Geometry Local Lomac 2015-2016 **Date** 3/21 **due** 3/22 | **Similarity: Dilation Theorem 11.4L**

Name _____ **Per**_____

LO: I can explain and verify the dilation theorem and use it to solve problems.

☐ **DO NOW** On the back of this packet

☐ (1) ruler and setsquare **The Dilation Theorem**

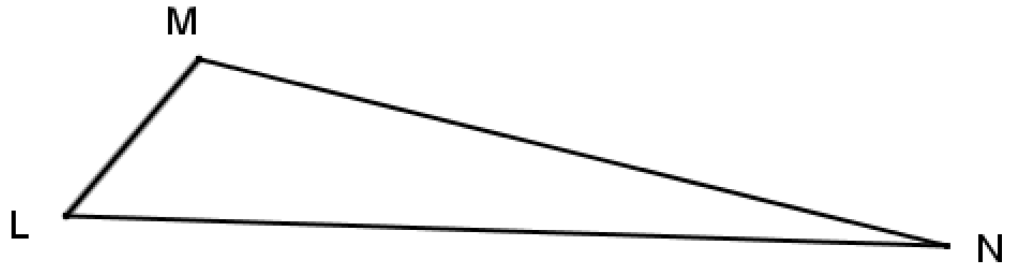
☐ (a) Draw a diagram to illustrate the Dilation Theorem below

DILATION THEOREM: If a dilation with center O and scale factor r sends point P to P' and Q to Q', then $|P'Q'| = r|PQ|$. Furthermore, if $r \neq 1$ and O, P, and Q are the vertices of a triangle, then $\overleftrightarrow{PQ} \| \overleftrightarrow{P'Q'}$.

What if O, P and Q are not vertices of a triangle? What might this look like? Draw a diagram.

☐ (2) **The Dilation Theorem** Does it hold true?

highlighter ☐ (a) Produce a scale drawing of △LMN using either the ratio or parallel method with point M as the center and scale factor of $\frac{3}{2}$. ($D_{M,3/2}$)



☐ (b) For this problem, the dilation theorem states that M'L' = (____)(ML)

M'N' = (____)(MN)

L'N' = (____)(LN)

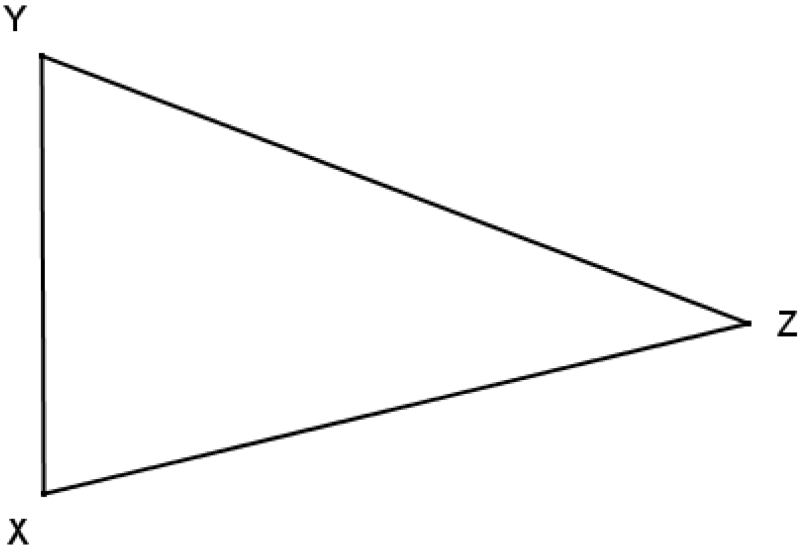
☐ (c) Use the dilation theorem to predict the length of L'N'. _____

☐ (d) Measure the length of L'N' directly using a ruler. _____

☐ (e) From parts b and c, does the dilation theorem appear to hold true? Explain.

☐ (3) ruler and setsquare **The Dilation Theorem**

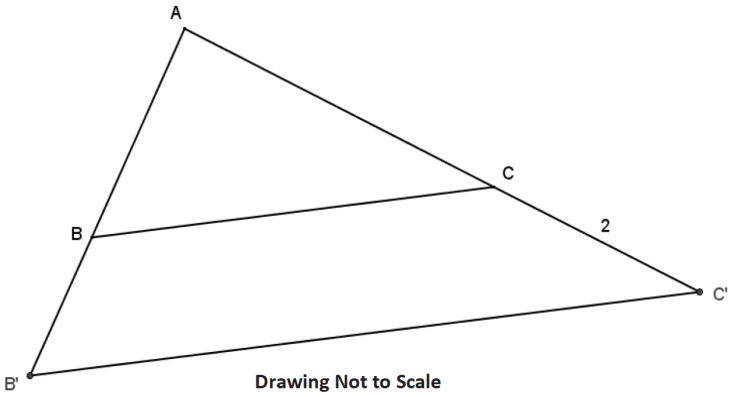
Produce a scale drawing of △XYZ with point X as the center and a scale factor of ¼ . Use the dilation theorem to predict Y'Z', and then measure its length directly using a ruler. Does the dilation theorem appear to hold true? ($D_{X,1/4}$)



Predict Y'Z' _____ Measure Y'Z' _____ Is $\overline{Y'Z'} \| \overline{YZ}$? _____

☐ (4) highlighter **The Dilation Theorem**

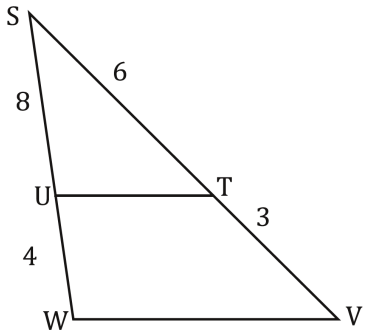
△A'B'C' is a dilation of △ABC from vertex A, and CC' = 2. Use the given information below and the diagram to find B'C'. $AB = 9$, $AC = 4$, and $BC = 7$



Is $\overline{B'C'} \| \overline{BC}$? _____

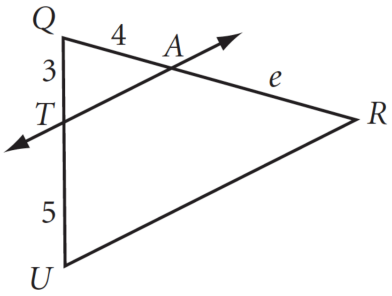
☐ (5) calculator **Dilation Theorem:** using it to answer questions and solve problems

Is $\overline{UT} \parallel \overline{WV}$? Explain your answer with sufficient justification.



☐ (6) calculator **Dilation Theorem:** using it to answer questions and solve problems

For what value of e is $\overleftrightarrow{TA} \parallel \overleftrightarrow{UR}$? Explain your answer with sufficient justification.



☐ (7) **Exit Ticket**

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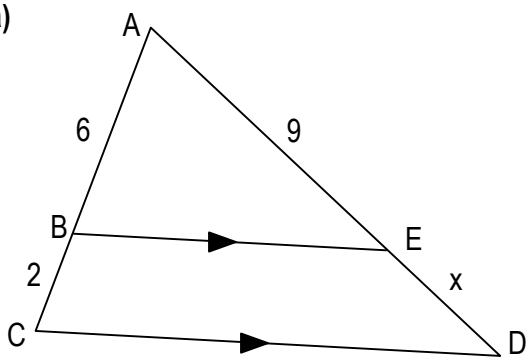
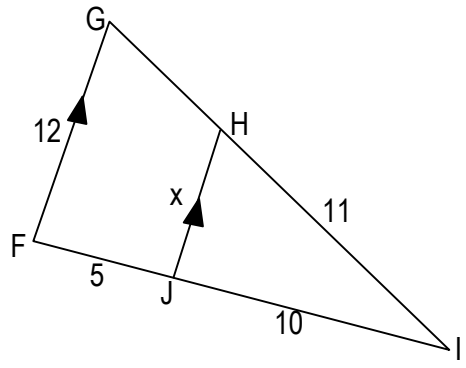
☐ (8) **Homework:**

☐ (1) Use the Side Splitter Theorem to find the measure of x in each diagram (see lesson 5.4 for examples).

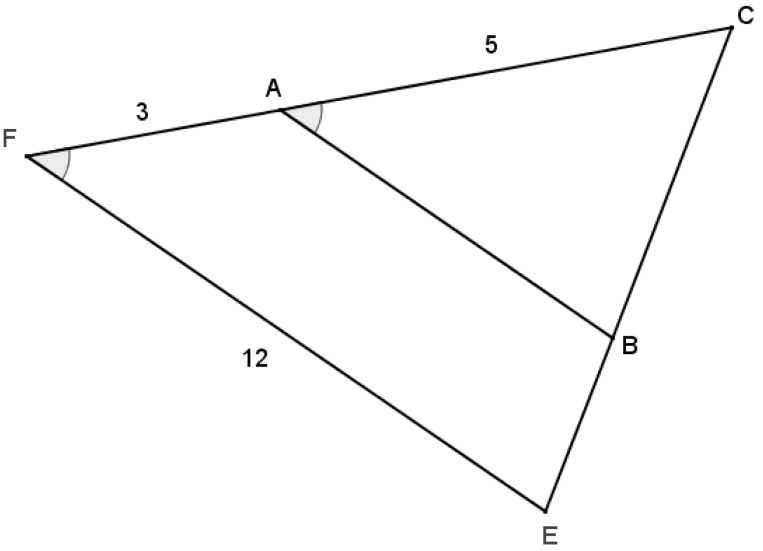
(a)



(b)

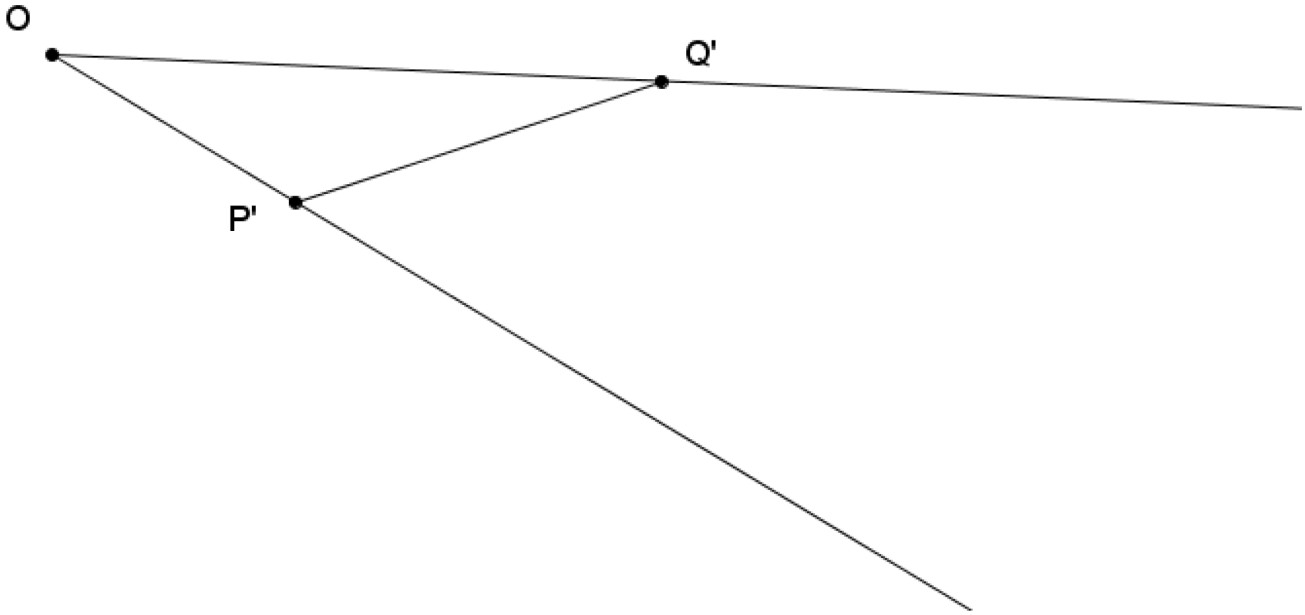


☐ (2) Given the diagram, ∠CAB ≅ ∠CFE. Find AB.



☐ (8) compass, straightedge **Homework:**

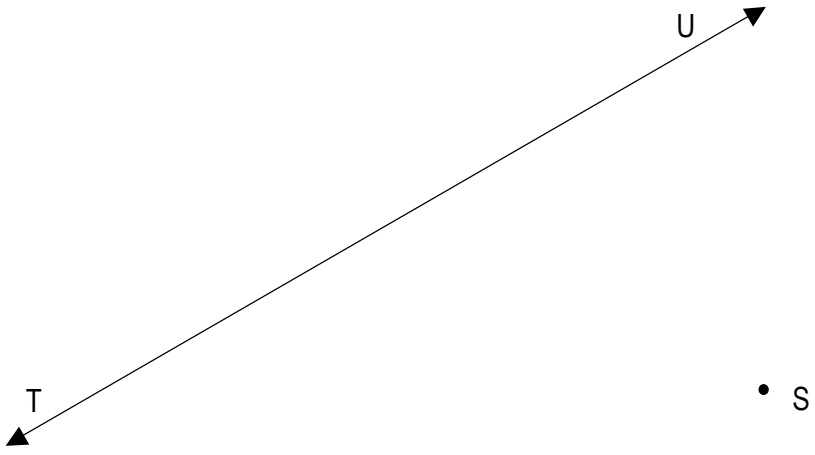
☐ (3) Use the diagram to answer each part below.



(a) △OP'Q' is the dilated image of △OPQ from point O with a scale factor of r > 1. Draw a possible $\overline{PQ}$.

(b) △OP"Q" is the dilated image of △OPQ from point O with a scale factor of k > r. Draw a possible $\overline{P''Q''}$.

☐ (4) Construct a line parallel to TU that passes through point S.



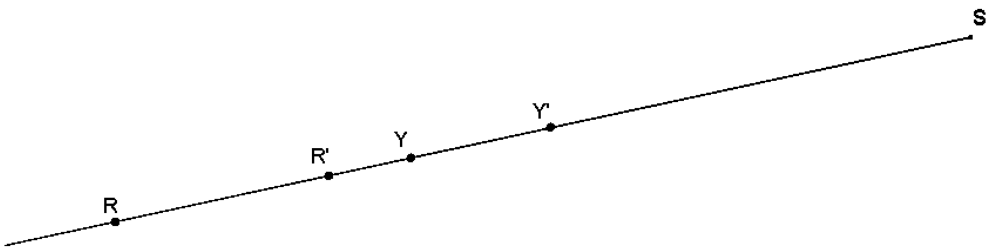
Exit Ticket **Name**_____ **Date** _____ **Per**_____ **11.4L**

(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:

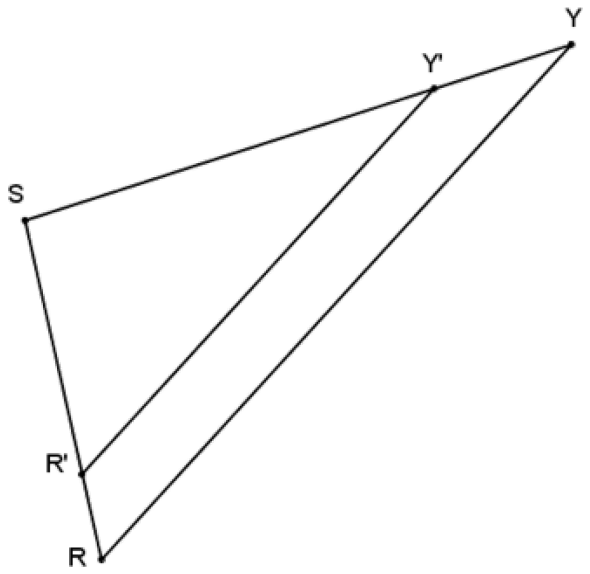
(a) Two different points R and Y are dilated from S with a scale factor of ¾ , and RY = 12 units (not necessarily cm or in or mm or anything in particular). Use the dilation theorem to describe two facts that are known about R'Y'.

(b) Which diagram(s) below represent(s) the information given in question a? Explain your answers.

#1

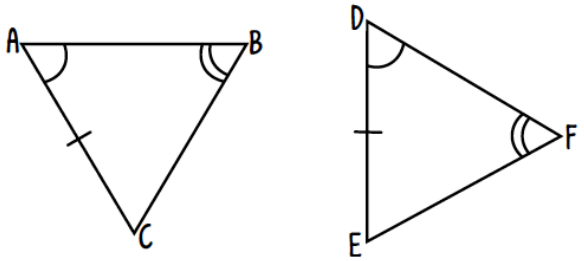


#2

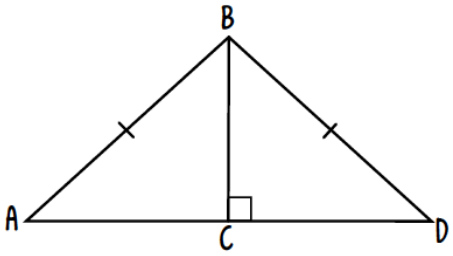


DO NOW **Name**_____ **Date** _____ **Per**_____ **11.4L**

(1) Determine whether or not each pair of triangles are congruent. If yes, state the reason and name the triangles.



congruent?	yes no
reason	
△___ ≅ △___	



congruent?	yes no
reason	
△___ ≅ △___	

(2) Describe the result when a figure is dilated with a

(a) scale factor $0 < r < 1$

(b) scale factor $r > 1$

(3) What does "dilation" mean based on the cartoon below?