

**LESSON**  
**5-2**

**Practice B**

**Properties of Quadratic Functions in Standard Form**

Identify the axis of symmetry for the graph of each function.

1.  $g(x) = x^2 - 4x + 2$

2.  $h(x) = -8x^2 + 12x - 11$

3.  $k(x) = -4(x + 3)^2 + 9$

\_\_\_\_\_

For each function, (a) determine whether the graph opens upward or downward, (b) find the axis of symmetry, (c) find the vertex, and (d) find the y-intercept. Then graph the function.

4.  $f(x) = -x^2 + 3x + 1$

a. Upward or downward \_\_\_\_\_

b. Axis of symmetry \_\_\_\_\_

c. Vertex \_\_\_\_\_

d. y-intercept \_\_\_\_\_

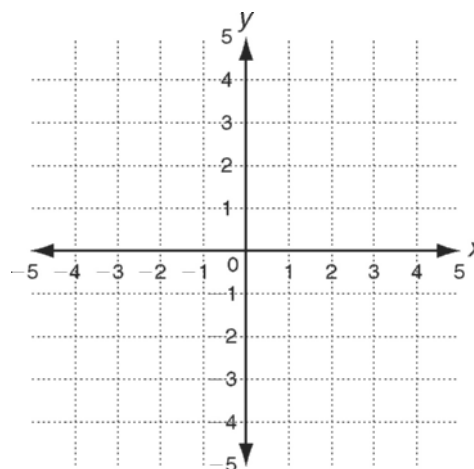
5.  $g(x) = 2x^2 + 4x - 2$

a. Upward or downward \_\_\_\_\_

b. Axis of symmetry \_\_\_\_\_

c. Vertex \_\_\_\_\_

d. y-intercept \_\_\_\_\_



Find the minimum or maximum value of each function. Then state the domain and range of the function.

6.  $g(x) = x^2 - 2x + 1$

7.  $h(x) = -5x^2 + 15x - 3$

\_\_\_\_\_

**Solve.**

8. A record label uses the following function to model the sales of a new release.

$$a(t) = -90t^2 + 8100t$$

The number of albums sold is a function of time,  $t$ , in days. On which day were the most albums sold? What is the maximum number of albums sold on that day?

\_\_\_\_\_

from the lower left to the upper right.

4.  $(-6, -3)$ ; since  $a$  is positive, the parabola opens upward.

### LESSON 5-2

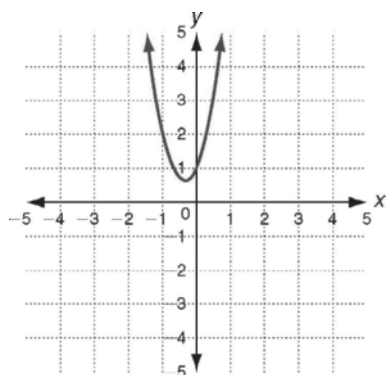
#### Practice A

1.  $x = 4$
2.  $x = 2$
3.  $x = -6$
4.  $x = -1$
5. True
6. False
7. False
8. a. Upward

b.  $x = -\frac{1}{3}$

c.  $(-\frac{1}{3}, \frac{2}{3})$

- d. 1



e. Minimum

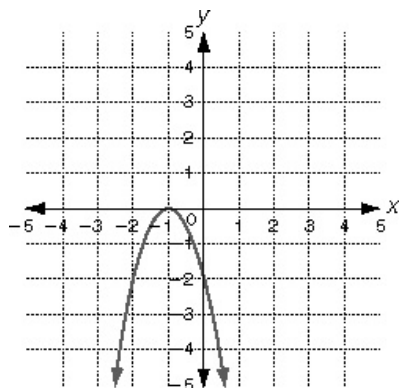
f.  $\frac{2}{3}$

9. a. Downward

b.  $x = -1$

c.  $(-1, 0)$

d.  $-2$



e. Maximum

f. 0

#### Practice B

1.  $x = 2$

2.  $x = \frac{3}{4}$

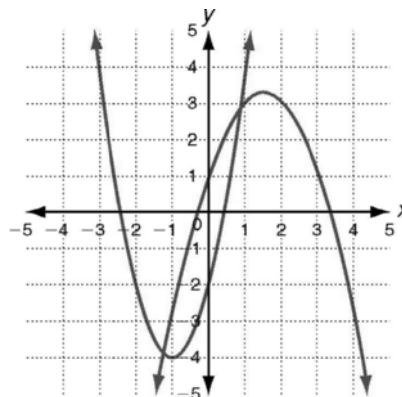
3.  $x = -3$

4. a. Downward

b.  $x = 1.5$

c.  $(1.5, 3.25)$

d. 1



5. a. Upward

b.  $x = -1$

c.  $(-1, -4)$

d.  $-2$

6. Minimum: 0; domain: all real numbers; range:  $\{y \mid y \geq 0\}$

7. Maximum: 8.25; domain: all real numbers; range:  $\{y \mid y \leq 8.25\}$

8. Day 45; 182,250 records

#### Practice C

1. a. Upward

b.  $x = -2$

c.  $(-2, 2)$

d. 4

2. a. Downward

b.  $x = -3$

c.  $(-3, 1)$

d.  $-17$