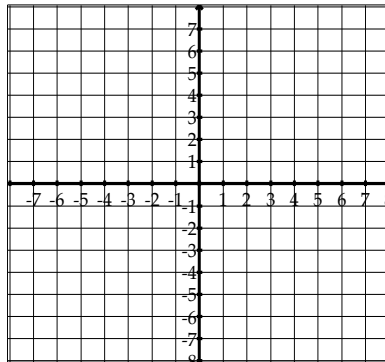


Parent Function:  $f(x) = x^2$

x	y



Vertex: \_\_\_\_\_

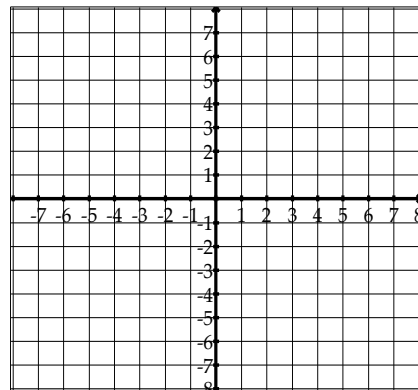
**Vertex form:**  $f(x) = a(x - h)^2 + k$       The vertex is located at (\_\_\_\_, \_\_\_\_)

**Examples:** List the transformations, label the vertex and graph each of the following:

$f(x) = (x - 2)^2 + 3$       Trans: \_\_\_\_\_

vertex: \_\_\_\_\_

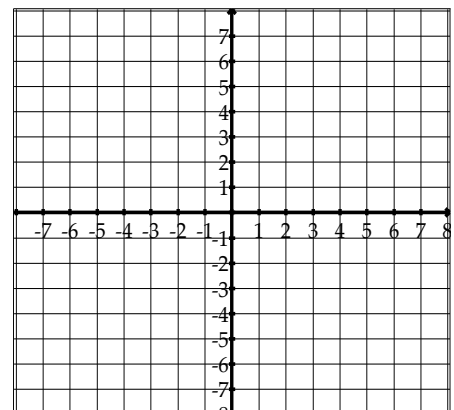
x	y

$f(x) = (x + 3)^2 - 4$       Trans: \_\_\_\_\_

vertex: \_\_\_\_\_

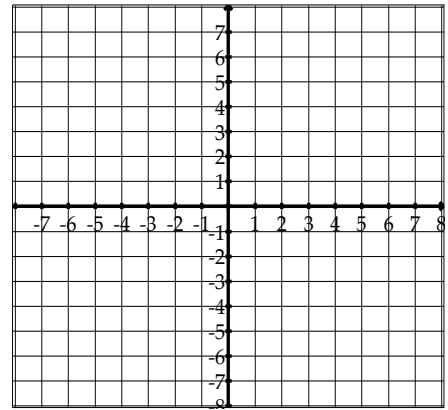
x	y

$f(x) = -2x^2$  Trans: \_\_\_\_\_

vertex: \_\_\_\_\_

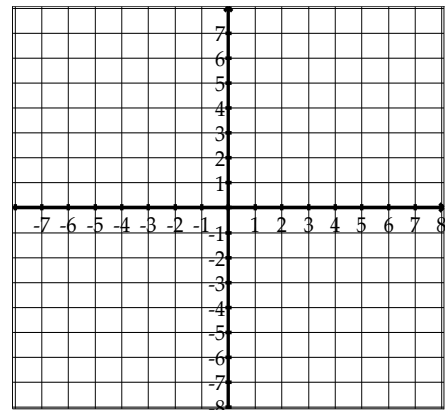
x	y

$f(x) = \frac{1}{2}(x + 4)^2$  Trans: \_\_\_\_\_

vertex: \_\_\_\_\_

x	y

Given  $f(x) = x^2$ , let  $g(x)$  be a transformation 4 units left, followed by a vertical stretch (scale factor of 2). Write the rule for  $g(x)$ .

Given  $f(x) = x^2$ , let  $g(x)$  be a vertical compression (scale factor of  $1/5$ ) followed by a vertical shift 3 units up. Write the rule for  $g(x)$ .

Given  $f(x) = |x - 3|$ , let  $g(x)$  be a transformation 2 units right and 6 units up. Write the rule for  $g(x)$ .

Given  $f(x) = |x|$ , let  $g(x)$  be a transformation 3 units left and 5 units down, then reflected across the x axis. Write the rule for  $g(x)$ .