

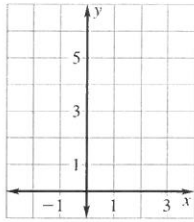
Name \_\_\_\_\_

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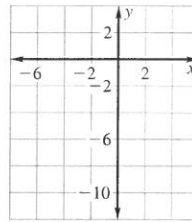
**LESSON 4.1** **Practice B** *continued*  
 For use with pages 206–212

**Graph the function with the given domain. Then identify the range of the function.**

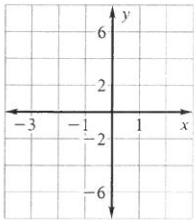
**10.**  $y = x + 4$ ; domain:  $-2, -1, 0, 1, 2$



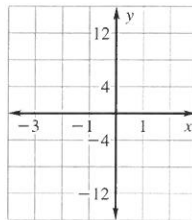
**11.**  $y = 2x - 5$ ; domain:  $-2, -1, 0, 1, 2$



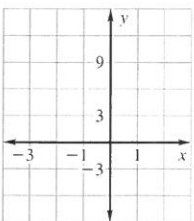
**12.**  $y = 3x - 1$ ; domain:  $-2, -1, 0, 1, 2$



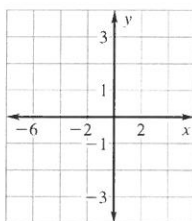
**13.**  $y = 6x - 2$ ; domain:  $-2, -1, 0, 1, 2$



**14.**  $y = 4x + 3$ ; domain:  $-2, -1, 0, 1, 2$



**15.**  $y = \frac{1}{2}x + 1$ ; domain:  $-4, -2, 0, 2, 4$



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**LESSON**  
**4.1**

**Practice B** *continued*  
*For use with pages 206–212*

**Without plotting the point, tell whether it is in Quadrant I, Quadrant II, Quadrant III, or Quadrant IV. Explain your reasoning.**

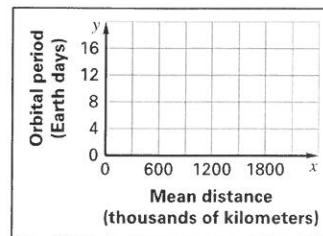
16.  $(-4, -2)$

17.  $(9, -2)$

18.  $(-1, 8)$

19. **Jupiter's Moons** The table shows some of the moons of Jupiter, their mean distances from Jupiter (in thousand kilometers), and their orbital periods (in Earth days). Graph the data from the table. Does the graph represent a function? Why or why not?

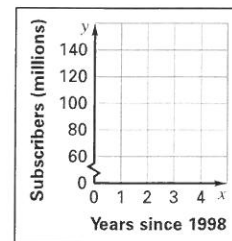
Moon	Io	Thebe	Ganymede	Callisto	Europa
<b>Mean distance (thousand kilometers)</b>	422	222	1070	1883	671
<b>Orbital period (Earth days)</b>	1.8	0.7	7.2	16.7	3.6



20. **Cell Phone Use** The table shows the number of cellular telephone subscribers in the United States since 1998.

Years since 1998	0	1	2	3	4
<b>Subscribers (millions)</b>	69	86	109	128	141

- a. Graph the data from the table. Does the graph represent a function? Why or why not?



- b. Describe any trend in the change in the number of subscribers.

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**LESSON**  
**4.2****Practice B***For use with pages 215–222***Decide which of the two points lies on the graph of the line.**

1.  $2x + y = 10$

a. (4, 3)    b. (-4, 18)

2.  $x - 3y = 12$

a. (9, 1)    b. (6, -2)

3.  $2y - x = 9$

a. (5, 1)    b. (1, 5)

**Solve the equation for  $y$ .**

4.  $-6x + y = 11$

5.  $8x + 2y = 10$

6.  $6x - 3y = -9$

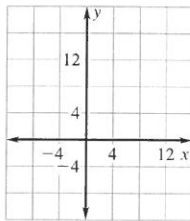
7.  $-4x + 2y = 16$

8.  $10x - 5y = 25$

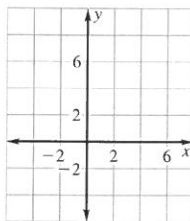
9.  $3x + 2y = -8$

**Graph the equation.**

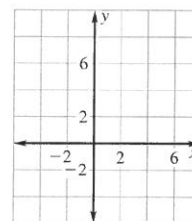
10.  $y + x = 14$



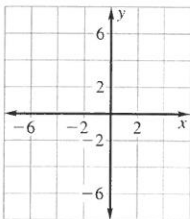
11.  $y - 5x = 2$



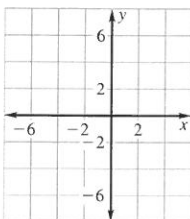
12.  $2y - 4x = 10$



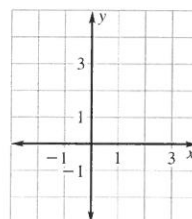
13.  $x = -6$



14.  $y = 4$



15.  $3x - 2y = 0$





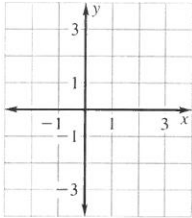
Name \_\_\_\_\_

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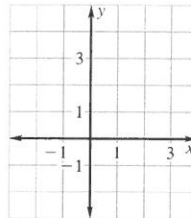
**LESSON 4.2 Practice B** *continued*  
For use with pages 215–222

**Graph the function with the given domain. Then identify the range of the function.**

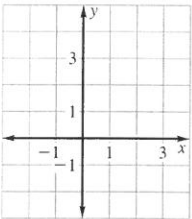
16.  $y = 2x - 2$ ; domain:  $x \geq 0$



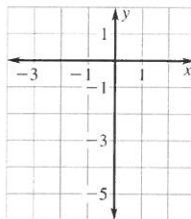
17.  $y = -3x + 1$ ; domain:  $x \leq 0$



18.  $y = 3$ ; domain:  $x \leq 2$



19.  $y = -1$ ; domain:  $x \geq -1$

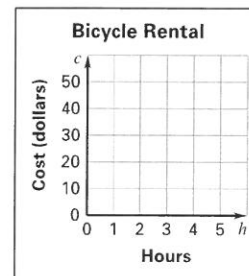


**Identify the range of the function with the given domain.**

20.  $x + 3y = -8$ ; domain  $x > 0$

21.  $6x - 3y = 9$ ; domain:  $x < 1$

22. **Bicycle Rental** A bicycle rental shop rents bicycles for \$8 per hour. The total cost  $c$  (in dollars) for renting a bicycle  $h$  hours is given by the function  $c = 8h$ . Once you get to the rental shop, you figure you can rent a bicycle for at most 5 hours. Graph the function and identify its domain and range. What is the most that you will pay for renting the bicycle?



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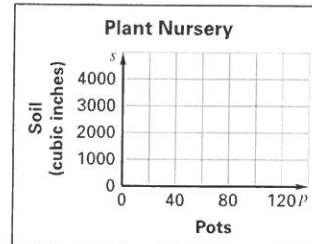
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LESSON  
4.2

**Practice B** *continued*  
For use with pages 215–222

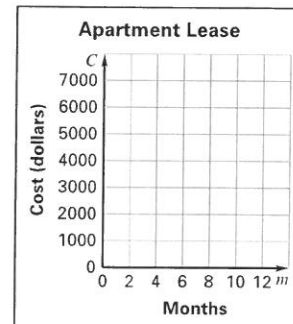
**23. Plant Nursery** A gardener at a nursery is filling pots with soil to prepare to transplant seedlings into these larger pots. Each new pot needs about 27 cubic inches of soil. The amount of soil  $s$  (in cubic inches) it takes to fill  $p$  pots is given by the function  $s = 27p$ .

- a. The gardener is filling the pots from a bag of soil that contains 3456 cubic inches of soil. Graph the function and identify its domain and range. How many pots can be filled from the bag?



- b. Suppose the gardener needs to fill 100 pots. Graph the function on the same coordinate plane in part (a) and identify its domain and range. How much soil (in cubic inches) will the gardener need?

**24. Apartment Lease** Whenever you sign a lease for an apartment, you typically have to pay a security deposit in case you have caused any wear or tear on the apartment that has to be repaired before it can be re-leased. If no repairs need to be made, you get your entire deposit back. One apartment building has apartments that rent for \$500 a month and a security deposit of \$700. The total cost  $C$  (in dollars) it costs to rent the apartment for  $m$  months is given by the function  $C = 500m + 700$ . Graph the function and identify its domain and range. Identify the domain and range if a renter only leases an apartment for one year and then moves out and doesn't get the security deposit back. How does this change the appearance of the graph? *Explain.*



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**LESSON**  
**4.3**

**Practice B**

*For use with pages 225–232*

**Find the  $x$ -intercept and the  $y$ -intercept of the graph of the equation.**

1.  $x + y = 1$

2.  $x - y = -5$

3.  $6x - 3y = -3$

4.  $5x + 10y = 30$

5.  $9y - 5x = 20$

6.  $8x - 2y = 16$

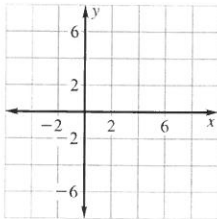
7.  $7x + 8y = 18$

8.  $2y - 12x = -6$

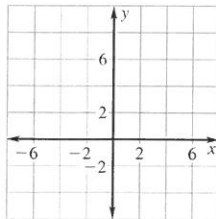
9.  $2x - 0.5y = 8$

**Draw the line that has the given intercepts.**

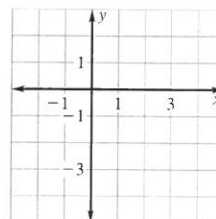
10.  $x$ -intercept: 5  
 $y$ -intercept: 4



11.  $x$ -intercept:  $-1$   
 $y$ -intercept: 6



12.  $x$ -intercept: 2  
 $y$ -intercept:  $-3$



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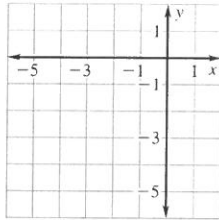
Date \_\_\_\_\_

**LESSON**  
**4.3**

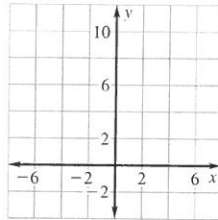
**Practice B** *continued*  
*For use with pages 225–232*

**Graph the equation. Label the points where the line crosses the axes.**

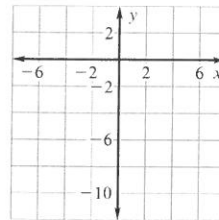
**13.**  $y = -x - 4$



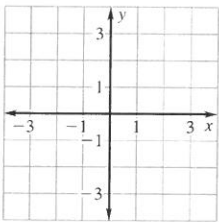
**14.**  $y = 6 + 3x$



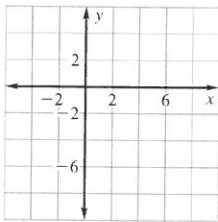
**15.**  $y = 8x - 7$



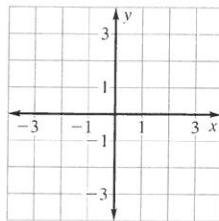
**16.**  $y = 1 - 3x$



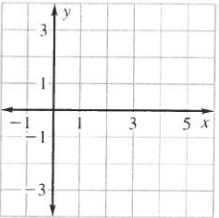
**17.**  $7x - 7y = 42$



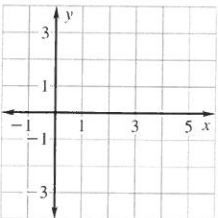
**18.**  $3y + 2x = -5$



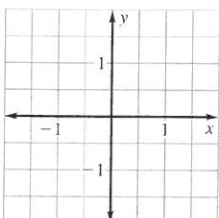
**19.**  $4x - 9y = 16$



**20.**  $y = 0.5x - 2$



**21.**  $y = 3x + 0.2$



**Match the equation with its intercepts.**

**22.**  $7y = 28 - 4x$

- A.**  $x$ -intercept: 4  
 $y$ -intercept:  $-7$

**23.**  $7x = 4y + 28$

- B.**  $x$ -intercept:  $-4$   
 $y$ -intercept: 7

**24.**  $4y = 7x + 28$

- C.**  $x$ -intercept: 7  
 $y$ -intercept: 4



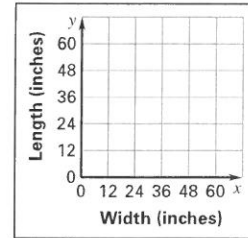
Name \_\_\_\_\_

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**LESSON 4.3** **Practice B** *continued*  
For use with pages 225–232

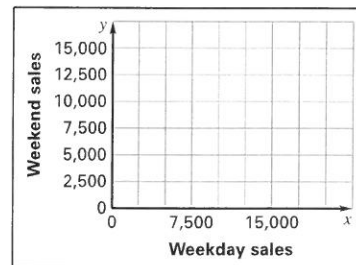
**25. Rabbit Hutch** The cage that you keep your rabbit in has a perimeter of 118 inches. Let  $x$  be the cage's width (in inches) and let  $y$  be its length (in inches).

- Write an equation for the perimeter.
- Find the intercepts of the graph of the equation you wrote. Then graph the equation.



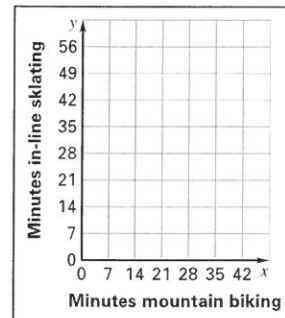
**26. Home and Garden Show** Admission to a home and garden show costs \$7 per person during the week and \$9 per person on the weekend. During one week of the show, a total of \$142,506 was paid in admissions. This situation can be represented by the equation  $7x + 9y = 142,506$  where  $x$  is the number of tickets sold during the week and  $y$  is the number of tickets sold on the weekend.

- Find the intercepts of the graph of the equation. Graph the equation.
- Give three possibilities for the number of each kind of ticket that could have been sold for the week.



**27. Burning Calories** A man burns 10 calories per minute mountain biking and 7.5 calories per minute in-line skating. His goal is to burn approximately 420 calories daily. This situation can be represented by the equation  $10x + 7.5y = 420$  where  $x$  is the number of minutes spent mountain biking and  $y$  is the number of minutes spent in-line skating.

- Find the intercepts of the graph of the equation. Graph the equation.
- What do the intercepts mean in this situation?
- What are three possible numbers of minutes of biking and skating the man could do to reach his goal?



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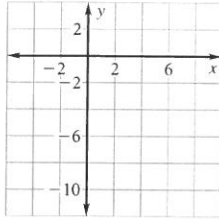
**LESSON**  
**4.4**

**Practice B**

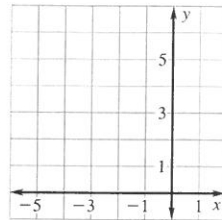
For use with pages 234–242

**Plot the points and draw a line through them. Without calculating, tell whether the slope of the line is *positive, negative, zero, or undefined*.**

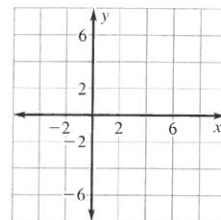
1.  $(1, -4)$  and  $(5, -8)$



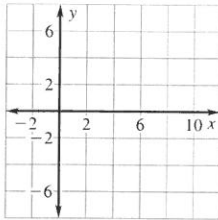
2.  $(-3, 6)$  and  $(-3, 0)$



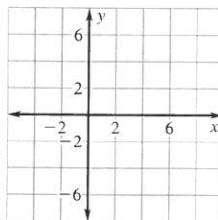
3.  $(-3, 3)$  and  $(7, -1)$



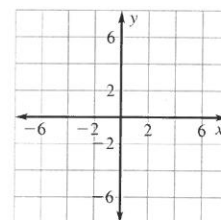
4.  $(0, -2)$  and  $(9, -5)$



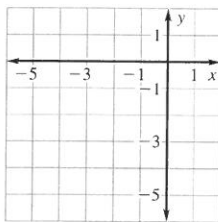
5.  $(7, 1)$  and  $(-2, 1)$



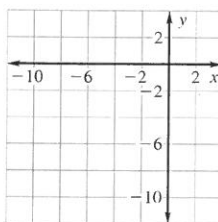
6.  $(-3, -1)$  and  $(6, -2)$



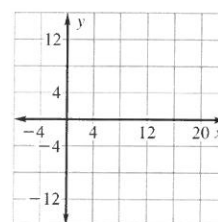
7.  $(-4, -5)$  and  $(-3, -2)$



8.  $(-7, 1)$  and  $(-7, -8)$



9.  $(2, -10)$  and  $(12, 10)$



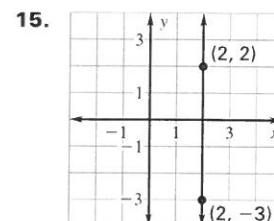
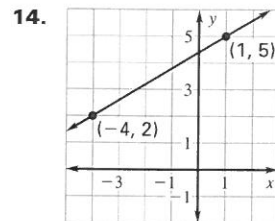
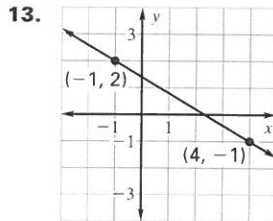
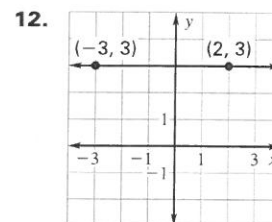
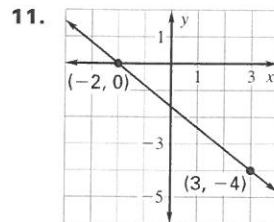
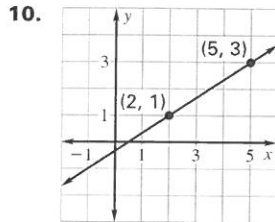


Name \_\_\_\_\_

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**LESSON 4.4 Practice B** *continued*  
For use with pages 234–242

**Find the slope of the line that passes through the points.**



**Find the slope of the line that passes through the points.**

16.  $(1, 2)$  and  $(7, 7)$

17.  $(3, 4)$  and  $(-5, 0)$

18.  $(5, -2)$  and  $(5, 8)$

19.  $(3, 1)$  and  $(-5, 3)$

20.  $(-7, 1)$  and  $(1, 5)$

21.  $(2, -5)$  and  $(5, -2)$

22.  $(3, 0)$  and  $(8, 0)$

23.  $(-6, -6)$  and  $(-2, -2)$

24.  $(-5, -4)$  and  $(1, -2)$



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LESSON  
4.4

**Practice B** *continued*  
For use with pages 234–242

Find the value of  $x$  or  $y$  so that the line passing through the two points has the given slope.

25.  $(-3, y), (-9, -2); m = 1$     26.  $(-1, 4), (x, 3); m = \frac{1}{5}$     27.  $(8, 1), (1, y); m = -1$

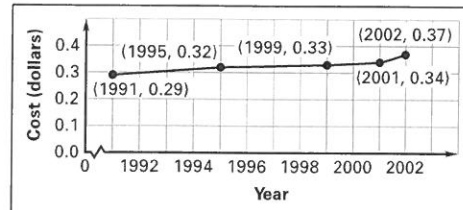
28.  $(x, -7), (1, 2); m = 3$     29.  $(9, y), (3, 2); m = \frac{2}{3}$     30.  $(7, 5), (x, 2); m = \frac{3}{4}$

31. **Trolley Bus** The table shows the number of trolley buses in operation in the United States during certain years.

Year	1980	1985	1990	1995	2000
Number of buses	823	676	832	885	951

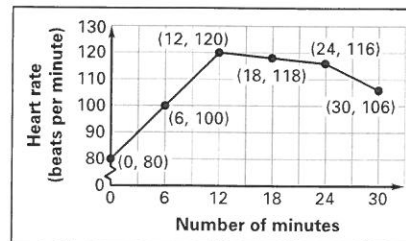
- Describe the rates of change in the number of buses during the time period.
- Determine the time intervals during which the number of trolley buses showed the greatest and least rates of change.

32. **Postage Rate** The graph shows the cost (in dollars) to mail a letter that weighs one ounce during certain years.



- Determine the time interval during which the cost to mail a one-ounce letter showed the greatest rate of change.
- Determine the time interval during which the cost to mail a one-ounce letter showed the least rate of change.

33. **Heart Rate** The graph shows the heart rate of a person during 30 minutes of exercise. Give a verbal description of the workout.





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**LESSON**  
**4.5** **Practice B**  
*For use with pages 243–250*

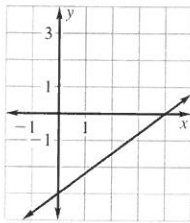
**Identify the slope and  $y$ -intercept of the line with the given equation.**

- |                   |                  |                   |
|-------------------|------------------|-------------------|
| 1. $y = 5x - 4$   | 2. $y = 10 - 4x$ | 3. $9x + y = 8$   |
| 4. $12x + 3y = 9$ | 5. $6x - 2y = 2$ | 6. $2x + 5y = 10$ |
| 7. $9x - 3y = -1$ | 8. $4y + 6x = 2$ | 9. $8y - 2x = 5$  |
| 10. $5x + 5y = 3$ | 11. $-4y = 16$   | 12. $6x = 12$     |

**Match the equation with its graph.**

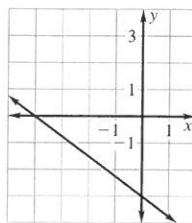
13.  $3x + 4y = 12$

A.



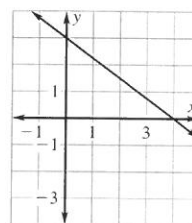
14.  $3x + 4y = -12$

B.



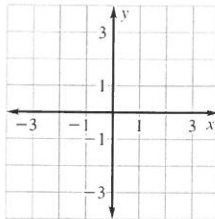
15.  $3x - 4y = 12$

C.

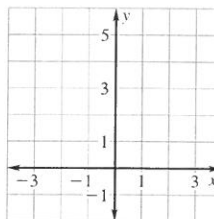


**Graph the equation.**

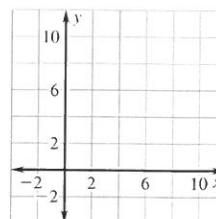
16.  $y = -7x + 2$



17.  $y = 5x + 4$



18.  $y = -x + 9$







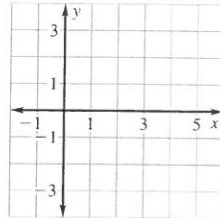
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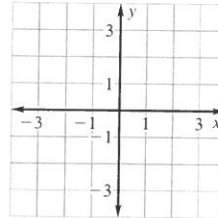
**LESSON**  
**4.5**

**Practice B** *continued*  
*For use with pages 243–250*

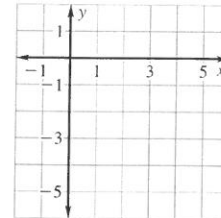
19.  $y = \frac{1}{5}x$



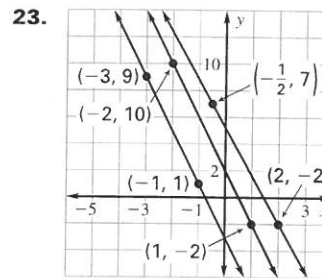
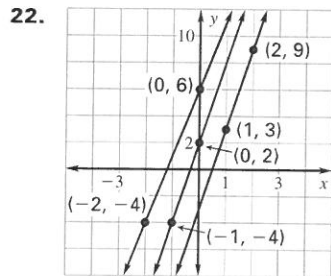
20.  $y = -\frac{2}{3}x + 1$



21.  $y = \frac{4}{3}x - 5$



**Determine which lines are parallel.**



**Tell whether the graphs of the two equations are parallel lines.**

24.  $y = 8x - 3, 8x + y = 3$

25.  $2x + y = 5, -6 + 2x = y$

26.  $2x + y = 5, y = 0.5x - 3$

27.  $y = -0.6x + 2, 5y + 3x = 8$

28.  $8x + 3y = 9, 3y - 4 = 8x$

29.  $10x + 2y = 7, 5x - y = 6$

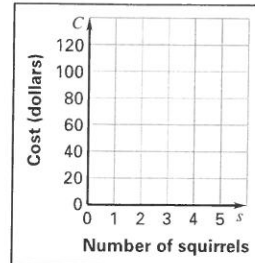


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**LESSON 4.5** **Practice B** *continued*  
 For use with pages 243–250

**30. Squirrels** A family of squirrels takes up residence in the roof of your house. You call a company to get rid of the squirrels. The company traps the squirrels and then releases them in a wooded area. The company charges \$30 to drop off the traps and then charges \$15 for each squirrel it traps. The total cost  $C$  (in dollars) is given by the equation  $C = 30 + 15s$  where  $s$  is the number of squirrels that are taken away.

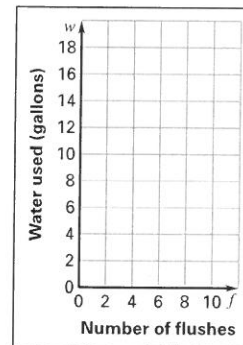


a. Graph the equation.

b. Suppose the company raises its fee to \$18 to take away each squirrel so that the total cost for  $s$  squirrels is given by the equation  $C = 30 + 18s$ . Graph the equation in the same coordinate plane as the equation in part (a).

c. How much more does it cost for the company to trap 4 squirrels after the fee is raised?

**31. Water Usage** A new toilet model has two different flush settings in order to conserve water. One setting uses 1.6 gallons of water per flush and the other setting uses 0.8 gallon of water per flush. The total amount  $w$  (in gallons) of water used in the first setting is given by the equation  $w = 1.6f$  where  $f$  is the number of times the toilet is flushed. The total amount of water used in the second setting is given by the equation  $w = 0.8f$ .



a. Graph both equations in the same coordinate plane. What do the slopes and the  $w$ -intercepts mean in this situation?

b. How much more water is used by the first setting if the toilet is flushed 10 times?

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**LESSON 4.6 Practice B**  
For use with pages 253–259

**Tell whether the equation represents direct variation. If so, identify the constant of variation.**

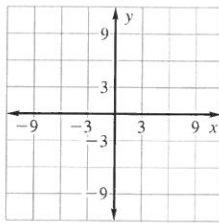
1.  $y = 8x$

2.  $y = 2x + 1$

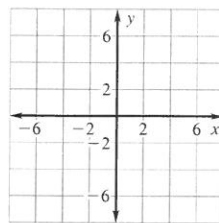
3.  $3x + y = 6$

**Graph the direct variation equation.**

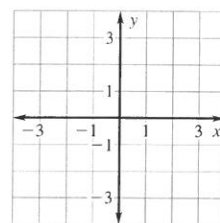
4.  $y = 9x$



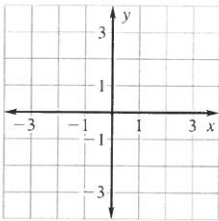
5.  $y = -7x$



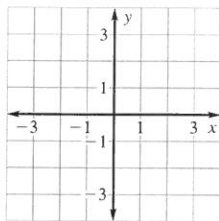
6.  $3y = 4x$



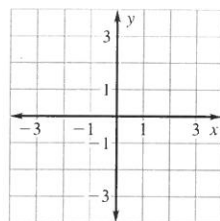
7.  $4y = -12x$



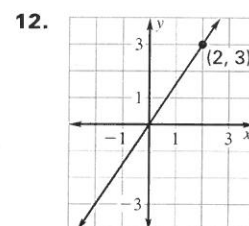
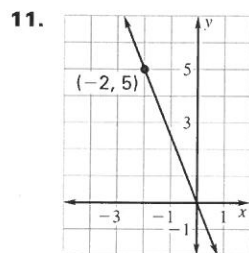
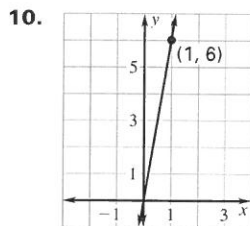
8.  $8y = x$



9.  $8y = 6x$



**The graph of a direct variation equation is shown. Write the direct variation equation. Then find the value of  $y$  when  $x = 10$ .**

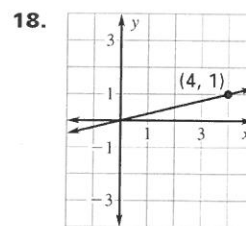
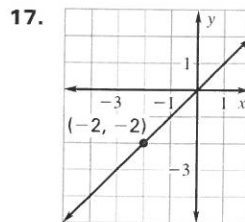
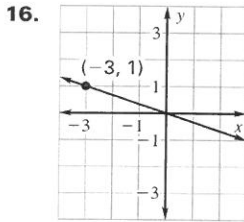
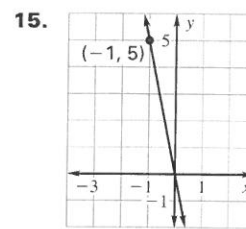
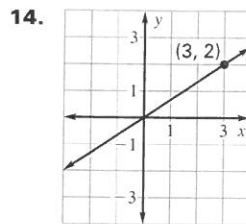
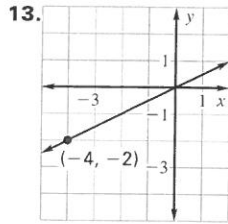




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**LESSON 4.6** **Practice B** *continued*  
For use with pages 253–259



Tell whether the table represents direct variation. If so, write the direct variation equation.

19. 

$x$	0.5	3	-2	1	-8
$y$	9	54	-36	18	-144

20. 

$x$	-5	3	-2	10	20
$y$	-2	1.2	-0.8	4	8

21. 

$x$	8	2	-4	-0.5	14
$y$	7	28	7	-112	4

22. 

$x$	-0.2	-2	1	12	18
$y$	30	3	-6	-0.5	3

Given that  $y$  varies directly with  $x$ , use the specified values to write a direct variation equation that relates  $x$  and  $y$ .

23.  $x = 24, y = 3$

24.  $x = -16, y = -4$

25.  $x = 28, y = -4$

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LESSON  
4.6**Practice B** *continued*  
For use with pages 253–259

26.  $x = 5, y = -30$

27.  $x = \frac{1}{6}, y = 1$

28.  $x = 8, y = -3$

29.  $x = 6, y = 102$

30.  $x = -8, y = 64$

31.  $x = 15, y = 9$

32. **Hooke's Law** The force  $F$  required to stretch a spring varies directly with the amount the spring is stretched  $s$ . Eight pounds is needed to stretch a spring 8 inches.

- Write a direct variation equation that relates  $F$  and  $s$ .
- How much force is required to stretch a spring 25 inches?

33. **Basement Waterproofing** One way to keep moisture out of your basement is to paint the walls with a waterproof paint. The number  $g$  (of gallons) of paint you need varies directly with the area  $A$  of the basement. One gallon of paint covers 100 square feet.

- Write a direct variation equation that relates  $g$  and  $A$ .
- How many gallons do you need to cover 530 square feet?
- How many square feet does 8.5 gallons of paint cover?

34. **Downloading Files** The table shows the amount of time  $t$  (in seconds) it takes to download a file of size  $s$  (in kilobytes).

Time, $t$ (sec)	File size, $s$ (kb)
15	420
30	840
45	1260

- Explain why  $s$  varies directly with  $t$ .
- Write a direct variation equation that relates  $s$  and  $t$ .
- How long will it take to download an 800-kilobyte file?  
Round your answer to the nearest second.



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**LESSON**  
**4.7****Practice B***For use with pages 262–268***Evaluate the function when  $x = -3, 0,$  and  $2$ .**

1.  $f(x) = 15x + 4$

2.  $g(x) = -9x + 1$

3.  $p(x) = -7x - 5$

4.  $h(x) = 3.25x$

5.  $m(x) = -4.4x$

6.  $f(x) = 6.1x - 3.3$

7.  $s(x) = \frac{4}{5}x - 2$

8.  $d(x) = -\frac{5}{3}x + 4$

9.  $h(x) = \frac{3}{8}x - 6$

10.  $f(x) = -2.5x + 7$

11.  $h(x) = 4.2x - 3$

12.  $g(x) = 6.1x - 2.2$

**Find the value of  $x$  so that the function has the given value.**

13.  $f(x) = 4x - 2; 18$

14.  $n(x) = 7x + 4; 39$

15.  $q(x) = 6 - 5x; 21$

16.  $g(x) = -3x + 8; 14$

17.  $h(x) = 9x - 13; 23$

18.  $m(x) = 12x - 30; 30$

19.  $s(x) = -4x - 9; 3$

20.  $m(x) = 8.5x - 3; 82$

21.  $p(x) = -2.4x + 6; 18$

22.  $d(x) = 3.3x - 1.1; 31.9$

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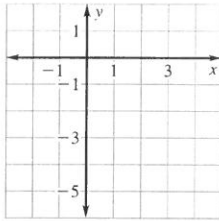
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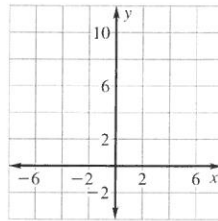
**LESSON 4.7** **Practice B** *continued*  
 For use with pages 262–268

**Graph the function. Compare your graph to the graph of  $f(x) = x$ .**

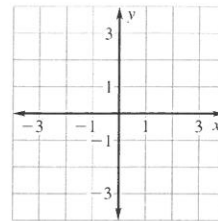
23.  $h(x) = x - 4$



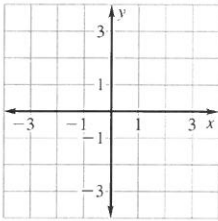
24.  $g(x) = x + 7$



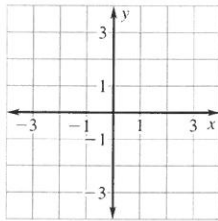
25.  $m(x) = 5x$



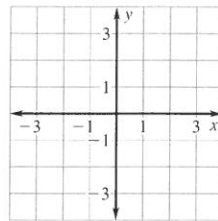
26.  $m(x) = 8x$



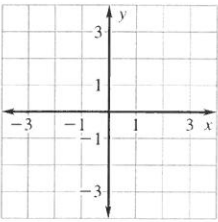
27.  $p(x) = \frac{1}{3}x$



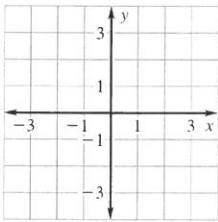
28.  $n(x) = -2x$



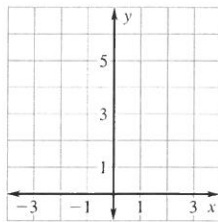
29.  $p(x) = -\frac{1}{4}x$



30.  $d(x) = x - 1.5$



31.  $g(x) = x + 4.5$





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LESSON  
4.7

**Practice B** *continued*  
For use with pages 262–268

**Match the function with the description of its graph in relation to the graph of  $f(x) = x$ .**

32.  $g(x) = 4x$

A. graph of  $f$  shifted up 4 units

33.  $g(x) = x + 4$

B. graph of  $f$  shifted down 4 units

34.  $g(x) = x - 4$

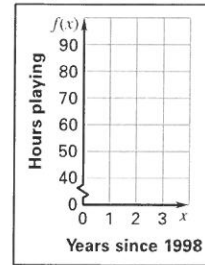
C. graph of  $f$  dilated by factor of 4

35. **Video Games** The number of hours people in the United States spent playing video games each year from 1998 to 2001 can be modeled by the function  $f(x) = 11.9x + 46.4$  where  $x$  is the number of years since 1998.

a. Graph the function and identify its domain and range.

b. Find the value of  $f(x)$  when  $x = 2$ . *Explain* what the solution means in this situation.

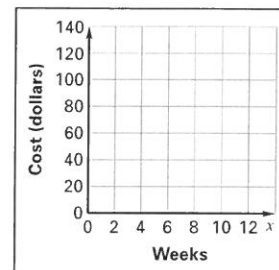
c. Find the value of  $x$  so that  $f(x) = 60$ . *Explain* what the solution means in this situation.



36. **Pool Membership** A pool membership during the summer costs \$7 per week. The total cost of a membership is given by  $f(x) = 7x$ . The pool also rents out lockers for \$2 per week. The total cost of a membership and a rental is given by  $g(x) = 9x$ .

a. Graph both functions. How is the graph of  $f$  related to the graph of  $g$ ?

b. What is the difference between a 12-week membership if you get a locker and if you don't? *Explain* how you got your answer.



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