

Geometry

Chapter 4
Section 4-6

Vocabulary

Hypotenuse The side of a right triangle opposite to the right angle. It is the longest side in the triangle.

Legs Two perpendicular sides of a right triangle. Shortest two sides of the triangle.

Hypotenuse-Leg Theorem

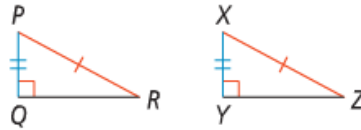
Theorem 4-6 Hypotenuse-Leg (HL) Theorem

Theorem

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

If ...

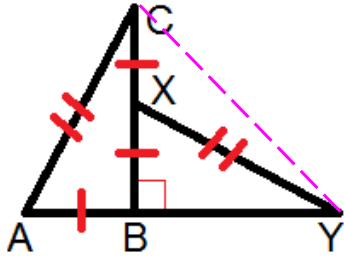
$\triangle PQR$ and $\triangle XYZ$ are right \triangle ,
 $\overline{PR} \cong \overline{XZ}$, and $\overline{PQ} \cong \overline{XY}$



Then ...

$\triangle PQR \cong \triangle XYZ$

Using HL Theorem



What is $m\angle ABC$?

If $AB = 4$, what is BY ?

If $AB = 1$, what is AC ? XY ?

If $m\angle Y = 26^\circ$, what is $m\angle X$?

If $m\angle Y = 26^\circ$, what is $m\angle A$?

What is $m\angle BCY$?

90
8

square root of 5
64
64
45

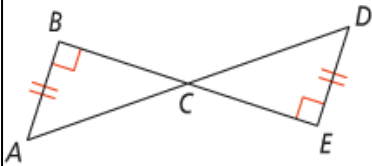
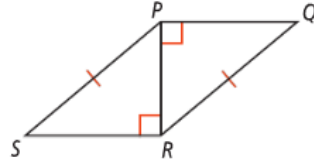
Using HL Theorem to Prove Congruence

$\triangle PRS$ and $\triangle RPQ$ are right \triangle s

$$\overline{PS} \cong \overline{RQ}$$

$$\overline{PR} \cong \overline{PR}$$

$$\triangle PRS \cong \triangle RPQ$$



BE bisects AD at point C

$\triangle ABC$ and $\triangle DEC$ are right \triangle s

$$\overline{AC} \cong \overline{CD}$$

$$\overline{AB} \cong \overline{DE}$$

$$\triangle ABC \cong \triangle DEC$$

Homework

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