Goals:
You will draw glide reflections and other compositions of transformations in the coordinate plane.
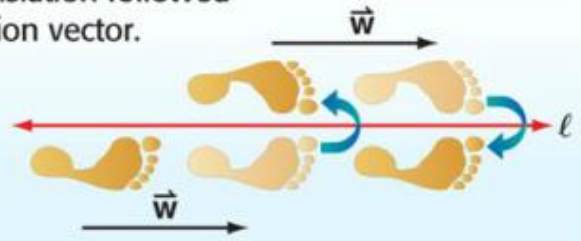
You will draw compositions of reflections in parallel and intersecting lines.

9.4 Compositions of Transformations

A **glide reflection** is the composition of a translation followed by a reflection in a line parallel to the translation vector.

Example
The glide reflection shown is the composition of a translation along $\vec{w}$ followed by a reflection in line ℓ.

Quadrilateral *BGTS* has vertices *B*(−3, 4), *G*(−1, 3), *T*(−1 , 1), and *S*(−4, 2). Graph *BGTS* and its image after a translation along ⟨5, 0⟩ and a reflection in the *x*-axis.
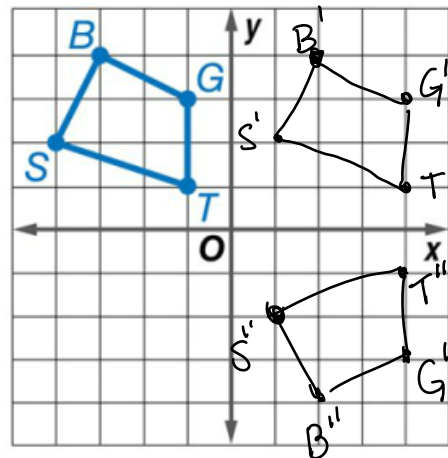
What do you notice about parallel lines and a composition of reflections? *Same as a single translation*

What do you notice about intersecting lines and a composition of reflections? *Same as a single rotation*

http://www.mathwarehouse.com/transformations/reflections-theorem.php

The composition of two reflections in parallel lines can be described by a translation vector that is

- perpendicular to the two lines, and
- twice the distance between the two lines.
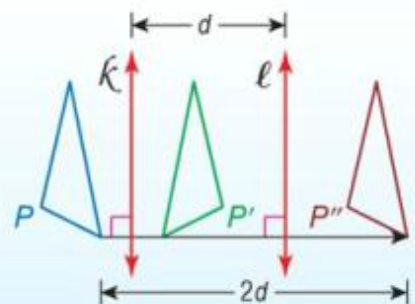
The composition of two reflections in intersecting lines can be described by a rotation
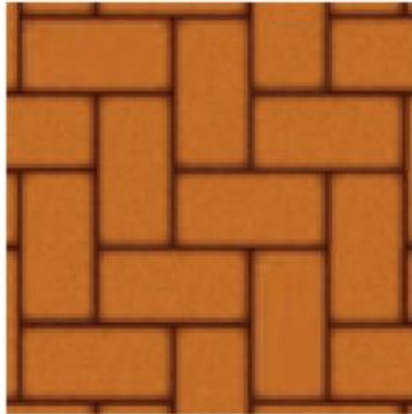
- about the point where the lines intersect and
- through an angle that is twice the measure of the acute or right angle formed by the lines.
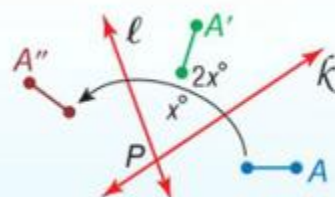
Copy and reflect figure *EFGH* in line *p* and then line *q*. Then describe a single transformation that maps *EFGH* onto *E"F"G"H"*.
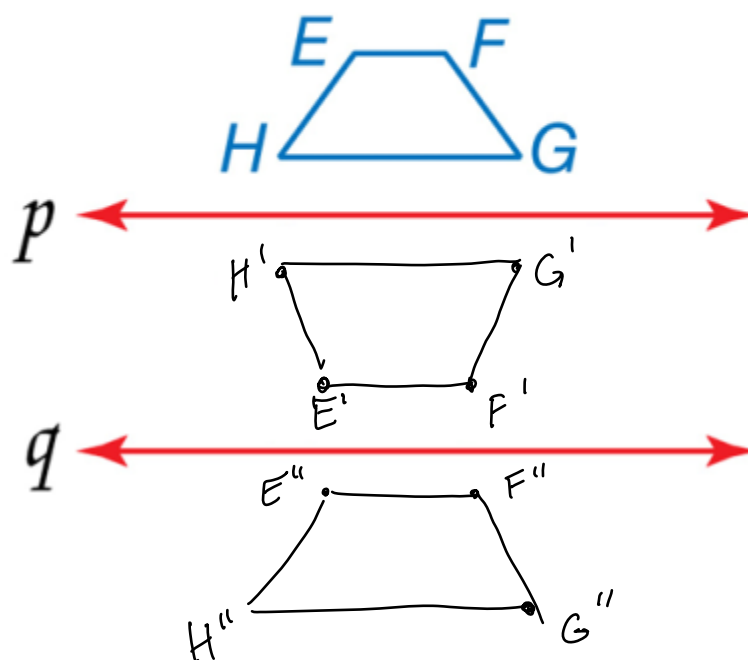
A. LANDSCAPING Describe the transformations that are combined to create the brick pattern shown.

Rigid Motion
A transformation consisting of rotations and translations, which leaves a given arrangement unchanged.

Glide Reflection	Translation	Rotation
the composition of a reflection and a translation	the composition of two reflections in parallel lines	the composition of two reflections in intersecting lines