



Chapter 5

Congruent Triangles

5.1 Angles of Triangles

5.2 Congruent Polygons

5.3 Proving Triangle Congruence by SAS

5.4 Equilateral and Isosceles Triangles

5.5 Proving Triangle Congruence by SSS

5.6 Proving Triangle Congruence by ASA and AAS

5.7 Using Congruent Triangles

5.8 Coordinate Proof (skip)



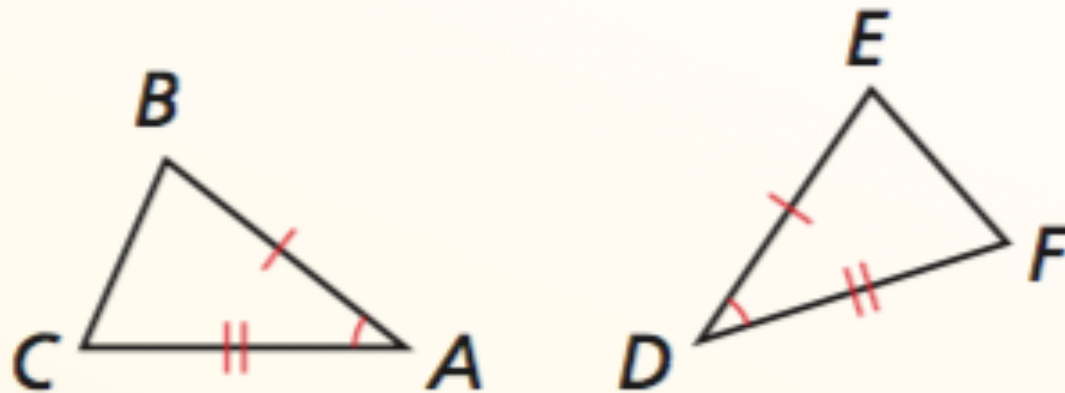
5.3 Proving Triangle Congruence by SAS



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.



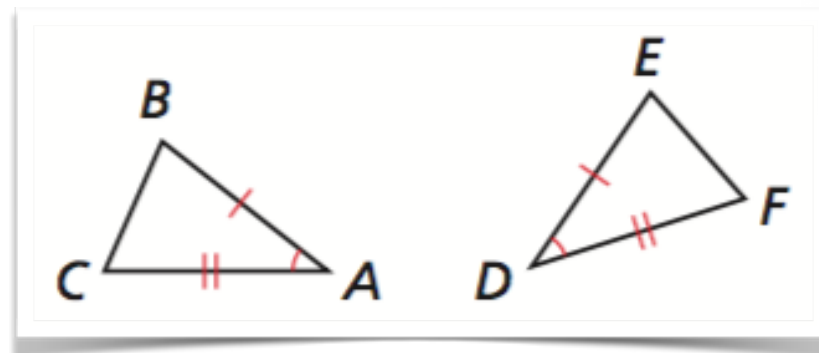
If $\overline{AB} \cong \overline{DE}$, $\angle A \cong \angle D$, and $\overline{AC} \cong \overline{DF}$,
then $\triangle ABC \cong \triangle DEF$.

5.3 Proving Triangle Congruence by SAS

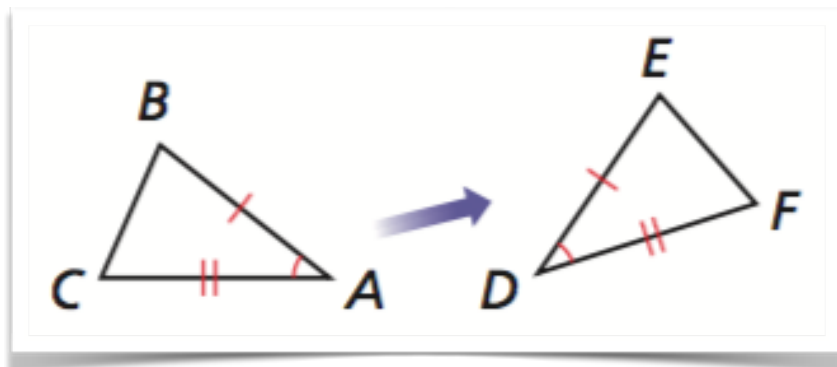


Rigid Motion Proof

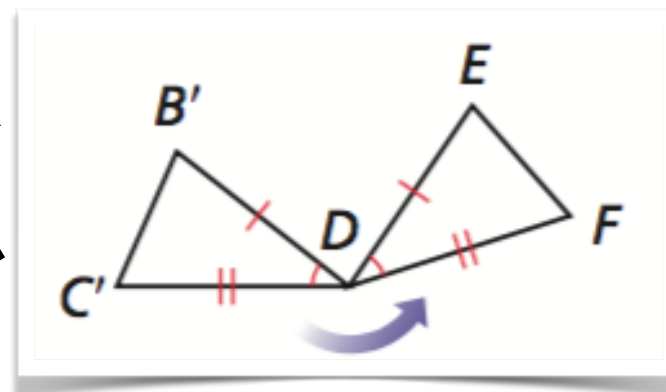
Proving SAS
Congruence Theorem



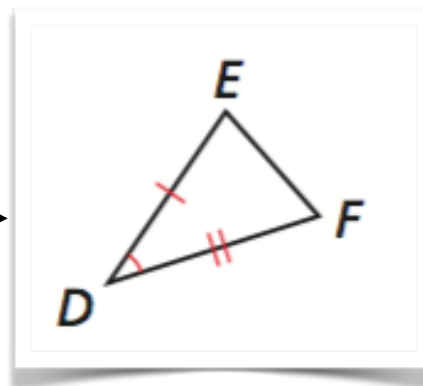
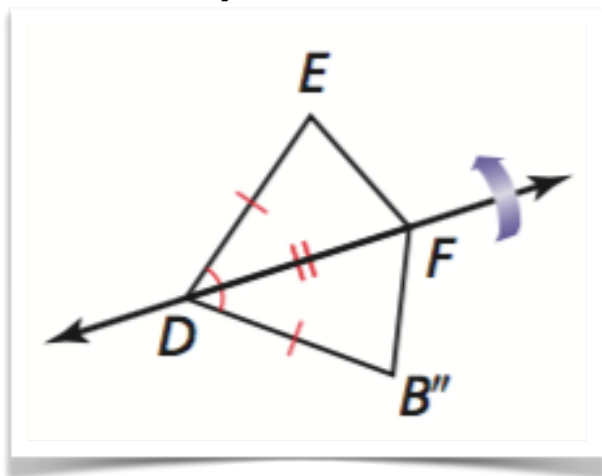
1) Translate



2) Rotate



3) Reflect



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

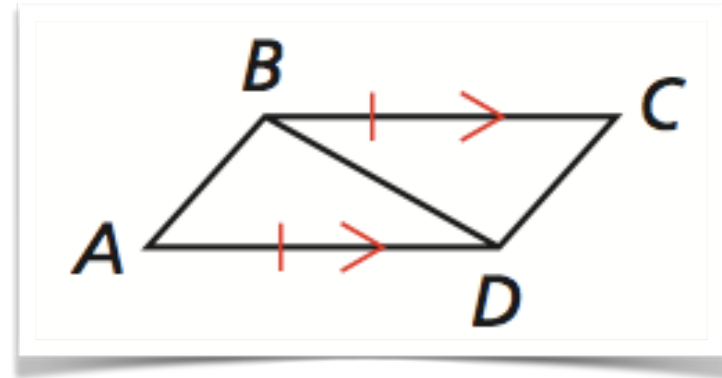
5.3 Proving Triangle Congruence by SAS



Prove:

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

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



Statements

Reasons

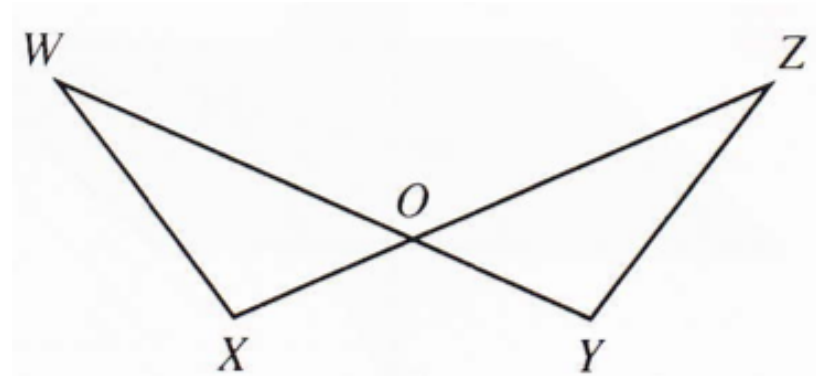
5.3 Proving Triangle Congruence by SAS



Prove:

Given: $\overline{WO} \cong \overline{ZO}$; $\overline{XO} \cong \overline{YO}$

Prove: $\angle W \cong \angle Z$



Statements

Reasons

5.3 Proving Triangle Congruence by SAS



Which are congruent, and why or why not?

