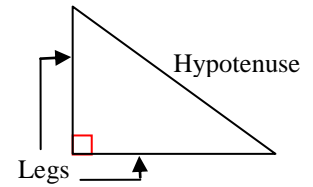Class: Honors Geometry
Date: 9/14/06
Topic: Lesson 4-6 (Congruence in RightTriangles)

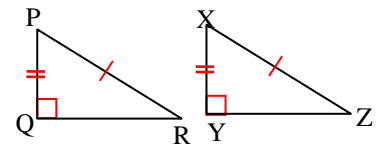|	
Parts of rt. Δ	<u>Hypotenuse</u>: side opposite rt. $\angle$ <u>Legs</u>: the other two sides

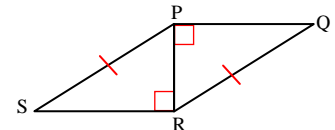|	
Theorem 4-6	<u>Hypotenuse-Leg (HL) Theorem</u> If the hypot. & a leg of 1 rt. Δ are $\cong$ to the hypot. & a leg of another rt. Δ, the $\Delta's$ are $\cong$

$$\Delta PQR \cong \Delta XYZ$$

Just need to show:
1. The 2 $\Delta's$ are rt. $\Delta's$
2. Their hypot. are $\cong$
3. They have 1 pair $\cong$ legs

Examples	<u>Pg 219 & 220</u>

2. Explain why the 2 $\Delta's$ are $\cong$.

- <u>Hypot</u>: $\overline{SP} \cong \overline{QR}$ (Given)
- <u>Rt Δ</u>: $\angle SRP \cong \angle QPR$ (All rt. $\angle's$ are $\cong$)
- <u>One leg</u>: $\overline{PR} \cong \overline{RP}$ (Reflexive POC)
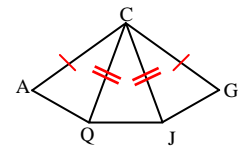
Therefore $\Delta SPR \cong \Delta QRP$ (HL)

8. What addl info is needed to prove $\Delta ACQ \cong \Delta GCJ$ by HL?

Need right angles, i.e. either:
- $\angle A$ and $\angle G$, or
- $\angle AQC$ and $\angle GJC$

…are rt. $\angle$ pairs.
Will then also have a congruent hypotenuse and leg.

12. Complete the proof.

Given: $\overline{PS} \cong \overline{PT}, \angle PRS \cong \angle PRT$

Prove: $\triangle PRS \cong \triangle PRT$
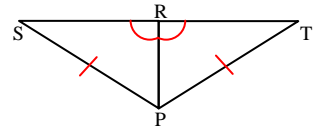
Proof: $\angle PRS \cong \angle PRT$ & are suppl $\angle's$ Given (by diagram)

        $\angle PRS$ & $\angle PRT$ are rt. $\angle's$ a. $\cong$ Suppl $\angle's$ are rt $\angle's$

        $\triangle PRS$ & $\triangle PRT$ are rt. $\triangle's$ b. Defn. of rt. $\triangle$

        $\overline{PS} \cong \overline{PT}$ c. Given

        $\overline{PR} \cong \overline{PR}$ d. Reflexive POC

        $\triangle PRS \cong \triangle PRT$ e. HL