

NAME \_\_\_\_\_

**Module 7** Solving Linear Equations and Inequalities of Two Variables  
**Lesson 2** Graphing Linear Equations of Two Variables



For each equation, complete the table.

1.  $3x - 3y = 0$

x	y
0	<b>0</b>
<b>-2</b>	-2
<b>-6</b>	-6

2.  $x - 2y = 5$

x	y
<b>-1</b>	-3
<b>3</b>	-1
9	<b>2</b>

3.  $4x - y = -1$

x	y
0	<b>1</b>
<b>-1</b>	-3
<b>2</b>	9

4.  $x + 3y = -2$

x	y
1	<b>-1</b>
<b>-8</b>	2
<b>-2</b>	0

Using the following equations, find the x- and y-intercepts of the graphs.

5.  $x - y = 2$

**x-intercept = 2; y-intercept = -2**

6.  $5x - y = 3$

**x-intercept =  $\frac{3}{5}$ ; y-intercept = -3**

7.  $2x + 3y = 6$

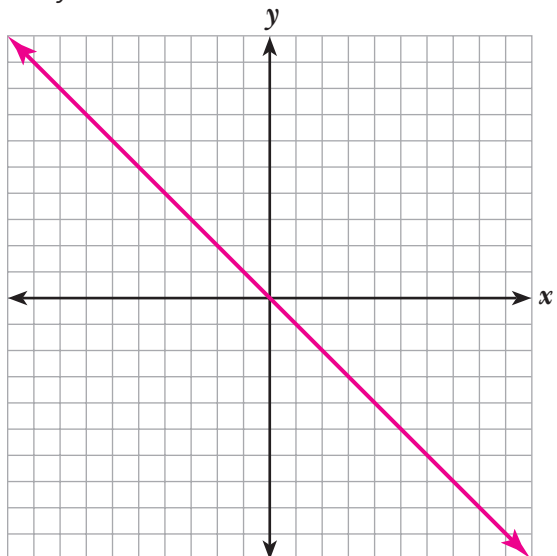
**x-intercept = 3; y-intercept = 2**

8.  $y - 6x = 3$

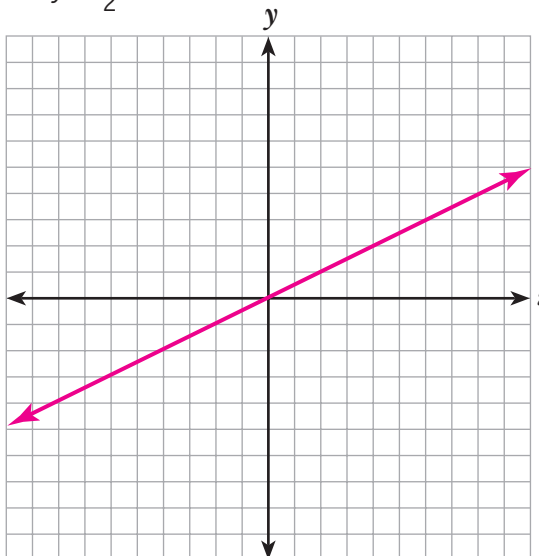
**x-intercept =  $-\frac{1}{2}$ ; y-intercept = 3**

Graph each equation using a table, the intercept method or the slope-intercept method.

9.  $y = -x$

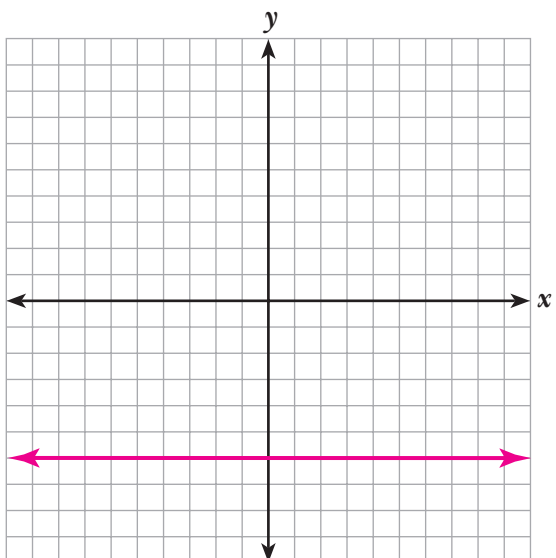


10.  $y = \frac{1}{2}x$

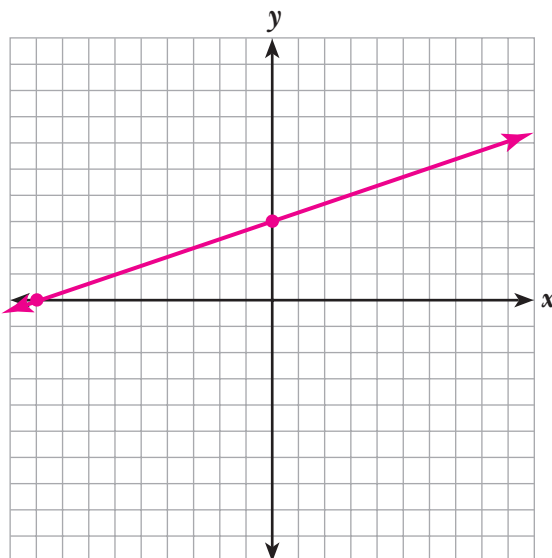


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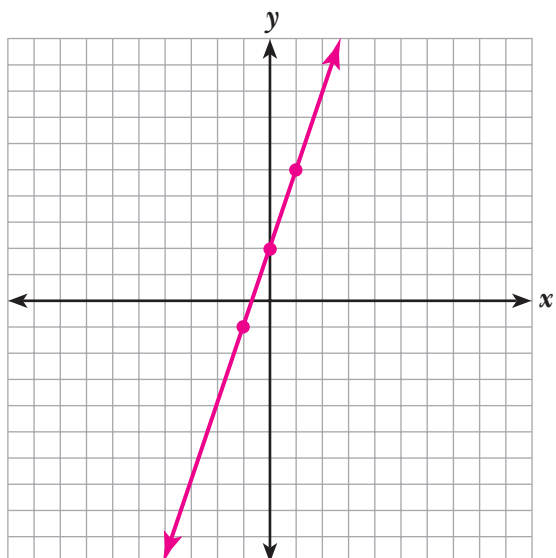
11.  $y = -6$



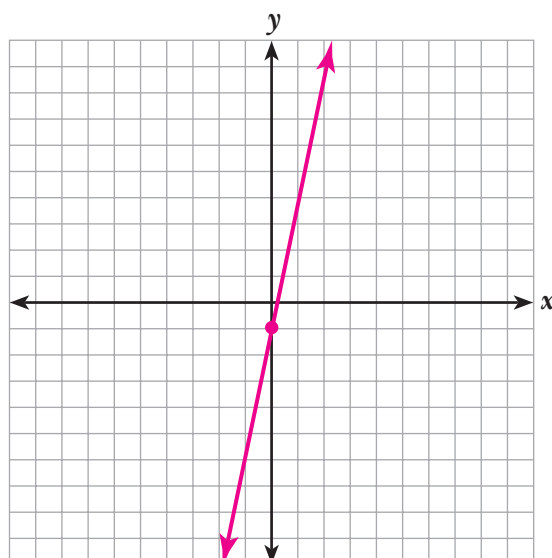
12.  $3y = x + 9$



13.  $y = 3x + 2$



14.  $y - 5x = -1$



## Journal

1. Why is it important to graph at least three points of a linear equation?
2. Explain why you cannot **find** all the solutions to a linear equation, but you can **represent** all the solutions to a linear equation.
3. Explain how you would graph the equation  $2x - y = 4$  using intercepts.
4. Explain the meaning of a sign on the side of a mountain road that reads, "10% grade." Use slope in your explanation.
5. Explain to a student who was absent how to graph a line using the slope-intercept method.

## Cumulative Review

Combine like terms.

$$1. 4c + 5b - d - c + 6b - a$$

$$\underline{-a + 11b + 3c - d}$$

$$2. a + b - 2c - 3d + d - 4a$$

$$\underline{-3a + b - 2c - 2d}$$

$$3. x - y^2 + x + x^3$$

$$\underline{x^3 + 2x - y^2}$$

$$4. x^2 + 3x - 4x + 7$$

$$\underline{x^2 - x + 7}$$

$$5. y^3 - y^2 + x + x^3$$

$$\underline{y^3 - y^2 + x + x^3}$$

$$6. 3x^3 - y^3 + 5y^2 - x^3$$

$$\underline{2x^3 - y^3 + 5y^2}$$

$$7. 6\sqrt{x} + 2\sqrt{x}$$

$$\underline{8\sqrt{x}}$$

$$8. 9a^2b - 4ab + 2a^2b$$

$$\underline{11a^2b - 4ab}$$

$$9. -2\sqrt{x} + 5 + 3\sqrt{x}$$

$$\underline{\sqrt{x} + 5}$$

$$10. 5x^3 - 2xy^3 + 6x^3$$

$$\underline{11x^3 - 2xy^3}$$

### Possible Journal Responses

1. Although two points are sufficient to determine a line, graphing a third point will help you check for errors in calculations.
2. There are an infinite number of solutions to a linear equation, so it is not possible to find all of them. However, you can represent all of them by drawing the appropriate line in a coordinate plane because the points that correspond to all the solutions lie in a line.
3. Begin by letting  $x$  equal 0 and solving for  $y$ .  $y$  equals  $-4$  when  $x$  equals 0. Next, let  $y$  equal 0 and solve for  $x$ .  $x$  equals 2 when  $y$  equals 0. Graph the points  $(0, -4)$  and  $(2, 0)$ , and draw a line through the points.
4. In this case, "grade" means "slope."  $10\% = \frac{1}{10}$ , so the slope of the road is  $\frac{1}{10}$ .
5. Any linear equation can be written in the form  $y = mx + b$ , where  $m$  is the slope and  $b$  is the  $y$ -intercept. To graph an equation by the slope-intercept method, graph the point indicated by the  $y$ -intercept. Next, from that point, use the slope to find another point on the line. The slope may be used more than once to find additional points on the line. Finally, draw the line through the points.

