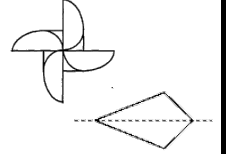| Geometry Local Lomac 2015-2016	Date 2/25 due 2/26	Rotations Reflections and Symmetry 9.7L

Name _____ **Per**_____

LO: I can identify rotation and reflection symmetry and describe the connection between rotation and reflection.
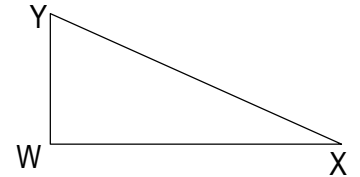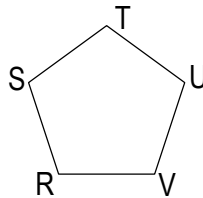
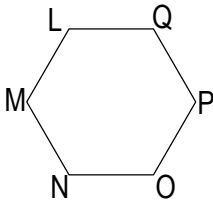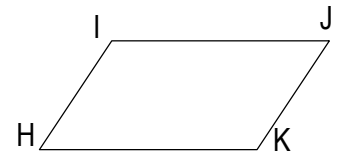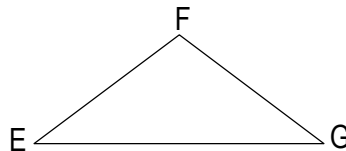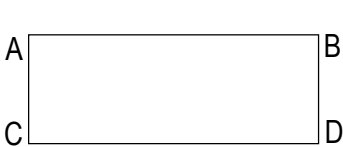☐ **DO NOW**   On the back of this packet

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

☐ **(2)**   **Symmetry Check: Reflection**

tracing paper

Use tracing paper to check each figure for reflection symmetry (trace and flip). 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**

tracing paper

Use tracing paper 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).

C coincides with _____#___   E coincides with_____#___   H coincides with _____#___

N coincides with _____#___   R coincides with_____#___W coincides with _____#___
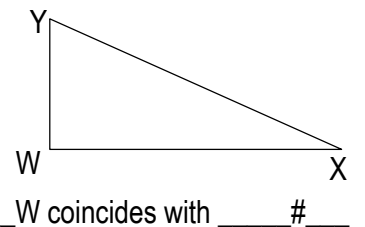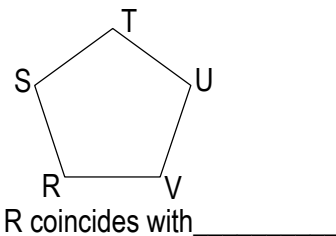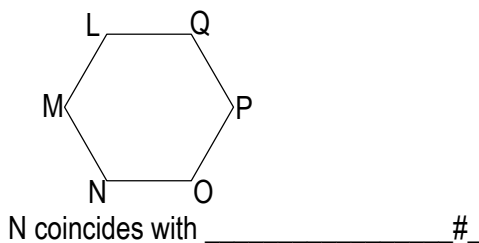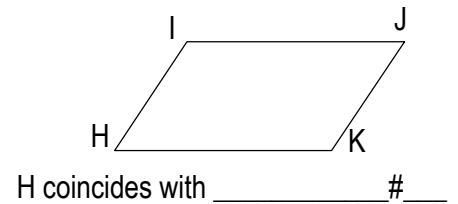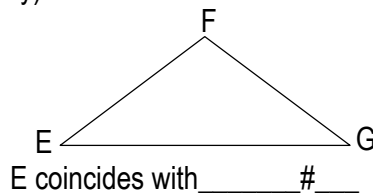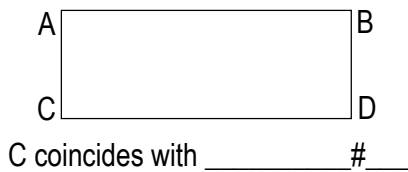
□ (4)
compass
highlighte
r

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".

ℓ **C'**

C

    m

A'

B'

B

R

A

_____

_____

_____

_____

_____
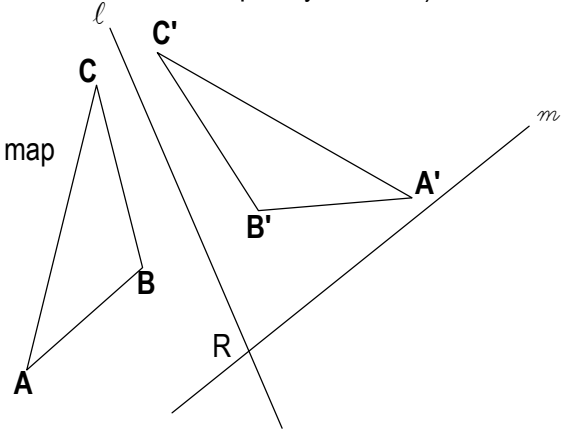
□ (5)
compass

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 and the
number of degrees for each rotation.)

Figure 1

A B

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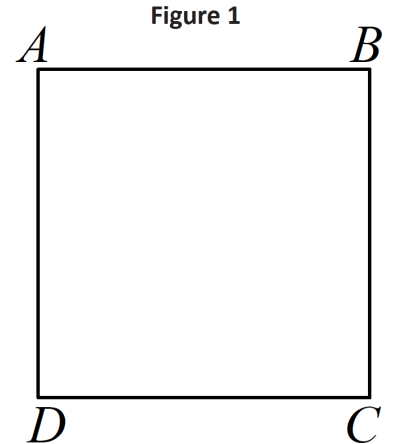
□ (c) I know that the image of A is B. What point(s) could be the image of B? Is each point a reflection or rotation?

□ (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 and the number of degrees for each rotation.)
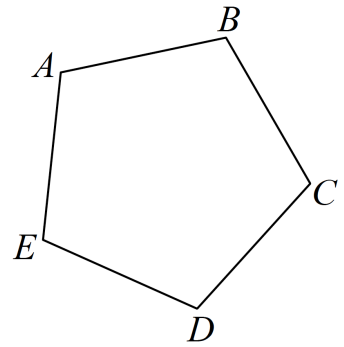
☐ (c) I know that the image of A is B. What point(s) could be the image of B?

☐ (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 _____

☐ (6) **Exit Ticket**
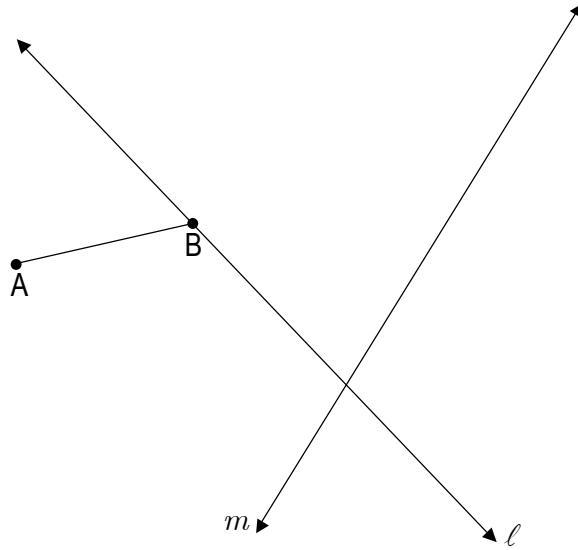
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☐ (8) **Homework**

☐ (1) Write the number of rotational symmetries for each figure (remember the identity).
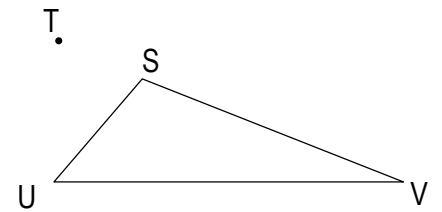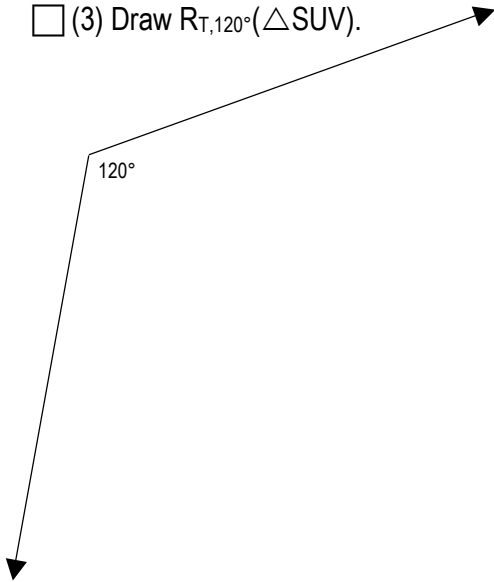
(continued on next page)

4

☐ (8) **Homework**

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

A

B

m

ℓ

   ☐ (3) Draw $R_{T,120°}(\triangle SUV)$.

120°

T

S

U

V

EXIT TICKET   Name_____ **Date** _____ _____ **Per_** _____   **9.7L**

(1) The LO (Learning Outcomes) are written below your name on the front of this packet. Demonstrate your achievement of these outcomes by doing the following:

☐ (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?

☐ (b) How do you determine reflection symmetry? Rotation symmetry?

☐ REMINDER: You may want to add to the Do Now in problem 2.

DO NOW   **Name**_____ **Date** _____ **Per**_____   **9.7L**

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

(2) What about the cartoon below is supposed to make people smile? You may want to add more to this after today's lesson.