Lesson 2 Transformers: More Than Meets the y's

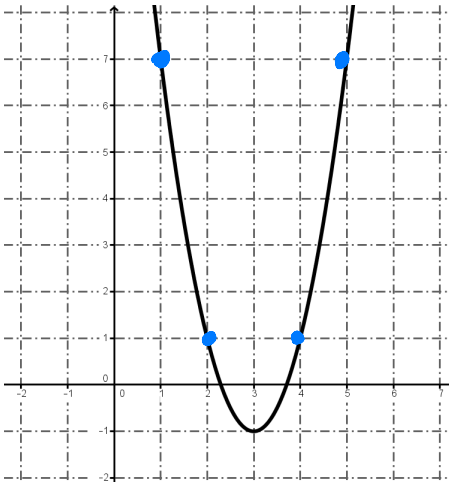
A Solidify Understanding Task

Write the equation for each problem below. Use a second representation to check your equation.

1. The area of a square with side length x, where the side length is decreased by 3, the area is multiplied by 2 and then 4 square units are added to the area.

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

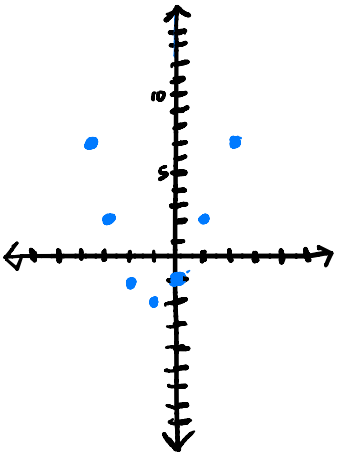
2.

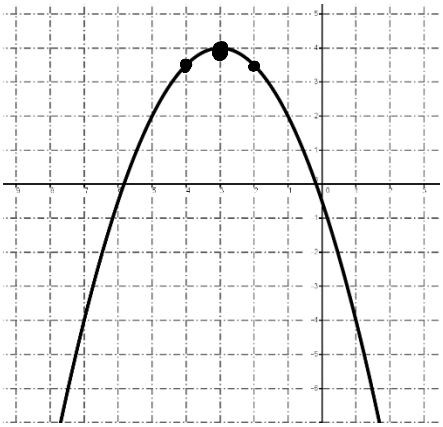


$$y = 2(x-3)^2 - 1$$

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

x	$f(x)$	
-4	7	
-3	2	-5
-2	-1	-3
-1	-2	-1
0	-1	+1
1	2	+3
2	7	+5
3	14	+7
4	23	+9

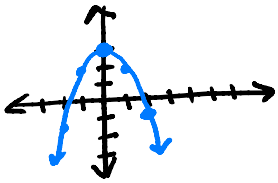


4. 

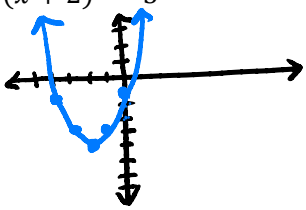
$y=-\frac{1}{2}(x+3)^2+4$

Graph each equation without using technology. Be sure to have the exact vertex and at least two correct points on either side of the line of symmetry.

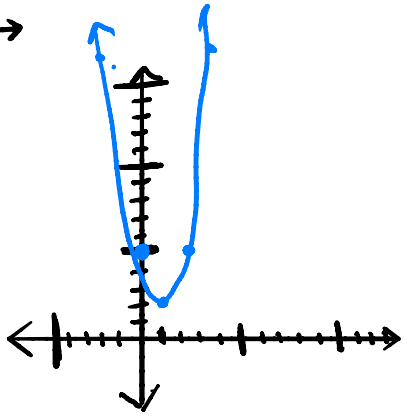
5. $f(x) = -x^2 + 3$



6. $g(x) = (x + 2)^2 - 5$



7. $h(x) = 3(x - 1)^2 + 2$



8. Given: $f(x) = a(x - h)^2 + k$

a. What point is the vertex of the parabola?

(h, k)

b. What is the equation of the line of symmetry?

x = h

c. How can you tell if the parabola opens up or down?

a > 0 opens up a < 0 opens down

d. How do you identify the dilation?

|a| > Vertical stretch |a| < vertical shrink

9. Does it matter in which order the transformations are done? Explain why or why not.

yes.

1) Horizontal shifts
2) Reflections, stretching, shrinking
3) Vertical shifts.