Check Your Understanding

Example 1 p. 153

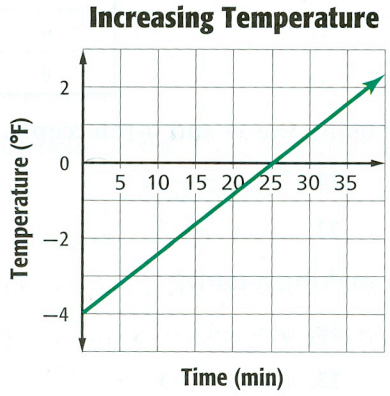
Determine whether each equation is a linear equation. Write *yes* or *no*. If yes, write the equation in standard form.

1. $x = y - 5$
2. $-2x - 3 = y$
3. $-4y + 6 = 2$
4. $\frac{2}{3}x - \frac{1}{3}y = 2$

Examples 2 and 3 pp. 154–155

Find the x- and y-intercepts of each linear function. Describe what the intercepts mean.

5.



6.

Position of Scuba Diver	
Time (s)	Depth (m)
x	y
0	−24
3	−18
6	−12
9	−6
12	0

Example 4 p. 155

Graph each equation by using the x- and y-intercepts.

7. $y = 4 + x$
8. $2x - 5y = 1$

Example 5 p. 156

Graph each equation by making a table.

9. $x + 2y = 4$
10. $-3 + 2y = -5$
11. $y = 3$

12. **RODEOS** The equation $5x + 10y = 60$ represents the number of children x and adults y who can attend the rodeo for \$60.

   a. Use the x- and y-intercepts to graph the equation.

   b. Describe what these values mean.

Practice and Problem Solving

= **Step-by-Step Solutions** begin on page R12.
Extra Practice begins on page 815.

Example 1 p. 153

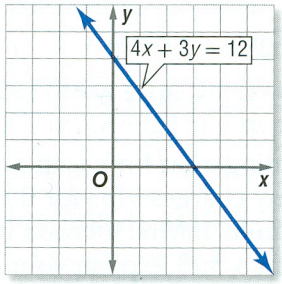
Determine whether each equation is a linear equation. Write *yes* or *no*. If yes, write the equation in standard form.

13. $5x + y^2 = 25$
14. $8 + y = 4x$
15. $9xy - 6x = 7$
16. $4y^2 + 9 = -4$
17. $12x = 7y - 10y$
18. $y = 4x + x$

Examples 2 and 3 pp. 154–155

Find the x- and y-intercepts of the graph of each linear function.

19.



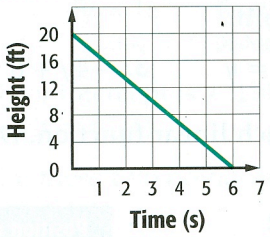
20.

x	y
−3	−1
−2	0
−1	1
0	2
1	3

Examples 2 and 3
pp. 154–155

Find the x- and y-intercepts of each linear function. Describe what the intercepts mean.

21.



22.

Eva's Distance from Home	
Time (min)	Distance (mi)
x	y
0	4
2	3
4	2
6	1
8	0

Example 4
p. 155

Graph each equation by using the x- and y-intercepts.

23. $y = 4 + 2x$
24. $5 - y = -3x$
25. $x = 5y + 5$
26. $x + y = 4$
27. $x - y = -3$
28. $y = 8 - 6x$

Example 5
p. 156

Graph each equation by making a table.

29. $x = -2$
30. $y = -4$
31. $y = -8x$
32. $3x = y$
33. $y - 8 = -x$
34. $x = 10 - y$

35 **TV RATINGS** The number of people who watch a singing competition can be given by $p = 0.15v$, where p represents the number of people in millions who saw the show and v is the number of potential viewers in millions.

a. Make a table of values for the points (v, p).

b. Graph the equation.

c. Use the graph to estimate the number of people who saw the show if there are 14 million potential viewers.

d. Explain why it would not make sense for v to be a negative number.

Real-World Link

In a recent survey, the top five uses for a DVR were: to skip commercials easily (53%); to be able to watch one show while recording another (47%); to pause live TV (32%); to use the on-screen program guide (31%); to record all the episodes of a given show (31%).

Source: MIT

Determine whether each equation is a linear equation. Write *yes* or *no*. If yes, write the equation in standard form.

36. $x + \frac{1}{y} = 7$
37. $\frac{x}{2} = 10 + \frac{2y}{3}$
38. $7n - 8m = 4 - 2m$
39. $3a + b - 2 = b$
40. $2r - 3rt + 5t = 1$
41. $\frac{3m}{4} = \frac{2n}{3} - 5$

42. **FINANCIAL LITERACY** James earns a monthly salary of \$1200 and a commission of \$125 for each car he sells.

a. Graph an equation that represents how much James earns in a month in which he sells x cars.

b. Use the graph to estimate the number of cars James needs to sell in order to earn \$5000.

Graph each equation.

43. $2.5x - 4 = y$
44. $1.25x + 7.5 = y$
45. $y + \frac{1}{5}x = 3$
46. $\frac{2}{3}x + y = -7$
47. $2x - 3 = 4y + 6$
48. $3y - 7 = 4x + 1$

49. **VACATION** Mrs. Johnson is renting a car for vacation and plans to drive a total of 800 miles. A rental car company charges \$153 for the week including 700 miles and \$0.23 for each additional mile. If Mrs. Johnson has only \$160 to spend on the rental car, can she afford to rent a car? Explain your reasoning.