

# 9-2

## Practice

Form K

### Quadratic Functions

Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of each function.

1.  $y = 3x^2 + 1$   $x = 0$ ;  $(0, 1)$

2.  $y = x^2 - 6x + 2$   $x = 3$ ;  $(3, -7)$

3.  $y = x^2 - 8x + 12$   $x = 4$ ;  $(4, -4)$

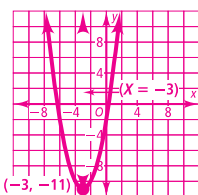
4.  $y = -2x^2 - 5$   $x = 0$ ;  $(0, -5)$

5.  $y = 3x^2 + 6x - 8$   $x = -1$ ;  $(-1, -11)$

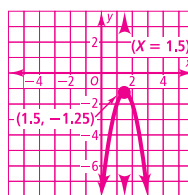
6.  $y = -6x^2 + 12x - 3$   $x = 1$ ;  $(1, 3)$

Graph each function. Label the axis of symmetry and the vertex.

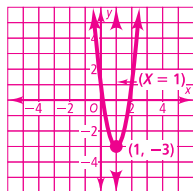
7.  $f(x) = x^2 + 6x - 2$



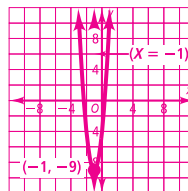
8.  $f(x) = -3x^2 + 9x - 8$



9.  $f(x) = 4x^2 - 8x + 1$



10.  $f(x) = 5x^2 + 10x - 4$



11. A baseball player hit a ball with an upward velocity of 46 ft/s. Its height  $h$  in feet after  $t$  seconds is given by the function  $h = -16t^2 + 46t + 6$ . What is the maximum height the ball reaches? How long will it take the baseball to reach the maximum height? How long does it take for the ball to hit the ground? **39 ft; 1.44 s; 3 s**
12. A golf ball is chipped into the air from a small hill with an upward velocity of 50 ft/s. Its height  $h$  in feet after  $t$  seconds is given by the function  $h = -16t^2 + 50t + 10$ . What is the maximum height the ball reaches? How long will it take the ball to reach the maximum height? How long does it take for the ball to hit the ground? **49ft; 1.56 s; 3.31 s**

# 9-2

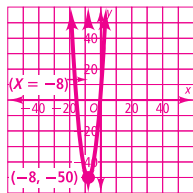
## Practice (continued)

Form K

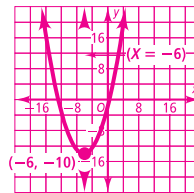
### Quadratic Functions

Graph each function. Label the axis of symmetry and the vertex.

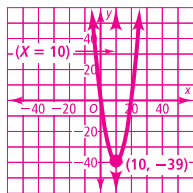
13.  $f(x) = \frac{3}{4}x^2 + 12x - 2$



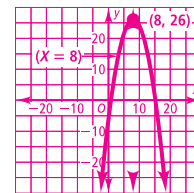
14.  $f(x) = \frac{1}{3}x^2 + 4x + 2$



15.  $f(x) = \frac{2}{5}x^2 - 8x + 1$



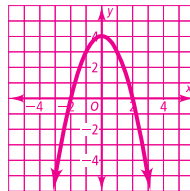
16.  $f(x) = -\frac{1}{2}x^2 + 8x - 6$



For Exercises 17 and 18, give an example of a quadratic function with the given characteristic(s). Justify your answer by graphing the function.

17. Its graph opens down and has its vertex at (0, 4).

Answers may vary. Sample:  
 $y = -x^2 + 4;$



18. Its graph opens upward and has its vertex at (0, -2).

Answers may vary. Sample:  
 $y = x^2 - 2;$

