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LEARNING OBJECTIVE: We will define and draw reflections and rotations. (G8M2L2)

ACTIVATING PRIOR KNOWLEDGE:

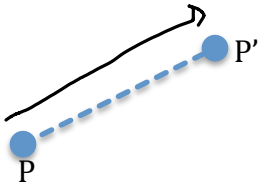
Which transformation below is a translation along a vector? What is the vector?

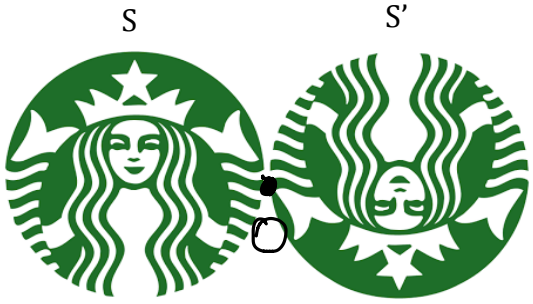
$P \rightarrow P'$

CONCEPT DEVELOPMENT:

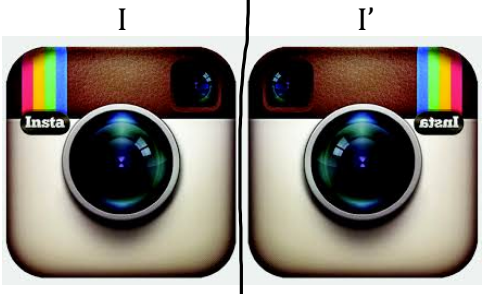
Transformation: A transformation of the plane is a rule that associates (or assigns) to each point *P* of the plane and unique point which can be denoted by *P'*.

Examples:





Rotation of 180° around point O



I' is a reflection of I across line ℓ. (over)

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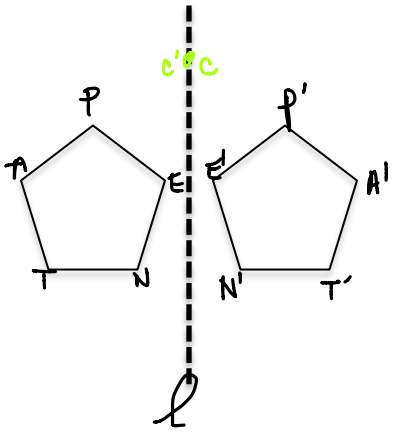
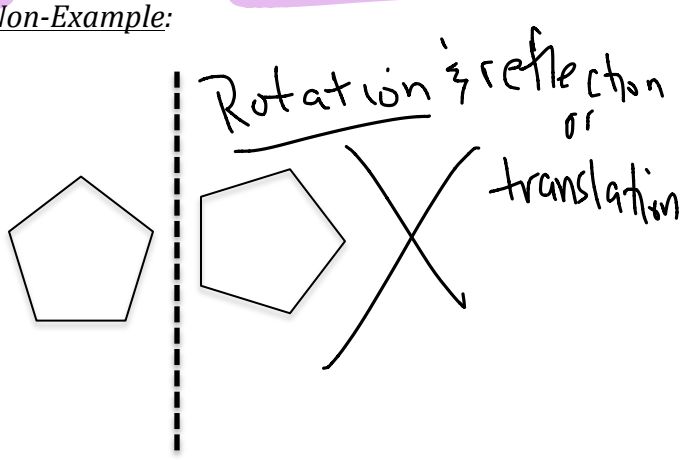
Reflection: A reflection is a mirror image of a point, line, object, etc. across a line.

Example:



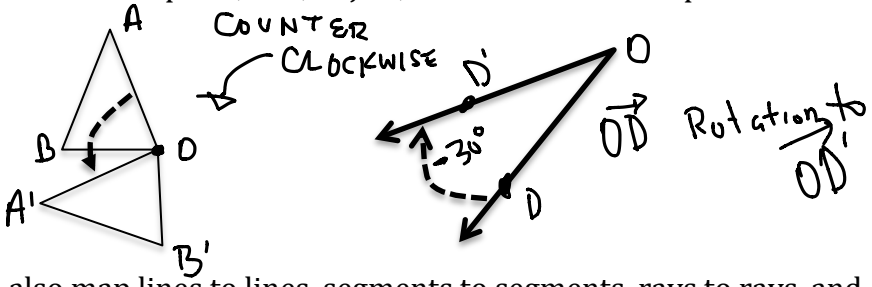
Non-Example:



- Reflections also 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. $\overline{NT} \cong \overline{N'T'}$, $\angle ATN \cong \angle A'T'N'$
- The line of reflection is the midpoint between two corresponding points of a reflection.
- Points that on the line of reflection are their own reflection.

Rotation: A rotation turns a point, line, object, etc around a center point.

Examples:



- Rotations also 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.
- A rotation of positive degrees moves counterclockwise around a center, and a rotation of negative degrees move clockwise around a center.

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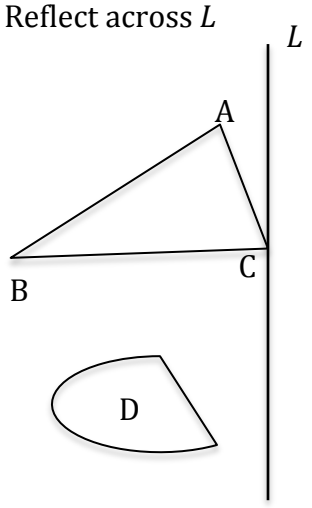
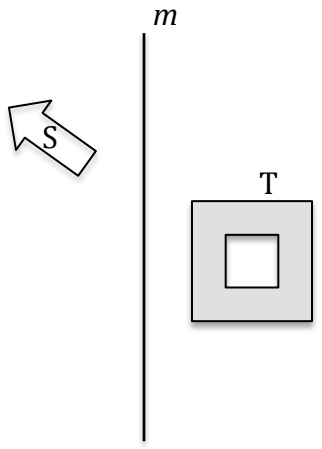
Guided Practice:

Perform the transformation indicated.

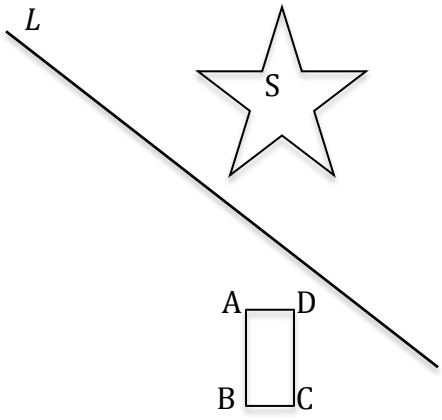
Reflect across L



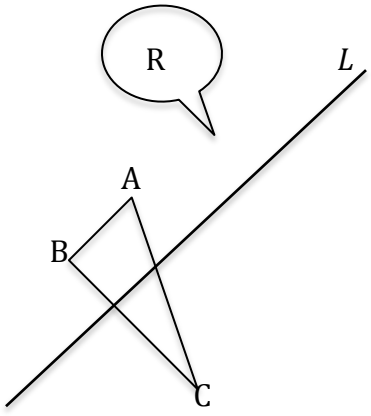
Reflect the shapes across m.



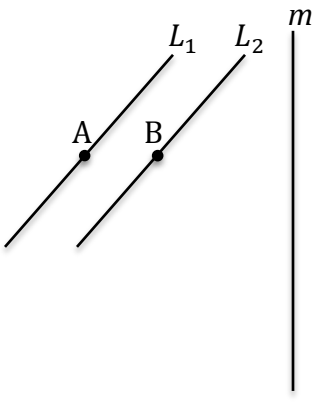
Reflect across L.



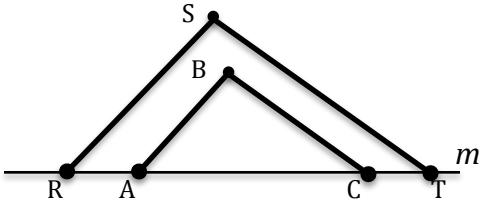
Reflect across L.



Reflect L_1 and L_2 across m.



Reflect $\angle RST$ and $\angle ABC$ across m.



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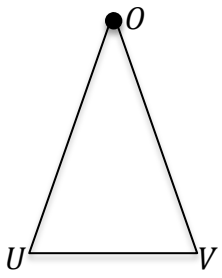
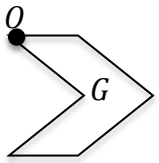
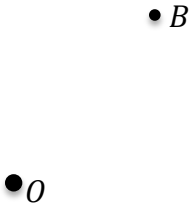
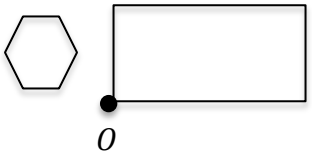
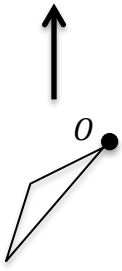
Rotate ΔOUV approximately 90° around O. 	Rotate shape G approximately 90° around O. 
Rotate point A approximately $-90°$ around O. 	Rotate point B approximately $-90°$ around O. 
Rotate approximately 180° around O. 	Rotate approximately 180° around O. 

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Independent Practice:

Independent Practice will be a part of the guided practice.

Activating Prior Knowledge:

What does it mean to rotate something?

When you think of a reflection, what do you think of?

Closure:

Why are these called rigid motions?

Is there a difference between a reflection and a rotation of 180°? Which shape is a rotation around O and which is a reflection across L?