5.1

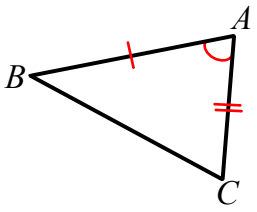
Name (print first and last) _____ **Per**_____ **Date:** 12/9 due 12/11

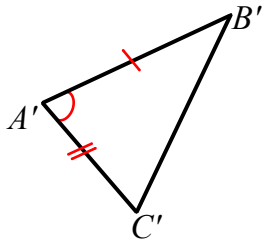
5.1 Congruence **Geometry Regents 2013-2014 Ms. Lomac**

SLO: I can determine whether or not two triangles can be proven congruent by SAS≅.

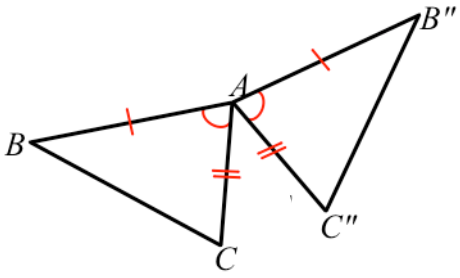
(1) ☐ In the diagram, the triangles are labeled △ABC and △A'B'C'. This means that △A'B'C' is an _____ of △ABC under a transformation or composition of transformations. Today you will check to see that the triangles are congruent by verifying that a sequence (composition) of rigid transformations will map △ABC to △A'B'C' by working backwards. To do that, we will have to transform point A' so that it coincides with _____, B' so that it coincides with _____ and C' so it coincides with _____.

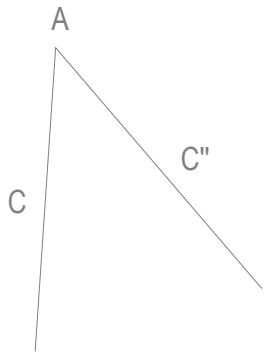
☐ Start by constructing a translation of △A'B'C', so that A' coincides (is in the same location) with A. Label your triangle A"B"C". Hmmmm….. What vector should we use? _____ (well, we are sliding A' to A, so . . .)





☐ Your construction should result in a diagram that looks like the one below. To continue the process of mapping △A'B'C' back to △ABC, we should _____ triangle A"B"C" around point _____ so that C"' _____ with _____ and A"' _____ with _____. We know that both points will coincide because $\overline{AC}$ ≅ _____ . Once you have transformed C", you can use the angle on the right to help you rotate B", because of course B" must also rotate.





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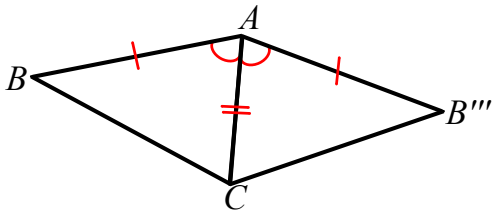
☐ A‴ is just labeled A in the diagram below because the 2 points _____. The other 2 points that coincide are _____ and _____. So, we just need to get B‴ to coincide with _____. It looks like B‴ will map to _____ if we _____ △AB‴C across _____, BUT, can we be SURE that B and B‴ will coincide?!?

B and B‴ are on rays that coincide because ∠_____ ≅ ∠_____ and _____ preserves _____ _____. B and B‴ must _____ after reflection because (1) they are on rays that _____, (2) $\overline{AB'''}$ ≅ _____ so B and B‴ are equidistant from point A, and (3) _____ preserves _____, so B and B‴ are the same distance from vertex A. Therefore, B and B‴ MUST coincide.



☐ So, what does this mean for us? Well, if we need to show that 2 triangles are congruent, do we have to show that all three pairs of corresponding sides AND all three pairs of corresponding angles are congruent?_____ In fact, this process shows us that all we need is _____ pairs of _____ and ____ pair of _____ The pair of _____ must be between the pairs of congruent _____. To abbreviate this method of proving triangles are congruent, we write **SAS≅** which is short for saying **S**_____ **A**_____ **S**_____ ≅_____.

(2) ☐ Given: ∠LMN ≅ ∠LNO, $\overline{MN} \cong \overline{OM}$

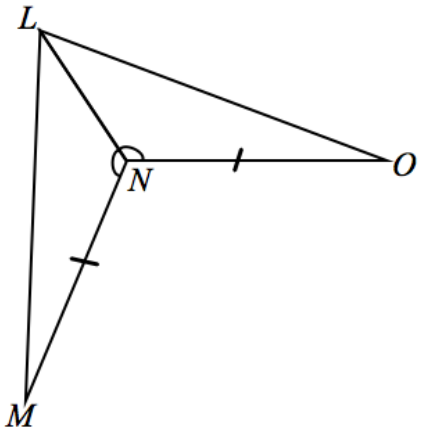
Do △LMN and △LOM meet the SAS≅ criteria? _____ Provide evidence.

S_____ because_____

A_____ because_____

S_____ because_____

The angle is/is not (circle one) between the sides.



(3) ☐ Given: ∠HGI ≅ ∠JIG, $\overline{HG} \cong \overline{JI}$

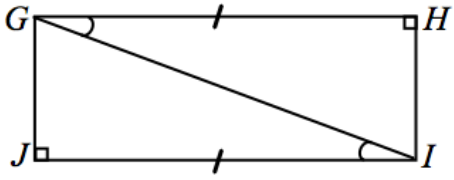
Do △HGI and △JIG meet the SAS≅ criteria? _____ Provide evidence.

S_____ because_____

A_____ because_____

S_____ because_____

The angle is/is not (circle one) between the sides. (If not, choose a different A)



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(4) ☐ Given: $\overline{AB} \parallel \overline{CD}$, $\overline{AB} \cong \overline{CD}$ (Hint: Parallel lines give us pairs of congruent angles. Are there any here?)

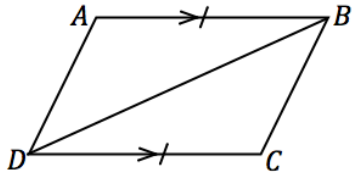
Do △ABD and △CDB meet the SAS≅ criteria? _____ Provide evidence.

S_____ because_____

A_____ because_____

S_____ because_____

The angle is/is not (circle one) between the sides.



(5) ☐ Given: $m\angle R = 25°$, $RT = 7"$, $SU = 5"$, $ST = 5"$ (Hint: Isosceles Triangle Theorem from 4.5 notes. Highlighters could help here.)

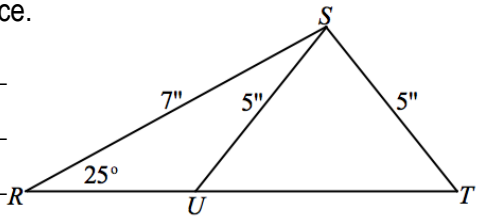
Do △RSU and △RST meet the SAS≅ criteria? _____ Provide evidence.

S_____ because_____

A_____ because_____

S_____ because_____

The angle is/is not (circle one) between the sides.



(6) ☐ Given: $\overline{KM}$ and $\overline{JN}$ bisect each other. (Hint: What do we get when a segment is bisected?)

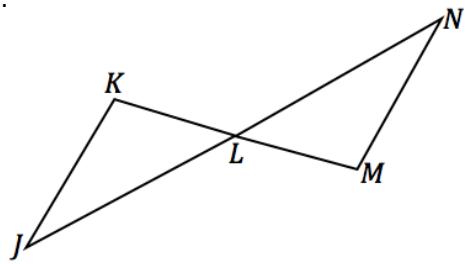
Do △JKL and △NML meet the SAS≅ criteria? _____ Provide evidence.

_____ because_____

_____ because_____

_____ because_____

The _____



(7) Given: $\overline{AE}$ bisects ∠BCD, $\overline{BC} \cong \overline{DC}$. (Hint: What do we get when an angle is bisected? WHICH angle is bisected?)

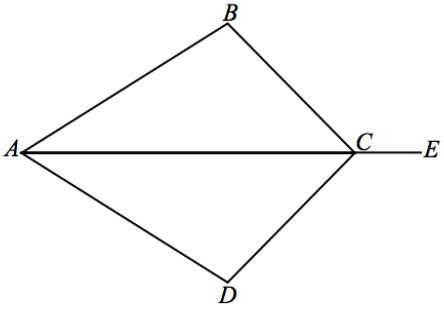
Do △CAB and △CAD meet the SAS≅ criteria? _____ Provide evidence.

_____ because_____

_____ because_____

_____ because_____

The _____



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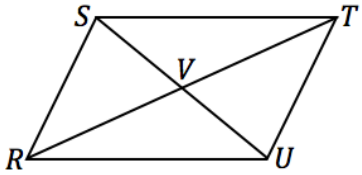
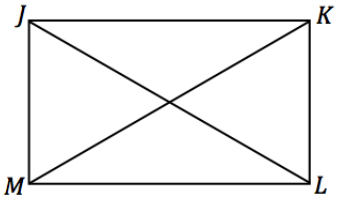
(8) ☐ Given: $\overline{SU}$ and $\overline{RT}$ bisect each other (Hint: What does bisect mean again? Soooo many segments and angles, where are my highlighters?!)

Do △SVR and △UVT meet the SAS≅ criteria? _____ Provide evidence.



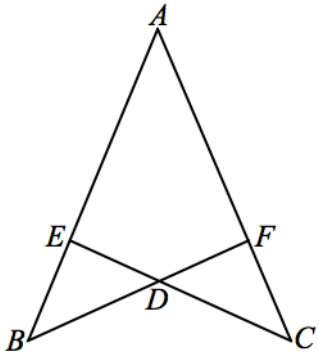
(9) ☐ Given: $\overline{JM} \cong \overline{KL}$, $\overline{JM} \perp \overline{ML}$, $\overline{KL} \perp \overline{ML}$ (Hint: What does that upside-down T mean? Highlighters, save me from this visual confusion.)

Do △JML and △KML meet the SAS≅ criteria? _____ Provide evidence.



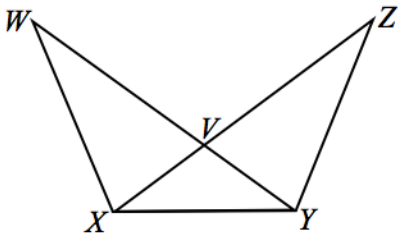
(10) ☐ Given: $\overline{BF} \perp \overline{AC}$, $\overline{CE} \perp \overline{AB}$ (Hint: What does that upside-down T mean? Highlighters, where would I be without highlighters?)

Do △BED and △CFD meet the SAS≅ criteria? _____ Provide evidence.



(11) ☐ Given: ∠VXY ≅ ∠VYX. (Hint: Highlight, highlight, highlight.)

Do △VXW and △VYZ meet the SAS≅ criteria? _____ Provide evidence.



5.1 Exit Ticket Name_____Per_____

- ☐ I got this!
- ☐ I can with a bit of help
- ☐ I will, given lots of help
- ☐ I can't
- ☐ I won't bother to
- ☐ I refuse to

Complete the statement. You may use diagrams to support your statement.

☐ Given: Given: $\angle 1 \cong \angle 2$, $\overline{BC} \cong \overline{DC}$

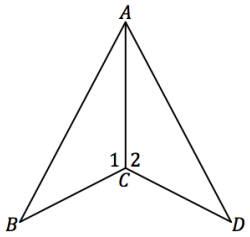
Do △ABC and △ADC meet the SAS≅ criteria? _____ Provide evidence.

_____

_____

_____

_____



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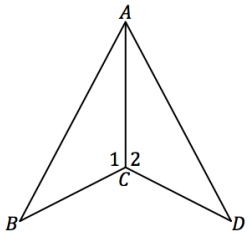
_____

_____

_____

_____



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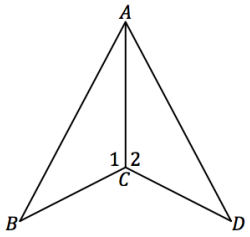

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