Transformations in the Coordinate Plane

You can transform shapes on a graph.

To **translate** a shape, move each point the same distance and draw the new shape. \( \triangle ABC \) was translated 1 unit to the right and 4 units up.

To **reflect** a shape, flip the shape over the line of reflection. \( \triangle ABC \) was reflected across the \( x \)-axis.

To **rotate** a shape about the origin, put your pencil point on the origin and turn the graph the number of degrees described. \( \triangle ABC \) was rotated 90° (\( \frac{1}{4} \) turn) clockwise about the origin.

Identify the coordinates of \( \triangle RST \) after each transformation. Use \( \triangle JKL \) for the transformed triangle.

1. Translate 5 units down.

2. Translate 7 units to the left.

3. Rotate 180° about the origin.

4. Reflect across the \( y \)-axis.