

NAME: _____

UNIT 5 • TRANSFORMATIONS IN THE COORDINATE PLANE

Lesson 2: Defining and Applying Rotations, Reflections, and Translations

Practice 5.2.1: Defining Rotations, Reflections, and Translations

Answer the questions and complete the following problems about transformations.

1. In a rotation of a set of points, what geometric structure defines the motion of points?
2. What linear relationship defines the movement of a translation?
3. What linear relationship defines the movement of a reflection?
4. In a rotation, which points are moved the greatest distance?
5. In a reflection, what happens to the points that lie on the line of reflection?
6. With respect to x and y , how many units does the translation $T_{6,8}$ move a point $Z(x, y)$?
7. What transformation moves $R_{180}(r_{x\text{-axis}}(P))$ back to P ?
8. Find the coordinates of the vertices of $R_{270}(T_{2,3}(\triangle ABC))$ where $A(1, 1)$, $B(2, 8)$, and $C(4, 6)$.
9. Describe the reflection through the line $y = x$ of the point $T(P)$ for which $T(x - 3, y + 1)$ and $P(24, -32)$.
10. In terms of x and y , how does the point $V(3, 3)$ move in the transformation $T_{2,5}(R_{180}(V))$?