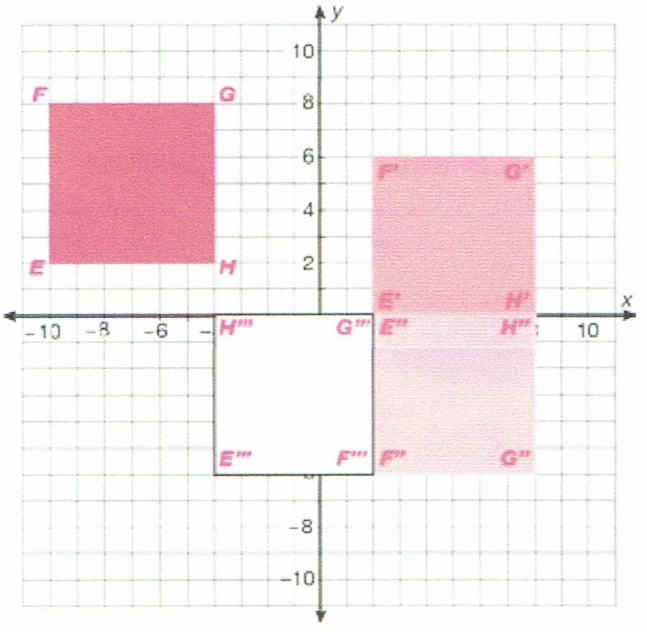
Name _____ Date _____ Class _____

LESSON 5

Integers and the Coordinate Plane

Challenge: Transformations as Mappings

Transformations can be described using mathematical symbols. As you move forward through mathematics, you will learn about something called a "mapping". Transformations are really "mappings" from the *x*-*y* plane onto itself. While you don't need to worry about all of this vocabulary just yet, the following problems are related to mappings. If you can solve these exercises, you are well on your way to higher-level mathematics!



1. Begin by drawing square *EFGH* located at (–10, 2), (–10, 8), (–4, 8), and (–4, 2).

2. Translate *EFGH* 12 units right and 2 units down. Rename to *E'F'G'H'*. Can you come up with a mathematical way to describe what happened to the points of *EFGH* under this translation?

3. Reflect *E'F'G'H'* across the *x*-axis. Rename to *E''F''G''H''*. Can you come up with a mathematical way to describe what happened to the points of *E'F'G'H'* under this reflection?

4. Rotate *E''F''G''H''* 270° about point *F''*. Can you name another transformation that would have been equivalent to this rotation?