Chapter 1 Vocabulary Check

Fill in each blank with one of the words or phrases listed below.

difference	area	square root	addend	divisor	minuend
place value	factor	quotient	subtrahend	exponent	digits
sum	whole numbers	perimeter	dividend	average	product

1. The _____ are 0, 1, 2, 3, ...
2. The _____ of a polygon is its distance around or the sum of the lengths of its sides.
3. The position of each digit in a number determines its _____.
4. A(n) _____ is a shorthand notation for repeated multiplication of the same factor.
5. To find the _____ of a rectangle, multiply length times width.
6. A(n) _____ of a number is one of two identical factors of the number.
7. The _____ used to write numbers are 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.
8. The _____ of a list of numbers is their sum divided by the number of numbers.

Use the facts below for Exercises 9 through 18.

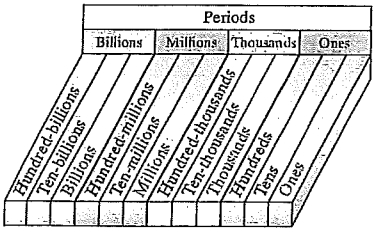
$2 \cdot 3 = 6 \quad 4 + 17 = 21 \quad 20 - 9 = 11 \quad 5\overline{)35}\,7$

9. The 5 above is called the _____.
10. The 35 above is called the _____.
11. The 7 above is called the _____.
12. The 3 above is called a(n) _____.
13. The 6 above is called the _____.
14. The 20 above is called the _____.
15. The 9 above is called the _____.
16. The 11 above is called the _____.
17. The 4 above is called a(n) _____.
18. The 21 above is called the _____.

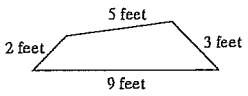
Helpful Hint

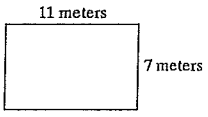
Are you preparing for your test? Don't forget to take the Chapter 1 Test on page 106. Then check your answers at the back of the text and use the Chapter Test Prep Videos to see the fully worked-out solutions to any of the exercises you want to review.

1 Chapter Highlights

Definitions and Concepts	Examples
Section 1.2 Place Value, Names for Numbers, and Reading Tables	
The **whole numbers** are 0, 1, 2, 3, 4, 5, ...	0, 14, 968, 5,268,619
The position of each digit in a number determines its **place value.** A place-value chart is shown next with the names of the periods given. 	

(continued)

Definitions and Concepts	Examples
Section 1.2 Place Value, Names for Numbers, and Reading Tables (*continued*)	
To write a whole number in words, write the number in each period followed by the name of the period. (The name of the ones period is not included.)	9,078,651,002 is written as nine billion, seventy-eight million, six hundred fifty-one thousand, two.
To write a whole number in standard form, write the number in each period, followed by a comma.	Four million, seven hundred six thousand, twenty-eight is written as 4,706,028.
Section 1.3 Adding Whole Numbers and Perimeter	
To add whole numbers, add the digits in the ones place, then the tens place, then the hundreds place, and so on, carrying when necessary.	Find the sum: $\overset{2\,1\,1}{2689}$ ← addend 1735 ← addend + 662 ← addend 5086 ← sum
The **perimeter** of a polygon is its distance around or the sum of the lengths of its sides.	Find the perimeter of the polygon shown.  The perimeter is 5 feet + 3 feet + 9 feet + 2 feet = 19 feet.
Section 1.4 Subtracting Whole Numbers	
To subtract whole numbers, subtract the digits in the ones place, then the tens place, then the hundreds place, and so on, borrowing when necessary.	Subtract: $\overset{8\,15}{7\,\not{9}\,\not{8}4}$ ← minuend −5673 ← subtrahend 2281 ← difference
Section 1.5 Rounding and Estimating	
ROUNDING WHOLE NUMBERS TO A GIVEN PLACE VALUE **Step 1.** Locate the digit to the right of the given place value. **Step 2.** If this digit is 5 or greater, add 1 to the digit in the given place value and replace each digit to its right with 0. **Step 3.** If this digit is less than 5, replace it and each digit to its right with 0.	Round 15,721 to the nearest thousand. 15,⑦21 Add 1 ↑ Replace with zeros. Since the circled digit is 5 or greater, add 1 to the given place value and replace digits to its right with zeros. 15,721 rounded to the nearest thousand is 16,000.

Definitions and Concepts	Examples
Section 1.6 Multiplying Whole Numbers and Area	
To multiply 73 and 58, for example, multiply 73 and 8, then 73 and 50. The sum of these partial products is the product of 73 and 58. Use the notation to the right.	73 ← factor × 58 ← factor 584 ← 73 × 8 3650 ← 73 × 50 4234 ← product
To find the **area** of a rectangle, multiply length times width.	△ Find the area of the rectangle shown.  area of rectangle = length · width = (11 meters)(7 meters) = 77 square meters
Section 1.7 Dividing Whole Numbers	
Division Properties of 0 The quotient of 0 and any number (except 0) is 0. The quotient of any number and 0 is not a number. We say that this quotient is undefined.	$\frac{0}{5} = 0$ $\frac{7}{0}$ is undefined
To divide larger whole numbers, use the process called **long division** as shown to the right.	507 R 2 ← quotient and remainder divisor → 14)7100 ← dividend −70 — 5(14) = 70 10 — Subtract and bring down the 0. −0 — 0(14) = 0 100 — Subtract and bring down the 0. −98 — 7(14) = 98 2 — Subtract. The remainder is 2.
	To check, see that $507 \cdot 14 + 2 = 7100$.
The **average** of a list of numbers is $\text{average} = \frac{\text{sum of numbers}}{\textit{number} \text{ of numbers}}$	Find the average of 23, 35, and 38. $\text{average} = \frac{23 + 35 + 38}{3} = \frac{96}{3} = 32$

Definitions and Concepts	Examples
Section 1.8 An Introduction to Problem Solving	
PROBLEM-SOLVING STEPS	Suppose that 225 tickets are sold for each performance of a play. How many tickets are sold for 5 performances?
1. UNDERSTAND the problem.	**1.** UNDERSTAND. Read and reread the problem. Since we want the number of tickets for 5 performances, we multiply.
2. TRANSLATE the problem.	**2.** TRANSLATE. number of tickets	is	number of performances	times	tickets per performance ↓ ↓ ↓ ↓ Number of tickets = 5 · 225
3. SOLVE the problem.	**3.** SOLVE: See if the answer is reasonable by also estimating. $\overset{1\,2}{225} \times 5 = 1125$ exact rounds to $200 \times 5 = 1000$ estimate
4. INTERPRET the results.	**4.** INTERPRET. **Check** your work. The product is reasonable since 1125 is close to our estimated answer of 1000, and **state** your conclusion: There are 1125 tickets sold for 5 performances.
Section 1.9 Exponents, Square Roots, and Order of Operations	
An **exponent** is a shorthand notation for repeated multiplication of the same factor.	exponent $3^4 = \underbrace{3 \cdot 3 \cdot 3 \cdot 3}_{\text{4 factors of 3}} = 81$ base
A **square root** of a number is one of two identical factors of the number.	$\sqrt{36} = 6$ because $6 \cdot 6 = 36$ $\sqrt{121} = 11$ because $11 \cdot 11 = 121$ $\sqrt{0} = 0$ because $0 \cdot 0 = 0$
ORDER OF OPERATIONS **1.** Perform all operations within parentheses ( ), brackets [ ], or other grouping symbols such as square roots or fraction bars, starting with the innermost set. **2.** Evaluate any expressions with exponents. **3.** Multiply or divide in order from left to right. **4.** Add or subtract in order from left to right.	Simplify: $\dfrac{5 + 3^2}{2(7 - 6)}$ Simplify above and below the fraction bar separately. $\dfrac{5 + 3^2}{2(7 - 6)} = \dfrac{5 + 9}{2(1)}$ Evaluate 3^2 above the fraction bar. Subtract: $7 - 6$ below the fraction bar. $= \dfrac{14}{2}$ Add. Multiply. $= 7$ Divide.
The **area of a square** is $(\text{side})^2$.	Find the area of a square with side length 9 inches. Area of the square $= (\text{side})^2$ $= (9 \text{ inches})^2$ $= 81$ square inches