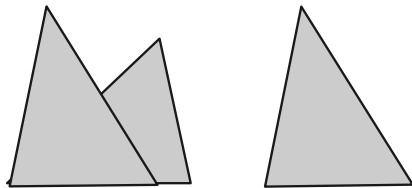


Geometry

Chapter 4
Section 4-2

Congruent Triangles By Congruent Sides



Side-Side-Side

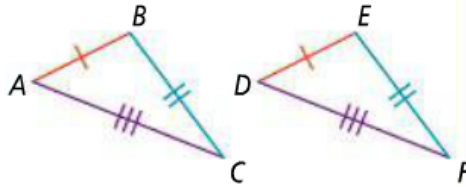
Postulate 4-1 Side-Side-Side (SSS) Postulate

Postulate

If the three sides of one triangle are congruent to the three sides of another triangle, then the two triangles are congruent.

If ...

$$\overline{AB} \cong \overline{DE}, \overline{BC} \cong \overline{EF}, \overline{AC} \cong \overline{DF}$$



Then ...

$$\triangle ABC \cong \triangle DEF$$

Congruent Triangles By Common Angle



Side-Angle-Side

Postulate 4-2 Side-Angle-Side (SAS) Postulate

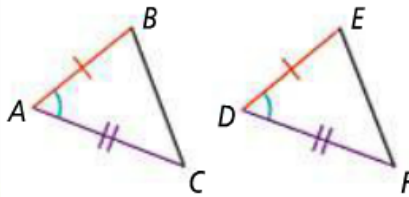
Postulate

If two sides and the included angle of one triangle are congruent to two sides and the included angle of another triangle, then the two triangles are congruent.

If ...

$$\overline{AB} \cong \overline{DE}, \angle A \cong \angle D,$$

$$\overline{AC} \cong \overline{DF}$$



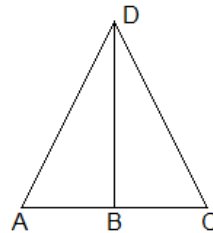
Then ...

$$\triangle ABC \cong \triangle DEF$$

Proofs

Given: \overline{DB} is the perpendicular bisector of \overline{AC}

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



\overline{DB} is the perpendicular bisector of \overline{AC}

$\angle DBA$, $\angle DBC$ right angles

$\angle DBA \cong \angle DBC$

$\overline{AB} \cong \overline{BC}$

$\overline{DB} \cong \overline{DB}$

$\triangle ABD \cong \triangle CBD$

Given

Def. of \perp

Right angles congruent

Def. of bisector

Reflexive

Side-Angle-Side

Proofs

Given: $\overline{AB} \cong \overline{CD}$, $\overline{AB} \parallel \overline{CD}$

Prove: $\triangle ABC \cong \triangle DCB$

$\overline{AB} \cong \overline{CD}$, $\overline{AB} \parallel \overline{CD}$

$\angle ABC \cong \angle DCB$

$\overline{BC} \cong \overline{BC}$

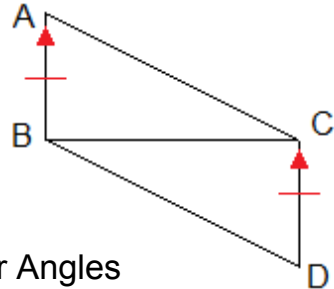
$\triangle ABC \cong \triangle DCB$

Given

Alternate Interior Angles

Reflexive

Side-Angle-Side



Proofs

Given: \overline{DB} is the bisector of \overline{AC} , $\overline{AD} \cong \overline{DC}$

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

\overline{DB} is the bisector of \overline{AC} , $\overline{AD} \cong \overline{DC}$ | Given

$\overline{AB} \cong \overline{BC}$

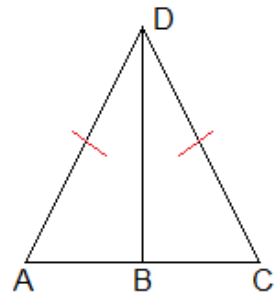
$\overline{DB} \cong \overline{DB}$

$\triangle ABD \cong \triangle CBD$

Def. of bisector

Reflexive

Side-Side-Side



Homework

Pages 231-233
#16-17, 28-33