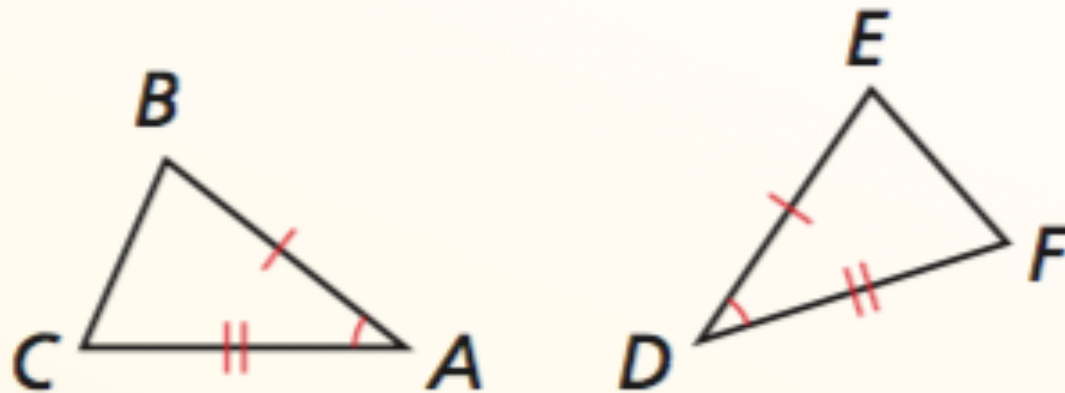# Chapter 5
Congruent Triangles

5.3 Proving Triangle Congruence by SAS

Theorem

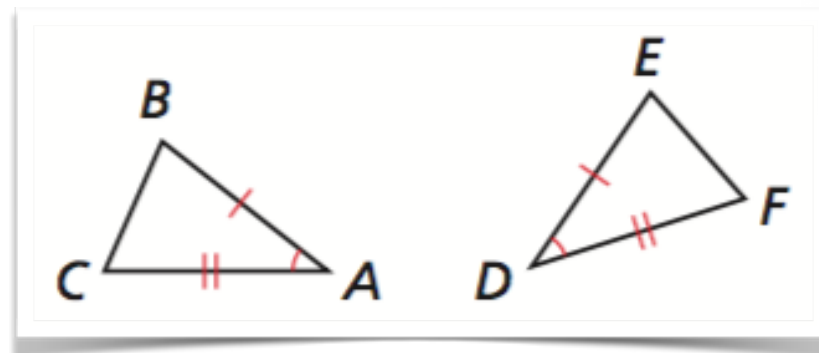| Side-Angle-Side (SAS) Congruence Theorem	If two sides and the included angle of one triangle are congruent to two sides and the included angle of a second triangle, then the two triangles are congruent.

If $\overline{AB} \cong \overline{DE}$, $\angle A \cong \angle D$, and $\overline{AC} \cong \overline{DF}$, then $\triangle ABC \cong \triangle DEF$.
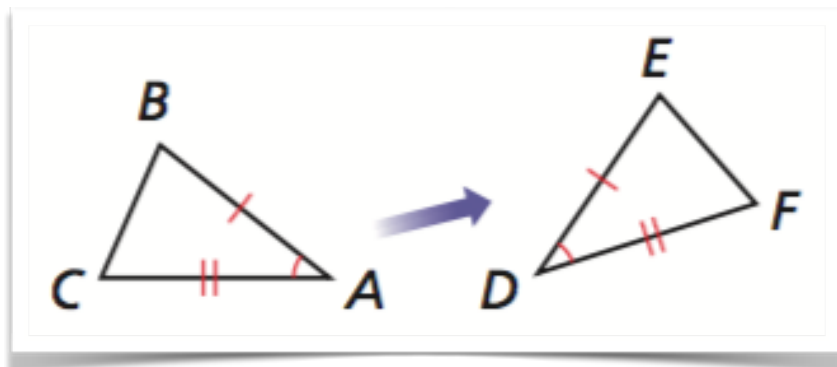
5.3 Proving Triangle Congruence by SAS
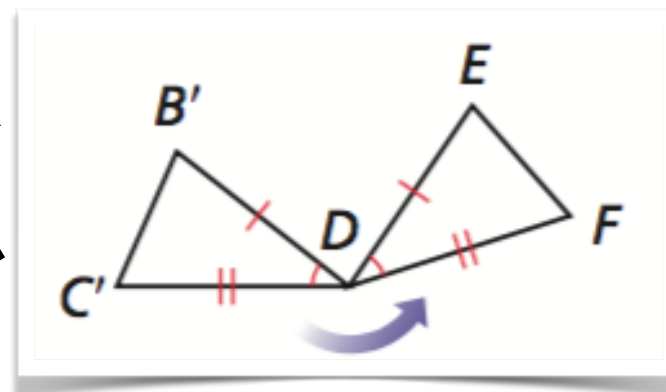
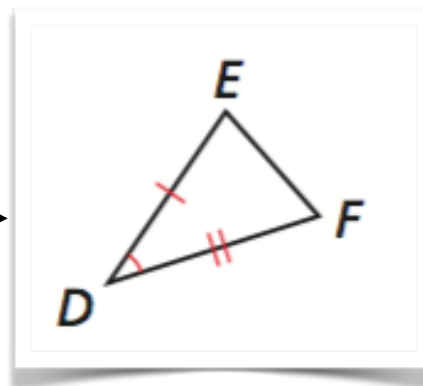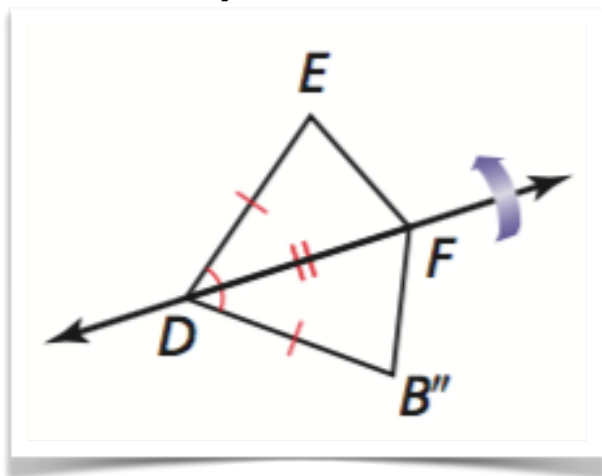## Rigid Motion Proof

Proving SAS
Congruence Theorem

1) Translate

2) Rotate

3) Reflect

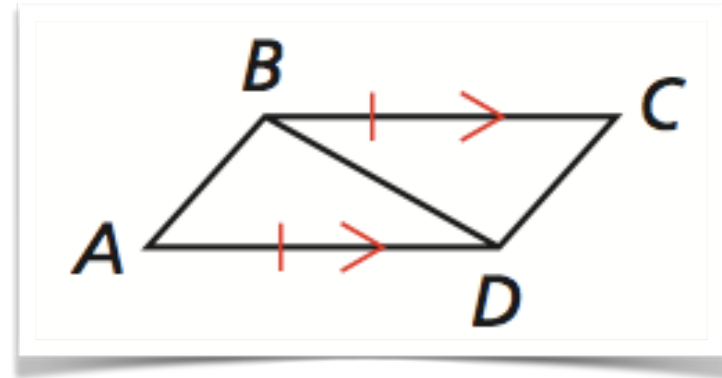Because you can map the triangles using a composition of rigid motions, then they are congruent.

Prove:

Given: $\overline{BC} \parallel \overline{AD}, \overline{BC} \cong \overline{AD}$

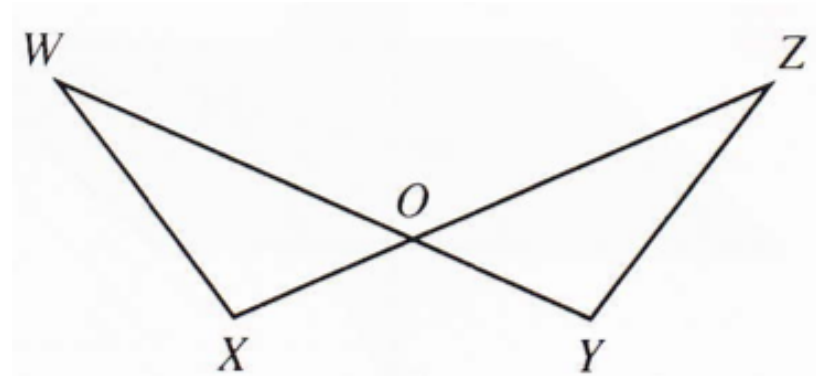**Prove:** $\triangle ABD \cong \triangle CDB$

Statements	Reasons

Prove:

Given: $\overline{WO} \cong \overline{ZO}$; $\overline{XO} \cong \overline{YO}$
Prove: $\angle W \cong \angle Z$

Statements	Reasons

Which are congruent, and why or why not?