

Triangle Congruence

Proving Triangle Congruence

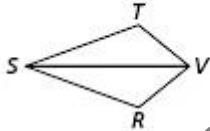
Triangle Congruence: ASA, AAS, and HL

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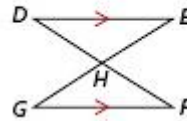
Example 1 & 2

Determine if you can use ASA to prove the triangles congruent. Explain.

1. $\triangle VRS$ and $\triangle VTS$, given that \overline{VS} bisects $\angle RST$ and $\angle RVT$



2. $\triangle DEH$ and $\triangle FGH$



Example 3

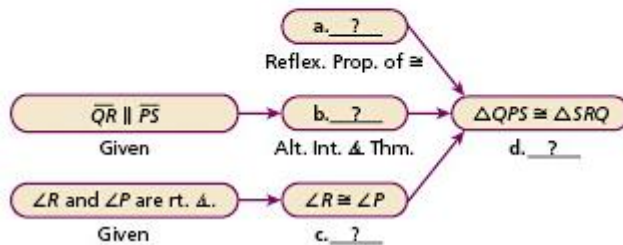
3. Use AAS to prove the triangles congruent.

Given: $\angle R$ and $\angle P$ are right angles.

$\overline{QR} \parallel \overline{SP}$

Prove: $\triangle QPS \cong \triangle SRQ$

Proof:



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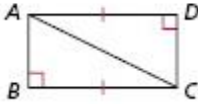
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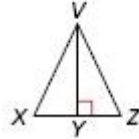
Example 4

Determine if you can use the HL Congruence Theorem to prove the triangles congruent. If not, tell what else you need to know.

- 4.
- $\triangle ABC$
- and
- $\triangle CDA$



- 5.
- $\triangle XYV$
- and
- $\triangle ZYV$



Sample Worksheet

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1. Yes; by the Def. of \angle bisector, $\angle TSV \cong \angle RSV$ and $\angle TVS \cong \angle RVS$. $\overline{SV} \cong \overline{SV}$ by the Reflex. Prop. of \cong . So $\triangle VRS \cong \triangle VTS$ by ASA.
2. No; you need to know that a pair of corr. sides are \cong .
3. a. $\overline{QS} \cong \overline{SQ}$ b. $\angle RQS \cong \angle PSQ$
c. Rt. $\angle \cong$ Thm. d. AAS
4. Yes; it is given that $\angle D$ and $\angle B$ are rt. \triangle and $\overline{AD} \cong \overline{BC}$. $\triangle ABC$ and $\triangle CDA$ are rt. \triangle by def. $\overline{AC} \cong \overline{CA}$ by the Reflex. Prop. of \cong . So $\triangle ABC \cong \triangle CDA$ by HL.
5. No; you need to know that $\overline{VX} \cong \overline{VZ}$.