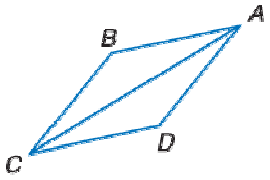
Lesson 4-2

Example 1

ANIMATION The figure shown is part of a perspective drawing for a background scene of a city. How can the artist be sure that the two triangles are congruent?

Given $\overline{AB} \cong \overline{AD}$; $\overline{BC} \cong \overline{DC}$

Prove $\triangle ABC \cong \triangle ADC$



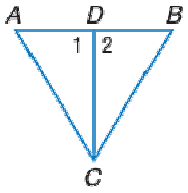
Solution

Statements	Reasons
1. $\overline{AB} \cong \overline{AD}$; $\overline{BC} \cong \overline{DC}$	1. Given
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive Property
3. $\triangle ABC \cong \triangle ADC$	3. SSS Postulate

Example 2

Given $\overline{AD} \cong \overline{BD}$; $\overline{AB} \perp \overline{CD}$

Prove $\triangle ADC \cong \triangle BDC$



Solution

Statements	Reasons
1. $\overline{AD} \cong \overline{BD}$; $\overline{AB} \perp \overline{CD}$	1. Given
2. $\angle 1$ and $\angle 2$ are right angles	2. definition of perpendicular lines
3. $m\angle 1 = 90°$; $m\angle 2 = 90°$	3. definition of right angles
4. $m\angle 1 = m\angle 2$	4. Transitive Property of Equality
5. $\angle 1 \cong \angle 2$	5. definition of congruent angles
6. $\overline{DC} \cong \overline{DC}$	6. Reflexive Property
7. $\triangle ADC \cong \triangle BDC$	7. SAS Postulate