

## Geometry

**Goal: The learner will understand and use properties and relationships of geometric figures in the coordinate plane.**

**Objective:**

**3.03 Transform figures in the coordinate plane and describe the transformation.**

To achieve this objective, students should:

- Plot point in the four quadrants of a coordinate grid.
- Understand that translations, reflections, and rotations produce a second figure (image) congruent to the original figure (pre-image).
- Recognize and describe a translation as a vertical and/or horizontal shift of a figure.
- Reflect a figure over a given line in the plane and name the coordinate pair of the image.
- Translate a figure in the plane and name the coordinate pairs of the image.
- Rotate a figure in the plane about the origin (angle of rotation a multiple of  $90^\circ$ ) and name the rectangular coordinates of the image.
- Use sample notation to describe transformations
$$\begin{aligned}\triangle ABC &\rightarrow \triangle DEF \\ \triangle AB &\rightarrow \triangle A'B'C' \\ A &\rightarrow A' \\ (x, y) &\rightarrow (x', y')\end{aligned}$$
- Recognize that a transformation of the form  $(x', y') = (x + a, y + b)$  is a translation which moves the point  $(x, y)$   $a$  units horizontally and  $b$  units vertically.