

# Practice A

For use with pages 518–524

Identify the values of  $a$ ,  $b$ , and  $c$  in the functions.

1.  $y = 3x^2 - 5x + 2$

2.  $y = x^2 + 2x - 3$

3.  $y = -4x^2 + x$

4.  $y = -x^2 + 4x - 8$

5.  $y = -5x^2 - x + 5$

6.  $y = x^2 - 4$

Tell whether the graph opens up or down. Write an equation of the axis of symmetry.

7.  $y = 4x^2 - 4$

8.  $y = x^2 - 2x - 3$

9.  $y = -x^2 - 2x + 3$

10.  $y = 5x^2 + 10x + 7$

11.  $y = -x^2 + 4x + 16$

12.  $y = -3x^2 - 9x - 12$

13.  $y = -2x^2 - 3x + 6$

14.  $y = 7x^2 + 14x - 2$

15.  $y = 3x^2 + 2x + 4$

Find the coordinates of the vertex.

16.  $y = 3x^2$

17.  $y = -2x^2$

18.  $y = 5x^2 - 1$

19.  $y = x^2 + 6x$

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

21.  $y = -2x^2 + 4x - 1$

Find the coordinates of the vertex. Make a table of values, using  $x$ -values to the left and right of the vertex.

22.  $y = x^2 + 2x + 4$

$x$					
$y$					

23.  $y = -3x^2 + 6x + 1$

$x$					
$y$					

Sketch the graph of the function. Label the vertex.

24.  $y = -x^2 - 4$

25.  $y = x^2 + 6x + 5$

26.  $y = -x^2 - 4x - 3$

27.  $y = x^2 + 2x - 15$

28.  $y = 3x^2$

29.  $y = x^2 - 6x + 10$

30.  $y = -2x^2 - 8x + 20$

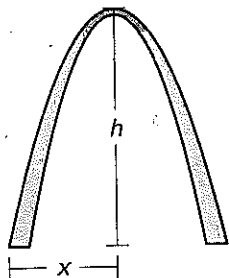
31.  $y = -x^2 + 2x + 5$

32.  $y = 2x^2 - 6x + 4$

33. **Gateway Arch** The Gateway Arch in St. Louis, Missouri, has a shape similar to that of a parabola. The edge of the arch can be modeled by

$$h = -\frac{2}{315}x^2 + 4x$$

where  $x$  and  $h$  are measured in feet. How high is the arch?



34. **Valley Depth** A model for a valley between two mountains whose peaks touch the  $x$ -axis is  $y = 40.4x^2 - 404x$ , where  $x$  and  $y$  are measured in feet. How deep is the valley?

