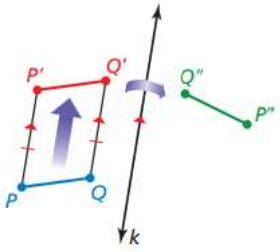
What You Will Learn

- Perform glide reflections.
- Identify lines of symmetry.

A **glide reflection** is a transformation involving a translation followed by a reflection in which every point P is mapped to a point P'' by the following steps.

Step 1 First, a translation maps P to P'.

Step 2 Then, a reflection in a line k parallel to the direction of the translation maps P' to P''.

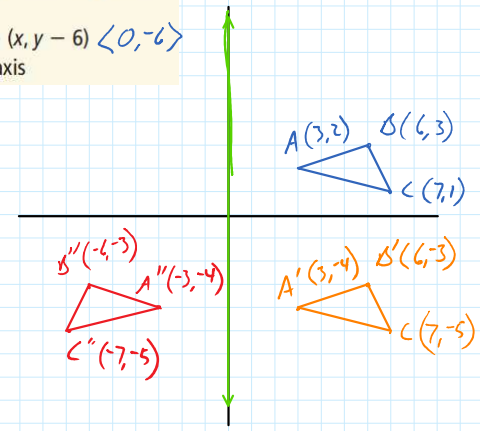


Graph $\triangle ABC$ with vertices $A(3, 2)$, $B(6, 3)$, and $C(7, 1)$ and its image after the glide reflection.

Translation: $(x, y) \rightarrow (x, y - 6)$ $\langle 0, -6 \rangle$

Reflection: in the y-axis

$(a, b) \rightarrow (-a, b)$



Coordinate Rules for Reflections

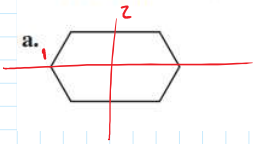
- If (a, b) is reflected in the x-axis, then its image is the point $(a, -b)$.
- If (a, b) is reflected in the y-axis, then its image is the point $(-a, b)$.
- If (a, b) is reflected in the line $y = x$, then its image is the point (b, a).
- If (a, b) is reflected in the line $y = -x$, then its image is the point $(-b, -a)$.

Identifying Lines of Symmetry

A figure in the plane has **line symmetry** when the figure can be mapped onto itself by a reflection in a line. This line of reflection is a **line of symmetry**, and the figure is said to

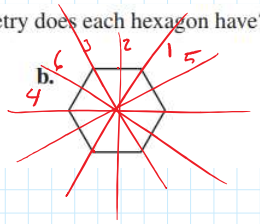
How many lines of symmetry does each hexagon have?

a.



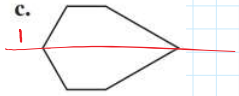
2 LOS
lines of symmetry

b.



4 2
7 (6)

c.



1 LOS

Practice sec 4.2.2 **pg. 186: 1, 19-24A**