4.5 Exercises

Check It Out
Help with Homework
BigIdeasMath.com

Vocabulary and Concept Check

1. **VOCABULARY** Is the equation $y = -2x + 5$ in standard form? Explain.
2. **WRITING** Describe two ways to graph the equation $4x + 2y = 6$.

Practice and Problem Solving

Define two variables for the verbal model. Write an equation in slope-intercept form that relates the variables. Graph the equation.

3. $\frac{\$2.00}{\text{pound}} \cdot$ Pounds of peaches $+ \frac{\$1.50}{\text{pound}} \cdot$ Pounds of apples $= \$15$

4. $\frac{16 \text{ miles}}{\text{hour}} \cdot$ Hours biked $+ \frac{2 \text{ miles}}{\text{hour}} \cdot$ Hours walked $= 32$ miles

Write the linear equation in slope-intercept form.

5. $2x + y = 17$
6. $5x - y = \frac{1}{4}$
7. $-\frac{1}{2}x + y = 10$

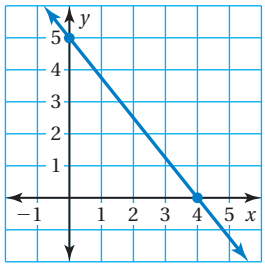
Graph the linear equation. Use a graphing calculator to check your graph.

8. $-18x + 9y = 72$
9. $16x - 4y = 2$
10. $\frac{1}{4}x + \frac{3}{4}y = 1$

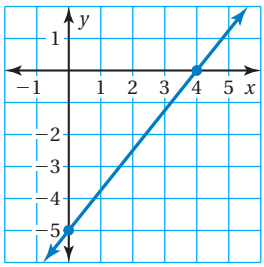
Match the equation with its graph.

11. $15x - 12y = 60$
12. $5x + 4y = 20$
13. $10x + 8y = -40$

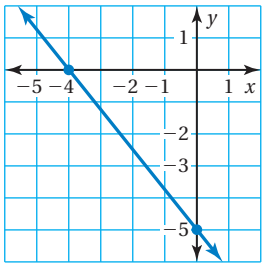
A.



B.



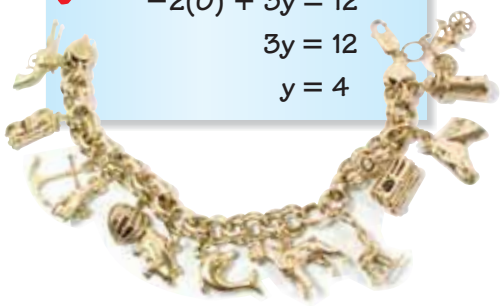
C.



14. **ERROR ANALYSIS** Describe and correct the error in finding the x-intercept.

$$-2x + 3y = 12$$
$$-2(0) + 3y = 12$$
$$3y = 12$$
$$y = 4$$

15. **BRACELET** A charm bracelet costs \$65, plus \$25 for each charm. The equation $-25x + y = 65$ represents the cost y of the bracelet, where x is the number of charms.



   a. Graph the equation.
   b. How much does the bracelet shown cost?

Graph the linear equation using intercepts. Use a graphing calculator to check your graph.

16. $3x - 4y = -12$ **17.** $2x + y = 8$ **18.** $\frac{1}{3}x - \frac{1}{6}y = -\frac{2}{3}$

19. SHOPPING The amount of money you spend on x CDs and y DVDs is given by the equation $14x + 18y = 126$. Find the intercepts and graph the equation.

20. SCUBA Five friends go scuba diving. They rent a boat for x days and scuba gear for y days. The total spent is $1000.

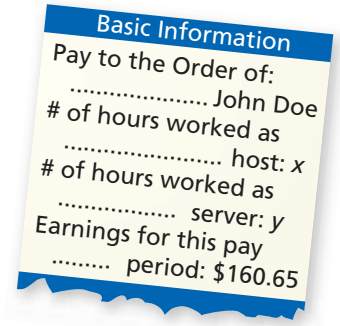
a. Write an equation in standard form that represents the situation.

b. Graph the equation and interpret the intercepts.

21. MODELING You work at a restaurant as a host and a server. You earn $9.45 for each hour you work as a host and $7.65 for each hour you work as a server.

a. Write an equation in standard form that models your earnings.

b. Graph the equation.



22. LOGIC Does the graph of every linear equation have an x-intercept? Explain your reasoning. Include an example.

23. Critical Thinking For a house call, a veterinarian charges $70, plus $40 an hour.

a. Write an equation that represents the total fee y (in dollars) the veterinarian charges for a visit lasting x hours.

b. Find the x-intercept. Does this value make sense in this context? Explain your reasoning.

c. Graph the equation.

Fair Game Review What you learned in previous grades & lessons

The points in the table lie on a line. Find the slope of the line. *(Section 4.2)*

24.

x	-2	-1	0	1
y	-10	-6	-2	2

25.

x	2	4	6	8
y	2	3	4	5

26. MULTIPLE CHOICE Which value of x makes the equation $4x - 12 = 3x - 9$ true? *(Section 1.3)*

(A) -1 (B) 0 (C) 1 (D) 3