

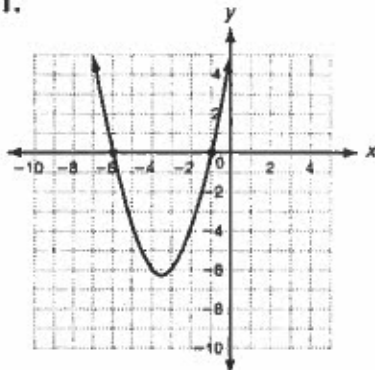


## Practice B

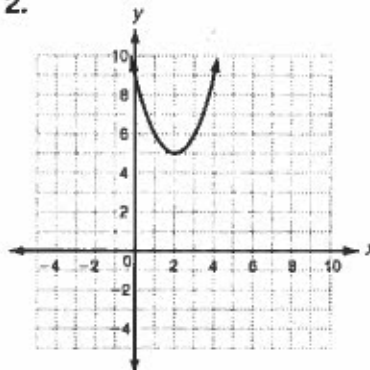
### Characteristics of Quadratic Functions

Find the zeros of each quadratic function from its graph.

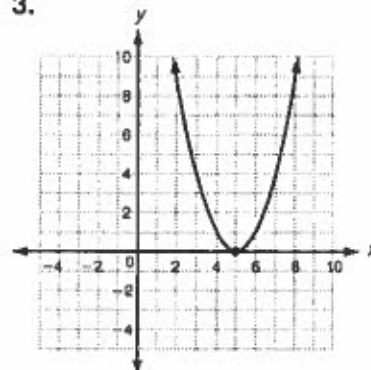
1.



2.

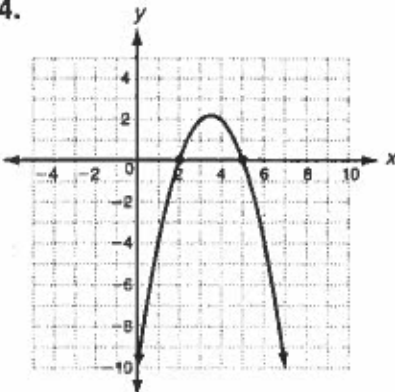


3.

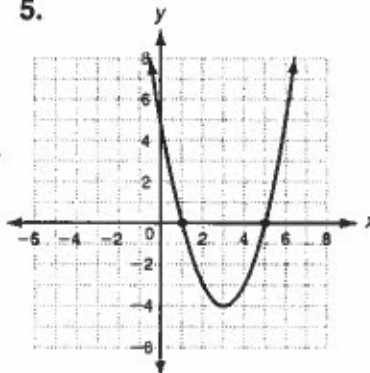


Find the axis of symmetry of each parabola.

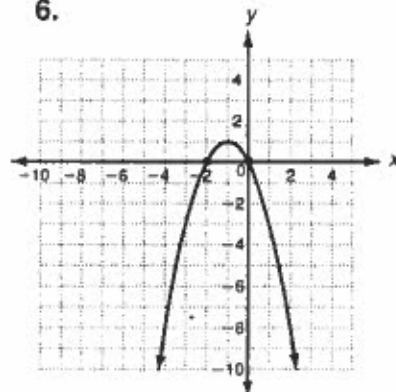
4.



5.



6.



For each quadratic function, find the axis of symmetry of its graph.

7.  $y = 3x^2 - 6x + 4$

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

9.  $y = 4x^2 + \frac{1}{2}x + 3$

Find the vertex of each parabola.

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

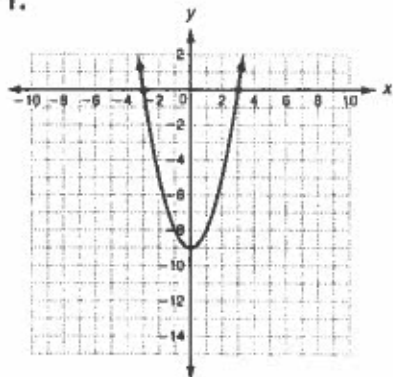
11.  $y = 3x^2 + 12x - 10$

12.  $y = x^2 + 2x - 35$

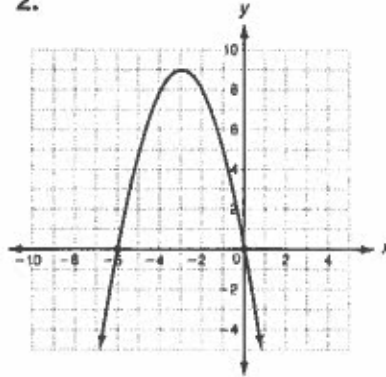
**LESSON**
**9-2**
**Practice C**
**Characteristics of Quadratic Functions**

Find the zeros of each quadratic function from its graph.

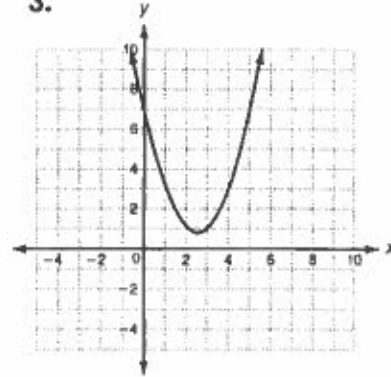
1.



2.

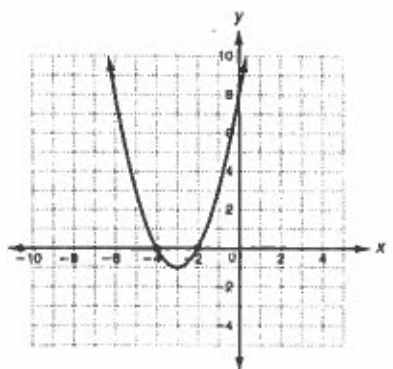


3.

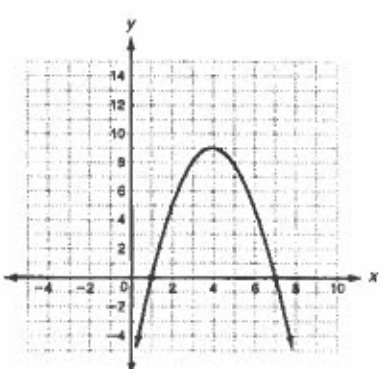


Find the axis of symmetry of each parabola.

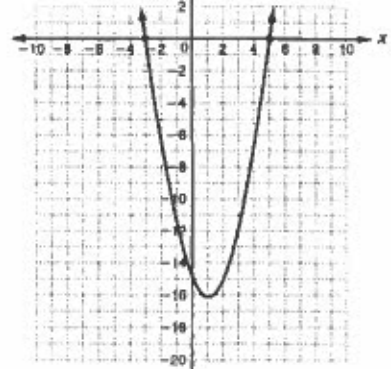
4.



5.



6.



For each quadratic function, find the axis of symmetry of its graph.

7.  $y = -2x^2 + \frac{1}{2}x + 8$

8.  $y = 0.4x^2 + 0.6x + 10$

9.  $y = \frac{1}{3}x^2 + \frac{1}{4}x$

Find the vertex of each parabola.

10.  $y = 4x^2 - 8x + 1$

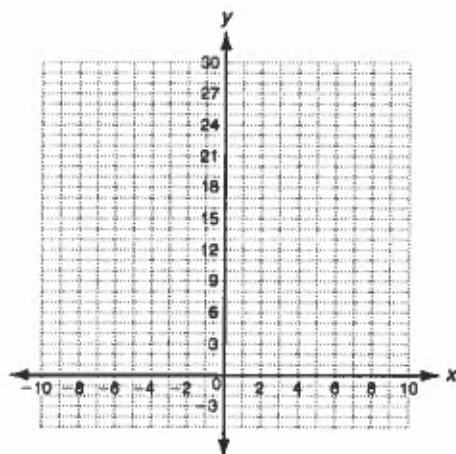
11.  $y = -2x^2 - 8x + 7$

12.  $y = 6x^2 + 18x + 5$

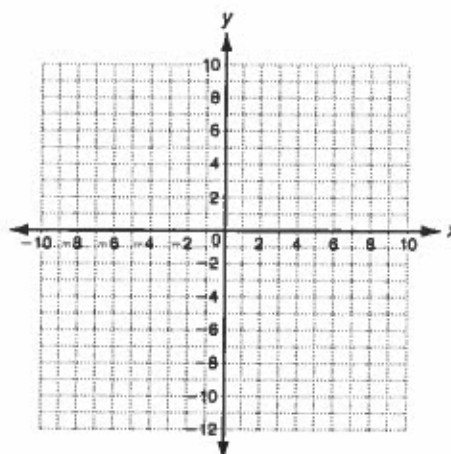
**LESSON**  
**9-3**
**Practice C**
**Graphing Quadratic Functions**

Graph each quadratic function.

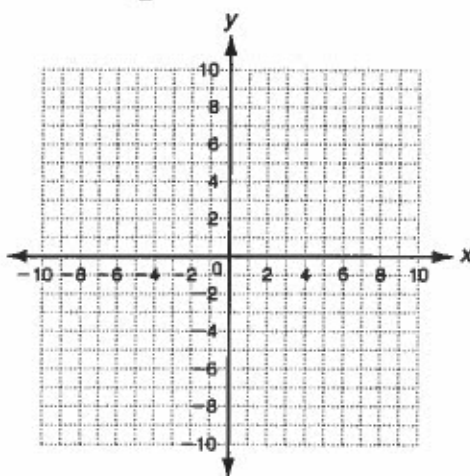
1.  $x^2 + y = -6x + 16$



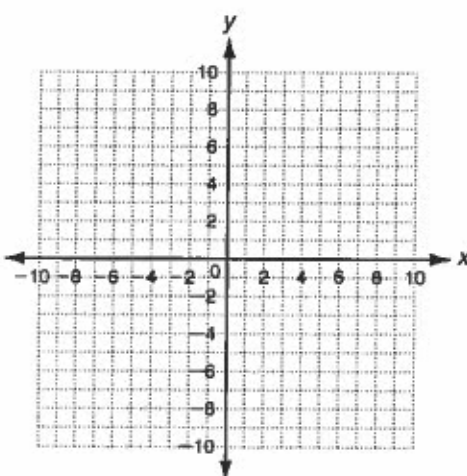
2.  $y - 2x^2 - x + 10 = 0$



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



4.  $y + 8 + 3x^2 = 12x$

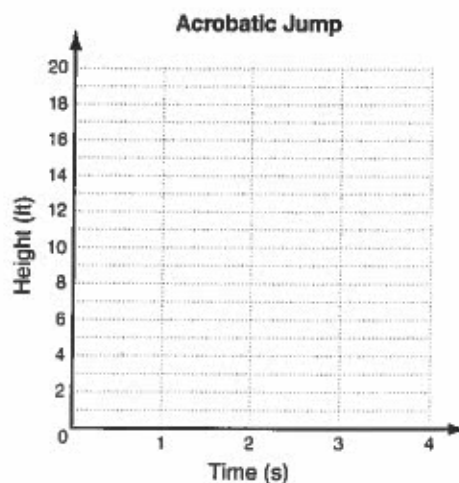


5. The height in feet of an acrobat who jumps from a trampoline 10 feet in the air to a large mat on the ground can be modeled by the function  $f(x) = -8x^2 + 16x + 10$ , where  $x$  is the time in seconds after the acrobat jumps. Find the maximum height of the acrobat and the time it takes to reach this height. Then find how long the acrobat is in the air.

maximum height: \_\_\_\_\_

time to reach maximum height: \_\_\_\_\_

time in the air: \_\_\_\_\_





LESSON  
9-3

## Practice B

### Graphing Quadratic Functions

Graph each quadratic function.

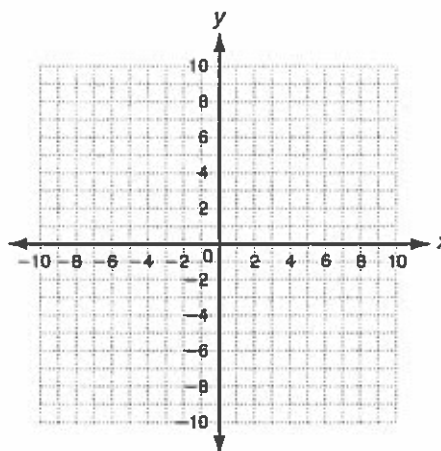
1.  $y = x^2 + 4x - 4$

axis of symmetry: \_\_\_\_\_

vertex: \_\_\_\_\_

y-intercept: \_\_\_\_\_

two other points: \_\_\_\_\_



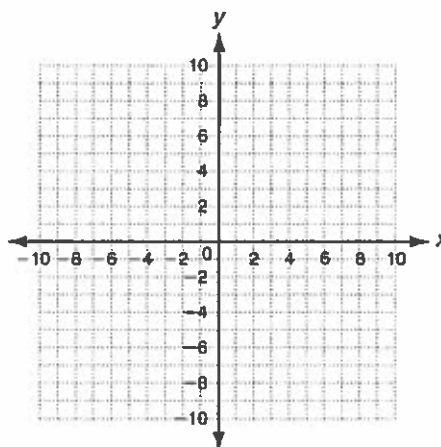
2.  $y = 2x^2 - 4x - 6 = 0$

axis of symmetry: \_\_\_\_\_

vertex: \_\_\_\_\_

y-intercept: \_\_\_\_\_

two other points: \_\_\_\_\_

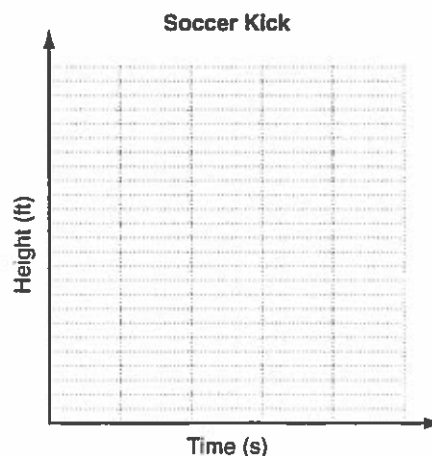


3. The height in feet of a soccer ball that is kicked can be modeled by the function  $f(x) = -8x^2 + 24x$ , where  $x$  is the time in seconds after it is kicked. Find the soccer ball's maximum height and the time it takes the ball to reach this height. Then find how long the soccer ball is in the air.

maximum height: \_\_\_\_\_

time to reach maximum height: \_\_\_\_\_

time in the air: \_\_\_\_\_





# Practice B

## Transforming Quadratic Functions

Order the functions from narrowest graph to widest.

1.  $f(x) = 3x^2$ ;  $g(x) = -2x^2$

2.  $f(x) = \frac{1}{2}x^2$ ;  $g(x) = 5x^2$ ;  $h(x) = x^2$

3.  $f(x) = 4x^2$ ;  $g(x) = -3x^2$ ;  $h(x) = \frac{1}{4}x^2$

4.  $f(x) = 0.5x^2$ ;  $g(x) = \frac{1}{4}x^2$ ;  $h(x) = \frac{1}{3}x^2$

Compare the graph of each function with the graph of  $f(x) = x^2$ .

5.  $g(x) = 5x^2 + 10$  \_\_\_\_\_

6.  $g(x) = \frac{1}{8}x^2 - 3$  \_\_\_\_\_

7.  $g(x) = -3x^2 + 8$  \_\_\_\_\_

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

9. Two sandbags are dropped from a hot air balloon, one from a height of 400 feet and the other from a height of 1600 feet.

- a. Write the two height functions.

$$h_1(t) = \underline{\hspace{2cm}} \quad h_2(t) = \underline{\hspace{2cm}}$$

- b. Sketch and compare their graphs.

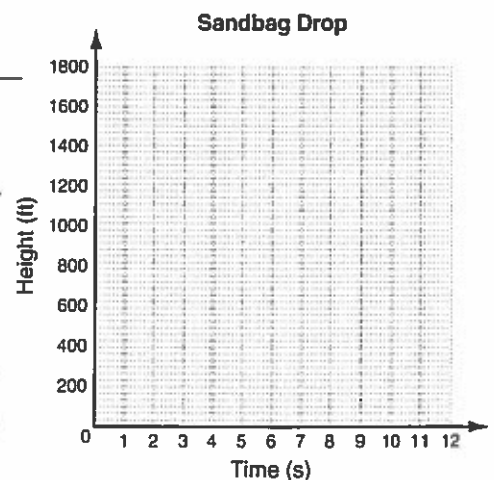
\_\_\_\_\_

\_\_\_\_\_

- c. Tell when each sandbag reaches the ground.

\_\_\_\_\_

\_\_\_\_\_



# **LESSON** **9-4 Practice C** **Transforming Quadratic Functions**

Order the functions from narrowest graph to widest.

1.  $f(x) = x^2$ ;  $g(x) = -3x^2$

2.  $f(x) = \frac{1}{3}x^2$ ;  $g(x) = 3x^2$ ;  $h(x) = -2x^2$

3.  $f(x) = \frac{1}{2}x^2$ ;  $g(x) = -x^2$ ;  $h(x) = 8x^2$

4.  $f(x) = \frac{1}{3}x^2$ ;  $g(x) = -0.25x^2$ ;  $h(x) = 0.5x^2$

Compare the graph of each function with the graph of  $f(x) = x^2$ .

5.  $g(x) = 3.5x^2 + 2$

6.  $g(x) = -\frac{1}{10}x^2$

7.  $g(x) = -\frac{1}{2}x^2 - 4$

8.  $g(x) = 6x^2 + \frac{1}{2}$

9. Two hikers at different outlooks drop stones at the same time. One hiker is at an elevation of 5184 feet; the other is at an elevation of 4624 feet.

- a. Write, sketch, and compare the two height functions.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- b. How much sooner will the stone dropped from the lower elevation hit the ground?

\_\_\_\_\_

