

# Practice on Your Own

# Skill 19

Write  $\frac{28}{16}$  in simplest form.

**Step 1**  
List all the factors of the numerator and the denominator. Circle the GCF.

$$\frac{28}{16} \quad \frac{1, 2, \textcircled{4}, 7, 14, 28}{1, 2, \textcircled{4}, 8, 16}$$

**Step 2**  
Divide the numerator and the denominator by the GCF.

$$\frac{28}{16} = \frac{28 \div 4}{16 \div 4} = \frac{7}{4}, \text{ or } 1\frac{3}{4}$$

Write each fraction in simplest form.

**1**  $\frac{9}{12}$   
Circle the GCF.  
 $\frac{9}{12} \quad \frac{1, 3, 9}{1, 2, 3, 4, 6, 12}$   
Divide numerator and denominator by the GCF.  
 $\frac{9 \div \square}{12 \div \square} = \frac{\square}{\square}$

**2**  $\frac{6}{15}$   
Circle the GCF.  
 $\frac{6}{15} \quad \frac{1, 2, 3, 6}{1, 3, 5, 15}$   
Divide numerator and denominator by the GCF.  
 $\frac{6 \div \square}{15 \div \square} = \frac{\square}{\square}$

**3**  $\frac{3}{18}$   
Circle the GCF.  
 $\frac{3}{18} \quad \frac{1, 3}{1, 2, 3, 6, 9, 18}$   
Divide numerator and denominator by the GCF.  
 $\frac{3 \div \square}{18 \div \square} = \frac{\square}{\square}$

Write the factors. Find the GCF. Then write the fraction in simplest form.

**4**  $\frac{12}{14}$   
12 \_\_\_\_\_  
14 \_\_\_\_\_  
GCF \_\_\_\_\_  
simplest form \_\_\_\_\_

**5**  $\frac{30}{40}$   
30 \_\_\_\_\_  
40 \_\_\_\_\_  
GCF \_\_\_\_\_  
simplest form \_\_\_\_\_

**6**  $\frac{18}{15}$   
18 \_\_\_\_\_  
15 \_\_\_\_\_  
GCF \_\_\_\_\_  
simplest form \_\_\_\_\_

Write the fraction in simplest form.

**7**  $\frac{8}{12}$  \_\_\_\_\_

**8**  $\frac{27}{9}$  \_\_\_\_\_

**9**  $\frac{15}{25}$  \_\_\_\_\_

**Check**

Write the fraction in simplest form.

**10**  $\frac{10}{25}$  \_\_\_\_\_      **11**  $\frac{9}{18}$  \_\_\_\_\_      **12**  $\frac{24}{16}$  \_\_\_\_\_

# Skill 33

## Practice on Your Own

Integers can be used to show opposite situations. Sometimes positive integers do not use the  $+$  symbol. Zero has neither a  $-$  symbol nor a  $+$  symbol.

**Write an integer for each situation.**

A baby gains 3 pounds.  
gain of 3 pounds  $\rightarrow +3$

The price drops 10 cents.  
drop of 10 cents  $\rightarrow -10$

**Tell whether the integer is positive or negative.**

- |   |  |  |   |
|---|--|--|---|
| <p>1 temperature above zero<br/>positive _____<br/>negative _____</p> | <p>2 opposite of a negative number<br/>positive _____<br/>negative _____</p> | <p>3 loss of money<br/>positive _____<br/>negative _____</p> | <p>4 submarine dive<br/>positive _____<br/>negative _____</p> |
|---|--|--|---|

**Write the opposite of each integer.**

- |               |                |                |                |
|---------------|----------------|----------------|----------------|
| 5 $+12$ _____ | 6 $-125$ _____ | 7 $4$ _____    | 8 $+25$ _____  |
| 9 $17$ _____  | 10 $0$ _____   | 11 $-45$ _____ | 12 $+33$ _____ |

**Write a positive or negative integer to represent each situation.**

- |                                    |                              |                                       |                               |
|------------------------------------|------------------------------|---------------------------------------|-------------------------------|
| 13 110 ft below sea level<br>_____ | 14 \$35 prize-money<br>_____ | 15 12 floors above the lobby<br>_____ | 16 40 lb weight loss<br>_____ |
| 17 \$10 allowance<br>_____         | 18 6 point score<br>_____    | 19 \$5 debt<br>_____                  | 20 13 votes<br>_____          |

© Houghton Mifflin Harcourt Publishing Company

### Check

Write a positive or negative integer to represent each situation.

- |                          |                       |                         |                            |
|--------------------------|-----------------------|-------------------------|----------------------------|
| 21 9 point gain<br>_____ | 22 \$36 loss<br>_____ | 23 2-foot drop<br>_____ | 24 6 floors below<br>_____ |
|--------------------------|-----------------------|-------------------------|----------------------------|

## Practice on Your Own

# Skill 42

Find  $\frac{6}{7} - \frac{2}{3}$ .

Use the LCD to write equivalent fractions.

LCD is 21.

$$\frac{6}{7} = \frac{6 \times 3}{7 \times 3} = \frac{18}{21}$$

$$-\frac{2}{3} = -\frac{2 \times 7}{3 \times 7} = -\frac{14}{21}$$

Subtract the numerators.  $\frac{4}{21}$

So,  $\frac{6}{7} - \frac{2}{3} = \frac{4}{21}$ .

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

Write the reciprocal of the divisor. Multiply.

$$\frac{3}{8} \div \frac{1}{6} = \frac{3}{8} \times \frac{6}{1}$$

$$= \frac{18}{8}$$

$$= \frac{9}{4}, \text{ or } 2\frac{1}{4}$$

$$3 \times 6 = 18$$

$$8 \times 1 = 8$$

Simplify.

So,  $\frac{3}{8} \div \frac{1}{6} = 2\frac{1}{4}$ .

Add.

1 Rewrite with the LCD.

$$\frac{1}{4} =$$

$$+\frac{3}{8} =$$

2

$$\frac{5}{12} =$$

$$+\frac{7}{9} =$$

Subtract.

3 Rewrite with the LCD.

$$\frac{4}{5} =$$

$$-\frac{2}{3} =$$

4

$$\frac{11}{15} =$$

$$-\frac{6}{10} =$$

Multiply.

5  $\frac{3}{5} \times \frac{1}{6} = \frac{\square \times \square}{\square \times \square} =$  \_\_\_\_\_

Simplest form: \_\_\_\_\_

6  $\frac{5}{8} \times \frac{3}{10} = \frac{\square \times \square}{\square \times \square} =$  \_\_\_\_\_

Simplest form: \_\_\_\_\_

Divide.

7  $\frac{4}{9} \div \frac{1}{3} = \frac{4 \times \square}{9 \times \square} =$  \_\_\_\_\_

Simplest form: \_\_\_\_\_

8  $\frac{9}{10} \div \frac{3}{6} = \frac{\square \times \square}{\square \times \square} =$  \_\_\_\_\_

Simplest form: \_\_\_\_\_

### Check

Add, subtract, multiply, or divide. Write the answer in simplest form.

9  $\frac{7}{18}$   
+  $\frac{5}{6}$

10  $\frac{13}{16}$   
-  $\frac{1}{2}$

11  $\frac{4}{7} \times \frac{3}{12} =$  \_\_\_\_\_

12  $\frac{6}{15} \div \frac{8}{9} =$  \_\_\_\_\_

## Practice on Your Own

# Skill 46

To find the percent of a number use these steps.

**Step 1** Change the percent to a decimal.

**Step 2** Multiply. (Remember to place the decimal point correctly in the product.)

Solve.

- 1 What is 10% of 80?  
Write the percent as a decimal. \_\_\_\_\_  
Multiply  $80 \times 0.10$ .  
\_\_\_\_\_

- 2 What is 45% of 60?  
Write the percent as a decimal. \_\_\_\_\_  
Multiply  $60 \times 0.45$ .  
\_\_\_\_\_

- 3 What is 90% of 50?  
Write the percent as a decimal. \_\_\_\_\_  
Multiply  $50 \times 0.90$ .  
\_\_\_\_\_

Solve.

- 4 What is 20% of 20?  
\_\_\_\_\_

- 5 What is 75% of 8?  
\_\_\_\_\_

- 6 What is 50% of 48?  
\_\_\_\_\_

- 7 What is 8% of 500?  
\_\_\_\_\_

- 8 What is 35% of 400?  
\_\_\_\_\_

- 9 What is 15% of 90?  
\_\_\_\_\_

### Check

Solve each problem.

- 10 What is 16% of 25?  
\_\_\_\_\_

- 11 What is 7% of 60?  
\_\_\_\_\_

- 12 What is 18% of 250?  
\_\_\_\_\_

## Practice on Your Own

## Skill 47

<p>Find <math>-8 + 3</math>.  <b>Think:</b> Different signs, subtract the lesser absolute value from the greater absolute value. Use the sign of the addend with the greater absolute value.  <math>-8 + 3</math>  <math> -8  -  3  = 5</math>                  So, <math>-8 + 3 = -5</math>.</p>	<p>Find <math>-7 - (-8)</math>.  <b>Think:</b> To subtract, add the opposite, then follow the rules of addition. Use the sign of the number with the greater absolute value.  <math>-7 - (-8)</math>  <math>-7 + 8</math>  <math> 8  -  -7  = 1</math>                  So, <math>-7 - (-8) = 1</math>.</p>
<p>Find <math>-5 \times 9</math>.  <b>Think:</b> Signs are different, so the answer is negative.  <math>-5 \times 9 = -45</math></p>	<p>Find <math>-128 \div (-8)</math>.  <b>Think:</b> Signs are alike, so the answer is positive.  <math>-128 \div (-8) = 16</math></p>

.....  
**Add or subtract. State if the signs are the same or different.**

- 1  $-14 + 9 = \underline{\quad}$  signs are \_\_\_\_\_     
 2  $23 - (-4) = \underline{\quad}$  signs are \_\_\_\_\_     
 3  $-7 + (-18) = \underline{\quad}$  signs are \_\_\_\_\_     
 4  $-11 - 7 = \underline{\quad}$  signs are \_\_\_\_\_

.....  
**Multiply or divide. State if the signs are the same or different.**

- 5  $16 \times (-5) = \underline{\quad}$  signs are \_\_\_\_\_     
 6  $-72 \div (-6) = \underline{\quad}$  signs are \_\_\_\_\_     
 7  $-7 \times (-12) = \underline{\quad}$  signs are \_\_\_\_\_     
 8  $-45 \div 3 = \underline{\quad}$  signs are \_\_\_\_\_

### Check

<p>Perform the given operation.</p>	
<p>9 <math>31 + (-7) = \underline{\quad}</math></p>	<p>10 <math>17 \times (-4) = \underline{\quad}</math></p>
<p>11 <math>-19 - 4 = \underline{\quad}</math></p>	<p>12 <math>-136 \div (-8) = \underline{\quad}</math></p>

# Practice on Your Own

# Skill 53

Sometimes there is more than one operation in an expression.

Word Expression	Algebraic Expression
the difference of the product of $a$ and $b$ and 7 subtraction                      multiplication	$ab - 7$
$y$ less than the quotient of 64 and 8 division                              subtraction	$\frac{64}{8} - y$

Write the operation and algebraic expression for each word expression.

- |  |   |  |
|--|---|--|
| <p>1 the <b>product</b> of <math>m</math> and 2<br/>Operation: _____<br/>Algebraic expression: _____</p> | <p>2 8 <b>less than</b> <math>x</math><br/>Operation: _____<br/>Algebraic expression: _____</p> | <p>3 the <b>quotient</b> of 24 and <math>c</math><br/>Operation: _____<br/>Algebraic expression: _____</p> |
| <p>4 the sum of 4 and <math>s</math><br/>Operation: _____<br/>Algebraic expression: _____</p>            | <p>5 5 times <math>b</math><br/>Operation: _____<br/>Algebraic expression: _____</p>            | <p>6 <math>r</math> <b>decreased by</b> 11<br/>Operation: _____<br/>Algebraic expression: _____</p>        |

Write the letter of the word expression for the algebraic expression.

- |  |  |  |  |
|--|--|--|--|
| <p>7 <math>\frac{t}{5}</math> _____<br/>a. the product of 5 and <math>t</math></p> | <p>8 <math>5t</math> _____<br/>b. a number <math>t</math> plus 5</p> | <p>9 <math>t + 5</math> _____<br/>c. <math>t</math> decreased by 5</p> | <p>10 <math>t - 5</math> _____<br/>d. the quotient of <math>t</math> and 5</p> |
|--|--|--|--|

Write the operation(s) and algebraic expression.

- |  |   |  |
|--|---|--|
| <p>11 the sum of 3 and the quantity 8 times <math>p</math><br/>_____<br/>_____</p> | <p>12 the difference of the product of 7 and <math>n</math> and 4<br/>_____<br/>_____</p> | <p>13 6 less than the quotient of <math>a</math> and 4<br/>_____<br/>_____</p> |
|--|---|--|

## Check

Write the operation(s) and algebraic expression.

- |  |  |
|--|--|
| <p>14 the sum of 17 and <math>x</math><br/>_____<br/>_____</p> | <p>15 8 less than the product of 29 and <math>y</math><br/>_____</p> |
|--|--|

Write the letter of the word expression for the algebraic expression.

- |  |  |
|--|--|
| <p>16 <math>10m</math> _____<br/>a. 10 increased by <math>m</math></p> | <p>17 <math>10 + m</math> _____<br/>b. 10 times <math>m</math></p> |
|--|--|

## Practice on Your Own

## Skill

65

**Think:**

To solve for  $n$  in a proportion:

- |                              |  |  |
|------------------------------|--|--|
| 1. Write the cross products. | $\frac{2}{n} = \frac{16}{48}$<br>$n \times 16 = 2 \times 48$ | $\frac{3}{5} = \frac{21}{n}$<br>$3n = 5 \times 21$ |
| 2. Simplify, if necessary.   | $16n = 96$   | $3n = 105$   |
| 3. Solve for $n$ .           | $\frac{16n}{16} = \frac{96}{16}$<br>$n = 6$                  | $\frac{3n}{3} = \frac{105}{3}$<br>$n = 35$         |
| 4. Check the answer.         | $6 \times 16 = 2 \times 48$<br>$96 = 96$                     | $3 \times 35 = 5 \times 21$<br>$105 = 105$         |

Solve for  $n$ . Check that the cross products are equal.

1  $\frac{4}{5} = \frac{n}{20}$        $5 \times n = \square \times 20$

Write the cross products.

$5n = \square$

Simplify.

$\frac{5n}{\square} = \frac{\square}{\square}$

Solve.

$n = \underline{\hspace{1cm}}$

Check.

$\underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

2  $\frac{6}{8} = \frac{9}{n}$        $6 \times n = \square \times 9$

Write the cross products.

$6n = \square$

Simplify.

$\frac{6n}{\square} = \frac{\square}{\square}$

Solve.

$n = \underline{\hspace{1cm}}$

Check.

$\underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

3  $\frac{3}{7} = \frac{n}{21}$   
 $7n = \square \times 21$

$7n = \square$

$\frac{7n}{\square} = \frac{\square}{\square}$

$n = \underline{\hspace{1cm}}$

4  $\frac{9}{15} = \frac{3}{n}$   
 $15 \times \square = 9 \times n$

$\square = 9n$

$\frac{\square}{\square} = \frac{9n}{\square}$

$n = \underline{\hspace{1cm}}$

5  $\frac{7}{10} = \frac{n}{90}$   
 $n = \underline{\hspace{1cm}}$

6  $\frac{14}{n} = \frac{42}{12}$   
 $n = \underline{\hspace{1cm}}$

### Check

<p>7 <math>\frac{3}{n} = \frac{9}{24}</math> <math>n = \underline{\hspace{1cm}}</math></p>	<p>8 <math>\frac{8}{12} = \frac{4}{n}</math> <math>n = \underline{\hspace{1cm}}</math></p>	<p>9 <math>\frac{n}{4} = \frac{18}{24}</math> <math>n = \underline{\hspace{1cm}}</math></p>
--	--	---

# Practice on Your Own

# Skill 85

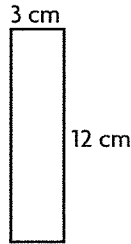
### Think:

Remember to express the area in square units.

$$A = \ell \times w$$

$$= 3 \times 12$$

$$= 36$$



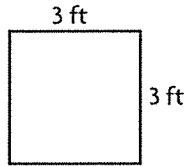
So, the area is 36 cm<sup>2</sup>.

$$A = s^2$$

$$A = s \times s$$

$$= 3 \times 3$$

$$= 9$$



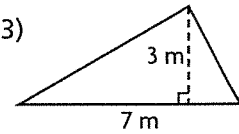
So, the area is 9 ft<sup>2</sup>.

$$A = \frac{1}{2}bh$$

$$= \frac{1}{2}(7 \times 3)$$

$$= \frac{1}{2}(21)$$

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



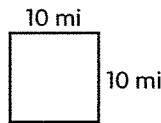
So, the area is 10½ m<sup>2</sup>.

Find the area of each figure.

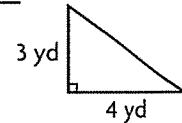
1  $A = \ell \times w$   
 $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}} \quad 3\frac{3}{4} \text{ ft}$



2  $A = s \times s$   
 $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$



3  $A = \frac{1}{2}bh$   
 $A = \frac{1}{2} \times (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$   
 $A = \frac{1}{2} \times \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$

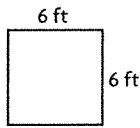


Write the formula. Find the area of each figure.

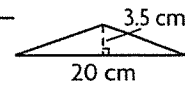
4  $A = \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$



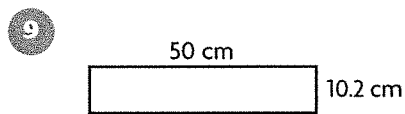
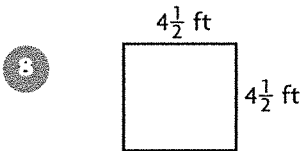
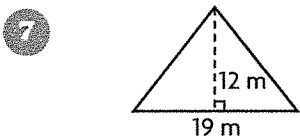
5  $A = \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$



6  $A = \underline{\hspace{1cm}}$   
 $A = \underline{\hspace{1cm}}$

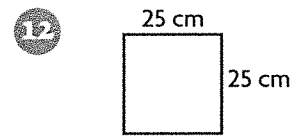
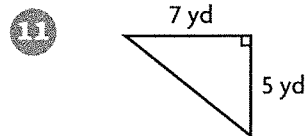
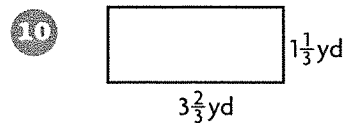


Find the area of each figure.



## Check

Find the area of each figure.





# Practice on Your Own

# Skill 92

**Think:**

The **median** is the middle number or the average of the two middle numbers. The **mode** is the number, if any, that appears most often. There may be no mode or more than one mode.

Find the median and the mode of this

set of data: 96, 83, 91, 83, 94, 72.

72, 83, 83, 91, 94, 96 ← Arrange the data in order.

72, 83, **83**, **91**, 94, 96 ← There are two middle numbers. Find the average.

$$83 + 91 = 174$$

$$174 \div 2 = 87$$

The median is 87.

72, **83**, **83**, 91, 94, 96 ← 83 appears most often.

The mode is 83.

Find the median and the mode of each set of data.

1 5, 7, 4, 5, 6  
Order the data.

\_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

2 75, 80, 68, 82, 68  
Order the data.

\_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

3 86, 95, 78, 90, 90, 82  
Order the data.

\_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

4 4.4, 3.5, 3.0, 4.8, 4.6, 4.8  
Order the data.

\_\_\_\_\_

Median: \_\_\_\_\_

Mode: \_\_\_\_\_

5 2.4, 1.8, 3.0, 2.2, 2.0, 2.6, 2.0  
Median: \_\_\_\_\_ Mode: \_\_\_\_\_

6 45, 35, 35, 55, 75, 25  
Median: \_\_\_\_\_ Mode: \_\_\_\_\_

**Check**

Find the median and the mode of each set of data.

7 95, 83, 95, 98, 87  
Median: \_\_\_\_\_ Mode: \_\_\_\_\_

8 4.8, 3.6, 4.4, 3.6, 3.8, 4.0  
Median: \_\_\_\_\_ Mode: \_\_\_\_\_

# Practice on Your Own

# Skill 93

**Think:**

To find the mean of a set of data, add all the numbers in the set of data. Then divide the sum by the number of data items.

9.1  
8.0  
3.4  
6.7  
 $+ 1.3$   

---

28.5

numbers →  
of data  
items

$\begin{array}{r} 5.7 \\ 5 \overline{)28.5} \\ \underline{-25} \\ 35 \\ \underline{-35} \\ 0 \end{array}$

← mean  
← sum of the numbers

Find the mean of each set of data.

1 8, 3, 5, 6, 8  
8  
3  
5  
6  
 $+ 8$   
5) \_\_\_\_\_

Mean: \_\_\_\_\_

2 85, 70, 80, 93, 82  
85  
70  
80  
93  
 $+ 82$   
5) \_\_\_\_\_

Mean: \_\_\_\_\_

3 9.5, 10.0, 16.4, 8.8, 12.3  
9.5  
10.0  
16.4  
8.8  
 $+ 12.3$   
5) \_\_\_\_\_

Mean: \_\_\_\_\_

4 46, 85, 79, 27, 13  
Sum of the numbers: \_\_\_\_\_  
Number of data items: \_\_\_\_\_  
Mean: \_\_\_\_\_

5 79, 100, 25, 16, 43, 13  
Sum of the numbers: \_\_\_\_\_  
Number of data items: \_\_\_\_\_  
Mean: \_\_\_\_\_

6 9.3, 8.2, 10, 7.7, 10, 10  
Sum of the numbers: \_\_\_\_\_  
Number of data items: \_\_\_\_\_  
Mean: \_\_\_\_\_

7 78, 94, 31, 83, 59  
Mean: \_\_\_\_\_

8 81, 83, 85, 87, 89, 91  
Mean: \_\_\_\_\_

9 17.7, 12, 9.6, 18.7, 9.2, 8.4  
Mean: \_\_\_\_\_

**Check**

Find the mean of each set of data.

10 8, 4, 9, 3, 5, 13  
Mean: \_\_\_\_\_

11 93, 78, 97, 84, 98  
Mean: \_\_\_\_\_

12 7.9, 9.5, 8, 6.6, 17.9, 12.5  
Mean: \_\_\_\_\_

© Houghton Mifflin Harcourt Publishing Company