

Do Now: Graph each of the following lines. Be sure to label your lines.

y-axis

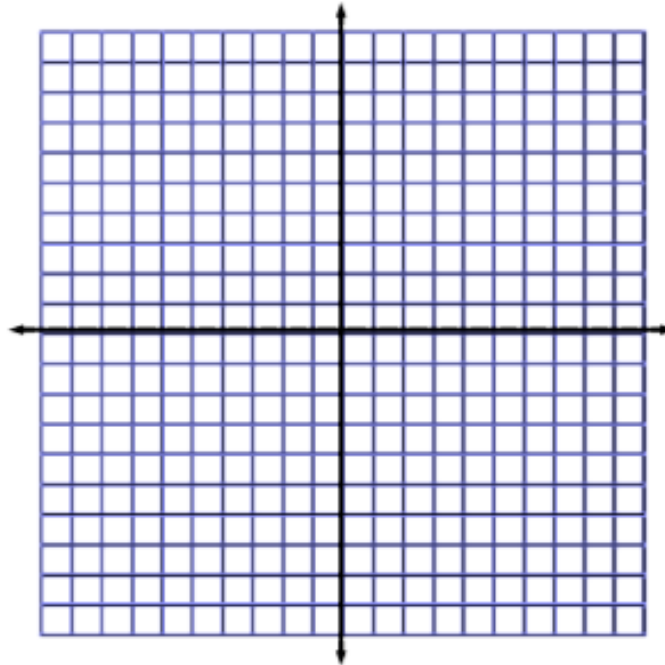
x-axis

$y = x$

$y = -x$

$y = 5$

$x = -3$



A **transformation** is something that **changes** an object.

Reflection -

- _____ an image over a line
- notation _____
- each point is the _____ from the line of reflection as the original point but is on the _____ of the line.

A) Line Reflections

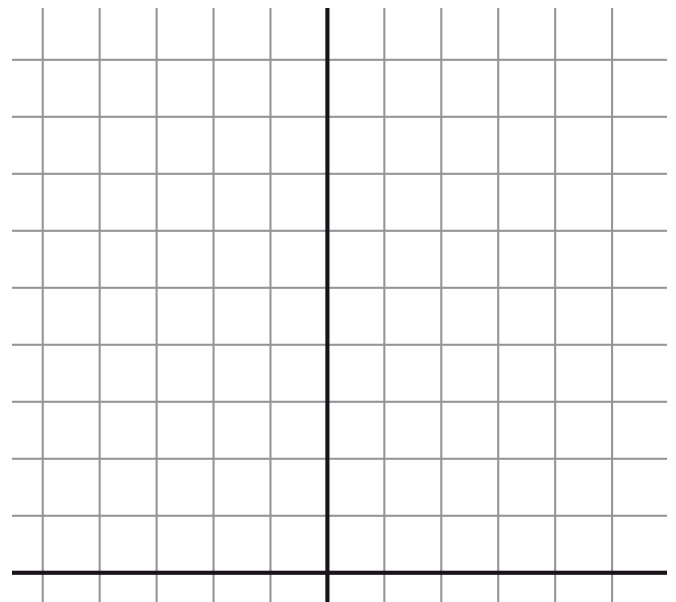
1) $\triangle ABC$ has coordinates: $A(1, 4)$ $B(2, 8)$ $C(5, 3)$.

a) Graph $\triangle ABC$.

b) Graph $\triangle A'B'C'$, the image of $\triangle ABC$ after a reflection in the y-axis

Reflection in the y-axis

$$r_{y\text{-axis}}(x, y) = (\underline{\quad}, \underline{\quad})$$



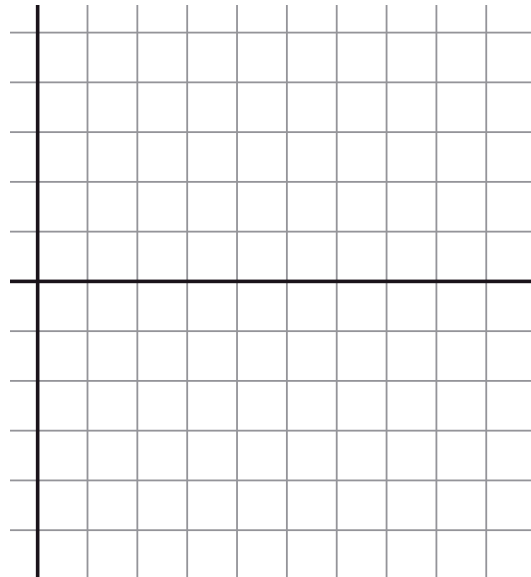
2) \overline{AB} has coordinates: A(2, -1) B(9, -5).

a) Graph \overline{AB} .

b) Graph $\overline{A'B'}$, the image of \overline{AB} after a reflection in the x-axis?

Reflection in the x-axis

$$r_{x\text{-axis}}(x, y) = (\underline{\quad}, \underline{\quad})$$



3) Reflection in the line $y = x$

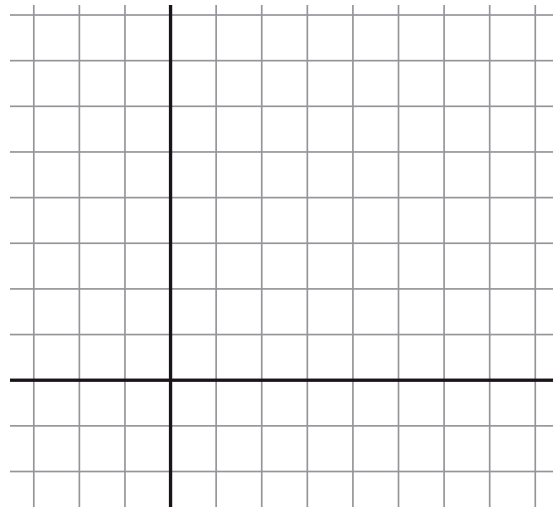
a) Graph the segment with endpoints A(3, 1) and B(5, 4). Reflect this segment over the line $y = x$, and call its endpoints A' and B' . Find the coordinates of A' and B' .

Reflection in the line $y = x$

$$r_{y=x}(x, y) = (\underline{\quad}, \underline{\quad})$$

Reflection in the line $y = -x$

$$r_{y=-x}(x, y) = (\underline{\quad}, \underline{\quad})$$



4) Reflection in the line $x = 2$

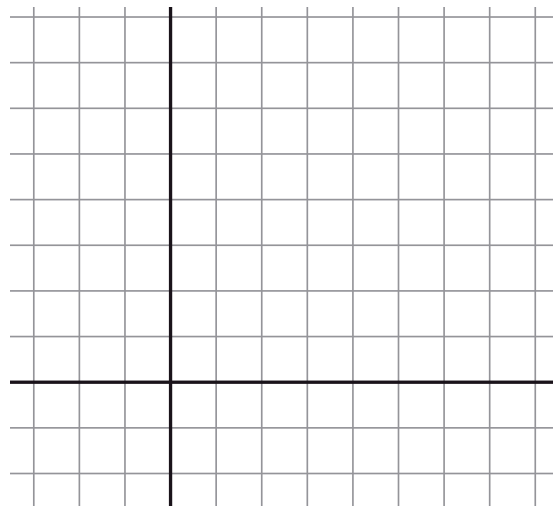
a) Graph triangle ABC with vertices A(3, 0), B(3, 6), and C(0, 6).

Reflect this triangle over the line $x = 2$ and call its endpoints A' , B' , and C' . Find the coordinates of A' , B' and C' .

A(3, 0) A' (,)

B(3, 6) B' (,)

C(0, 6) C' (,)

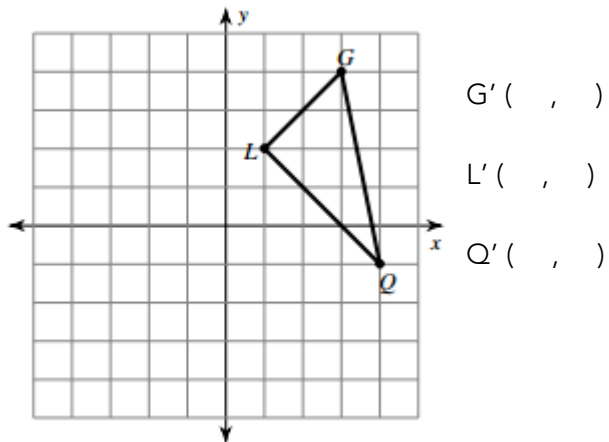


Important Features of a Reflection

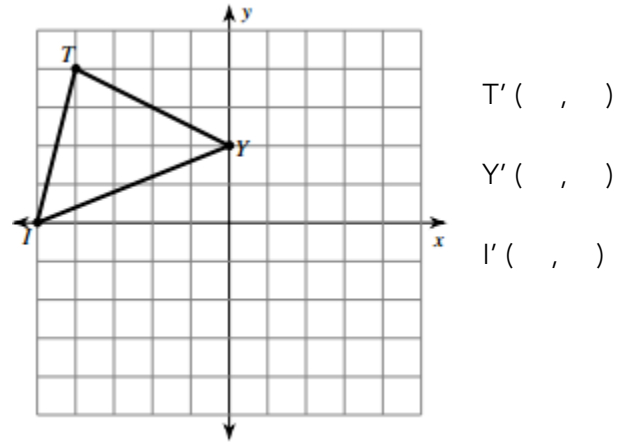
1. The size of the image _____
2. If a point lies on the line of symmetry, its location _____
3. The distance between point A and the line of symmetry and point A' and the line of symmetry is _____

Graph the image of the figure using the transformation given. State the coordinates of the image.

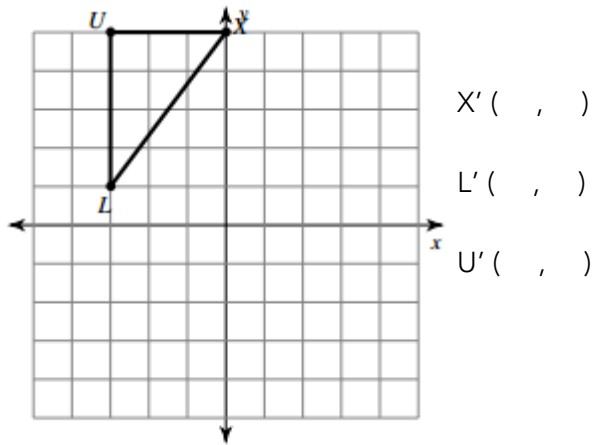
1. Reflection across the y-axis



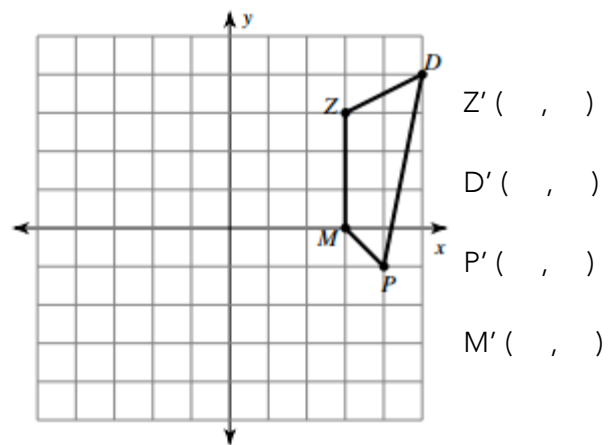
2. Reflection across the x-axis



3. Reflection across the line $y = x$



4. Reflection across the line $x = 2$



State the coordinate of the point after it is reflected in the line given.
The first one is done as an example.

5) $r_{x\text{-axis}}(4,5) = (4,-5)$

6) $r_{x\text{-axis}}(1,9) =$

7) $r_{y\text{-axis}}(2,8) =$

8) $r_{y=x}(-10,-3) =$

9) $r_{y\text{-axis}}(6,11) =$

10) $r_{x\text{-axis}}(\text{kitten}, \text{face}) =$