



## 30 CHAPTER 1 Graphs

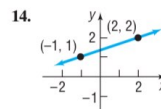
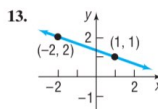
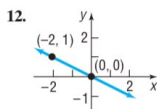
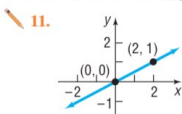
## 1.3 Assess Your Understanding

## Concepts and Vocabulary

- The slope of a vertical line is \_\_\_\_\_; the slope of a horizontal line is \_\_\_\_\_.
- For the line  $2x + 3y = 6$ , the  $x$ -intercept is \_\_\_\_\_ and the  $y$ -intercept is \_\_\_\_\_.
- A horizontal line is given by an equation of the form \_\_\_\_\_, where  $b$  is the \_\_\_\_\_.
- True or False** Vertical lines have an undefined slope.
- True or False** The slope of the line  $2y = 3x + 5$  is 3.
- True or False** The point  $(1, 2)$  is on the line  $2x + y = 4$ .
- Two nonvertical lines have slopes  $m_1$  and  $m_2$ , respectively. The lines are parallel if \_\_\_\_\_ and the \_\_\_\_\_ are unequal; the lines are perpendicular if \_\_\_\_\_.
- The lines  $y = 2x + 3$  and  $y = ax + 5$  are parallel if  $a =$  \_\_\_\_\_.
- The lines  $y = 2x - 1$  and  $y = ax + 2$  are perpendicular if  $a =$  \_\_\_\_\_.
- True or False** Perpendicular lines have slopes that are reciprocals of one another.

## Skill Building

In Problems 11–14, (a) find the slope of the line and (b) interpret the slope.



In Problems 15–22, plot each pair of points and determine the slope of the line containing them. Graph the line.

15.  $(2, 3); (4, 0)$

16.  $(4, 2); (3, 4)$

17.  $(-2, 3); (2, 1)$

18.  $(-1, 1); (2, 3)$

19.  $(-3, -1); (2, -1)$

20.  $(4, 2); (-5, 2)$

21.  $(-1, 2); (-1, -2)$

22.  $(2, 0); (2, 2)$

In Problems 23–30, graph the line containing the point  $P$  and having slope  $m$ .

23.  $P = (1, 2); m = 3$

24.  $P = (2, 1); m = 4$

25.  $P = (2, 4); m = -\frac{3}{4}$

26.  $P = (1, 3); m = -\frac{2}{5}$

27.  $P = (-1, 3); m = 0$

28.  $P = (2, -4); m = 0$

29.  $P = (0, 3);$  slope undefined

30.  $P = (-2, 0);$  slope undefined

In Problems 31–36, the slope and a point on a line are given. Use this information to locate three additional points on the line. Answers may vary.

[Hint: It is not necessary to find the equation of the line. See Example 3.]

31. Slope 4; point  $(1, 2)$

32. Slope 2; point  $(-2, 3)$

33. Slope  $-\frac{3}{2}$ ; point  $(2, -4)$

34. Slope  $\frac{4}{3}$ ; point  $(-3, 2)$

35. Slope  $-2$ ; point  $(-2, -3)$

36. Slope  $-1$ ; point  $(4, 1)$

In Problems 37–44, find an equation of the line  $L$ .

