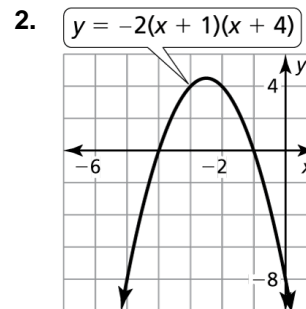
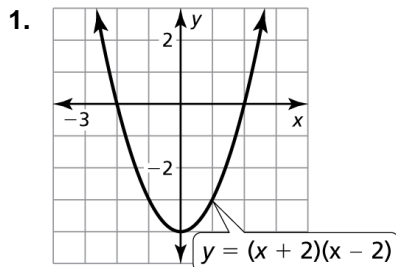


## 8.5

### Practice A

In Exercises 1 and 2, find the  $x$ -intercepts and axis of symmetry of the graph of the function.



In Exercises 3–6, graph the quadratic function. Label the vertex, axis of symmetry, and  $x$ -intercepts. Describe the domain and range of the function.

3.  $f(x) = (x + 3)(x - 1)$

4.  $y = -(x - 5)(x + 1)$

5.  $f(x) = 2x^2 - 16x$

6.  $y = x^2 + 8x + 7$

In Exercises 7–10, find the zero(s) of the function.

7.  $y = -4(x - 5)(x - 9)$

8.  $f(x) = \frac{1}{4}(x + 3)(x - 2)$

9.  $g(x) = x^2 - 7x - 30$

10.  $y = 2x^2 - x - 10$

In Exercises 11–14, use zeros to graph the function.

11.  $y = (x + 1)(x - 3)$

12.  $f(x) = -2(x + 2)(x + 6)$

13.  $g(x) = x^2 - 10x + 21$

14.  $y = x^2 - x - 6$

In Exercises 15–19, write a quadratic function in standard form whose graph satisfies the given conditions.

15. vertex:  $(-5, 4)$

16.  $x$ -intercepts: 2 and 7

17. passes through  $(-3, 0)$ ,  $(1, 0)$ , and  $(-1, 8)$

18. axis of symmetry:  $x = -3$

19. passes through:  $(-4, 0)$  and  $(4, 0)$

**8.5 Practice B**

In Exercises 1 and 2, find the  $x$ -intercepts and axis of symmetry of the graph of the function.

1.  $f(x) = -\frac{1}{3}x(x + 5)$

2.  $g(x) = 9(x + 6)(x - 4)$

In Exercises 3–6, graph the quadratic function. Label the vertex, axis of symmetry, and  $x$ -intercepts. Describe the domain and range of the function.

3.  $f(x) = 4(x + 3)(x + 2)$

4.  $y = -3(x - 4)(x + 2)$

5.  $p(x) = x^2 - 7x + 12$

6.  $y = 2x^2 + 20x + 42$

In Exercises 7–10, find the zero(s) of the function.

7.  $f(x) = \frac{2}{3}(x + 8)(x - 5)$

8.  $g(x) = 3x^2 + 13x + 4$

9.  $y = (x^2 - 25)(x + 7)$

10.  $y = x^3 - 81x$

In Exercises 11–14, use zeros to graph the function.

11.  $f(x) = -2(x - 5)(x - 3)$

12.  $g(x) = x^2 + 2x - 24$

13.  $y = -4x^2 - 16x + 20$

14.  $f(x) = 3x^2 - 12$

In Exercises 15–19, write a quadratic function in standard form whose graph satisfies the given conditions.

15. vertex:  $(6, -2)$

16.  $x$ -intercepts: 5 and  $-8$

17. passes through  $(-4, 0)$ ,  $(2, 0)$ , and  $(0, -4)$

18.  $y$  decreases as  $x$  increases when  $x < 1$ ;  $y$  increases as  $x$  increases when  $x > 1$

19. range:  $y \leq 6$

20. The cross section of a satellite dish can be modeled by the function  $y = \frac{1}{6}(x^2 - 9)$ ,

where  $x$  and  $y$  are measured in feet. The  $x$ -axis represents the top of the opening of the dish.

a. How wide is the satellite dish?

b. How deep is the satellite dish?