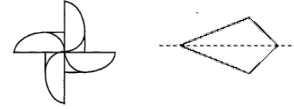


(DN) Write down anything that comes to mind when you hear the word **symmetry**.

Name _____ Per _____

SLO: I can identify rotation and reflection symmetry and describe the connection between rotation and reflection.

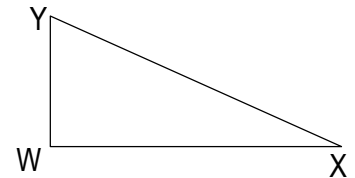
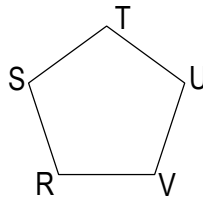
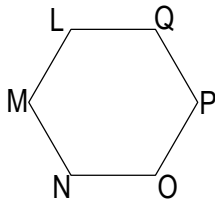
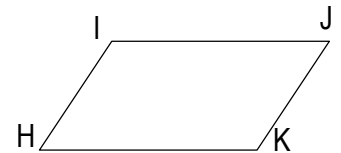
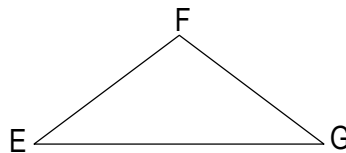
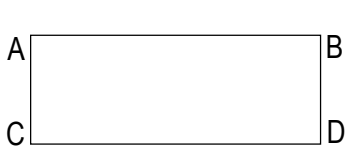


(1) **Symmetry notes** _____ is when a figure will map to _____ by reflection or rotation.

(2) **Symmetry Check: Reflection**

Transparency
Dry erase marker
Eraser

Use dry erase markers and transparencies to check each figure for reflection symmetry. If the figure has reflection symmetry across a line, draw the line on the figure. If the figure has no lines of symmetry, write "none" under it.

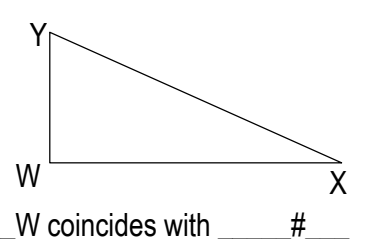
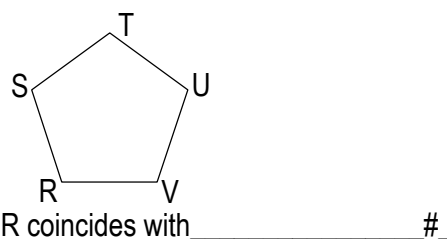
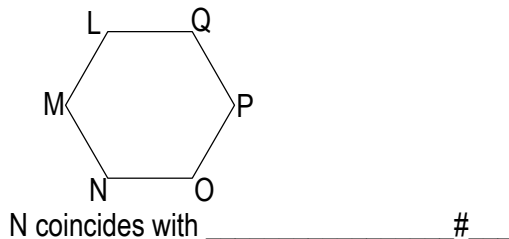
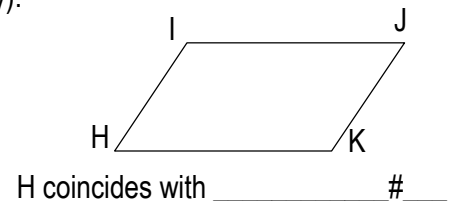
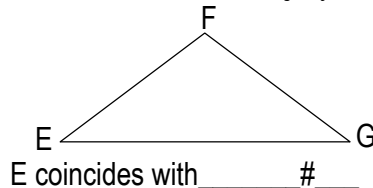
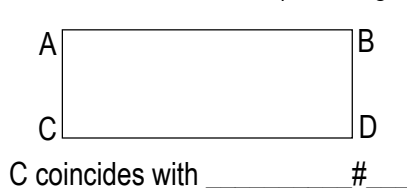


You were asked to draw a line of symmetry. If you had been asked to construct a line of symmetry for rectangle ABCD, you could have constructed the _____ of _____.

(3) **Symmetry Check: Rotation**

Transparency
Dry erase marker
Eraser

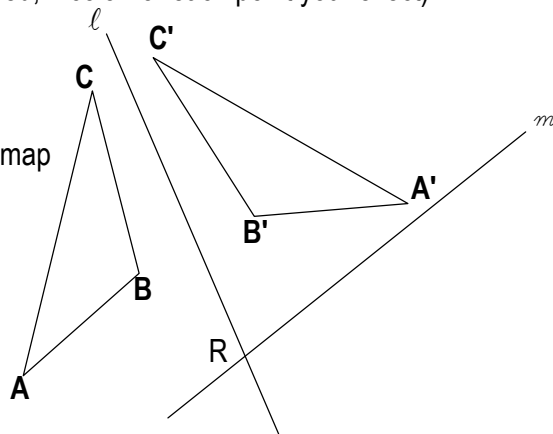
Use dry erase markers and transparencies to check each figure for rotation symmetry. Write down all the letters with which the given letter can coincide when the figure maps to itself. Write the number of times the point coincides with another (including itself, which is called the **identity** symmetry).



(4)
compass
highlighter

Connecting Reflections and Rotations (highlighters recommended, 1 color for each point you reflect)

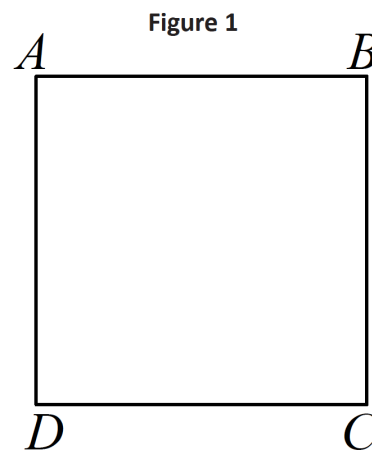
- (1) Triangle ABC has been reflected across line ℓ resulting in triangle A'B'C'.
- (a) Reflect triangle A'B'C' across line m and label it A''B''C''.
- (b) Write a sentence describing a transformation that would map triangle ABC directly to triangle A''B''C''.



(5)
compass

Symmetry using the connections of reflection and rotation

- (a) Carefully draw all lines of symmetry for square ABCD and use them to locate the center of rotational symmetry.
- (b) Describe the symmetries of square ABCD. (Include the number and names of the lines of symmetry – add letters to the diagram where needed – and the number of rotations, including the identity.)



- (c) I know that the image of A is B. What point(s) could be the image of B? Is each point a reflection or rotation?

- (d) How many ways can A map to A? ____ A map to B? ____ A map to C? ____ A map to D? ____

A maps to A when _____

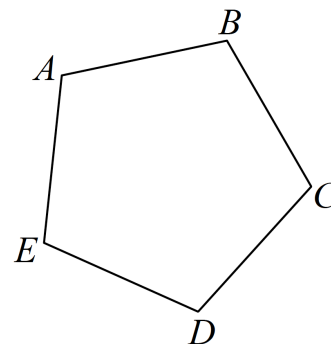
A maps to B when _____

A maps to C when _____

A maps to D when _____

(6) **Symmetry using the connections of reflection and rotation** Square ABCDE
cont
compass

- (a) Draw all lines of symmetry and use them to locate the center of rotational symmetry.
- (b) Describe the symmetries of pentagon ABCDE. (Include the number and names of the lines of symmetry – add letters to the diagram where needed – and the number of rotations, including the identity.)



- (c) I know that the image of A is B. What point(s) could be the image of B?

- (d) How many ways can A map to A? _____ to B? _____ to C? _____ to D? _____ to E? _____

A maps to A when _____

A maps to B when _____

A maps to C when _____

A maps to D when _____

A maps to E when _____

 (7) **Exit Ticket**

- (a) Construct equilateral triangle ABC. Draw all lines of reflection symmetry. How many lines of reflection symmetry are there? How many rotational symmetries are there?

 (8) **Homework**

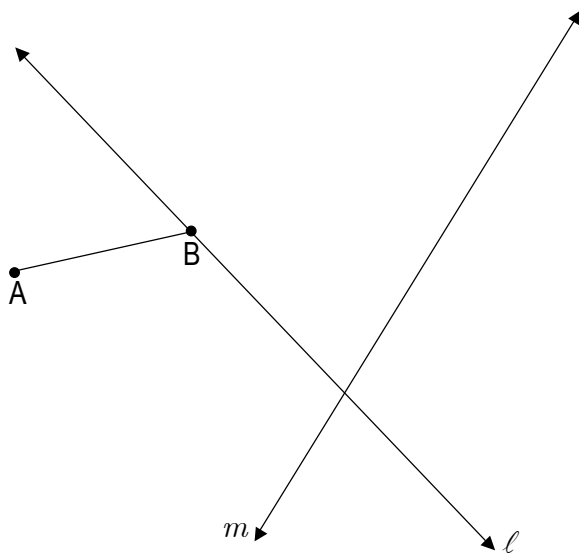
- (1) Write the number of rotational symmetries for each figure (remember the identity).



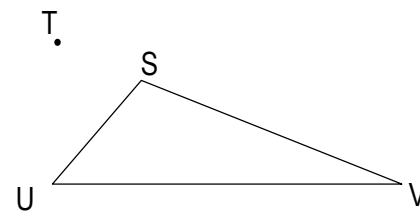
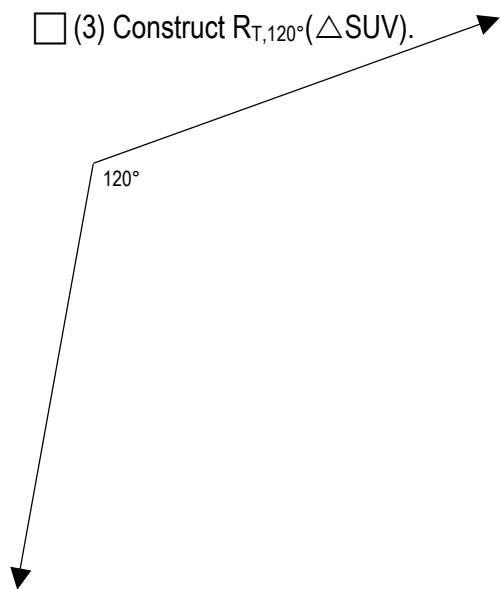
(continued on next page)

(8) Homework

(2) Construct $r_\ell(\overline{AB})$ and then construct $r_m(\overline{A'B'})$. What single transformation could map $\overline{A'B'}$ to $\overline{A''B''}$?



(3) Construct $R_{T,120^\circ}(\triangle SUV)$.



(4) How does your construction in problem number 3 relate to copying an angle?