

Example 1 – Find the vertex and Axis of Symmetry for these quadratic functions:

a.) $y = -2x^2 + 4x - 9$

$a = \underline{\quad} \quad b = \underline{\quad} \quad c = \underline{\quad}$

Vertex: $\underline{\hspace{2cm}}$

Axis of Symmetry: $\underline{\hspace{2cm}}$

b.) $y = x^2 - 10$

$a = \underline{1} \quad b = \underline{0} \quad c = \underline{-10}$

$x = \frac{-(0)}{2(1)} = 0 \quad y = (0)^2 - 10$
 $y = -10$

Vertex: $\underline{(0, -10)}$

Axis of Symmetry: $\underline{x = 0}$

c.) $y = x^2 + 4x - 1$

$a = \underline{\quad} \quad b = \underline{\quad} \quad c = \underline{\quad}$

Vertex: $\underline{\hspace{2cm}}$

Axis of Symmetry: $\underline{\hspace{2cm}}$

d.) $y = -2x^2 + 8x - 8$

$a = \underline{\quad} \quad b = \underline{\quad} \quad c = \underline{\quad}$

Vertex: $\underline{\hspace{2cm}}$

Axis of Symmetry: $\underline{\hspace{2cm}}$

Steps for Graphing a Quadratic Function

1. Follow the above steps to find the vertex and axis of symmetry.
2. Plot the vertex and the axis of symmetry on a coordinate plane.
3. Make a table of values, using x -values to the left and right of the vertex.
4. Plot the points and connect them with a smooth curve to form a parabola.