

NOTES & HOMEWORK

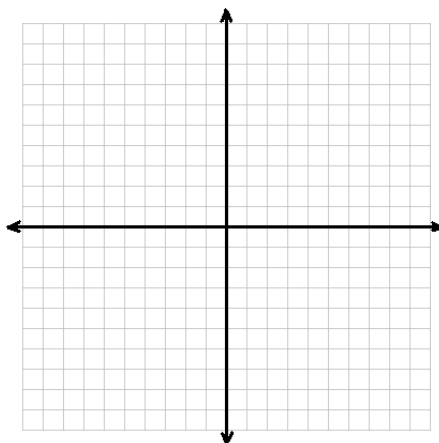
Name _____
Date _____ Period _____

Translating Points

Complete the tables of values and plot the points on the graphs provided for the given equations.

$$y = x^2$$

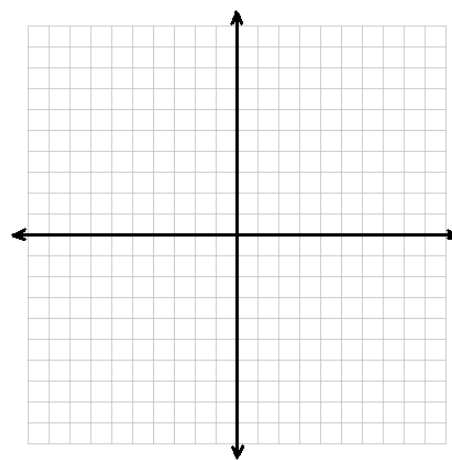
x	x^2
-2	
-1	
0	
1	
2	



You will use this graph, the standard $y = x^2$, to compare with those below.

$$y = x^2 + 2$$

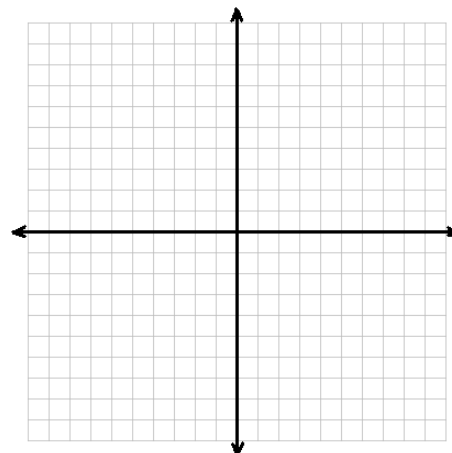
x	$x^2 + 2$
-2	
-1	
0	
1	
2	



Describe how adding 2 to x^2 changed your graph:

$$y = x^2 - 3$$

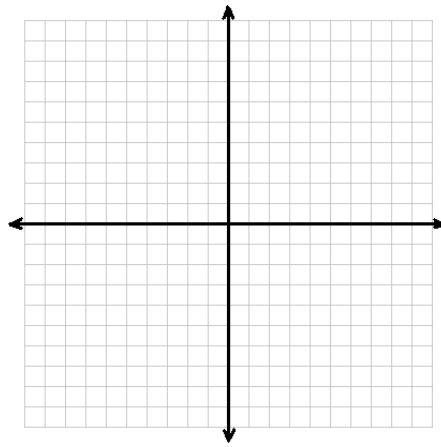
x	$x^2 - 3$
-2	
-1	
0	
1	
2	



Describe how subtracting 3 from x^2 changed your graph:

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

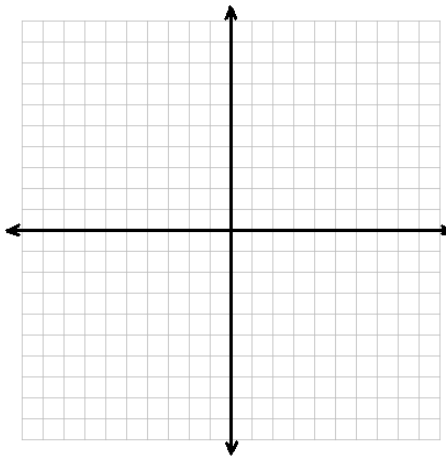
x	$(x + 2)^2$
-3	
-2	
-1	
0	
1	



Describe how adding 2 to x and then squaring it changed your graph:

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

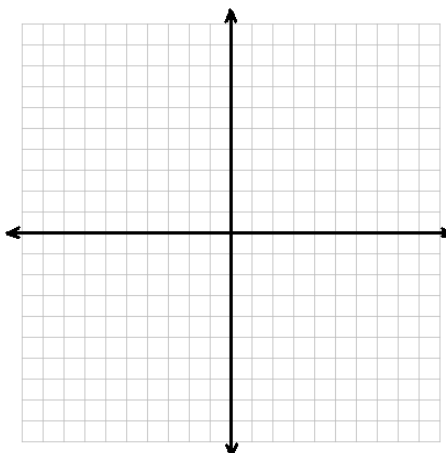
x	$(x + 3)^2 - 2$
-6	
-5	
-4	
-3	
-2	
-1	
0	



Describe how adding 3 to x and then squaring and then subtracting 2 from it changed your graph:

$$y = -2x^2$$

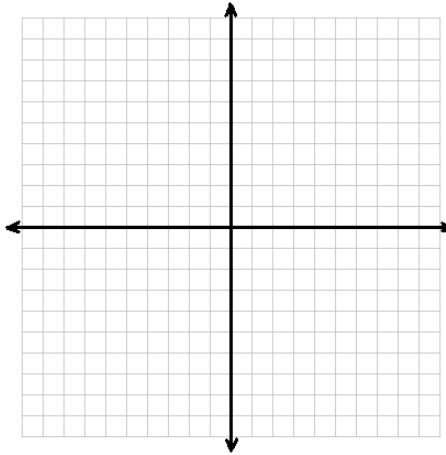
x	$-2x^2$
-2	
-1	
0	
1	
2	



Describe how multiplying -2 to x^2 changed your graph:

$$y = \frac{1}{2} x^2$$

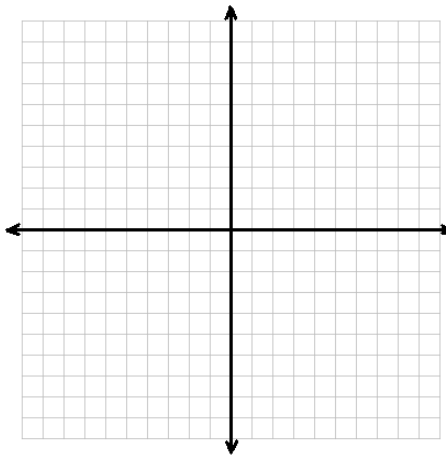
x	$\frac{1}{2} x^2$
-2	
-1	
0	
1	
2	



Describe how multiplying $\frac{1}{2}$ to x^2 changed your graph:

$$y = |x|$$

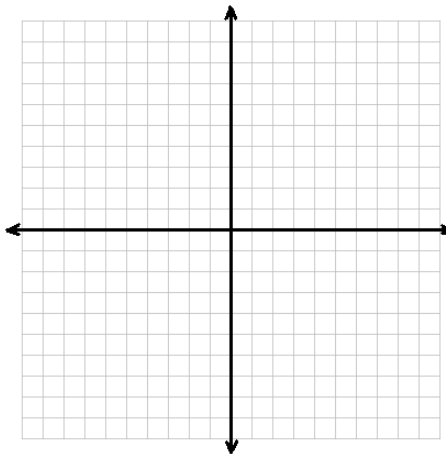
x	$ x $
-2	
-1	
0	
1	
2	



Describe how taking the absolute value of x affected your graph:

$$y = |x + 2|$$

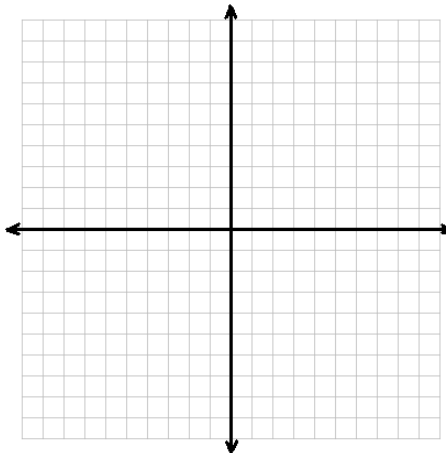
x	$ x + 2 $
-5	
-4	
-3	
-2	
-1	
0	
1	
2	



Describe how adding 2 to the absolute value of x changed your graph:

$$y = |x - 3| - 2$$

x	$ x - 3 - 2$
0	
1	
2	
3	
4	
5	
6	



Describe how subtracting 3 from x and then subtracting 2 from the absolute value of it changed your graph:

Summary

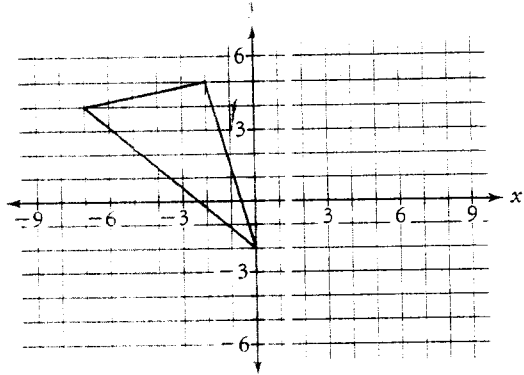
Equation	Effect
$y = x^2 + 2$	
$y = x^2 - 3$	
$y = (x + 2)^2$	
$y = (x + 3)^2 - 2$	
$y = -2x^2$	
$y = \frac{1}{2} x^2$	
$y = x $	
$y = x + 2 $	
$y = x - 3 - 2$	

Lesson 9.1 • Translating Points

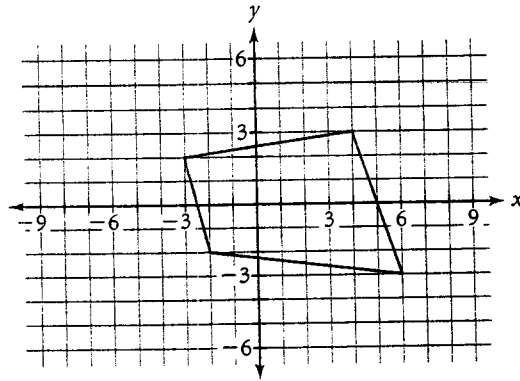
Name _____ Period _____ Date _____

1. Name the coordinates of the vertices of each figure.

a.

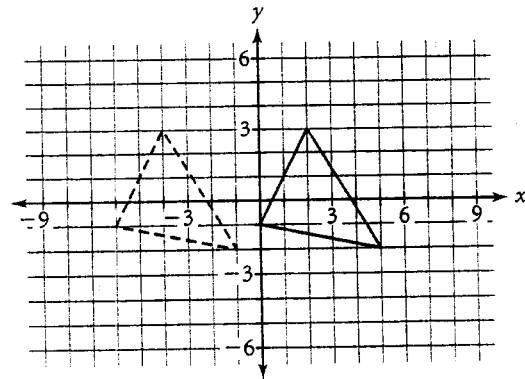


b.



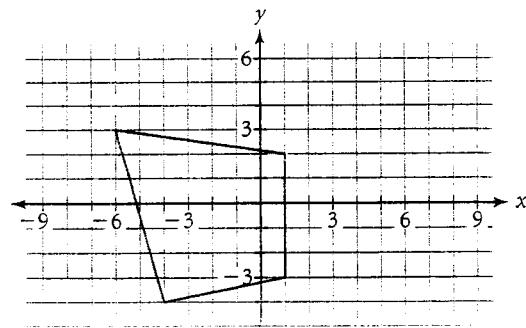
2. The dashed triangle is the image of the solid triangle after a transformation.

- Describe the transformation.
- Tell how the x -coordinate of each point changes between the original figure and the image.
- Tell how the y -coordinates change.

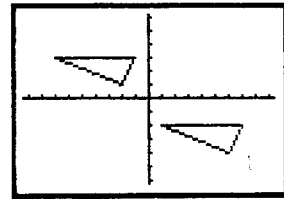


3. Consider this quadrilateral:

- Sketch the image of the figure after a translation right 4 units and down 2 units.
- Define the coordinates of the image using the coordinates of the original figure.



4. The triangle in the lower right has its x -coordinates in list L1 and its y -coordinates in list L2.
- Describe the transformation to its image in the upper left.
 - Write definitions for list L3 and list L4 in terms of list L1 and list L2.
 - How would your answer to 4b change if the triangle in the upper left were the original figure and the figure in the lower right were the image?



$[-9, 9, 1, -6, 6, 1]$