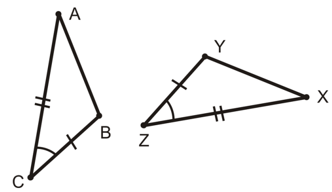
☐ **DO NOW – Geometry Regents Lomac 2014-2015 Date ____. due ____.** **Congruence 4.1**

(DN) Copy and complete the statement:
If △ABC maps to △XYZ, then angle C would coincide with ____, segment CA would coincide with ____, and segment CB would coincide with _____.



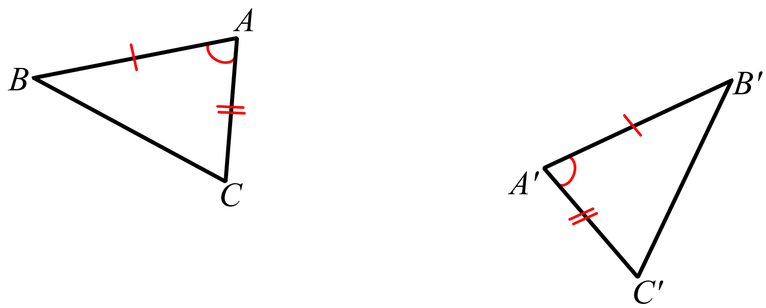
Name ________________________________**Per**______

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

☐ (1) transparencies, dry erase markers, eraser, compass, straightedge

Congruence: A sequence of transformations

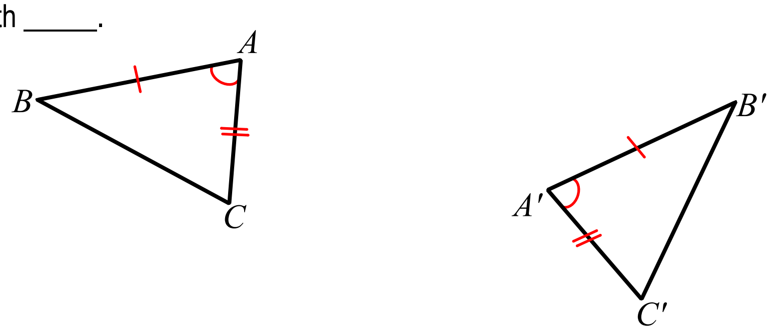
Two shapes are congruent if there is a sequence of transformations (1 or more) that map one shape to the other. Determine a sequence of transformations that maps △A'B'C' back to △ABC. Write a description and justification for each step in the sequence of transformations.



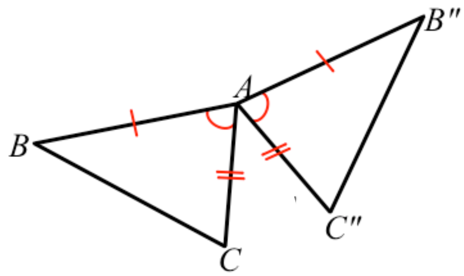
☐ (1) **Congruence: A sequence of transformations (remix)**
cont.

☐ To verify that a sequence (composition) of rigid transformations will map △ABC to △A'B'C' by we will work backwards.

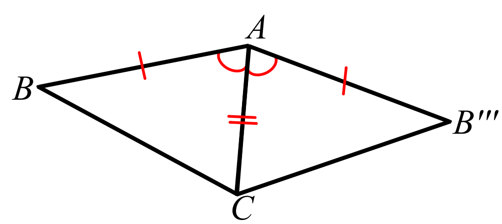
☐ Map point _____ to _____ by ________________ triangle A'B'C' _______________ _______________ _____ so that _____ coincides with _____.



☐ Your construction should result in a diagram that looks like the one below. Next, map point _______ to _______ by ___________________ triangle A"B"C" ________________ ________________ _____ so that _____ coincides with _____. We know that both points will coincide because $\overline{AC} \cong$ ____ .



☐ Your construction should result in a diagram that looks like the one below. Finally, map _____ to _____ by ___________________ triangle A'"B'"C'" ___________________ ______ so that _____ coincides with _____. We know that both points will coincide because (1) angle _______ maps to angle _______ under reflection which means that ray ______ will lie on ray ______, (2) points ____ and ____ lie on the same ray and are the same distance from point A so point _____ maps to point _____.

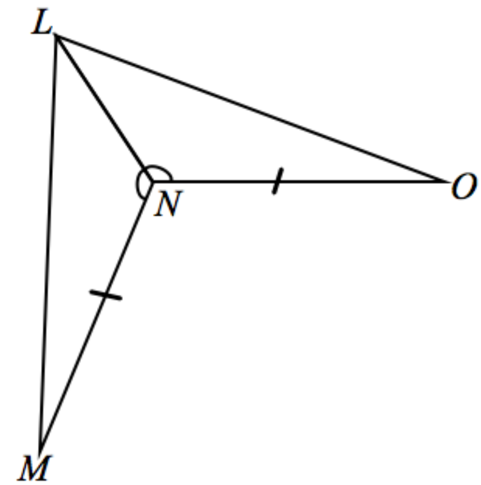


☐ So, what does this mean for us? Well, if we need to show that 2 triangles are congruent, do we have to show that all three pairs of corresponding sides AND all three pairs of corresponding angles are congruent?________ In fact, this process shows us that all we need is _____ pairs of _____________ 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: $\angle LMN \cong \angle LNO$, $\overline{MN} \cong \overline{OM}$

Do $\triangle LMN$ and $\triangle LOM$ meet the SAS≅ criteria? _______

Provide evidence.



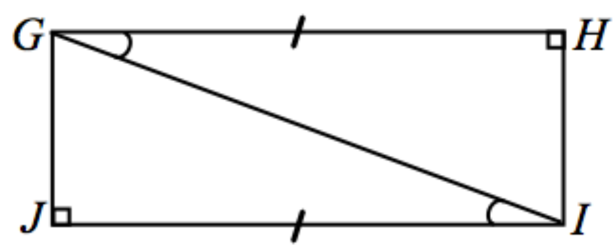
S_____________ because____

A_____________ because____

S_____________ because____

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

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



Do $\triangle HGI$ and $\triangle JIG$ meet the SAS≅ criteria? _______

Provide evidence.

S_____________ because____

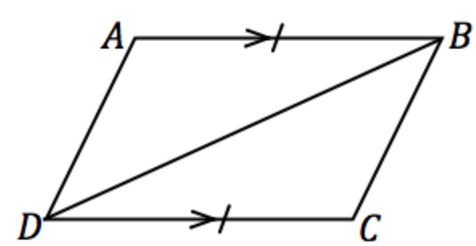
A_____________ because____

S_____________ because____

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

☐ (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 $\triangle ABD$ and $\triangle CDB$ meet the SAS≅ criteria? _______

Provide evidence.

S_____________ because____

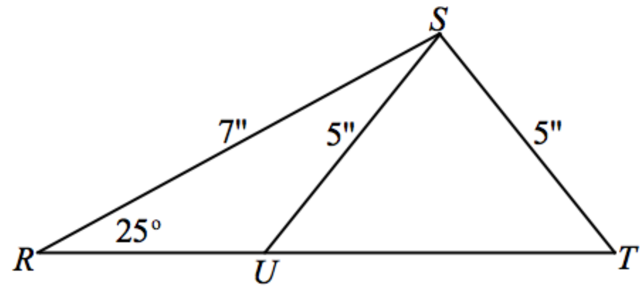
A_____________ because____

S_____________ because____

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

☐ (5) ☐ Given: $m\angle R = 25°$, $RT = 7"$, $SU = 5"$, $ST = 5"$

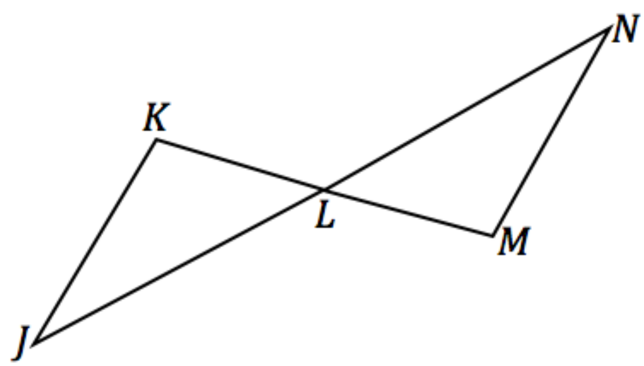
Prove that $\triangle RSU \cong \triangle RST$ or explain why you cannot.



I know that . . .	because . . .

☐ (6) ☐ Given: $\overline{KM}$ and $\overline{JN}$ bisect each other.

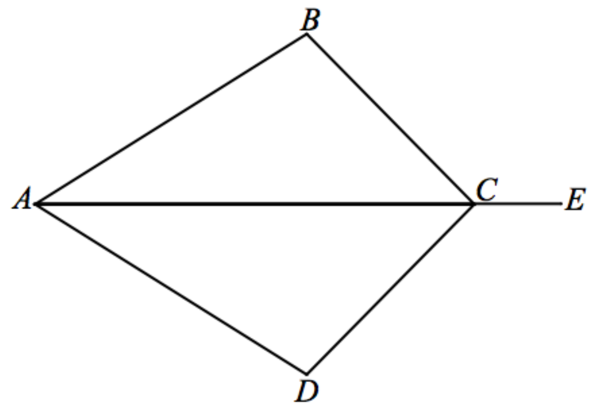
Prove that $\triangle JKL \cong \triangle NML$ or explain why you cannot.



I know that . . .	because . . .

☐ (7) ☐ Given: $\overline{AE}$ bisects ∠BCD, $\overline{BC} \cong \overline{DC}$.

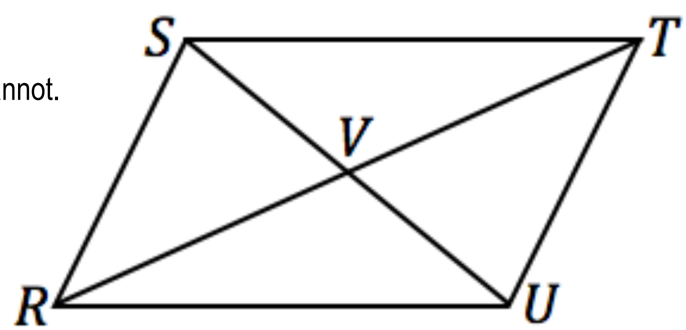
Prove that △CAB ≅ △CAD or explain why you cannot.



I know that . . .	because . . .

☐ (8) ☐ Given: $\overline{SU}$ and $\overline{RT}$ bisect each other.

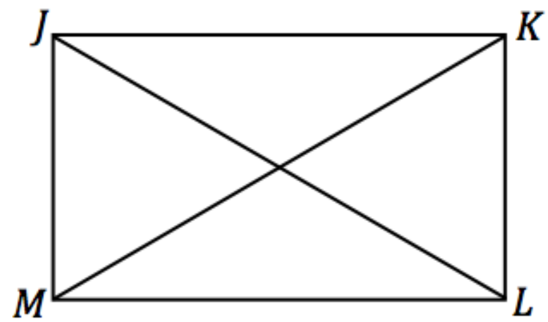
Prove that △ SVR ≅ △UVT or explain why you cannot.



I know that . . .	because . . .

☐ (9) ☐ Given: $\overline{KL} \perp \overline{LM}$, $\overline{JM} \perp \overline{LM}$, and $\overline{JM} \cong \overline{KL}$

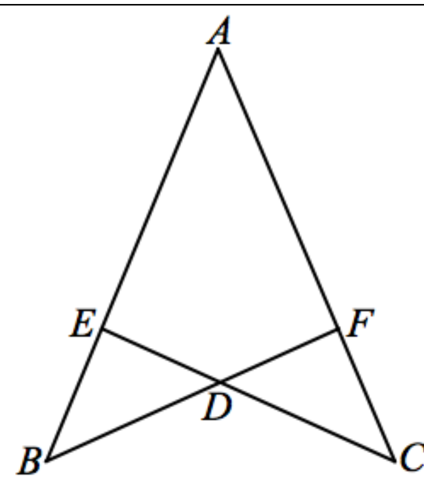
Prove that $\triangle JML \cong \triangle KLM$ or explain why you cannot.



I know that . . .	**because . . .**

☐ (10) ☐ Given: $\overline{BF} \perp \overline{AC}$, $\overline{CE} \perp \overline{AB}$

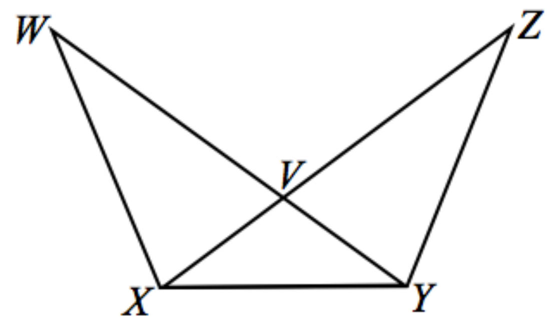
Prove that $\triangle BED \cong \triangle CFD$ or explain why you cannot.



I know that . . .	**because . . .**

☐ (11) ☐ Given: $\angle VXY \cong \angle VYX$.

Prove that $\triangle VXW \cong \triangle VYZ$ or explain why you cannot.

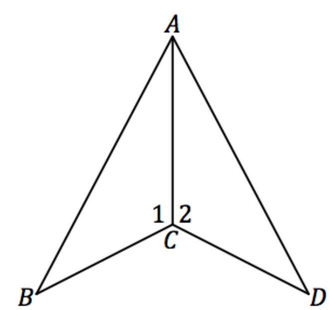


I know that . . .	**because . . .**

☐ (12) **Exit Ticket**

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

Prove that $\triangle ABC \cong \triangle ADC$ or explain why you cannot.



☐ (13) **Homework**

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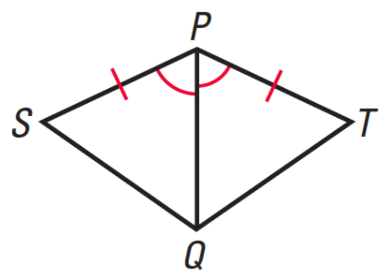
☐ (13) **Homework**

☐ (1) **GIVEN** ▶ $\overrightarrow{PQ}$ bisects $\angle SPT$, $\overline{SP} \cong \overline{TP}$

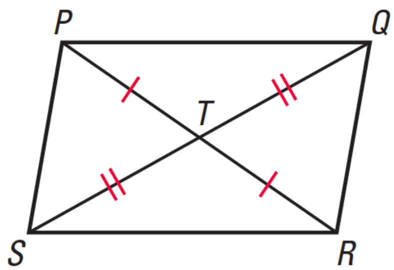
PROVE ▶ $\triangle SPQ \cong \triangle TPQ$



I know that . . .	because . . .

☐ (2) **GIVEN** ▶ $\overline{PT} \cong \overline{RT}$, $\overline{QT} \cong \overline{ST}$

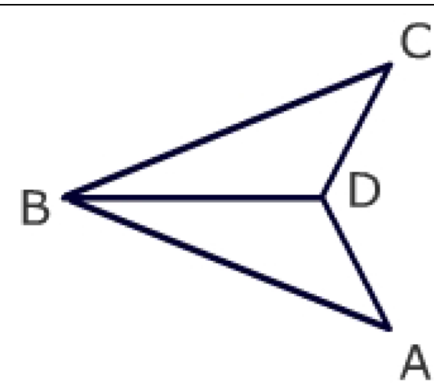
PROVE ▶ $\triangle PQT \cong \triangle RST$



I know that . . .	because . . .

☐ (3) **Given:** 1) BD bisects $\angle CDA$ 2) $\overline{CD} \cong \overline{DA}$

Prove: $\Delta BCD \cong \Delta BAD$



I know that . . .	because . . .