NAME:_____ Math _____ , Period _____

Mr. Rogove Date:_____

changing size & shape
morph

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

simple easy first step stiff, still, hard to bend, unmoveable movement

language switching from one thing to another. defining explaining

CONCEPT DEVELOPMENT:

ORIGINAL WU

exactly the same size

UPSIDE DOWN & FLIP

WU #1 MOVE DOWN AND TO LEFT

WU #2 TURNING 180° MOVE DOWN

WU #3 MIRROR IMAGE FLIP WU#2

Do all four of these images have the same shape and 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?

- Moving along a line
- Flipping over a line
- Rotating around a point

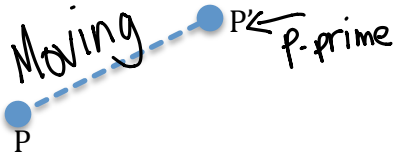
} Maintaining size & shape.

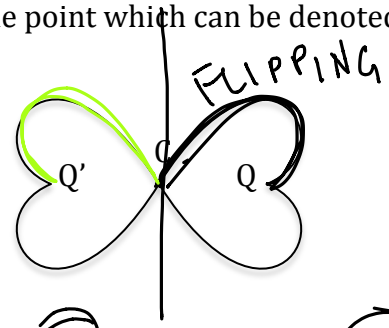
NAME:_____ Math _____ , Period _____

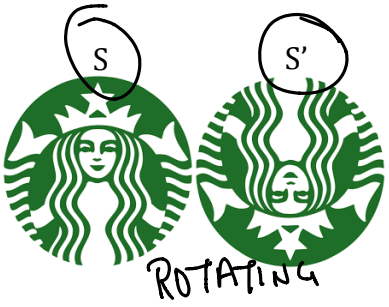
Mr. Rogove Date:_____

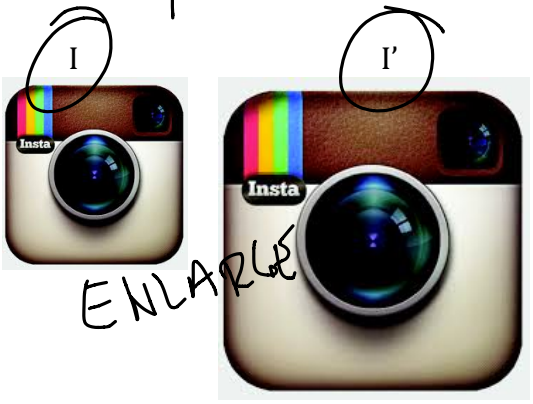
Transformation: A transformation of the plane is a rule that associates (or assigns) to each point *P* of the plane and unique point which can be denoted by *P'*.

Examples:



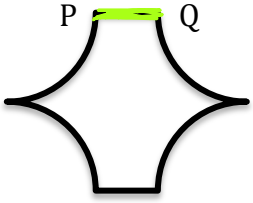


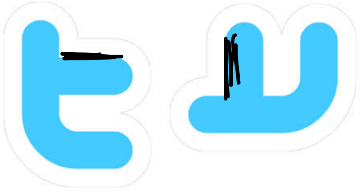


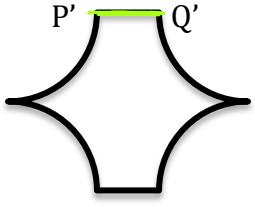


Basic Rigid Motions: Transformations that preserve distance. Given any two points on a plane *P* and *Q*, the distance between P and Q will be the same as the distance between *P'* and *Q'* if these points are created a rigid motion.

Examples:







Which transformation on the top half of the page does NOT preserve distance??

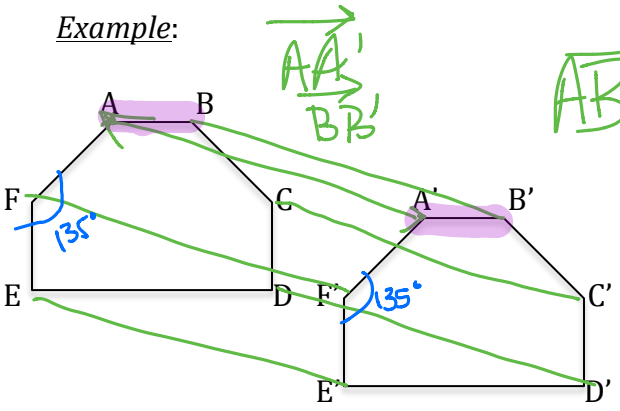
WE WILL STUDY 3 BASIC RIGID MOTIONS: TRANSLATIONS, REFLECTIONS, AND ROTATIONS.

NAME:_____ Math _____ , Period _____

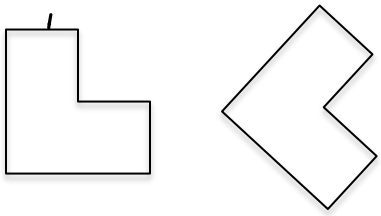
Mr. Rogove Date:_____

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.

- 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 _____

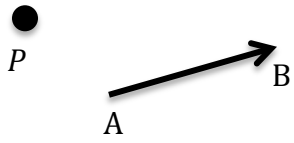
Mr. Rogove Date:_____

Guided Practice:

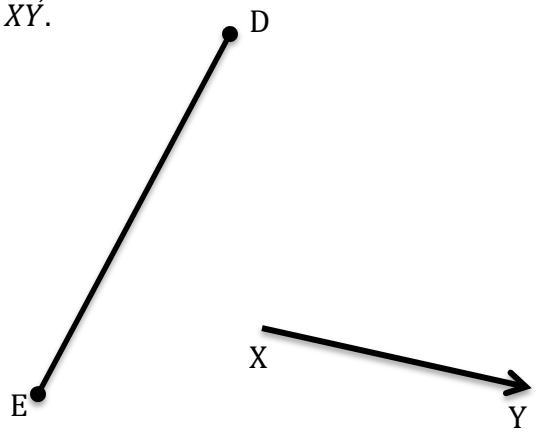
Perform the translation along the vector indicated.

Translate point P along vector $\overrightarrow{AB}$.

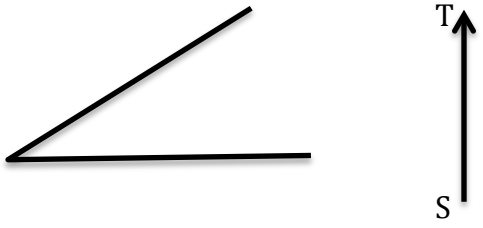
PAGE 4 DONE BY HAND WITH PATTY PAPER



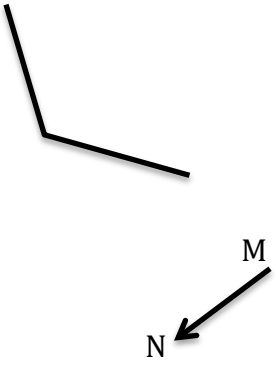
Translate line segment $\overline{DE}$ along vector $\overrightarrow{XY}$.



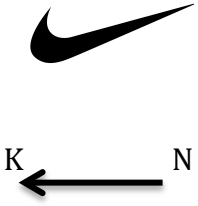
Translate the angle along $\overrightarrow{ST}$.



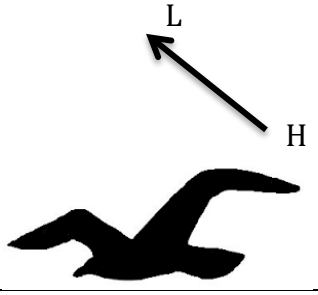
Translate the angle along $\overrightarrow{MN}$.



Translate the image along $\overrightarrow{NK}$



Translate along $\overrightarrow{HL}$.



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.