Lesson 2.9 – Recognizing Sequences of Basic Rigid Motions

To conclude the first part of this module, we will look at two images and determine which rigid motion(s) would map the original shape to its 'prime' image. Before we begin, answer the questions below.

1) List the three basic rigid motions and list what is needed to perform each motion.
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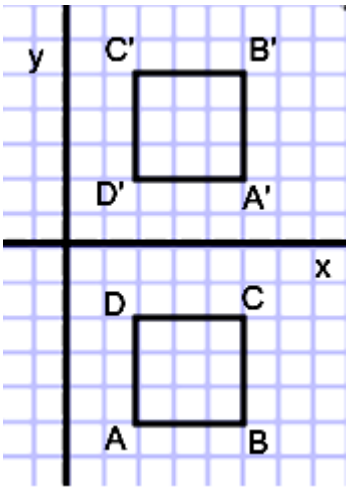
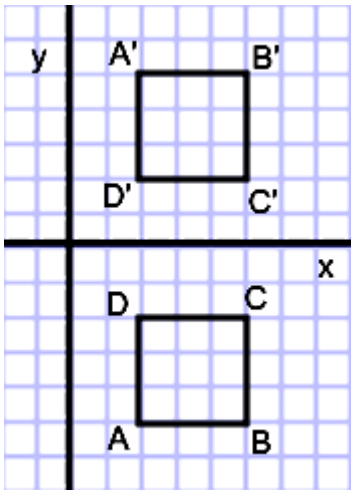
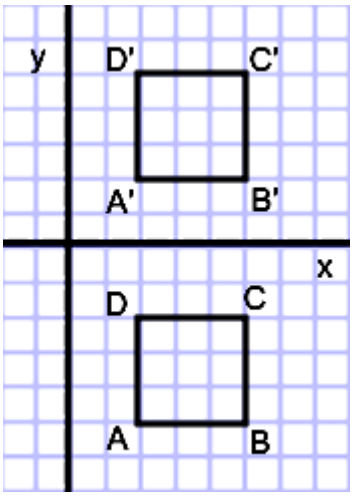
2) Which of the three basic rigid motions changes the size of an object? Which of the three basic rigid motions changes the angle measures of objects?
3) Which of the three basic motions can change the 'order' in which the vertices of a shape are labeled from a clockwise direction to a counter-clockwise direction?
4) Angles rotated in a clockwise direction have what type of angle measure? Angles rotated in a counter-clockwise direction have what type of angle measure?
5) Name a positive angle measure and a negative angle measure that would take a shape to the same destination.

Set 1 - In the diagrams below, square ABCD has been transformed from quadrant IV to its new image in quadrant I. Even though the diagrams appear to look the same, a different rigid motion has been used for each. Determine the basic rigid motion used for each and explain your reasoning. Also state the following: 1) for the translation, describe the vector that was used, 2) for the reflection, state the line the object was reflect through, and 3) for the rotation, state the angle the object was rotated.







Answer these questions.

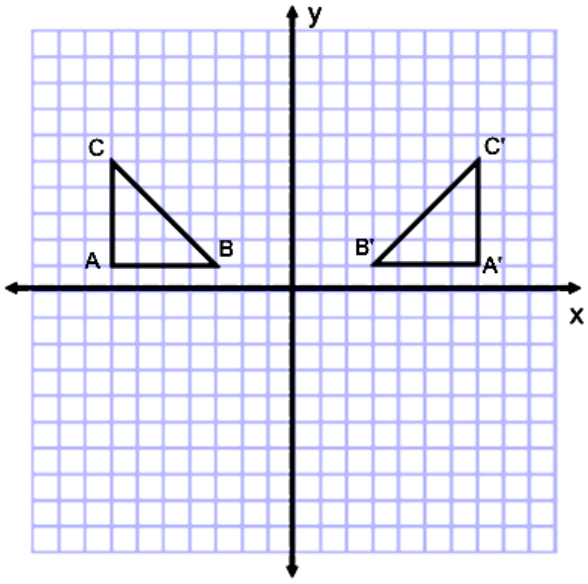
1. In the diagrams above, did any of the motions change the size of the shapes?

2. Did any of the motions change any of the angle measures?

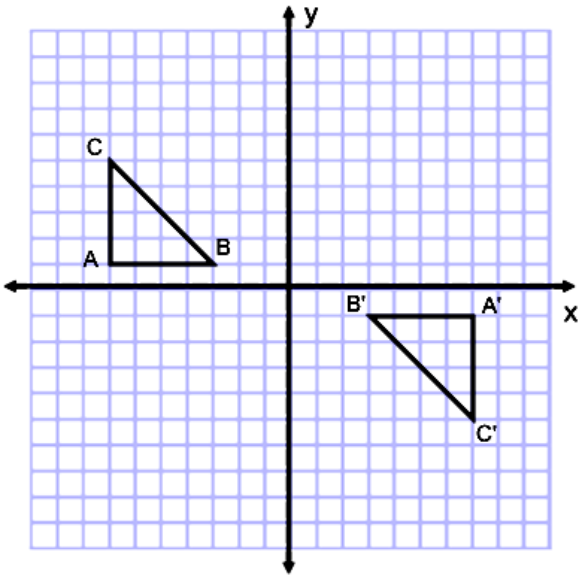
Your answers to both questions should have been 'no'. Sliding, flipping, or turning an object does not change the measures of its sides or angles. Whenever we can use a sequence of rigid motions to map an object directly onto another object, both objects are said to be **congruent**. **Congruent** objects have the same shape and the same size.

Set 2 – Circle whether the pair of objects are congruent or not congruent. If they are congruent, identify the basic rigid motion(s) one would need to use to map the original image to the 'prime' image

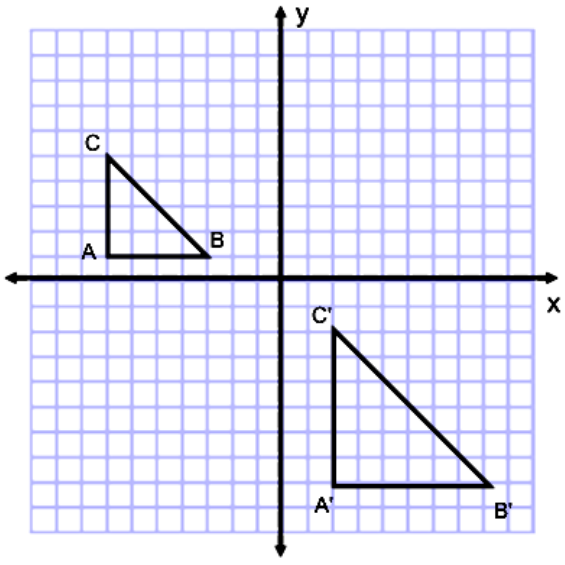
a) Congruent Not Congruent



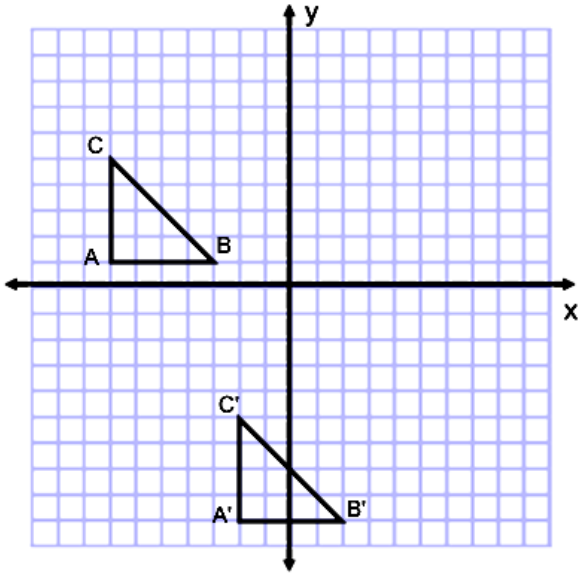
b) Congruent Not Congruent



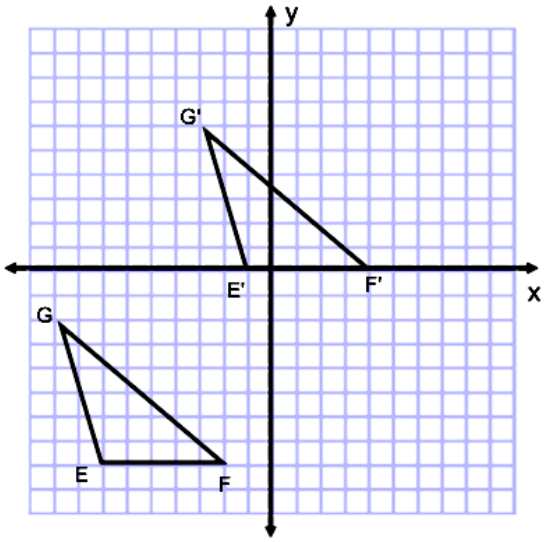
c) Congruent Not Congruent



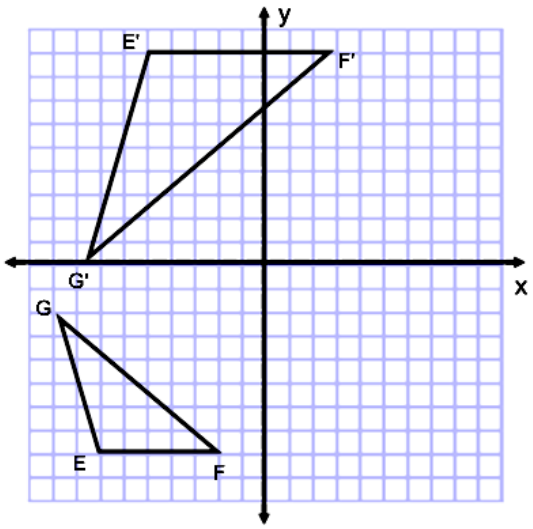
d) Congruent Not Congruent



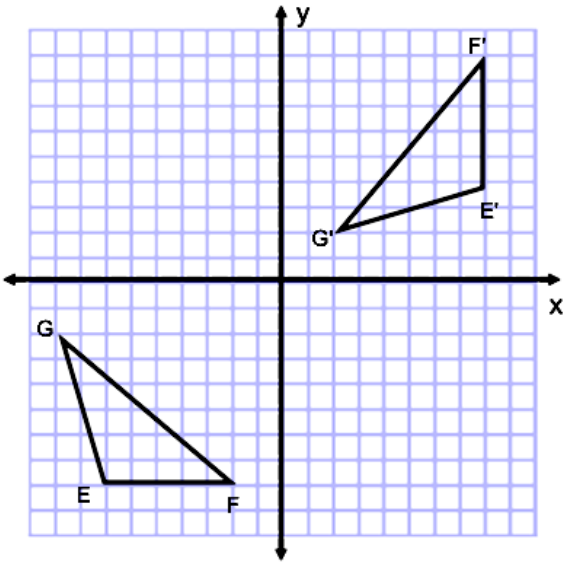
e) Congruent Not Congruent



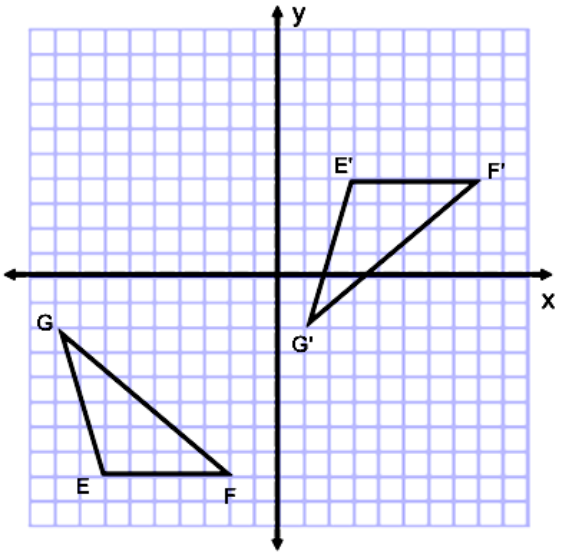
f) Congruent Not Congruent



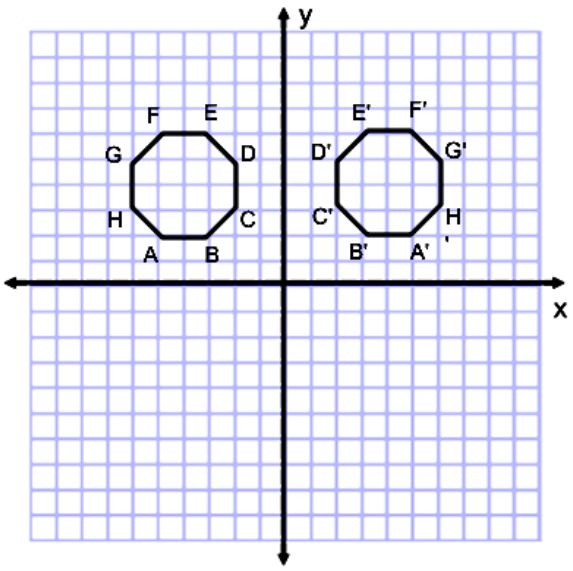
g) Congruent Not Congruent



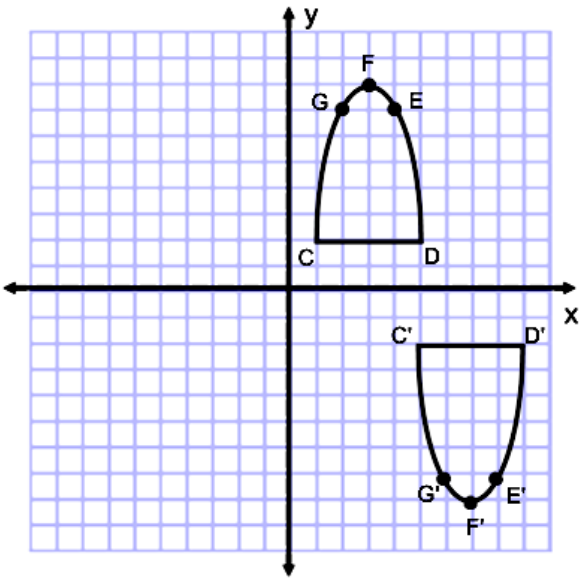
h) Congruent Not Congruent



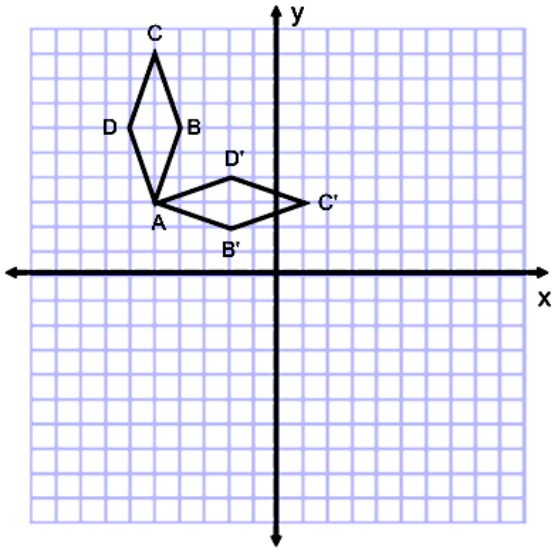
i) Congruent Not Congruent



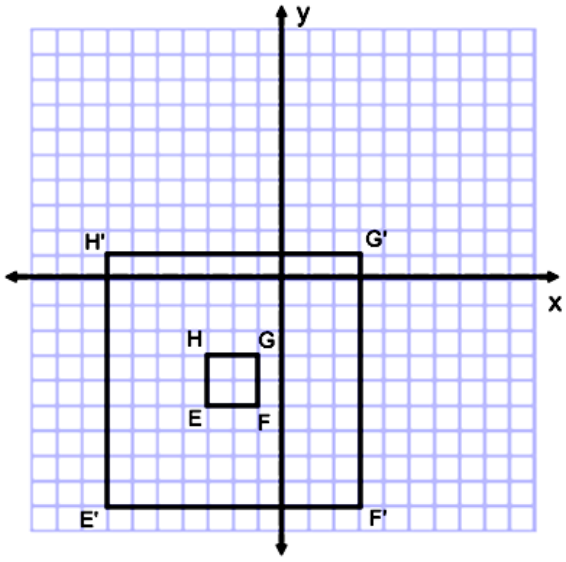
j) Congruent Not Congruent



k) Congruent Not Congruent

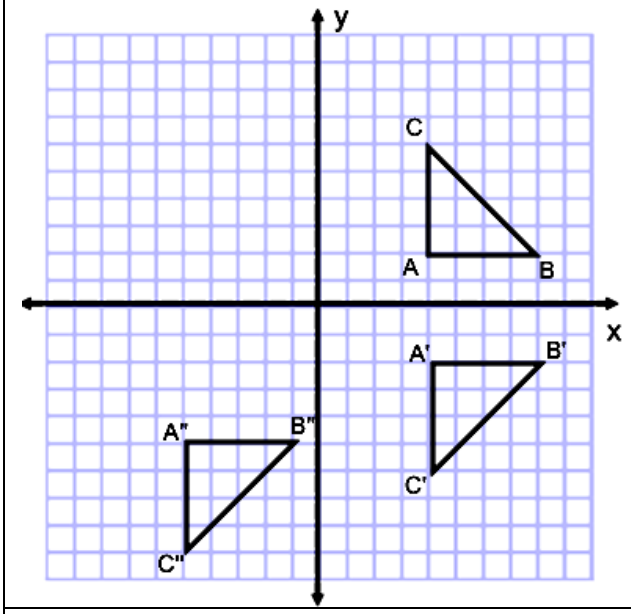


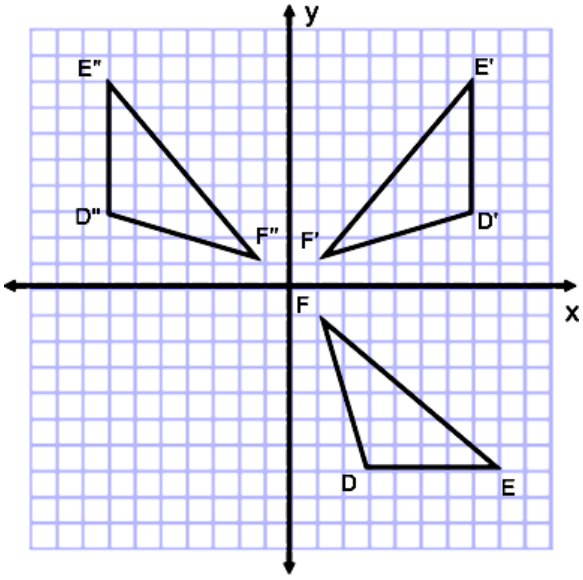
l) Congruent Not Congruent



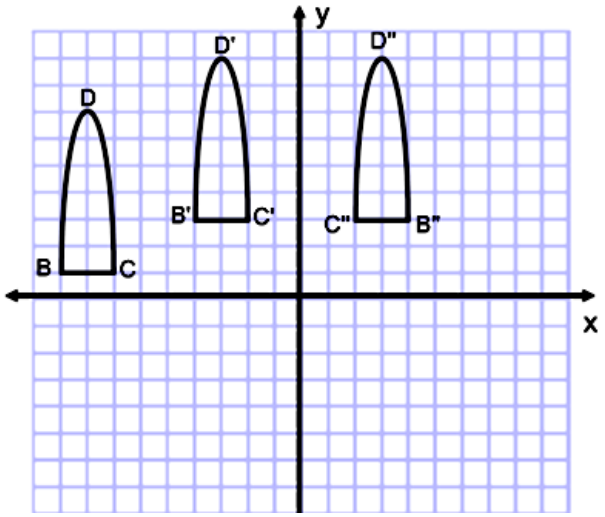
REVIEW – State which rigid motions are used to move the original shape to the "double prime" shape.

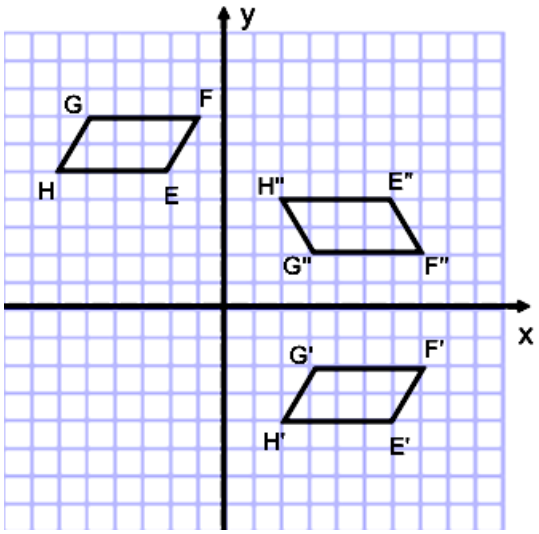
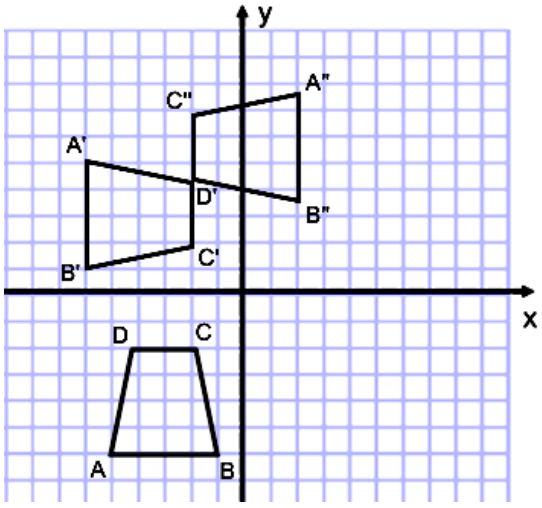
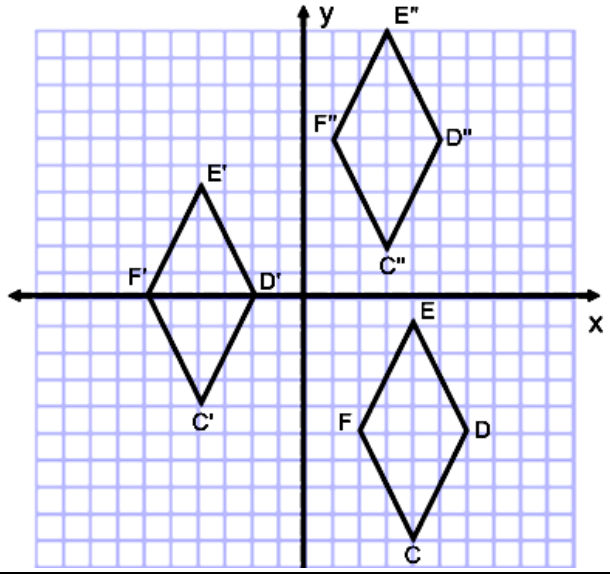
R#1





R#2





R#3