

Chapter 4

Practice Proving Triangles Congruent¹

Examine each of the following and decide on a congruence postulate to use (SSS, SAS, ASA). Record the postulate below the problem.

Then, on separate paper, copy the diagram, write a given and prove statement, then write a two column proof.

1. Given: $\overline{AB} \cong \overline{CB}$; $\angle 3 \cong \angle 4$

Prove: $\triangle ABD \cong \triangle CBD$

2. Given: $\overline{AD} \cong \overline{CD}$; $\overline{AB} \cong \overline{CB}$

Prove: $\triangle ABD \cong \triangle CBD$

3. Given: $\overline{BD} \perp \overline{AC}$; $\overline{AB} \cong \overline{CB}$

Prove: $\triangle ABD \cong \triangle CBD$

4. Given: $\overline{BD} \perp \overline{AC}$; $\overline{AD} \cong \overline{CD}$

Prove: $\triangle ABD \cong \triangle CBD$

5. Given: $\angle 1 \cong \angle 2$; $\angle 3 \cong \angle 4$

Prove: $\triangle ABD \cong \triangle CBD$

6. Given: $\overline{AB} \cong \overline{CB}$;

\overline{BD} bisects $\angle ABC$

Prove: $\triangle PRQ \cong \triangle PSQ$

7. Given: $\overline{PR} \perp \overline{RQ}$; $\overline{PS} \perp \overline{SQ}$;

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

Prove: $\triangle PRQ \cong \triangle PSQ$

8. Given: $\overline{PR} \perp \overline{RQ}$; $\overline{PS} \perp \overline{SQ}$;

$\overline{RQ} \cong \overline{SQ}$

Prove: $\triangle PRQ \cong \triangle PSQ$

9. Given: $\overline{BC} \cong \overline{AD}$; $\overline{AC} \cong \overline{BD}$

Prove: $\triangle ABC \cong \triangle BAD$

10. Given: $\overline{AX} \cong \overline{BX}$; $\overline{CX} \cong \overline{DX}$

Prove: $\triangle ACX \cong \triangle BDX$

11. Given: $\overline{AC} \cong \overline{BD}$;

$\angle CAB \cong \angle DBA$

Prove: $\triangle BAC \cong \triangle ABD$

12. Given: $\overline{AC} \perp \overline{BD}$; $\overline{BD} \perp \overline{AD}$;

$\overline{AC} \cong \overline{BD}$

Prove: $\triangle ABC \cong \triangle BAD$

13. Given: $\angle 1 \cong \angle 4$;

$\angle CAB \cong \angle DBA$

Prove: $\triangle ABD \cong \triangle BAC$

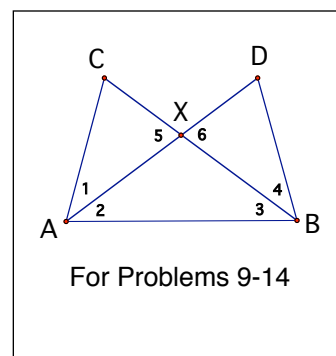
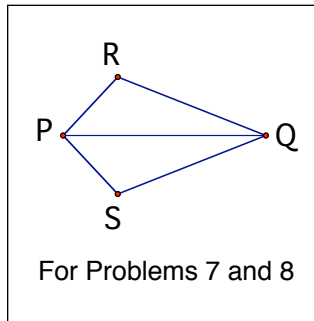
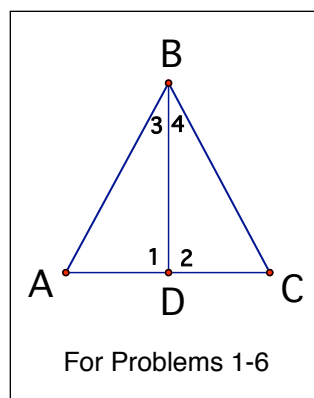
14. Given: $\angle 1 \cong \angle 4$; $\angle 2 \cong \angle 3$

Prove: $\triangle ABD \cong \triangle BAC$

Goals

I can identify the appropriate triangle congruence postulate

I can prove triangle congruent.



¹ Based on work from "Unified Mathematics, Book 2" Gerald R. Rising et. al.

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15. Given: $\angle P \cong \angle Q$; $\overline{PR} \cong \overline{QR}$

Prove: $\triangle PRY \cong \triangle QRX$

16. Given: $\overline{RY} \cong \overline{RX}$; $\overline{PR} \cong \overline{QR}$

Prove: $\triangle PRY \cong \triangle QRX$

17. Given: $\overline{PY} \perp \overline{RQ}$; $\overline{QX} \perp \overline{PR}$; $\overline{RY} \cong \overline{RX}$

Prove: $\triangle PRY \cong \triangle QRX$

18. Given: $\overline{PR} \cong \overline{QR}$; $\overline{PX} \cong \overline{QY}$

Prove: $\triangle PRY \cong \triangle QRX$

