

LESSON
4.4**Study Guide**

For use with pages 240–247

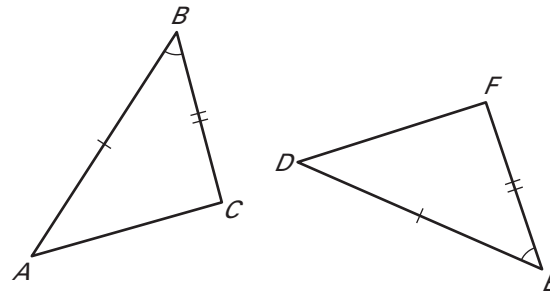
GOAL Use sides and angles to prove congruence.**Vocabulary**

In a right triangle, the sides adjacent to the right angle are called the **legs**.

The side opposite the right angle is called the **hypotenuse** of the right triangle.

Postulate 20 Side-Angle-Side (SAS) Congruence Postulate: 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.

Theorem 4.5 Hypotenuse-Leg Congruence Theorem: If the hypotenuse and a leg of a right triangle are congruent to the hypotenuse and a leg of a second right triangle, then the two triangles are congruent.

EXAMPLE 1 Use the SAS Congruence PostulateProve that $\triangle ABC \cong \triangle DEF$.**Solution**

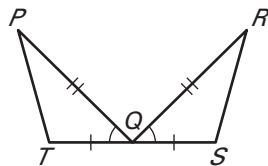
The marks on the diagram show that $\overline{AB} \cong \overline{DE}$, $\overline{BC} \cong \overline{EF}$, and $\angle B \cong \angle E$.

So, by the SAS Congruence Postulate, $\triangle ABC \cong \triangle DEF$.

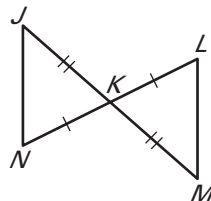
Exercises for Example 1

Decide whether enough information is given to prove that the triangles are congruent using the SAS Congruence Postulate.

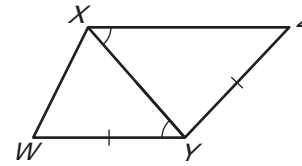
1. $\triangle PQT, \triangle RQS$

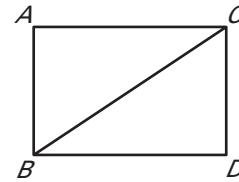


2. $\triangle NKJ, \triangle LKM$

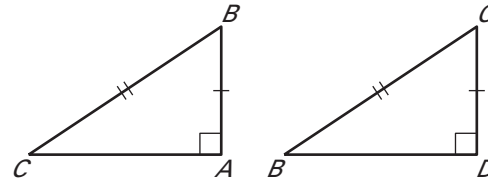


3. $\triangle WXY, \triangle ZXY$



LESSON
4.4**Study Guide** *continued*
For use with pages 240–247**EXAMPLE 2** Use the Hypotenuse-Leg Theorem**Write a proof.****GIVEN:** $\overline{AB} \cong \overline{DC}$, $\overline{BA} \Psi \overline{AC}$, $\overline{CD} \Psi \overline{DB}$ **PROVE:** $\triangle ABC \cong \triangle DCB$ **Solution**

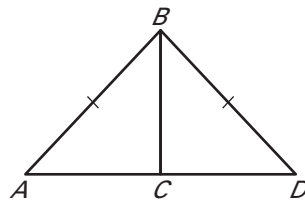
Redraw the triangles so they are side by side with the corresponding parts in the same position. Mark the given information in the diagram.

**Statements**

1. $\overline{BA} \Psi \overline{AC}$, $\overline{CD} \Psi \overline{DB}$
2. $\angle A$ and $\angle D$ are right angles.
3. $\triangle ABC$ and $\triangle DCB$ are right triangles.
- H 4. $\overline{CB} \cong \overline{BC}$
- L 5. $\overline{AB} \cong \overline{DC}$
6. $\triangle ABC \cong \triangle DCB$

Reasons

1. Given
2. Definition of Ψ lines
3. Definition of a right triangle
4. Reflexive Property of Congruence
5. Given
6. HL Congruence Theorem

Exercises for Example 2**Write a proof.**4. **GIVEN:** $\overline{AB} \cong \overline{DB}$, $\overline{BC} \Psi \overline{AD}$ **PROVE:** $\triangle ABC \cong \triangle DBC$ 5. **GIVEN:** $m\angle JKL = m\angle MLK = 90^\circ$ $\overline{JL} \cong \overline{MK}$ **PROVE:** $\overline{JK} \cong \overline{ML}$ 