5-2 **Exercises**

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KEYWORD: MA7 5-2
Parent Resources Online
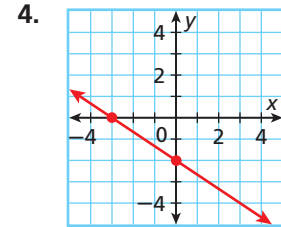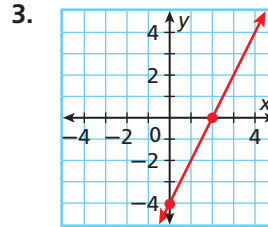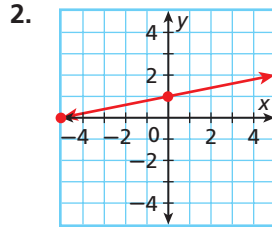KEYWORD: MA7 Parent

GUIDED PRACTICE

1. **Vocabulary** The _____?_____ is the y-coordinate of the point where a graph crosses the y-axis. (*x-intercept* or *y-intercept*)

SEE EXAMPLE 1
p. 303

Find the x- and y-intercepts.

2.

3.

4.

5. $2x - 4y = 4$

6. $-2y = 3x - 6$

7. $4y + 5x = 2y - 3x + 16$

SEE EXAMPLE 2
p. 304

8. **Biology** To thaw a specimen stored at $-25°C$, the temperature of a refrigeration tank is raised $5°C$ every hour. The temperature in the tank after x hours can be described by the function $f(x) = -25 + 5x$.
   a. Graph the function and find its intercepts.
   b. What does each intercept represent?

SEE EXAMPLE 3
p. 305

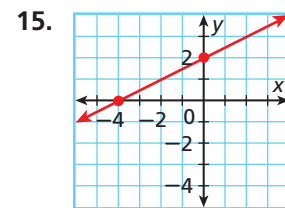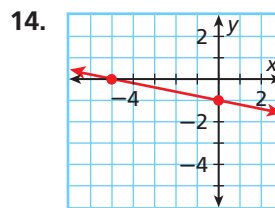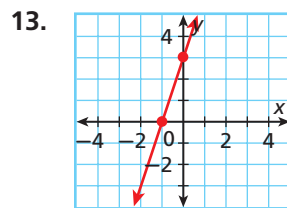Use intercepts to graph the line described by each equation.

9. $4x - 5y = 20$

10. $y = 2x + 4$

11. $\frac{1}{3}x - \frac{1}{4}y = 2$

12. $-5y + 2x = -10$

PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
13–21	1
22–23	2
24–29	3

Extra Practice
Skills Practice p. S12
Application Practice p. S32

Find the x- and y-intercepts.

13.

14.

15.

16. $6x + 3y = 12$

17. $4y - 8 = 2x$

18. $-2y + x = 2y - 8$

19. $4x + y = 8$

20. $y - 3x = -15$

21. $2x + y = 10x - 1$

22. **Environmental Science** A fishing lake was stocked with 300 bass. Each year, the population decreases by 25. The population of bass in the lake after x years is represented by the function $f(x) = 300 - 25x$.
    a. Graph the function and find its intercepts.
    b. What does each intercept represent?

23. **Sports** Julie is running a 5-kilometer race. She ran 1 kilometer every 5 minutes. Julie's distance from the finish line after x minutes is represented by the function $f(x) = 5 - \frac{1}{5}x$.
    a. Graph the function and find its intercepts.
    b. What does each intercept represent?

Use intercepts to graph the line described by each equation.

24. $4x - 6y = 12$

25. $2x + 3y = 18$

26. $\frac{1}{2}x - 4y = 4$

27. $y - x = -1$

28. $5x + 3y = 15$

29. $x - 3y = -1$

Biology

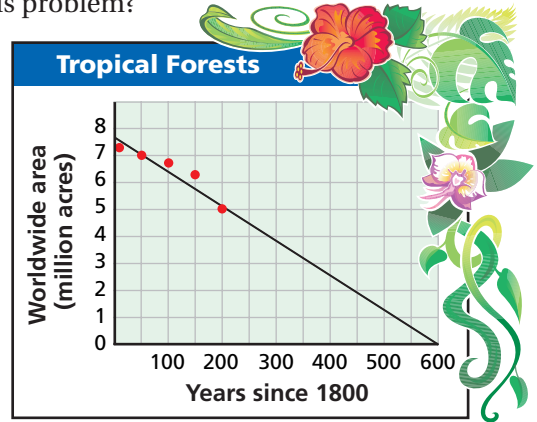Bamboo is the world's fastest-growing woody plant. Some varieties can grow more than 30 centimeters a day and up to 40 meters tall.

30. Biology A bamboo plant is growing 1 foot per day. When you first measure it, it is 4 feet tall.

   a. Write an equation to describe the height y, in feet, of the bamboo plant x days after you measure it.

   b. What is the y-intercept?

   c. What is the meaning of the y-intercept in this problem?

31. Estimation Look at the scatter plot and trend line.

   a. Estimate the x- and y-intercepts.

   b. What is the real-world meaning of each intercept?

Tropical Forests

32. Personal Finance A bank employee notices an abandoned checking account with a balance of $412. If the bank charges a $4 monthly fee for the account, the function $b = 412 - 4m$ shows the balance b in the account after m months.

   a. Graph the function and give its domain and range. (*Hint:* The bank will keep charging the monthly fee even after the account is empty.)

   b. Find the intercepts. What does each intercept represent?

   c. When will the bank account balance be 0?

33. Critical Thinking Complete the following to learn about intercepts and horizontal and vertical lines.

   a. Graph $x = -6$, $x = 1$, and $x = 5$. Find the intercepts.

   b. Graph $y = -3$, $y = 2$, and $y = 7$. Find the intercepts.

   c. Write a rule describing the intercepts of functions whose graphs are horizontal and vertical lines.

Match each equation with a graph.

34. $-2x - y = 4$

35. $y = 4 - 2x$

36. $2y + 4x = 8$

37. $4x - 2y = 8$

A.

B.

C.

D.