Name _____ Class _____ Date _____

For each equation, find the axis of symmetry and the coordinates of the vertex.

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

Axis of symmetry:

Vertex:

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

Axis of symmetry:

Vertex:

3. $y = 3x^2 + 6x - 8$

Axis of symmetry:

Vertex:

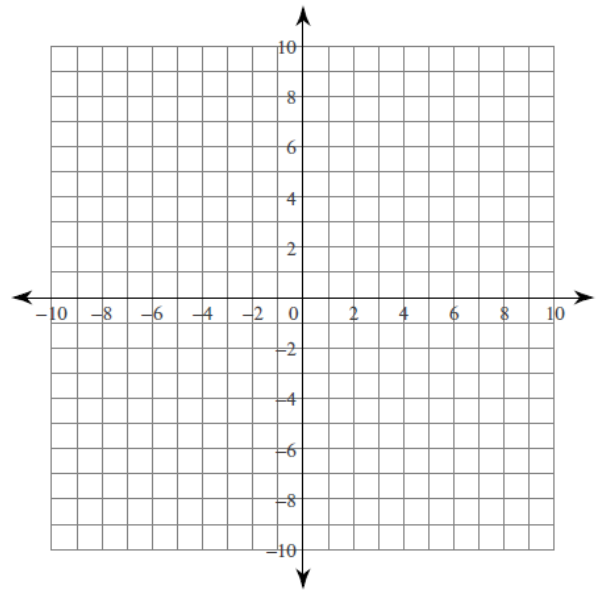4. $y = -6x^2 + 12x - 3$

Axis of symmetry:

Vertex:

5. Graph $y = 4x^2 - 8x + 1$ without using a table. Label the axis of symmetry and the vertex.

a= _____ , b= _____ , c = _____

Axis of Symmetry:

Vertex:

y-intercept:

6. A golf ball is chipped into the air from a small hill with an upward velocity of 50 ft/sec. Its height h in feet after t seconds is given by the function $h = -16t^2 + 50t + 10$.

   a. How long will it take the ball to reach the maximum height?
     (Hint: think about what part of the graph is represented when the ball reaches the max height)

   b. What is the maximum height the ball reaches?

   c. How long does it take the ball to hit the ground?