

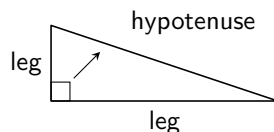
# Congruence in Right Triangles

## Today I Can

1. Prove right triangles congruent using the hypotenuse-leg theorem.

The **hypotenuse** of a right triangle is the side opposite the right angle.

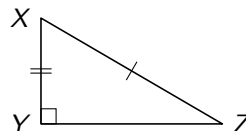
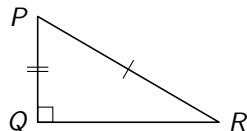
The **legs** are the other two sides.



## Hypotenuse-Leg Theorem (HL)

If the hypotenuses and any pair of legs of two right triangles are congruent, then the triangles are congruent.

- $\triangle PQR \cong \triangle XYZ$

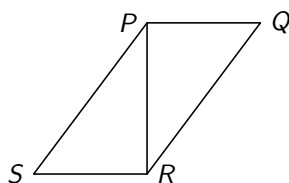


## Conditions for Hypotenuse-Leg

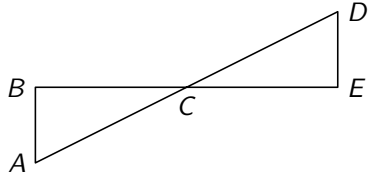
- There are 2 right triangles
- Triangles have congruent hypotenuses
- One pair of congruent legs

**Example 1.** Prove each of the following.

(a) **Given:**  $\angle PRS$  and  $\angle RPQ$  are right angles,  $\overline{SP} \cong \overline{RQ}$     **Prove:**  $\triangle PRS \cong \triangle RPQ$



(b) **Given:**  $\overline{BE}$  bisects  $\overline{AD}$ ,  $\overline{AB} \perp \overline{BC}$ ,  $\overline{DE} \perp \overline{EC}$ ,  $\overline{AB} \cong \overline{DE}$     **Prove:**  $\triangle ABC \cong \triangle DEC$



(c) **Given:**  $\overline{CD} \cong \overline{EA}$ ,  $\overline{AD}$  is the perpendicular bisector of  $\overline{CE}$     **Prove:**  $\triangle CBD \cong \triangle EBA$

