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)

5.6 Proving Triangle Congruence by ASA and AAS

Theorem

Angle-Side-Angle (ASA) Congruence Theorem	If two angles and the included side of one triangle are congruent to two angles and the included side of a second triangle, then the two triangles are congruent.

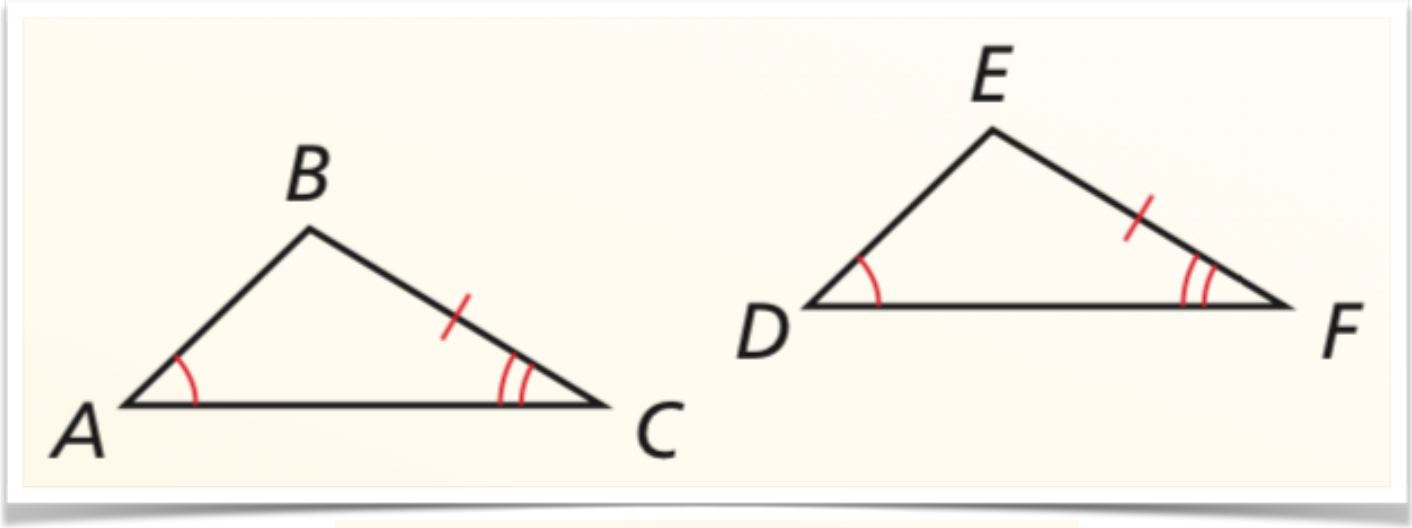
If $\angle A \cong \angle D$, $\overline{AC} \cong \overline{DF}$, and $\angle C \cong \angle F$, then $\triangle ABC \cong \triangle DEF$.

5.6 Proving Triangle Congruence by ASA and AAS

Theorem

Angle-Angle-Side (AAS) Congruence Theorem

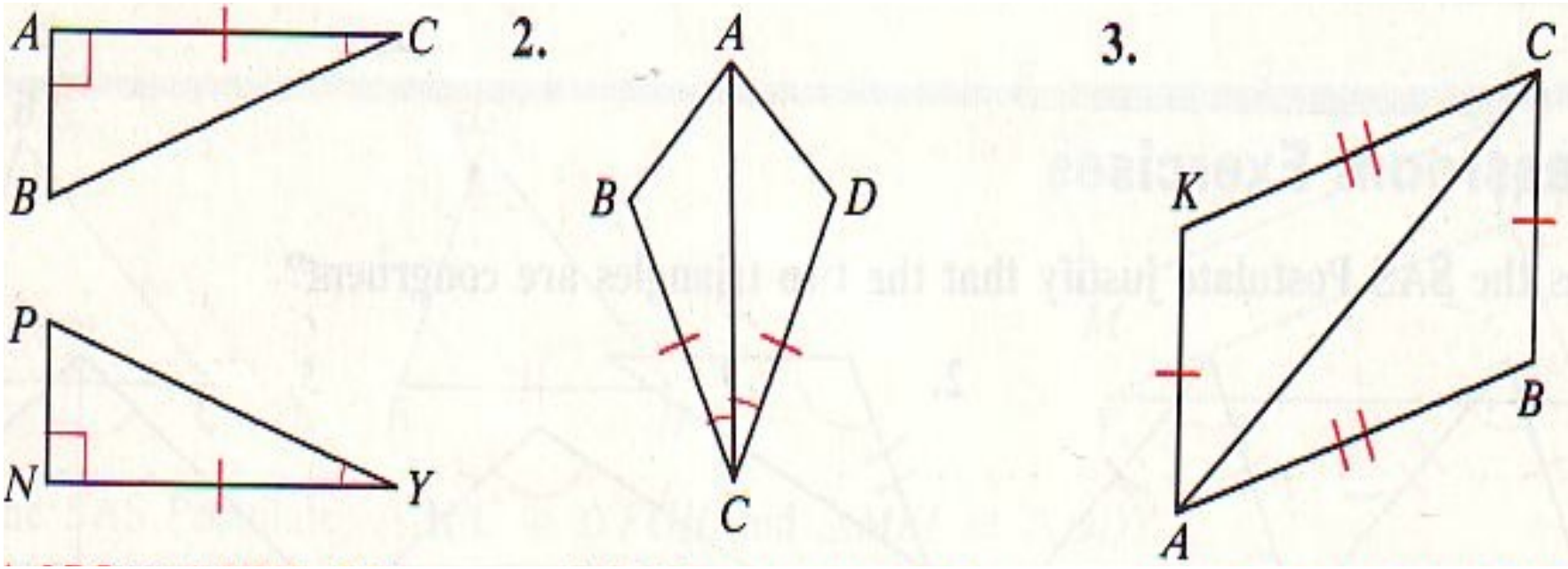
If two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of a second triangle, then the two triangles are congruent.



If $\angle A \cong \angle D$, $\angle C \cong \angle F$, and $\overline{BC} \cong \overline{EF}$, then $\triangle ABC \cong \triangle DEF$.

5.6 Proving Triangle Congruence by ASA and AAS

Which are congruent and why?

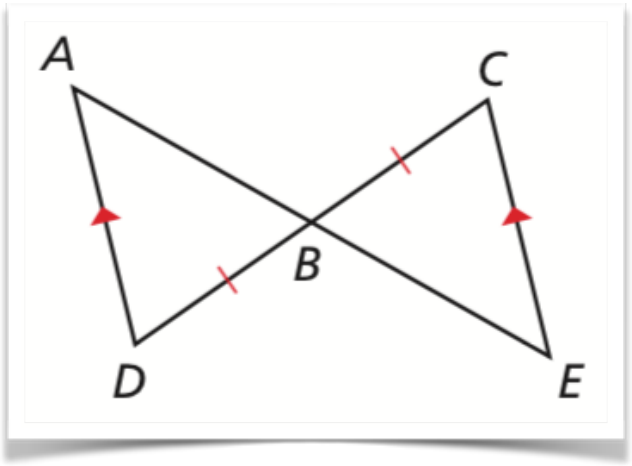


5.6 Proving Triangle Congruence by ASA and AAS

Prove:

Given $\overline{AD} \parallel \overline{EC}$, $\overline{BD} \cong \overline{BC}$

Prove $\triangle ABD \cong \triangle EBC$



Statements	Reasons

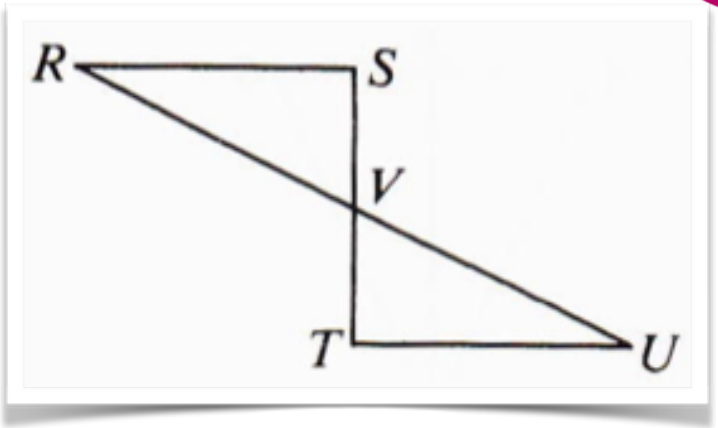
5.6 Proving Triangle Congruence by ASA and AAS

Prove:

Given: $\overline{RS} \perp \overline{ST}$; $\overline{TU} \perp \overline{ST}$

V is the midpoint of ST

Prove: $\Delta RSV \cong \Delta UTV$

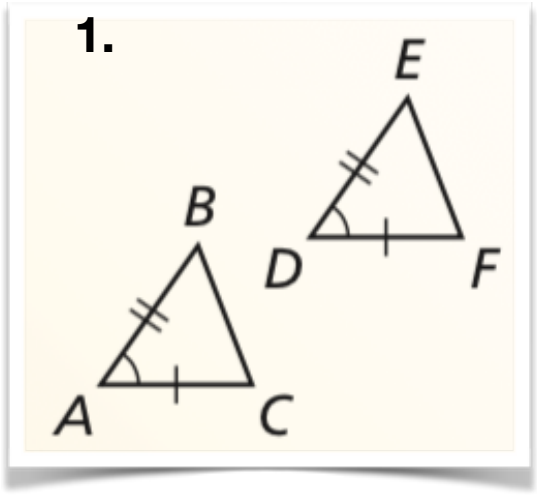


Statements	Reasons

5.6 Proving Triangle Congruence by ASA and AAS

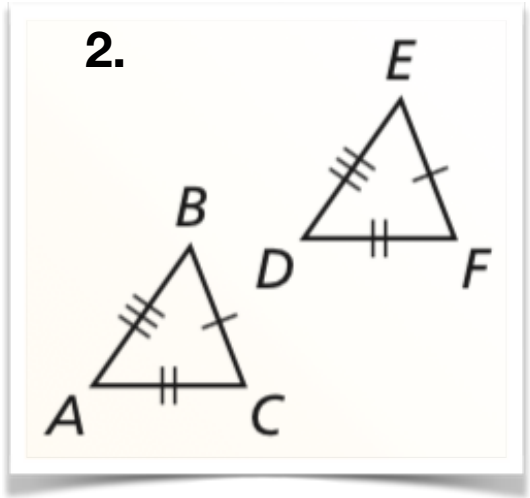
Summary of Triangle Congruence Theorems

1.



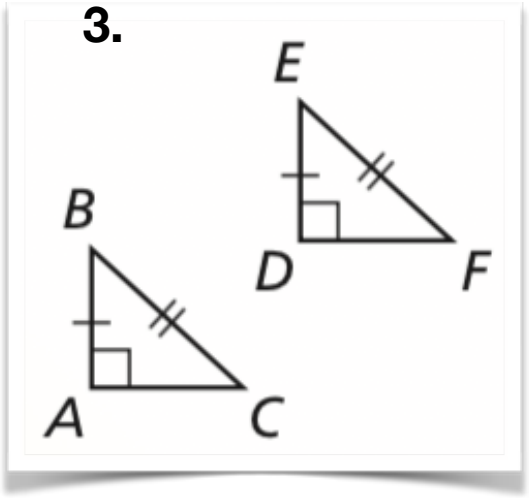
Theorem:

2.



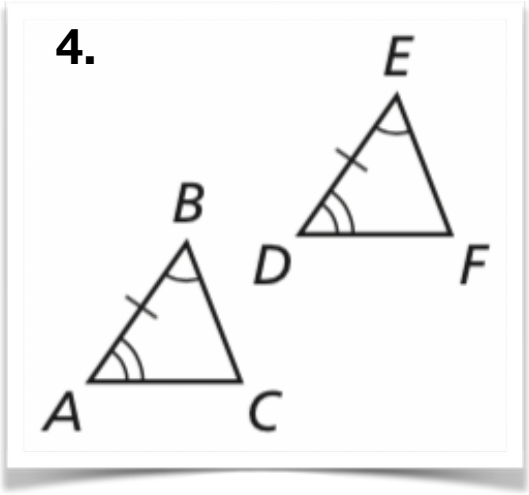
Theorem:

3.



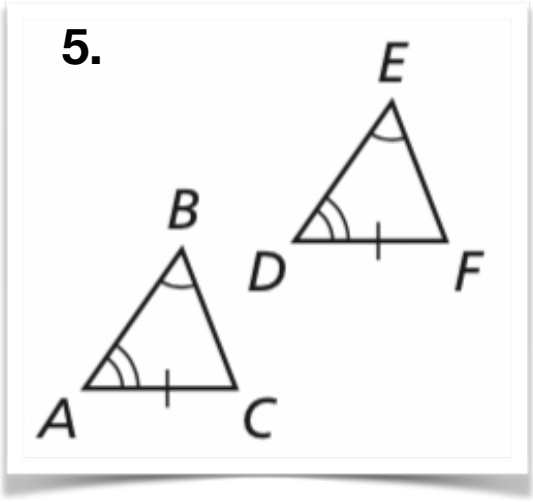
Theorem:

4.



Theorem:

5.



Theorem: