Name: Date: Period:

In your own words, write the meaning of each vocabulary term.

Quadratic Function:

Parabola:

Vertex:

Axis of Symmetry:

Graphing a Quadratic Function in Vertex Form

1. Start with the function in vertex form:
2. Identify the Vertex. Reminder: (h, k) is the vertex of the parabola. Plot the vertex.
3. The line x = h is the axis of symmetry. Draw the axis of symmetry.
4. Find two or three points on one side of the axis of symmetry, by substituting your **chosen** x-values into the equation.

For this problem, we chose (to the left of the axis of symmetry):

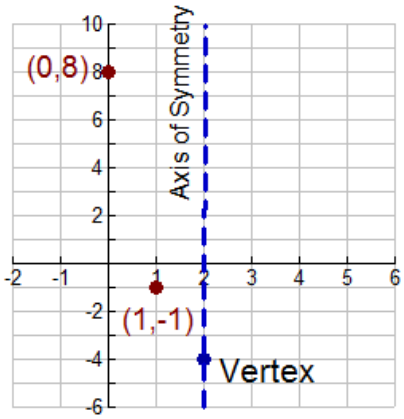
x = 1	x = 0	x = -1
$y = 3(1 - 2)^2 - 4$	$y = 3(0 - 2)^2 - 4$	$y = 3(-1 - 2)^2 - 4$
y = -1	y = 8	y = 23
Plot (1, -1)	Plot (0, 8)	(-1, 23) doesn't fit

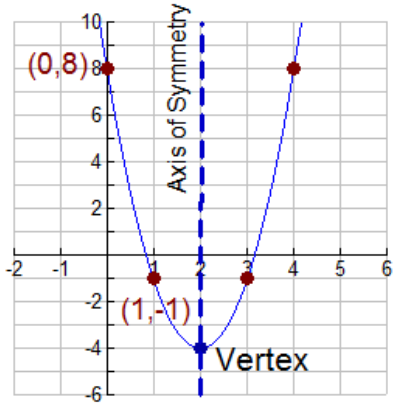
5. Plot the mirror images of these points across the axis of symmetry on the right side. Draw the parabola.

$y = 3(x - 2)^2 - 4$

$y = 3(x - 2)^2 - 4$ h = 2 k = -4
Vertex: (2, -4)

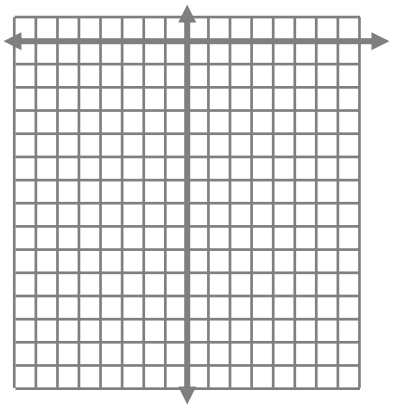
x = 2 is the axis of symmetry



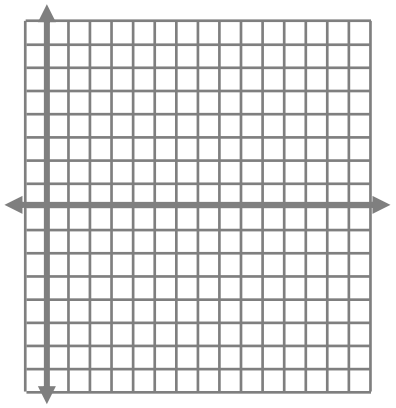


Using the procedure just given, draw the graphs of the following functions WITHOUT USING A GRAPHING CALCULATOR.

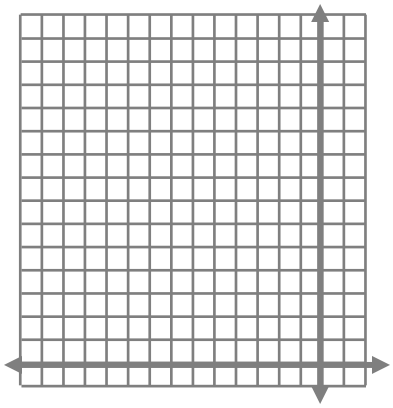
1. $y = -2(x - 1)^2 - 1$



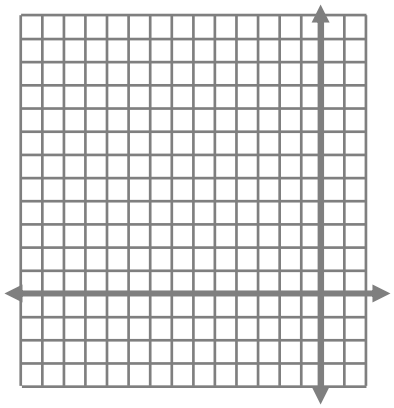
2. $y = -(x - 4)^2 + 2$



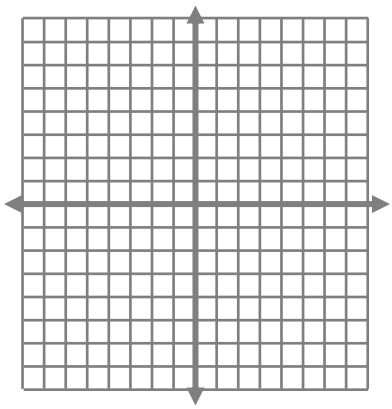
3. $y = (x + 2)^2 + 2$



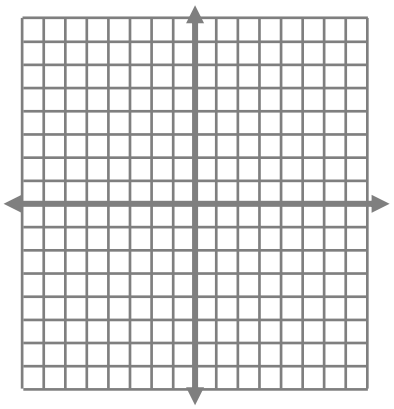
4. $y = 4(x + 1)^2 - 4$



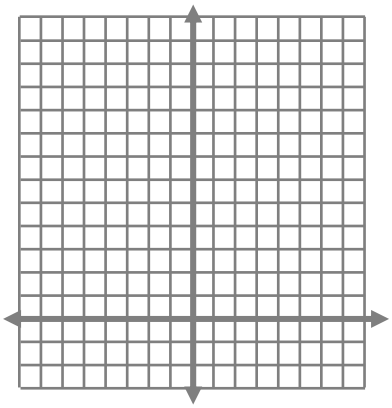
5. $f(x) = (x + 2)^2 - 4$



6. $f(x) = -x^2 + 3$



7. $f(x) = (x - 1)^2 + 1$



8. $f(x) = 2x^2$