

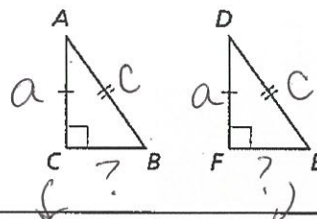
Name:

Date:

Period: 6

Hypotenuse-Leg Triangle Congruence

Lesson Objective

INBAT use HL $\cong$ to prove 2 Δ s are $\cong$ While SSA $\cong$ is not valid in general, there is, a special case for right Δ s.Hypotenuse-Leg Congruence Theorem (HL $\cong$)If the hypotenuse and a leg of a right triangle are congruent to the hypotenuse and a leg of the second right triangle, then the two triangles are congruent.

$$a^2 + ?^2 = c^2$$

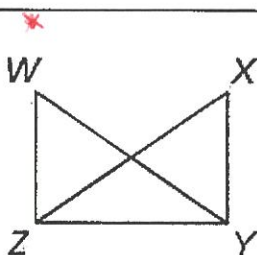
$$\sqrt{?^2} = \sqrt{c^2 - a^2}$$

$$? = \sqrt{c^2 - a^2}$$

Using HL $\cong$

Examples:

1. Write a two-column proof.

Given: $\overline{WY} \cong \overline{XZ}$, $\overline{WZ} \perp \overline{ZY}$, $\overline{XY} \perp \overline{ZY}$ Prove: $\Delta WYZ \cong \Delta XZY$ 

Statements

Reasons

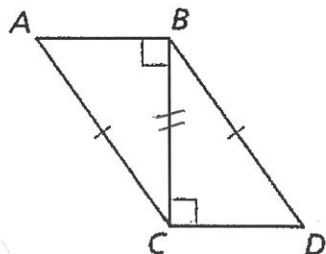
① $\overline{WY} \cong \overline{XZ}$, $\overline{WZ} \perp \overline{ZY}$, $\overline{XY} \perp \overline{ZY}$

① given

② $\angle WZY$ is a right $\angle$ ② $\perp \rightarrow$ right $\angle$ s $\angle XYZ$ is a right $\angle$ ③ def. of a right Δ ③ ΔWZY and ΔXZY are right Δ s④ reflex. prop. $\cong$ ④ $\overline{ZY} \cong \overline{YZ}$ ⑤ HL $\cong$ (1, 4)

2. Write a two-column proof.

Given: the diagram

Prove: $\Delta ABC \cong \Delta DCB$ 

Statements

Reasons

① $\overline{AC} \cong \overline{DB}$

① given

 ΔABC and ΔDCB are right Δ s② reflex. prop. $\cong$ ② $\overline{BC} \cong \overline{CB}$ ③ HL $\cong$ (1, 2)③ $\Delta ABC \cong \Delta DCB$