Plot the point in a coordinate plane. *Describe* **the location of the point.**

1. $A(7, 1)$
2. $B(-4, 0)$
3. $C(3, -9)$

Draw the line that has the given intercepts.

4. x-intercept: 2
   y-intercept: -6
5. x-intercept: -1
   y-intercept: 8
6. x-intercept: -3
   y-intercept: -5

Find the slope of the line that passes through the points.

7. $(2, 1)$ and $(8, 4)$
8. $(-2, 7)$ and $(0, -1)$
9. $(3, 5)$ and $(3, 14)$

Identify the slope and y-intercept of the line with the given equation.

10. $y = -\dfrac{3}{2}x - 10$
11. $7x + 2y = -28$
12. $3x - 8y = 48$

Tell whether the equation represents direct variation. If so, identify the constant of variation.

13. $x + 4y = 4$
14. $-\dfrac{1}{3}x - y = 0$
15. $3x - 3y = 0$

Graph the equation.

16. $x = 3$
17. $y + x = 6$
18. $2x + 8y = -32$

Evaluate the function for the given value.

19. $f(x) = -4x$ when $x = 2.5$
20. $g(x) = \dfrac{5}{2}x - 6$ when $x = -2$

21. **BUSINESS** To start a dog washing business, you invest $300 in supplies. You charge $10 per hour for your services. Your profit P (in dollars) for working t hours is given by $P = 10t - 300$. Graph the equation. You will break even when your profit is $0. Use the graph to find the number of hours you must work in order to break even.

22. **PEDIATRICS** The dose d (in milligrams) of a particular medicine that a pediatrician prescribes for a patient varies directly with the patient's mass m (in kilograms). The pediatrician recommends a dose of 150 mg of medicine for a patient whose mass is 30 kg.

    a. Write a direct variation equation that relates m and d.

    b. What would the dose of medicine be for a patient whose mass is 50 kg?

23. **SCISSOR LIFT** The scissor lift is a device that can lower and raise a platform. The maximum and minimum heights of the platform of a particular scissor lift are shown. The scissor lift can raise the platform at a rate of 3.5 inches per second. The height of the platform after t seconds is given by $h(t) = 3.5t + 48$. Graph the function and identify its domain and range.

252 in.

48 in.

Raised   Lowered