☐ **DO NOW – Geometry Regents Lomac 2014-2015 Date ____. due ____.** **Congruence 4.3**

(DN)Copy and complete the statement:

In lesson 4.1, SAS stood for ______________. In this lesson, ASA will stand for _______________ and SSS will stand for ___________

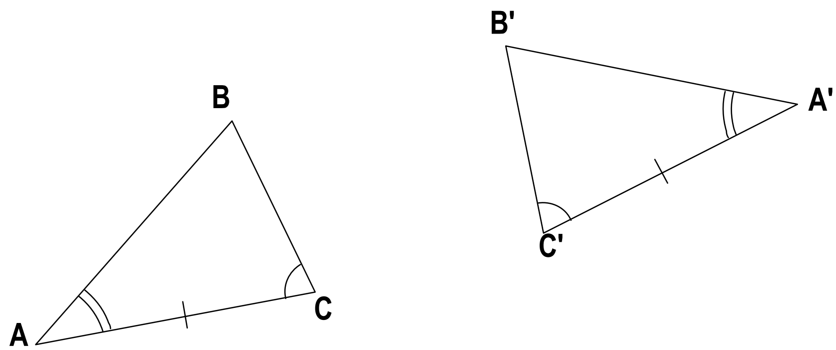
Name ________________________________**Per**______

LO: I can determine whether or not two triangles can be proven congruent by ASA≅ or SSS≅ and use the shortcut to prove that triangles or their parts are congruent.

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

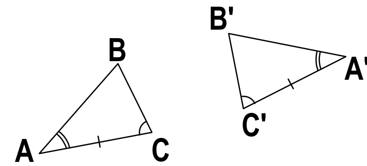
Congruence: A sequence of transformations

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 $\triangle A'B'C'$ back to $\triangle ABC$. Write a description and justification for each step in the sequence of transformations.



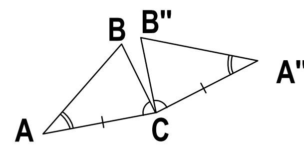
☐ (1b) **Congruence: A sequence of transformations (remix)**
cont.

☐ Prove: If, in a triangle, we know that two pairs of corresponding angles and the pair of corresponding sides between them are congruent, then two triangles are congruent.



① I am given ____
with __________ ≅ ________, __________ ≅ ________, and __________ ≅ ________,.
(Describe the shapes and the parts that are marked congruent.)

↓



② I _______________ △__________ along vector ________ so that ______ coincides with _____.
(How did ABC transform?)

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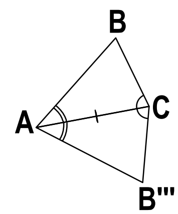


③ I _______________ △__________ around ________ so that ______ coincides with _____. I know that _____ and _____ coincide because _____________ preserves ________________ and _________ ≅ ________,
(How did A''B''C'' transform?)

↓

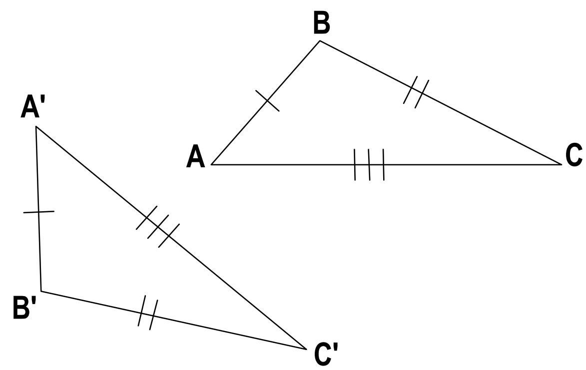
④ I _______________ △__________ across ________ so that ______ coincides with _____. I know that _____ and _____ coincide because (1) ∠ _________ ≅ ∠ __________ which means ray _____ coincides with ray _____, (2) ∠ _________ ≅ ∠ __________ which means ray _____ coincides with ray _____. Point _____ must coincide with _____ because 2 noncollinear rays can intersect in, at most, _____ point which means _____ and _____ must ______________________ when reflected across line segment AC.
(How did A''B''C'' transform?)

↓

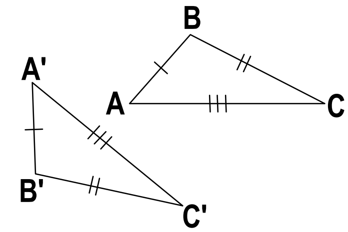
⑤ If we know that ____
____
then ____
Therefore A_____________ S____________ A______________ is a shortcut for proving triangles congruent.
The pair of ____________________ must be __________________________ the pair of _______________.
(What were we trying to prove? Did we prove it?)

☐ (2) ☐ **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.

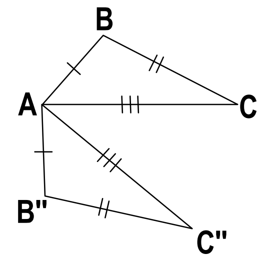


☐ (2b) ☐ Prove: If three pairs of corresponding sides are congruent for two triangles, then two triangles are congruent.



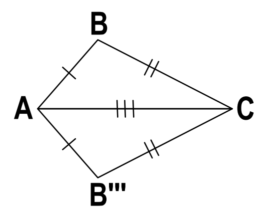
① I am given ____
with __________ ≅ ________, __________ ≅ ________, and __________ ≅ ________.
(Describe the shapes and the parts that are marked congruent.)

↓



② I ________________ △__________ along vector ________ so that ______ coincides with _____.
(How did ABC transform?)

↓



③ I ________________ △__________ around ________ so that ______ coincides with _____. I know that _____ and _____ coincide because _____________ preserves _________________ and _________ ≅ ________,
(How did A''B''C'' transform?)

↓

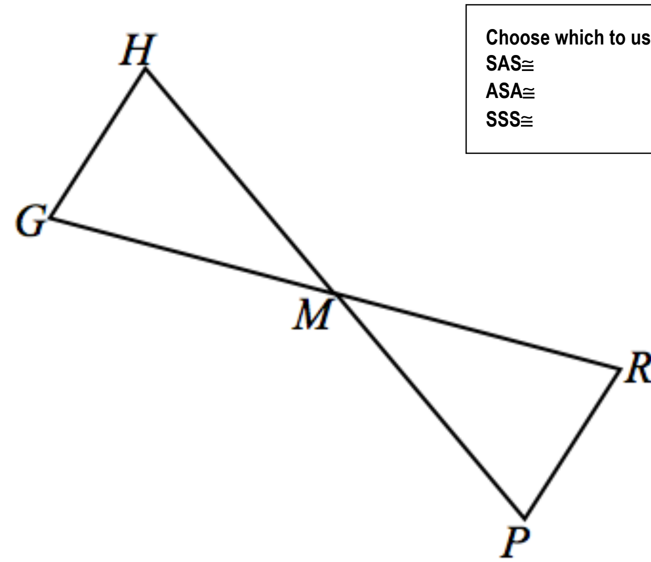
④ I ________________ △__________ across ________ so that ______ coincides with _____. I know that _____ and _____ coincide because _________ ≅ __________ and _________ ≅ __________ . Point _____ must coincide with _____ because, by construction, the greatest number of points that are given distances from each of two endpoints of a segment is _______, and these points are _______________ of one another. This means _____ and _____ must _______________________ when reflected across line segment AC.
(How did A''B''C'' transform?)

↓

⑤ If we know that ____
____
then ____
Therefore S_____________ S____________ S_______________ is a shortcut for proving triangles congruent.
(What were we trying to prove? Did we prove it?)

☐ (3) ☐ Given: M is the midpoint of $\overline{HP}$, $\angle H \cong \angle P$

Prove: Two triangle are congruent



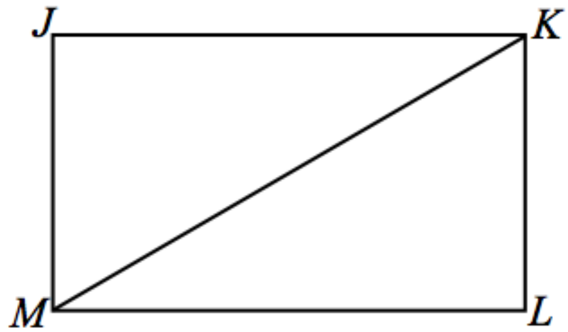
Choose which to use
SAS≅
ASA≅
SSS≅

I know that . . .	because . . .

☐ (4) ☐ Given: JKLM is a rectangle with diagonal KM

Prove: Two triangle are congruent

Choose which to use
SAS≅
ASA≅
SSS≅

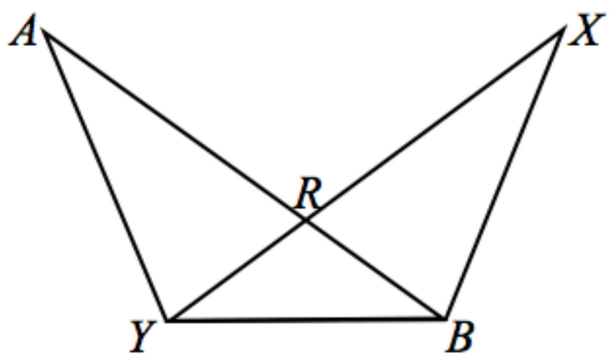


I know that . . .	because . . .

☐ (11) ☐ Given: $\overline{RY} \cong \overline{RB}$, $\overline{AR} \cong \overline{XR}$

Prove: $\triangle ARY \cong$ to another triangle

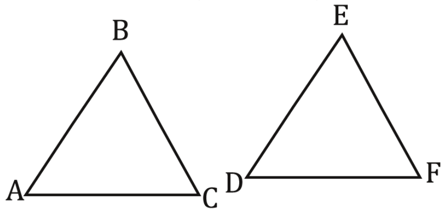
Choose which to use
SAS≅
ASA≅
SSS≅



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

☐ (12) **Exit Ticket**

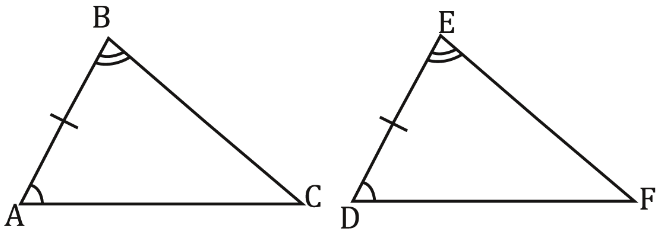
☐ Given: $\overline{BC} \cong \overline{EF}$, $\angle B \cong \angle E$, and $\angle C \cong \angle F$



Prove: $\triangle ABC \cong \triangle DEF$

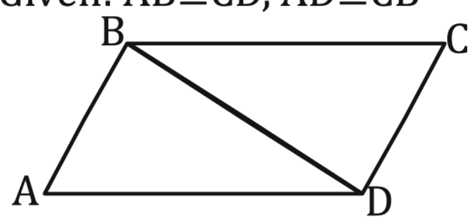
☐ (13) **Homework**

(1) Given: $\overline{AB} \cong \overline{DE}$, $\angle B \cong \angle E$, and $\angle A \cong \angle D$



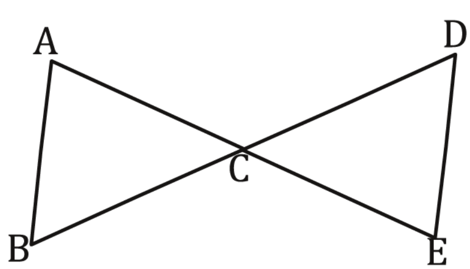
Prove: $\triangle ABC \cong \triangle DBC$

(2) Given: $\overline{AB} \cong \overline{CD}$, $\overline{AD} \cong \overline{CB}$



Prove: $\triangle ABD \cong \triangle BCD$

(3) Given: $\overline{AE}$ Bisects $\overline{BD}$, $\angle B \cong \angle D$



Prove: $\triangle ABC \cong \triangle DBC$