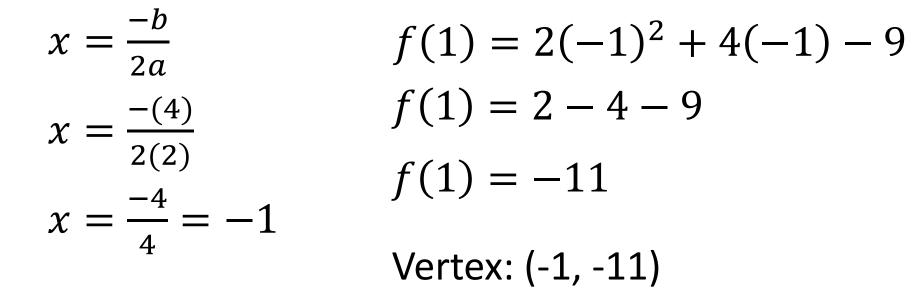
Standard to Vertex Form

Convert to vertex form: $y = 2x^2 + 4x - 9$ Identify the axis of symmetry:



 $y = 2(x + 1)^2 - 11$ Axis of Symmetry: x = -1

Convert to vertex form: $y = \frac{-3}{2}x^2 - 9x + 2$ $f(-3) = \frac{-3}{2}(-3)^2 - 9(-3) + 2$ $x = \frac{-b}{2a}$ f(-3) = -13.5 + 27 + 2 $x = \frac{-(-9)}{2(-3/2)}$ f(-3) = 15.5 $x = \frac{9}{-3} = -3$ Vertex: (-3, 15.5)

 $y = -3(x+3)^2 + 15.5$

A golf ball is hit from an elevated location such that its height, in feet, is modeled by:

$$h(x) = \frac{-2}{525}x^2 + \frac{4}{3}x + 22$$

Determine the maximum height of the ball.

$$x = \frac{-b}{2a} \qquad h(175) = \frac{-2}{525}(175)^2 + \frac{4}{3}(175) + 22$$
$$x = \frac{-(4/3)}{2(-2/525)} \qquad h(175) = \frac{416}{3} = 138.\overline{6}$$
$$x = 175 \qquad \text{The maximum height of the ball is}$$

The maximum height of the ball is $138.\overline{6}$ feet.

The axis of symmetry for $y = ax^2 + 5x - 10$ is x = -9. What is the value of a?

$$x = \frac{-b}{2a}$$
$$-9 = \frac{-(5)}{2(a)}$$
$$-9 = \frac{-5}{2a}$$
$$-18a = -5$$
$$a = \frac{5}{18}$$