

## Answers for 2.2

For use with pages 86–88

### 2.2 Skill Practice

1. slope
2. If two nonvertical lines are parallel, their slopes are equal; if two nonvertical lines are perpendicular, their slopes are negative reciprocals of each other.
3.  $\frac{3}{2}$ ; rises
4.  $\frac{1}{2}$ ; rises
5.  $-\frac{5}{3}$ ; falls
6. 0; is horizontal
7.  $-4$ ; falls
8. undefined; is vertical
9.  $\frac{7}{4}$ ; rises
10.  $\frac{3}{4}$ ; rises
11. undefined; is vertical
12.  $-1$ ; falls
13. 0; is horizontal
14.  $\frac{3}{2}$ ; rises
15. The  $x$ - and  $y$ -coordinates were not subtracted in the correct order;  
$$\frac{-1 - (-3)}{2 - (-4)} = \frac{1}{3}$$
16. Slope should be calculated using rise over run, not run over rise;  
$$\text{rise; } \frac{1 - 4}{5 - (-1)} = -\frac{1}{2}$$
17. A
18. perpendicular
19. neither
20. parallel
21. perpendicular
22. neither
23. parallel
24. \$6/h
25. 13 mi/gal
26. 4 ft/sec
27. 2 m/sec
28. The slope of vertical lines is undefined.
29. 2
30.  $-\frac{1}{2}$
31.  $\frac{1}{6}$
32. 0
33.  $-\frac{3}{2}$
34.  $\frac{5}{2}$
35. No; no. *Sample answer:* The slope of  $\overleftrightarrow{PQ} = \frac{2 - 1}{-3 - (-1)} = -\frac{1}{2}$ . The slope of  $\overleftrightarrow{QR} = \frac{1 - 0}{-1 - 1} = -\frac{1}{2}$ .  
  
The slope of  $\overleftrightarrow{ST} = \frac{-1 - (-2)}{3 - 5} = -\frac{1}{2}$ .
36. *Sample answer:* (1, -1), (2, -5)
37.  $-3$
38. 1
39.  $-1$
40. 5

### 2.2 Problem Solving

41.  $\frac{7}{12}$
42.  $\frac{80}{137}$
43. 6.5%

## Answers for 2.2 *continued*

For use with pages 86–88

- 44.** Each part of the three-section ramp has a slope of  $\frac{1}{16}$ , which is one third the single-section ramp's slope of  $\frac{3}{16}$ . The three-section ramp is easier to climb because the incline is less steep.
- 45.** A
- 46.** 0.045 cm/yr
- 47. a.**  $\frac{3}{8}$
- b.** yes
- c.**  $\frac{1}{8}$
- 48. a.** 240 ft
- b.** about 253 ft
- c.** The slope of the slide will increase slightly, from  $\frac{1}{3}$  to  $\frac{16}{47}$ .  
*Sample answer:* The horizontal distance is decreased and the vertical distance remains the same, then the slide must become slightly steeper.
- 49.** 30 mi/gal

### 2.2 Mixed Review

- 50.** Distributive property
- 51.** Associative property of addition

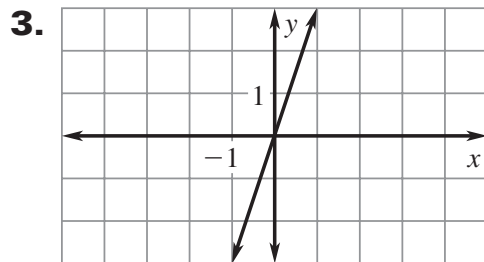
- 52.** Inverse property of addition
- 53.** Commutative property of multiplication
- 54.** Inverse property of multiplication
- 55.** Identity property of multiplication
- 56.**  $y = -3x + 7$
- 57.**  $y = 2x - 3$
- 58.**  $y = 4x - 6$
- 59.**  $y = -\frac{2}{3}x - 4$
- 60.**  $y = \frac{7}{4}x - \frac{5}{2}$
- 61.**  $y = \frac{1}{2}x + \frac{9}{2}$
- 62.** -6, 1      **63.** 1, 3.5
- 64.**  $-\frac{3}{5}, 3$       **65.**  $-1 < x < 1\frac{6}{7}$
- 66.**  $x < -8\frac{2}{3}$  or  $x > 8$
- 67.**  $x \leq -1$  or  $x \geq 2\frac{1}{2}$

## Answers for 2.3

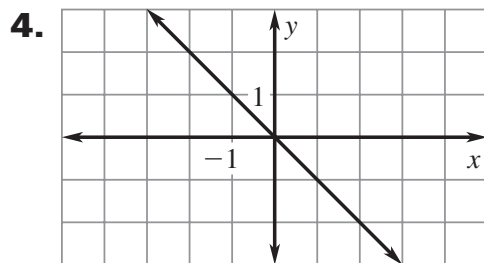
For use with pages 93–96

### 2.3 Skill Practice

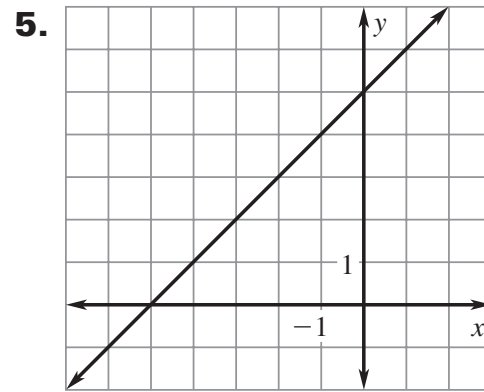
1. slope-intercept
2. *Sample answer:* Write the equation in slope intercept form. Then plot the  $y$ -intercept and use the slope to find a second point on the line. Draw a line through the two points.



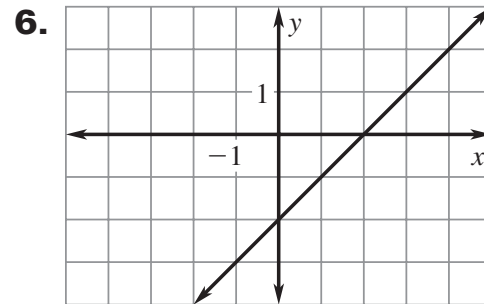
Both graphs have a  $y$ -intercept of 0, but the graph of  $y = 3x$  has a slope of 3 instead of 1.



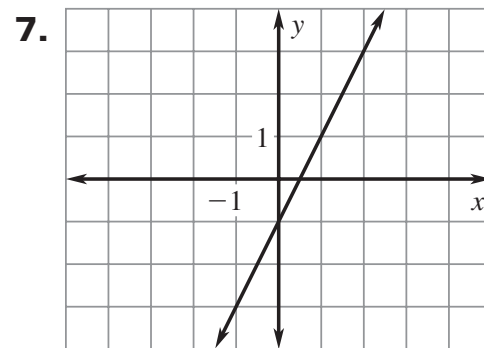
Both graphs have a  $y$ -intercept of 0, but the graph of  $y = -x$  has a slope of  $-1$  instead of 1.



Both graphs have a slope of 1, but the graph of  $y = x + 5$  has a  $y$ -intercept of 5 instead of 0.



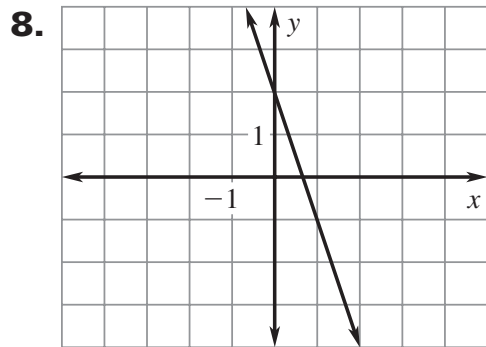
Both graphs have a slope of 1, but the graph of  $y = x - 2$  has a  $y$ -intercept of  $-2$  instead of 0.



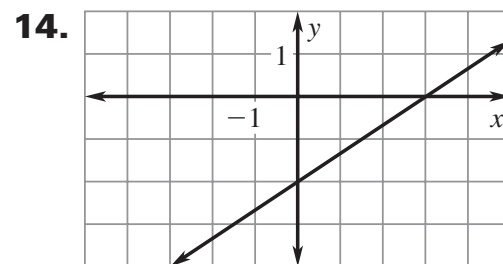
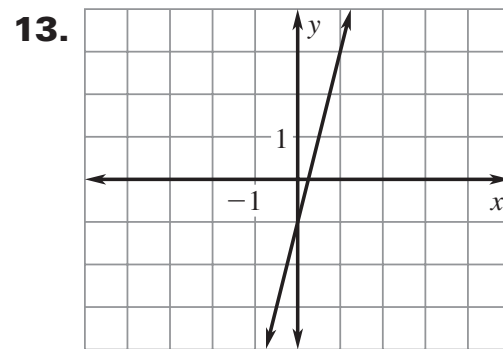
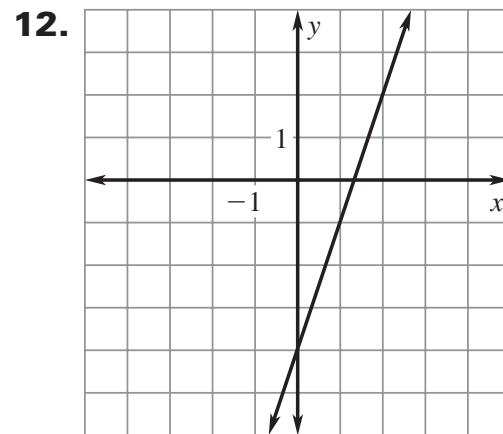
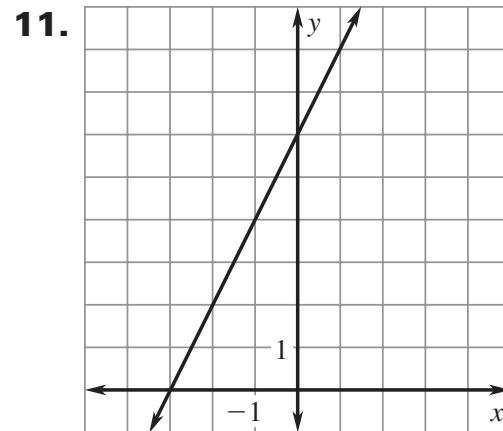
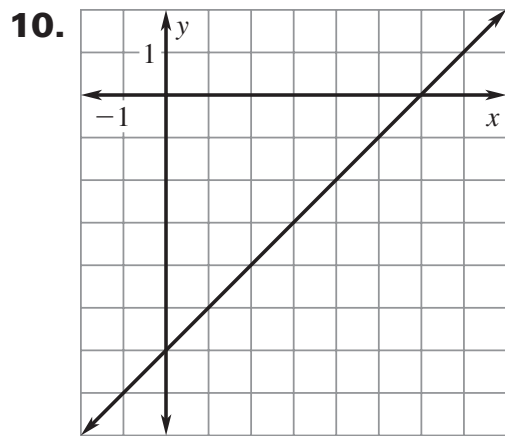
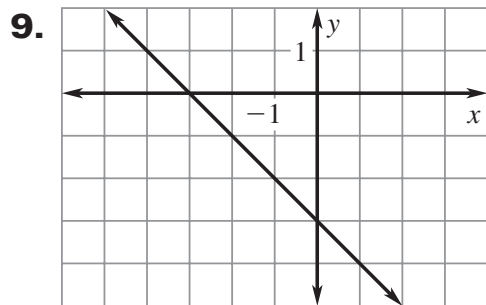
The graph of  $y = 2x - 1$  has a slope of 2 instead of 1 and a  $y$ -intercept of  $-1$  instead of 0.

# Answers for 2.3 *continued*

For use with pages 93–96

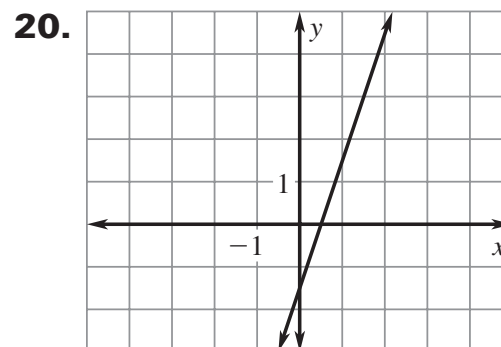
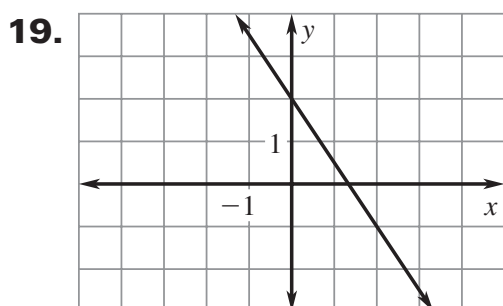
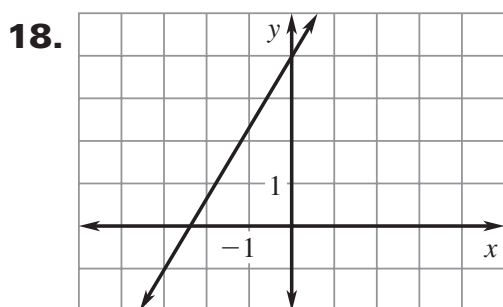
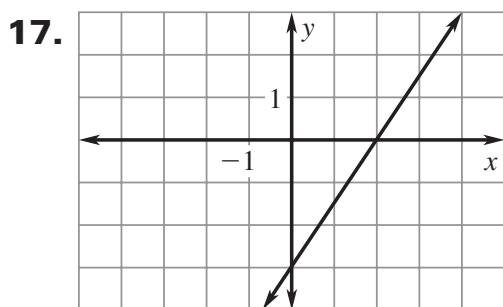
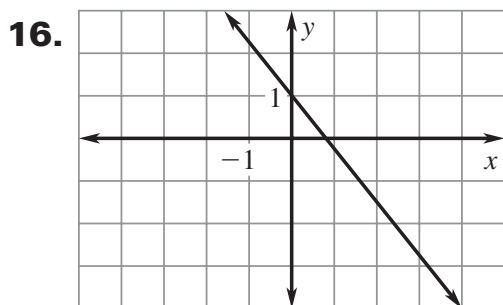
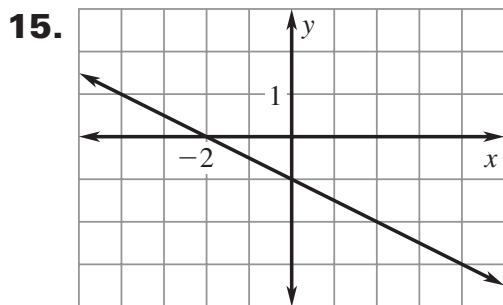


The graph of  $y = -3x + 2$  has a slope of  $-3$  instead of  $1$  and a  $y$ -intercept of  $2$  instead of  $0$ .

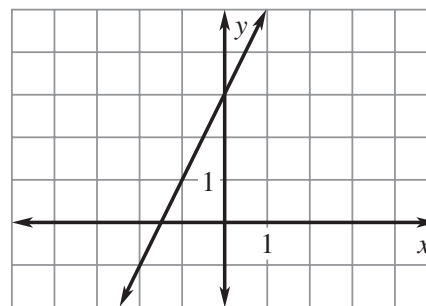


# Answers for 2.3 *continued*

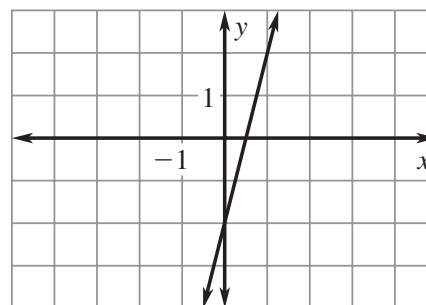
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**21.** The slope and  $y$ -intercept were switched around.



**22.** The slope is rise over run instead of run over rise.



**23.** C

**24.**  $x$ -intercept: 4,  $y$ -intercept:  $-4$

**25.**  $x$ -intercept:  $-15$ ,  $y$ -intercept:  $-3$

**26.**  $x$ -intercept:  $-4$ ,  $y$ -intercept: 3

**27.**  $x$ -intercept: 5,  $y$ -intercept:  $-10$

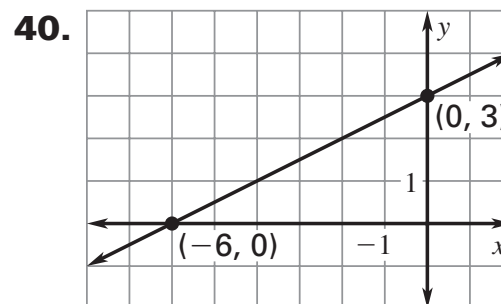
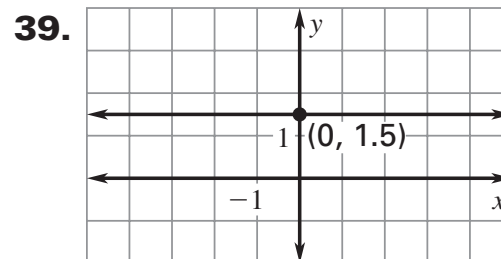
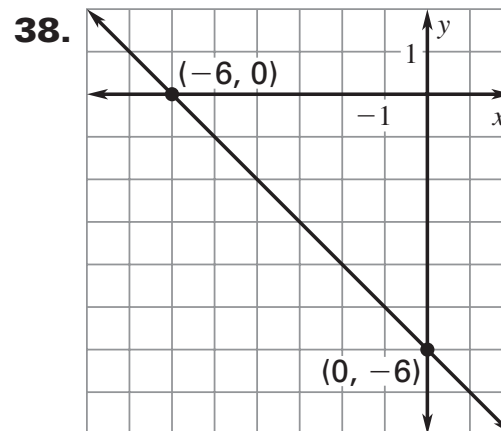
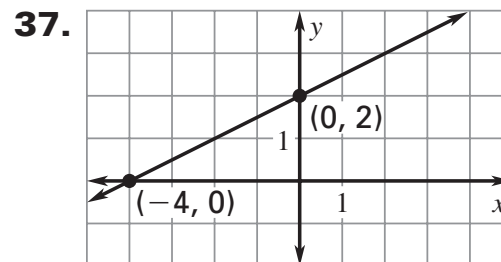
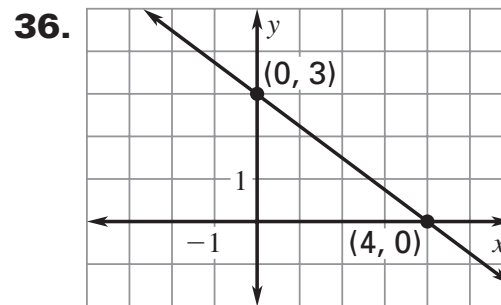
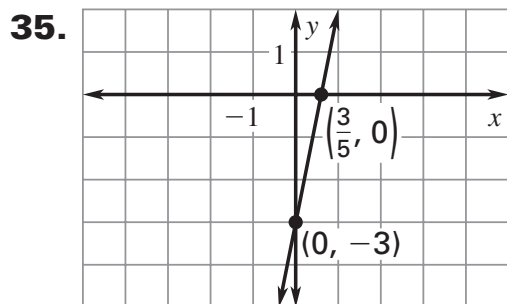
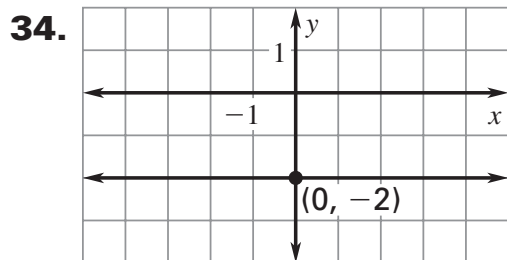
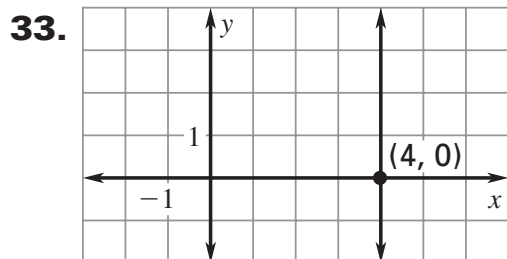
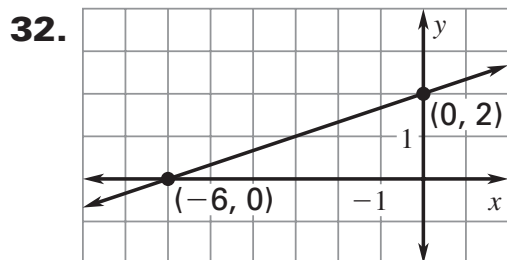
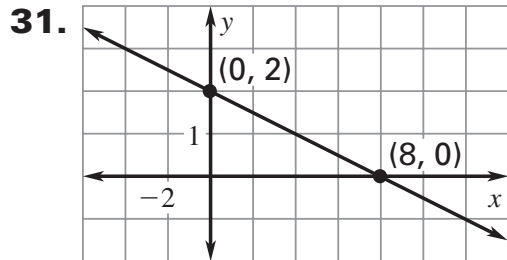
**28.**  $x$ -intercept: 5,  $y$ -intercept:  $-4$

# Answers for 2.3 *continued*

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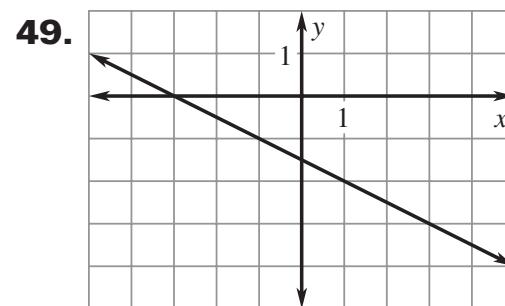
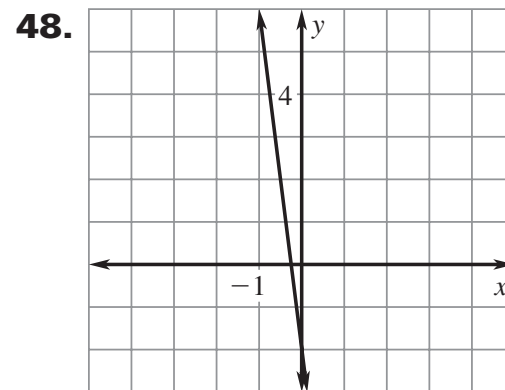
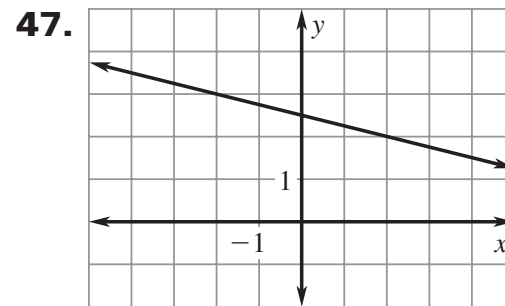
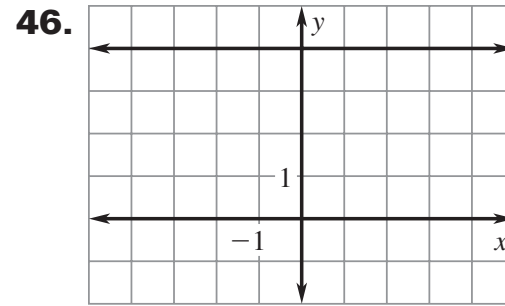
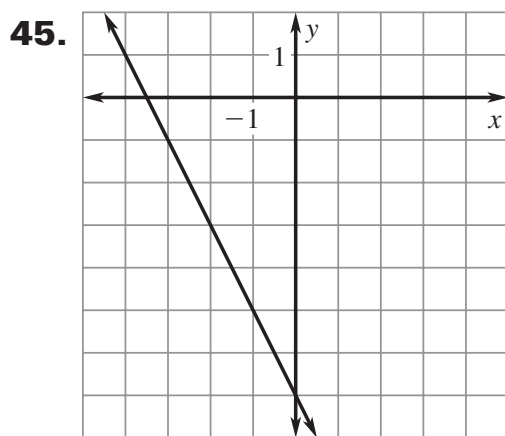
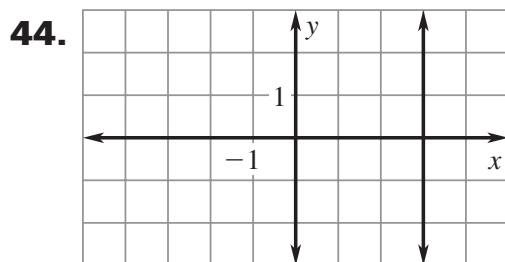
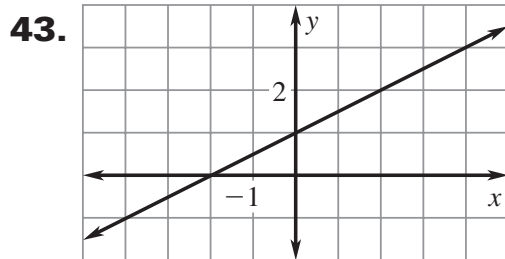
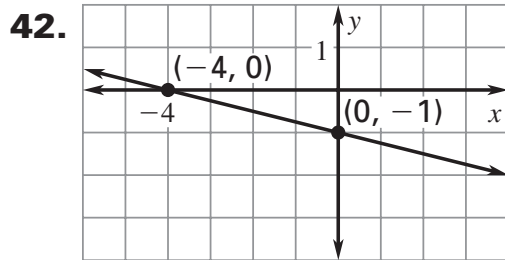
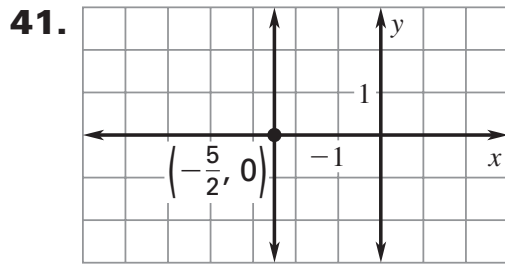
29.  $x$ -intercept: 6,  $y$ -intercept:  $-4.5$

30. C

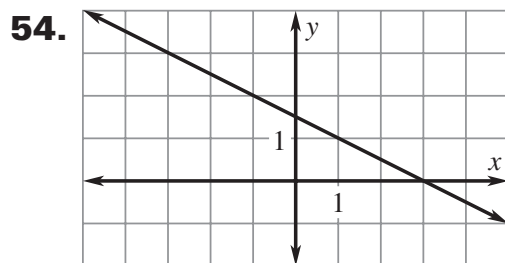
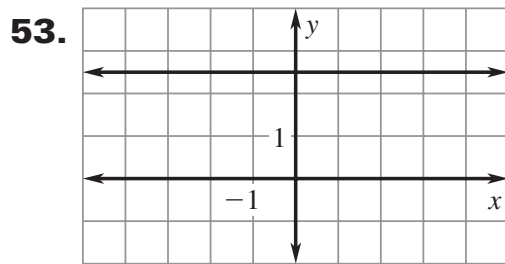
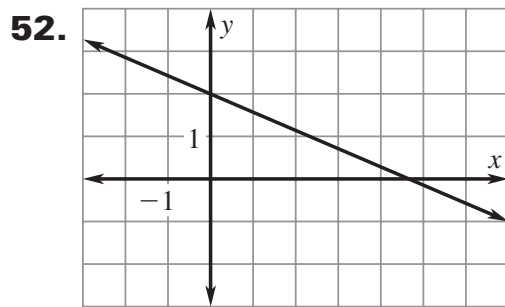
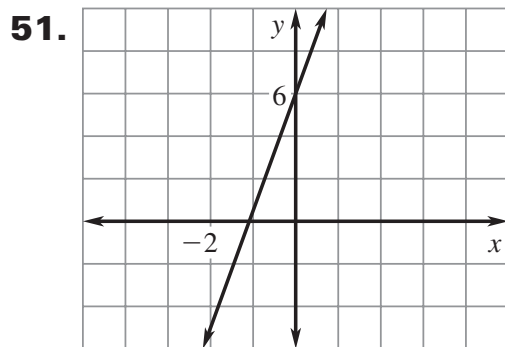
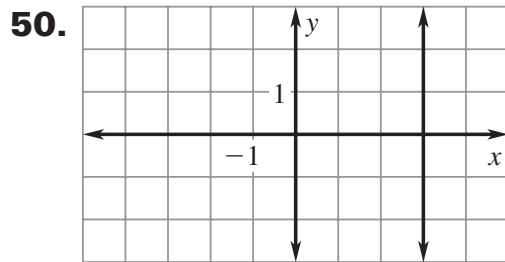


# Answers for 2.3 *continued*

For use with pages 93–96

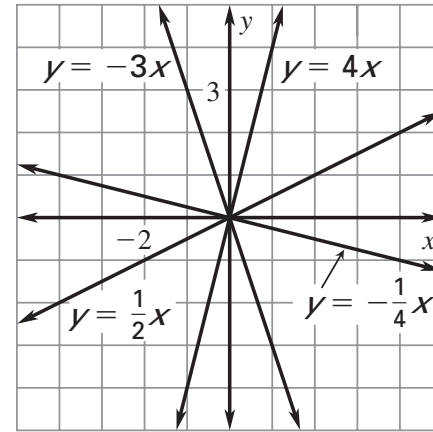


**Answers for 2.3** *continued*  
For use with pages 93–96



55. *Sample answer:*  $x = 3, y = -2$

56. *Sample:*



As  $m$  gets closer to zero, the steepness of the line decreases.

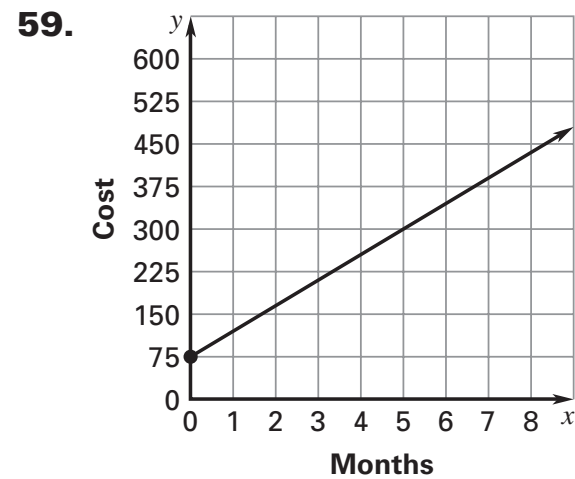
57. slope:  $-\frac{A}{B}$ ,  $y$ -intercept:  $\frac{C}{B}$

58. *Sample answer:* Two points on the line are  $(0, b)$  and  $(1, m + b)$ .

Using the slope formula gives

$$\frac{m + b - b}{1 - 0} = \frac{m}{1} = m.$$

**12.3 Problem Solving**



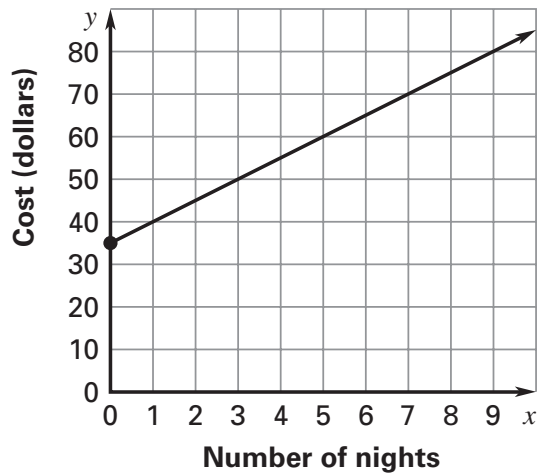
\$480



## Answers for 2.3 *continued*

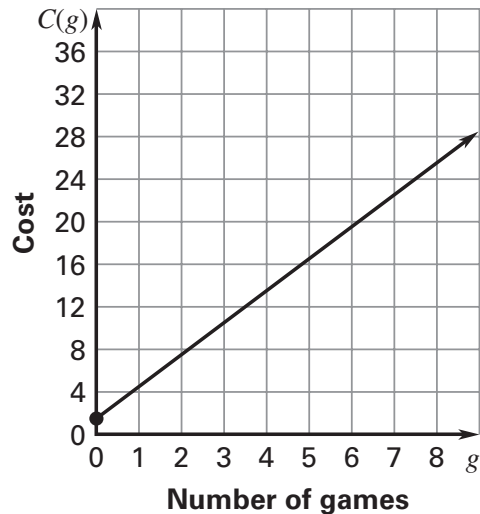
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60.



slope: cost per night of camping,  
y-intercept: initial membership fee

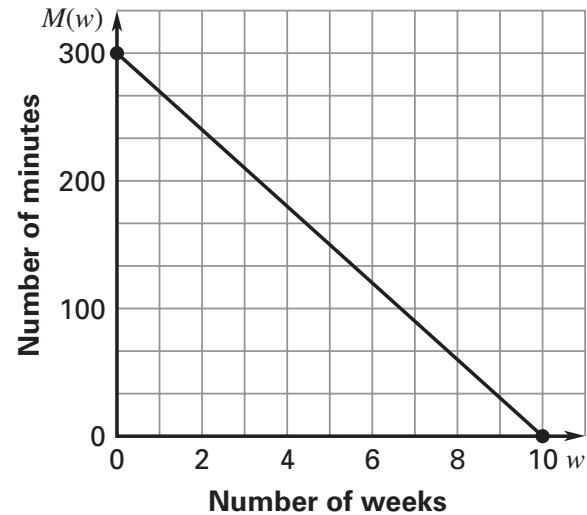
61.



\$1.50; 3

62. A reasonable domain would be greater than or equal to 0 because you cannot have a negative number of weeks. To find the greatest value in the domain, set the function equal to 0 and solve, which gives  $0 \leq w \leq 10$ . A reasonable range occurs between the minimum value of the domain

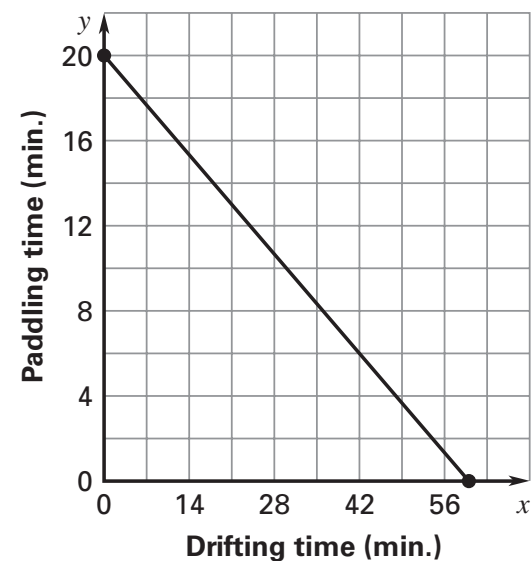
and the maximum value of the domain, which gives  $0 \leq M(w) \leq 300$ .



30 min

63. 30; fall; the value of the card will decrease after you buy each smoothie, so the line will fall from left to right.

64. a.



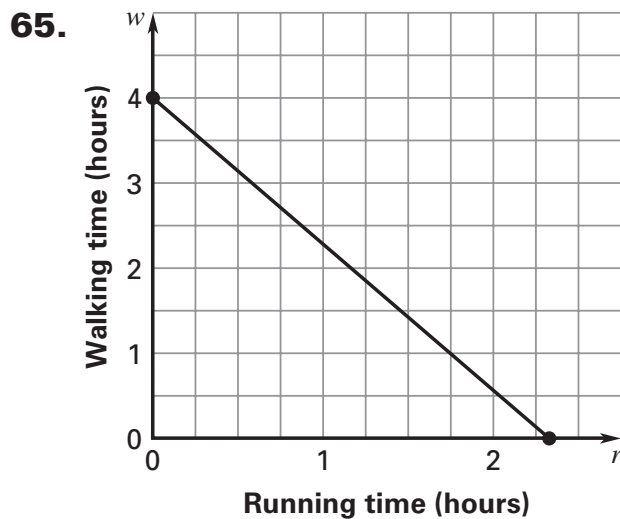
## Answers for 2.3 *continued*

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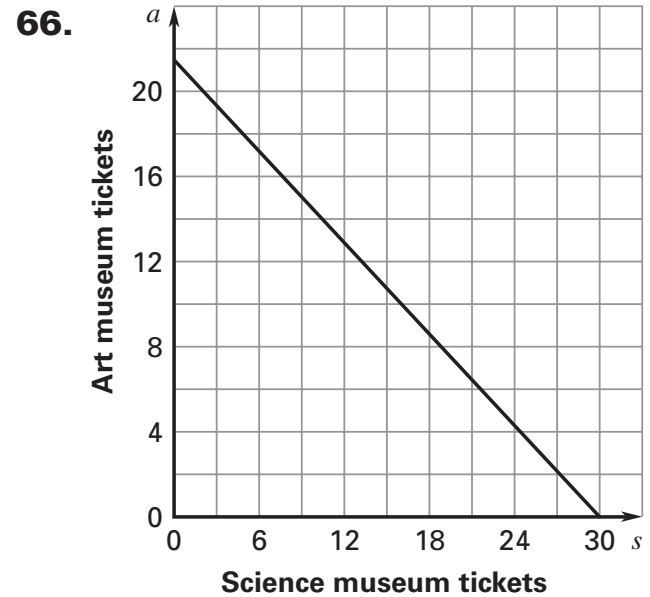
- 64. a.** (cont.)  
 domain:  $0 \leq x \leq 60$ ,  
 range:  $0 \leq y \leq 20$ ;  
 $x$ -intercept; the time it would take if you would just drift and not paddle,  $y$ -intercept: the time it would take if you would just paddle and not drift.

**b.** 50 min

**c.** 30 min



*Sample answer:*  $r = 0$  and  $w = 4$ ,  $r = 1.75$  and  $w = 1$ ,  $r = 0.875$  and  $w = 2.5$ .



*Sample answer:*  $s = 23$  and  $a = 5$ ,  $s = 16$  and  $a = 10$ .

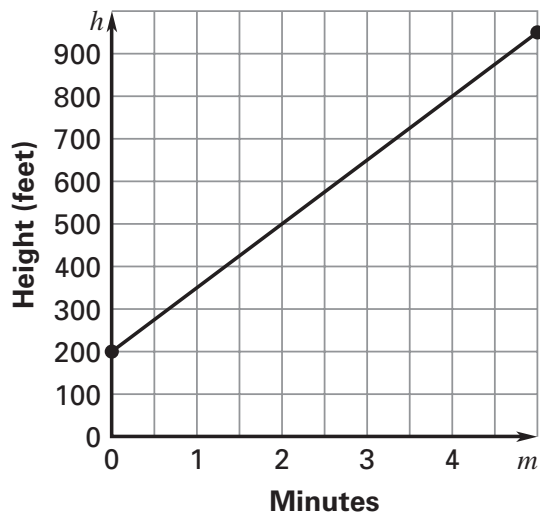
**67. a.**

$x$ (min)	$y$ (ft)
0	200
1	350
2	500
3	650
4	800
5	950

# Answers for 2.3 *continued*

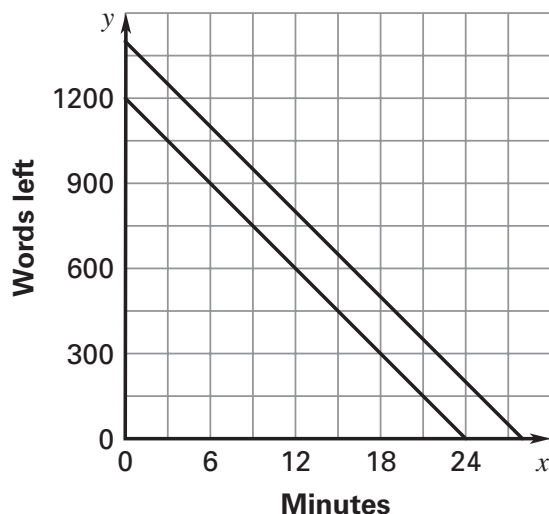
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67. b.



c.  $h(t) = 150t + 200$

68. a.



The graphs are parallel to each other.

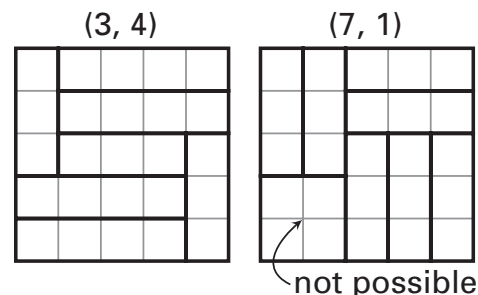
- b.  $x$ -intercepts: the minutes passed when there are no more words left to type,  $y$ -intercepts: the number of words each person has to type for the report, slopes: the words per minute each person types

- c. Your friend. *Sample answer:* The  $x$ -intercepts represent when the paper is finished. It takes you 28 minutes to finish and your friend 24 minutes to finish.

69. a. *Sample answer:* You cannot use partial rectangles.

- b. (3, 4) and (7, 1)

- c. No;



## 2.3 Mixed Review

70. 5      71. 24      72. -18

73. -2      74. 21      75. 43

76. No; the input  $-2$  has more than one output.

77. Yes; each input has exactly one output.

78.  $\frac{3}{4}$       79.  $-1$       80. 0

81.  $-\frac{3}{7}$       82. 2      83.  $\frac{2}{3}$