Name _____ Skill _____

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.	$\frac{28}{16}$ $\frac{1, 2, (4), 7, 14, 28}{1, 2, (4), 8, 16}$
Step 2 Divide the numerator and the denominator by the GCF.	$\frac{28}{16} = \frac{28 \div 4}{16 \div 4} = \frac{7}{4}$, or $1\frac{3}{4}$

Write each fraction in simplest form.

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

Circle the GCF.

$\frac{9}{12}$ $\frac{1, 3, 9}{1, 2, 3, 4, 6, 12}$

Divide numerator and denominator by the GCF.

$\frac{9 \div \square}{12 \div \square} = \frac{\square}{\square}$

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

Circle the GCF.

$\frac{6}{15}$ $\frac{1, 2, 3, 6}{1, 3, 5, 15}$

Divide numerator and denominator by the GCF.

$\frac{6 \div \square}{15 \div \square} = \frac{\square}{\square}$

3. $\frac{3}{18}$

Circle the GCF.

$\frac{3}{18}$ $\frac{1, 3}{1, 2, 3, 6, 9, 18}$

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. $\frac{24}{16}$ _____

Name _____ Skill _____

Practice on Your Own

Skill 33

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.

1. temperature above zero
   positive ____
   negative ____

2. opposite of a negative number
   positive ____
   negative ____

3. loss of money
   positive ____
   negative ____

4. submarine dive
   positive ____
   negative ____

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 _____
14. $35 prize-money _____
15. 12 floors above the lobby _____
16. 40 lb weight loss _____
17. $10 allowance _____
18. 6 point score _____
19. $5 debt _____
20. 13 votes _____

Check

Write a positive or negative integer to represent each situation.

21. 9 point gain _____
22. $36 loss _____
23. 2-foot drop _____
24. 6 floors below _____

Name _____ Skill _____

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.

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

$3 \times 6 = 18$
$8 \times 1 = 8$

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

$$= \frac{9}{4}, \text{ or } 2\frac{1}{4}$$ 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. $\frac{6}{15} \div \frac{8}{9} =$ _____

Name _____ Skill _____

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 × 0.10.
   _____

2. What is 45% of 60?
   Write the percent as a decimal. _____
   Multiply 60 × 0.45.
   _____

3. What is 90% of 50?
   Write the percent as a decimal. _____
   Multiply 50 × 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?
    _____

Name _____ Skill _____

Practice on Your Own

Skill 47

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

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

1. $-14 + 9 =$ ___ signs are _____
2. $23 - (-4) =$ ___ signs are _____
3. $-7 + (-18) =$ ___ signs are _____
4. $-11 - 7 =$ ___ signs are _____

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

5. $16 \times (-5) =$ ___ signs are _____
6. $-72 \div (-6) =$ ___ signs are _____
7. $-7 \times (-12) =$ ___ signs are _____
8. $-45 \div 3 =$ ___ signs are _____

Check

Perform the given operation.

9. $31 + (-7) =$ _____
10. $17 \times (-4) =$ _____
11. $-19 - 4 =$ _____
12. $-136 \div (-8) =$ _____

Name _____ Skill _____

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.

1. the **product** of m and 2
Operation: _____
Algebraic expression: _____

2. 8 **less than** x
Operation: _____
Algebraic expression: _____

3. the **quotient** of 24 and c
Operation: _____
Algebraic expression: _____

4. the sum of 4 and s
Operation: _____
Algebraic expression: _____

5. 5 times b
Operation: _____
Algebraic expression: _____

6. r decreased by 11
Operation: _____
Algebraic expression: _____

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

7. $\frac{t}{5}$ _____
a. the product of 5 and t

8. $5t$ _____
b. a number t plus 5

9. $t + 5$ _____
c. t decreased by 5

10. $t - 5$ _____
d. the quotient of t and 5

Write the operation(s) and algebraic expression.

11. the sum of 3 and the quantity 8 times p
_____
_____

12. the difference of the product of 7 and n and 4
_____
_____

13. 6 less than the quotient of a and 4
_____
_____

Check

Write the operation(s) and algebraic expression.

14. the sum of 17 and x
_____
_____

15. 8 less than the product of 29 and y
_____

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

16. $10m$ _____
a. 10 increased by m

17. $10 + m$
_____
b. 10 times m

Name _____ Skill _____

Practice on Your Own

Skill 65

Think:

To solve for n in a proportion:

1. Write the cross products.
2. Simplify, if necessary.
3. Solve for n.
4. Check the answer.

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

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

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

Write the cross products. $5n = \square$

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

Solve. $n =$ ___

Check. ___ = ___

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

Write the cross products. $6n = \square$

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

Solve. $n =$ ___

Check. ___ = ___

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

$7n = \square \times 21$

$7n = \square$

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

$n =$ ___

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

$15 \times \square = 9 \times n$

$\square = 9n$

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

$n =$ ___

5 $\frac{7}{10} = \frac{n}{90}$

$n =$ ___

6 $\frac{14}{n} = \frac{42}{12}$

$n =$ ___

Check

7 $\frac{3}{n} = \frac{9}{24}$

$n =$ ___

8 $\frac{8}{12} = \frac{4}{n}$

$n =$ ___

9 $\frac{n}{4} = \frac{18}{24}$

$n =$ ___

Name _____ Skill _____

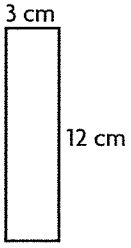
Practice on Your Own

Skill 85

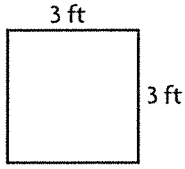
Think:
Remember to express the area in square units.

$A = \ell \times w$
$= 3 \times 12$
$= 36$

So, the area is 36 cm².

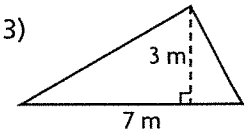


$A = s^2$
$A = s \times s$
$= 3 \times 3$
$= 9$



So, the area is 9 ft².

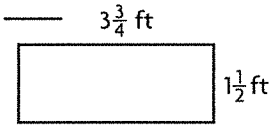
$A = \frac{1}{2}bh$
$= \frac{1}{2}(7 \times 3)$
$= \frac{1}{2}(21)$
$= 10\frac{1}{2}$



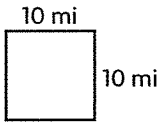
So, the area is $10\frac{1}{2}$ m².

Find the area of each figure.

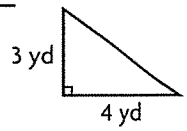
1 $A = \ell \times w$
$A =$ ____ × ____
$A =$ ____



2 $A = s \times s$
$A =$ ____ × ____
$A =$ ____

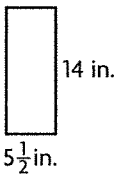


3 $A = \frac{1}{2}bh$
$A = \frac{1}{2} \times ($____ × ____$)$
$A = \frac{1}{2} \times$ ____
$A =$ ____

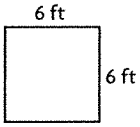


Write the formula. Find the area of each figure.

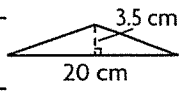
4 $A =$ _____
$A =$ _____



5 $A =$ _____
$A =$ _____

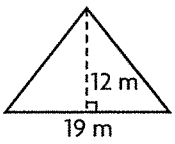


6 $A =$ _____
$A =$ _____



Find the area of each figure.

7



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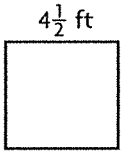
8



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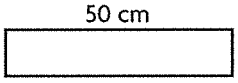
9

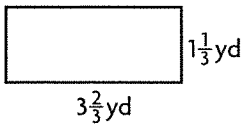


_____

Check

Find the area of each figure.

10



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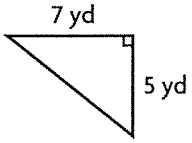

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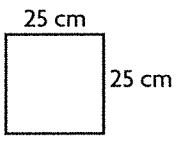

_____

Name _____ Skill _____

Practice on Your Own

Skill 92

Think:
The **median** is the middle number or the average of the two middle numers. 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 ÷ 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: _____

Name _____ Skill _____

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.

$$\begin{array}{r} 9.1 \\ 8.0 \\ 3.4 \\ 6.7 \\ +\ 1.3 \\ \hline 28.5 \end{array}$$

numbers→ of data items

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

←mean
←sum of the numbers

Find the mean of each set of data.

1. 8, 3, 5, 6, 8

$$\begin{array}{r} 8 \\ 3 \\ 5 \\ 6 \\ +\ 8 \\ \hline \end{array} \qquad 5\overline{)}$$

Mean: _____

2. 85, 70, 80, 93, 82

$$\begin{array}{r} 85 \\ 70 \\ 80 \\ 93 \\ +\ 82 \\ \hline \end{array} \qquad 5\overline{)}$$

Mean: _____

3. 9.5, 10.0 16.4, 8.8, 12.3

$$\begin{array}{r} 9.5 \\ 10.0 \\ 16.4 \\ 8.8 \\ +\ 12.3 \\ \hline \end{array} \qquad 5\overline{)}$$

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: _____