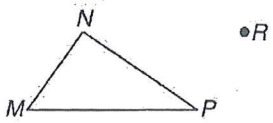
NAME Key DATE _____ PERIOD ____

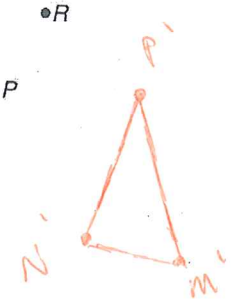
9-3 Practice

Rotations

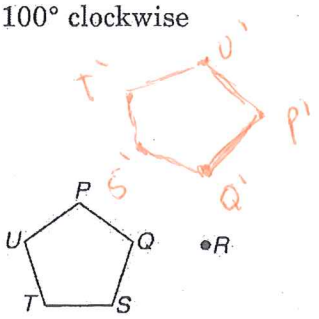
Rotate each figure about point R under the given angle of rotation and the given direction. Label the vertices of the rotation image.

1. 80° counterclockwise



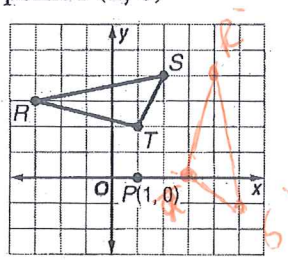


2. 100° clockwise

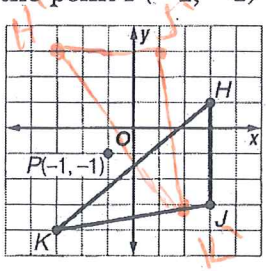


COORDINATE GEOMETRY Draw the rotation image of each figure 90° in the given direction about the center point and label the coordinates.

3. $\triangle RST$ with vertices $R(-3, 3)$, $S(2, 4)$, and $T(1, 2)$ clockwise about the point $P(1, 0)$

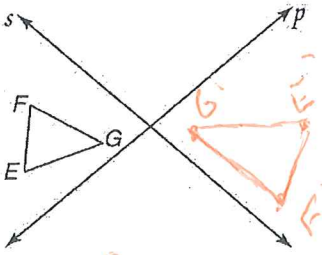


4. $\triangle HJK$ with vertices $H(3, 1)$, $J(3, -3)$, and $K(-3, -4)$ counterclockwise about the point $P(-1, -1)$



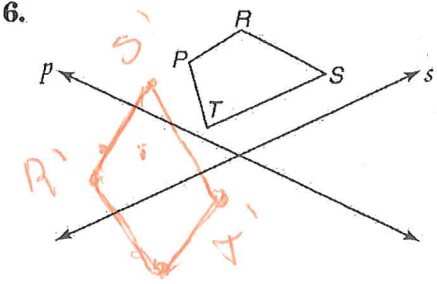
Use a composition of reflections to find the rotation image with respect to lines p and s. Then find the angle of rotation for each image.

5.



160° Counter Clockwise

6.



100° Counter Clockwise

7. STEAMBOATS A paddle wheel on a steamboat is driven by a steam engine and moves from one paddle to the next to propel the boat through the water. If a paddle wheel consists of 18 evenly spaced paddles, identify the order and magnitude of its rotational symmetry.

Order 18 Magnitude 20°