

Arithmetic

Work-text

6

Fourth Edition



$$\frac{843}{1,000} = .843$$

$$F = \frac{9}{5}C + 32$$

$$F = \frac{9}{5} \times \frac{20}{1} + 32$$

$$F = 36 + 32$$

$$F = 68^\circ$$

$$46 \times 7.3 = 335.8$$

About the Text

Arithmetic 6 contains a variety of exercises involving new / review material in each lesson. The workbook includes 169 lessons (excluding tests), Supplementary Exercises, and Homework Exercises. The Handbook at the end of the book contains facts, rules, and measures which are given throughout the workbook.

Although all new material is presented at the top of a workbook page, the workbook is not designed to be used without a teacher. Students need to *hear* a thorough explanation of each concept and *see* procedures demonstrated step by step by the teacher. Once introduced, concepts will continue to be practiced for the remainder of the year.

Arithmetic 6 Curriculum / Lesson Plans, available separately or as part of the Grade 6 Curriculum, and the Teacher Edition provide complete daily plans for teaching, reviewing, and testing. The Teacher Edition also includes solutions to all exercises in the text. *Student Quizzes, Tests, and Speed Drills* is correlated with the work-text.

Arithmetic 6

Fourth Edition

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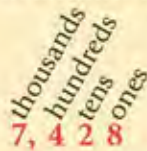
Arithmetic is...

- ▶ studying one aspect of the order of the real world and indirectly learning more about the God Who created the world using mathematics.
- ▶ learning to see process facts as part of the truth and order that God has built into reality.
- ▶ knowing that there is a right answer.
- ▶ working hard to get the right answer.
- ▶ learning to go from the concrete to the abstract, from the particular to the general, from content to concept.
- ▶ learning to see relationships between one truth and another.
- ▶ learning to be precise and exact in thinking.
- ▶ learning to apply mathematics skillfully in order to function in daily life.
- ▶ learning to believe in absolutes ($2 + 2$ always equals 4).
- ▶ establishing the extremely important skill of learning things by memory.
- ▶ learning to be fast and accurate in thinking.
- ▶ seeing how things work together.
- ▶ being prepared.
- ▶ finishing the job.
- ▶ working at a set pace.
- ▶ participating in healthy competition.
- ▶ learning to be thorough, orderly, careful, alert, obedient, persistent, cooperative, and honest.
- ▶ learning to master a received body of knowledge and apply it as one way to obey the command of Genesis 1:28 to subdue the earth and exercise dominion over it.

Adding Whole Numbers

Facts:

- Arithmetic** is the science of numbers.
- The six basic operations of arithmetic are *notation, numeration, addition, subtraction, multiplication, and division.*
- Notation** is the art of writing numbers. **Numeration** is the art of reading numbers.
- The Arabic numeration system uses base ten. The ten digits are 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0. The placement of each digit determines its value.
- The numbers added together are the **addends**, and the answer is the **sum**.
- The order of the addends may be switched without changing the sum ($7 + 2 = 2 + 7$).
- To find the sum, add downward. To check, add upward. (Addition may be completed quickly and accurately if addition facts have been mastered.)



In 7,428, the digit 7 has a value of 7,000. In 6,379, the digit 7 has a value of 70.

- Whole numbers** are the counting numbers (1, 2, 3, ...) and 0.
- Addition** is the mathematical process of putting like numbers together.

Examples:

328	addend	<u>1,633</u> ✓
486	addend	328
+819	addend	486
1,633	sum	+819
		1,633

$$\begin{array}{r} 75 + 23 + 16 = 114 \\ \hline \text{addends} \qquad \qquad \text{sum} \end{array}$$

Class Practice

(Green-lettered problems are additional practice.)

1. Write the value of each red digit. (The first one is done for you.)

- | | | | | |
|------------------------|-------------------|-------------------|-------------------|-------------------|
| a. 6,518
<u>500</u> | b. 9,063
_____ | c. 5,476
_____ | d. 1,806
_____ | e. 7,225
_____ |
| f. 7,615
_____ | g. 2,947
_____ | h. 3,184
_____ | i. 5,970
_____ | j. 8,254
_____ |

2. Write the sums.

- | | | | | | | |
|------------|------------|------------|-------------|------------|------------|------------|
| a. 5
+7 | b. 9
+9 | c. 3
+8 | d. 12
+9 | e. 8
+7 | f. 6
+5 | g. 8
+4 |
|------------|------------|------------|-------------|------------|------------|------------|

- h. $7 + 9 = \underline{\quad}$ i. $6 + 7 = \underline{\quad}$ j. $9 + 7 = \underline{\quad}$ k. $3 + 7 + 6 = \underline{\quad}$ l. $2 + 6 + 9 = \underline{\quad}$

3. Add. Write the correct terms beside each number in a. (For additional practice, see Supplementary Exercises, pp. 307–310.)

- | | | | | | |
|--------------|--------------------|-----------------------|-----------------------|-----------------------------|-----------------------------|
| a. 87
+69 | b. 28
45
+82 | c. 358
294
+106 | d. 482
976
+847 | e. 6,432
5,968
+1,092 | f. 2,839
4,814
+9,328 |
|--------------|--------------------|-----------------------|-----------------------|-----------------------------|-----------------------------|

4. Add and check.

a. $\begin{array}{r} 532 \\ 657 \\ 892 \\ +938 \\ \hline \end{array}$	b. $\begin{array}{r} 658 \\ 302 \\ 597 \\ +938 \\ \hline \end{array}$	c. $\begin{array}{r} 849 \\ 607 \\ 385 \\ +958 \\ \hline \end{array}$	d. $\begin{array}{r} 268 \\ 629 \\ 356 \\ +978 \\ \hline \end{array}$	e. $\begin{array}{r} 937 \\ 652 \\ 895 \\ +314 \\ \hline \end{array}$	f. $\begin{array}{r} 496 \\ 359 \\ 892 \\ +652 \\ \hline \end{array}$
---	---	---	---	---	---

5. Study the first story problem and solve the other two problems. Story problems should be solved neatly on your notebook paper. (For additional practice, see Supplementary Exercises, pp. 351–356.)

- a. At the 1996 Winter Olympic Games in Lillehammer, Norway, the United States received 6 gold medals, 5 silver medals, and 2 bronze medals. Find the total number of medals that the United States received.

Setup:
$$\begin{array}{r} 6 \\ 5 \\ +2 \\ \hline \end{array}$$
 13 medals total

- b. Dr. Edwards posted the student enrollment for each grade of Tyler Christian Academy as follows: first grade 97, second grade 82, third grade 84, fourth grade 78, fifth grade 75, sixth grade 69, junior high 156, and senior high 212. What was the total enrollment?

- c. Several students in Mr. Parker's class are members of a stamp collecting club. The members and the number of stamps each collected during the summer were posted on the class bulletin board. How many stamps did the club members collect in all?

Christopher Bradley	76
Julie Yee	43
Amanda Forrest	97
Joshua Salter	52
Morgan Price	68
Emily Roberts	24
Drew Zimmerman	35

Review

6. Circle the sums that are inaccurate.

a. $\begin{array}{r} 43 \\ 92 \\ 85 \\ 56 \\ 27 \\ +14 \\ \hline 307 \end{array}$	b. $\begin{array}{r} 25 \\ 83 \\ 95 \\ 64 \\ 59 \\ +38 \\ \hline 362 \end{array}$	c. $\begin{array}{r} 207 \\ 586 \\ 329 \\ 718 \\ 411 \\ +638 \\ \hline 2,889 \end{array}$	d. $\begin{array}{r} 458 \\ 267 \\ 985 \\ 556 \\ 309 \\ +188 \\ \hline 2,763 \end{array}$	e. $\begin{array}{r} \$32.69 \\ 78.42 \\ 99.95 \\ 15.86 \\ 23.09 \\ +17.85 \\ \hline \$267.86 \end{array}$	f. $\begin{array}{r} 1,153 \\ 6,879 \\ 5,297 \\ 8,496 \\ 2,509 \\ +7,852 \\ \hline 32,396 \end{array}$
---	---	---	---	--	--

7. Find the sums.

a. $\begin{array}{r} 9 \\ 7 \\ 5 \\ 8 \\ 3 \\ 6 \\ +5 \\ \hline \end{array}$	b. $\begin{array}{r} 24 \\ 58 \\ 47 \\ 62 \\ 39 \\ 81 \\ +76 \\ \hline \end{array}$	c. $\begin{array}{r} 87 \\ 93 \\ 25 \\ 78 \\ 55 \\ 94 \\ +18 \\ \hline \end{array}$	d. $\begin{array}{r} 642 \\ 837 \\ 529 \\ 938 \\ 442 \\ 577 \\ +156 \\ \hline \end{array}$	e. $\begin{array}{r} 209 \\ 989 \\ 655 \\ 834 \\ 468 \\ 319 \\ +786 \\ \hline \end{array}$	f. $\begin{array}{r} 5,321 \\ 4,689 \\ 7,325 \\ 6,827 \\ 5,397 \\ 6,554 \\ +9,978 \\ \hline \end{array}$	g. $\begin{array}{r} 98 \\ 37 \\ 26 \\ 55 \\ 42 \\ 97 \\ +86 \\ \hline \end{array}$
--	---	---	--	--	--	---

Subtracting Whole Numbers

Facts:

- Subtraction** is the mathematical process of taking away like numbers.
- The number being subtracted is the **subtrahend**. The subtrahend is subtracted from the **minuend**. The answer is the **difference**.
- To check a subtraction problem, add the subtrahend and the difference. The sum should be the minuend.

$$\begin{array}{r} 15 - 8 = 7 \leftarrow \text{difference} \\ \uparrow \quad \uparrow \\ \text{minuend} \quad \text{subtrahend} \end{array}$$

Example:

$$\begin{array}{r} 406 \text{ minuend} \\ -268 \text{ subtrahend} \\ \hline 138 \text{ difference} \\ +268 \\ \hline 406 \checkmark \end{array}$$

Since a ten cannot be borrowed from 0 tens, borrow 1 hundred from 4 hundreds to get 10 tens and leave 3 hundreds. Now, borrow 1 ten from 10 tens to get 16 ones and leave 9 tens.

Class Practice

1. **Subtract. Write the correct terms beside each number in a.** (For additional practice, see Supplementary Exercises, pp. 311–314.)

a. $5,403$ _____	b. $16,000$ _____	c. $27,096$ _____	d. $3,682$ _____	e. $78,291$ _____
$-1,976$ _____	$-5,960$ _____	$-18,496$ _____	$-1,573$ _____	$-67,388$ _____

2. **Subtract and check.**

a. $9,540$	b. $\$11.29$	c. $10,435$	d. $\$163.95$	e. $273,054$
$-6,872$	-9.38	$-9,784$	-87.98	$-184,095$

3. **Circle the differences that are inaccurate.**

a. $\$53.07$	b. $2,500$	c. $15,326$	d. $693,481$	e. $\$478.21$
-49.62	$-1,681$	$-9,784$	$-692,993$	-399.87
$\$3.45$	819	$5,642$	$1,488$	$\$78.34$

4. **Solve these story problems.**

- In 1926 Babe Ruth had 146 runs batted in (RBI), and in 1927 Lou Gehrig had 175 RBI. How many more RBI did Lou Gehrig have in 1927 than Babe Ruth had in 1926?
- The regular price of a boat was \$15,450. The discount price was \$14,299. How much less was the discount price than the regular price?

- In a recent year there were 14,073 registered collies. There were 1,391 more registered pugs than collies. How many registered pugs were there?



5. Write the numbers that your teacher dictates.

- a. _____ b. _____ c. _____ d. _____
e. _____ f. _____ g. _____ h. _____

Review

6. Write the sums.

- | | | | | |
|-------------|---------------|---------------|----------------|-----------------|
| a. \$478 | b. 2,359 | c. \$11.32 | d. 24,683 | e. 342,768 |
| 329 | 6,873 | 68.07 | 79,541 | 497,205 |
| 685 | 9,208 | 54.39 | 87,416 | 853,917 |
| 259 | 7,524 | 78.76 | 35,092 | 549,825 |
| <u>+146</u> | <u>+5,976</u> | <u>+59.93</u> | <u>+97,329</u> | <u>+244,693</u> |

7. Write *true* or *false* in each blank.

- a. _____ The minuend is the top number in a subtraction problem.
b. _____ In 7,286, 2 is in the thousands' position.
c. _____ The sum is the answer in an addition problem.
d. _____ The order of the addends may be switched without changing the sum.
e. _____ The order of the minuend and the subtrahend may be switched without changing the difference.

8. Write the missing numbers.

- a. $9 + \underline{\quad} = 16$ b. $23 - \underline{\quad} = 17$ c. $7 + \underline{\quad} + 6 = 21$
d. $\underline{\quad} + 6 = 33$ e. $\underline{\quad} - 13 = 12$ f. $\underline{\quad} + 8 + 13 = 34$

9. Write the differences.

- | | | | | |
|---------------|----------------|---------------|----------------|-------------|
| a. \$30.25 | b. 54,326 | c. \$72.91 | d. 30,000 | e. 326 |
| <u>-16.87</u> | <u>-10,935</u> | <u>-68.87</u> | <u>-11,503</u> | <u>-127</u> |

10. Write the value of each digit.

- a. 3,746 = _____ thousands, _____ hundreds, _____ tens, _____ ones
b. 9,078 = _____ thousands, _____ hundreds, _____ tens, _____ ones
c. 5,283 = _____ thousands, _____ hundreds, _____ tens, _____ ones

He that is faithful in that which is least is faithful also in much.
Luke 16:10

Multiplying Whole Numbers

Facts:

- Multiplication** is a quick way to put equal numbers together.
- The numbers being multiplied are the **factors**. Sometimes the factors are called the multiplicand and the multiplier. The answer is the **product**. The order of the factors may be switched without changing the product ($5 \times 4 = 4 \times 5$).
- If the multiplier has more than one non-zero digit, the problem will have two or more **partial products**.
- To check multiplication, reverse the factors and find the product. The two products should be the same.

Example:

58	factor	<u>27</u>	check
$\times 27$	factor	$\times 58$	
<u>406</u>	partial product	<u>216</u>	
$+ 116$	partial product	$+ 135$	
<u>1,566</u>	product	<u>1,566</u>	✓

Class Practice

1. Write the correct terms beside each number in *a* and *b*. Work the problems.

(For additional practice, see Supplementary Exercises, pp. 315–317.)

a. $4,598$ _____
 $\times 7$ _____

b. 95 _____
 $\times 56$ _____

c. 156
 $\times 782$

d. 29
 $\times 29$

e. $3,742$
 $\times 6$

f. 89
 $\times 36$

g. 478
 $\times 382$

h. 27
 $\times 52$

i. 509
 $\times 671$

2. Multiply and check.

a. 64
 $\times 87$

b. 462
 $\times 585$

c. 294
 $\times 668$

3. Solve these story problems.

a. Hilary's father is a truck driver. Each day of the 278 days he drove last year, he averaged 476 miles. How many miles did he drive?

b. To manufacture a new car, 39,090 gallons of water are needed. How many gallons are needed to manufacture 25 new cars?