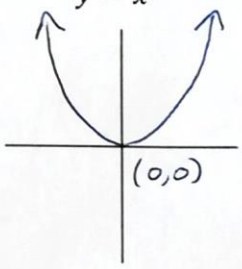
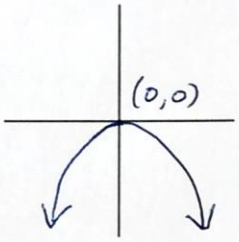
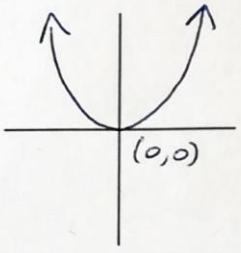
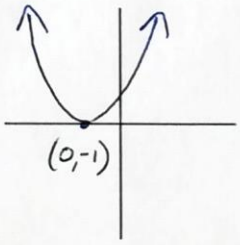
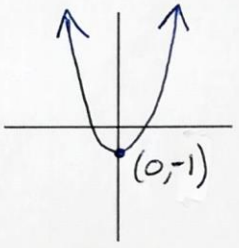
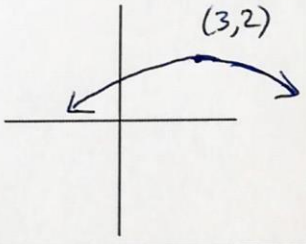
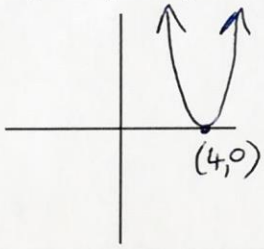
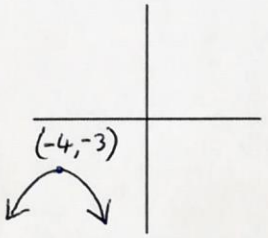
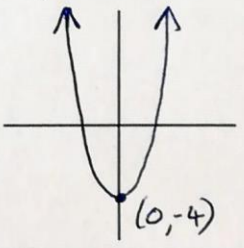
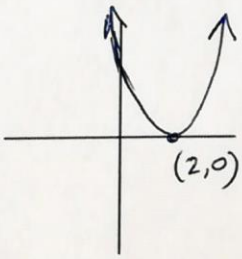
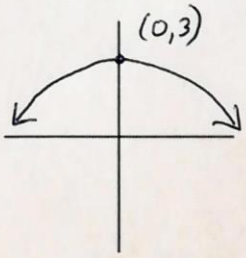
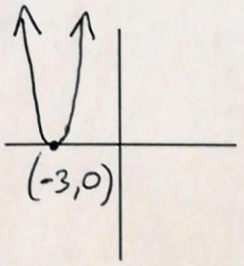
1.96: What's the Change?

Choose the most appropriate description of the transformations indicated.

1. $y = (x+3)^2$ a. translation right b. translation up c. translation left d. translation down C	2. $y = (5x)^2$ a. vertical compression b. horizontal stretch c. horizontal compression d. translation up C
3. $y = -(x)^2$ A a. reflection about x-axis b. reflection about y-axis c. translation down d. translation left	4. $y = 2x^2$ a. vertical compression b. horizontal compression c. vertical stretch d. horizontal stretch C
5. $y = (-3x)^2$ D a. horizontal compression and reflection in x-axis b. horizontal stretch and reflection in y-axis c. vertical stretch and reflection in x-axis d. horizontal compression and reflection in y-axis	6. $y = \left(0.5(x+3)\right)^2$ D a. horizontal stretch and translation right b. horizontal compression and translation left c. vertical stretch and translation right d. horizontal stretch and translation left
7. $y = (x)^2 + 5$ C a. vertical translation down b. horizontal translation left c. vertical translation up d. horizontal translation right	8. $y = -(-x)^2$ C a. reflection in x-axis and vertical compression b. reflection in y-axis and horizontal compression c. reflection in both axes d. vertical and horizontal compressions
9. $y = \left(-(x+2)\right)^2$ C a. vertical compression and translation left b. reflection in x-axis and translation right c. reflection in y-axis and translation left d. reflection in y-axis and translation right	10. $y = \frac{1}{2}(x-1)^2 + 4$ A a. vertical compression, translation right, translation up b. vertical compression, translation left, translation up c. horizontal compression, translation right, translation down d. vertical stretch, translation right, translation up

1.96: Transforming the Polynomials

Using $y = x^2$ as the base graph and your knowledge of transformations, sketch the graphs of the following quadratic functions and confirm using technology.

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

Putting it all together:

For $y = a\big(k(x-d)\big)^2 + c$ describe the effects of changing a, k, d, and c in terms of transformations.