

# Graphing Quadratics in Vertex Form

Vertex form of a quadratic function:

$$y = a(x-h)^2 + k$$

Vertex of a parabola:

$(h, k)$  take opposite sign of # on inside & exactly # in back

Axis of Symmetry:

$$x = h$$

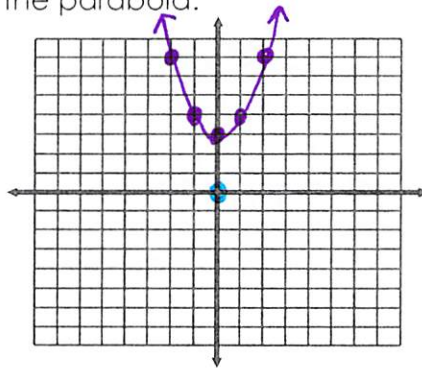
\*\*Each point of the parabola has a corresponding point on its mirror image.

Vertex form: $y = a(x-h)^2 + k$
Vertex: $(h, k)$ A.O.S.: $x = h$
From the function: h is (+) - <sup>added</sup> move left      k is (+) - moves up h is (-) - <sup>subtracted</sup> move right      k is (-) - moves down

Ex: For each of the following: Give the vertex and Axis of Symmetry. Make a t-chart of the points on the graph and graph the parabola.

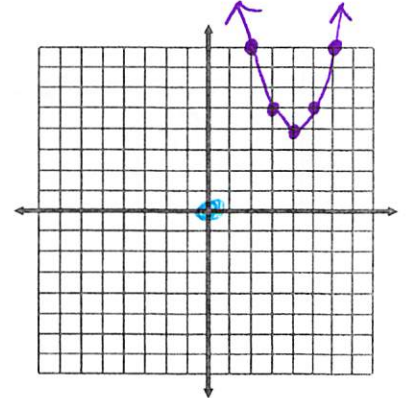
1.  $y = x^2 + 3$   
 $y = (x+0)^2 + 3$   
 Vertex:  $(0, 3)$   
 A.O.S.:  $x = 0$

x	y
-2	7
-1	4
0	3
1	4
2	7



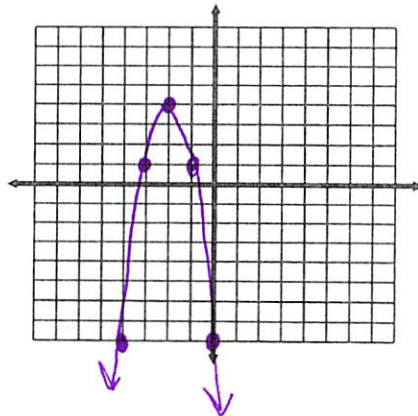
2.  $y = (x-4)^2 + 4$   
 Vertex:  $(4, 4)$   
 A.O.S.:  $x = 4$

x	y
2	8
3	5
4	4
5	5
6	8



3.  $y = -3(x+2)^2 + 4$   
 Vertex:  $(-2, 4)$   
 A.O.S.:  $x = -2$

x	y
-4	-8
-3	1
-2	4
-1	1
0	-8



4.  $y = 4(x+1)^2 - 2$   
 Vertex:  
 A.O.S.:

x	y
-3	14
-2	2
-1	-2
0	2
1	14

