November 7th, 2007

Sketching Quadratics

① $y = 2(x+1)^2 - 1$

Table of values

x	y
-3	7
-2	1
-1	-1
0	1
1	7
2	17
3	

② Mapping Rule

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

$(x, y) \rightarrow (x+4, -3y+1)$

$(-3, 9) \rightarrow (1, -26)$
$(-2, 4) \rightarrow (2, -11)$
$(-1, 1) \rightarrow (3, -2)$
$(0, 0) \rightarrow (4, 1)$
$(1, 1) \rightarrow (5, -2)$
$(2, 4) \rightarrow (6, -11)$
$(3, 9) \rightarrow (7, -26)$

③ as a transformation of $y = x^2$

$y = [\frac{1}{2}(x+4)]^2 - 2$ (vertex)

1) State vertex
2) Apply stretch

vertex = $(-4, -2)$
horizontal stretch of 2

x's get multiplied by horizontal stretch
y's get multiplied by vertical stretch.

Sketch using the transformation of $y = x^2$

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

vertex = $(4, 1)$

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

vertex $(-1, -2)$

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

vertex $(-1, 0)$