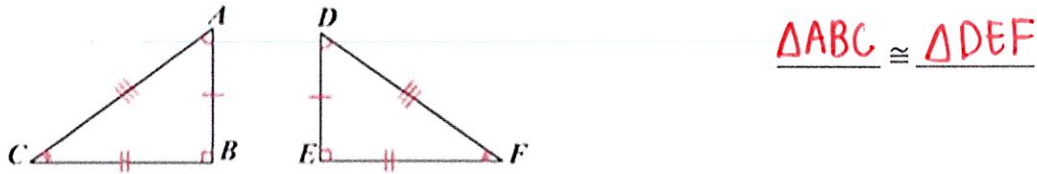


Day 3 – Triangle Congruence

Congruent Triangles:

- Congruent triangles have 3 congruent sides and 3 congruent angles.
- The parts of congruent triangles that "match" are called corresponding parts.

In a congruence statement, ORDER MATTERS !!!



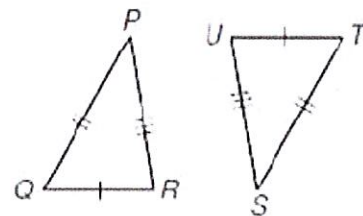
Once you conclude two triangles are congruent, then you can also conclude that corresponding parts of congruent triangles are congruent (CPCTC).

Five Ways to Prove Triangles Are Congruent:

Side – Side – Side (SSS) Congruence Postulate

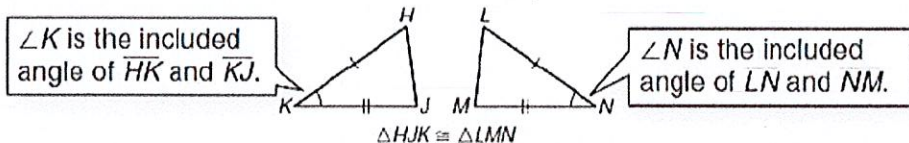
If three sides of one triangle are congruent to three sides of a second triangle, then the triangles are congruent.

$\overline{QR} \cong \overline{TU}$, $\overline{RP} \cong \overline{US}$,
 and $\overline{PQ} \cong \overline{ST}$,
 So $\Delta PQR \cong \Delta STU$.



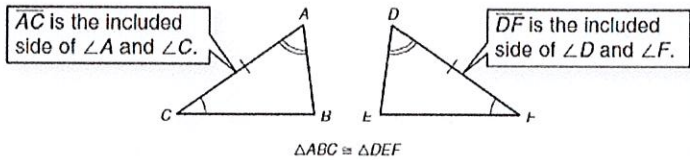
Side – Angle – Side (SAS) Congruence Postulate

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



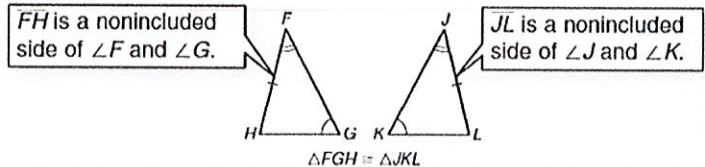
Angle – Side – Angle (ASA) Congruence Postulate

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



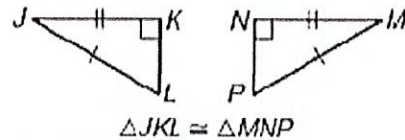
Angle – Angle – Side (AAS) Congruence Postulate

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



Hypotenuse – Leg (HL) Congruence Postulate

In a **RIGHT TRIANGLE**, if the hypotenuse and one leg is congruent to the hypotenuse and leg of another right triangle, then the triangles are congruent.



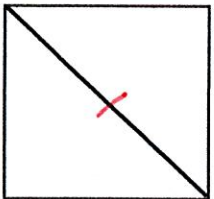
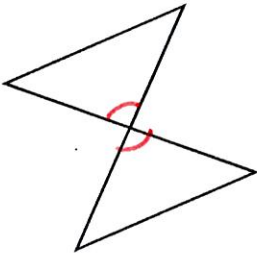
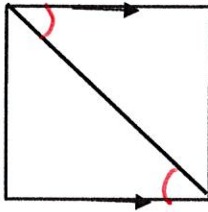
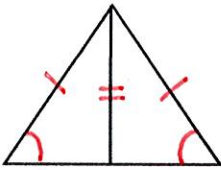
Included Side

The side between two angles

Included Angle

The angle between two sides

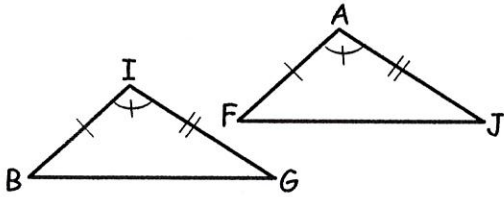
Four Markings YOU can add if they aren't already marked:

Shared Side	Vertical Angles	Alternate Interior Angles	Isosceles Triangle
<p>If two triangles share a side, that side is congruent to itself.</p> <p>Reason: <u>Reflexive Property</u></p>	<p>If you see vertical angles you can mark them <u>congruent</u></p> <p>Reason: Vertical Angles are congruent.</p>	<p>If you have parallel sides/lines, you can mark the alternate interior angles congruent.</p> <p>Reason: Alternate Interior Angles are congruent.</p>	<p>If two triangles make up an isosceles triangle, then mark the congruent sides and angles.</p> <p>Reason: Isosceles Base Angle Theorem and its converse.</p>
			

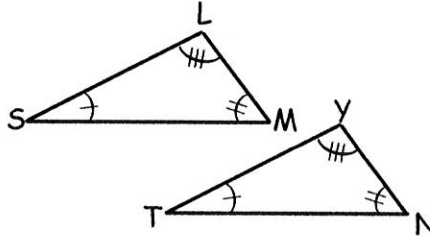
Practice:

Determine if each pair of triangles are congruent by SSS, SAS, ASA, HL, or AAS and finish the congruence statement. If none of these methods work based on the information given, write "none" and leave the congruence statement blank.

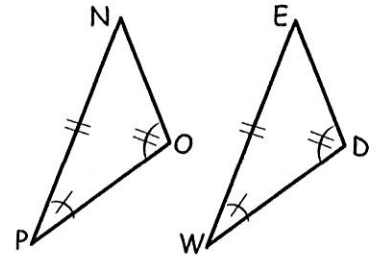
1. SAS
 $\triangle BIG \cong \triangle FAJ$



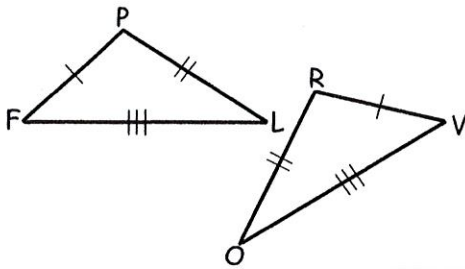
2. None
 $\triangle SML \cong \triangle YNA$



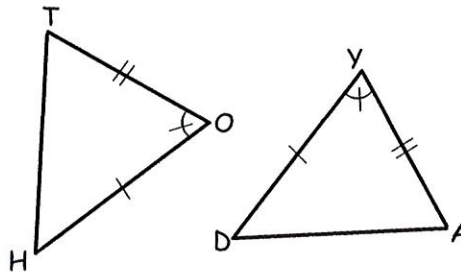
3. AAS
 $\triangle OPN \cong \triangle DWE$



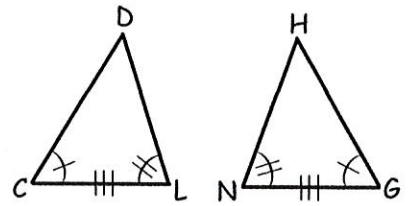
4. SSS
 $\triangle FLP \cong \triangle VOR$



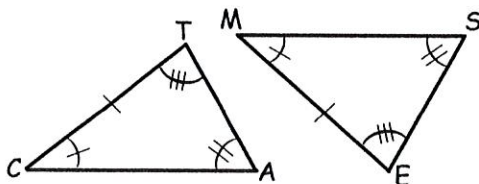
5. SAS
 $\triangle HOT \cong \triangle DYA$



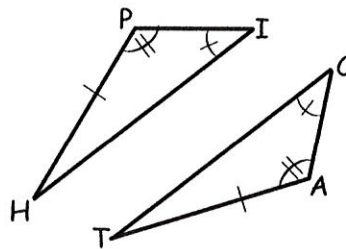
6. ASA
 $\triangle CLD \cong \triangle GNH$



7. ASA or AAS
 $\triangle CAT \cong \triangle MSE$



8. AAS
 $\triangle HIP \cong \triangle TCA$



9. SAS
 $\triangle PAT \cong \triangle TYP$

