

Finding Critical Features of Parabolas

Find the axis of symmetry, vertex, y-intercept and state the direction it opens.



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

Axis of Symmetry

$$x = \frac{-b}{2a}$$

$a = 1$
 $b = -6$
 $c = 2$

$$x = \frac{-(-6)}{2(1)}$$

$$x = 3$$

That's the x value of the vertex.

Vertex $(3, y)$

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

$$y = 3^2 - 6(3) + 2$$

$$y = 9 - 18 + 2$$

$$y = -7 \quad (3, -7)$$

Opens Up/Down

$a = +1$ Opens Up

y-intercept

$$c = 2 \quad (0, 2)$$