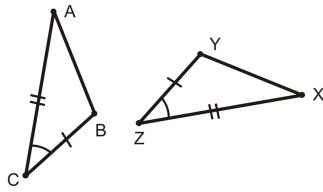(DN) Copy and complete the
  statement:
If △ABC maps to △XYZ, then
  angle C would coincide with
  ____, segment CA would
  coincide with ____, and segment CB would coincide with
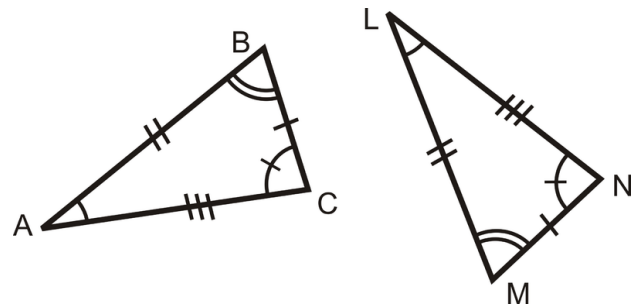 _____.

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

☐ (1)   **Congruence: A sequence of transformations**

How do we know when a pair of figures are congruent? _____

_____

_____

_____

Is there enough information in the diagram to be sure that the triangles are congruent?   _____

List the pairs of congruent corresponding sides and angles.

_____

_____

_____

_____

_____

_____

With all of this information, we know that △_____ ≅ △_____

It's a lot of work to write all of those congruent segments and angles just to show that our triangles are congruent.
What if we just wrote **some** of those segments and angles? How much information is enough to prove that two
triangles are congruent? Circle the pairs of triangles below that you think have enough in common so that they
MUST be congruent.
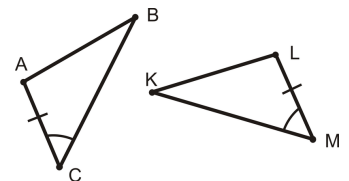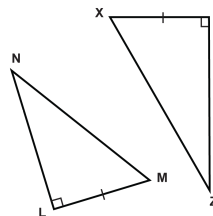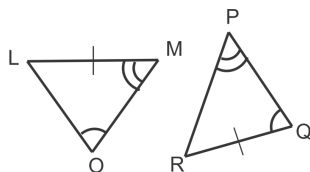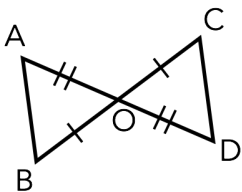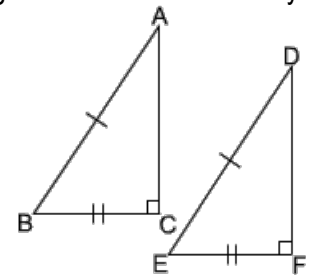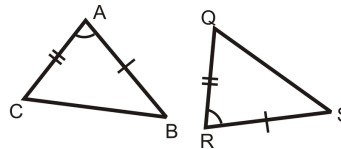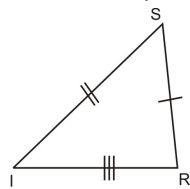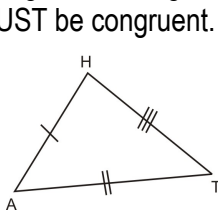
☐ **(2a)** **Congruence: A sequence of transformations (Is SAS enough?)**
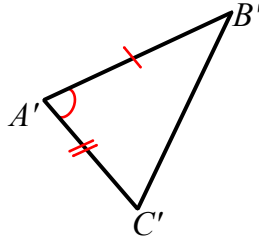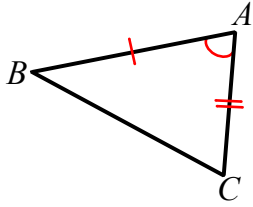
transparencies, dry erase markers, eraser, compass, straightedge

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.
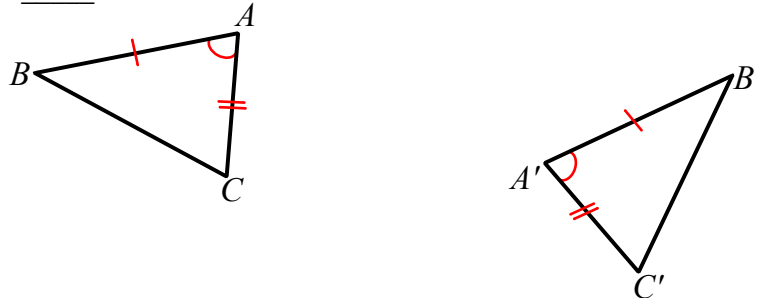
☐ **(2b)** **Congruence: A sequence of transformations (remix)**
cont.

☐ 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 $\overline{AC} \cong$ _____ .
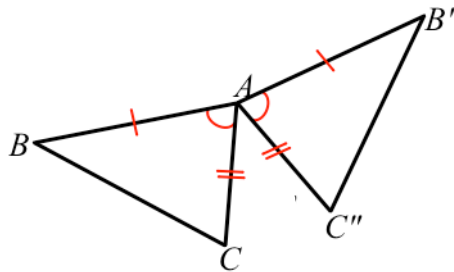

☐ Your construction should result in a diagram that looks like the one below. Finally, map _____ to _____ by _____ triangle A'''B'''C''' _____ _____ so that _____ coincides with _____. We know that both points will coincide because (1) angle _____ maps to angle _____ under reflection which means that 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 _____.
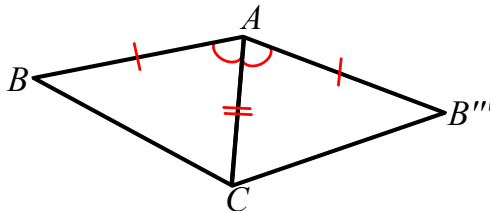
☐ So, what does this mean for us? Well, if we need to show that 2 triangles are congruent, do we have to show that all three pairs of corresponding sides AND all three pairs of corresponding angles are congruent?_____ In fact, this process shows us that all we need is _____ pairs of _____ and _____ pair 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**_____ ≅_____.

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

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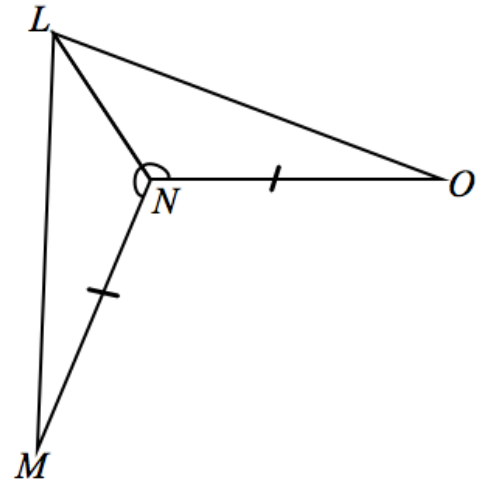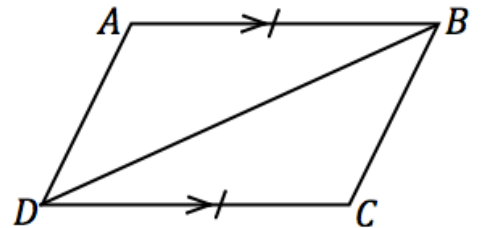
       Provide evidence.

S_____ because_____

A_____ because_____

S_____ because_____

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

☐ (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? _____
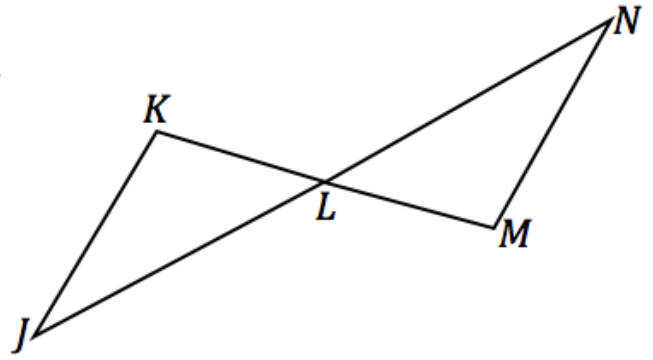
       Provide evidence.

S_____ because_____

A_____ because_____

S_____ because_____

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

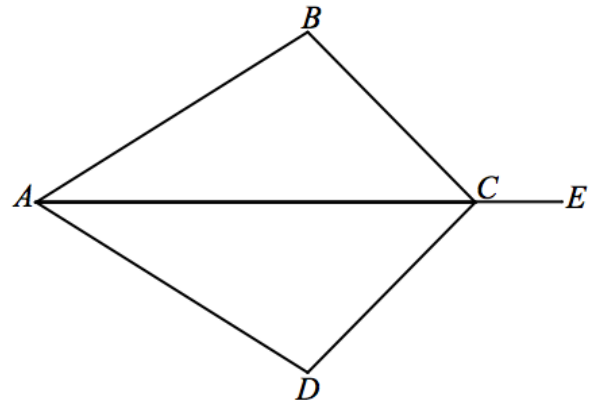☐ (5) ☐ Given: $\overline{KM}$ and $\overline{JN}$ bisect each other.

Prove that △JKL ≅ △NML or explain why you cannot.

I know that . . .	because . . .

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

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

I know that . . .	because . . .

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

Prove that △SVR ≅ △UVT or explain why you cannot.
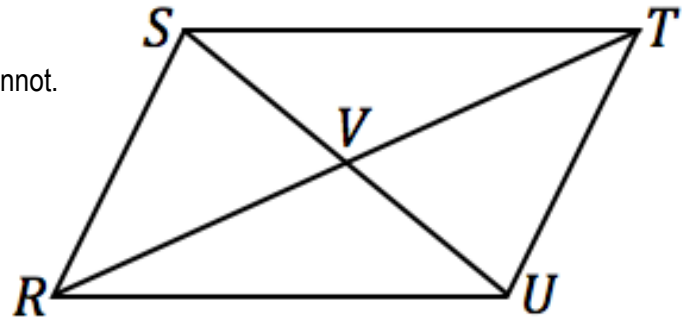
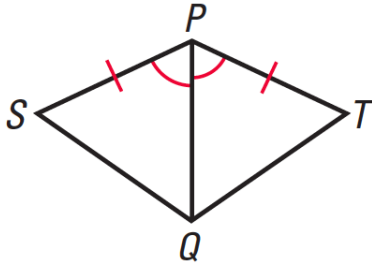| I know that . . .	because . . .

☐(8)   Exit Ticket

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

Prove that △ABC ≅ △ADC or explain why you cannot.
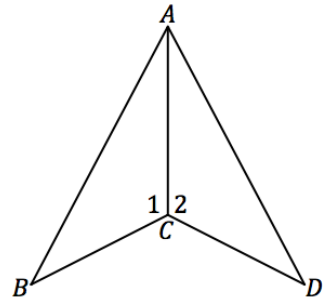
☐ (9) Homework

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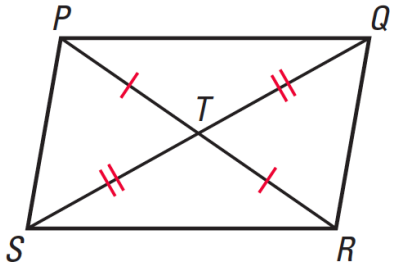
PROVE ▶ $\triangle SPQ \cong \triangle TPQ$

P

S   T

Q

I know that . . .	because . . .

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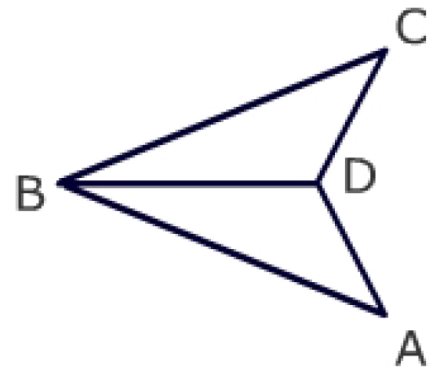
PROVE ▶ $\triangle PQT \cong \triangle RST$

I know that . . .	because . . .

☐ (3) **Given:** 1) BD bisects ∠CDA 2) $\overline{CD} \cong \overline{DA}$
Prove: $\triangle BCD \cong \triangle BAD$

I know that . . .	because . . .