

Glencoe McGraw-Hill

# Math Connects

Course 1

## Skills Practice Workbook



**Glencoe**

**To the Student** This *Skills Practice Workbook* gives you additional examples and problems for the concept exercises in each lesson. The exercises are designed to aid your study of mathematics by reinforcing important mathematical skills needed to succeed in the everyday world. The materials are organized by chapter and lesson, with one *Skills Practice* worksheet for every lesson in *Glencoe Math Connects, Course 1*.

Always keep your workbook handy. Along with your textbook, daily homework, and class notes, the completed *Skills Practice Workbook* can help you in reviewing for quizzes and tests.

**To the Teacher** These worksheets are the same ones found in the Chapter Resource Masters for *Glencoe Math Connects, Course 1*. The answers to these worksheets are available at the end of each Chapter Resource Masters booklet as well as in your Teacher Wraparound Edition interleaf pages.



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**1-1****Skills Practice*****A Plan for Problem Solving***

Use the four-step plan to solve each problem.

- 1. GEOGRAPHY** The president is going on a campaign trip to California, first flying about 2,840 miles from Washington, D.C., to San Francisco and then another 390 to Los Angeles before returning the 2,650 miles back to the capital. How many miles will the president have flown?
- 2. POPULATION** In 1990, the total population of Sacramento, CA, was 369,365. In 2000, its population was 407,018. How much did the population increase?
- 3. MONEY** The Palmer family wants to purchase a DVD player in four equal installments of \$64. What is the cost of the DVD player?
- 4. COMMERCIALS** The highest average cost of a 30-second commercial in October, 2002 was \$455,700. How much was this commercial worth per second?
- 5. SPORTS** A tennis tournament starts with 16 people. The number in each round is shown in the table. How many players will be in the 4th round?

1st Round	16
2nd Round	8
3rd Round	4
4th Round	?

**Complete the pattern.**

- 6.** 2, 4, 8, 16, 32, \_\_\_\_
- 7.** 16, 19, 22, 25, 28, 31, \_\_\_\_
- 8.** 81, 72, 63, 54, \_\_\_\_
- 9.** 5, 15, 20, 30, 35, 45, 50, \_\_\_\_
- 10.** 50, 40, 45, 35, 40, 30, 35, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_
- 11.** 6, 12, 18, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_

**1-2****Skills Practice*****Prime Factors***

Tell whether each number is *prime*, *composite*, or *neither*.

1. 0

2. 1

3. 2

4. 3

5. 4

6. 5

7. 6

8. 7

9. 8

10. 9

11. 10

12. 11

Find the prime factorization of each number.

13. 9

14. 25

15. 28

16. 54

17. 34

18. 72

19. 55

20. 63

**SCHOOL** For Exercises 21–24, use the table below.

Marisa's History Test Scores	
Date	Test Score
January 28	67
February 15	81
March 5	97
March 29	100

21. Which test scores are prime numbers?

22. Which prime number is the least prime number?

23. Find the prime factorization of 100.

24. Find the prime factorization of 81.

**1-3****Skills Practice*****Powers and Exponents***

Write each expression in words.

1.  $7^2$

2.  $8^3$

3.  $4^4$

4.  $5^6$

Write each product using an exponent. Then find the value.

5.  $4 \times 4 \times 4 \times 4$

6.  $3 \times 3 \times 3 \times 3$

7.  $5 \times 5 \times 5 \times 5$

8.  $7 \times 7$

9.  $3 \times 3 \times 3 \times 3 \times 3$

10.  $2 \times 2 \times 2 \times 2 \times 2 \times 2$

11.  $6 \times 6 \times 6$

12.  $6 \times 6 \times 6 \times 6$

Write each power as a product of the same factor. Then find the value.

13.  $3^8$

14.  $2^5$

15.  $8^3$

16.  $10^5$

17.  $6^2$

18.  $7^4$

19.  $2^3$

20.  $3^5$

21.  $6^5$

22.  $2^7$

Write the prime factorization of each number using exponents.

23. 54

24. 36

25. 63

26. 245

**1-4****Skills Practice*****Order of Operations*****Find the value of each expression.**

1.  $7 - 6 + 5$

2.  $31 + 19 - 8$

3.  $64 - 8 + 21$

4.  $17 + 34 - 2$

5.  $28 + (89 - 67)$

6.  $(8 + 1) \times 12 - 13$

7.  $63 \div 9 + 8$

8.  $5 \times 6 - (9 - 4)$

9.  $13 \times 4 - 72 \div 8$

10.  $16 \div 2 + 8 \times 3$

11.  $30 \div (21 - 6) \times 4$

12.  $6 \times 7 \div (6 + 8)$

13.  $88 - 16 \times 5 + 2 - 3$

14.  $(2 + 6) \div 2 + 4 \times 3$

15.  $4^3 - 24 \div 8$

16.  $100 \div 5^2 \times 4^3$

17.  $48 \div 2^3 + 25 \times (9 - 7)$

18.  $45 \div 9 + 8 - 7 + 2 \times 3$

19.  $18 + 7^2 \times (8 - 2) \div 3 + 8$

20.  $(5^2 + 3^3) \times (81 + 9) \div 10$



**1-5****Skills Practice****Algebra: Variables and Expressions**

Complete the table.

Algebraic Expressions	Variables	Numbers	Operations
1. $5d + 2c$	?	?	?
2. $5w - 4y + 2s$	?	?	?
3. $xy \div 4 + 3m - 6$	?	?	?

Evaluate each expression if  $a = 3$  and  $b = 4$ .

4.  $10 + b$

5.  $2a + 8$

6.  $4b - 5a$

7.  $a \times b$

8.  $7a \times 9b$

9.  $8a - 9$

10.  $b \times 22$

11.  $a^2 + 1$

12.  $18 \div 2a$

13.  $a^2 \times b^2$

14.  $ab \div 3$

15.  $15a - 4b$

16.  $ab + 7 \times 11$

17.  $36 \div 6a$

18.  $7a + 8b \times 2$

Evaluate each expression if  $x = 7$ ,  $y = 15$ , and  $z = 8$ .

19.  $x + y + z$

20.  $x + 2z$

21.  $xz + 3y$

22.  $4x - 3z$

23.  $z^2 \div 4$

24.  $6z - 5z$

25.  $9y \div (2x + 1)$

26.  $15y + x^2$

27.  $y^2 + 4 \times 6$

28.  $y^2 - 2x^2$

29.  $x^2 + 30 - 18$

30.  $13y - zx \div 4$

31.  $xz - 2y + 8$

32.  $z^2 + 5y - 20$

33.  $3y \times 40x - 1,000$

**1-6****Skills Practice*****Algebra: Functions***

Complete each function table.

1.

Input ( $x$ )	Output ( $x + 3$ )
0	
2	
4	

2.

Input ( $x$ )	Output ( $3x$ )
0	
1	
2	

3.

Input ( $x$ )	Output ( $x - 1$ )
7	
5	
4	

4.

Input ( $x$ )	Output ( $x \div 3$ )
12	
9	
6	

5. If a function rule is  $2x - 3$ , what is the output for 3?

6. If a function rule is  $4 - x$ , what is the output for 2?

Find the rule for each function table. Write the rule in the table.

7.

$x$	
10	7
7	4
4	1

8.

$x$	
3	12
6	15
8	17

9.

$x$	
0	0
2	10
3	15

10.

$x$	
4	2
6	3
12	6

**1-7****Skills Practice*****Problem-Solving Investigation: Guess and Check***

Use the guess and check strategy to solve each problem.

- 1. MONEY** Keegan has 10 coins in his pocket that total \$2.05. He only has quarters and dimes. How many of each coin does Keegan have?
  
  
  
  
  
  
  
  
  
  
- 2. NUMBERS** Ms. Junkin told her students that she was thinking of three numbers between 1 and 9 that had a sum of 19. Find the three possible numbers.
  
  
  
  
  
  
  
  
  
  
- 3. SHOPPING** Natasha bought some bracelets and some rings during a jewelry store sale. Each bracelet cost \$4 and each ring cost \$7. If Natasha spent \$29 on the jewelry, how many bracelets and rings did she buy?
  
  
  
  
  
  
  
  
  
  
- 4. ORDER OF OPERATIONS** Use each of the symbols +, −, and × to make the following math sentence true.

$$5 \_ 2 \_ 6 \_ 9 = 13$$

**1-8****Skills Practice*****Algebra: Equations*****Solve each equation mentally.**

1.  $9 - m = 8$

2.  $4 + k = 11$

3.  $23 - x = 10$

4.  $31 - h = 21$

5.  $18 = 20 - b$

6.  $16 + z = 25$

7.  $y - 25 = 3$

8.  $7 + f = 15$

9.  $20 + r = 25$

10.  $18 - v = 9$

11.  $26 - d = 19$

12.  $49 - c = 41$

13.  $45 + r = 59$

14.  $64 + n = 70$

15.  $175 = w + 75$

***True or False?***

16. If  $31 + h = 50$ , then  $h = 29$ .

17. If  $48 = 40 + k$ , then  $k = 8$ .

18. If  $17 - x = 9$ , then  $x = 7$ .

19. If  $98 - g = 87$ , then  $g = 11$ .

20. If  $p - 8 = 45$ , then  $p = 51$ .

**Identify the solution of each equation from the list given.**

21.  $s + 12 = 17$ ; 5, 6, 7

22.  $59 - x = 42$ ; 15, 16, 17

23.  $24 - k = 3$ ; 21, 22, 23

24.  $h - 15 = 31$ ; 44, 45, 46

25.  $69 = 50 + s$ ; 17, 18, 19

26.  $34 - b = 13$ ; 20, 21, 22

27.  $66 - d = 44$ ; 21, 22, 23

28.  $h + 39 = 56$ ; 15, 16, 17

29.  $54 + f = 70$ ; 16, 17, 18

30.  $47 = 72 - b$ ; 25, 26, 27

31.  $28 + v = 92$ ; 64, 65, 66

32.  $56 + c = 109$ ; 52, 53, 54

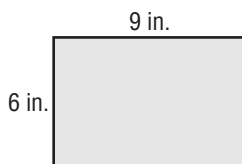
**1-9****Skills Practice****Algebra: Area Formulas**

Complete each problem.

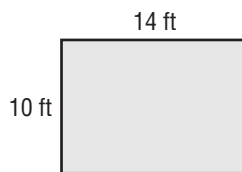
1. Give the formula for finding the area of a rectangle.
2. Draw and label a rectangle that has an area of 18 square units.
3. Give the formula for finding the area of a square.
4. Draw and label a rectangle that has an area of 25 square units.

Find the area of each rectangle.

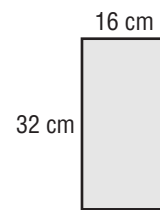
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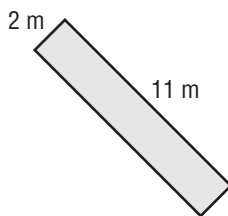
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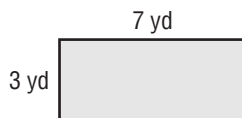
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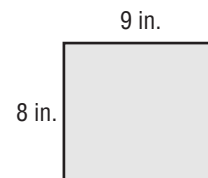
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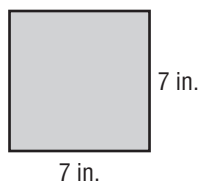


10.

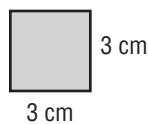


Find the area of each square.

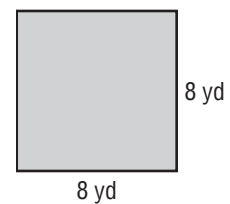
11.



12.



13.



**2-1****Skills Practice*****Problem-Solving Investigation: Make a Table***

**Solve.** Use the *make a table* strategy.

- 1. BOOKS** Grace took a survey of the students in her class to find out their favorite types of books. Using S for science-fiction, A for adventure, B for biography, and R for romance, the results are shown below. Make a frequency table of the data. How many more students like science-fiction than adventure?

S A S A A R S S S A R S B A B S S A R B

- 2. SPORTS** The table below shows the position that students are trying out for on the school basketball team. Make a frequency table of the data. How many more students are trying out for forward than center?

Basketball Positions						
P	P	S	F	C	C	F
P	S	F	F	C	S	S
C	F	P	S	S	F	F

P = point guard      S = shooting guard  
F = forward          C = center

- 3. FRUIT JUICE** The table below shows the results of a survey of students' favorite fruit juice flavors. Make a frequency table of the data. How many more students like apple juice than pineapple juice?

Favorite Fruit Juice Flavors							
A	C	G	C	P	C	A	O
O	A	P	G	G	A	A	C
G	O	A	C	O	P	O	O

A = apple      C = cranberry      G = grape  
O = orange      P = pineapple

**2-2****Skills Practice****Bar Graphs and Line Graphs**

Make a bar graph for each set of data.

1.

Cars Made	
Country	Cars (millions)
Brazil	2
Japan	9
Germany	5
Spain	3
U.S.A.	6

2.

People in America in 1630	
Colony	People (hundreds)
Maine	4
New Hampshire	5
Massachusetts	9
New York	4
Virginia	25

Use the bar graph made in Exercise 1.

3. Which country made the greatest number of cars?
4. How does the number of cars made in Japan compare to the number made in Spain?

For Exercises 5 and 6, make a line graph for each set of data.

5.

Yuba County, California	
Year	Population (thousands)
1994	62
1996	61
1998	60
2000	60
2002	62
2004	65

6.

Everglades National Park	
Month	Rainfall (inches)
January	2
February	2
March	2
April	2
May	7
June	10

7. **POPULATION** Refer to the graph made in Exercise 5. Describe the change in Yuba County's population from 1994 to 2004.
8. **WEATHER** Refer to the graph made in Exercise 6. Describe the change in the amount of rainfall from January to June.

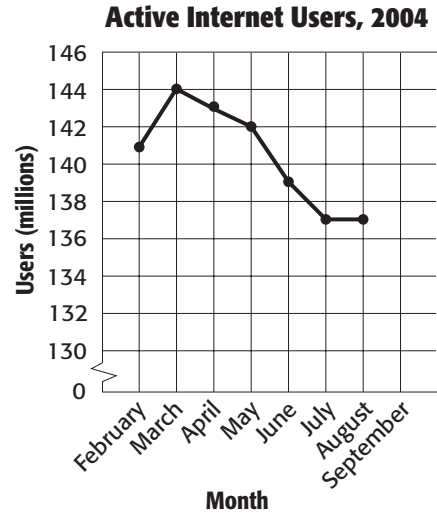
**2-3**

**Skills Practice**

*Interpret Line Graphs*

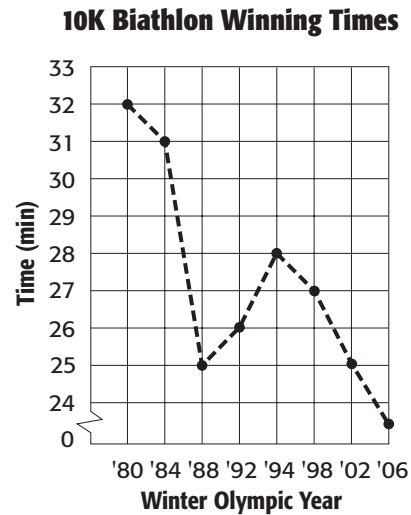
**INTERNET** Use the graph that shows Internet users in the United States.

- Describe the change in active Internet users from February to March.
- Predict how many active users there were in October 2004 if the trend continued.
- Were there more active users in February 2004 or May 2004?
- Based on your knowledge of Internet users, how do you anticipate the graph to change after September 2004?



**SPORTS** Use the graph that shows the winning times of the 10K Biathlon rounded to the nearest minute.

- How did the winning time change from 1980 to 2002?
- To the nearest minute, by how much did the winning time change from 1980 to 2002?
- Did the winning time for 2006 follow the trend?
- Predict when the winning time will be less than 20 minutes if the trend continues.





**2-4****Skills Practice*****Stem-and-Leaf Plots*****Make a stem-and-leaf plot for each set of data.**

- Points scored in football games:  
18, 16, 13, 20, 33, 58, 32, 14, 61, 67, 52
- Quiz scores:  
61, 75, 62, 63, 74, 71, 75, 82, 64, 81, 91, 65
- Weekly baby-sitting earnings:  
\$52, \$49, \$37, \$21, \$65, \$23, \$49, \$51,  
\$22, \$21, \$24, \$47, \$44, \$53, \$61
- Daily high temperature:  
82°, 91°, 80°, 55°, 63°, 54°, 83°, 90°, 84°,  
91°, 59°, 62°, 50°, 92°, 85°, 92°, 92°

**SPORTS** For Exercises 5–8, use the stem-and-leaf plot that shows the total number of points earned by each volleyball team at a tournament.

- What was the greatest number of points earned?
- What was the least number of points earned?
- How many teams earned more than 50 points?
- Between what numbers are most of the points earned?

Stem	Leaf
2	9
3	6 6 7 8 9
4	4 5 5 7 9
5	1 4 9
6	1 3 5

$4|5 = 45$  points

# 2-5 Skills Practice

## Line Plots

Make a line plot for each set of data.

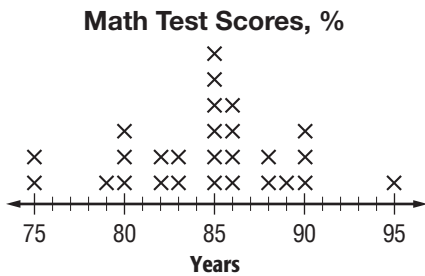
1. **Average Points Per Game for NBA Leading Scorers**

25	25	30	30	21
21	22	26	25	21

2. **Daily High Temperature for a 2-Week Period (°F)**

71	71	75	65	65	68	71
62	70	71	65	70	72	72

**GRADES** For Exercises 3–6, use the line plot below.



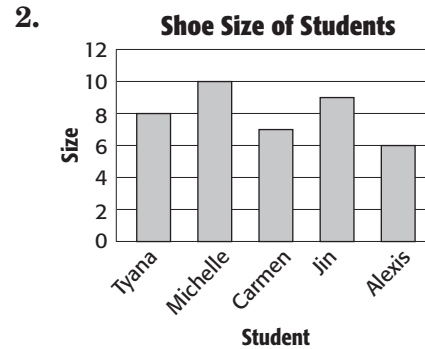
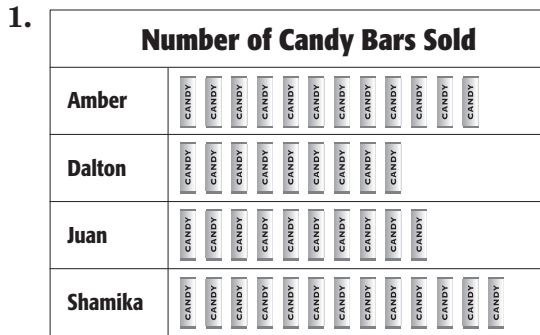
- How many students had a score of 80% on the math test?
- Which test score did the most students score on the math test?
- What is the difference between the highest and lowest test score?
- Write one or two sentences that analyze the data.

# 2-6

## Skills Practice

### Mean

Find the mean of the data represented in each model.



Identify the outlier or outliers in each set of data.

3.

Price	Tally	Frequency
\$10		4
\$20		5
\$30		3
\$40		1

4.

Stem	Leaf
2	0 1 4 7
3	0 0 1 5 6
4	3 6
5	7

$2 | 4 = 24$

**WEATHER** Use the data in the table that shows daily temperatures.

Day	Temp. (°F)
Monday	69
Tuesday	70
Wednesday	73
Thursday	35
Friday	68

- Identify the outlier.
- What is the mean of the data with the outlier included?
- What is the mean of the data without the outlier included?
- How does the outlier temperature affect the mean of the data?

# 2-7

## Skills Practice

### Median, Mode, and Range

Find the median, mode, and range for each set of data.

- age of children Danielle babysits:  
6, 9, 2, 4, 3, 6, 5
- hours spent studying:  
13, 6, 7, 13, 6
- age of grandchildren:  
1, 15, 9, 12, 18, 9, 5, 14, 7
- points scored in video game:  
13, 7, 17, 19, 7, 15, 11, 7
- amount of weekly allowances:  
3, 9, 4, 3, 9, 4, 2, 3, 8
- height of trees in feet:  
25, 18, 14, 27, 25, 14, 18, 25, 23

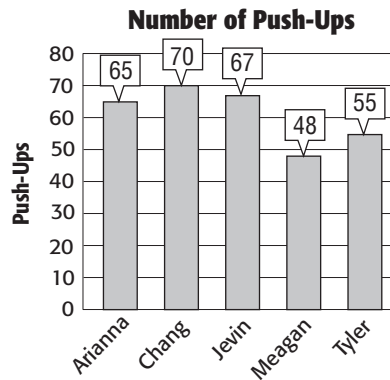
Find the mean, median, mode, and range of the data represented.

#### 7. Annual Rainfall

Stem	Leaf
2	1 3 7 8
3	2 2 4
4	3

$$3|2 = 32 \text{ in.}$$

#### 8.



**MUSEUMS** Use the table showing the number of visitors to the art museum each month.

Visitors to the Art Museum (thousands)			
3	11	5	4
5	3	6	3
12	2	2	4

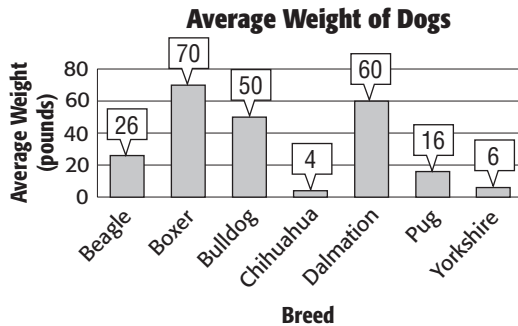
- What is the mean of the data?
- What is the median of the data?
- What is the mode of the data?
- Which measure of central tendency best describes the data? Explain.

# 2-8

## Skills Practice

### Selecting an Appropriate Display

1. **ANIMALS** Which display makes it easier to compare the average weight of a bulldog with the average weight of a pug?



**Average Weight of Dogs**

Stem	Leaf
0	4 6
1	6
2	6
3	
4	
5	0
6	0
7	0

$0 \overline{)4} = 4 \text{ lb}$

Select an appropriate type of display for data gathered about each situation.

- the record high temperature for each month this year
- the test scores each student had on a science test
- the favorite topping on a pizza of the students in Mrs. Witsken's class
- Edmund's weight on his birthday over the past 10 years
- Select and make an appropriate type of display.

Company Sales	
Year	Sales (\$ millions)
2004	4.0
2005	4.5
2006	4.0
2007	5.5
2008	6.0
2009	8.0

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Lesson 2-8

**2-9**

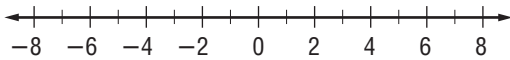
**Skills Practice**

***Integers and Graphing***

**Write an integer to represent each piece of data.**

1. The football team had a loss of 8 yards on the play.
2. Dewan grew 2 inches last year.
3. The Luther’s house is 5 feet above sea level.
4. The book club had a decrease of 6 members since last year.
5. The Panthers scored 10 fewer points than the Bearcats.
6. Jin-Li earned 7 dollars interest in her savings account last month.
7. In the first month, Tyler’s puppy gained 5 pounds.
8. The high temperature today was 4 degrees below normal.

**Graph each integer on the number line.**



- |        |        |        |        |
|--------|--------|--------|--------|
| 9. 0   | 10. -3 | 11. 4  | 12. +6 |
| 13. -5 | 14. 1  | 15. -8 | 16. 7  |

**17. GAMES** The table shows the number of points C.J. scored on each screen of a computer game. Make a line plot of the data.

Points Scored			
-10	+5	0	-20
+15	+5	+5	-10
0	+10	+5	-15

**18. WEATHER** The table shows the record lowest temperature for 12 different states. Make a line plot of the data.

Record Low Temperature (°F)			
-40	-45	-15	-40
-40	-35	-40	-40
-50	-50	-30	-55

**3-1****Skills Practice*****Representing Decimals***

**Write each decimal in word form.**

1. 6.5

2. 0.3

3. 39.2

4. 0.83

5. 5.67

6. 14.006

7. 12.001

8. 0.5214

9. 12.0905

**Write each decimal in standard form and in expanded form.**

10. three tenths

11. fifteen and one tenth

12. eight and four hundredths

13. seventy-two and sixteen thousandths

14. one hundred and one hundredth

15. four hundred seven thousandths

16. four hundred seven ten-thousandths

17. one hundred and one thousandth

18. Express  $(2 \times 100) + (3 \times 10) + (1 \times 1) + (4 \times 0.1) + (5 \times 0.01)$  in word form.

**3-2****Skills Practice*****Comparing and Ordering Decimals***

Use  $>$ ,  $<$ , or  $=$  to compare each pair of decimals.

1.  $2.4 \bullet 2.04$

2.  $6.23 \bullet 6.32$

3.  $0.02 \bullet 0.020$

4.  $12.05 \bullet 12.50$

5.  $0.92 \bullet 0.095$

6.  $39.21 \bullet 39.021$

7.  $0.849 \bullet 0.0851$

8.  $12.1 \bullet 12.10$

9.  $21.967 \bullet 2.1968$

10.  $0.0128 \bullet 0.128$

11.  $1.4601 \bullet 1.460$

12.  $19.08 \bullet 19.079$

13.  $28.003 \bullet 28.03$

14.  $0.831 \bullet 0.0835$

15.  $39.020 \bullet 39.0200$

16.  $15.6243 \bullet 15.6234$

17.  $12.0905 \bullet 12.10$

18.  $56.7 \bullet 5.67$

Order each set of decimals from least to greatest.

19. 1.25, 1.52, 1.02, 1.50

20. 67.39, 68.004, 67.039, 67.04

21. 15.0421, 14.52, 14.521, 15.421

22. 0.0012, 0.0211, 0.0002, 0.0022

Order each set of decimals from greatest to least.

23. 4.99, 4.001, 5.0, 4.01

24. 12.0012, 120.012, 12.012, 12.12

25. 3.5, 3.05, 3.55, 3.555

26. 45.0, 40.5, 40.09, 49.5



**3-3****Skills Practice*****Rounding Decimals*****Round each decimal to the indicated place-value position.**

1. 54.38; ones
2. 2.671; tenths
3. \$87.01; tens
4. 12.0905; tenths
5. 441.031; ones
6. 7.892; tenths
7. 20.2093; hundredths
8. 5.5252; ones
9. 16.01; tens
10. 0.58; tenths
11. 0.2859; hundredths
12. 145.15455; thousandths
13. \$10.65; ones
14. 3.0188; thousandths
15. 0.01426; thousandths
16. 4.8255; thousandths
17. 0.830528; ten-thousandths
18. 143.09354; ten-thousandths
19. 0.0523413; ten-thousandths
20. 137.892; hundredths

**3-4****Skills Practice*****Estimating Sums and Differences*****Estimate using rounding.**

1.  $2.32 + 2.52$

2.  $87.146 - 24.953$

3.  $18.93 + 27.45$

4.  $\$46.83 + \$18.60$

5.  $\$13.23 - \$2.87$

6.  $43.058 - 15.726$

**Estimate using clustering.**

7.  $59.62 + 60.4 + 60 + 61$

8.  $\$4.79 + \$5.29 + \$4.99$

9.  $8.2 + 7.8 + 7.2 + 7.99$

10.  $89.04 + 87.55 + 90.101 + 91$

11.  $15.044 + 14.765 + 14.689$

12.  $\$1.44 + \$0.86 + \$1.00 + \$0.70$

**Estimate using front-end estimation.**

13. 
$$\begin{array}{r} 51.62 \\ + 6.58 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} \$233.10 \\ - 23.62 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 4.57360 \\ - 0.58256 \\ \hline \end{array}$$

16. 
$$\begin{array}{r} 820.1 \\ + 3.2 \\ \hline \end{array}$$

17.  $\$102.34 + \$23.00 + \$32.67$

18.  $652.355 - 52.736$

**3-5****Skills Practice*****Adding and Subtracting Decimals*****Find each sum or difference.**

1. 
$$\begin{array}{r} 0.581 \\ + 11 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 4.78 \\ + 6 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 9.6 \\ + 5.2 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 7.8 \\ - 4.3 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 16.79 \\ - 0.51 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 1.02 \\ - 0.38 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 20.1 \\ + 3.2 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 0.86 \\ + 0.38 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 3.84 \\ + 2.69 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 4.17 \\ - 2.58 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 47.06 \\ - 38.27 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 96.293 \\ - 68.501 \\ \hline \end{array}$$

**Find each sum or difference.**

13.  $8.5 + 0.5$

14.  $8.3 + 7.9$

15.  $5.21 + 4 + 0.2$

16.  $3.4 + 3.2 - 6$

17.  $0.485 + 9.32$

18.  $362 - 145.9$

19.  $19.4 - 7.86$

20.  $4 + 8.5 + 2$

21.  $8.3 + 5.41 + 3.2$

22. **ALGEBRA** Evaluate  $b - a$  if  $a = 113.04$  and  $b = 241.931$ .

23. **ALGEBRA** Evaluate  $x + y$  if  $x = 2.057$  and  $y = 16.3$ .

**Find the value of each expression.**

24.  $3.4 - 2 + 6$

25.  $16.9 - 2^2$

26.  $7 + 2.3 - 5.8$

**3-6****Skills Practice*****Multiplying Decimals by Whole Numbers*****Multiply.**

1. 
$$\begin{array}{r} 1.5 \\ \times 3 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 0.9 \\ \times 6 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 0.45 \\ \times 5 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 3.12 \\ \times 8 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 3.47 \\ \times 5 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 2.08 \\ \times 6 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 9.14 \\ \times 2 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 0.82 \\ \times 9 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 6.3 \\ \times 9 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 0.02 \\ \times 3 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 9.12 \\ \times 4 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 27.3 \\ \times 8 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 4.007 \\ \times 4 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 3.13 \\ \times 3 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 5.02 \\ \times 8 \\ \hline \end{array}$$

16. 
$$\begin{array}{r} 6.31 \\ \times 6 \\ \hline \end{array}$$

17. 
$$\begin{array}{r} 8.01 \\ \times 5 \\ \hline \end{array}$$

18. 
$$\begin{array}{r} 4.325 \\ \times 7 \\ \hline \end{array}$$

19. 
$$\begin{array}{r} 0.762 \\ \times 2 \\ \hline \end{array}$$

20. 
$$\begin{array}{r} 0.08 \\ \times 8 \\ \hline \end{array}$$

21.  $6 \times 3.04$

22.  $2.6 \times 9$

23.  $13 \times 2.5$

24.  $1.006 \times 4$

25. Evaluate  $42.3t$  if  $t = 110$ .

26. Evaluate  $231a$  if  $a = 3.6$

27.  $3.2 \times 10$

28.  $4.5 \times 100$

29.  $6.2 \times 1,000$

**3-7****Skills Practice*****Multiplying Decimals*****Multiply.**

1.  $0.3 \times 0.5$

2.  $1.2 \times 2.1$

3.  $2.5 \times 6.7$

4.  $0.4 \times 8.3$

5.  $2.3 \times 1.21$

6.  $0.6 \times 0.91$

7.  $6.5 \times 0.04$

8.  $8.54 \times 3.27$

9.  $5.02 \times 1.07$

10.  $0.003 \times 2.9$

11.  $0.93 \times 6.8$

12.  $7.1 \times 0.004$

13.  $3.007 \times 6.1$

14.  $2.52 \times 0.15$

15.  $2.6 \times 5.46$

16.  $16.25 \times 1.3$

17.  $3.5 \times 24.09$

18.  $0.025 \times 17.1$

19.  $11.04 \times 6.18$

20.  $14.83 \times 16.7$

21.  $27.1 \times 10.105$

**ALGEBRA Evaluate each expression if  $x = 2.1$ ,  $y = 0.031$ , and  $z = 3.05$ .**

22.  $xy + z$

23.  $y + xz$

24.  $x \times 13.55 - y$

**3-8****Skills Practice*****Dividing Decimals by Whole Numbers*****Divide. Round to the nearest tenth if necessary.**

1.  $9.6 \div 3$

2.  $5.15 \div 5$

3.  $16.08 \div 2$

4.  $24.64 \div 7$

5.  $132.22 \div 11$

6.  $142.4 \div 16$

7.  $79.2 \div 9$

8.  $47.4 \div 15$

9.  $217.14 \div 21$

10.  $34.65 \div 5$

11.  $20.72 \div 8$

12.  $72.6 \div 10$

13.  $57.48 \div 15$

14.  $264.5 \div 25$

15.  $317.594 \div 34$

16.  $122.32 \div 11$

17.  $42.48 \div 18$

18.  $323.316 \div 24$

**3-9****Skills Practice*****Dividing by Decimals*****Divide.**

1.  $4.86 \div 0.2$

2.  $2.52 \div 0.7$

3.  $14.4 \div 1.2$

4.  $17.1 \div 3.8$

5.  $3.96 \div 1.32$

6.  $628.2 \div 34.9$

7.  $0.105 \div 0.5$

8.  $1.296 \div 0.16$

9.  $3.825 \div 2.5$

10.  $8.253 \div 0.5$

11.  $0.9944 \div 0.8$

12.  $1.50048 \div 0.32$

13.  $13.59 \div 0.75$

14.  $4.4208 \div 1.8$

15.  $16.1604 \div 4.02$

16.  $160.3639 \div 25.1$

17.  $246.3293 \div 13.3$

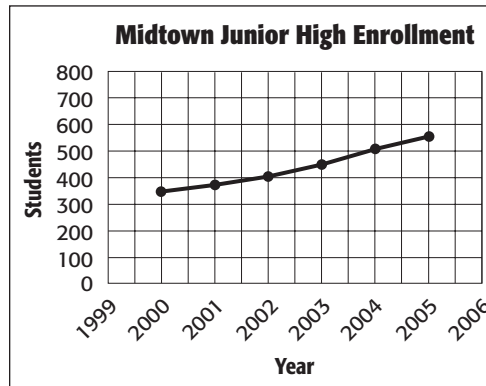
18.  $106.288 \div 6.5$

**3-10****Skills Practice*****Problem-Solving Investigation: Reasonable Answers***

**Solve.** Use the **determine reasonable answers strategy**.

- ANIMALS** A male African elephant weighs 6.5 tons. What is a reasonable weight in pounds of a male African elephant?
  
- AWARDS** The school auditorium holds 3,600 people. Is it reasonable to offer each of the 627 students five tickets for family and friends to attend the awards ceremony? Explain.

- POPULATION** Use the graph at the right to determine whether 600, 700, or 800 is a reasonable prediction of the population at Midtown Junior High in 2006.



- FOOTBALL** In 2004, 565,192 people attended the Houston Texans 8 home games. Which is more reasonable for the number of people that attended each game: 60,000, 70,000, or 80,000?



**4-1****Skills Practice*****Greatest Common Factor*****Identify the common factors of each set of numbers.**

1. 12 and 20

2. 24 and 30

3. 18 and 27

4. 10 and 25

5. 6 and 21

6. 14 and 42

**Find the GCF of each set of numbers.**

7. 15 and 40

8. 16 and 36

9. 12 and 54

10. 24 and 64

11. 39 and 26

12. 35 and 63

13. 36 and 48

14. 35 and 28

15. 40 and 56

16. 56 and 14

17. 27 and 63

18. 88 and 66

19. 60 and 84

20. 45 and 90

21. 85 and 51

22. 54 and 72

23. 48 and 80

24. 63 and 108

25. 21, 30, 44

26. 16, 24, 56

27. 27, 54, 81

**4-2****Skills Practice*****Simplifying Fractions***

Replace each ● with a number so the fractions are equivalent.

1.  $\frac{1}{5} = \frac{\bullet}{35}$

2.  $\frac{\bullet}{15} = \frac{2}{5}$

3.  $\frac{1}{6} = \frac{\bullet}{24}$

4.  $\frac{10}{15} = \frac{2}{\bullet}$

5.  $\frac{4}{\bullet} = \frac{20}{45}$

6.  $\frac{1}{\bullet} = \frac{4}{16}$

7.  $\frac{1}{3} = \frac{27}{\bullet}$

8.  $\frac{\bullet}{7} = \frac{8}{28}$

9.  $\frac{18}{24} = \frac{\bullet}{4}$

Write each fraction in simplest form. If the fraction is already in simplest form, write *simplest form*.

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

11.  $\frac{8}{10}$

12.  $\frac{20}{60}$

13.  $\frac{6}{15}$

14.  $\frac{15}{60}$

15.  $\frac{7}{8}$

16.  $\frac{27}{81}$

17.  $\frac{7}{12}$

18.  $\frac{28}{36}$

19.  $\frac{90}{100}$

20.  $\frac{8}{21}$

21.  $\frac{14}{35}$

22.  $\frac{23}{46}$

23.  $\frac{9}{13}$

24.  $\frac{12}{27}$

25.  $\frac{4}{12}$

26.  $\frac{75}{100}$

27.  $\frac{60}{110}$

28.  $\frac{10}{25}$

29.  $\frac{15}{19}$

30.  $\frac{20}{28}$

31.  $\frac{49}{56}$

32.  $\frac{49}{70}$

33.  $\frac{24}{64}$

**4-3****Skills Practice*****Mixed Numbers and Improper Fractions***

Draw a model for each mixed number. Then write the mixed number as an improper fraction.

1.  $4\frac{1}{3}$

2.  $3\frac{3}{8}$

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

Write each mixed number as an improper fraction.

4.  $6\frac{1}{2}$

5.  $1\frac{5}{6}$

6.  $1\frac{3}{8}$

7.  $3\frac{1}{3}$

8.  $3\frac{7}{8}$

9.  $2\frac{1}{4}$

10.  $2\frac{8}{9}$

11.  $4\frac{5}{6}$

12.  $8\frac{3}{5}$

13.  $5\frac{4}{7}$

14.  $10\frac{2}{3}$

15.  $9\frac{1}{4}$

Write each improper fraction as a mixed number or a whole number.

16.  $\frac{9}{5}$

17.  $\frac{5}{2}$

18.  $\frac{15}{4}$

19.  $\frac{17}{8}$

20.  $\frac{19}{6}$

21.  $4\frac{27}{27}$

22.  $\frac{25}{2}$

23.  $\frac{31}{7}$

24.  $\frac{52}{9}$

25.  $\frac{41}{3}$

26.  $\frac{37}{5}$

27.  $\frac{77}{8}$



**4-5****Skills Practice*****Least Common Multiple***

**Identify the first three common multiples of each set of numbers.**

1. 2 and 6

2. 3 and 6

3. 4 and 10

4. 4 and 6

5. 3 and 5

6. 5 and 25

**Find the LCM of each set of numbers.**

7. 7 and 10

8. 7 and 49

9. 6 and 9

10. 6 and 30

11. 5 and 6

12. 12 and 18

13. 8 and 28

14. 6 and 14

15. 5 and 14

16. 12 and 15

17. 9 and 24

18. 15 and 18

19. 12 and 14

20. 3, 5, and 12

21. 6, 16, and 24

22. 12, 18, and 24

23. 7, 10, and 14

24. 2, 5, and 12

**4-6****Skills Practice*****Comparing and Ordering Fractions***

Replace each ● with <, >, or = to make a true sentence.

1.  $\frac{2}{3} \bullet \frac{3}{4}$

2.  $\frac{3}{8} \bullet \frac{6}{16}$

3.  $\frac{5}{8} \bullet \frac{7}{12}$

4.  $\frac{1}{2} \bullet \frac{6}{7}$

5.  $\frac{3}{9} \bullet \frac{1}{3}$

6.  $\frac{1}{6} \bullet \frac{9}{10}$

7.  $\frac{5}{6} \bullet \frac{7}{8}$

8.  $\frac{5}{8} \bullet \frac{5}{12}$

9.  $\frac{4}{5} \bullet \frac{2}{3}$

10.  $\frac{6}{7} \bullet \frac{4}{5}$

11.  $\frac{5}{12} \bullet \frac{3}{16}$

12.  $\frac{3}{4} \bullet \frac{2}{9}$

13.  $\frac{5}{7} \bullet \frac{7}{10}$

14.  $\frac{2}{15} \bullet \frac{1}{6}$

15.  $\frac{5}{12} \bullet \frac{2}{5}$

16.  $\frac{3}{10} \bullet \frac{5}{14}$

17.  $\frac{4}{9} \bullet \frac{3}{7}$

18.  $\frac{3}{5} \bullet \frac{5}{9}$

19.  $\frac{1}{6} \bullet \frac{2}{12}$

20.  $\frac{7}{9} \bullet \frac{4}{7}$

21.  $\frac{9}{10} \bullet \frac{11}{12}$

22.  $\frac{1}{4} \bullet \frac{2}{8}$

23.  $\frac{8}{9} \bullet \frac{7}{8}$

24.  $\frac{2}{9} \bullet \frac{4}{15}$

Order the fractions from least to greatest.

25.  $\frac{3}{4}, \frac{2}{5}, \frac{5}{8}, \frac{1}{2}$

26.  $\frac{1}{3}, \frac{2}{7}, \frac{3}{14}, \frac{1}{6}$

27.  $\frac{2}{3}, \frac{4}{9}, \frac{5}{6}, \frac{7}{12}$

28.  $\frac{4}{5}, \frac{2}{3}, \frac{13}{15}, \frac{7}{9}$

29.  $\frac{11}{12}, \frac{5}{6}, \frac{3}{4}, \frac{9}{16}$

30.  $\frac{7}{15}, \frac{3}{5}, \frac{5}{12}, \frac{1}{2}$

**4-7****Skills Practice*****Writing Decimals as Fractions*****Write each decimal as a fraction or mixed number in simplest form.**

1. 0.6

2. 10.9

3. 0.08

4. 6.25

5. 4.125

6. 0.075

7. 9.35

8. 3.56

9. 8.016

10. 21.5

11. 0.055

12. 7.42

13. 5.006

14. 3.875

15. 1.29

16. 2.015

17. 6.48

18. 0.004

19. 4.95

20. 8.425

21. 9.74

22. 0.47

23. 5.019

24. 1.062

25. 3.96

26. 0.824

27. 20.8

28. 6.45

29. 4.672

30. 0.375

**4-8****Skills Practice*****Writing Fractions as Decimals***

Write each fraction or mixed number as a decimal.

1.  $\frac{9}{10}$

2.  $\frac{21}{100}$

3.  $\frac{3}{4}$

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

5.  $\frac{2}{5}$

6.  $\frac{7}{10}$

7.  $\frac{5}{8}$

8.  $3\frac{7}{8}$

9.  $9\frac{2}{5}$

10.  $\frac{66}{200}$

11.  $\frac{3}{20}$

12.  $6\frac{5}{8}$

13.  $5\frac{2}{5}$

14.  $12\frac{3}{8}$

15.  $10\frac{17}{20}$

16.  $2\frac{7}{16}$

17.  $3\frac{11}{16}$

18.  $6\frac{4}{5}$

19.  $1\frac{11}{25}$

20.  $10\frac{1}{8}$

21.  $2\frac{1}{16}$

22.  $3\frac{19}{20}$

23.  $5\frac{12}{75}$

24.  $3\frac{24}{25}$

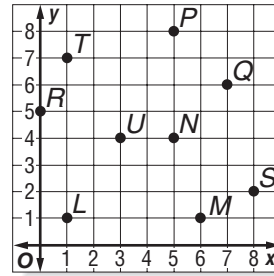


# 4-9

## Skills Practice

### Algebra: Ordered Pairs and Functions

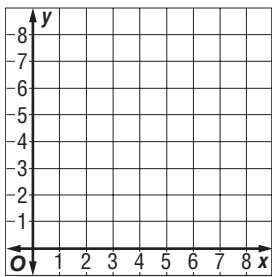
Use the coordinate plane at the right to name the ordered pair for each point.



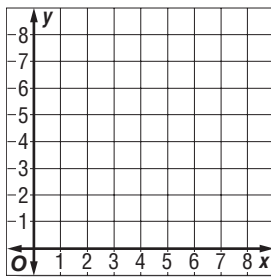
1. *L*
2. *M*
3. *N*
4. *P*
5. *Q*
6. *R*
7. *S*
8. *T*

Graph and label each point on the coordinate plane.

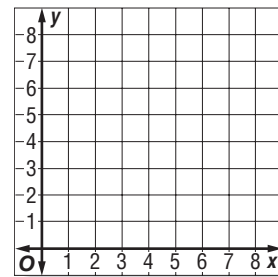
9.  $A(1, 3)$



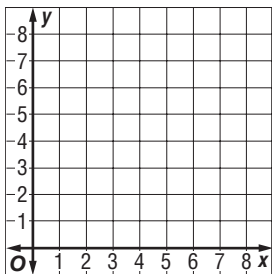
10.  $B(4, 3)$



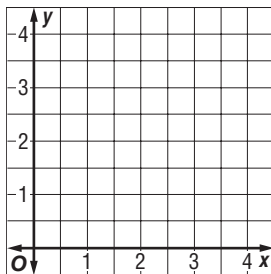
11.  $C(2, 0)$



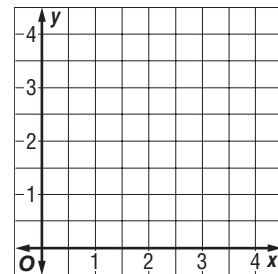
12.  $D(2, 5)$



13.  $E(2.5, 1.5)$



14.  $F(1\frac{1}{2}, 2)$



**5-1****Skills Practice*****Rounding Fractions and Mixed Numbers*****Round each number to the nearest half.**

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

2.  $2\frac{1}{9}$

3.  $1\frac{4}{7}$

4.  $\frac{11}{12}$

5.  $2\frac{1}{5}$

6.  $1\frac{1}{3}$

7.  $7\frac{3}{4}$

8.  $3\frac{2}{5}$

9.  $\frac{5}{12}$

10.  $\frac{1}{10}$

11.  $9\frac{7}{8}$

12.  $4\frac{3}{8}$

13.  $8\frac{6}{7}$

14.  $1\frac{5}{12}$

15.  $\frac{1}{18}$

16.  $3\frac{8}{9}$

17.  $\frac{9}{16}$

18.  $2\frac{11}{13}$

19.  $5\frac{3}{20}$

20.  $7\frac{9}{11}$

21.  $10\frac{1}{7}$

22.  $\frac{13}{15}$

23.  $6\frac{4}{25}$

24.  $8\frac{9}{19}$

**Find the length of each line segment to the nearest half inch.**

25. \_\_\_\_\_

26. \_\_\_\_\_

27. \_\_\_\_\_

28. \_\_\_\_\_

**Tell whether each number should be rounded up or down.**29. the amount of wrapping paper for a gift that is  $2\frac{4}{7}$  feet wide30. the length of a strip of wallpaper to hang on a wall  $7\frac{5}{6}$  feet high31. the width of a CD player to fit into a width of  $18\frac{2}{5}$  inches32. the height of a notebook that must fit inside a backpack  $1\frac{3}{4}$  feet tall

**5-2****Skills Practice*****Problem-Solving Investigation: Act It Out***

**Solve.** Use the act it out strategy.

- 1. FOOD** Mrs. Wilson bought  $3\frac{1}{2}$  pounds of apples to make containers of apple butter. Each container requires  $\frac{2}{3}$  pound of apples. How many containers of apple butter can she make?
  
- 2. JEWELRY** Sophia is making a necklace, bracelet, and anklet out of beads. She has green, blue, purple, and silver beads. How many different pieces of jewelry can she make if she only uses one color of beads for each?
  
- 3. CLOTHES** You can buy school uniforms through an online catalog. Boys can order either navy blue or khaki pants with a red, white, or blue shirt. How many uniform combinations are there online for boys?
  
- 4. TIME** School is out at 3:45 P.M., band practice is  $2\frac{1}{2}$  hours, dinner takes 45 minutes, and you go to bed at 10:00 P.M. How much free time will you have if you study for 2 hours for a math exam?

**5-3****Skills Practice*****Adding and Subtracting Fractions with Like Denominators*****Add or subtract. Write in simplest form.**

1.  $\frac{2}{9} + \frac{4}{9}$

2.  $\frac{2}{5} + \frac{4}{5}$

3.  $\frac{2}{3} - \frac{1}{3}$

4.  $\frac{3}{4} + \frac{1}{4}$

5.  $\frac{7}{8} - \frac{3}{8}$

6.  $\frac{9}{12} + \frac{3}{12}$

7.  $\frac{5}{6} - \frac{1}{6}$

8.  $\frac{1}{6} + \frac{5}{6}$

9.  $\frac{11}{12} - \frac{7}{12}$

10.  $\frac{7}{8} + \frac{3}{8}$

11.  $\frac{9}{10} - \frac{4}{10}$

12.  $\frac{3}{8} + \frac{1}{8}$

13.  $\frac{10}{11} - \frac{2}{11}$

14.  $\frac{7}{9} + \frac{2}{9}$

15.  $\frac{5}{6} + \frac{4}{6}$

16.  $\frac{3}{10} - \frac{1}{10}$

17.  $\frac{3}{10} + \frac{3}{10}$

18.  $\frac{5}{6} + \frac{3}{6}$

19.  $\frac{5}{8} - \frac{3}{8}$

20.  $\frac{5}{7} - \frac{2}{7}$

21.  $\frac{6}{7} + \frac{5}{7}$

22. How much is  $\frac{2}{9}$  pound plus  $\frac{1}{9}$  pound?23. How much longer is  $\frac{3}{8}$  foot than  $\frac{1}{8}$  foot?24. How much more than  $\frac{1}{4}$  cup is  $\frac{3}{4}$  cup?25. What is the sum of  $\frac{2}{11}$ ,  $\frac{7}{11}$ , and  $\frac{1}{11}$ ?

**5-4****Skills Practice*****Adding and Subtracting Fractions with Unlike Denominators***

Add or subtract. Write in simplest form.

1. 
$$\begin{array}{r} \frac{2}{3} \\ + \frac{5}{6} \\ \hline \end{array}$$

2. 
$$\begin{array}{r} \frac{5}{6} \\ + \frac{3}{4} \\ \hline \end{array}$$

3. 
$$\begin{array}{r} \frac{2}{3} \\ - \frac{1}{6} \\ \hline \end{array}$$

4. 
$$\begin{array}{r} \frac{1}{2} \\ + \frac{7}{8} \\ \hline \end{array}$$

5. 
$$\begin{array}{r} \frac{4}{7} \\ - \frac{1}{2} \\ \hline \end{array}$$

6. 
$$\begin{array}{r} \frac{1}{6} \\ - \frac{1}{12} \\ \hline \end{array}$$

7.  $\frac{5}{8} - \frac{1}{4}$

8.  $\frac{1}{3} + \frac{5}{7}$

9.  $\frac{1}{5} + \frac{5}{6}$

10.  $\frac{3}{4} + \frac{11}{12}$

11.  $\frac{1}{2} - \frac{2}{5}$

12.  $\frac{11}{12} - \frac{3}{4}$

13.  $\frac{3}{4} - \frac{1}{12}$

14.  $\frac{4}{5} + \frac{1}{2}$

15.  $\frac{3}{5} + \frac{2}{3}$

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

17.  $\frac{11}{12} - \frac{1}{6}$

18.  $\frac{3}{5} + \frac{9}{10}$

19. How much more is  $\frac{3}{8}$  gallon than  $\frac{1}{4}$  gallon?20. How much more is  $\frac{3}{4}$  ounce than  $\frac{1}{3}$  ounce?21. Evaluate  $x - y$  if  $x = \frac{7}{10}$  and  $y = \frac{3}{5}$ .22. Evaluate  $s + t$  if  $s = \frac{2}{3}$  and  $t = \frac{5}{6}$ .

**5-5****Skills Practice*****Adding and Subtracting Mixed Numbers***

Add or subtract. Write in simplest form.

$$\begin{array}{r} 1. \quad 2\frac{1}{4} \\ + 3\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 4 \\ - 3\frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 8\frac{5}{12} \\ - 1\frac{1}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 2\frac{3}{7} \\ + 4\frac{2}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 6\frac{2}{3} \\ + 3\frac{4}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 8\frac{7}{12} \\ - 5\frac{5}{12} \\ \hline \end{array}$$

$$7. \quad 9\frac{3}{4} - 7\frac{1}{2}$$

$$8. \quad 2\frac{1}{8} + 5\frac{7}{8}$$

$$9. \quad 7\frac{1}{4} - 6\frac{5}{6}$$

$$10. \quad 10\frac{3}{5} - 2\frac{1}{2}$$

$$11. \quad 6\frac{5}{6} + \frac{3}{8}$$

$$12. \quad 9\frac{4}{5} + 2\frac{2}{3}$$

$$13. \quad 5\frac{2}{3} - \frac{1}{6}$$

$$14. \quad 8\frac{1}{2} - 5\frac{3}{10}$$

$$15. \quad 4\frac{3}{5} + 9\frac{1}{3}$$

$$16. \quad 12 - 5\frac{7}{11}$$

$$17. \quad 5\frac{8}{9} - 3\frac{1}{6}$$

$$18. \quad 8\frac{3}{4} + 6\frac{2}{5}$$

ALGEBRA Evaluate each expression if  $a = 1\frac{2}{3}$ ,  $b = \frac{1}{4}$ , and  $c = 3\frac{5}{6}$ .

19.  $a + b$

20.  $c + a$

21.  $c - b$

22.  $c - a$

**5-6****Skills Practice*****Estimating Products of Fractions*****Estimate each product.**

1.  $\frac{1}{5} \times 26$

2.  $\frac{10}{11} \times \frac{1}{9}$

3.  $\frac{1}{2} \times 17$

4.  $\frac{6}{7} \times \frac{1}{8}$

5.  $\frac{1}{3} \times \frac{4}{11}$

6.  $2\frac{4}{5} \times 5\frac{1}{4}$

7.  $\frac{3}{7} \times 29$

8.  $\frac{5}{6} \times \frac{2}{7}$

9.  $6\frac{3}{10} \times 4\frac{7}{9}$

10.  $\frac{3}{5} \times \frac{6}{7}$

11.  $\frac{7}{8} \times \frac{8}{9}$

12.  $4\frac{1}{3} \times 3\frac{7}{8}$

13.  $9\frac{1}{8} \times \frac{1}{3}$

14.  $\frac{2}{9} \times 26$

15.  $\frac{5}{8} \times 41$

16.  $\frac{7}{8} \times 30$

17.  $7\frac{2}{3} \times 9\frac{3}{8}$

18.  $\frac{3}{4} \times 35$

19.  $\frac{5}{9} \times \frac{1}{7}$

20.  $\frac{1}{12} \times \frac{5}{9}$

21.  $3\frac{1}{4} \times 7\frac{7}{8}$

22.  $\frac{2}{3} \times 35$

23.  $6\frac{7}{12} \times 8\frac{5}{12}$

24.  $\frac{6}{11} \times 32$

25. Estimate  $\frac{4}{5}$  of 49.26. Estimate the product of  $2\frac{4}{11}$  and  $16\frac{1}{5}$ .

**5-7****Skills Practice*****Multiplying Fractions*****Multiply.**

1.  $\frac{3}{4} \times \frac{1}{2}$

2.  $\frac{1}{3} \times \frac{2}{5}$

3.  $\frac{1}{3} \times 6$

4.  $\frac{2}{5} \times \frac{3}{7}$

5.  $\frac{3}{8} \times 10$

6.  $\frac{1}{6} \times \frac{3}{5}$

7.  $\frac{2}{9} \times 3$

8.  $\frac{9}{10} \times \frac{4}{5}$

9.  $\frac{7}{8} \times \frac{2}{9}$

10.  $11 \times \frac{3}{4}$

11.  $\frac{5}{6} \times \frac{1}{4}$

12.  $\frac{4}{9} \times \frac{2}{3}$

13.  $\frac{7}{12} \times \frac{6}{11}$

14.  $16 \times \frac{5}{12}$

15.  $\frac{4}{9} \times \frac{1}{8}$

16.  $\frac{1}{5} \times \frac{10}{11}$

17.  $\frac{5}{12} \times \frac{3}{8}$

18.  $\frac{1}{10} \times \frac{4}{7}$

19.  $21 \times \frac{4}{7}$

20.  $\frac{5}{9} \times 18$

21.  $\frac{5}{6} \times \frac{8}{9}$

**ALGEBRA** For Exercises 22–24, evaluate each expression if  $x = 4$ ,  $y = \frac{2}{3}$ , and  $z = \frac{1}{4}$ .

22.  $\frac{3}{8}x$

23.  $xz$

24.  $3x$

25.  $xy$

26.  $9y$

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

28.  $yz$

29.  $8z$

30.  $xyz$

31. **ALGEBRA** If  $a = \frac{6}{7}$ , what is  $\frac{2}{3}a$ ?

32. **ALGEBRA** Evaluate  $st$  if  $s = \frac{3}{8}$  and  $t = 24$ .



**5-8****Skills Practice*****Multiplying Mixed Numbers*****Multiply. Write in simplest form.**

1.  $\frac{1}{3} \times 1\frac{1}{4}$

2.  $2\frac{1}{2} \times \frac{3}{5}$

3.  $\frac{3}{4} \times 3\frac{1}{3}$

4.  $6\frac{1}{5} \times \frac{1}{2}$

5.  $1\frac{3}{5} \times 3\frac{2}{3}$

6.  $\frac{5}{7} \times 4\frac{1}{5}$

7.  $\frac{4}{7} \times 3\frac{1}{9}$

8.  $1\frac{3}{8} \times 2\frac{2}{7}$

9.  $4\frac{1}{6} \times \frac{9}{10}$

10.  $3\frac{1}{3} \times 2\frac{1}{4}$

11.  $\frac{8}{9} \times 5\frac{1}{7}$

12.  $2\frac{5}{8} \times 6$

13.  $3\frac{3}{4} \times 2\frac{4}{5}$

14.  $\frac{5}{7} \times 4\frac{3}{8}$

15.  $20 \times 1\frac{2}{5}$

16.  $2\frac{4}{9} \times \frac{6}{11}$

17.  $5\frac{3}{4} \times 1\frac{1}{11}$

18.  $14 \times 2\frac{5}{7}$

**ALGEBRA** For Exercises 19–24, evaluate each expression if  $r = 1\frac{2}{3}$ ,  $s = 2\frac{1}{5}$ , and  $t = \frac{3}{4}$ .

19.  $4t$

20.  $st$

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

22.  $rs$

23.  $\frac{1}{11}s$

24.  $rt$

25. **ALGEBRA** Evaluate  $\frac{2}{3}m$  if  $m = 5\frac{1}{6}$ .

26. **ALGEBRA** What is  $ab$  if  $a = 1\frac{5}{11}$  and  $b = \frac{7}{8}$ ?

**5-9****Skills Practice*****Dividing Fractions*****Find the reciprocal of each number.**

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

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

3. 7

4.  $\frac{8}{11}$

5. 12

6.  $\frac{9}{10}$

7.  $\frac{5}{8}$

8.  $\frac{3}{10}$

**Divide. Write in simplest form.**

9.  $\frac{5}{6} \div \frac{1}{3}$

10.  $\frac{9}{10} \div \frac{1}{2}$

11.  $\frac{1}{2} \div \frac{3}{5}$

12.  $8 \div \frac{4}{5}$

13.  $\frac{7}{12} \div \frac{5}{6}$

14.  $\frac{9}{10} \div \frac{1}{4}$

15.  $\frac{3}{8} \div 9$

16.  $\frac{9}{10} \div \frac{3}{4}$

17.  $\frac{2}{5} \div \frac{4}{7}$

18.  $15 \div \frac{5}{9}$

19.  $\frac{6}{7} \div \frac{3}{11}$

20.  $\frac{1}{9} \div \frac{5}{12}$

21.  $\frac{5}{6} \div \frac{5}{12}$

22.  $\frac{10}{11} \div 5$

23.  $\frac{7}{9} \div \frac{1}{7}$

24.  $\frac{6}{7} \div \frac{8}{9}$

25.  $\frac{3}{5} \div \frac{9}{11}$

26.  $5 \div \frac{4}{9}$

**ALGEBRA** Find the value of each expression if  $x = \frac{1}{4}$ ,  $y = \frac{3}{5}$ , and  $z = \frac{2}{3}$ .

27.  $x \div y$

28.  $z \div 2$

29.  $y \div z$

30.  $z \div x$

31.  $\frac{1}{3} \div x$

32.  $5 \div y$

**5-10 Skills Practice****Dividing Mixed Numbers**

Divide. Write in simplest form.

1.  $2\frac{5}{6} \div 6\frac{4}{5}$

2.  $4\frac{6}{7} \div 3\frac{2}{5}$

3.  $31\frac{2}{3} \div 7\frac{3}{5}$

4.  $1\frac{1}{3} \div 3$

5.  $6 \div 2\frac{2}{5}$

6.  $1\frac{3}{4} \div \frac{3}{4}$

7.  $2\frac{1}{2} \div 4\frac{2}{7}$

8.  $3\frac{1}{9} \div 7$

9.  $6\frac{2}{3} \div \frac{4}{5}$

10.  $1\frac{2}{9} \div 1\frac{5}{6}$

11.  $6\frac{3}{4} \div 1\frac{7}{20}$

12.  $\frac{7}{10} \div 2\frac{5}{8}$

13.  $3\frac{5}{6} \div 1\frac{1}{3}$

14.  $1\frac{7}{9} \div \frac{4}{9}$

15.  $5 \div 8\frac{3}{4}$

16.  $2\frac{2}{9} \div 1\frac{1}{3}$

17.  $3\frac{1}{5} \div 1\frac{7}{9}$

18.  $6\frac{1}{6} \div 3\frac{1}{3}$

**ALGEBRA** Evaluate each expression if  $a = 1\frac{3}{8}$ ,  $b = 4\frac{5}{7}$ , and  $c = 3\frac{3}{10}$ .

19.  $b \div a$

20.  $a \div c$

21.  $c \div b$

**ALGEBRA** For Exercises 22–24, evaluate each expression if  $a = 3\frac{3}{4}$ ,  $b = 1\frac{1}{2}$ , and  $c = 4\frac{1}{8}$ .

22.  $a \div b$

23.  $c \div a$

24.  $b \div c$

25. **ALGEBRA** What is the value of  $r \div t$  if  $r = 4\frac{1}{3}$  and  $t = 2\frac{3}{5}$ ?26. **ALGEBRA** If  $x = 4\frac{2}{3}$  what is  $1\frac{1}{6} \div x$ ?

**6-1****Skills Practice*****Ratios and Rates***

**Write each ratio as a fraction in simplest form.**

1. 3 sailboats to 6 motorboats
2. 4 tulips to 9 daffodils
3. 5 baseballs to 25 softballs
4. 2 days out of 8 days
5. 6 poodles out of 18 dogs
6. 10 yellow eggs out of 12 colored eggs
7. 12 sheets of paper out of 28
8. 18 hours out of 24 hours
9. 16 elms out of 20 trees
10. 15 trumpets to 9 trombones
11. 5 ducks to 30 geese
12. 14 lions to 10 tigers
13. 6 sodas out of 16 drinks
14. 20 blue jays out of 35 birds

**Write each rate as a unit rate.**

15. 14 hours in 2 weeks
16. 36 pieces of candy for 6 children
17. 8 teaspoons for 4 cups
18. 8 tomatoes for \$2
19. \$28 for 4 hours
20. 150 miles in 3 hours
21. \$18 for 3 CDs
22. 48 logs on 6 trucks
23. Write the ratio *21 wins to 9 losses* as a fraction in simplest form.
24. Write the ratio *\$12 dollars for 3 tickets* as a unit rate.

**6-2 Skills Practice****Ratio Tables**

For Exercises 1–4, use the ratio table given to solve each problem.

1. **BAKING** A recipe for 1 apple pie calls for 6 cups of sliced apples. How many cups of sliced apples are needed to make 4 apple pies?

<b>Number of Pies</b>	1			4
<b>Cups of Sliced Apples</b>	6			■

2. **BASEBALL CARDS** Justin bought 40 packs of baseball cards for a discounted price of \$64. If he sells 10 packs of baseball cards to a friend at cost, how much should he charge?

<b>Number of Baseball Card Packs</b>	10			40
<b>Cost in Dollars</b>	■			64

3. **SOUP** A recipe that yields 12 cups of soup calls for 28 ounces of beef broth. How many ounces of beef broth do you need to make 18 cups of the soup?

<b>Number of Cups</b>		12	18
<b>Ounces of Beef Broth</b>		28	■

4. **ANIMALS** At a dog shelter, a 24-pound bag of dog food will feed 36 dogs a day. How many dogs would you expect to feed with a 16-pound bag of dog food?

<b>Pounds of Dog Food</b>	16	24	
<b>Number of Dogs Fed</b>	■	36	

5. **AUTOMOBILES** Mr. Fink's economy car can travel 420 miles on a 12-gallon tank of gas. Use a ratio table to determine how many miles he can travel on 8 gallons.

<b>Miles</b>	420		■
<b>Gallons</b>	12		8

**6-3****Skills Practice*****Proportions***

**Determine if the quantities in each pair of ratios or rates are proportional. Explain your reasoning and express each proportional relationship as a proportion.**

1. \$18 for 3 bracelets; \$30 for 5 bracelets
2. 120 calories in 2 servings; 360 calories in 6 servings
3. 4 hours worked for \$12; 7 hours worked for \$28
4. 15 blank CDs for \$5; 45 blank CDs for \$15
5. 24 points scored in 4 games; 48 points scored in 10 games
6. 15 out of 20 students own hand-held games; 105 out of 160 students own hand-held games.
7. 30 minutes to jog 3 miles; 50 minutes to jog 5 miles
8. \$3 for 6 muffins; \$9 for 18 muffins
9. 360 miles driven on 12 gallons of fuel; 270 miles driven on 9 gallons of fuel
10. 2 pairs of jeans for \$50; 4 pairs of jeans for \$90

**6-4****Skills Practice****Algebra: Solving Proportions**

Solve each proportion.

1.  $\frac{2}{5} = \frac{8}{x}$

2.  $\frac{2}{7} = \frac{4}{y}$

3.  $\frac{3}{5} = \frac{b}{30}$

4.  $\frac{2}{9} = \frac{c}{36}$

5.  $\frac{4}{5} = \frac{d}{25}$

6.  $\frac{20}{4} = \frac{10}{f}$

7.  $\frac{g}{2} = \frac{28}{14}$

8.  $\frac{2}{x} = \frac{10}{25}$

9.  $\frac{4}{3} = \frac{h}{18}$

10.  $\frac{10}{30} = \frac{2}{r}$

11.  $\frac{t}{18} = \frac{3}{6}$

12.  $\frac{2}{3} = \frac{6}{m}$

13.  $\frac{9}{2} = \frac{s}{6}$

14.  $\frac{n}{36} = \frac{2}{6}$

15.  $\frac{4}{u} = \frac{12}{21}$

16.  $\frac{5}{6} = \frac{m}{12}$

17.  $\frac{d}{27} = \frac{4}{9}$

18.  $\frac{5}{8} = \frac{15}{q}$

19.  $\frac{15}{27} = \frac{5}{k}$

20.  $\frac{4}{x} = \frac{20}{30}$

21.  $\frac{b}{3} = \frac{24}{9}$

22.  $\frac{z}{35} = \frac{4}{7}$

23.  $\frac{6}{c} = \frac{24}{28}$

24.  $\frac{6}{8} = \frac{x}{24}$

25.  $\frac{14}{16} = \frac{b}{8}$

26.  $\frac{8}{r} = \frac{24}{27}$

27.  $\frac{16}{36} = \frac{t}{9}$

# 6-5 Skills Practice

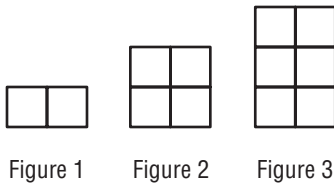
## Problem-Solving Investigation: Look for a Pattern

Solve. Use the look for a pattern strategy.

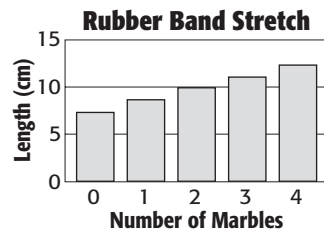
1. **NUMBER SENSE** Describe the pattern below, Then find the missing number.

1, 20, 400,    ?, 160,000

2. **GEOMETRY** Use the pattern below to find the perimeter of the eighth figure.



3. **PHYSICAL SCIENCE** A cup of marbles hangs from a rubber band. The length of the rubber band is measured as shown in the graph at the right. Predict the approximate length of the rubber band if 6 marbles are in the cup.



4. **ALLOWANCE** In 2002, Estella earned \$200 in allowance, and Kelsey earned \$150 in allowance. Each year Kelsey earned \$20 more in allowance, and Estella earned \$10 more. In what year will they earn the same amount of money? How much will it be?



**6-6 Skills Practice*****Sequences and Expressions***

Use words and symbols to describe the value of each term as a function of its position. Then find the value of the tenth term in the sequence.

1. 

<b>Position</b>	5	6	7	8	$n$
<b>Value of Term</b>	2	3	4	5	?

2. 

<b>Position</b>	1	2	3	4	$n$
<b>Value of Term</b>	6	12	18	24	?

3. 

<b>Position</b>	1	2	3	4	$n$
<b>Value of Term</b>	10	11	12	13	?

4. 

<b>Position</b>	1	2	3	4	$n$
<b>Value of Term</b>	4	8	12	16	?

5. 

<b>Position</b>	5	6	7	8	$n$
<b>Value of Term</b>	0	1	2	3	?

6. 

<b>Position</b>	2	4	6	8	$n$
<b>Value of Term</b>	14	16	18	20	?

7. 

<b>Position</b>	5	6	7	8	$n$
<b>Value of Term</b>	1	2	3	4	?

8. 

<b>Position</b>	1	2	3	4	$n$
<b>Value of Term</b>	11	22	33	44	?

**6-7****Skills Practice*****Proportions and Equations***

Write an equation to represent the function displayed in each table.

1. 

<b>Input, <math>x</math></b>	0	1	2	3	4
<b>Output, <math>y</math></b>	0	3	6	9	12

2. 

<b>Input, <math>x</math></b>	0	1	2	3	4
<b>Output, <math>y</math></b>	0	1	2	3	4

3. 

<b>Input, <math>x</math></b>	1	2	3	4	5
<b>Output, <math>y</math></b>	7	14	21	28	35

4. 

<b>Input, <math>x</math></b>	0	1	2	3	4
<b>Output, <math>y</math></b>	0	10	20	30	40

5. 

<b>Input, <math>x</math></b>	2	4	6	8	10
<b>Output, <math>y</math></b>	4	8	12	16	20

6. 

<b>Input, <math>x</math></b>	0	1	2	3	4
<b>Output, <math>y</math></b>	0	12	24	36	48

7. 

<b>Input, <math>x</math></b>	0	1	2	3	4
<b>Output, <math>y</math></b>	0	8	16	24	32

8. 

<b>Input, <math>x</math></b>	0	1	2	3	4
<b>Output, <math>y</math></b>	0	20	40	60	80

**ANIMALS** Use the following information for Exercises 9–11.

A manatee eats an average of 70 pounds of wet vegetation each day.

9. Make a table to show the relationship between the number of  $p$  pounds of wet vegetation a manatee eats in  $d$  days.
10. Write an equation to find  $p$ , the number of pounds of wet vegetation a manatee eats in  $d$  days.
11. How many pounds of wet vegetation does a manatee eat in 7 days?

**7-1****Skills Practice*****Percents and Fractions*****Write each percent as a fraction in simplest form.**

1. 40%

2. 30%

3. 55%

4. 75%

5. 140%

6. 175%

7. 24%

8. 68%

9. 44%

10. 92%

11. 110%

12. 155%

13. 18%

14. 74%

15. 43%

**Write each fraction as a percent.**

16.  $\frac{4}{5}$

17.  $\frac{3}{20}$

18.  $\frac{7}{10}$

19.  $\frac{3}{5}$

20.  $\frac{3}{2}$

21.  $\frac{5}{4}$

22.  $\frac{6}{5}$

23.  $\frac{9}{20}$

24.  $\frac{13}{20}$

25.  $\frac{17}{20}$

26.  $\frac{9}{5}$

27.  $\frac{11}{10}$

28.  $\frac{19}{20}$

29.  $\frac{13}{10}$

30.  $\frac{21}{100}$

**7-2**

**Skills Practice**

**Circle Graphs**

1. **VACATIONS** The table shows how families will spend their winter vacation. Sketch a circle graph of the data.

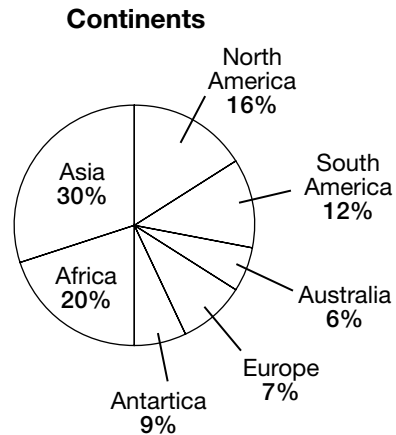
Winter Vacation	
Activity	Percent
visit family	33%
stay home	25%
shop	22%
ski	10%
beach	10%

2. **LAKES** The table shows how much of the total surface of the Great Lakes each lake takes up. Sketch a circle graph of the data.

Great Lakes	
Lake	Percent
Superior	34%
Huron	24%
Michigan	24%
Erie	10%
Ontario	8%

**GEOGRAPHY** For Exercises 3–6, use the graph below that shows how much of Earth’s land that each continent represents.

- Which continent has the greatest area?
- Which two continents are the smallest?
- How does the size of Europe compare to the size of Africa?
- How much larger is Asia than Africa?



**7-3****Skills Practice*****Percents and Decimals*****Write each percent as a decimal.**

1. 5%

2. 8%

3. 37%

4. 12%

5. 29%

6. 54%

7. 48%

8. 79%

9. 0.1%

10. 0.6%

11. 0.2%

12. 0.5%

13. 123%

14. 102%

15. 135%

16. 310%

**Write each decimal as a percent.**

17. 0.3

18. 0.7

19. 0.19

20. 0.74

21. 0.66

22. 0.52

23. 0.21

24. 0.81

25. 0.13

26. 1.36

27. 5.28

28. 2.45

29. 1.94

30. 3.34

31. 4.26

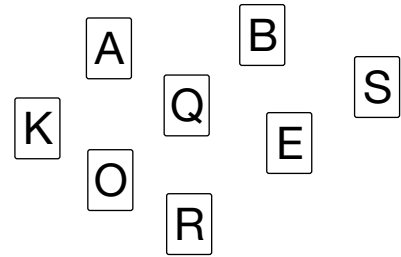
32. 5.99

**7-4**

**Skills Practice**

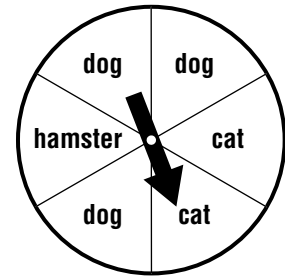
**Probability**

A card is randomly chosen. Find each probability. Write each answer as a fraction, a decimal, and a percent.



1.  $P(B)$
2.  $P(Q \text{ or } R)$
3.  $P(\text{vowel})$
4.  $P(\text{consonant or vowel})$
5.  $P(\text{consonant or A})$
6.  $P(T)$

The spinner shown is spun once. Write a sentence explaining how likely it is for each event to occur.



7.  $P(\text{dog})$
8.  $P(\text{hamster})$
9.  $P(\text{dog or cat})$
10.  $P(\text{bird})$
11.  $P(\text{mammal})$

**WEATHER** The weather reporter says that there is a 12% chance that it will be moderately windy tomorrow.

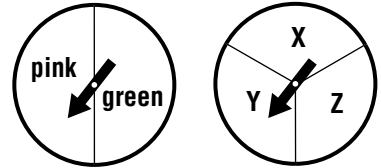
12. What is the probability that it will not be windy?
13. Will tomorrow be a good day to fly a kite? Explain.

**7-5****Skills Practice****Constructing Sample Spaces**

1. In how many ways can 2 coins be chosen from a set of 1 penny, 1 nickel, 1 dime, and 1 quarter? Make an organized list to show the sample space.

**Use the Fundamental Counting Principle to determine the number of possible outcomes for each situation. Then, draw a tree diagram to show the sample space. Finally, find the given probability.**

2. Each spinner is spun once. How many outcomes are possible? Find  $P(\text{pink}, Z)$ .



3. chocolate, vanilla, strawberry, or mint ice cream with sugar or waffle cone  
How many outcomes are possible? Find  $P(\text{vanilla}, \text{waffle})$ .

4. paint room cream, violet, or blue with red, white or gold trim  
How many outcomes are possible? Find  $P(\text{blue}, \text{red})$ .

**7-6****Skills Practice*****Making Predictions***

**Determine whether each sample is a good sample. Explain.**

- 250 people at the beach in the summer are asked to name their favorite vacation spot.
- Every fourth shopper at a grocery store is asked whether or not he or she owns a pet.

**For Exercise 3–6, use the table and the following information. A survey of students' favorite sports was taken from a random sample of students in a school. The results are shown in the table.**

Students' Favorite Sports	
Soccer	8
Baseball /Softball	3
Volleyball	5
Track & Field	4

- What is the size of the sample?
- What is the probability that a student will prefer soccer?
- What is the probability that a student will prefer volleyball?
- There are 550 students in the school. Predict how many students at the school prefer track and field.

**For Exercises 7–10, use the table and the following information. A random sample of 40 flower shop customers was surveyed to find customers' favorite flowers. The table shows the results. The shop expects to sell 50 bunches of flowers on Sunday. How many bunches of each flower should the shop order?**

Favorite Flower	
Type	Shoppers
Daisy	8
Gardenia	4
Mum	8
Rose	20

- daisy
- rose
- mum
- gardenia



**7-7****Skills Practice*****Problem-Solving Investigation: Solve a Simpler Problem***

**Solve.** Use the solve a simpler problem strategy.

- 1. SCHOOLS** A total of 350 students voted on whether a marlin or a panther should be the new school's mascot. If 30% of the students voted for the panther as the mascot, how many of the students voted for the panther?
  
- 2. READING** Over the summer, Maggie plans to read one book the first week and double the number of books each week for the next 5 weeks. How many books will Maggie read in the sixth week?
  
- 3. GEOGRAPHY** The total area of Michigan is 96,810 square miles. Of that, about 40% is water. About how much of Michigan's area is land?
  
- 4. ANIMALS** A spider travels at a speed of 1.17 miles per hour. At this rate, about how far can a spider travel in 3 hours?

**7-8**

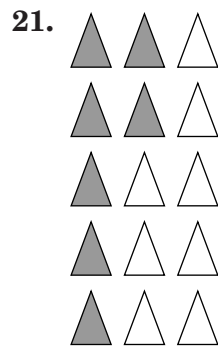
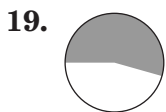
**Skills Practice**

*Estimating with Percents*

**Estimate each percent.**

- |               |               |                |
|---------------|---------------|----------------|
| 1. 50% of 39  | 2. 24% of 13  | 3. 19% of 31   |
| 4. 49% of 71  | 5. 27% of 81  | 6. 52% of 118  |
| 7. 19% of 94  | 8. 33% of 61  | 9. 58% of 5    |
| 10. 41% of 10 | 11. 75% of 17 | 12. 82% of 24  |
| 13. 73% of 61 | 14. 62% of 34 | 15. 38% of 42  |
| 16. 79% of 16 | 17. 91% of 82 | 18. 67% of 241 |

**Estimate the percent of the figure that is shaded.**



**8-1**

**Skills Practice**

*Length in the Customary System*

Draw a line segment of each length.

1.  $3\frac{1}{2}$  in.

2.  $1\frac{3}{4}$  in.

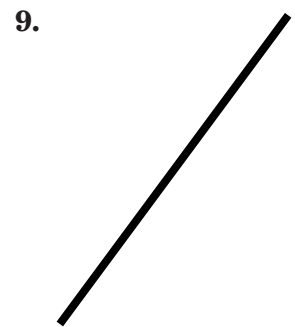
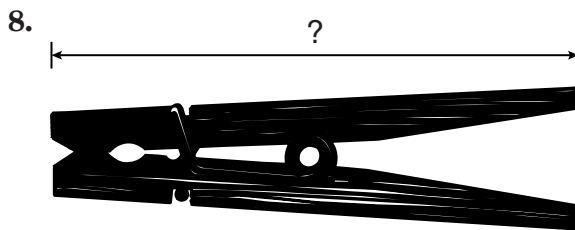
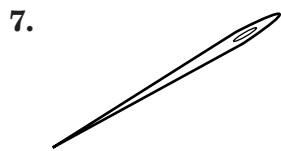
3.  $2\frac{1}{8}$  in.

4.  $1\frac{7}{8}$  in.

5.  $2\frac{1}{4}$  in.

6.  $\frac{5}{8}$  in.

For Exercises 7-9, find the length of each line segment or object to the nearest half, fourth, or eighth inch.



**Complete.**

10. 2 ft =   ?   in.

11. 5 yd =   ?   ft

12. 18 ft =   ?   yd

13. 60 in. =   ?   ft

14. 3,520 yd =   ?   mi

15. 36 in. =   ?   yd

16. 3 yd =   ?   in.

17. 7 yd =   ?   ft

18. 2 mi =   ?   ft

19. Which is greater:  $2\frac{1}{4}$  feet or 26 inches? Explain.

20. Which is greater:  $3\frac{1}{3}$  yards or 12 feet? Explain.

**8-2****Skills Practice*****Capacity and Weight in the Customary System*****Complete.**

1. 2 lb =   ? oz

2. 3 gal =   ? qt

3. 40 fl oz =   ? c

4. 32 oz =   ? lb

5. 4 pt =   ? c

6. 16 pt =   ? qt

7. 4 pt =   ? c

8. 6 c =   ? pt

9. 3 T =   ? lb

10. 44 qt =   ? gal

11. 5 pt =   ? c

12. 3 gal =   ? pt

13. 10,000 lb =   ? T

14. 2 T =   ? oz

15. 3 qt =   ? c

16. 4 c =   ? fl oz

17. 96 oz =   ? lb

18. 64 fl oz =   ? c

19. 32,000 oz =   ? T

20. 5 lb =   ? oz

21. 11 qt =   ? gal

**Choose the better estimate for each measure.**

22. the weight of a bag of potatoes: 5 tons or 5 pounds

23. the amount of water in a sports bottle: 16 fluid ounces or 4 pints

24. the weight of an apple:  $\frac{1}{2}$  pound or 32 ounces

**8-3**

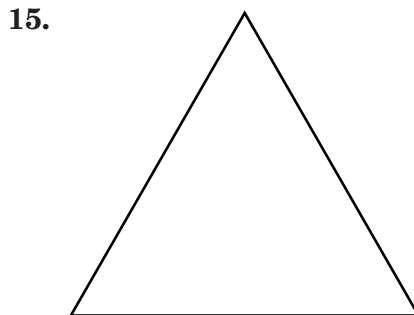
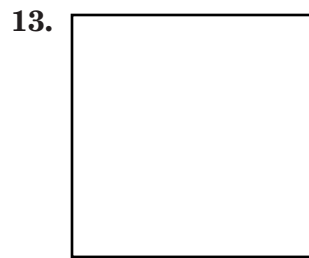
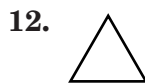
**Skills Practice**

*Length in the Metric System*

Write the metric unit of length you would use to measure each of the following.

- |                                  |                                |
|----------------------------------|--------------------------------|
| 1. depth of an ocean             | 2. length of an eyelash        |
| 3. length of your bedroom        | 4. length of the Panama Canal  |
| 5. height of a can of soup       | 6. depth of a swimming pool    |
| 7. length of the eye of a needle | 8. height of a washing machine |
| 9. length of a pencil            | 10. width of a pencil          |

Estimate the length of each segment or side of each figure. Then measure to find the actual length.



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**Lesson 8-3**

**8-4****Skills Practice*****Mass and Capacity in the Metric System***

Write the metric unit of mass or capacity that you would use to measure each of the following. Then estimate the mass or capacity.

1. leaf
2. large cup of hot chocolate
3. home aquarium
4. feather
5. crayon
6. water in a plastic wading pool
7. mosquito
8. penny
9. spaghetti sauce in a saucepan
10. bowling ball
11. liquid in a thermometer
12. teaspoon of vanilla extract
13. rectangular eraser
14. grain of sand
15. wheat bread sandwich
16. banana
17. pot of tea
18. calculator
19. house cat
20. car key
21. small glass of juice
22. pair of skis
23. water in a washing machine for large load
24. piano
25. tube of oil paint
26. small bucket of soapy water
27. feather pillow
28. hammer
29. surfboard
30. can of soup

**8-5****Skills Practice*****Problem-Solving Investigation: Use Benchmarks***

**Solve.** Use the benchmark strategy.

- 1. FLOORS** Khung is pricing tile for his bathroom floor. The floor to be tiled is a rectangle. Khung wants to know the approximate area of the bathroom floor before he goes to the carpet stores. He has some string handy and he knows that the length of his tennis shoe is about one foot. Describe a way Khung can find the area of his family room.
  
- 2. PROBABILITY** The students in Mr. Whitmer's math class want to determine the probability that a person picked at random from the class has shoes longer than 8 inches. They know that each square tile on the floor has a side length of 2 feet. Describe a way the students can determine who has shoes longer than 8 inches.
  
- 3. JEWELRY** Maria is making beaded necklaces for her friends. Each friend has told Maria the length she wants her necklace in inches. Maria does not have a ruler, but she knows that the width of a quarter is about 1 inch. Describe a way that Maria can use a stack of quarters to measure the length of each necklace.

**8-6****Skills Practice****Changing Metric Units****Complete.**

1. 530 mm =   ?   cm
2. 23 kg =   ?   g
3. 1,500 mL =   ?   L
4.   ?   m = 340 cm
5. 13 cm =   ?   mm
6. 16 g =   ?   mg
7. 3 L =   ?   mL
8.   ?   cm = 9 m
9. 149 cm =   ?   m
10.   ?   m = 524 cm
11.   ?   g = 56 kg
12. 3 mm =   ?   cm
13. 2 km =   ?   m
14. 4,200 mm =   ?   m
15.   ?   L = 650 mL
16. 25 L =   ?   mL
17. 13 m =   ?   cm
18.   ?   mm = 8 m
19. 2 kg =   ?   mg
20. 6,000,000 mm =   ?   km
21. 89 m =   ?   cm
22. 8 g =   ?   mg
23.   ?   m = 4,600 mm
24.   ?   kg = 7,124 g
25.   ?   cm = 40 mm
26.   ?   m = 7 km
27.   ?   mL = 81 L
28. 480 mL =   ?   L
29. 5,000 mg =   ?   kg
30. 5 km =   ?   cm



**8-7****Skills Practice*****Measures of Time*****Add or subtract.**

1. 
$$\begin{array}{r} 23 \text{ min } 16 \text{ s} \\ + 12 \text{ min } 34 \text{ s} \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 9 \text{ h } 42 \text{ min} \\ - 3 \text{ h } 18 \text{ min} \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 6 \text{ h } 38 \text{ min} \\ + 5 \text{ h } 22 \text{ min} \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 6 \text{ min } 15 \text{ s} \\ - 2 \text{ min } 32 \text{ s} \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 4 \text{ h } 43 \text{ min} \\ + 11 \text{ h } 27 \text{ min} \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 12 \text{ min } 43 \text{ s} \\ + 9 \text{ min } 58 \text{ s} \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 21 \text{ min } 54 \text{ s} \\ + 26 \text{ min } 19 \text{ s} \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 14 \text{ h} \\ - 9 \text{ h } 43 \text{ min} \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 2 \text{ h } 13 \text{ min } 28 \text{ s} \\ + 8 \text{ h } 20 \text{ min } 15 \text{ s} \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 12 \text{ h } 20 \text{ min } 38 \text{ s} \\ - 7 \text{ h } 13 \text{ min } 20 \text{ s} \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 2 \text{ h } 15 \text{ min } 2 \text{ s} \\ + 4 \text{ h } 48 \text{ min } 9 \text{ s} \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 11 \text{ h } 14 \text{ min } 27 \text{ s} \\ - 2 \text{ h } 13 \text{ min } 45 \text{ s} \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 11 \text{ h } 23 \text{ min } 6 \text{ s} \\ - 5 \text{ h } 36 \text{ min } 29 \text{ s} \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 6 \text{ h } 10 \text{ min } 47 \text{ s} \\ + 2 \text{ h } 51 \text{ min } 28 \text{ s} \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 20 \text{ h} \\ - 8 \text{ h } 33 \text{ min } 18 \text{ s} \\ \hline \end{array}$$

**Find the elapsed time.**

16. 6:35 A.M. to 9:55 A.M.

17. 12:20 P.M. to 3:05 P.M.

18. 11:05 A.M. to 4:37 P.M.

19. 10:45 A.M. to 5:25 P.M.

20. 9:18 P.M. to 1:33 A.M.

21. 9:52 A.M. to 5:20 P.M.

**8-8****Skills Practice*****Measures of Temperature***

**Choose the more reasonable temperature for each.**

1. person with a fever:  $38^{\circ}\text{C}$  or  $58^{\circ}\text{C}$
2. warm pancakes:  $150^{\circ}\text{F}$  or  $350^{\circ}\text{F}$
3. ice cream:  $-10^{\circ}\text{C}$  or  $10^{\circ}\text{C}$
4. cup of hot tea:  $60^{\circ}\text{C}$  or  $30^{\circ}\text{C}$
5. inside your bedroom:  $42^{\circ}\text{F}$  or  $72^{\circ}\text{F}$
6. hot stove top:  $80^{\circ}\text{C}$  or  $120^{\circ}\text{C}$
7. cupcakes in oven:  $70^{\circ}\text{C}$  or  $170^{\circ}\text{C}$
8. frozen chicken:  $20^{\circ}\text{F}$  or  $40^{\circ}\text{F}$
9. glass of milk:  $20^{\circ}\text{F}$  or  $50^{\circ}\text{F}$
10. walk-in freezer:  $-10^{\circ}\text{C}$  or  $25^{\circ}\text{C}$

**Give a reasonable estimate of the temperature in degrees Celsius and degrees Fahrenheit for each activity.**

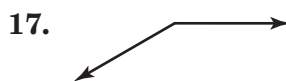
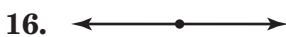
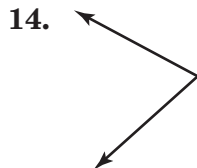
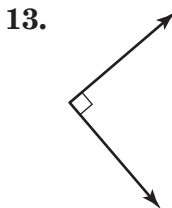
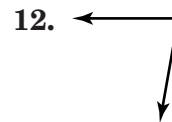
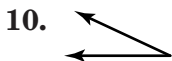
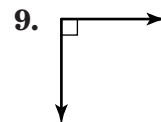
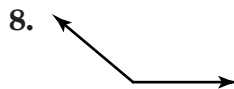
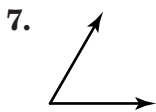
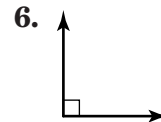
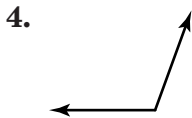
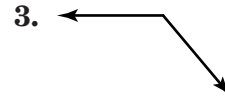
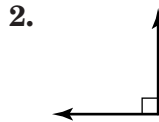
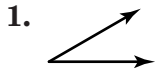
11. attending a baseball game
12. shoveling snow
13. taking a walk
14. camping
15. snowboarding
16. playing at the beach
17. going to the zoo
18. mowing the lawn
19. building a deck
20. raking leaves

**9-1**

**Skills Practice**

*Measuring Angles*

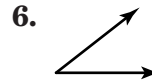
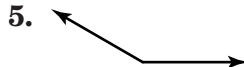
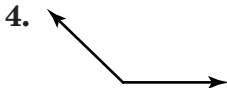
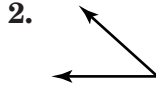
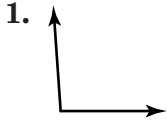
Use a protractor to find the measure of each angle. Then classify each angle as *acute*, *obtuse*, *right*, or *straight*.



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**9-2****Skills Practice*****Estimating and Drawing Angles***

Estimate the measure of each angle.



Use a protractor and straightedge to draw angles having the following measurements.

7.  $105^\circ$

8.  $40^\circ$

9.  $80^\circ$

10.  $64^\circ$

11.  $123^\circ$

12.  $167^\circ$

13.  $93^\circ$

14.  $26^\circ$

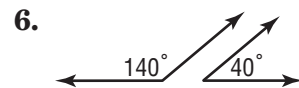
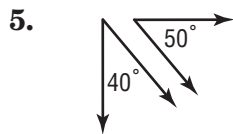
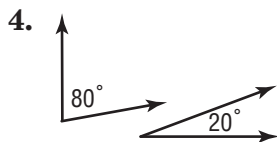
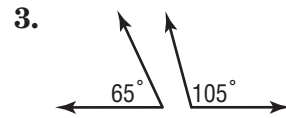
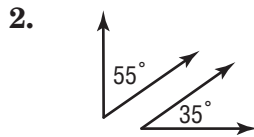
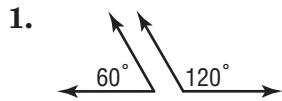
15.  $142^\circ$

**9-3**

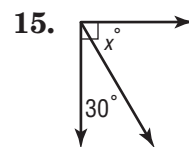
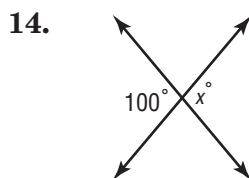
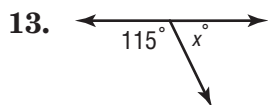
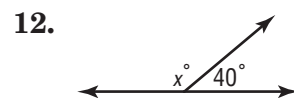
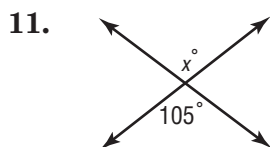
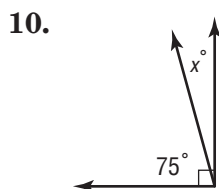
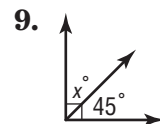
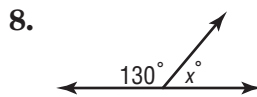
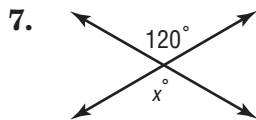
**Skills Practice**

**Angle Relationships**

Classify each pair of angles as *complementary*, *supplementary*, or *neither*.



Find the value of  $x$  in each figure.

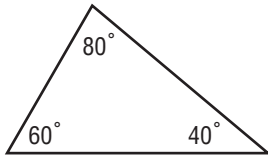


# 9-4 Skills Practice

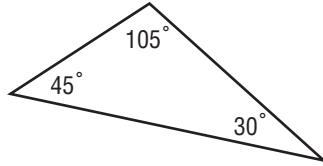
## Triangles

Classify each triangle as *acute*, *right*, or *obtuse*.

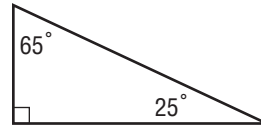
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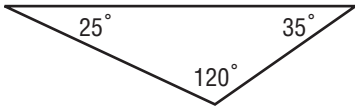
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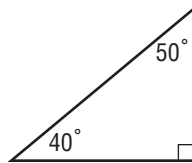
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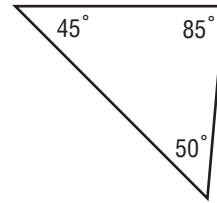
4.



5.

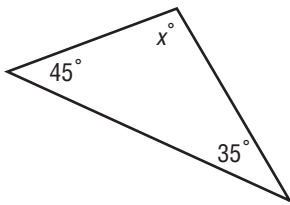


6.

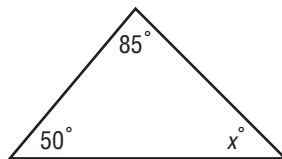


Find the value of  $x$  in each triangle.

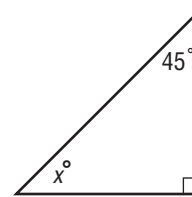
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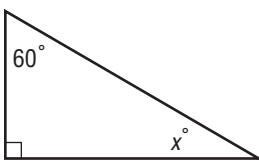
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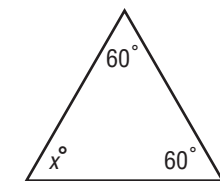
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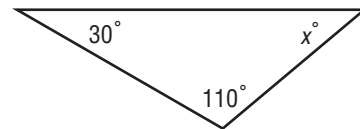
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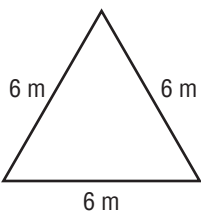


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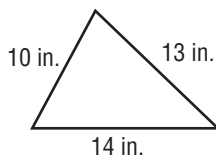


Classify each triangle as *scalene*, *isosceles*, or *equilateral*.

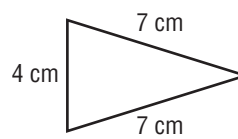
13.



14.



15.



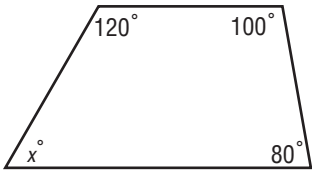
**9-5**

**Skills Practice**

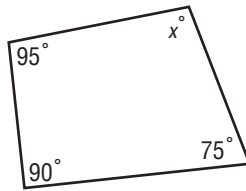
**Quadrilaterals**

Find the value of  $x$  in each quadrilateral.

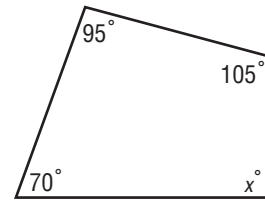
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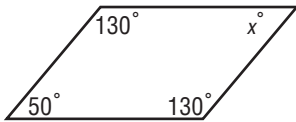
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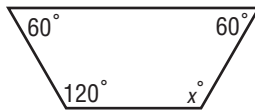
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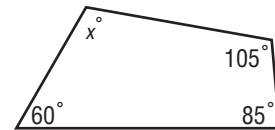
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5.

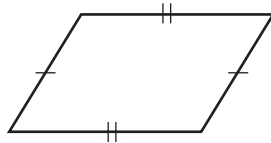


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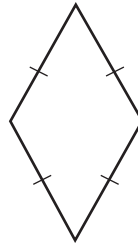


Classify each quadrilateral.

7.



8.

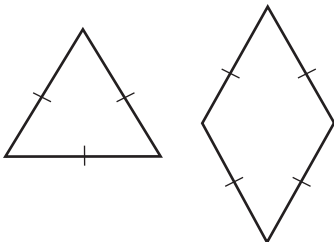


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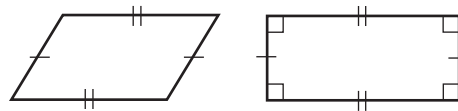


Classify each polygon. Then describe in what ways the figures are the same and in what ways they are different.

10.



11.





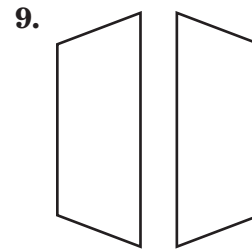
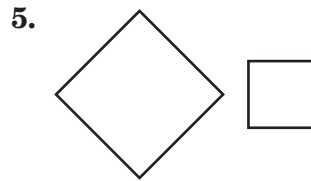
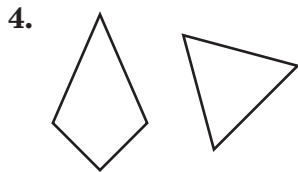
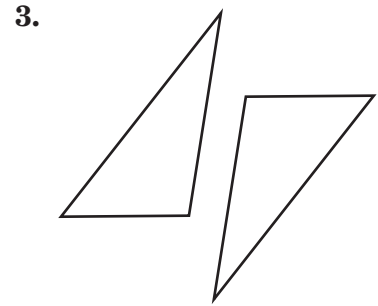
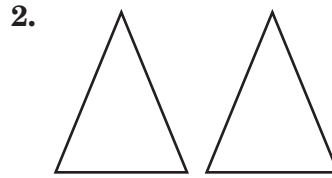
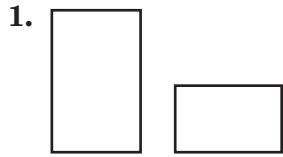


**9-7**

**Skills Practice**

**Similar and Congruent Figures**

Tell whether each pair of figures is *similar*, *congruent*, or *neither*.

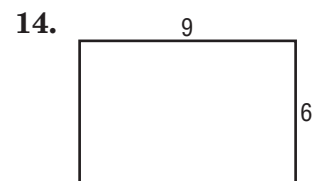
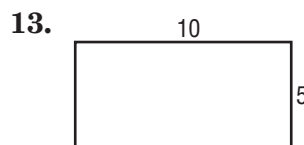
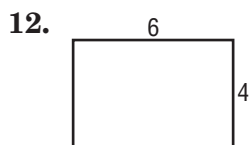


**For Exercises 10 and 11, refer to the similar rectangles at the right.**

10. What side of rectangle  $ABCD$  corresponds to side  $JK$ ?

11. What side or rectangle  $JKLM$  corresponds to side  $BC$ ?

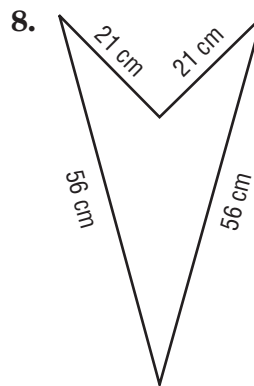
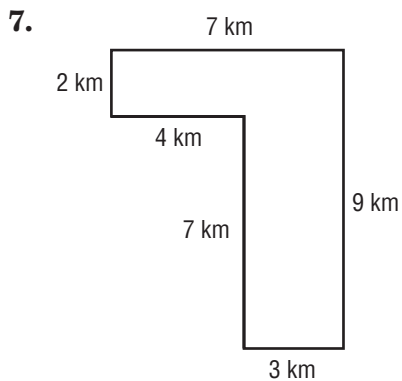
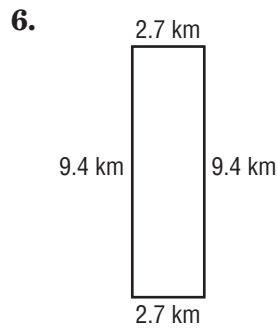
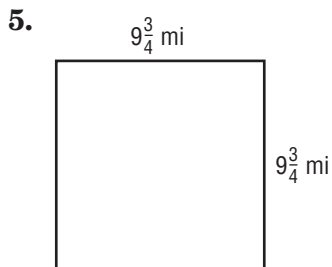
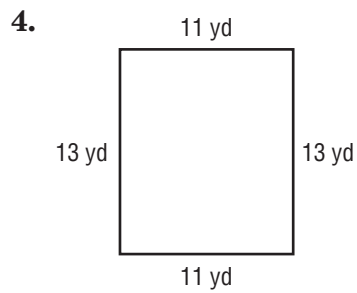
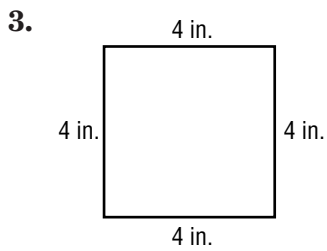
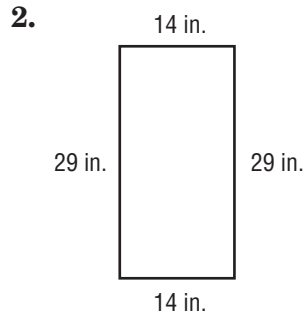
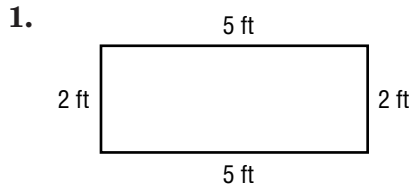
**State whether each rectangle is similar to rectangle  $ABCD$ .**



# 10-1 Skills Practice

## Perimeter

Find the perimeter of each figure.



# 10-2 Skills Practice

## Circles and Circumference

Find the radius or diameter of each circle with the given dimensions.

1.  $r = 13$  cm

2.  $d = 4$  ft

3.  $r = 10$  mm

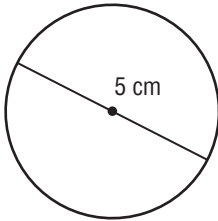
4.  $d = 16$  in.

5.  $r = 7$  mi

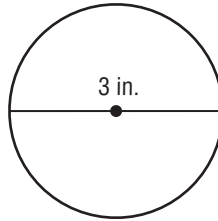
6.  $d = 22$  yd

Estimate the circumference of each circle.

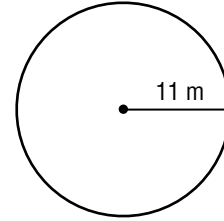
7.



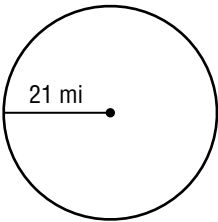
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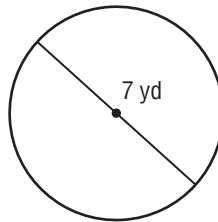
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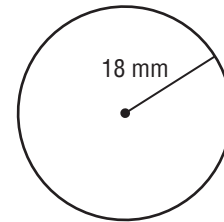
10.



11.

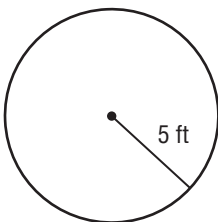


12.

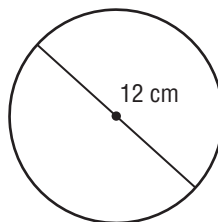


Find the circumference of each circle. Use 3.14 for  $\pi$ . Round to the nearest tenth.

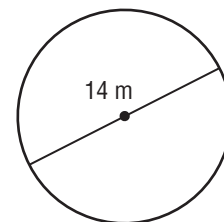
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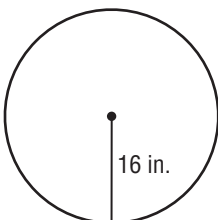
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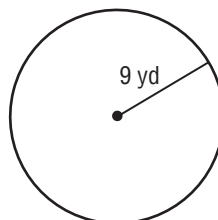
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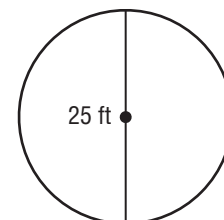
16.



17.



18.

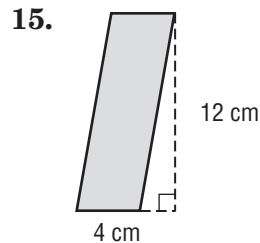
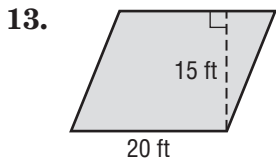
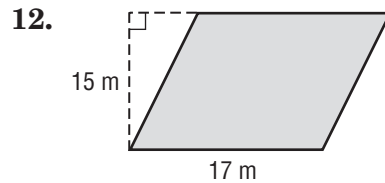
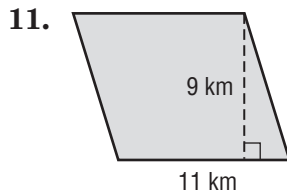
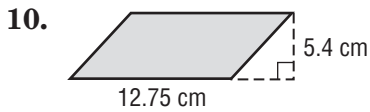
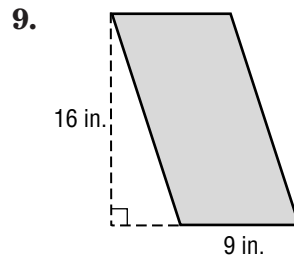
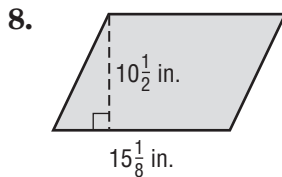
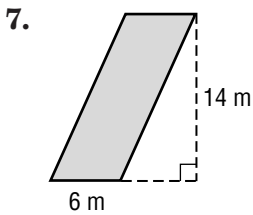
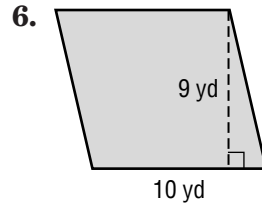
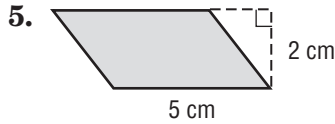
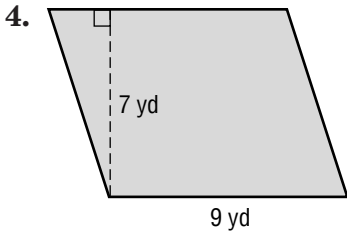
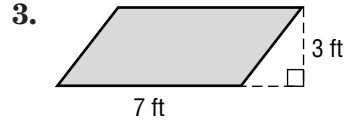
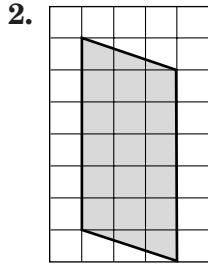
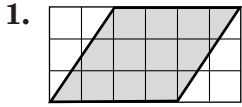


# 10-3

# Skills Practice

## Area of Parallelograms

Find the area of each parallelogram.



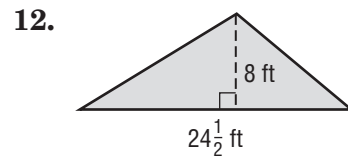
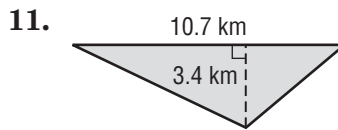
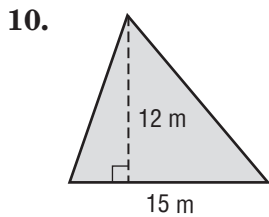
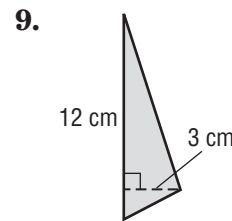
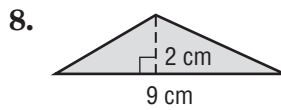
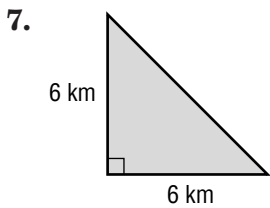
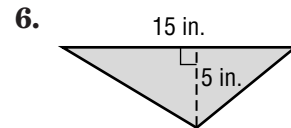
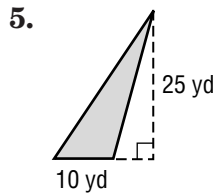
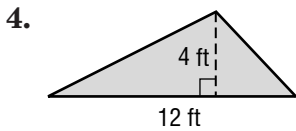
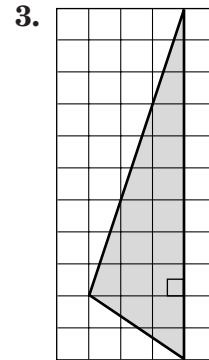
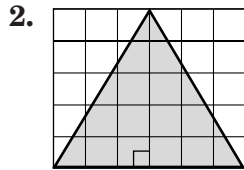
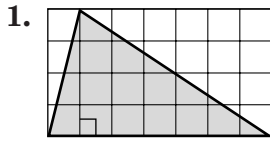
16. What is the measure of the area of a parallelogram with a base of 6 inches and a height of 2 inches?

17. Find the area of a parallelogram with base 7 yards and height 9 yards.

# 10-4 Skills Practice

## Area of Triangles

Find the area of each triangle.



13. base: 4 in.  
height: 11 in.

14. base: 5 yd  
height: 1 yd

15. base: 5 ft  
height:  $2\frac{1}{3}$  ft

**10-5****Skills Practice*****Problem-Solving Investigation: Make a Model***

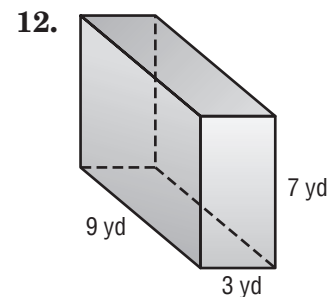
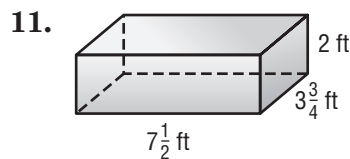
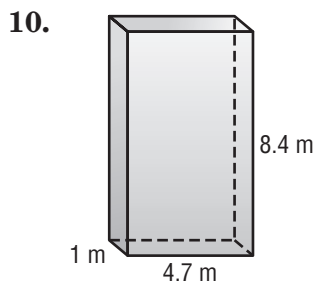
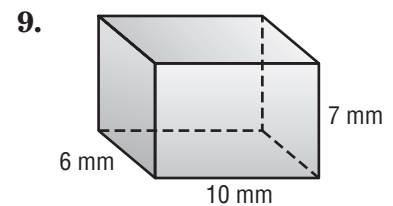
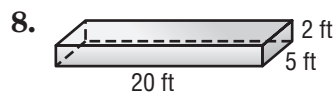
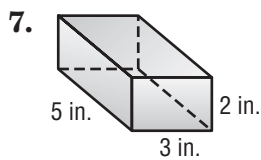
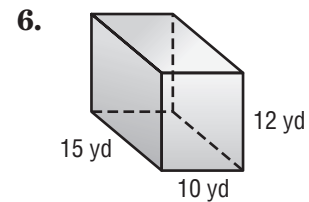
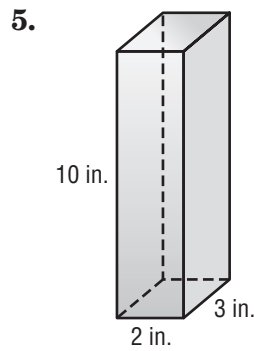
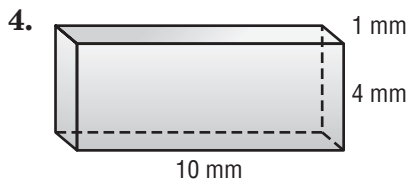
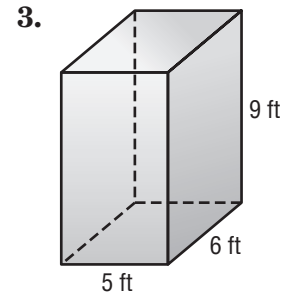
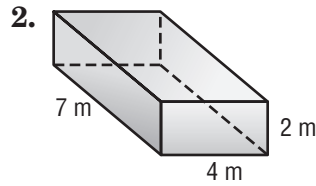
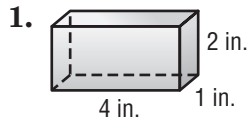
**Solve.** Use the **make a model** strategy.

- 1. PATIO** Jarnail has 24 square brick pavers to arrange for a small patio to place his grill. He wants to place them in a rectangular shape with the least perimeter possible. How many bricks will be in each row?
  
  
  
  
  
  
  
  
  
  
- 2. CRAFTS** Jessica is making a collage of her friend's school pictures on a poster board. Each picture is 2 inches by 3 inches and the poster board is 8 inches by 16 inches. What are the most pictures that Jessica can fit on the poster board if none of them overlap and all the pictures are facing the same direction?
  
  
  
  
  
  
  
  
  
  
- 3. BOOKS** A bookstore arranges its best-seller books in the front window. In how many different ways can four best-seller books be arranged in a row?
  
  
  
  
  
  
  
  
  
  
- 4. BASEBALLS** A sports store owner is making a display with 200 baseballs. He is placing them in the shape of a square pyramid. The bottom layer has 64 baseballs placed in the shape of a square. For each consecutive layer of baseballs, one baseball is placed where 4 baseballs meet. How many layers will be in the pyramid? How many baseballs will be left over?

# 10-6 Skills Practice

## Volume of Rectangular Prisms

Find the volume of each prism.



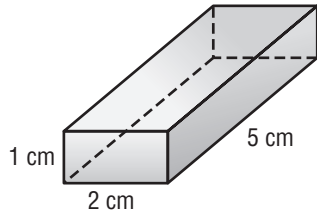
13. Find the volume of a rectangular prism with length 9 meters, width 4 meters, and height 5 meters.

14. What is the volume of a rectangular prism with length 6 yards, width 3 yards, and a height of 2 yards?

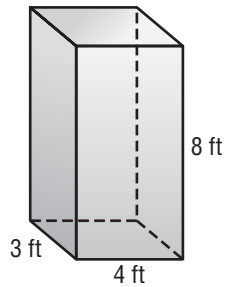
**10-7****Skills Practice*****Surface Area of Rectangular Prisms***

Find the surface area of each rectangular prism.

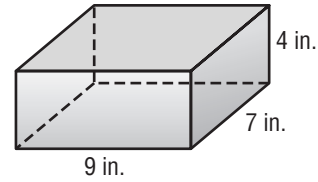
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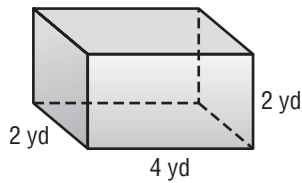
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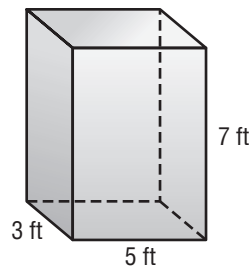
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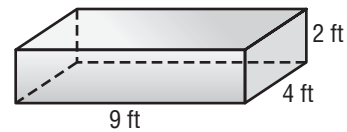
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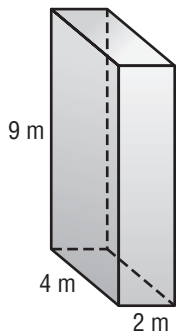
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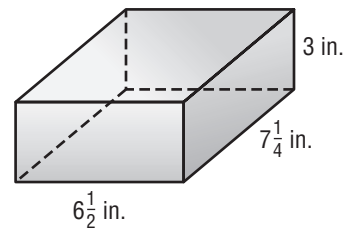
6.



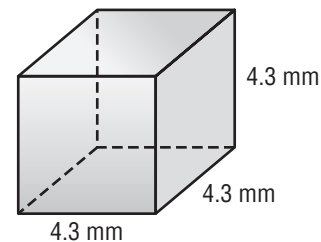
7.



8.



9.



10. Find the surface area of a rectangular prism that is 3 feet by 4 feet by 6 feet.

11. What is the surface area of a rectangular prism that measures 12 meters by 11 meters by 9 meters?



**11-1****Skills Practice*****Ordering Integers***

Replace each ● with < or > to make a true statement.

1.  $-9 \bullet 8$

2.  $0 \bullet -1$

3.  $-6 \bullet 6$

4.  $3 \bullet -3$

5.  $12 \bullet -21$

6.  $-12 \bullet -10$

7.  $5 \bullet -5$

8.  $-83 \bullet -80$

9.  $-9 \bullet 12$

10.  $-57 \bullet -75$

11.  $-56 \bullet 56$

12.  $0 \bullet -10$

Order each set of integers from least to greatest.

13. 2, -6, -2, 0

14. 9, -8, 4, -9

15. -6, 9, 10, -14, 0

16. 9, -11, -8, 12, 3

Order each set of integers from greatest to least.

17. 5, -3, -11, 9

18. -3, 2, -4, -17

19. 14, -16, 9, -10, 0

20. -11, -8, 24, -20, 11

**11-2 Skills Practice*****Adding Integers*****Add. Use counters or a number line if necessary.**

1.  $6 + (-8)$

2.  $9 + (-3)$

3.  $-5 + (-4)$

4.  $-13 + 7$

5.  $-2 + 11$

6.  $10 + (-6)$

7.  $4 + (-4)$

8.  $-7 + (-4)$

9.  $-12 + 3$

10.  $-5 + 14$

11.  $-10 + (-2)$

12.  $6 + (-1)$

13.  $-3 + 4$

14.  $+4 + (+4)$

15.  $-2 + (-1)$

16.  $6 + (-3)$

17.  $8 + 7$

18.  $-5 + (-6)$

19.  $-11 + 4$

20.  $-6 + 13$

21.  $-12 + 6$

22.  $-7 + 12$

23.  $9 + (-9)$

24.  $-5 + (-5)$

25.  $3 + (-11)$

26.  $-14 + 9$

27.  $15 + (-7)$

28.  $-15 + 15$

29. What is the sum of positive six and negative four?

30. What is the sum of negative five and positive five?

31. Find the result when negative eight is added to positive 4.

32. Find the sum of negative 1 and positive 7.

33. **ALGEBRA** Find the value of  $c + d$  if  $c = -4$  and  $d = 6$ .

# 11-3 Skills Practice

## Subtracting Integers

Subtract. Use counters if necessary.

1.  $9 - 4$

2.  $10 - 7$

3.  $+8 - 5$

4.  $+12 - 6$

5.  $-3 - (-7)$

6.  $5 - (-9)$

7.  $-8 - 7$

8.  $2 - 6$

9.  $-16 - (-9)$

10.  $4 - (-15)$

11.  $-18 - 5$

12.  $-6 - 6$

13.  $7 - 4$

14.  $-4 - (-2)$

15.  $-8 - 10$

16.  $9 - (-7)$

17.  $3 - 12$

18.  $-3 - (-10)$

19.  $-13 - 7$

20.  $-5 - (-2)$

21.  $6 - 6$

22.  $3 - 5$

23.  $-8 - 6$

24.  $-2 - (-2)$

25.  $7 - (-4)$

26.  $-16 - (-8)$

27.  $12 - (-12)$

28.  $-3 - 10$

29.  $-1 - (-4)$

30.  $9 - (-6)$

31. **ALGEBRA** Find the value of  $a - b$  if  $a = 5$  and  $b = 8$ .

32. **ALGEBRA** Find the value of  $c - d$  if  $c = -7$  and  $d = -2$ .

**11-4****Skills Practice*****Multiplying Integers*****Multiply.**

**1.**  $6 \times (-4)$

**2.**  $-8 \times 7$

**3.**  $-2 \times (-9)$

**4.**  $5(-5)$

**5.**  $-5(-3)$

**6.**  $-4(8)$

**7.**  $9(-2)$

**8.**  $-5(-6)$

**9.**  $3(-10)$

**10.**  $-4(2)$

**11.**  $-4(-4)$

**12.**  $-9(6)$

**13.**  $7(-3)$

**14.**  $-2(-8)$

**15.**  $-5(-10)$

**16.**  $2(-1)$

**17.**  $-3(6)$

**18.**  $4(-5)$

**19.**  $-7(7)$

**20.**  $-2(-7)$

**21.**  $-6(-1)$

**22.**  $4(-3)$

**23.**  $-6(-5)$

**24.**  $-9(10)$

**25.**  $-3(-8)$

**26.**  $7(-5)$

**27.**  $-2(2)$

**28.**  $8(-8)$

**29.**  $-9(1)$

**30.**  $-7(-4)$

**31.**  $-7(6)$

**32.**  $-5(12)$

**33.**  $-4(-8)$

**11-5 Skills Practice*****Problem-Solving Investigation: Work Backward***

**Solve.** Use the work backward strategy.

- 1. MONEY** Leila bought 2 pairs of shoes that were the same price. Including the \$3 sales tax, she paid a total of \$57. What was the cost of each pair of shoes before the tax was added?
  
- 2. TIME** Hung has to be at school by 7:10 A.M. It takes 20 minutes for Hung to shower and get dressed and 15 minutes to eat breakfast. If Hung has a 25 minute bus ride to school, what is the latest time he should get up in the morning?
  
- 3. NUMBER SENSE** A number is multiplied by 4. Then 7 is added to the product. After subtracting 3, the result is 8. What is the number?
  
- 4. SCIENCE** A certain bacteria doubles its population every 12 hours. After 3 days, there were 1,600 bacteria. How many bacteria were there at the beginning of the first day?

**11-6****Skills Practice*****Dividing Integers*****Divide.**

1.  $-4 \div 2$

2.  $6 \div (-2)$

3.  $-8 \div (-2)$

4.  $3 \div (-3)$

5.  $9 \div (+3)$

6.  $-10 \div 5$

7.  $56 \div (-7)$

8.  $-45 \div 9$

9.  $-12 \div (-6)$

10.  $15 \div (-3)$

11.  $-24 \div 6$

12.  $-18 \div (-3)$

13.  $48 \div (-8)$

14.  $-40 \div 8$

15.  $-20 \div (-5)$

16.  $36 \div (-9)$

17.  $-42 \div 7$

18.  $-54 \div (-6)$

19.  $20 \div (-10)$

20.  $-12 \div 4$

21.  $-35 \div (-5)$

22.  $-27 \div 9$

23.  $10 \div (-2)$

24.  $-32 \div (-8)$

25.  $-68 \div 4$

26.  $30 \div (-3)$

27.  $-36 \div (-4)$

28.  $-16 \div (-8)$

29.  $49 \div (-7)$

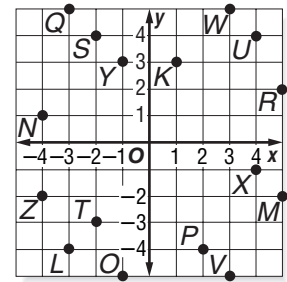
30.  $-18 \div 2$

31. **ALGEBRA** For what value of  $v$  is  $42 \div v = 6$  true?32. **ALGEBRA** Find the value of  $m \div n$  if  $m = -24$  and  $n = -4$ .33. **ALGEBRA** For what value of  $b$  is  $b \div 4 = -9$  true?34. **ALGEBRA** Find the value of  $x \div y$  if  $x = -50$  and  $y = 10$ .

# 11-7 Skills Practice

## The Coordinate Plane

For Exercises 1–8, use the coordinate plane at the right. Identify the point for each ordered pair.

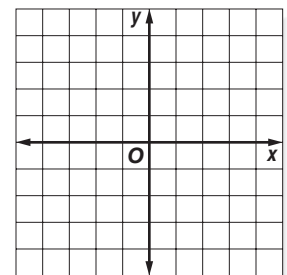


- |              |               |
|--------------|---------------|
| 1. $(-2, 4)$ | 2. $(-2, -3)$ |
| 3. $(4, 4)$  | 4. $(3, -5)$  |
| 5. $(3, 5)$  | 6. $(4, -1)$  |
| 7. $(-1, 3)$ | 8. $(-4, -2)$ |

For Exercises 9–16, use the coordinate plane above. Write the ordered pair that names each point. Then identify the quadrant where each point is located.

- |         |         |
|---------|---------|
| 9. $K$  | 10. $L$ |
| 11. $M$ | 12. $N$ |
| 13. $O$ | 14. $P$ |
| 15. $Q$ | 16. $R$ |

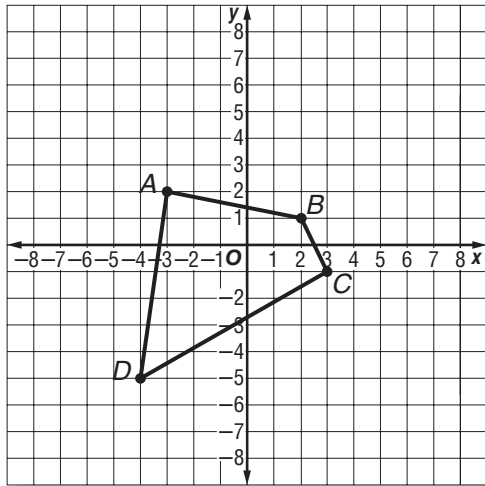
Graph and label each point on the coordinate plane at the right.



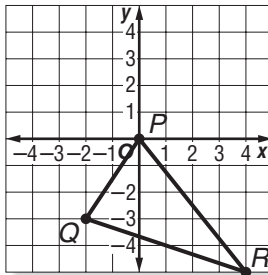
- |                 |                 |
|-----------------|-----------------|
| 17. $A(-5, 2)$  | 18. $I(2, 1)$   |
| 19. $J(1, -3)$  | 20. $B(-5, -1)$ |
| 21. $C(3, 3)$   | 22. $K(-1, 2)$  |
| 23. $L(0, -1)$  | 24. $D(2, -5)$  |
| 25. $E(3, -2)$  | 26. $M(-4, -5)$ |
| 27. $N(1, 5)$   | 28. $F(-2, 5)$  |
| 29. $G(-1, -4)$ | 30. $O(5, -5)$  |

**11-8 Skills Practice****Translations**

1. Translate  $ABCD$  5 units down. Graph square  $A'B'C'D'$ .



2. Translate  $PQR$  2 units left and 3 units up. Graph  $P'Q'R'$ .



**A couch has vertices of  $(0, 0)$ ,  $(5, 0)$ ,  $(5, 4)$ , and  $(0, 4)$  on a floor. Find the vertices of the couch after each translation.**

- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| 3. 6 units right                  | 4. 5 units left                     |
| 5. 4 units up                     | 6. 6 units down                     |
| 7. 2 units left and 3 units up    | 8. 7 units right and 8 units up     |
| 9. 4 units left and 6 units down  | 10. 8 units right and 2 units down  |
| 11. 9 units left and 1 unit up    | 12. 3 units right and 10 units down |
| 13. 5 units left and 7 units down | 14. 3 units right and 3 units up    |

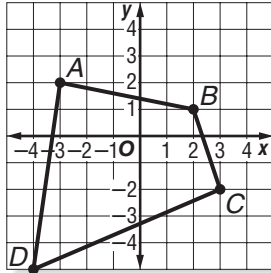




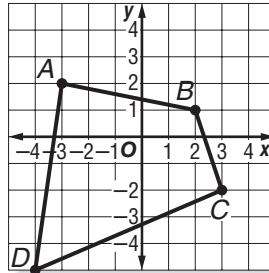
# 11-10 Skills Practice

## Rotations

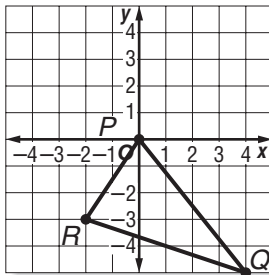
1. Rotate  $ABCD$   $90^\circ$  about the origin.  
Graph  $A'B'C'D'$ .



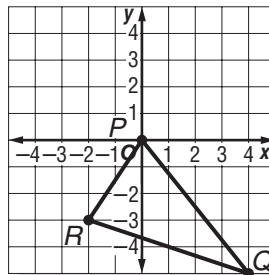
2. Rotate  $ABCD$   $270^\circ$  about the origin.  
Graph  $A'B'C'D'$ .



3. Rotate  $PQR$   $180^\circ$  about the origin.  
Graph  $P'Q'R'$ .



4. Rotate  $PQR$   $270^\circ$  about the origin.  
Graph  $P'Q'R'$ .



Determine whether each figure has rotational symmetry. Write *yes* or *no*. If yes, name the angle(s) of rotation.

5. **A**

6. **O**

7. 

8. 

**12-1 Skills Practice*****The Distributive Property*****Solve each problem mentally using the Distributive Property.**

1.  $3 \times 78$

2.  $7 \times 74$

3.  $8 \times 92$

4.  $6 \times 57$

5.  $11 \times 42$

6.  $12 \times 27$

7.  $6 \times 5.2$

8.  $4 \times 9.4$

**Use the Distributive Property to rewrite each algebraic expression.**

9.  $7(y + 2) +$

10.  $(8 + r)4 +$

11.  $8(x + 9) +$

12.  $(b + 5)12 +$

13.  $4(2 + a) +$

14.  $7(6 + v) +$

15.  $(b - 5)15 -$

16.  $3(5 - v) -$

17.  $6(11 - s) -$

**12-2****Skills Practice*****Simplifying Algebraic Expressions*****Simplify each expression. Justify each step.**

1.  $x + 4 + 3x$

2.  $3 \cdot (x \cdot 6)$

3.  $15 + (6 + x)$

4.  $(6 + x) + 9$

5.  $x + 2 + 8x$

6.  $(4x + 3) + 23$

7.  $(25 + 5x) + 4$

8.  $15 \cdot (5 \cdot x)$

9.  $7(4x)$

10.  $8x + (16 + 4x)$

11.  $x + 2 + x$

12.  $5 \cdot x \cdot 10$

13.  $(17 \cdot x) \cdot 3$

14.  $8x + 17 + 9x$

15.  $3x + (24x + 8)$

16.  $4(15x)$

17.  $2x + 8 + x$

18.  $(5x + 9) + 32x$

A car company charges  $x$  dollars to rent a car plus any extra options shown in the table. Use the information to answer questions 19 and 20.

Extra Options	Cost
Car Seat	\$50
Insurance	\$75
Car Wash	\$15

19. Three people each rented a car with insurance and one more person rented a car with a car wash. Write an expression that represents the total cost of the car rentals and extra options.

20. Simplify your expression. Justify each step.

**12-3****Skills Practice*****Solving Addition Equations***

Solve each equation. Use models if necessary. Check your solution.

1.  $x + 8 = 10$

2.  $y + 3 = 7$

3.  $z + 4 = 6$

4.  $1 + a = 9$

5.  $b + 2 = -4$

6.  $5 + c = -1$

7.  $g + 5 = 2$

8.  $6 + h = 3$

9.  $k + 7 = 5$

10.  $8 = m + 2$

11.  $-5 = 2 + n$

12.  $4 + s = 1$

13.  $-6 = z + 4$

14.  $b + 6 = 7$

15.  $7 + g = 4$

16.  $n + 6 = 4$

17.  $s + 5 = 9$

18.  $-4 = x + 3$

19.  $5 = 1 + k$

20.  $8 + c = 3$

21.  $9 + m = 5$

22.  $-2 = 7 + a$

23.  $h + 3 = -3$

24.  $-5 = y + 4$

25. Find the value of  $r$  if  $r + 7 = 2$ .

26. If  $z + 5 = 1$ , what is the value of  $z$ ?

**12-4****Skills Practice*****Solving Subtraction Equations***

Solve each equation. Use models if necessary. Check your solution.

1.  $a - 1 = 7$

2.  $b - 2 = 1$

3.  $3 = c - 1$

4.  $x - 3 = -1$

5.  $-3 = y - 4$

6.  $2 = k - 4$

7.  $m - 5 = -6$

8.  $n - 6 = -9$

9.  $-10 = s - 8$

10.  $t - 9 = -1$

11.  $v - 9 = -5$

12.  $-6 = v - 7$

13.  $3 = g - 6$

14.  $-3 = h - 8$

15.  $-5 = z - 7$

16.  $z - 3 = 7$

17.  $5 = f - 1$

18.  $-1 = d - 2$

19.  $e - 9 = -6$

20.  $1 = t - 8$

21.  $i - 5 = 4$

22.  $g - 4 = 1$

23.  $-3 = x - 2$

24.  $y - 4 = -7$

25. If  $r - 7 = -7$ , what is the value of  $r$ ?

26. Find the value of  $b$  if  $b - 2 = 5$ .

**12-5****Skills Practice*****Solving Multiplication Equations***

Solve each equation. Use models if necessary.

1.  $3a = 9$

2.  $7b = 14$

3.  $36 = 9c$

4.  $-15 = 5x$

5.  $-42 = 6y$

6.  $8z = -16$

7.  $-4m = 28$

8.  $-2n = 8$

9.  $-21 = 7s$

10.  $-25 = -5r$

11.  $-18 = -6t$

12.  $-9p = -18$

13.  $2x = 18$

14.  $4w = 24$

15.  $6g = 9$

16.  $-32 = 2v$

17.  $-18 = 3b$

18.  $7h = -35$

19.  $-8k = 20$

20.  $14 = -4d$

21.  $-72 = 9r$

22.  $-3z = 27$

23.  $5x = -35$

24.  $28 = 8y$

25. Solve the equation  $9y = 81$ .

26. What is  $w$  if  $2w = 16$ ?

