

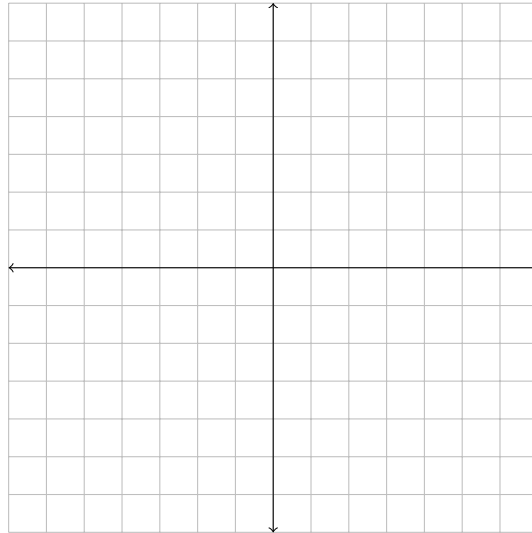
Names: \_\_\_\_\_

**College Algebra Activity #2: Transformations**

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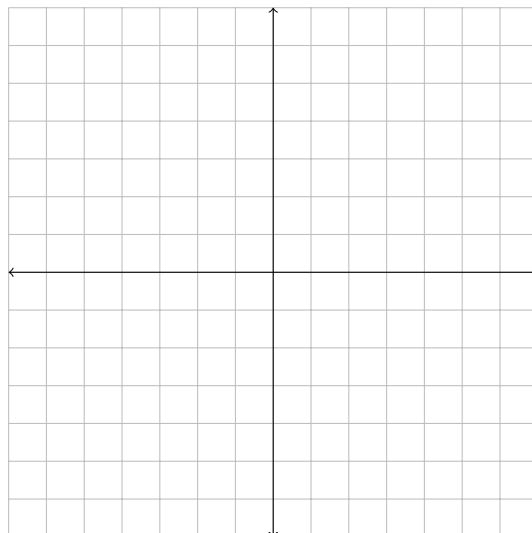
1. Sketch the graph of the following equation in the space provided.

$$(x + 3)^2 + (y - 5)^2 = 1$$



2. Sketch the graph of the following equation in the space provided.

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

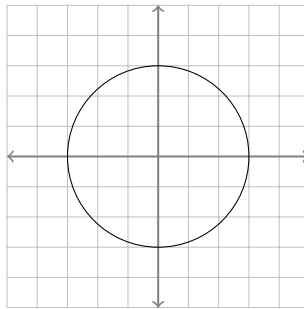


3. Fill in the boxes in the following statement.

Replacing all the  $x$ s in an equation by  and all the  $y$ s by  will shift the equation's graph left by 5 units followed by a horizontal stretch by a factor of 2, and will shift the graph down by 4 units followed by a vertical stretch by a factor of 2.

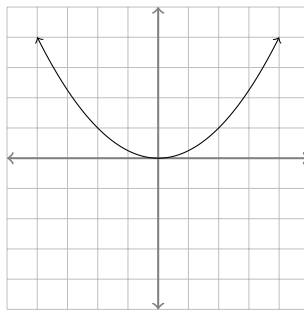
4. Graphically transform the following graph in the space provided.

Shift right by 3 unit(s) and shift down by 1 unit(s).

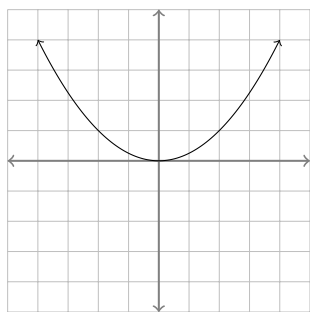


5. Graphically transform the following graph in the space provided.

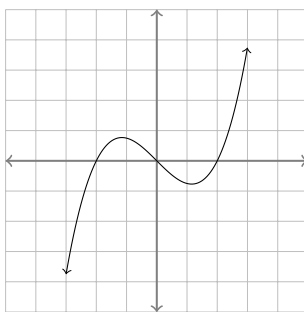
Stretch vertically by a factor of 2.



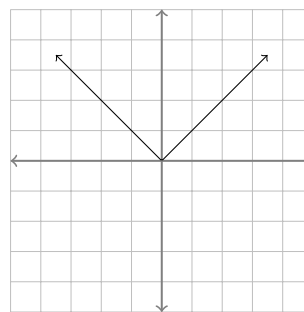
6. Determine whether or not the following graphs are symmetric across the  $x$ -axis, across the  $y$ -axis, or about the origin.



$x$ -axis: yes/no  
 $y$ -axis: yes/no  
 origin: yes/no



$x$ -axis: yes/no  
 $y$ -axis: yes/no  
 origin: yes/no



$x$ -axis: yes/no  
 $y$ -axis: yes/no  
 origin: yes/no

7. Determine whether or not the following equations are symmetric across the  $x$ -axis, across the  $y$ -axis, or about the origin.

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

(b)  $x^4 + y^4 = 1$

(c)  $xy + y^2 = 2$