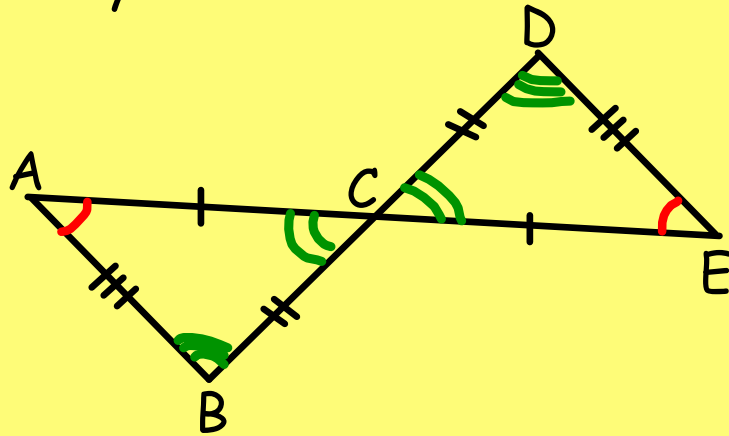


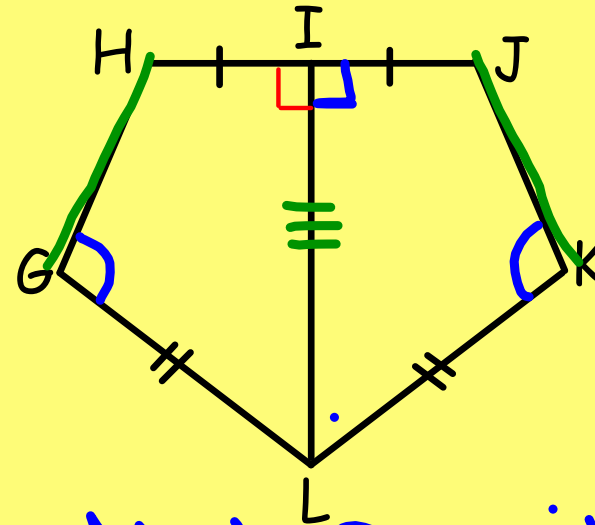
10/29/19 - Warm Up Problem

Determine if each pair of polygons is congruent. If they are, write a congruence statement. If they are not, explain why.



Yes

$$ABC \cong EDC$$



Not Possible

Sections 4.2-4.3 - Proving Triangles Congruent

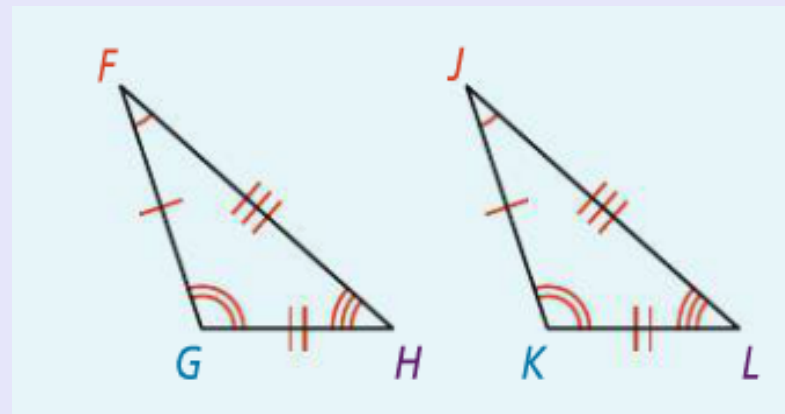
Goal: Use the shortcut theorems and postulates to determine if triangles are congruent or not

Congruent Polygons have...

- Corresponding **Sides** that are Congruent
- Corresponding **Angles** that are Congruent

For triangles, that's 3 sets of sides that must be congruent and 3 sets of angles that must be congruent.

$$\begin{array}{ll} \angle F \cong \angle J & \overline{FG} \cong \overline{JK} \\ \angle G \cong \angle K & \overline{GH} \cong \overline{KL} \\ \angle H \cong \angle L & \overline{FH} \cong \overline{JL} \end{array}$$

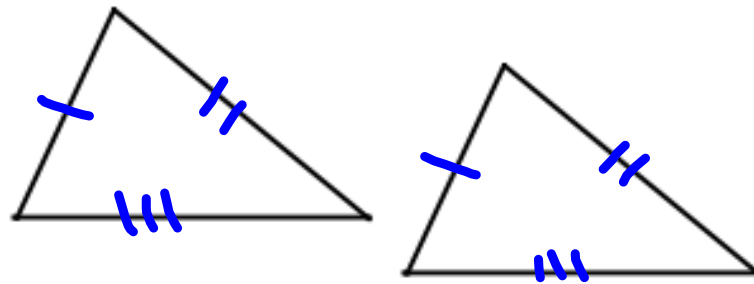


Do we really need to know all 3 sides and all 3 angles?

Today, we are looking for shortcuts we can use on triangles.

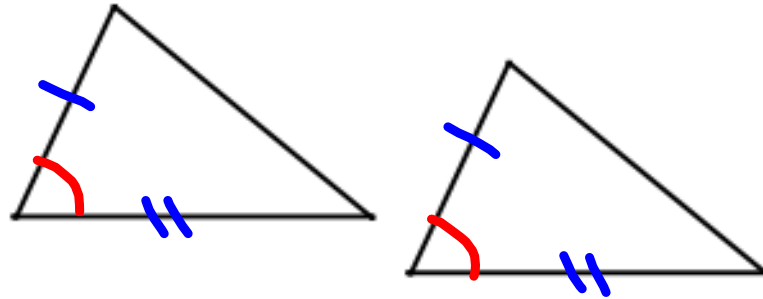
SIDE-SIDE-SIDE POSTULATE (SSS)

If the sides of one triangle are congruent to the sides of another triangle, then the triangles are congruent.



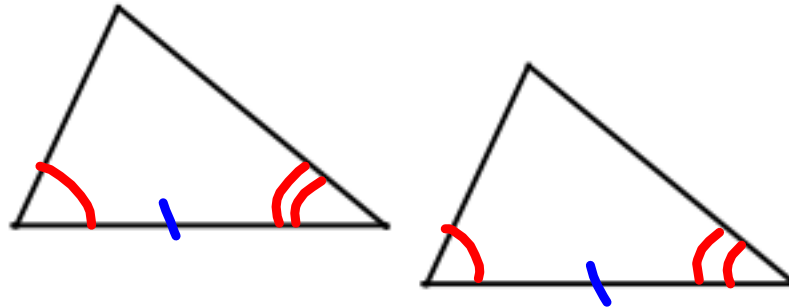
SIDE-ANGLE-SIDE POSTULATE (SAS)

If two sides and the included angle of a triangle are congruent to two sides and the included angle of another triangle, then the triangles are congruent.

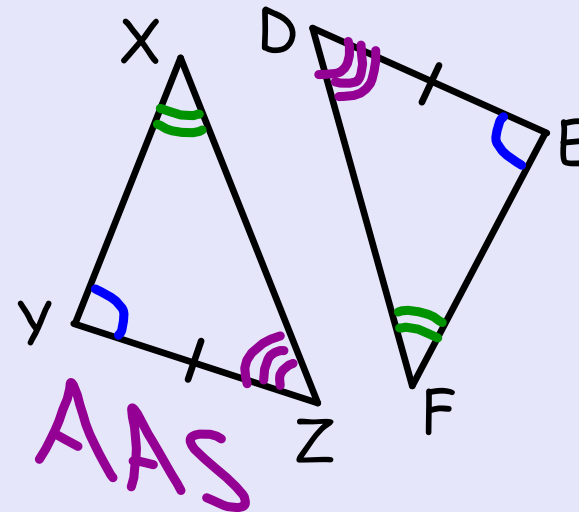
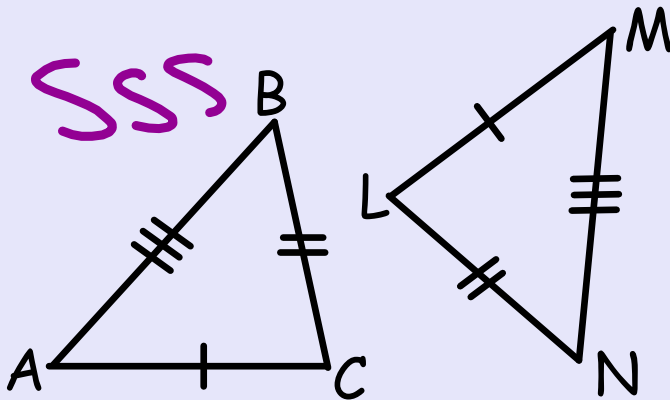
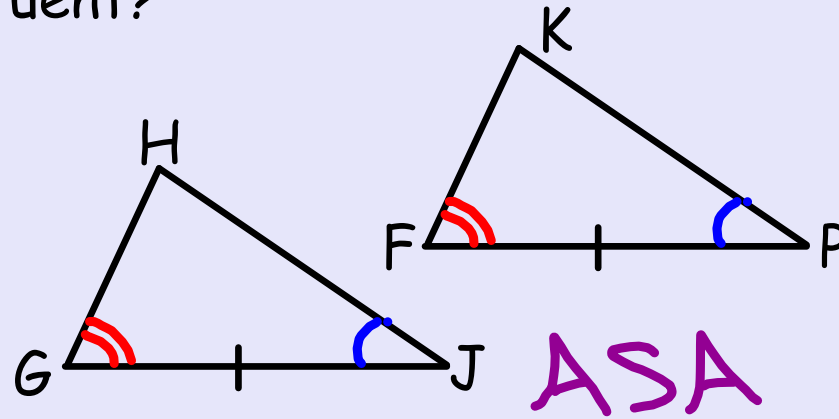
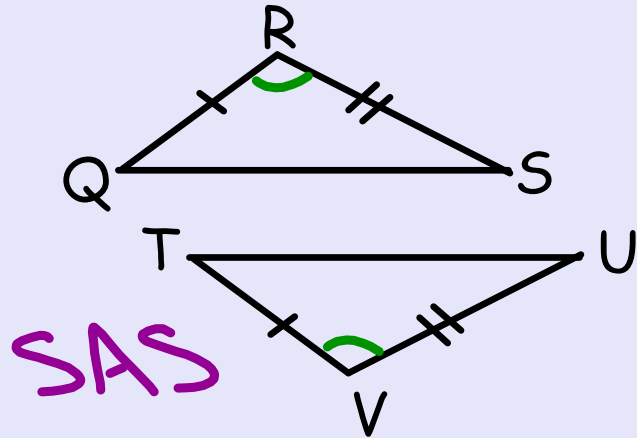


ANGLE-SIDE-ANGLE POSTULATE (ASA)

If two angles and the included side of a triangle are congruent to two angles and the included side of another triangle, then the triangles are congruent



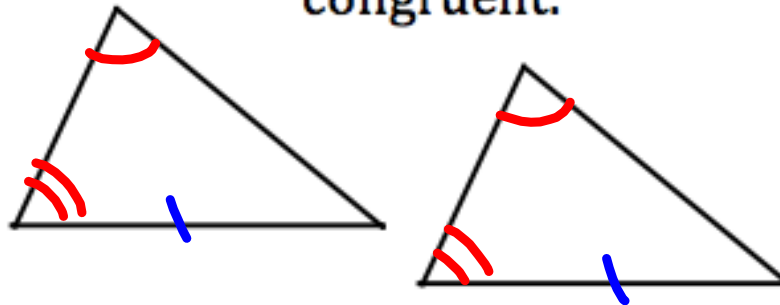
Can you use one of the shortcut postulates or theorems to prove the triangles are congruent?



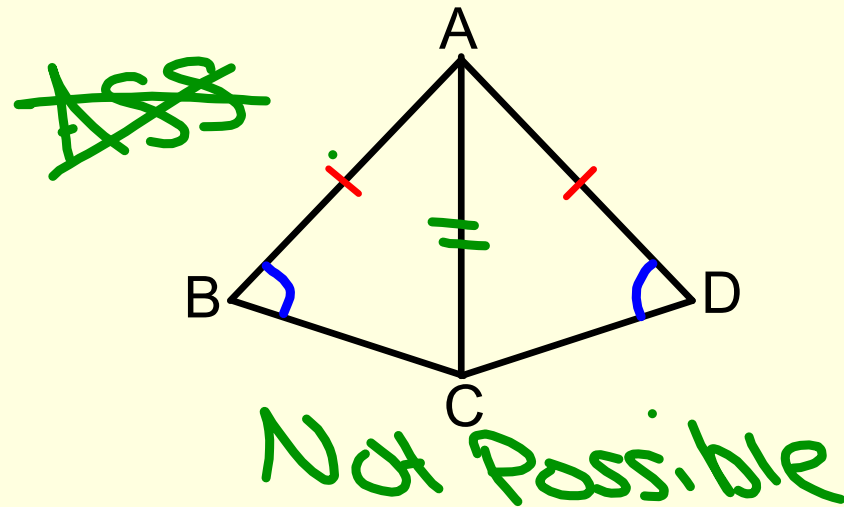
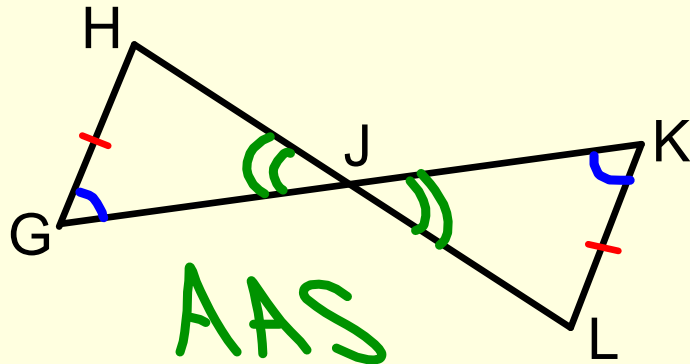
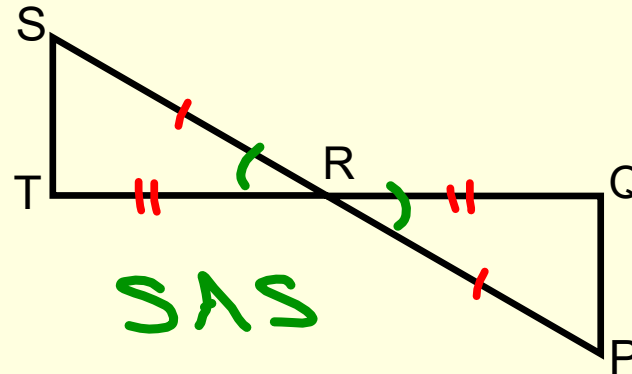
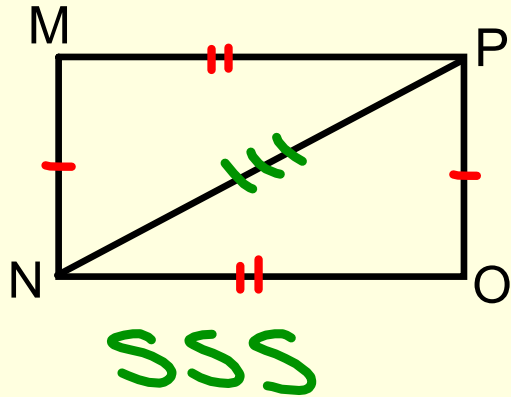
Shortcut #4

ANGLE-ANGLE-SIDE THEOREM (AAS)

If two angles and a non-included side of a triangle are congruent to two angles and the non-included side of another triangle, then the triangles are congruent.



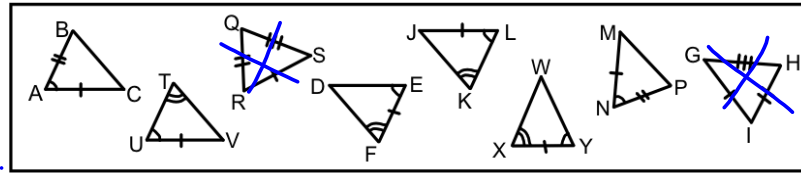
Can you use one of the shortcut postulates or theorems?
 Look for more angles and sides that aren't marked already.



Assignment:
 Concept 10 Worksheet
 (#1-8)

Choose two triangles from the box below to correctly fill in each congruence statement.

1. $\triangle QRS \cong \triangle HIG$ by SSS 2. _____ \cong _____ by SAS
 3. _____ \cong _____ by ASA 4. _____ \cong _____ by AAS



Complete the table below.

- In the 2nd column, list pairs of sides and/or angles that have congruent marks in the diagram.
- In the 3rd column, write another pair of sides or angles that are not marked, but are congruent for some other reason.
- In the last column, write the shortcut theorem or postulate that can be used to prove the triangles congruent: SSS, SAS, ASA, or AAS.

Diagram	Marked congruent	Not marked, but still congruent (and how you know)	Shortcut
5.	$\overline{PE} \cong \overline{RE}$ $\angle PEF \cong \angle REF$	$\overline{EF} \cong \overline{EF}$ they share a side	SAS
6.			
7.			
8.			