

48 Quadratic Graphs

Vertex Form	Axis of Symmetry	Vertex
$y = a(x-h)^2 + k$ $a = \frac{1}{2} \quad h = -1 \quad k = 3$ $y = \frac{1}{2}(x+1)^2 + 3$	$x = h$ $x = -1$	(h, k) $(-1, 3)$

Miscellaneous	Graph
$a > 0$ opens UP has min. $a < 0$ opens DOWN has max	Plot the vertex and axis of symmetry. Use the equation to find two more points and their reflections.

$y = \frac{1}{2}(x+1)^2 + 3$
 Vertex = $(-1, 3)$
 $x = -1$

$x = 0 \quad (0, ?)$
 $y = \frac{1}{2}(0+1)^2 + 3$
 $y = \frac{1}{2}(1) + 3 = 3\frac{1}{2}$
 $(0, 3\frac{1}{2})$

$x = 1 \quad (1, ?)$
 $y = \frac{1}{2}(1+1)^2 + 3$
 $y = \frac{1}{2}(4) + 3 = 5$
 $(1, 5)$

