

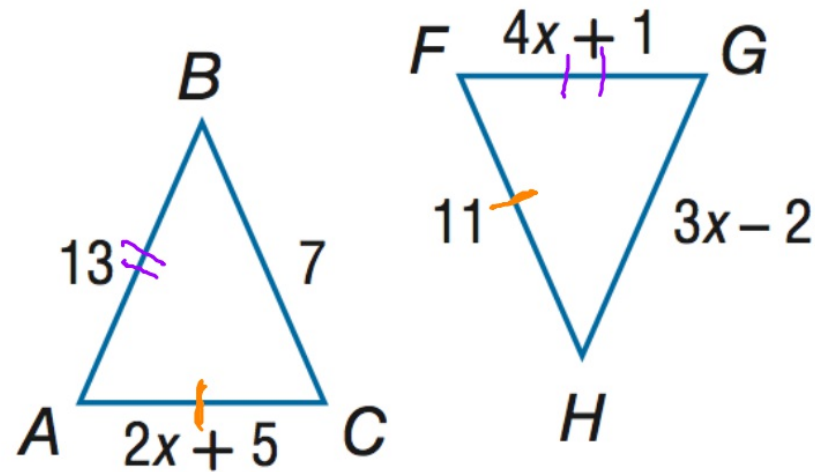
Geometry BELL WORK

Find the value of the variable that yields congruent triangles.
Explain.

$$\triangle ABC \cong \triangle FGH$$

$$4x + 1 = 13$$
$$x = 3$$

$$3x - 2 = 7$$
$$x = 3$$



$$2x + 5 = 11$$

$$x = 3$$

4-5 Proving Triangles Congruent—ASA, AAS

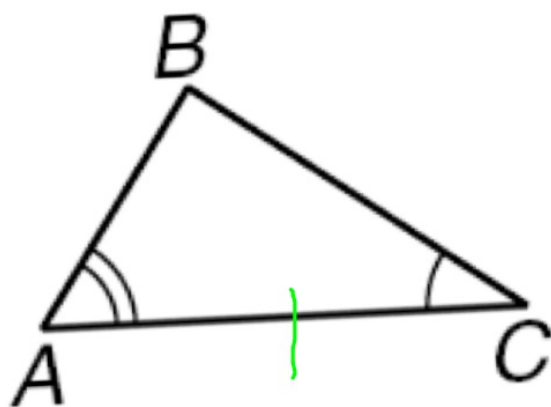
We have used the SSS and SAS postulates to test for triangle congruence.

Now we will look at two more postulates of triangle congruence: ASA and AAS.

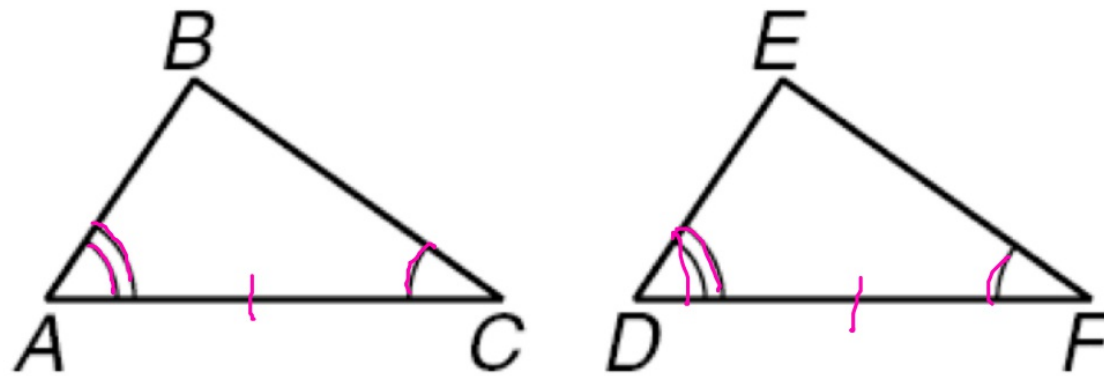
G-CO Understand congruence in terms of rigid motion

G-CO.B.8 Explain how the criteria for triangle congruence follow from the definition of congruence in terms of rigid motions.

Included Side: the side between two specific angles. AC is the included side between $\angle A$ and $\angle C$.

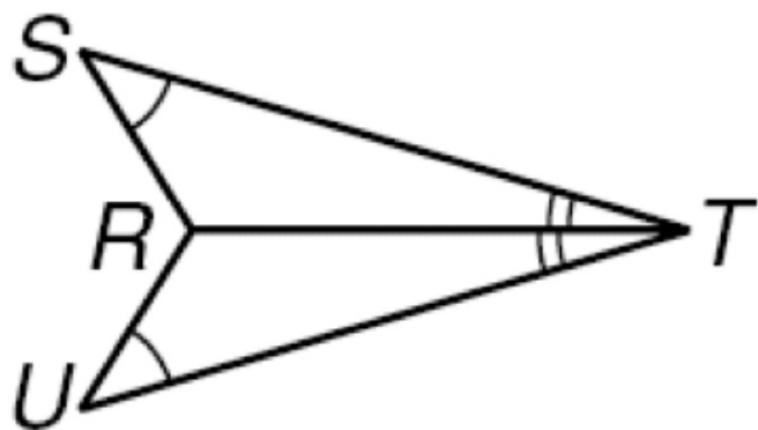


Angle-Side-Angle (ASA): If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the triangles are congruent.

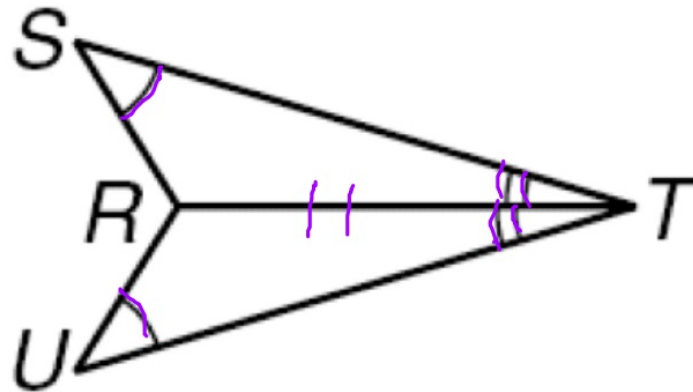


If $\angle A \cong \angle D$ and $\angle C \cong \angle F$ and included sides $\overline{AC} \cong \overline{DF}$, then $\triangle ABC \cong \triangle DEF$ by the ASA Postulate.

Angle-Angle-Side (AAS): If two angles and a nonincluded side of one triangle are congruent to the corresponding two angles and nonincluded side of a second triangle, then the two triangles are congruent.



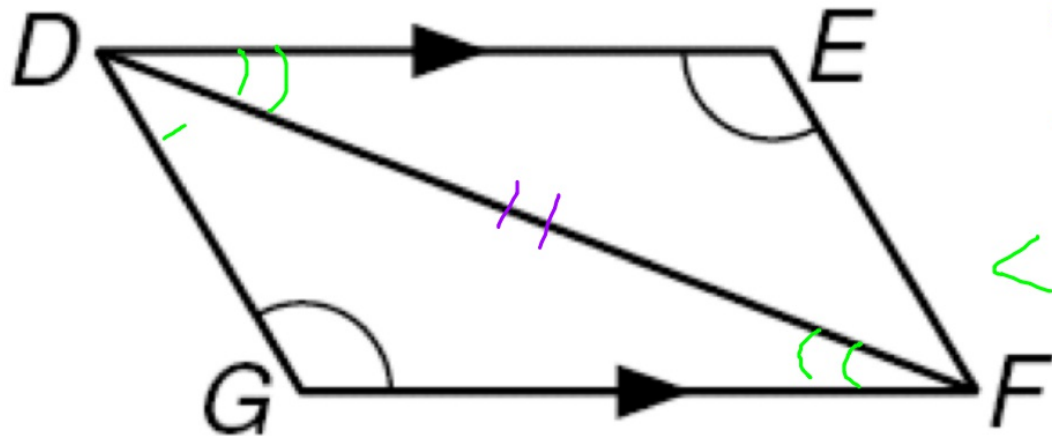
If $\angle U \cong \angle S$ and $\angle RTU \cong \angle RTS$ and the
nonincluded side $\overline{RT} \cong \overline{RT}$,
then $\triangle STR \cong \triangle UTR$



You now have five ways to show that two triangles are congruent.

- Definition of triangle congruence (CPCTC)
- ASA Postulate
- SSS Postulate
- AAS Theorem
- SAS Postulate

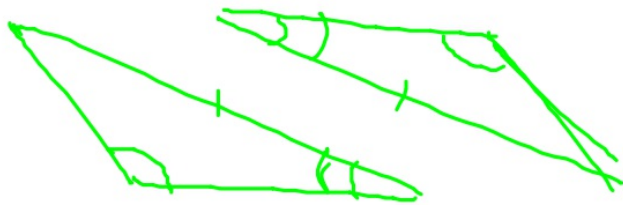
Identify the congruent triangles and name the postulate used to prove congruence.



$$\angle E \cong \angle G \text{ Given}$$

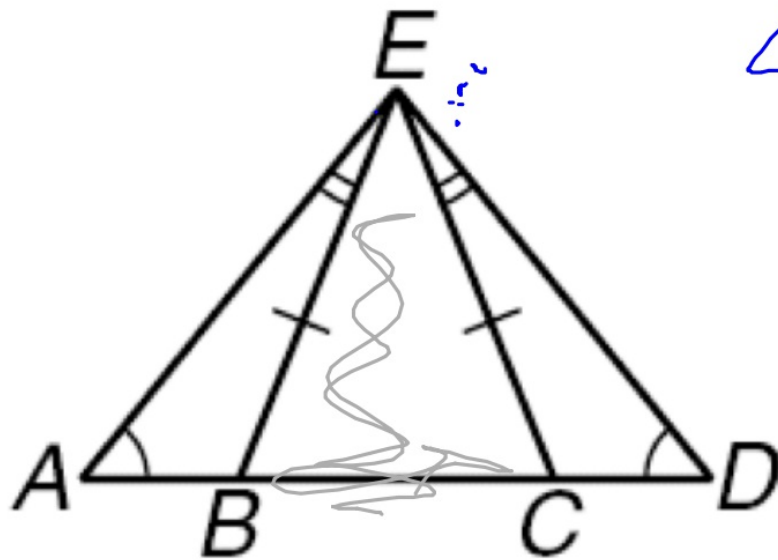
$$\overline{DF} \cong \overline{DF} \text{ Reflexive}$$

$$\angle EDF \cong \angle GFD$$



AAS

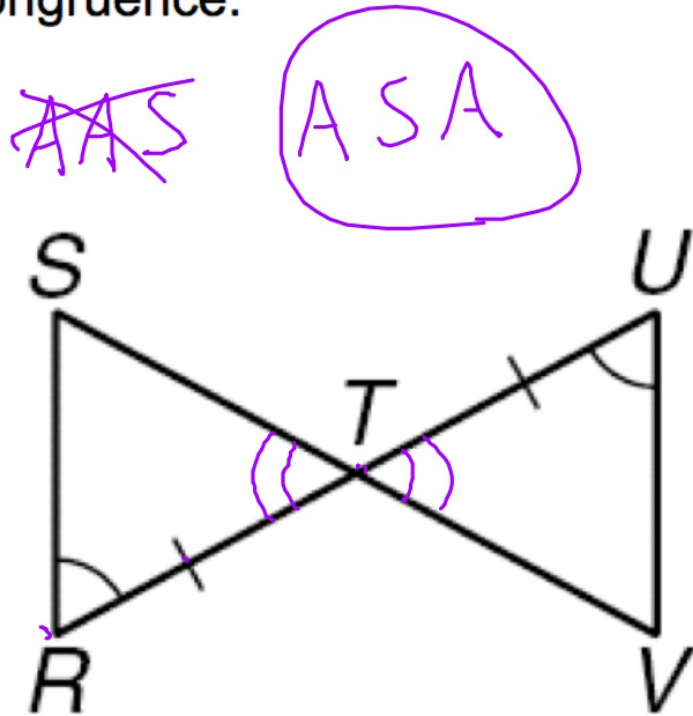
Identify the congruent triangles and name the postulate used to prove congruence.



$$\triangle ABE \cong \triangle DCE$$

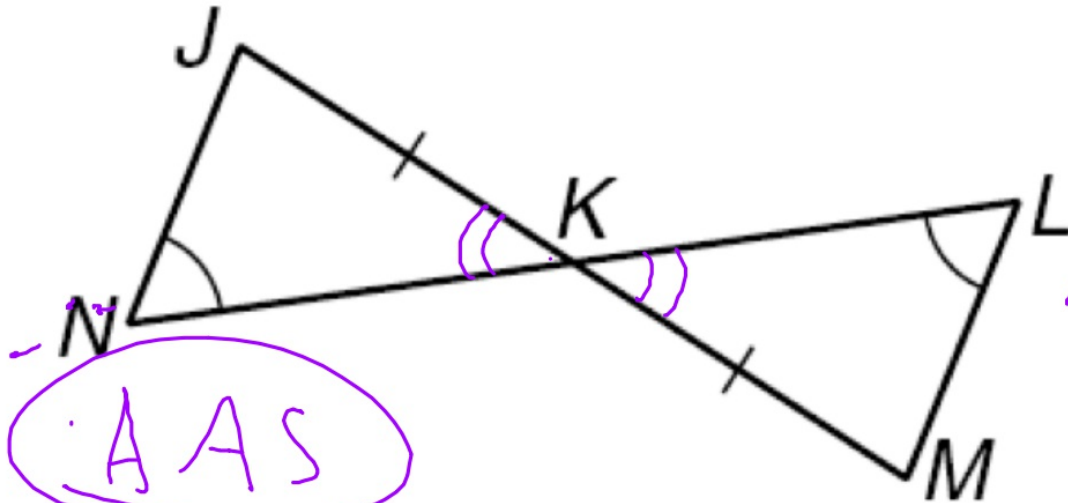
AAS

Identify the congruent triangles and name the postulate used to prove congruence.



$$\triangle RTS \cong \triangle UTV$$
$$\angle U \cong \angle R \text{ Given}$$
$$\overline{RT} \cong \overline{UT} \text{ Given}$$
$$\angle STR \cong \angle VTU \text{ Vertical}$$

Identify the congruent triangles and name the postulate used to prove congruence.

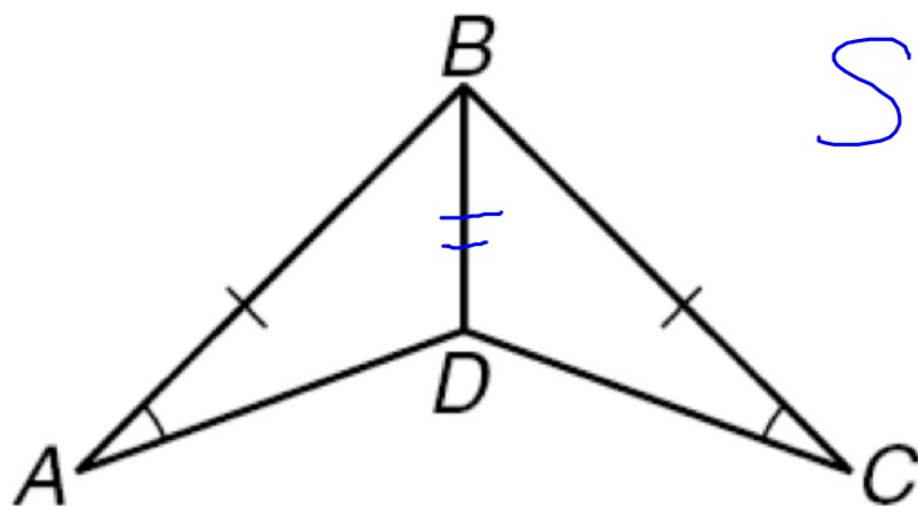


AAS
~~ASA~~

$\angle N \cong \angle L$ Given
 $\overline{JK} \cong \overline{MK}$ Given
 $\angle JKN \cong \angle MKL$
Vertical

$$\triangle JKN \cong \triangle MKL$$

Identify the congruent triangles and name the postulate used to prove congruence.



SSA

Why no Side-Side-Angle?

b/c there are
multiple \triangle 's
possible.

