Geometry **Date:**_____

9.3 Notes Rotations

ROTATION: A transformation that turns every pt of the preimage thru a specified Angle + direction about a fixed pt.

CENTER OF ROTATION: The fixed point you rotate around

- Is a rotation an isometry? Explain.

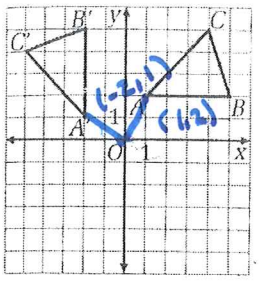
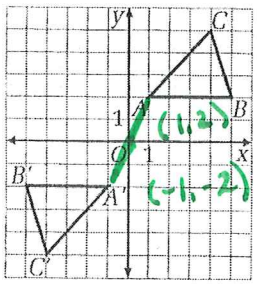
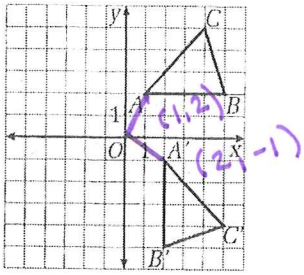
  Yes, Preimage ≅ image

TO DESCRIBE A ROTATION YOU NEED 3 THINGS:

- Figure
- direction
- angle or degree of rotation.

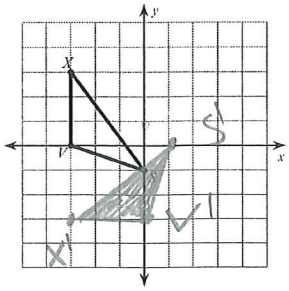
To find the angle of rotation, draw segments from the center of rotation to the corresponding points on the preimage and rotation.

ROTATIONS ON COORDINATE PLANE:

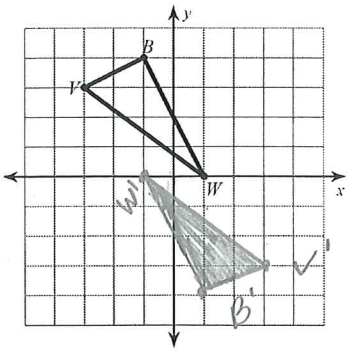
• 	Center of Rotation: Origin Angle and Direction: 90° CCW Rule: $(x,y) \rightarrow (-y,x)$
• 	Center of Rotation: Origin Angle and Direction: 180° CCW or CW Rule: $(x,y) \longrightarrow (-x,-y)$
• 	Center of Rotation: Origin Angle and Direction: 90° CW Rule: $(x,y) \rightarrow (y,-x)$

Complete the transformation:

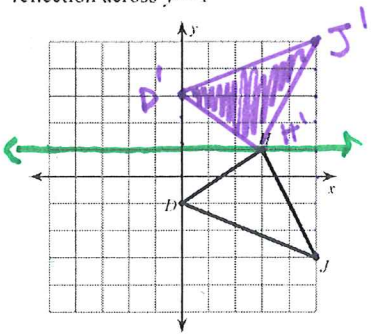
Ex 1 rotation 90° counterclockwise about the origin



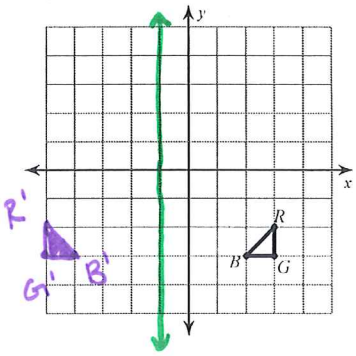
Ex 2 rotation 180° about the origin



Ex 3 reflection across $y = 1$



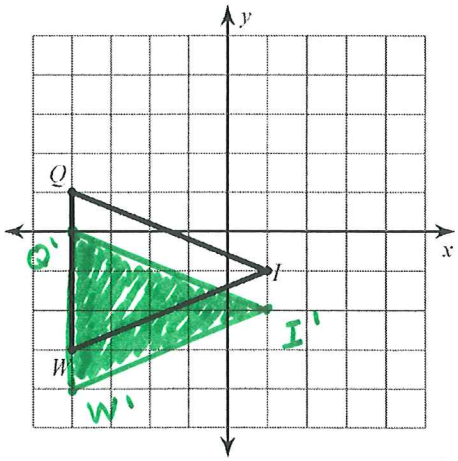
Ex 4 reflection across $x = -1$



Notes: Translations- 9.2

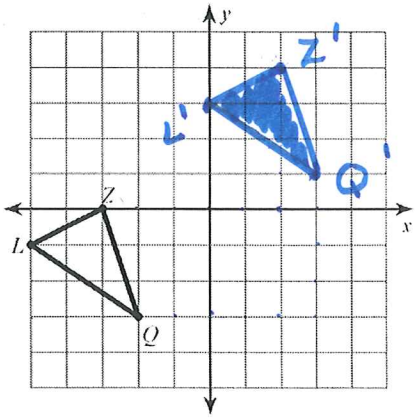
Graph the translation and write the translation rule.

Ex 5 translation: 1 unit down



$(x, y) \longrightarrow (x, y+1)$

Ex 6 translation: 5 units right and 4 units up



$(x, y) \longrightarrow (x+5, y+4)$