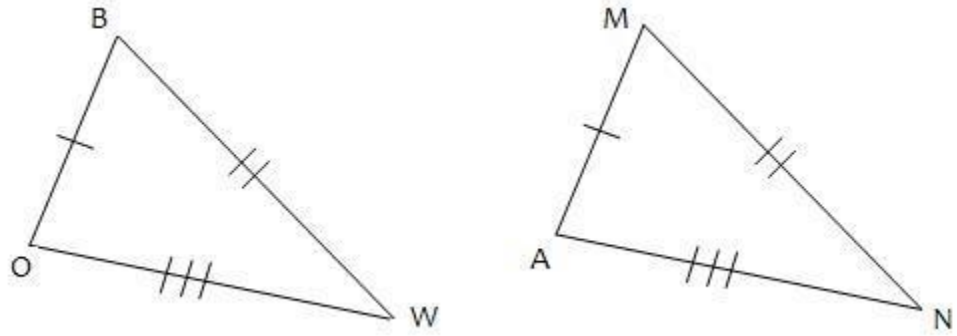
TOPIC 6- 4 PROOFS WITH CPCTC (SSS, SAS, ASA, AAS, and HL)

TERM:	DEFINITION:
Congruent Triangles	**Triangles in which corresponding angles and sides are congruent.**

Corresponding Parts of Congruent Triangles are Congruent

CPCTC

Let's look at what this means…..



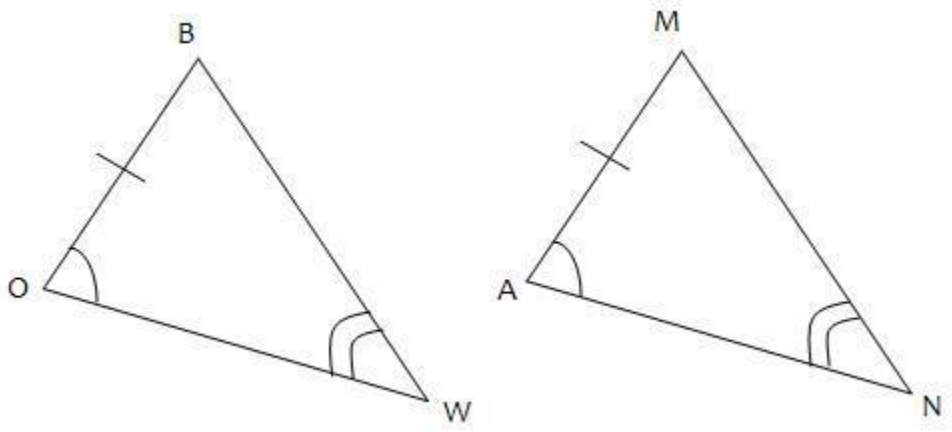
By looking at this picture, we can conclude that ΔBOW ≅ ΔMAN because of _____.

Because the triangles are congruent, now we can say

∠B ≅ _____ ; ∠O ≅ _____; and ∠W ≅ _____ because of _____.

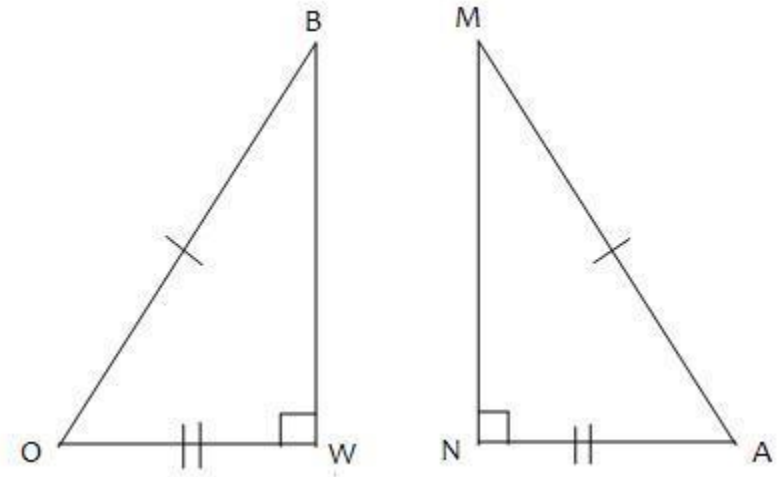
Since the two triangles were proven congruent, we can now correctly assume that corresponding parts that we knew nothing about are now congruent.

Another example:



$\Delta BOW \cong \Delta MAN$ because of _____

Therefore, _____ $\cong \angle M$, $\overline{BW} \cong$ _____ and _____ $\cong \overline{AN}$ because of _____



$\Delta BOW \cong \Delta MAN$ by _____

Therefore, $\angle B \cong$ _____, _____ $\cong \angle A$, and $\overline{BW} \cong$ _____ because of _____

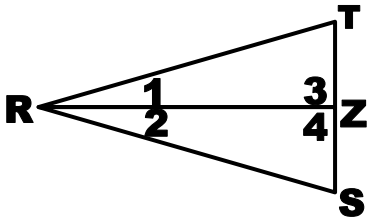
Proofs involving a **Congruent Part** will require you to add one additional step to the proof.

EXAMPLE 1

Given: $\overline{RZ}$ bisects $\angle TRS$

$\angle 3 \cong \angle 4$

Prove: $\angle S \cong \angle T$



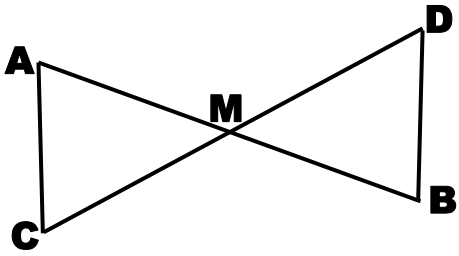
STATEMENTS	REASONS
1.	1. Given
2. $\angle 3 \cong \angle 4$	2.
3. $\angle TRZ \cong \angle SRZ$	3.
4.	4. Reflexive Property
5. $\Delta TRZ \cong \Delta$_____	5.
6.	6.

EXAMPLE 2:

Given: $\overline{AB}$ bisects $\overline{CD}$

$\angle C \cong \angle D$

Prove: $\angle A \cong \angle B$



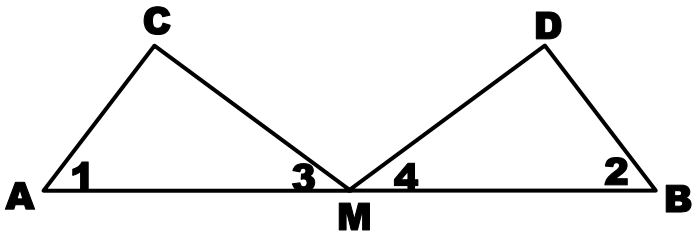
STATEMENTS	**REASONS**
1. $\overline{AB}$ bisects $\overline{CD}$	1.
2.	2. Given
3.	3. Definition of Segment Bisector
4. $\angle AMC \cong \angle BMD$	4.
5. $\Delta CMA \cong \Delta$_____	5.
6.	6.

EXAMPLE 3

Given: M is the midpoint of $\overline{AB}$

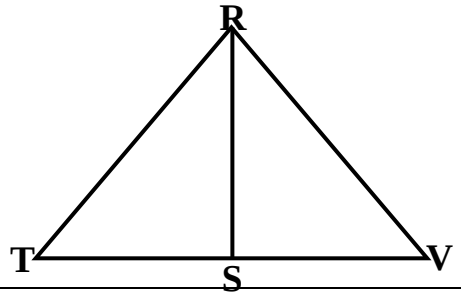
$\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 4$

Prove: $\overline{AC} \cong \overline{BD}$



STATEMENTS	REASONS
1. M is the midpoint of $\overline{AB}$	1.
2.	2. Given
3. $\angle 3 \cong \angle 4$	3.
4.	4. Definition of Midpoint
5. $\Delta CAM \cong \Delta$_____	5.
6.	6.

EXAMPLE 4
GIVEN: S is the midpoint of $\overline{TV}$;
$\overline{TR} \cong \overline{VR}$
PROVE: $\angle T$ ¤ $\angle V$



STATEMENTS	REASONS
1.	1. Given
2. $\overline{TR} \cong \overline{VR}$	2.
3. $\overline{TS} \cong \overline{SV}$	3.
4.	4. Reflexive Property
5. $\Delta STR \cong \Delta$_____	5.
6.	6.