Geometry Regents Lomac 2015-2016	Date 1/21	due 1/22	Similar Triangles Shortcuts AA,SSS, SAS	6.3R

Name _____ **Per**_____

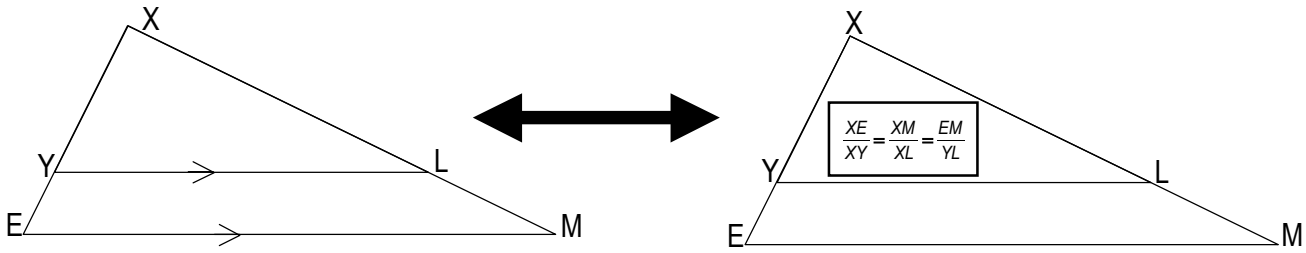
LO: I can show that triangles are similar using the AA, SSS, and SAS similarity shortcuts.

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

☐ (1) tracing paper or transparency and dry erase markers

Similarity: Shortcuts for showing triangles are similar **AA~**

☐ (a) How much evidence is sufficient (enough) to show that two triangles are similar.
Triangles are similar if there is a similarity transformation (any combination of translations, rotations, reflections, and dilations) that maps one triangle to the other. Below is the information from the dilation & side splitter theorems. Describe in words what the theorems tells us, then use it to answer the questions that follow.

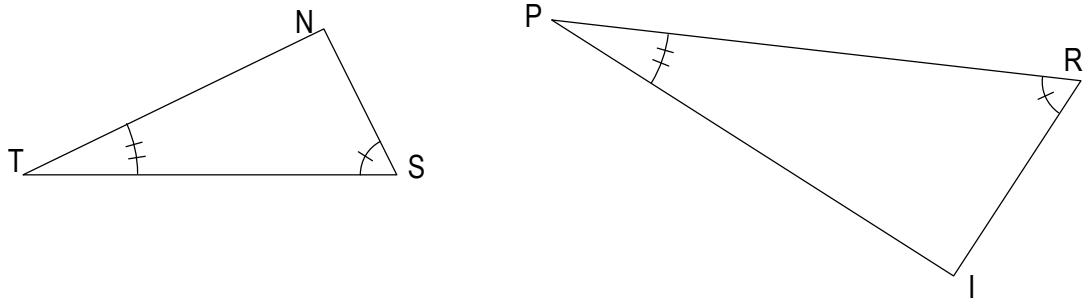


_____ _____

_____ _____

_____ _____

☐ (b) Is AA (2 pairs of congruent corresponding angles) enough to know you can map one triangle to another? Use the diagram to show that triangle PRI is similar to triangle TSN. (Hint: Can we transform one triangle and be sure that we have one of the two diagrams above?)

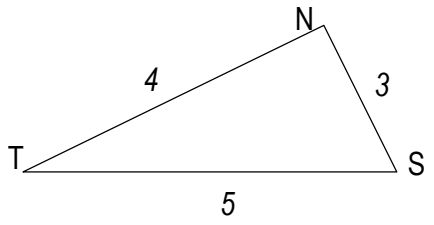


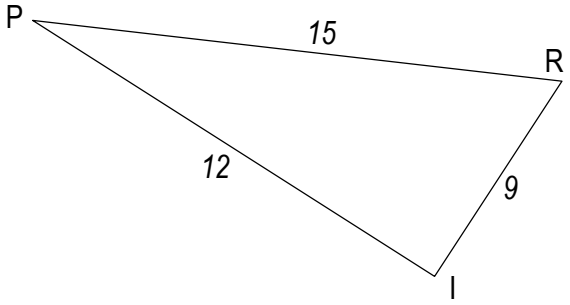
AA~ is/is not sufficient to guarantee that two triangles are similar.

☐ (2) **Similarity: Shortcuts for showing triangles are similar** **SSS~**

tracing paper or transparency and dry erase markers

We have shown that SSS≅ is enough to show that a pair of triangles is congruent. Since congruence is a special case of similarity (when r = 1) we can show that two triangles are similar by SSS~. Instead of showing 3 pairs of congruent sides, we can show that all 3 **ratios** of corresponding side lengths are equal. Show that triangle PRI is similar to triangle TSN.



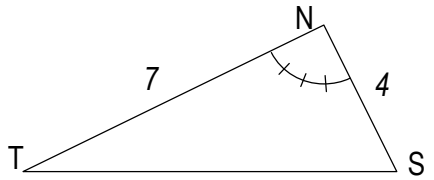


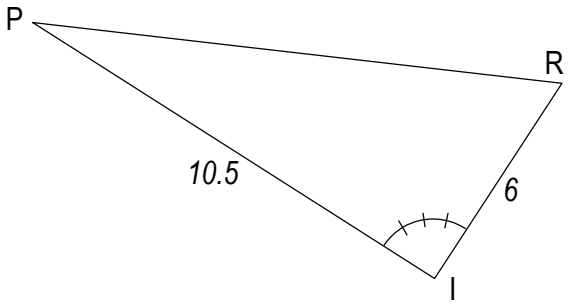
SSS~ is/is not sufficient to guarantee that two triangles are similar.

☐ (3) **Similarity: Shortcuts for showing triangles are similar** **SAS~**

tracing paper or transparency and dry erase markers

We have shown that SAS≅ is enough to show that a pair of triangles is congruent. Since congruence is a special case of similarity (when r = 1) we can show that two triangles are similar by SAS~. Instead of showing 2 pairs of congruent sides, we can show that 2 **ratios** of corresponding side lengths are equal and the pair of angles between are congruent. Show that triangle PRI is similar to triangle TSN.





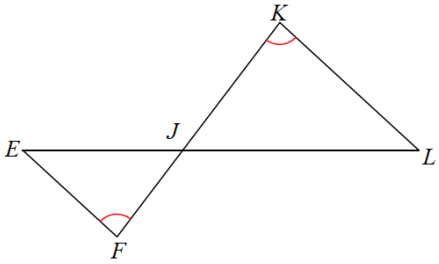
SAS~ is/is not sufficient to guarantee that two triangles are similar.

☐ (4) highlighters & calculators

Similarity: Determining similar triangles.

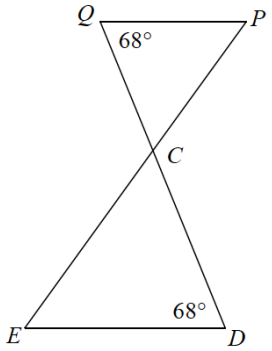
Are the triangles shown below similar? Use highlighter to mark the parts you are using to show the triangles are similar. Circle the letter of your choice.

1)



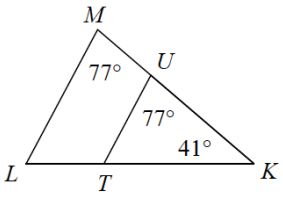
A) similar; SSS similarity
B) similar; SAS similarity
C) similar; AA similarity
D) not similar

2)



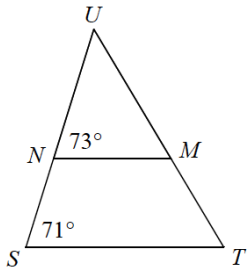
A) not similar
B) similar; AA similarity
C) similar; SAS similarity
D) similar; SSS similarity

3)



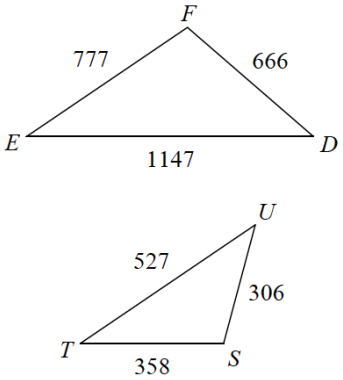
A) similar; AA similarity
B) not similar
C) similar; SSS similarity
D) similar; SAS similarity

4)



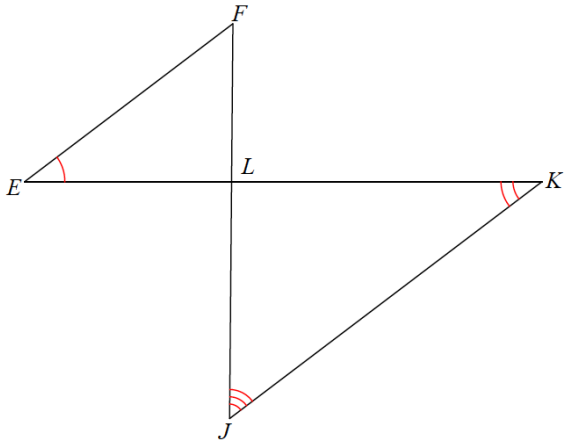
A) not similar
B) similar; SSS similarity
C) similar; AA similarity
D) similar; SAS similarity

5)



A) similar; SAS similarity
B) similar; AA similarity
C) not similar
D) similar; SSS similarity

6)

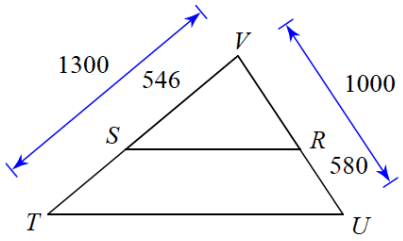


A) similar; SAS similarity
B) similar; SSS similarity
C) not similar
D) similar; AA similarity

☐ (4) highlighters & calculators **Similarity: Determining similar triangles.**

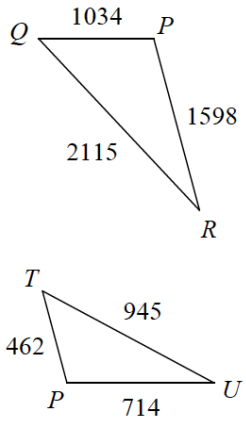
Are the triangles shown below similar? Use highlighter to mark the parts you are using to show the triangles are similar. Circle the letter of your choice.

7)



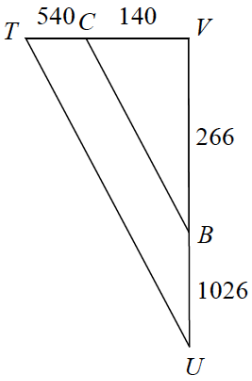
A) similar; AA similarity
B) similar; SSS similarity
C) not similar
D) similar; SAS similarity

8)



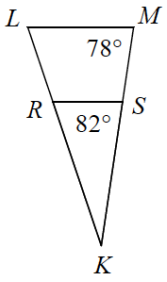
A) similar; AA similarity
B) not similar
C) similar; SSS similarity
D) similar; SAS similarity

9)



A) similar; SSS similarity
B) similar; SAS similarity
C) similar; AA similarity
D) not similar

10)

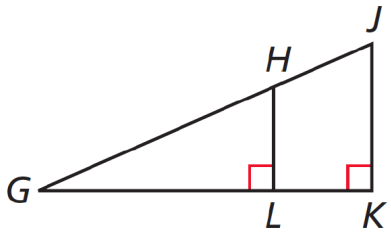


A) similar; AA similarity
B) similar; SAS similarity
C) similar; SSS similarity
D) not similar

☐ (5) highlighters **Similarity: Determining similar triangles.**

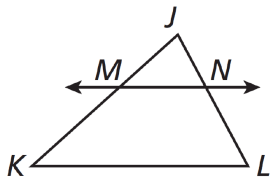
Are the triangles shown below similar? Use highlighter to mark the parts you are using to show the triangles are similar. Write a proof (I know that . . . because . . .).

(a)



(b) **Given:** $\overleftrightarrow{MN} \parallel \overline{KL}$

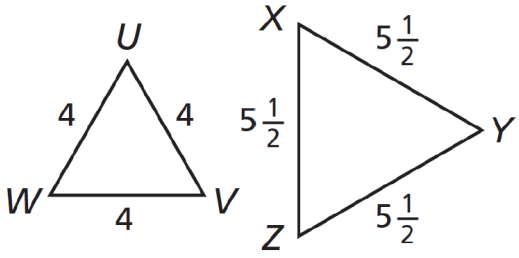
Prove: $\triangle JMN \sim \triangle JKL$



☐ (5) highlighters & calculators **Similarity: Determining similar triangles.**

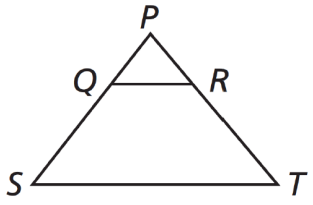
Are the triangles shown below similar? Use highlighter to mark the parts you are using to show the triangles are similar. Write a proof (I know that . . . because . . .).

(c) $\triangle UVW$ and $\triangle XYZ$



(d) **Given:** $SQ = 2QP$, $TR = 2RP$

Prove: $\triangle PQR \sim \triangle PST$



☐ (6) **Similar Triangles Shortcuts: Lesson Summary**

Describe the information needed to use each shortcut and make a sketch.

(1) AA~ _____

_____

(2) SSS~ _____

_____

(3) SAS~ _____

_____

☐ (7) **Exit Ticket**

ON THE LAST PAGE

☐ (8) **Homework:**

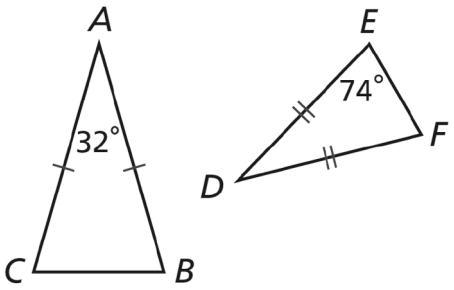
compass, straightedge

(1) Draw segment EX. Construct the perpendicular bisector of EX and label it IT. Dilate segment EX from center T with a scale factor of ½. What type of triangles are TEX and TE'X'?

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

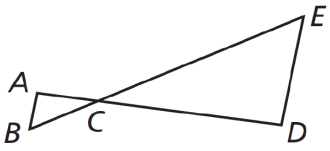
Are the triangles shown below similar? Use highlighter to mark the parts you are using to show the triangles are similar. Write a proof (I know that . . . because . . .).

(2)



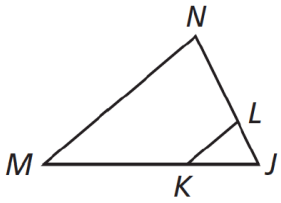
(3) Given: $CD = 3AC$, $CE = 3BC$

Prove: $\triangle ABC \sim \triangle DEC$

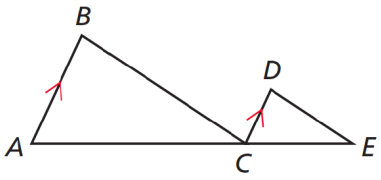


☐ (8) **Homework**
cont.

(4) **Given:** $JL = \frac{1}{3}JN$, $JK = \frac{1}{3}JM$
Prove: $\triangle JKL \sim \triangle JMN$



(5) **Given:** $\overline{AB} \parallel \overline{CD}$, $AB = 2CD$, $AC = 2CE$
Prove: $\triangle ABC \sim \triangle CDE$

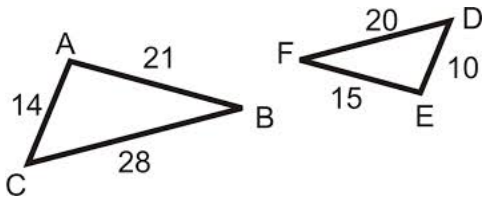


Exit Ticket **Name**_____ **Date** _____ **Per**_____ **6.3R**

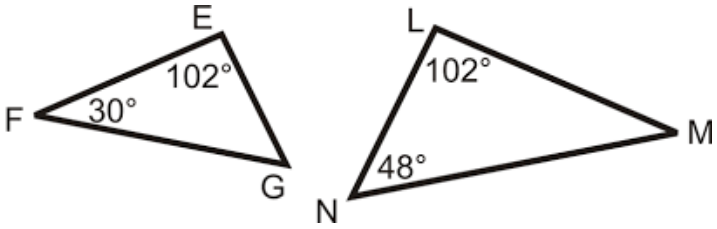
(1) The LO (Learning Outcomes) are written below your name on the front of this packet. Demonstrate your achievement of these outcomes by doing the following:

Provide sufficient information to prove that each pair of triangles is similar ***OR*** to state that the triangles cannot be proven similar.

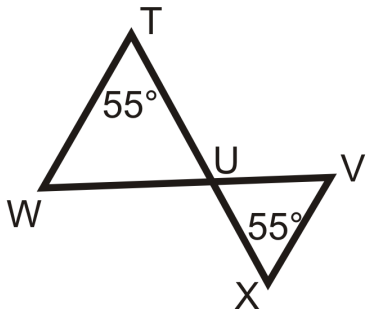
(1)



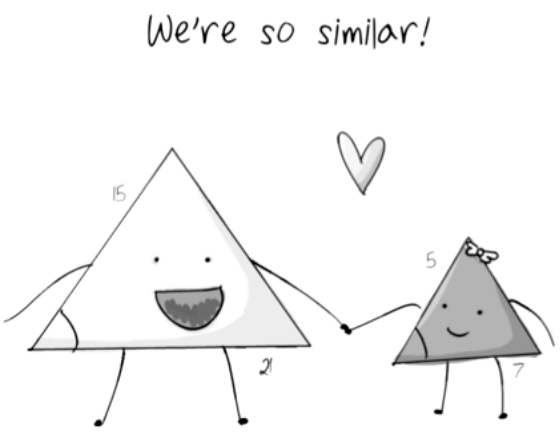
(2)



(3)



DO NOW **Name**_____ **Date** _____ **Per**_____ **6.3R**

(1) What defines a similarity transformation? (Hint: see lesson 6.1)

(2) How does this cartoon relate to dilation?