) 13.42	Ex. III, p. 137	(j) 3,140,176
32. 2538½	Ex. VI, p. 136	(a) 60,000	(k) 6,064,344
33. 1805½	112½; 130½;	(b) 256,000	(l) 6,455,254
34. 2686½	37½; 163½;		(m) 4616.768
Ex. I, p. 136	887½; 857½		
(a) 16,476			
(b) 29,119			

Ex. VIII, p. 137

- (h) 743,232
 (i) 602,896
 (j) 683,648
 (k) 711,088
 (l) 6,464,080
 (m) 75,295.36

Ex. IX, p. 137

- (h) 883,134
 (i) 333,207
 (j) 1,647,975
 (k) 65,643,585
 (l) 79,431,492
 (m) 7.88319

Ex. X, p. 137

- (h) 5,770,800
 (i) 3,462,480
 (j) 43,473,360
 (k) 432,810,000
 (l) 4.18385
 (m) .28854

Ex. XI, p. 137

- (n) 13,200
 (o) 8690
 (p) 90.64
 (q) 1566.95

Ex. XII, p. 137

- (n) 39,000
 (o) 47,840
 (p) .03185
 (q) 136.916

Ex. XIII, p. 137

- (n) 240
 (o) 7500

(p) .0741

(q) 5.6145

Ex. XIV, p. 137

- (n) 30.4
 (o) 57.088
 (p) 5.0368
 (q) .000576

Ex. XV, p. 137

- (n) 27,212.832
 (o) 29,740.8
 (p) 48,933.008
 (q) 39.71636

Ex. XVI,¹ p. 138

- (a) 203
 106.575
 (b) 16.076 +
 .422
 (c) 41.7
 182.4375
 (d) 987
 16.5816
 (e) .8056
 21.482 +
 (f) 7.603
 42.718 +
 (g) .3369
 3.359 +
 (h) .6855
 38,388
 (i) .0567
 40.226 +
 (j) .314 +
 8.590 +

Ex. XVII,¹ p. 138

- (a) 440.357 +
 123.3

(b) 214.285 +
 3

(c) 192

448

(d) 340.959 +
 3.055(e) .295 +
 4.2

(f) 748

2240

(g) 2.106 +
 11.2(h) .787 +
 23,530(i) 1.184
 448(j) .046 +
 .672**Ex. XVIII,¹ p. 138**

- (a) 404
 88.375
 (b) 60
 .65625
 (c) 222.2
 405.052 +
 (d) 82
 .574
 (e) .246
 2.73 +
 (f) 4.93
 11.534 +
 (g) .2101
 .8728 +
 (h) 700
 1633 $\frac{1}{2}$
 (i) 5.122 +
 1514.231 +

(j) .331 +
 3.770 +**Ex. XIX,¹ p. 138**

- (a) 200
 91.25
 (b) 3
 .0684 +
 (c) 41
 155.885 +
 (d) 2101
 30.6746
 (e) 1.1063 +
 25.637 +
 (f) .05
 .243 +
 (g) 30.807 +
 266.935 +
 (h) .00006
 2.92
 (i) .0000032
 .00197 +
 (j) .00016 +
 .004

Ex. XX,¹ p. 138

- (a) 5.099 +
 6.23375
 (b) 105.5
 6.4486 +
 (c) 253
 2577.437 +
 (d) 623
 24.3717 +
 (e) .3605
 22.385 +
 (f) .11055
 1.445 +

¹ The quotient given first under each letter is the one found by using the divisor at the top of the column; the quotient given second is the one found by using the divisor at the left.

<p>(g) .000006 .00139 + (h) .0803 + 10,483.573 + (i) 8.485 + 14,017.697 + (j) .0701 + 4.460 +</p>	<p>(l) 28,000 (m) 1200 (n) 186 (o) 1800 (p) 2160 (q) 21,000 (r) 420,000 (s) 1848 (t) 78,540</p>	<p>Ex. XXII, p. 138</p> <p>(k) 100 (l) $961\frac{1}{2}$ (m) $1401\frac{2}{3}$ (n) 1050 (o) $754\frac{1}{2}$ (p) 2.8125 (q) 20.4 (r) 137.7 (s) 7 (t) 19.5</p>	<p>Ex. XXIII, p. 138</p> <p>(k) 1236 (l) 990 (m) $43\frac{1}{2}$ (n) $42\frac{1}{2}$ (o) 17.1 (p) 300 (q) 100 (r) 6.5 (s) 30 (t) 4</p>
<p>Ex. XXI, p. 138</p> <p>(k) 200</p>			

ANSWERS—PART SIX

Ex. 1, p. 2

1. 3879; 5291; 6139;
6276; 5908
2. 6302; 8219; 6361;
8176; 10,003
3. 5606; 6204; 7560;
7900; 7663
4. 472,308; 3,302,955;
387,773; 26,511,829;
5,281,727; 1,147,839;
558,733; 996,256;
1,780,525; 6,514,207;
4,455,317; 9,940,261;
30,674,865
5. 496,771; 21,566;
2,867,424; 6,865,744
6. 65,777; 43,276;
5,137,698; 2,858,666
7. 511,578; 91,599;
4,145,505; 7,269,445
8. 267,963; 199,498;
7,414,995; 2,979,699
9. 205,107; 797,698;
600,509; 80,780,877
10. 197.597
11. 7943.989
12. 2534.3825
13. 58.875
14. 109.118
15. 188.395
16. 2.173
17. 24.194
18. 139.597
19. 1093.15
20. 238.6
21. 898
22. 151 $\frac{1}{2}$

$$23. 264\frac{1}{18}$$

$$24. 42$$

$$25. 30.05$$

$$26. 44.95$$

$$27. 9\frac{1}{3}$$

$$28. 30.23 +$$

$$29. 42\frac{1}{18}$$

Ex. 2, p. 5

$$1. 5432$$

$$2. 70,740$$

$$3. 480,900$$

$$4. 586,800$$

$$5. 2,495,982$$

$$6. 3,371,901$$

$$7. 5,350,532$$

$$8. 63,239,064$$

$$9. 379,320,864$$

$$10. 416,704,128$$

$$11. 1750$$

$$12. 1.245$$

$$13. .33905$$

$$14. .000216$$

$$15. 3300$$

$$16. 1750$$

$$17. 1201.25$$

$$18. 2$$

$$19. 262$$

$$20. 36280$$

$$21. 31.506$$

$$22. 9,744$$

$$23. 99,700$$

$$24. 3,145$$

$$25. 20,315\frac{1}{18}$$

$$26. 28,381\frac{1}{18}$$

$$27. 220,411\frac{1}{18}$$

$$28. 3,233$$

$$29. 35.87$$

$$30. 7.0721 +$$

$$31. 21.3$$

$$32. 134,554\frac{1}{2}$$

$$33. 283\frac{1}{18}$$

$$34. .09831$$

$$35. 40.4$$

$$36. 64.97$$

$$37. 4,000$$

$$38. .0024$$

$$39. 4.666 +$$

$$40. 24,000$$

$$41. 200,000$$

$$42. 30,000$$

$$43. 560$$

$$44. 72,030$$

$$45. 5.8$$

$$46. 11.55$$

$$47. 100,000$$

$$48. 1,000$$

$$49. 16$$

$$50. 27$$

$$51. 125.034 +$$

$$52. 1188$$

$$53. 1836$$

$$54. 3$$

$$55. 1428$$

$$56. 100$$

$$57. 7$$

$$58. 94$$

$$59. 99$$

$$60. 385\frac{1}{2}$$

$$61. 1623$$

$$62. 2628\frac{1}{2}$$

$$63. 30$$

$$64. 2400$$

$$65. 150$$

66. 105
67. 875
68. 1800
69. 51,000
70. 120
71. 900
72. 520
73. 641.25
74. 327.675
75. 500
76. 210
77. 1540
78. 1600
79. 3600
80. 5½
81. 726½
82. 330
83. 51.2
84. 36
85. 2.22
86. 3.1
87. .45625

Ex. 3, p. 8

1. \$3; \$5.89
3. \$2.10
4. \$3.25
5. \$.70
6. \$.86
7. \$18.23
8. \$1.85
11. \$16.15
12. \$23.30
13. \$11.36

Ex. 4, p. 14

2. \$2.56
3. \$3.05
4. \$1.80
5. \$6.75
6. \$83.69
7. \$91.70

8. \$115.15
9. \$15.53
10. \$112.89
11. \$285.62 +

Ex. 7, p. 19

1. \$23,909

Ex. 9, p. 21

2. \$25.40
3. \$1.75
4. \$23.01
5. \$8.55
6. \$49
7. \$57
8. \$4.15
9. \$11.31

10. \$75
11. \$4.88
12. \$15.45
13. \$65.63
14. \$56.76
16. \$90
17. \$29.89
18. \$856.80

Ex. 14, p. 29

2. 23¢
3. 23¢
4. 14¢; 7¢; 10¢;
12¢; 12¢; 27¢
5. \$30.77
7. 2½%
8. \$5
9. \$51.15
11. \$66.25
15. \$2947.50

Ex. 15, p. 31

I

1. \$9.73
2. 73¢

3. \$4.76
4. \$2.90
5. \$19.30
6. \$3.86
7. \$4.83
8. \$16.93
11. 5£
12. 6s.
13. 11 M.
14. 2 fr.
15. 16 lire
16. 800 pesos
17. 20£; 500 fr.;
400 M. 200
pesos; 500
lire

II, p. 32

1. \$121.25
2. \$78.24
3. \$16.10
4. \$12.15
5. \$28
6. \$9.23
7. \$4.76
8. \$2.88
9. \$11.97
10. \$23.78
11. \$592.97
12. \$13.98
13. \$85.33
14. \$4797.28
15. \$14.58
16. \$9.85
17. \$28.92
18. 50 lire
19. 5.16£; 128½
fr.; 104.7 M.
20. 29.84 weeks,
or 29 weeks,
6 days

Ex. 16, p. 34

1. \$3
2. 8 wk.; 40 wk.
3. 30¢ a wk.;
\$15.60 a yr.
4. \$73
5. \$312
6. \$151.50
7. \$131.40
8. \$1600
9. \$361.92
10. \$244

Ex. 17, p. 35

II

2. ⅓%
3. ½%
4. \$7200
5. \$3600
6. \$3903

Ex. 18, p. 37

II

1. 12 \$1, or 6
\$2, or 2 \$5
and 2 \$1
2. 48¢
3. 5 yr.
4. \$60
5. \$50
6. \$46.92
7. \$125
8. \$12.50
9. \$360

III, p. 39

1. \$2
2. \$4
3. 50¢

4. \$4.50	Ex. 20, p. 48	12. 219 bonds;	15. \$41.76;
5. \$22.50	II	\$240; 30 yr.	\$1831.26
6. \$101.50	8. \$261.25	13. 1929-1939;	16. \$541.58
7. \$51	9. \$801.25	\$420	17. \$1890
8. \$1010	10. \$1990.63	14. \$1524.38	18. \$17.82
9. \$2	11. \$1476; \$10,-	15. \$52.50	19. \$1747.50
10. 50¢; Jan. 1,	987.50	16. \$2250	20. Gained \$108
Apr. 1, July	12. \$54,187.50	17. \$562.50	
1, Oct. 1	13. \$714.88	Ex. 21, p. 54	Ex. 25, p. 65
11. \$550.80	14. \$37,031.25	1. \$1200	I
12. \$115.90	15. \$41,812.50	2. 20%	1. \$98.50
13. \$10.575	\$77,562.50	3. 40%	2. \$35
14. \$180.32	16. \$788	4. 12%	3. \$2
15. \$486.40; \$7.29	17. \$27,876	5. 150%	4. \$5
Ex. 19, p. 42	18. \$9030	6. \$2140	5. \$1
7. \$50	19. \$200	7. $8\frac{1}{2}\%$; 14%	6. \$1; \$99
8. $33\frac{1}{4}\%$	20. \$1400	8. \$4200; 19+%	7. \$13.33;
9. \$240	21. \$320	9. 40.5+%	\$1986.67
10. \$2000	22. \$300.38	10. $83\frac{1}{4}\%$	8. \$.35; \$19.65
11. \$8000	23. \$32,878.50	11. 11.6+%;	9. \$2; \$78
12. $33\frac{1}{4}\%$	24. \$216	84.8+%	10. \$5; \$745
13. 20%	III, p. 50	12. \$4494.40	11. \$7910; Bank
14. 30%	2. \$25; \$25	Ex. 24, p. 60	12. \$246.88
15. \$30	3. \$25 Gen. Elec-	I	13. \$627.25
16. 50%	tric		14. \$1194
17. \$220	\$20 Union	3. Apr. 3	15. \$849.48
18. \$372.50	Pacific	4. Nov. 8	
19. Decrease;	\$22.50 Penn.	5. Sept. 10	II, p. 67
\$107.50	\$22.50 South-	6. Feb. 18	1. Aug. 4, 1915
20. \$56.50	ern Railway	7. July 6	2. Oct. 5, 1915
21. \$4500	\$25 U.S. Steel	IV, p. 63	3. Mar. 13, 1915
22. \$5200	4. \$2992.50		4. Mar. 10, 1915
23. 11%	5. \$1021.25	1. \$303.75	5. 17 days; \$2.83
24. 15+%	6. \$1027.50	VI, p. 64	6. Feb. 5
25. 19+%	7. \$3030	11. \$2; \$202	7. \$6456.25
26. \$305	8. \$1147.50	12. \$15; \$1215	9. \$4135.60;
27. \$195	9. \$200	13. \$.53; \$70.53	\$5935.60
28. 5+%	10. \$300	14. \$14.35;	11. \$79.21
29. \$9000	11. Oct. 1, 1933;	\$492.60	12. \$477
30. 22.4+%	\$17.50		13. \$1342.37

14. \$59.80
15. \$1478.13
16. \$500
17. \$500

Ex. 26, p. 68

1. \$1.78
2. \$6.58
3. \$27.67
4. \$13.75
5. \$16 (15.999)
6. \$8.94
7. \$1018.78
8. \$23.33
9. \$7.61
10. \$14.44 +
11. \$50

Ex. 27, p. 70

1. \$10.25
2. \$112
3. \$79.50
4. \$159
5. \$40.90
6. \$1075
7. \$1725
8. \$2040
9. \$3100
10. \$5275
11. \$11,400
12. \$81.75
13. \$56.25
14. \$991.25
15. \$490
16. \$2233.13
17. \$5963.25
18. \$9175
19. \$7371.25
20. \$11.78;
\$788.22
21. \$2.23; \$72.77

22. \$11.08;
\$338.92
23. \$2363.75;
\$12,636.25
24. \$2481.25;
\$22,518.75

Ex. 29, p. 74

1. \$.05
2. \$.18
3. \$594.45
4. \$90.85
5. \$2912.58 +

Ex. 30, p. 74

1. \$38
2. \$56.25
3. \$4.80,
\$13.50; \$6.75;
\$19.80; \$3.15
4. \$154.50
5. \$220.50

Ex. 31, p. 76

1. \$952,586,000
2. \$2,609,824.65
3. 20 + times
4. 43 + %;
56 + %

Ex. 32, p. 79

III

- \$860
1. \$343,008,809
2. \$24,861,465
3. \$108.926
4. 114,758,324
lb. uncolored
2,842,629.4
lb. colored

5. \$48.60
6. \$3.13
7. \$3.30
8. 22.1 + %
9. \$58.50
10. \$56.25
11. \$2520
12. \$47.85
13. \$324.98

Ex. 33, p. 80

I

1. 6.7%
2. \$23,939.44
3. 5014 men
4. \$2.74; \$3.84
5. 28 1/2 %
6. \$1.59
7. 1 to 249.5
8. \$7,514,500

II, p. 82

1. \$26.59
2. \$2339.86
3. 60%
4. \$200,357.96
5. \$824,850.29;
3.1 + %

III, p. 82

1. \$19.53 +
2. 720 days
3. 28.4 + %
4. 84.4 + %
5. \$46.226

IV, p. 83

1. \$469.33
2. 6 sq. yd. ;
\$2816

3. \$48,400
4. \$518.69
5. \$549.29

V, p. 84

1. \$1,203,275.24
2. \$5.099
3. \$689.14
4. \$229,166.67
5. \$38,118
6. \$6,195,481.05

VI, p. 84

1. \$218.95
2. \$3.821 +
3. \$160,055
4. \$26,000
5. \$83,253.68
railroad co.
\$15,540.69 city
\$6,660.29
county
\$5,550.25 street
railway co.

Ex. 34, p. 87

II

6. 1%; \$1; \$10
7. \$1.78 on \$100
8. \$70.56
9. \$120
10. \$27
11. \$360
12. \$360
13. \$19,017.06
14. \$1682
15. \$5,169.23
16. \$7,428.59
17. \$69.51
18. \$94,775

19. \$53,579.90
20. First; \$52.78

Ex. 35, p. 90

II

1. 78 cu. ft.
2. 210 cu. in.
3. 420 cu. in.
4. 1884.96 cu. ft.
5. 2010.624 cu. in.
7. 4794.163 + gal.
8. 1054 $\frac{1}{4}$ lb.
9. 113.90 + bu.
10. 176,067.045 cu. ft.
11. 210 tons; 233 $\frac{1}{2}$ days

III, p. 91

1. 11.25 cords
2. \$80.75

V, p. 92

1. 65.9736 cu. ft.
2. 2833 $\frac{1}{4}$ cu. in.
3. 384 cu. ft.
4. 89,042,560 cu. ft.

Ex. 36, p. 93

4. 180°
5. fall 36°
6. fall 24°
7. rise 9°
8. rise 60°
9. rise 10.5°
10. fall 32°
11. rise 73°
12. fall 41°
13. rise 26°
14. - 4.25°
15. 33.8° F
16. 50° C
17. 100° C
18. 122° F

19. 140° F
20. 163.4° F
22. .112 in.; .352 in.
23. 3 mi.

Ex. 37, p. 96

1. 3125 lb.
2. 325,851 $\frac{1}{2}$ lb. (with 3 $\frac{1}{2}$)
325,721.088 lb. (with 3.1416)
3. No
2200 lb. (with 3 $\frac{1}{2}$)
2199.12 lb. (with 3.1416)

Ex. 38, p. 98

I

7. 400 lb.
8. 80 lb.
9. 6 ft. from 40 lb. boy

II, p. 99

4. 125 lb.
5. 150 lb.
6. 10 ft.
7. 1 ft.
8. 342 $\frac{1}{2}$ lb.

Ex. 39, p. 100

I

1. 14.52 sec. after 4
2. 172.5 ft.
3. 2.065 + mi.
4. 12.10 + sec.

II, p. 101

1. 499.11 + sec.
2. 1.288 + sec.
3. 17,628,308,640,000 mi.

Ex. 40, p. 102

I

1. \$4.95
2. 3 and 4; 9 and 0; 4 and 5
3. 4,800 ft.
4. \$4.32
5. 0; 1 and 2; 8 and 9
6. 4 and 5; 4 and 5; 0 and 1
7. 2 and 3; 3 and 4; 7 and 8
8. 9 and 0; 5 and 6; 6 and 7
9. 1000 cu. ft.; 10,000 cu. ft.; 100,000 cu. ft.

II, p. 104

2. \$1.27
3. \$25.43
4. \$19.74
5. \$2.78
6. \$398.07

Ex. 41, p. 106

3. 40 dm.
4. 250 Hm.
5. 7 cm.
6. 14 Km.
7. 2340 mm.
8. 9.6 m.
9. 45 dm.
10. 7.5 Hm.
11. 32.5 cm.
12. 4.2 m.
13. 3000 m.
14. 720 m.
15. 35,000 m.
16. .0075 m.
17. 30 m.

- | | | | |
|--|---|---------------------------------------|-------------------------------|
| 18. $.328 +$;
$32.8 +$ ft. | 53. 158.65 cu. in. | 4. 9 | 7. 5 ft. |
| 21. $183.49 +$ mi.
183.086 (with
1 Km. = .62
mi.) | 54. 82.94 lb. | 5. 11 | 8. $25^2 = 20^2 +$
15^2 |
| 25. 400 l. | 56. 3 dm. by 10
dm. by 10
dm. | 6. 12 | Ex. 45, p. 114 |
| 26. $2\frac{1}{2}$ g. | Ex. 42, p. 109 | 7. 1 | 1. $\frac{1}{2}; \frac{1}{4}$ |
| 27. .34 M.T. | 1. 16 | 8. $\frac{1}{2}$ | 2. $1:2; 1:4$ |
| 28. 5 Ha. | 2. 64 | 9. $\frac{1}{2}$ | 3. $\frac{1}{2}$ |
| 29. 18.5 Dm. | 3. 100 | 10. .5 | 4. 2 |
| 30. 45 cm. | 4. 49 | 11. 8 in.; 1 mi.; 1
ft. | 5. $1\frac{1}{2}$ |
| 31. 375,000 sq.
mi. | 5. 144 | 12. 16 | 6. $\frac{3}{4}$ |
| 32. 409,000 Hg. | 6. 196 | 13. 18 | 7. $\frac{1}{2}$ |
| 33. 645,150,000
cu. cm. | 7. 225 | 14. 24 | 8. 4 |
| 34. 136.5 ft. (with
1 m. = $3\frac{1}{4}$ ft.)
137.8 ft. (with
1 m. = 39.37
in.) | 8. 576 | 15. 33 | 9. 20 |
| 35. 27.5 T. | 9. 6084 | 16. 35 | 10. $\frac{1}{2}$ |
| 36. 19.88 bu. | 10. 21,609 | 17. 40 | 11. $\frac{1}{2}$ |
| 37. 988 acres | 11. $2\frac{1}{2}$ | 18. 48 | 12. $\frac{1}{100}$ |
| 38. 6200 mi. | 12. 10.5625 | 19. 52 | 13. 9 |
| 39. $17\frac{1}{16}$ qt.; $19\frac{1}{8}$
qt. | 13. .00225625 | 20. 54 | 14. $1\frac{1}{2}$ |
| 40. 393.8 lb. | 14. 305.5504 | 21. 60 | 15. $\frac{1}{16}$ |
| 41. 18.70075 in. | 15. $12.6914\frac{1}{16}$ | 22. 51 | 16. $\frac{1}{16}$ |
| 42. $59.93\frac{1}{2}$ mi. | 16. 9 | 23. 38 | 17. $2\frac{3}{4}$ |
| 43. 40.32 Km. | 17. 27 | 24. 39 | 19. $7:20; \frac{7}{10}$ |
| 44. 3.636 M.T. | 18. 81 | 25. 43 | 20. $\frac{1}{16}$ |
| 45. $8.09 +$ Ha. | 19. 243 | 26. 59 | 21. $.95 +$ |
| 46. $2.95 +$ m. | 20. 729 | 27. 53 | 22. $1.07 +$ |
| 47. 49.06 l. | 21. 343 | 28. 2.7 | 23. $.63 +$ |
| 48. $.88 +$ Hl. | 22. 10,000 | 29. $3.41 +$ | 24. $\frac{1}{8}$ |
| 49. $1.27 +$ cu. m. | 23. 1728 | 30. $6.24 +$ | Ex. 46, p. 116 |
| 50. 4.74 Kg. | 24. 361 | 31. $10.48 +$ | 1. $10\frac{1}{2}$ |
| 51. 10.79 ares | 25. 160,000 | 32. $.35 +$ | 2. 4 |
| 52. 4.96 mi. | 26. 32,761 | 33. $2.07 +$ | 3. $5.41\frac{1}{2}$ |
| | 27. 704,969 | 34. $35.00 +$ | 4. 18 |
| | 28. .015625 | 35. $8.57 +$ | 5. 81 |
| | 29. $10\frac{243}{16}$ | Ex. 44, p. 112 | 6. 22.7 |
| | 30. $12\frac{1}{2}\frac{1}{8}\frac{1}{8}$ | 1. right-angled;
25 sq. in.; 5 in. | 7. $15.75 +$ |
| | Ex. 43, p. 110 | 2. 10 in. | 8. $1.48 +$ |
| | 1. 5 rd. | 3. 15 ft. | 9. $1279\frac{1}{2}$ |
| | 2. 2 | 4. 50 ft. | 10. 7.519 |
| | 3. 6 | 5. 8 ft. | 11. $\$2.78$ |

12. \$1.88
 13. \$15.63
 14. 24 bu.
 15. \$11,970
 16. \$70,040
 17. \$31.50
 18. 42 oz.
 19. 1 hr. 37 min. 28 sec.
 20. 4604½ lb.

Ex. 47, p. 118

1. 24 ft.
 2. 15 in.
 3. 4400 ft.
 4. 30 ft.
 5. 60 ft.
 6. 25 yd.
 7. 31½ ft.
 8. 50 ft.
 9. 60 ft.
 10. 50 ft.
 11. 30 ft.
 12. 60 ft.

Ex. 48, p. 121

I

1. \$33.50
 2. \$2.75
 3. \$1.75
 4. 97¢
 5. \$1.14
 6. \$1.05
 7. \$1.06
 8. 18½ hr.
 9. 75¢
 10. \$2.80
 11. 14½ yd.
 12. 6 lengths
 13. \$1.25
 14. \$2.65

15. \$610,735,000 etc.

16. 25¢

II, p. 123

1. \$1813.35
 2. \$22.32
 3. About $\frac{1}{10}$
 4. $\frac{1}{4}$
 5. 61½ hr.; \$18.52½
 6. \$11.34; \$12.60; \$30
 7. \$51.51
 8. \$6.66
 9. \$1.63
 10. \$2.13½
 11. 27.35 + % English
 22.22 + % German
 12. 5.26 + ¢
 13. Aug. 16; Aug. 10;
 July 22; June 7
 14. 194,140,000;
 \$5,501,783,000;
 \$33.12 +; \$110.77 +;
 \$3.938; \$124.31 +;
 \$9.85 +

16. 1326 killed; 35,505
 injured; 36,831 total
 17. 132.6 av. no. killed;
 3550.5 av. no. in-
 jured; 100.6 less;
 2419.5 less

Ex. 49, p. 128

I

1. addition; subtraction;
 division; multiplication;
 addition; subtraction;
 division; multiplication.
 3. $a + 3$
 4. $50 + x$
 5. $25b$

6. $\frac{48}{c}$

7. $x + y$

8. $x - 5$

9. $x + 25$

10. xy

11. $2(x + y)$

12. $\frac{9a}{b}$

13. $\frac{xz}{160}$

14. $x + y + z$

15. $4z$

16. $b + \frac{b}{6}$

17. $c - \frac{2c}{100}$

18. $5ab; ac$

19. $c - \frac{10c}{100}$

20. dmr

21. $\frac{36d}{b}$

22. $32xz$

23. $\frac{5280}{d}$

24. $x + \frac{4xz}{100}$

25. $\frac{100x}{b}$

26. $4x$

27. $4(7y)$

II, p. 130

2. 25¢ coffee; 75¢ tea
 3. 40¢ linen; 80¢ silk
 4. 36 rods; 72 rods
 5. Will 8; Tom 16;
 Frank 24.
 6. 40¢ reader; 80¢
 geography
 7. 24 men; 72 women
 8. 8 and 32

III, p. 133

1. 49

2. 14

3. 12

4. 6
5. 12
6. 24
7. $\frac{1}{2}$
8. 24
9. 1
10. 5
11. 2 days
12. 437.5
13. \$4000
14. \$15
15. 9 yr. 12 yr. 15 yr.
16. $13\frac{1}{2}$ wk.
17. \$400
18. 9 at 5¢ each
18 at 2¢ each
19. 5 lb. tea;
8 lb. meal;
14 lb. sugar
20. \$120
21. \$1 cloth; \$2 silk
22. 110 miles
23. 24 books
24. 46.98 lb.
25. John 11;
Frank 21;
Harry 96
26. Daughters
\$900; sons
\$2300
27. 504 bu.
28. 2 tons
29. \$341
30. 25¢; 35¢; 45¢
31. 91 bu.
32. \$47.25
33. \$700
34. \$20
35. \$6000

Ex. 50, p. 135

1. \$450
2. \$8.25
3. $9\frac{1}{2}\%$
4. 43%
5. $4\frac{1}{2}$ days
6. \$55,566,000
7. 320 pupils
8. 44.8 bu.
9. $\frac{1}{2}$ of 1%
10. $17\frac{1}{2}\%$
11. \$800
12. 280 mi.
13. 6824 bu.
14. 45%
15. \$2822.40
weekly
increase
16. 2069.76 cu.ft.
17. $5\frac{1}{2}$ acres
18. 31,533
19. $15\frac{1}{2}\%$
20. 800 gal.
21. 57.6%
22. 1050 acres
23. 150%; $66\frac{2}{3}\%$
24. 48,700 lb.

Ex. 51, p. 138

I

1. \$43.69
2. \$36.45
3. 20%
4. \$375
5. \$86.95
6. \$1496.25
7. \$79.85
8. \$550
9. 28%
10. \$3.443 $\frac{1}{2}$

11. \$72
12. \$83.13
13. 60¢
14. \$2.50
15. $33\frac{1}{2}\%$
16. \$10,248.45
17. \$589.95
18. 80¢
19. 30+¢;
20. \$25.92
21. \$37.50

II, p. 140

1. \$15.72+
2. \$9,600
3. \$228.07
4. \$4001.40
5. \$1.239+
6. \$330
7. 12%
8. \$54.20
9. \$2736
10. \$768.75
11. 5%
12. \$471.667+
13. \$1390;
\$27,800
14. \$1496.25
15. \$2867.04
16. 4%
17. 40%
18. 8800 bu.

III, p. 142

1. $6\frac{1}{2}\%$
2. \$9.90; \$29.25;
\$5.85
3. 35+%;
55+%
4. $15\frac{1}{2}\%$

5. 38.15+%
6. \$7
7. $42\frac{1}{2}\%$; 30%
8. 10%
9. \$8.75
10. 20.3+%
11. 22.5¢
12. \$4000
13. $93\frac{1}{2}\%$
14. 61.2+%
15. 32.4+%
16. \$1
17. \$1.85

IV, p. 144

1. \$14.70
2. \$42
3. \$3500
4. \$1500
5. \$362.50
6. \$2566
7. \$1704.40
8. \$4223
9. 33.9%
10. \$280 pre-
mium
11. \$67.20
12. 23 $\frac{1}{2}$ ¢
13. \$600
14. \$187.50
15. \$52
16. \$6250
17. \$4.20
18. \$1715.96

V, p. 146

1. \$152.33
2. \$4.95
3. \$569.70
4. \$9.87; 84¢;
\$1.05; 21¢
5. \$72.47

6. $75.7 + \%$
7. \$3,323,317.03
8. \$13,094.85
9. 15.01 mills
10. \$14,571.92
11. \$127.14; \$27.61
12. 1.48¢ on \$1
13. \$110.77
14. \$44.05
15. \$769,500
16. \$80
17. \$31.77 $\frac{1}{2}$; \$13.14 $\frac{1}{2}$;
\$155.08 $\frac{1}{2}$

VI, p. 147

1. \$78.75
2. \$38.87¹
3. \$1317.17²
4. \$235.26
5. \$2982.90
6. \$17.26
7. \$563.54
8. \$36
9. \$463.59
10. \$129.30
11. \$2565.68
12. \$2934.²
13. \$475.76 +
14. \$1.92
15. \$61.53²
16. \$403.30
17. \$8.93 (with exact no.
of days)
18. \$30.60
19. \$278.21 +
20. \$54.32

VII, p. 149

1. \$1199.35
2. \$595

3. \$8.50
4. \$314.20 +
5. \$12,290
6. \$1543.50
7. \$872.81 +
8. \$1259.21 +
9. \$643.50
10. \$472.80
11. \$534.50
12. \$1.92
13. \$4.72 +
14. \$2727.08 +
15. \$394.67 +
16. \$1185
17. \$271.66
18. \$2038.56
19. \$835.10 +
20. \$7.71
21. \$1194.80

VIII, p. 152

1. 43 $\frac{1}{2}\%$
2. 7.8 + %
3. \$3000
4. \$5456
5. 37 $\frac{1}{2}\%$
6. \$7518.75
7. 9.97 + %
8. 6.8 + %
9. 4.87 + %
10. \$5100
11. 2.9 + %
12. 3.06 + %
13. \$22,500
14. \$625

Ex, 52, p. 153

1. \$7500
2. 414.05 + cu. ft.
3. 21¢

4. 1800 bd. ft.
5. \$.79
6. \$2962.50
7. \$61.67
8. 2560 cu. ft.; 94.81 +
loads
9. 150 sq. ft.
10. 21 sq. ft.
11. 223 $\frac{1}{2}$ sq. ft.
12. \$92.80
13. \$3.20
14. 13.2 in.
15. 5ab; ac
16. \$128.25
17. \$249
18. \$23.40; \$15.54
19. 22.59 + ft.
20. 11,718 $\frac{1}{2}$ cu. ft.
22. \$15.36
23. \$74.67
24. \$720
25. \$53.76
26. \$1202.40
27. 64 rods
28. \$26
29. 100 ft.
30. \$2.52
31. 1,507,968
32. \$2112
33. 13 ft.
34. 1 $\frac{1}{2}$ yd.
35. 4.1875 sq. ft.
36. 633,600 blocks
37. \$73.13
38. 146.608 ft.
39. 795 ft.
40. \$5.04 gain
41. 1864 days
42. \$5.50

¹ Excluding interest on cents in reckoning the compound interest. See page 39, Part Six.

² Answer given is found by subtracting dates.

Ex. 53, p. 157

1. British Empire, \$1.221; Germany, \$5.989; Russia, \$2.601; France, \$4.866; United States, \$2.379
2. \$2079; \$160,043
3. \$6,644,547.945
4. 6,644,547 + men
5. British Empire, .14%; Russia, .72%; United States, .17%; Germany, 1.10 + %; France, 1.03 + %
6. \$1,620,000,000
7. 2,214.8 or about 2215 houses
8. \$3,222,523.74 Civil War; \$720,524.01 Spanish War
9. \$4,512,179,000
10. \$9,251,782,000

Ex. 54, p. 159**I**

1. 6%
2. 72 lb. water; 18 lb. fats; 21.6 lb. protein; 1.2 lb. carbohydrates
3. 30%; 25%; 1½%
4. 6½ glasses
5. 35%; 30%; 10%
6. 87%
7. 13.6 oz.
8. Round 5.6%; 15.9: 18.7; 85.02 + %
9. 3.364 protein; 3.65 fat; 14.17 carbohydrates

II, p. 161

3. $21\frac{1}{2}\%$; 4.9 + %
4. 16.9 + %
8. Expensive: cost 17.3¢, calories 816½
Inexpensive: cost 8.1¢, calories 1014½
9. 4.29 + times as many

III, p. 162

1. 1046 lb.
2. 50.2 + lb.

Ex. 55, p. 164**I**

1. $21\frac{1}{2}\%$; $73\frac{1}{2}\%$
3. 10.88%; 99.17%; 0
4. \$9.20 +
5. \$8.04 +
6. 2270.213
7. \$2.50

II, p. 165

1. \$1342.80; 180 + %
2. Third; \$14.10
3. \$639.45; \$808.50
4. \$31,500,000
5. \$86.40

III, p. 167

1. 320 lb.
2. \$108.80
3. \$4.40
4. 44.8 + %
5. 20¢
6. Made \$2195.42
7. 4%
8. 4166½ lb.
9. 374 lb.

10. Second

11. 687.5 lb.; 31.47 lb.; 36.72 lb.
12. .07½% more fat
13. 4125 lb.; \$61.88

Ex. 56, p. 170

1. \$1500
2. 96%
3. 32 lb. copper; 6 lb. zinc; 2 lb. tin
4. 14.85 in.
5. 22.5¢; \$2.25; \$22.50
6. 60 lb.
7. 100 lb.
8. 12.9¢ (or 13¢)
9. 3 ft. (3 ft. $1\frac{1}{4}$ in.)
10. 700 tons
11. 40¢
12. \$74.22
13. \$5.18
14. 50 lb.
15. $35\frac{1}{2} \times 23\frac{1}{2} \times 5\frac{1}{2}$; 1255.92 + lb. \$34.54
16. \$161.21

Ex. 57, p. 171

1. \$8104.50; \$421,434
2. \$115,100, \$5,985,200
3. 12,800 horsepower
4. 2504 locomotives
5. 110.55 tons
6. \$19,899
7. 80.45 tons
8. 8 days
9. 2 hr.
10. 5 hr.
11. \$1937
12. \$242,250
- \$12,597,000

Ex. 58, p. 173

I

1. $62.77 + \%$
2. $17.92 + \%$
3. \$801,216,000
4. \$31.50
5. \$45.36

II, p. 174

1. \$146.25
2. \$2632.50
3. \$540; \$329.40
4. 46,250 yd.
5. 249,750 yd.
6. 7 mills; \$93,600

7. 9.36%
8. \$43,000
9. \$1500
10. $6\frac{1}{2}$ ft.
11. \$4090.15
12. \$69 $\frac{1}{4}$
13. \$.1455
14. 47.37%

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