☐ **DO NOW – Geometry Regents Lomac 2014-2015** **Date** 10/22 **due** 10/23 **Composition of transformations** **2.10**

(DN) Describe what each transformation function notation means:

(a) $T_{\overrightarrow{LM}}(\triangle HIJ)$

(b) $R_{A,-45°}(\overline{CD})$

(c) $r_{\overline{ZY}}(U)$

Name _____ **Per**_____

SLO: I can perform a sequence/composition of transformations on a given figure using a straightedge and compass, explain how the sequence results in the final image, and use function notation for the transformation.

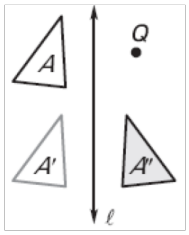
☐ (1) C6 **Notes: Constructing Parallel Lines** Construct line *p* parallel to line *n*.

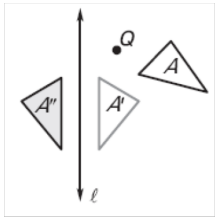
☐ (a) Obtain "1 Construction Notes Page 3 & 4", a descriptions page, scissors, and tape or glue

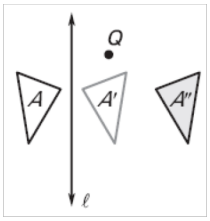
☐ (b) Cut, arrange, check, and then glue or tape down the descriptions

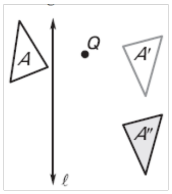
☐ (2) transparencies, dry erase markers, erasers **Composition of transformations** Construct line *p* parallel to line *n*.

☐ A sequence or composition of transformations is when a figure undergoes multiple transformations. Describe each composition of transformations below using the terms reflection, rotation, and translation. Include direction when direction matters. (You may want to use plastic sheets to trace and move the shapes.)

(a) ☐ 

(b) ☐ 

(c) ☐ 

(d) ☐ 

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

☐ (3) **Reading and writing function notation for transformations – comparing to typical English sentences**

(a) ☐ The function notation $r_m(T_{\overrightarrow{AB}}(Q))$ is read:

"The reflection across line m of the translation along vector AB of point Q."

Which do you think happens first, the reflection, or the translation? _____ because

_____

(b) ☐ Read the statement:

"Anthony took a picture of the drawing of his family."

Which do you think happens first, the picture or the drawing? _____ because _____

_____

(c) ☐ Read the sentence from part (a) again.

"The reflection across line m of the translation along vector AB of point Q."

Which happens first, the reflection, or the translation? _____ Did your answer change? _____ Why/why not? _____

☐ (4) **Reading and writing function notation for transformations**

Compositions of transformations can be written

$$T_{\overrightarrow{HA}} \circ R_{C,45°}(\overline{YZ})$$

OR $T_{\overrightarrow{HA}}(R_{C,45°}(\overline{YZ}))$ which is read:

"*the transformation along vector HA of the rotation 45° around point C of segment YZ*"

Based on your work in problem #5, Which happens first, the translation or the rotation? _____

because _____

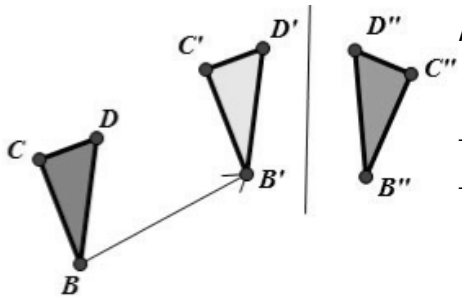
_____

☐ (5) **Writing function notation for transformations**

transparencies, dry erase markers, erasers

☐ Use the abbreviation examples from problem #3 and the order of compositions from #5 & #6 to describe each composition of transformations and then write the abbreviation for it.

(a) ☐



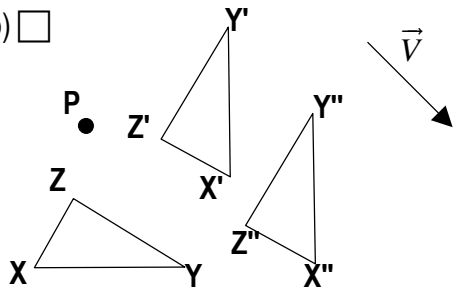
Abbreviation: _____

Description: _____

_____

_____

(b) ☐



Abbreviation: _____

Description: _____

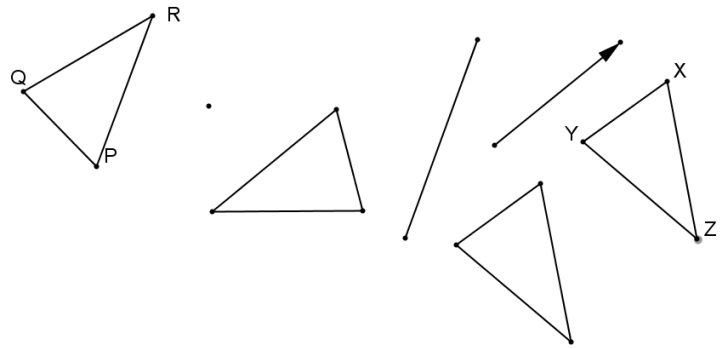
_____

_____

☐ (6) **Describing compositions of functions**

transparencies, dry erase markers, erasers

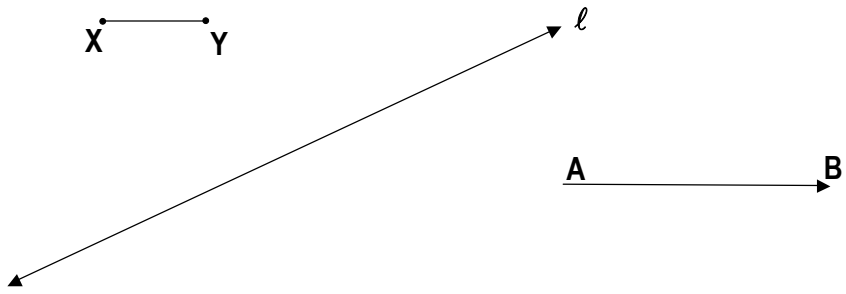
☐ Describe with as much detail as possible the composition of transformations that map △PQR to △XYZ. You may want to add letters to the in-between steps to make your explanation easier.



☐ (7) **Constructing compositions of transformations**

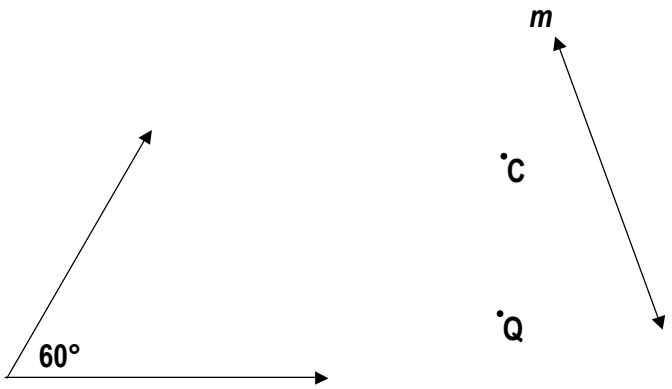
Construct each composition of transformations.

☐ (a) $T_{\overline{AB}} \circ r_{\ell}\left(\overline{XY}\right)$



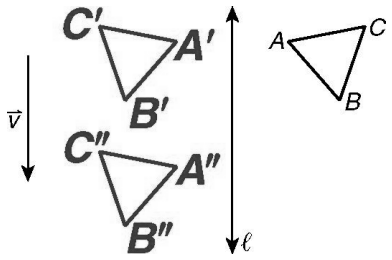
☐ (7) cont **Constructing compositions of transformations**

☐ (b) $r_m \circ R_{C,-60°}(Q)$



☐ (8) **Exit Ticket**

☐ Describe the composition of transformations and write the transformation in function notation.



☐ (9) compass **Homework**

☐ (1) Describe each transformation. Circle the part of the transformation that happens first.

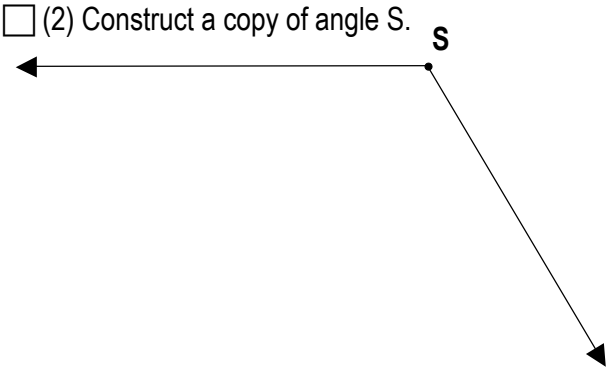
$r_{\overline{CD}} \circ r_{\overline{MT}}(\Delta XNJ)$ _____

$T_{\overline{WB}} \circ R_{J,-42}(\overline{LU})$ _____

$R_{C,25°} \circ r_{\overline{l}}(F)$ _____

☐ (9) **Homework**
compass

☐ (2) Construct a copy of angle S.



☐ (3) Bisect angle S' in problem number 2.

Construct $R_{R,180°} \circ T_{\overline{AB}}(\Delta HJL)$