

Discovering Patterns in Transformations

Reflections over a Line Parallel to the Y-axis

Place the Geoboard Template under your Communicator.

Set up your geoboard for the first quadrant. Draw the vertical line $x = 5$.

Draw a scalene triangle that is completely in Quadrant I and to the right of the line $x = 5$. Name the vertices A, B, and C.

Record the coordinates of each vertex in the chart below.

<i>Coordinates of A</i>	<i>Coordinates of B</i>	<i>Coordinates of C</i>

Draw a new triangle that is the reflection of your original triangle over the line $x = 5$. (You can flip the communicator over to see this reflection.)

Label the corresponding vertices of the new triangle A', B' and C'. Record their coordinates in the chart below.

<i>Coordinates of A'</i>	<i>Coordinates of B'</i>	<i>Coordinates of C'</i>

Study the change made in the coordinates to find a pattern.

Let's try it again.

Draw a scalene triangle that is completely in Quadrant I and to the left of the line $x = 5$. Name the vertices A, B, and C.

Record the coordinates of each vertex in the chart below.

<i>Coordinates of A</i>	<i>Coordinates of B</i>	<i>Coordinates of C</i>

Draw a new triangle so it is reflected over the line $x = 5$. Label the corresponding vertices of the new triangle A', B' and C'. Record their coordinates in the chart below.

<i>Coordinates of A'</i>	<i>Coordinates of B'</i>	<i>Coordinates of C'</i>

Study the change made in the coordinates to find a pattern.

If you started with a polygon that had a vertex (3,5) and you reflected it over the $x=5$, what would the new coordinate be? _____

If you started with a polygon that had a vertex (7,5) and you reflected it over the $x=3$, what would the new coordinate be? _____

If you started with a polygon that had a vertex (x,y) and you reflected it over the line $x = 5$, what would the coordinates of the new vertex be? _____

This means the _____ coordinate changes, but the _____ coordinate doesn't change.

Draw a line segment between two corresponding vertices, what does the y-axis do to that line?

The line of reflection is the _____ of the line segment connecting two corresponding points (the original and its reflected point).