

NAME: \_\_\_\_\_

Math \_\_\_\_\_, Period 3

Mr. Rogove

morph: from one thing to another.  
change.  
Date: 9/25

**LEARNING OBJECTIVE:** We will define geometric transformations and introduce the concept of basic rigid motions using translations. (G8M2L1)

**CONCEPT DEVELOPMENT.** *beginner simple not this style or stable* *conforming* *making* *- rewriting in different language* *- conversion*



ORIGINAL WU

*SAME SHAPE*  
*SAME SIZE*



WU #1

*SAME, MOVED DOWN LEFT*



WU #2

*MOVED DOWN UPSIDE DOWN AND FLIPPED ROTATED 180°*



WU #3

*MIRROR IMAGE MOVED DOWN & RIGHT*

Do all four of these images have the same shape and same size? *SAME SHAPE SAME SIZE*

*YES!!*

What could you do to the three images on the bottom to prove that each of them is identical to the image on top?

- MOVED ON A PLANE, ALONG A LINE*
- FLIPPED (MIRROR) OVER/ACROSS A LINE*
- ROTATE AROUND A POINT.*

NAME: \_\_\_\_\_

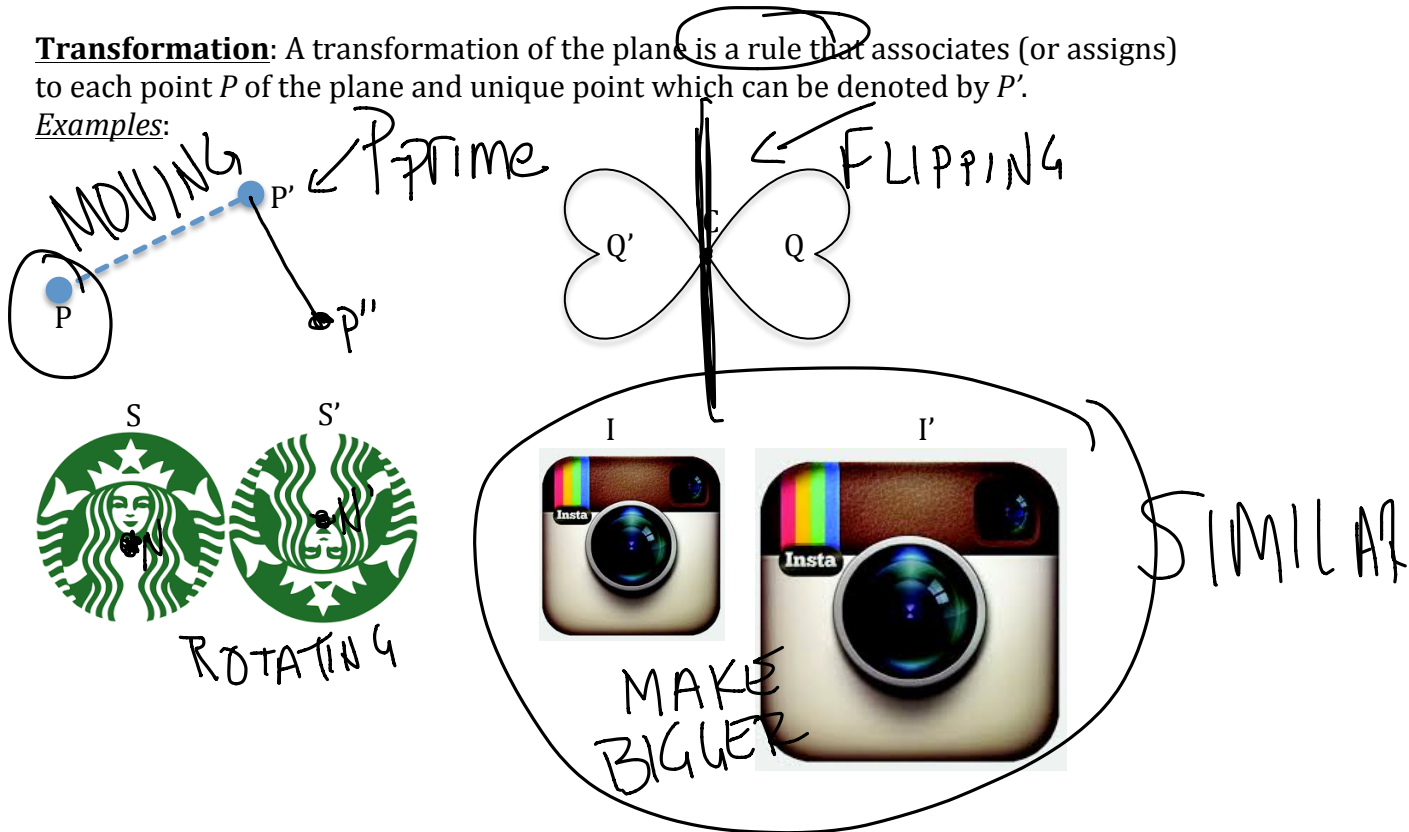
Math \_\_\_\_\_, Period \_\_\_\_\_

Mr. Rogove

Date: \_\_\_\_\_

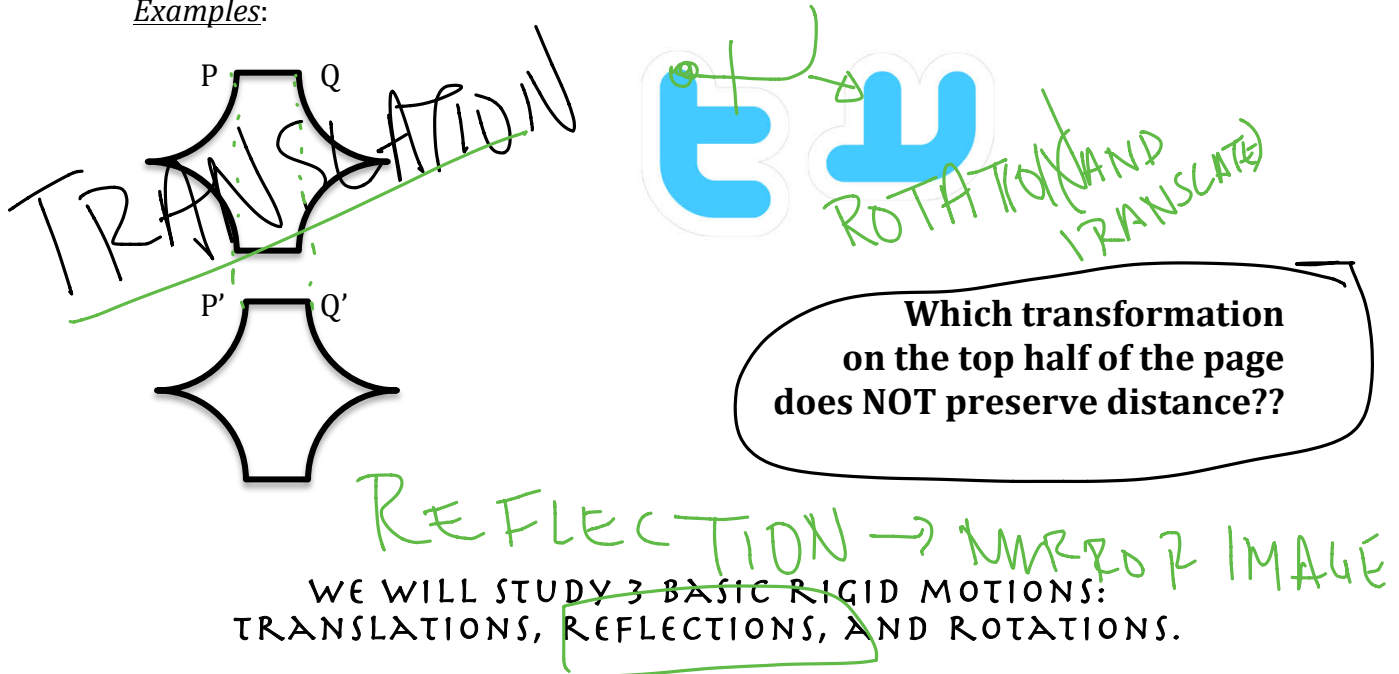
**Transformation:** A transformation of the plane is a rule that associates (or assigns) to each point  $P$  of the plane and unique point which can be denoted by  $P'$ .

Examples:



**Basic Rigid Motions:** Transformations that preserve distance. Given any two points on a plane  $P$  and  $Q$ , the distance between  $P$  and  $Q$  will be the same as the distance between  $P'$  and  $Q'$  if these points are created a rigid motion.

Examples:



NAME: \_\_\_\_\_

Math \_\_\_\_\_, Period \_\_\_\_\_

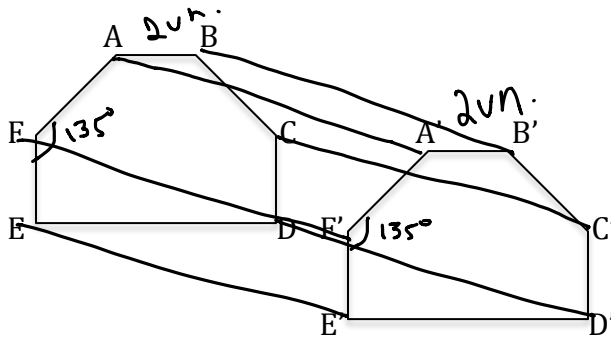
Mr. Rogove

Date: \_\_\_\_\_

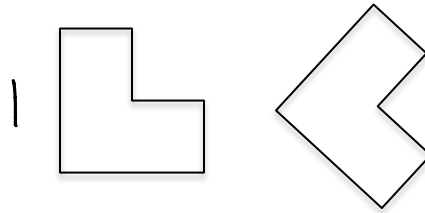
*line segments in a direction*

**Translation** (along a given vector): Sliding a point along a given vector on the same plane. The translation of point  $P$  is written as  $P'$ .

Example:



Non-Example



- Vectors are segments in the plane with direction. One endpoint is the starting point, and the other is the end point.

$\overrightarrow{AA'}$  - vector  $AA'$

The line that starts at  $A$  and ends at  $A'$

- Translations map lines to lines, segments to segments, rays to rays, and angles to angles.
- Lengths of segments are preserved and degrees of measure of angles are preserved.
- The correlating lines of translations are parallel.

NAME: \_\_\_\_\_

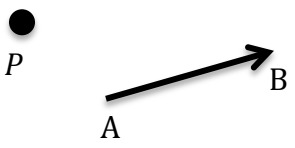
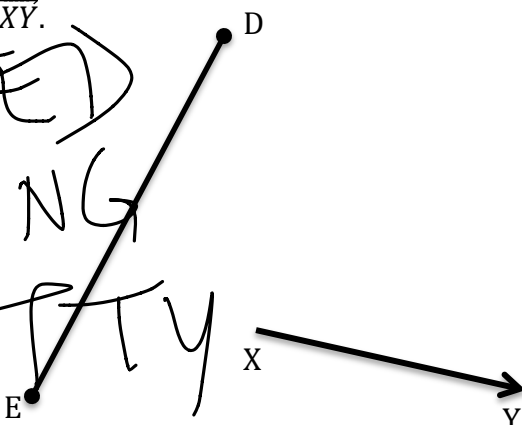
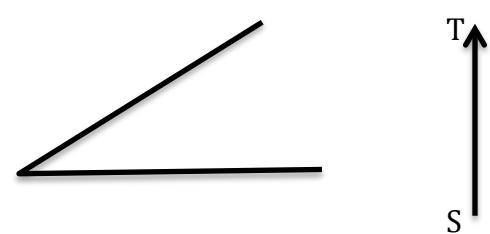
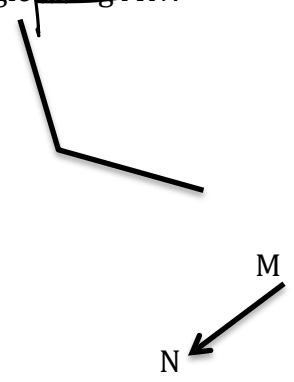
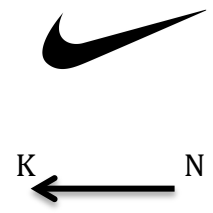
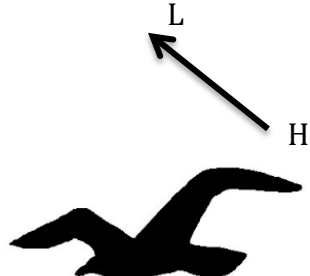
Math \_\_\_\_\_, Period \_\_\_\_\_

Mr. Rogove

Date: \_\_\_\_\_

**GUIDED PRACTICE:**

Perform the translation along the vector indicated.

<p>Translate point <math>P</math> along vector <math>\overrightarrow{AB}</math>.</p>  <p>COMPLETED USING PARALLEL PAPER</p>	<p>Translate line segment <math>\overline{DE}</math> along vector <math>\overrightarrow{XY}</math>.</p> 
<p>Translate the angle along <math>\overrightarrow{ST}</math>.</p> 	<p>Translate the angle along <math>\overrightarrow{MN}</math>.</p> 
<p>Translate the image along <math>\overrightarrow{NK}</math>.</p> 	<p>Translate along <math>\overrightarrow{HL}</math>.</p> 

WHICH WUTANG LOGO WAS A TRANSLATION??  
(PAGE 1)

NAME: \_\_\_\_\_

Math \_\_\_\_\_, Period \_\_\_\_\_

Mr. Rogove

Date: \_\_\_\_\_

**INDEPENDENT PRACTICE:**

Independent Practice will be a part of the guided practice.

**ACTIVATING PRIOR KNOWLEDGE:**

**CLOSURE:**

Why are these called rigid motions?

How would your translation the triangle below be different based on the vectors  $\overrightarrow{AB}$  and  $\overrightarrow{BA}$ ? Why? Describe the direction of the vector.

