

Graphing Parabolas – Vertex Form

$$y = a(x - h)^2 + k, \text{ vertex } (h, k)$$

Procedure

1. Identify the vertex as (h, k) and plot point
2. Pick a convenient value of x and find y -coordinate
3. Use symmetry to find a 3rd point to plot
4. Sketch the graph

Example Graph $y = 4(x - 1)^2 + 3$

1. Vertex is at **(1, 3)**
2. Let $x = 0$, then $y = 7$, **(0, 7)**
3. Use symmetry, 3rd point is **(2, 7)**

**From the vertex, we went over 1 to the left and up 4,
so by using symmetry, we go over 1 to the right and up 4**

