

# Practice: Skills

List the objects in each category.



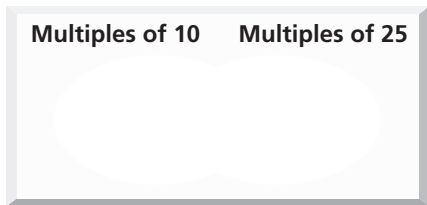
- 1 triangle \_\_\_\_\_
- 2 square \_\_\_\_\_
- 3 shaded \_\_\_\_\_
- 4 striped \_\_\_\_\_

Use a Venn diagram to sort numbers.

- 5 Use a Venn diagram to sort the numbers. Classify them as Multiples of 10 and Multiples of 25.

20, 25, 30, 35, 40, 50, 75, 80, 85, 100

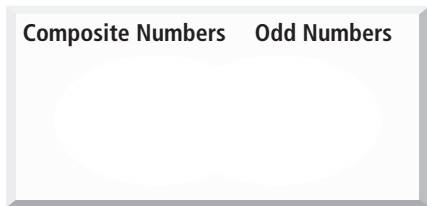
Multiples of 10	Multiples of 25	Neither
_____	_____	_____



- 6 Use a Venn diagram to sort the numbers. Classify them as Composite Numbers and Odd Numbers.

0, 4, 6, 9, 11, 13, 17, 21, 31, 40

Composite Numbers	Odd Numbers	Neither
_____	_____	_____



## Practice: Skills

List the repeating terms of each pattern.

1 4, 5, 5, 4, 5, 5, 4, 5, 5 \_\_\_\_\_

2 A, B, B, A, B, B, A, B, B \_\_\_\_\_

3  \_\_\_\_\_

4  \_\_\_\_\_

What is the pattern? Tell the next three terms in the pattern.

5 D, e, F, D, e, F, D

The repeating terms are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

The next three terms are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

6 

The repeating terms are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

The next three terms are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

7 

The repeating terms are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

The next three terms are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

## Practice: Skills

What is the rule for each pattern?

- 1 10, 20, 30, 40 \_\_\_\_\_
- 2 100, 85, 70, 55 \_\_\_\_\_
- 3 1600, 400, 100, 25 \_\_\_\_\_
- 4 25, 50, 100, 200 \_\_\_\_\_
- 5 12, 17, 22, 27 \_\_\_\_\_

Write the next three terms in each pattern.

- 6 11, 21, 31, 41  
The next three terms are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- 7 2,400,000; 240,000; 24,000  
The next three terms are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- 8 62, 74, 86, 98  
The next three terms are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- 9 7, 28, 49, 70  
The next three terms are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

Write the next three conversions in each pattern.

10	Number of Quarts	1	2	3	4
	Number of Pints	2			

11	Number of Years	1	2	3	4
	Number of Months	12			

12	Number of Yards	1	2	3	4
	Number of Inches	36			

## Practice: Skills

Solve each equation when  $x = 4$ .

1  $y = x - 2$  \_\_\_\_\_

2  $y = 5x$  \_\_\_\_\_

3  $y = 4x + 2$  \_\_\_\_\_

4  $y = \frac{x}{2} + 6$  \_\_\_\_\_

5  $y = 7x - 9$  \_\_\_\_\_

6  $y = \frac{36}{x} - 1$  \_\_\_\_\_

Write an equation for each conversion using  $x$  and  $y$ . Solve for the number of units given.

7 number of quarts  $\div 4 =$  number of gallons; 32 quarts  
\_\_\_\_\_

8 number of liters  $\times 1,000 =$  number of milliliters; 18 liters  
\_\_\_\_\_

9 number of years  $\times 12 =$  number of months; 52 years  
\_\_\_\_\_

10 number of feet  $\div 3 =$  number of yards; 96 feet  
\_\_\_\_\_

Solve each equation when  $x = 3, 8,$  and  $10$ .

11  $y = 2x + 4$

$y =$  \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

12  $y = \frac{60}{x}$

$y =$  \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

13  $y = 3x - 8$

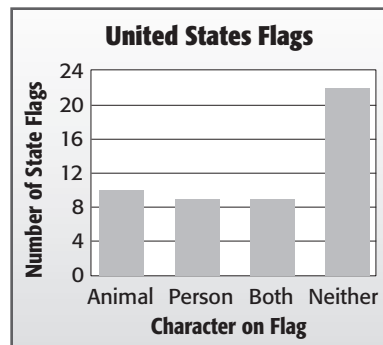
$y =$  \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

# Practice: Skills

Use the bar graph data to answer each question.

Many state flags of the United States have characters on them. The flag may have an animal, a person, both an animal and a person, or neither of these.

- 1 Which two categories had the same number of flags?  
\_\_\_\_\_
- 2 Which category had the most flags? \_\_\_\_\_
- 3 How many flags had only an animal? \_\_\_\_\_
- 4 How many flags had only a person? \_\_\_\_\_



Use the data in the tally chart to answer each question.

- 5 The tally chart shows the 50 U.S. states grouped by size (including inland water). Make a bar graph of the data in the tally chart.

Areas of the United States	
State Area (including water)	Number
49,999 or fewer square miles	
50,000 to 99,999 square miles	
100,000 to 149,000 square miles	
150,000 or more square miles	

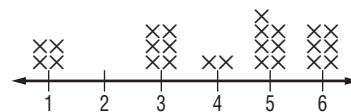
Which size category contains the fewest states?

\_\_\_\_\_

# Practice: Skills

The line plot shows the results of rolling a number cube 25 times. Use the line plot to answer questions 1–4.

Results of 25 Rolls



- 1 Which number did the number cube land on the most number of times? \_\_\_\_\_
- 2 How many times did the number cube land on “1”? \_\_\_\_\_
- 3 Which numbers did the number cube land on 6 times? \_\_\_\_\_
- 4 How many times did the number cube land on “2”? \_\_\_\_\_

Use the information below to answer questions 5–9.

Adita spun a spinner 20 times. The spinner contained different-numbered sections. Her results were: 3, 3, 1, 2, 3, 3, 1, 2, 3, 3, 2, 3, 1, 3, 3, 2, 2, 3, 3, 3.

- 5 Record the data in a tally chart.
- 6 Create a line plot to display the data.

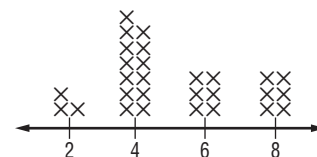
Number	Frequency

- 7 What number was spun the least number of times? \_\_\_\_\_
- 8 How many times did 3 occur? \_\_\_\_\_
- 9 What number was spun the most number of times? \_\_\_\_\_

Use the line plot to answer questions 10–12.

Hector picked 28 number tiles out of a bag without looking. The bag contained the numbers 2, 4, 6, and 8. His results are shown in the line plot.

Number Tiles

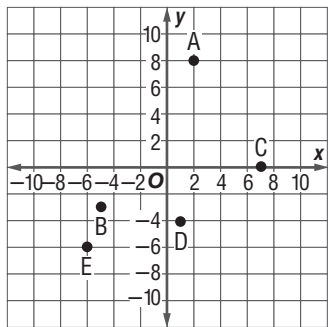


- 10 Which number did he choose the most? \_\_\_\_\_
- 11 Which numbers did he choose an equal number of times? \_\_\_\_\_
- 12 How many times did he choose a 2? \_\_\_\_\_

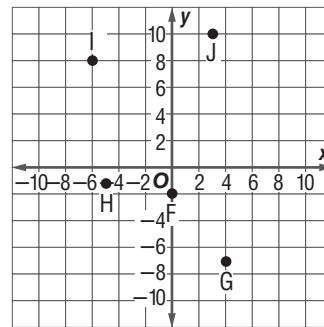
# Practice: Skills

Name the ordered pair for each point.

- 1 A \_\_\_\_\_
- 2 B \_\_\_\_\_
- 3 C \_\_\_\_\_
- 4 D \_\_\_\_\_
- 5 E \_\_\_\_\_



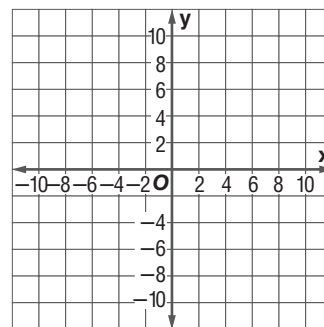
- 6 F \_\_\_\_\_
- 7 G \_\_\_\_\_
- 8 H \_\_\_\_\_
- 9 I \_\_\_\_\_
- 10 J \_\_\_\_\_



Graph the ordered pairs.

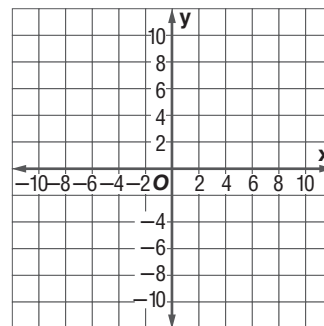
- 11 Graph the ordered pairs  $K(6, 2)$  and  $L(6, 7)$ .  
Then connect the points.

$(6, 2)$  and  $(6, 7)$  are on the same line because they have the same \_\_\_\_\_-coordinates.



- 12 Graph the ordered pairs  $M(0, 9)$  and  $N(-4, 9)$ .  
Then connect the points.

$(0, 9)$  and  $(-4, 9)$  are on the same line because they have the same \_\_\_\_\_-coordinates.



- 13 Graph the ordered pairs:

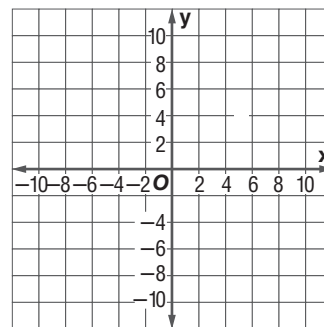
$P(-3, -8)$

$Q(-4, 0)$

$R(5, 2)$

$S(-10, 1)$

$T(6, -7)$



# Practice: Skills

Make an input/output table for each equation.

1  $y = x - 5$

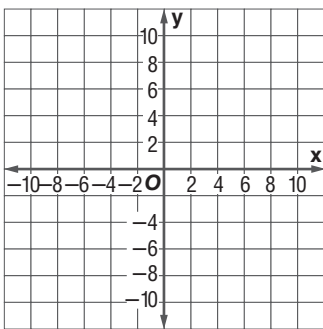
$x$	$x - 5$	$y$	Ordered Pair
-2			
-1			
0			
1			
2			

2  $y = \frac{x}{5} + 3$

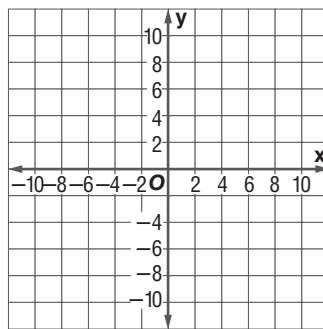
$x$	$\frac{x}{5} + 3$	$y$	Ordered Pair
-10			
-5			
0			
5			
10			

Graph each equation.

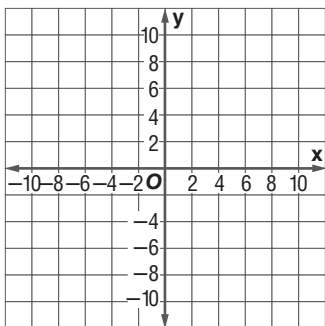
3 Graph the equation from Problem 1.



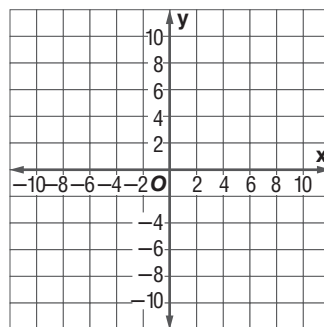
4 Graph the equation from Problem 2.



5 Graph  $y = \frac{x}{2} - 1$ .



6 Graph  $y = -4x + 2$ .





# Practice: Skills

List a possible situation for each rule.

- 1 Add 5. \_\_\_\_\_
- 2 Multiply by 7. \_\_\_\_\_

Who is correct?

- 3 There are 9 buttons on a shirt. How many buttons are there on 6 shirts?  
Circle the correct answer(s). Cross out the incorrect answer(s).  
Nadia believes there are 56.      Sanchez believes there are 54.      Mark believes there are 15.

Complete each sentence given the rule.

- 4 There are 60 minutes in 1 hour. How many minutes are there in 6 hours?  
There are \_\_\_\_\_ minutes in 6 hours.
- 5 Kei types 35 words in 1 minute. How many words does Kei type in 3 minutes? Kei types \_\_\_\_\_ words in 3 minutes.
- 6 There are 8 batteries in 1 pack. How many batteries are there in 7 packs?  
There are \_\_\_\_\_ batteries in 7 packs.
- 7 Andy has 12 strawberries in 1 basket. How many strawberries does Andy have in 7 baskets? Andy has \_\_\_\_\_ strawberries in 7 baskets.
- 8 There are 64 ounces in 1 juice bottle. How many ounces are in 2 bottles?  
There are \_\_\_\_\_ ounces in 2 bottles.
- 9 Ruby reads 25 pages in 1 hour. Ruby reads \_\_\_\_\_ pages in 5 hours.
- 10 A spider has 8 legs. How many legs do 8 spiders have? There are \_\_\_\_\_ legs on 8 spiders.
- 11 There are 20 hexagons on 1 soccer ball. How many hexagons are there on 8 soccer balls? There are \_\_\_\_\_ hexagons on 8 soccer balls.

## Practice: Skills

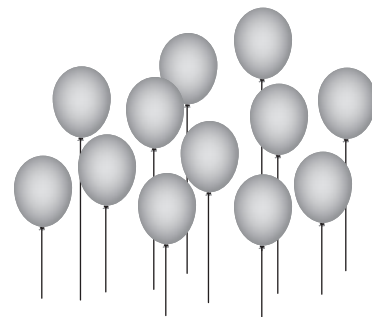
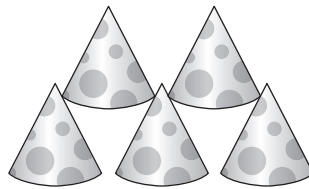
## Write the ratio.

- 1 What is the ratio of party hats to balloons?

\_\_\_\_\_

- 2 What is the ratio of numbers to letters?  
9, 5, 6, a, b, 1, h, k, r, 4, 2, p, q, r, 7, 3, s

\_\_\_\_\_



## Find each unit price.

- 3 Joshua bought 3 basketballs for \$75. The unit price is \$\_\_\_\_\_ for 1 basketball.
- 4 Sandra bought 7 hats for \$63. The unit price is \$\_\_\_\_\_ for 1 hat.
- 5 Julian bought 5 MP3 players for \$325. The unit price is \$\_\_\_\_\_ for 1 MP3 player.
- 6 Margarita bought 4 gallons of milk for \$16. The unit price is \$\_\_\_\_\_ for 1 gallon of milk.

## Find each total.

- 7 Trina bought 3 sweaters. Each sweater cost \$42. How much did Trina spend? Trina spent a total of \$\_\_\_\_\_.
- 8 Marco bought 2 wrenches. Each wrench cost \$11.25. How much did Marco spend? Marco spent a total of \$\_\_\_\_\_.
- 9 Sammy bought 8 lollipops. Each lollipop cost \$0.30. How much did Sammy spend? Sammy spent a total of \$\_\_\_\_\_.
- 10 Luna is making a dress. She needs 4 yards of fabric. Each yard of fabric costs \$17. How much will Luna spend on fabric? Luna will spend a total of \$\_\_\_\_\_.

## Convert each unit of measure.

- 11 1 lb = 16 oz; 5 lb = \_\_\_\_\_ oz
- 12 1 gal = 3.79 L; 4 gal = \_\_\_\_\_ L
- 13 1 yd = 0.91 m; 8 yd = \_\_\_\_\_ m
- 14 1 hr = 60 min; 14 hr = \_\_\_\_\_ min
- 15 1 m = 100 cm; 7 m = \_\_\_\_\_ cm
- 16 1 qt = 4 cups; 9 qt = \_\_\_\_\_ cups
- 17 1 oz = 28.35g; 7 oz = \_\_\_\_\_ g
- 18 1 in. = 2.54 cm; 3 in. = \_\_\_\_\_ cm

## Practice: Skills

Find the value of each variable.

1  $\frac{4}{16} = \frac{1}{x}$   $x =$  \_\_\_\_\_

3  $\frac{4}{8} = \frac{3}{k}$   $k =$  \_\_\_\_\_

5  $\frac{a}{45} = \frac{4}{9}$   $a =$  \_\_\_\_\_

7  $\frac{7}{r} = \frac{14}{20}$   $r =$  \_\_\_\_\_

9  $\frac{8}{z} = \frac{2}{7}$   $z =$  \_\_\_\_\_

2  $\frac{l}{25} = \frac{3}{5}$   $l =$  \_\_\_\_\_

4  $\frac{3}{4} = \frac{y}{12}$   $y =$  \_\_\_\_\_

6  $\frac{5}{9} = \frac{10}{n}$   $n =$  \_\_\_\_\_

8  $\frac{3}{10} = \frac{12}{t}$   $t =$  \_\_\_\_\_

10  $\frac{10}{45} = \frac{b}{27}$   $b =$  \_\_\_\_\_

Write an equivalent ratio in simplest form.

11  $\frac{8}{10} =$  \_\_\_\_\_

13  $\frac{12}{24} =$  \_\_\_\_\_

15  $\frac{18}{20} =$  \_\_\_\_\_

17  $\frac{24}{36} =$  \_\_\_\_\_

19  $\frac{3}{21} =$  \_\_\_\_\_

12  $\frac{6}{9} =$  \_\_\_\_\_

14  $\frac{63}{81} =$  \_\_\_\_\_

16  $\frac{2}{8} =$  \_\_\_\_\_

18  $\frac{3}{18} =$  \_\_\_\_\_

20  $\frac{24}{32} =$  \_\_\_\_\_

Solve.

- 21
- GAMES**
- A bag has 8 red marbles for every 3 yellow marbles.

If there are 40 red marbles, then there are \_\_\_\_\_ yellow marbles.

- 22
- BUSINESS**
- The XYZ Company hires 2 managers for every 15 sales

people. If there are 75 sales people, then there are \_\_\_\_\_ managers.

- 23
- DESSERT**
- A cookie recipe requires 4 cups of flour for every 30 cookies.

If there are 90 cookies, then \_\_\_\_\_ cups of flour were used.

- 24
- WAGES**
- Yang makes \$70 for every 8 hours that he works. If Yang

made \$420, then he worked \_\_\_\_\_ hours.

- 25
- NUTRITION**
- There are 110 calories in every 2 apples. If there are

9 apples, then there are \_\_\_\_\_ calories.

## Practice: Skills

Write a function to represent each situation.

- 1 Chad completed the race in half the time Jared did.
- 2 Flor is 2 years younger than Hector.
- 3 Each dining room table comes with 6 chairs.
- 4 Amanda has \$10 more than Meagan.

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Write a function, make a function table, and make a graph.

- 5 **TRAVEL** Adina can paddle a canoe in still water at an average speed of 4 miles per hour. Let  $y$  = miles traveled and  $x$  = number of hours.

$$y = \underline{\hspace{2cm}}$$

Number of hours, $x$	1	2	3	4	5
Miles traveled, $f(y)$					

If Adina canoed for 8 hours, how many miles did Adina canoe?

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- 6 **FITNESS** Kyle began exercising for 25 minutes each day. Each week, he increased the time of his workout by 5 minutes. Let  $f(y)$  = length of workout in minutes and  $x$  = number of weeks.

$$f(y) = \underline{\hspace{2cm}}$$

Number of weeks, $x$	1	2	3	4	5
Length of workout, $f(y)$					

What is the length of Kyle's daily workout after 6 weeks?

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# Practice: Skills

Write a function to represent each situation.

- 1 The area of a square can be found by multiplying  $\frac{1}{2}$  times the square of the diagonal length. \_\_\_\_\_
- 2 Lisa earns \$1 more than the cube of the number of hours worked. \_\_\_\_\_

Write a function, make a function table, and make a graph.  
Is the function linear or nonlinear?

- 3 **INTERIOR DESIGN** Kaneesha is putting decorative tiles on the wall above her kitchen sink. The number of tiles is three times the square of the height (in decimeters) of the wall where the tile will go.

$y =$  \_\_\_\_\_

Height (in decimeters), $x$	3	4	5	6	7
Number of tiles, $y$					

How many tiles are needed for a space with a height of 5 decimeters? \_\_\_\_\_

The function is \_\_\_\_\_.

Match each function with its function table and its graph.

- |   |   |  |  |
|---|---|--|--|
| <p>4 <math>y = -(x^3)</math><br/>function<br/>table _____<br/>graph _____</p> | <p>5 <math>y = 3x - 2</math><br/>function<br/>table _____<br/>graph _____</p> | <p>6 <math>y = -2x^2</math><br/>function<br/>table _____<br/>graph _____</p> | <p>7 <math>y = x^2</math><br/>function<br/>table _____<br/>graph _____</p> |
|---|---|--|--|

A.

$x$	-2	-1	0	1	2
$y$	-8	-5	-2	1	4

B.

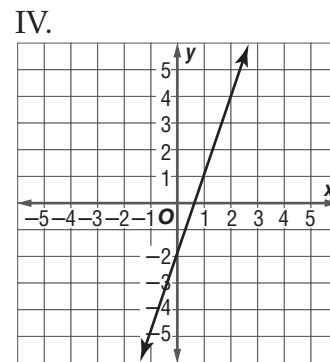
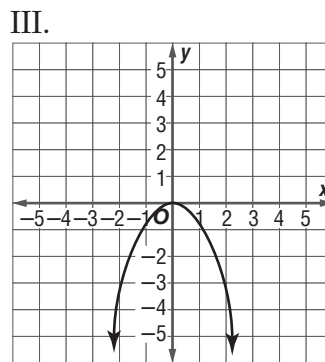
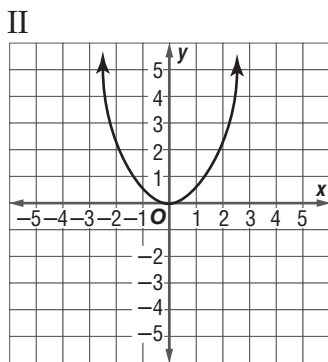
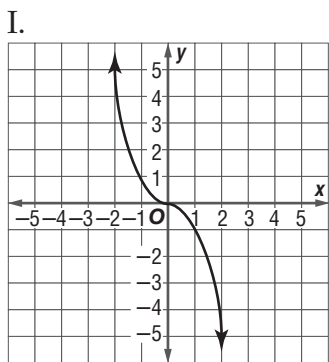
$x$	-2	-1	0	1	2
$y$	8	1	0	-1	-8

C.

$x$	-2	-1	0	1	2
$y$	4	1	0	1	4

D.

$x$	-2	-1	0	1	2
$y$	-8	-2	0	-2	-8



## Practice: Skills

Interpret each ratio.

- 1 The ratio of the number of legs,  $y$ , to the number of insects,  $x$ , is  $\frac{6}{1}$ .

\_\_\_\_\_

- 2 The ratio of centimeters,  $y$ , to the number of meters,  $x$ , is  $\frac{100}{1}$ .

\_\_\_\_\_

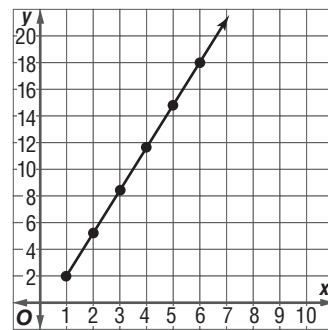
- 3 The ratio of the number of nickels,  $y$ , to the number of quarters,  $x$ , is  $\frac{5}{1}$ .

\_\_\_\_\_

- 4 **BIOLOGY** The graph shows the ratio of the number of body parts,  $y$ , to the number of insects,  $x$ . Use the graph to find the slope. Interpret the slope.

The ratio is constant. The slope is \_\_\_\_\_ or \_\_\_\_\_.

In this problem, the slope \_\_\_\_\_ means that there are \_\_\_\_\_ body parts on every \_\_\_\_\_ insect.



Is this the function table of a linear function? Explain.

5

$x$	1	3	5	7	9
$y$	2	8	14	20	26

This function is \_\_\_\_\_ because the ratios are \_\_\_\_\_.

6

$x$	1	2	3	4	5
$y$	2	5	10	17	26

This function is \_\_\_\_\_ because the ratios are \_\_\_\_\_.

7

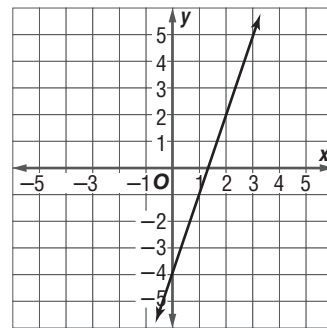
$x$	2	4	6	8	10
$y$	1	5	10	16	23

This function is \_\_\_\_\_ because the ratios are \_\_\_\_\_.

# Practice: Skills

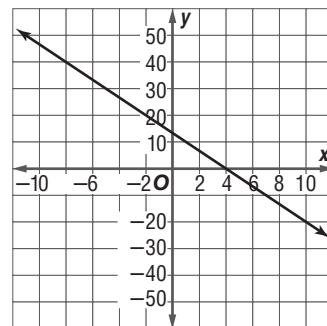
Use the graph at the right to answer Exercises 1–3.

- 1 What is the  $y$ -intercept of the line? \_\_\_\_\_
- 2 What is the slope of the line? \_\_\_\_\_
- 3 What is the equation of the line? \_\_\_\_\_



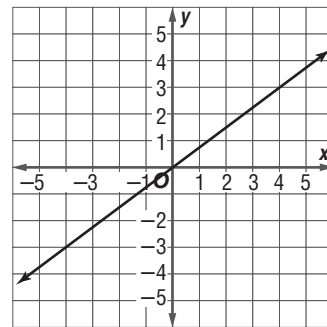
Use the graph at the right to answer Exercises 4–6.

- 4 What is the  $y$ -intercept of the line? \_\_\_\_\_
- 5 What is the slope of the line? \_\_\_\_\_
- 6 What is the equation of the line? \_\_\_\_\_



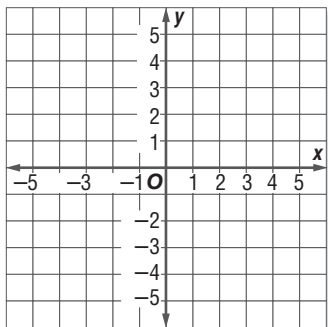
Use the graph at the right to answer Exercises 7–9.

- 7 What is the  $y$ -intercept of the line? \_\_\_\_\_
- 8 What is the slope of the line? \_\_\_\_\_
- 9 What is the equation of the line? \_\_\_\_\_

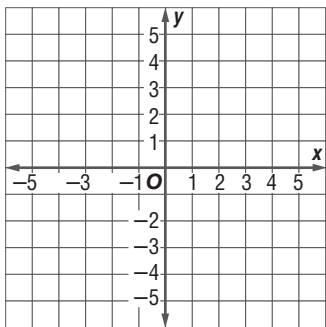


Graph each equation.

10  $y = \frac{1}{2}x + 3$



11  $y = -3x$



12  $y = -\frac{3}{4}x - 2$

