Tutor-USA.com Worksheet

Geometry

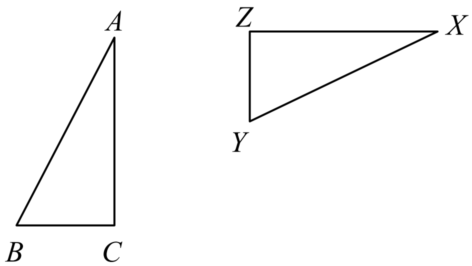
Triangle Congruence Proofs – Congruent Right Triangles – HL Theorem

Name: ____________________________

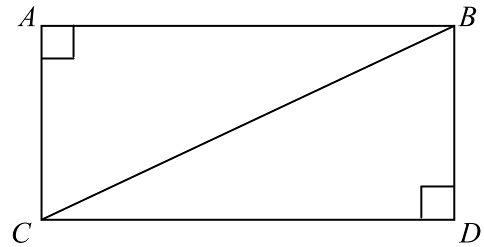
Date: _________

What additional information would you need to prove the triangles congruent by the HL Theorem?

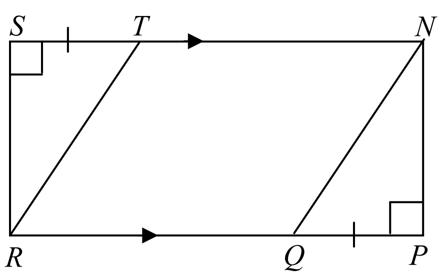
1) $\Delta ABC \cong \Delta XYZ$



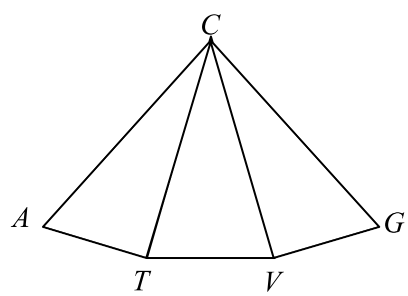
2) $\Delta ABC \cong \Delta DCB$



3) $\Delta STR \cong \Delta PQN$

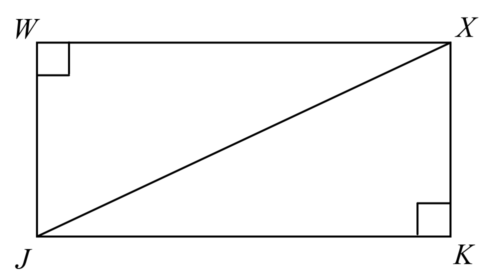


4) $\Delta ACT \cong \Delta GCV$



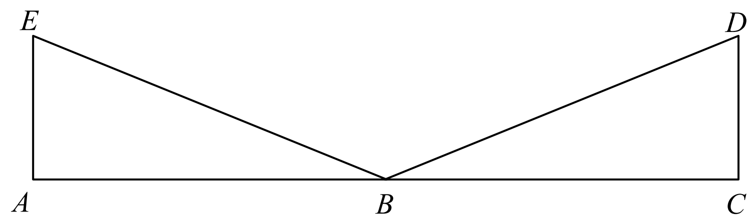
Write a two Column Proof.

5) Given: $\overline{WJ} \cong \overline{KX}$, $\angle JWX$ and $\angle XKJ$ are right angles
Prove: $\Delta WJX \cong \Delta KJX$

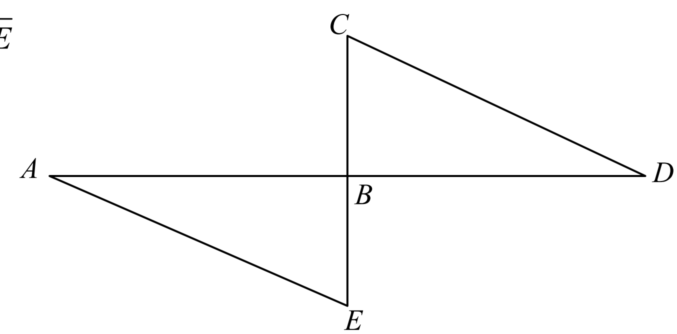


  www.tutor-usa.com

6) Given: $\overline{EB} \cong \overline{DB}$, $\angle A$ and $\angle C$ are right angles
B is the midpoint of $\overline{AC}$
Prove: $\Delta BEA \cong \Delta BDC$



7) Given: $\overline{CD} \cong \overline{EA}$, $\overline{AD}$ is the perpendicular bisector of $\overline{CE}$
Prove: $\Delta CBD \cong \Delta EBA$



Answer Key

1) $\angle C$ and $\angle Z$ are right angles
2) $\overline{AC} \cong \overline{BD}$ or $\overline{AB} \cong \overline{CD}$
3) $\overline{RT} \cong \overline{NQ}$
4) $\angle ATC$ and $\angle GVC$ are right angles

5)
$\angle JWX$ and $\angle XKL$ are right $\angle$s .... Given
ΔJWX and ΔXKL are right Δs .... Definition of right Δ
$\overline{JX} \cong \overline{JX}$ .... Reflexive Property
$\overline{WJ} \cong \overline{KX}$ .... Given
$\Delta WJX \cong \Delta KXJ$.......... HL Theorem

6)
$\angle A$ and $\angle C$ are right $\angle$s .... Given
ΔBEA and ΔBDC are right Δs .... Definition of right Δ
B is the midpoint of $\overline{AC}$ .... Given
$\overline{AB} \cong \overline{CB}$ .... Definition of Midpoint
$\overline{EB} \cong \overline{DB}$ .... Given
$\Delta BEA \cong \Delta BDC$.......... HL Theorem

7)
$\overline{AD}$ is the $\perp$ of $\overline{CE}$ .... Given
$\angle CBD$ and $\angle EBA$ are right $\angle$s .... Definition of $\perp$ lines
B is the midpoint of $\overline{CE}$.......... Definition of bisector
ΔCBD and ΔEBA are right Δs .... Definition of right Δ
$\overline{CB} \cong \overline{EB}$ .... Definition of Midpoint
$\overline{CD} \cong \overline{EA}$ .... Given
$\Delta CBD \cong \Delta EBA$.......... HL Theorem

