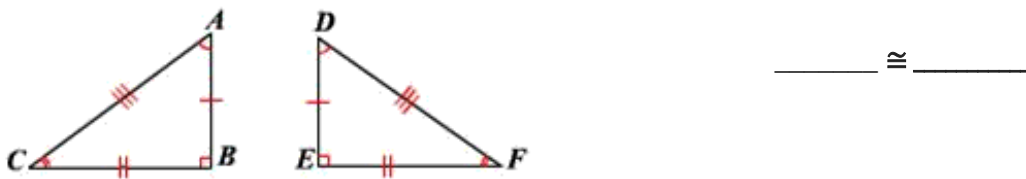# Day 5 – Triangle Congruence

Congruent Triangles:

- Congruent triangles have 3 _____ _____and 3

    _____ _____.

- The parts of congruent triangles that "match" are called _____ _____.

In a congruence statement, _____ _____ !!!

_____ ≅ _____

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

Five Ways to Prove Triangles Are Congruent:

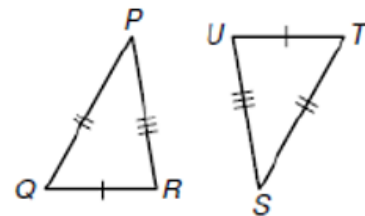## Side – Side – Side (SSS) Congruence Postulate

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

_____ ≅ _____ , _____ ≅ _____ ,

and _____ ≅ _____ ,
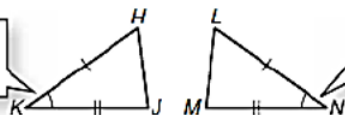
So Δ _____ ≅ Δ _____ .

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.
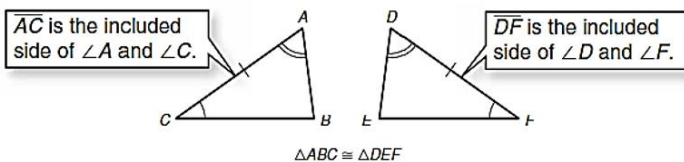
∠K is the included
angle of $\overline{HK}$ and $\overline{KJ}$.

∠N is the included
angle of $\overline{LN}$ and $\overline{NM}$.
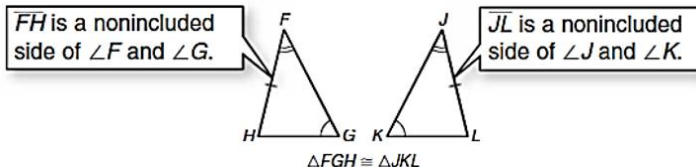
$\triangle HJK \cong \triangle LMN$

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.

$\overline{AC}$ is the included side of $\angle A$ and $\angle C$.

$\overline{DF}$ is the included side of $\angle D$ and $\angle F$.

$\triangle ABC \cong \triangle DEF$

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.

$\overline{FH}$ is a nonincluded side of $\angle F$ and $\angle G$.

$\overline{JL}$ is a nonincluded side of $\angle J$ and $\angle K$.

$\triangle FGH \cong \triangle JKL$

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.
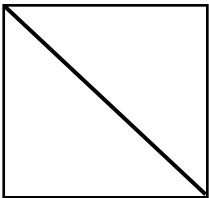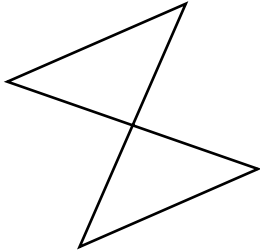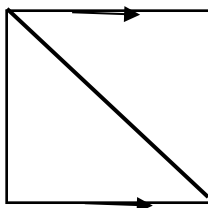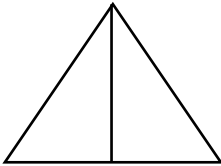
$\triangle JKL \cong \triangle MNP$
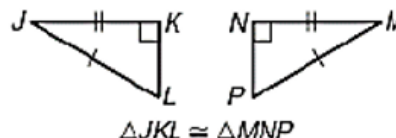
Included Side	**Included Angle**
The side between two angles	The angle between two sides

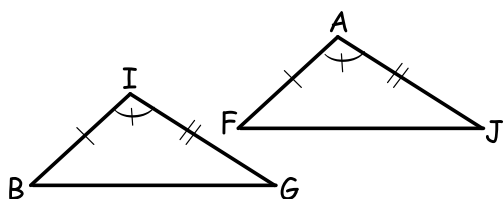## Four Markings YOU can add if they aren't already marked:

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

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.
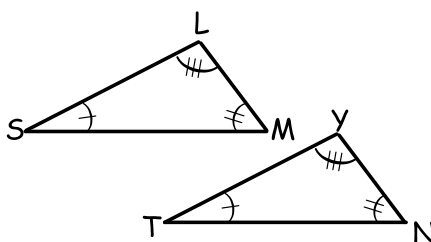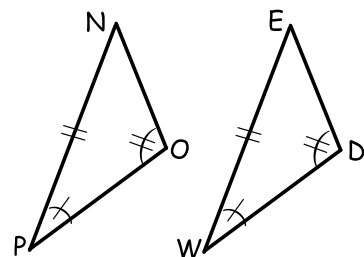
1. _____

$\Delta BIG \cong$ _____

2. _____

$\Delta SML \cong$ _____

3. _____

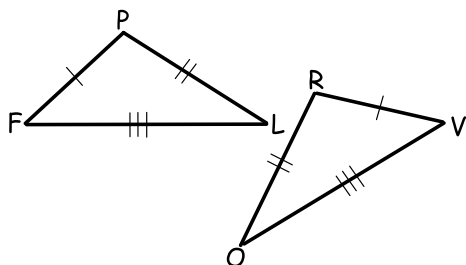$\Delta OPN \cong$ _____

4. _____

$\Delta FLP \cong$ _____

5. _____

$\Delta HOT \cong$ _____

6. _____

$\Delta CLD \cong$ _____

7. _____

$\Delta CAT \cong$ _____

8. _____

$\Delta HIP \cong$ _____

9. _____

$\Delta PAT \cong$ _____