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Additional Exercises 1.2

Determine the place value of the digit 7 in each whole number.

1. 2784
2. 29,706,142
3. 397
4. 127,851

1. _____
2. _____
3. _____
4. _____

Write each whole number in words.

5. 3965
6. 50,918
7. 84,921
8. 190,025
9. 2,000,175
10. 30,000,108

5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Write each number in the sentence in words.

11. New Mexico has 1,739,844 people in the state.
12. The gross income of the movie *Spiderman* in 2002 was \$407,681,000.

11. _____
12. _____

Write each whole number in standard form.

13. Thirty-one thousand, eight hundred twenty-four.
14. Seven thousand, six hundred four.
15. One hundred twenty-five thousand, three hundred sixty-four.
16. Seventeen thousand, eight hundred forty-one.
17. Three million, ten thousand, eight.

13. _____
14. _____
15. _____
16. _____
17. _____

Write the whole number in each sentence in standard form.

18. The budget for the movie *Spiderman* was \$139,600,250.
19. Write the whole number in expanded form: 295
20. Write the whole number in expanded form. 3621

18. _____
19. _____
20. _____

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Additional Exercises 1.3

Add.

1.
$$\begin{array}{r} 63 \\ + 97 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 2698 \\ + 350 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 36 \\ + 95 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 17 \\ 18 \\ 29 \\ 36 \\ + 84 \\ \hline \end{array}$$

5. $72 + 36 + 9$

6.
$$\begin{array}{r} 978 \\ 234 \\ + 197 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 127,200 \\ 146,830 \\ 51,045 \\ + 358,000 \\ \hline \end{array}$$

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

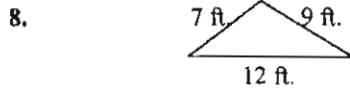
7. _____

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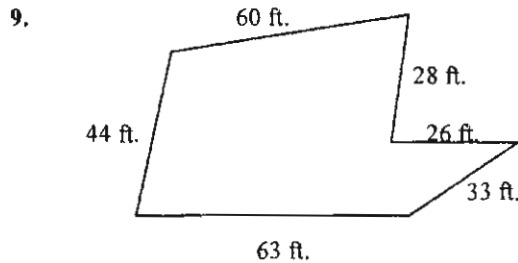
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Additional Exercises 1.3 (cont'd)

Find the perimeter of each figure.



8. _____



9. _____

10. Abraham Lincoln was born in 1809 and became President of the United States when he was 52 years old. What year did he become President?

10. _____

Subtract. Check your answer by adding.

11.
$$\begin{array}{r} 52 \\ - 28 \\ \hline \end{array}$$

11. _____

12.
$$\begin{array}{r} 295 \\ - 172 \\ \hline \end{array}$$

12. _____

13.
$$\begin{array}{r} 70 \\ - 28 \\ \hline \end{array}$$

13. _____

14. $359 - 98$

14. _____

15. $7000 - 3296$

15. _____

16. Subtract 29 from 79.

16. _____

17. 15 less than 37

17. _____

18. Subtract 97 from 101.

18. _____

Solve.

19. When the Silva family started on a trip, the odometer of their car read 30,246; when the trip was over, it read 33,205. How many miles did they drive on their trip?

19. _____

20. The Nile River is 4160 miles long. The Mississippi River is 2340 miles long. How much longer is the Nile than the Mississippi?

20. _____

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Additional Exercises 1.4

Round each number to the given place

1. 705 to the nearest ten. 1. _____
2. 2634 to the nearest ten. 2. _____
3. 127,849 to the nearest thousand. 3. _____
4. 11,249 to the nearest hundred. 4. _____
5. 3942 to the nearest ten-thousand. 5. _____
6. 68,321,482 to the nearest thousand. 6. _____
7. 78,264,105 to the nearest million. 7. _____

Complete the table by rounding the given number to each given place value.

	Ten	Hundred	Thousand
8. 9214			
9. 7778			
10. 94,073			

11. A new baseball stadium has a seating capacity of 47,895 people. Round this number to the nearest thousand. 11. _____
12. According to the 1990 census, the U.S. population was 248,718,301. Round this number to the nearest million. 12. _____

Estimate each sum or difference by rounding each number to the nearest hundred.

13.
$$\begin{array}{r} 812 \\ 914 \\ + 785 \\ \hline \end{array}$$
 13. _____
14.
$$\begin{array}{r} 903 \\ - 794 \\ \hline \end{array}$$
 14. _____
15.
$$\begin{array}{r} 2840 \\ 4742 \\ + 1690 \\ \hline \end{array}$$
 15. _____
16.
$$\begin{array}{r} 2000 \\ - 1946 \\ \hline \end{array}$$
 16. _____

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Additional Exercises 1.4 (cont.)

Estimate each sum to determine whether the given calculator answer could be correct.

17. $6430 + 1218$ 7648 17. _____

18. $51,800 + 32,560$ 89,403 18. _____

Solve each problem by estimating.

19. Susan Hill needs a new washer and dryer. The washer they like costs \$399 and the dryer costs \$321. Round each cost to the nearest hundred to estimate the total cost. 19. _____

20. Hank Aaron batted in 2,297 runs during his major league baseball career and Babe Ruth batted in 2,213 runs during his. Round each number to the nearest hundred to estimate how many more runs Hank Aaron hit than Babe Ruth? 20. _____

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Additional Exercises 1.5

Use the distributive property to rewrite each expression.

1. $3(2 + 6)$

1. _____

2. $4(2 + 5)$

2. _____

3.
$$\begin{array}{r} 83 \\ \times 4 \\ \hline \end{array}$$

3. _____

4.
$$\begin{array}{r} 279 \\ \times 21 \\ \hline \end{array}$$

4. _____

5.
$$\begin{array}{r} 298 \\ \times 3 \\ \hline \end{array}$$

5. _____

6.
$$\begin{array}{r} 1036 \\ \times 2 \\ \hline \end{array}$$

6. _____

7.
$$\begin{array}{r} 379 \\ \times 13 \\ \hline \end{array}$$

7. _____

8.
$$\begin{array}{r} 907 \\ \times 12 \\ \hline \end{array}$$

8. _____

9.
$$\begin{array}{r} 782 \\ \times 94 \\ \hline \end{array}$$

9. _____

10. $(700)(20)$

10. _____

11. $(23)(2)(4)$

11. _____

12. $(13)(626)(0)$

12. _____

13. $(470)(10)(1)$

13. _____

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Additional Exercises 1.5 (cont.)

14.
$$\begin{array}{r} 486 \\ \times 110 \\ \hline \end{array}$$

14. _____

15.
$$\begin{array}{r} 2089 \\ \times 32 \\ \hline \end{array}$$

15. _____

Estimate the product by rounding each factor to the nearest hundred.

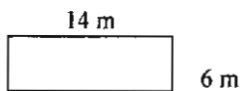
16. 895×368

16. _____

17. 218×752

17. _____

18. Find the area of the rectangle.



18. _____

Solve.

19. One bagel has 230 calories. How many calories are in the 12 bagels in a package?

19. _____

20. A marching band had 9 rows with 17 people in each row. How many people are in the band?

20. _____

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Additional Exercises 1.6

Divide and then check by multiplying.

1. $6\overline{)288}$

1. _____

2. $5\overline{)805}$

2. _____

3. $9\overline{)423}$

3. _____

4. $4\overline{)1032}$

4. _____

5. $9\overline{)639}$

5. _____

6. $83 \div 4$

6. _____

7. $179 \div 6$

7. _____

8. $3624 \div 6$

8. _____

9. $25\overline{)973}$

9. _____

10. $4000 \div 47$

10. _____

11. $9870 \div 42$

11. _____

12. $367 \div 13$

12. _____

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Additional Exercises 1.6 (cont.)

13. $84,920 \div 240$ 13. _____

14. A truck has 5600 pounds of apples to deliver to a distribution center. The truck can haul 350 pounds each trip. How many trips does it take? 14. _____

15. A movie theater collected \$784 on one showing of a movie. If tickets cost \$8 per person, how many people attended the showing? 15. _____

16. Find the number of yards in a mile. (A mile is 5280 feet; a yard is 3 feet.) 16. _____

Find the average of each list of numbers

17. 21, 25, 31, 18, 35, 32 17. _____

18. 160, 145, 189, 116, 150 18. _____

Romanian Cities (Source: World Almanac 1998)

Major City	Population
Bucharest	2,300,000
Brasov	353,000
Constanta	316,000
Cluj – Napoca	318,000
Sibiu	169,000

19. Find the average population for the five cities 19. _____

20. How many more people live in Cluj – Napoca than in Constanta? 20. _____

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Additional Exercises 1.7

Write each using exponential notation.

1. $4 \cdot 4 \cdot 4 \cdot 3 \cdot 3 \cdot 3$

1. _____

2. $21 \cdot 21 \cdot 21 \cdot 21$

2. _____

3. $8 \cdot 8 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

3. _____

Evaluate.

4. 81^1

4. _____

5. 3^4

5. _____

6. 1^{10}

6. _____

7. 4^2

7. _____

8. 10^3

8. _____

9. 3729^1

9. _____

Simplify.

10. $32 - 6 \cdot 4$

10. _____

11. $48 \div 8 - 2$

11. _____

12. $2 \cdot 5 + 4 \cdot 6$

12. _____

13. $(15 + 10) \div 5$

13. _____

14. $16 \div (6 - 2)$

14. _____

15. $\frac{5(6-2)+7}{3}$

15. _____

16. $30 - [4^2 + (8-5) - 6] + 2 \cdot 3$

16. _____


17. $50 - [5^2 + (12 - 8) \cdot 2] + 6 \cdot 2$

17. _____

Find the area of each square.

18.  12 m

18. _____

19.  15 ft.

19. _____

20. A square lawn is 72 feet on each side. If four bags of fertilizer are available and each covers 1200 square feet, is there enough fertilizer to cover the lawn?

20. _____

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Additional Exercises 1.8

Evaluate the following expressions when $x = 2$, $y = 3$, and $z = 4$.

1. $3x + 4$

1. _____

2. $4x - 2z$

2. _____

3. $3x + yz$

3. _____

4. $x^2 - y$

4. _____

5. $6 + (4y - 4)$

5. _____

6. $\frac{2y + x}{4}$

6. _____

7. $(xz - 2)^3$

7. _____

8. $2x(3y + z)$

8. _____

Write the following phrases as mathematical expressions. Use x to represent "a number."

9. The sum of a number and twice the number.

9. _____

10. Seven decreased by a number.

10. _____

11. The square of a number less five.

11. _____

12. Eighteen less than the product of four and a number.

12. _____

13. A number less eight.

13. _____

14. Ten subtracted from a number.

14. _____

Decide if the given number is a solution of the given equation.

15. Is 3 a solution to $x + 8 = 11$?

15. _____

16. Is 4 a solution to $3x - 8 = 8$?

16. _____

17. Is 8 a solution to $4x - 16 = 2x$?

17. _____

18. Is 5 a solution to $7x + 40 = 5$?

18. _____

Decide which numbers in each set are solutions to the equation.

19. $n + 5 = 10$

$\{2, 5, 7\}$

19. _____

20. $2x + 3 = 11$

$\{3, 4, 8\}$

20. _____

Additional Exercises 2.1

1. A deep-sea diver is 350 feet below the surface of the ocean.
Represent this position using a signed number.

1. _____

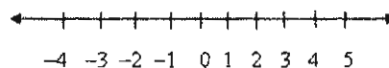
2. A company reports a loss of \$2 million for last year.
Represent this amount using a signed number.

2. _____

Graph the signed number in each list on a number line.

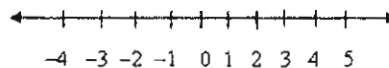
3. 4, -2, 3

3.



4. -3, 0, -1, 4

4.



Insert $<$, $>$ or $=$ between each pair of numbers to make a true statement.

5. 32 -16

5. _____

6. 5 9

6. _____

7. $-|3|$ $|-3|$

7. _____

8. $|15|$ $|-15|$

8. _____

Find each absolute value.

9. $|-9|$

9. _____

10. $-|6|$

10. _____

11. $|-20|$

11. _____

12. $-|5|$

12. _____

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Additional Exercises 2.1 (cont.)

Find the opposite of each number.

13. -18

13. _____

14. 12

14. _____

15. -2

15. _____

Simplify.

16. $-(-10)$

16. _____

17. $-|-5|$

17. _____

18. $-|12|$

18. _____

Evaluate.

19. $|-x|$ if $x = -5$.

19. _____

20. $|x|$ if $x = -8$.

20. _____

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Additional Exercises 2.2

Add.

- | | |
|---|-----------|
| 1. $7 + (-3)$ | 1. _____ |
| 2. $(-10) + 5$ | 2. _____ |
| 3. $3 + (-5)$ | 3. _____ |
| 4. $-3 + (-4)$ | 4. _____ |
| 5. $-1 + (-12)$ | 5. _____ |
| 6. $-18 + 12$ | 6. _____ |
| 7. $-5 + 5$ | 7. _____ |
| 8. $17 + (-2)$ | 8. _____ |
| 9. $1200 + (-500)$ | 9. _____ |
| 10. $27 + (-83)$ | 10. _____ |
| 11. $-19 + 12$ | 11. _____ |
| 12. $13 + (-26)$ | 12. _____ |
| 13. $8 + (-2)$ | 13. _____ |
| 14. $-14 + (-6)$ | 14. _____ |
| 15. $-5 + 7 + (-8)$ | 15. _____ |
| 16. $20 + (-11) + (-3) + 6$ | 16. _____ |
| 17. Evaluate $x + y$ for $x = 3$ and $y = -8$. | 17. _____ |
| 18. Evaluate $2x + y$ for $x = -2$ and $y = 6$. | 18. _____ |
| 19. Clarise has \$290 in her checking account. She writes checks for \$102 and \$75 and then makes a deposit of \$170. Find the amount left in her account. | 19. _____ |
| 20. Suppose a deep-sea diver dives from the surface to 125 feet below the surface. She then dives 12 more feet. What is her present depth as a signed number? | 20. _____ |

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Additional Exercises 2.3

Subtract.

1. $-7 - (-3)$

1. _____

2. $7 - 4$

2. _____

3. $8 - 12$

3. _____

4. $-6 - 8$

4. _____

5. $8 - (-8)$

5. _____

6. $14 - 28$

6. _____

7. $-100 - 35 + 25$

7. _____

8. $6 + (-6)$

8. _____

9. $13 - (-13) + 17$

9. _____

10. $9 - (-4)$

10. _____

11. Subtract -3 from -12 .

11. _____

12. Find the difference of -8 and -2 .

12. _____

Simplify.

13. $15 - 5 - 4$

13. _____

14. $-8 - 3 - (-7)$

14. _____

15. $-12 + (-5) - 3$

15. _____

16. $21 - (-15) + (-8)$

16. _____

17. Evaluate $x - y$ for $x = -3$ and $y = -5$.

17. _____

18. Evaluate $3x - y$ for $x = -4$ and $y = -2$.

18. _____

19. On December 21, the average high temperature was -5° F. On June 21, the average high temperature was 62° F. How many degrees warmer was the temperature in June than in December?

19. _____

20. Winta has \$87 in her checking account. She makes a deposit of \$130 and writes two checks for \$19 and \$100. Find the amount left in her account.

20. _____

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Additional Exercises 2.4

Multiply.

1. $-3(-8)$

1. _____

2. $-2(5)$

2. _____

3. $0(-8)$

3. _____

4. $4(-2)$

4. _____

5. $-2(-3)(-1)$

5. _____

6. $5(-2)(6)$

6. _____

7. $-2(-3)(-5)$

7. _____

Evaluate.

8. $(-5)^3$

8. _____

9. $(-2)^2$

9. _____

Multiply.

10. $-1 \cdot (-1) \cdot (-1) \cdot (1)$

10. _____

11. $-2(-7)(3)$

11. _____

12. $(-1)^5$

12. _____

Divide.

13. $-28 \div 7$

13. _____

14. $\frac{-27}{0}$

14. _____

15. $\frac{-25}{-5}$

15. _____

16. $\frac{-185}{5}$

16. _____

17. Evaluate ab for $a = -3$ and $b = -2$.

17. _____

18. Evaluate $\frac{a}{b}$ for $a = -12$ and $b = 4$.

18. _____

19. Craig Lewis lost \$125 on each of three consecutive days at the horse races. Find his total loss as a signed number.

19. _____

20. A company declared a loss of \$10,500 for each of five consecutive months. Find the company's total loss as a signed number.

20. _____

Additional Exercises 2.5

Simplify.

1. $3 + (-12) \div (-4)$

1. _____

2. $3 - 2(-2)$

2. _____

3. $(-12) + 16 \div 4$

3. _____

4. $16 \div (-4) + 4$

4. _____

5. $\frac{80}{-2-3}$

5. _____

6. $[2 + (-3)]^2$

6. _____

7. $2^3 - 27$

7. _____

8. $(8 - 16) \div 4$

8. _____

9. $(-26) - 7(3)$

9. _____

10. $|3 - 9| \cdot (-2) \div 6$

10. _____

11. $8 - 2 \cdot 7 - 4$

11. _____

12. $4(7 - 4) + (-2)^3$

12. _____

13. $(-5 \div 5) - (5 \div 5)$

13. _____

14. $(8 - 2)(5 - 12)$

14. _____

15. $8^2 - (4)^2$

15. _____

16. $10 - [8 - (2 - 7)]$

16. _____

17. $\frac{(-5)(-2) - (7)(3)}{11}$

17. _____

18. $4^2 - (2)^2$

18. _____

19. Evaluate $2x - y - z$ for $x = 2$ and $y = 5$ and $z = -3$.

19. _____

20. Evaluate $-x^2$ for $x = -4$.

20. _____

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Additional Exercises 2.6

Decide whether the given number is a solution of the given equation.

1. Is 8 a solution of $x - 4 = 4$?

1. _____

2. Is 3 a solution of $x + 6 = 6$?

2. _____

3. Is -4 a solution of $-2x = 4 - x$?

3. _____

4. Is 1 a solution of $2(x - 4) = -6$?

4. _____

Solve. Check each solution.

5. $x + 5 = 12$

5. _____

6. $x + 7 = -8$

6. _____

7. $x - 5 = -3$

7. _____

8. $x - 4 = 2$

8. _____

9. $12x = 11x - 5$

9. _____

10. $3 = y + 5$

10. _____

11. $5 = x - 4$

11. _____

12. $7x = 21$

12. _____

13. $3y = -12$

13. _____

14. $-2x = -4$

14. _____

15. $\frac{x}{-2} = 2$

15. _____

16. $\frac{x}{12} = -1$

16. _____

17. $-5x = 25$

17. _____

Translate each phrase into an algebraic expression. Use x to represent "a number."

18. a number increased by 5

18. _____

19. 8 less than a number

19. _____

20. four times a number

20. _____