Geometry

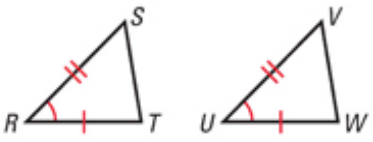
Notes Section 4.5

Prove Triangle Congruent by SAS and HL

POSTULATE 20 Side-Angle-Side (SAS) Congruence Postulate

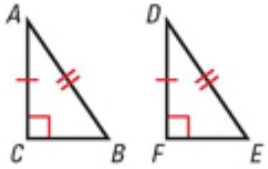
If two sides and the included angle of one triangle are congruent to two sides and the included angle of a second triangle, then the two triangles are congruent.

If Side $\overline{RS} \cong \overline{UV}$,
Angle $\angle R \cong \angle U$, and
Side $\overline{RT} \cong \overline{UW}$,
then $\triangle RST \cong \triangle UVW$.



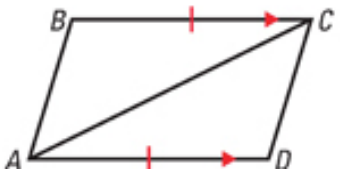
THEOREM 4.5 Hypotenuse-Leg (HL) Congruence Theorem

If the hypotenuse and a leg of a right triangle are congruent to the hypotenuse and a leg of a second right triangle, then the two triangles are congruent.



$\triangle ABC \cong \triangle DEF$

EXAMPLE 1 Complete the proof.

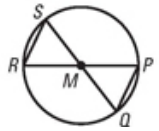


Given: BC ≅ DA, BC//AD

Prove: ΔABC≅ΔCDA

1. $\overline{BC} \cong \overline{DA}$	1. _____
2. BC//AD	2. _____
3. ∠BCA≅DAC	3. _____
4. AC≅CA	4. _____
5. ΔABC≅ΔCDA	5. _____

EXAMPLE 2 In the diagram, QS and RP pass through the center M of the circle. What can you conclude about ΔMRS and ΔMPQ?



Legs of a Right Triangle: _____

Hypotenuse: _____

EXAMPLE 3 Complete the proof.

Given: WY≅XZ, WZ⊥ZY, XY⊥ZY

Prove: ΔWYZ≅ΔXZY

1. WY≅XZ	1. _____
2. WZ⊥ZY, XY⊥ZY	2. _____
3. ∠Z and ∠Y are right angles	3. _____
4. ΔWYZ and ΔXZY are right triangles	4. _____
5. ZY≅YZ	5. _____
6. ΔWYZ≅ΔXZY	6. _____

EXAMPLE 4 What Postulate or Theorem can you use to conclude ΔPQR≅ΔPSR?