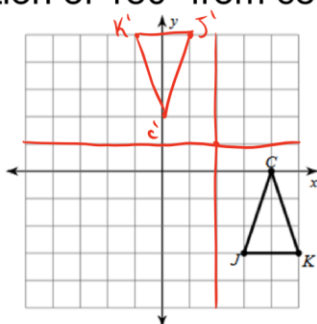


Goals for today

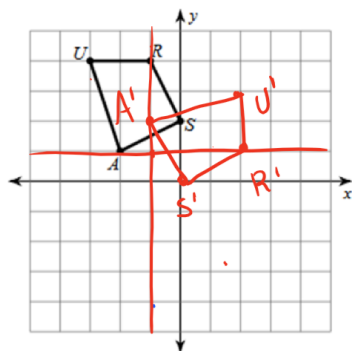
- Be able to rotate figures or points from a center not at the origin.
- Be able to reflect figures or points over any horizontal or vertical line.

Rotational from a point
Rotation of 180° from center $(2,1)$



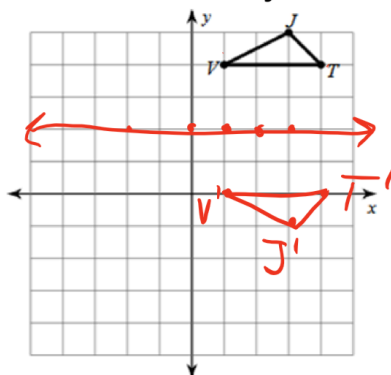
Distance from Center
 $C(\rightarrow 2 \downarrow 1) \rightarrow C'(\leftarrow 2 \uparrow 1)$
 $K(\rightarrow 3 \downarrow 4) \rightarrow K'(\leftarrow 3 \uparrow 4)$
 $J(\rightarrow 1 \downarrow 4) \rightarrow J'(\leftarrow 1 \uparrow 4)$

Rotation of 270° CCW
with origin at $(-1,1)$



Distance from Center
^{change x sign + Flip}
 $U(\leftarrow 2, \uparrow 3) \rightarrow U'(\rightarrow 3, \uparrow 2)$
 $R(0, \uparrow 3) \rightarrow R'(\rightarrow 3, 0)$
 $S(\rightarrow 1, \uparrow 1) \rightarrow S'(\rightarrow 1, \downarrow 1)$
 $A(\leftarrow 1, 0) \rightarrow A'(0, \uparrow 1)$

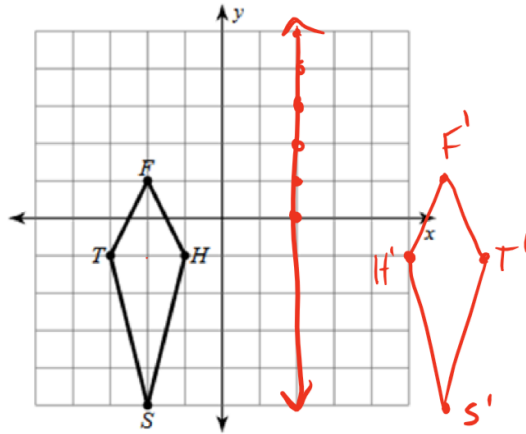
Reflection over given line
Reflect over $y = 2$



Count distance from the line of reflection.
Duplicate on opposite side.

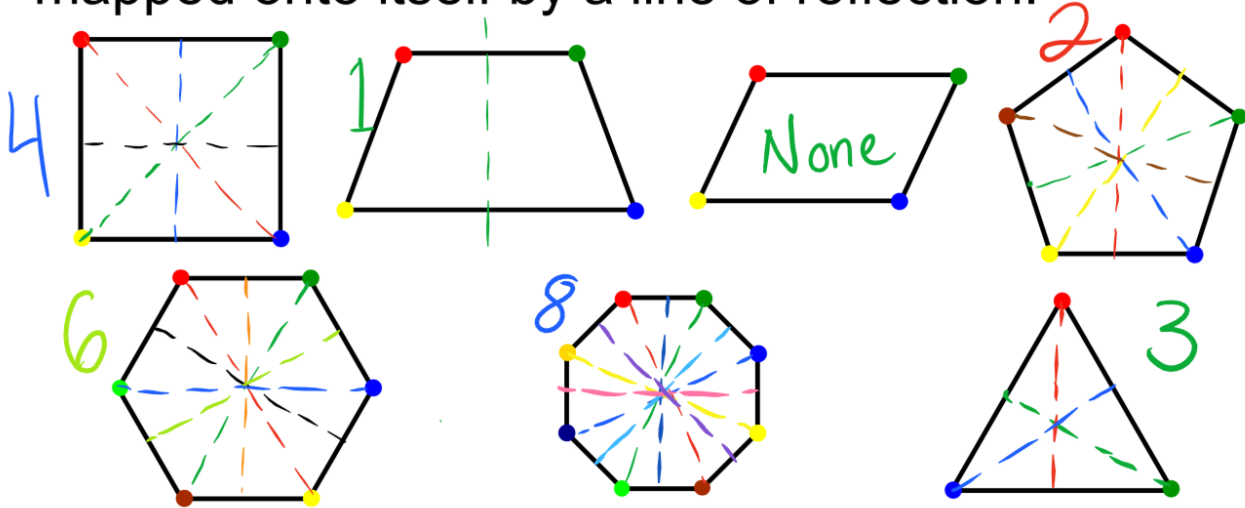
Reflection over given line

Reflect over $x = 2$

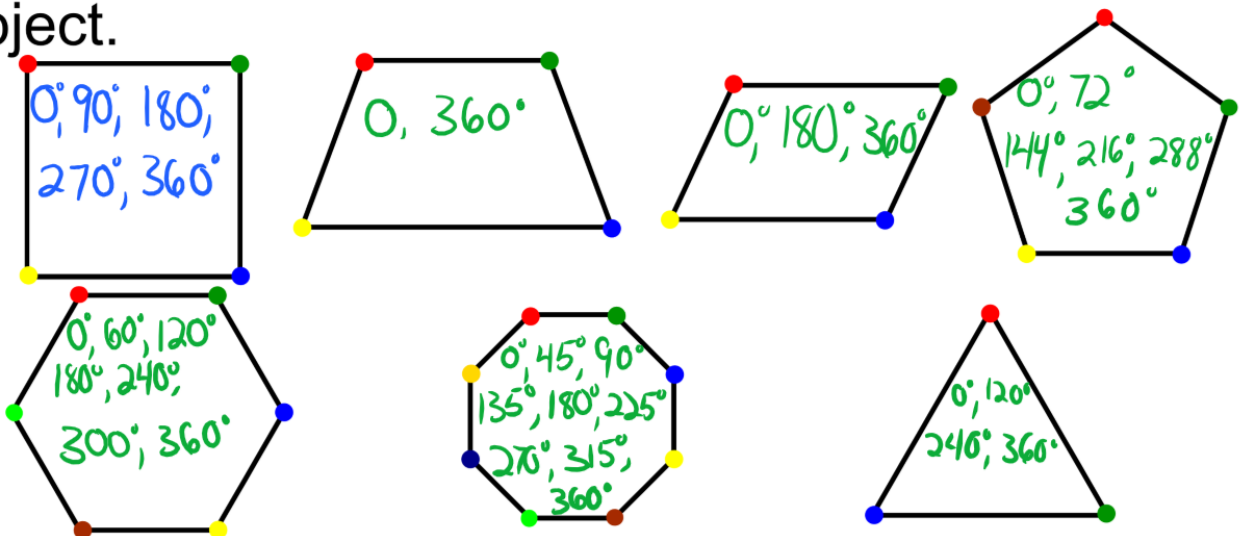


Count distance from line of reflection, Duplicate on opposite side.

Reflectional symmetry - when a figure can be mapped onto itself by a line of reflection.



Rotational Symmetry - mapping a figure onto itself through a rotation about the center of the object.



Did you notice any patterns or relationships between reflectional and rotational symmetry?

The number of lines of symmetry is the number of times the figure can map onto itself from 0° to 360° for a regular polygon. The number of lines of symmetry for a regular polygon is also equal to its number of sides.

Review

How can you calculate the degree needed to map a regular polygon onto itself? Divide 360 by the number of sides the regular polygon has. Then all multiples of that number.

What does it mean if a figure has reflectional symmetry?

When reflected over a line it will map onto itself.

Does the following figure have reflectional symmetry, if so find how many lines of symmetry would it have?

Yes. It has 8 lines of symmetry.

