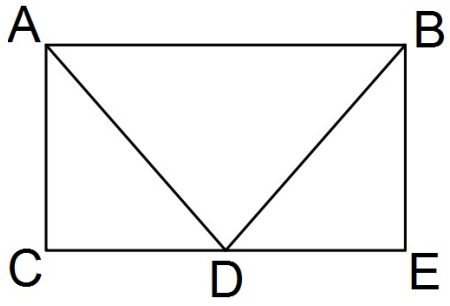
Bellwork

1. **Given:** $\overline{AD} \cong \overline{DB}$
   D is the midpt of $\overline{CE}$
   ACEB is a rectangle

   Prove: $\Delta ACD \cong \Delta BED$



Proving Triangle Congruence

Throughout this unit we will be focusing on several methods of proving two triangles are congruent including:

1. Side-Side-Side (SSS)
2. Side-Angle Side (SAS)
   [This is a main focus of this lesson]
3. Hypotenuse Leg (HL)
   [This is a main focus of this lesson]
4. Angle-Side-Angle (ASA)
5. Angle-Angle-Side (AAS)

Side-Angle-Side

Side-Angle-Side (SAS) Congruence Postulate:

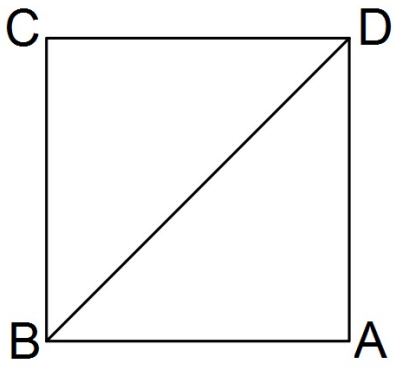
IF two sides and the included angle of one triangle are congruent to two sides and the included angle of a second triangle,

THEN the two triangles are congruent.

Side-Angle-Side Example

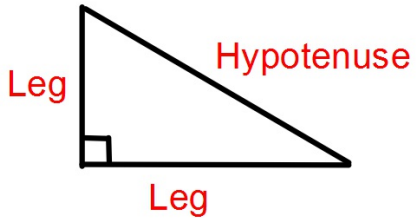
Given: ABCD is a rectangle

Prove: $\Delta ABD \cong \Delta CDB$



Important Vocabulary

Right Triangles: 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.



Perpendicular: Two lines that intersect to form a right angle.
(Denoted as ⊥)

Hypotenuse-Leg

Hypotenuse-Leg (HL) 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.

Important Note: You must show that a triangle is a right triangle in order to use HL.

Example

Given: $CE \perp AD$

B is the midpoint of AD

$\overline{AC} \cong \overline{DE}$

Prove: $\triangle ABC \cong \triangle ADC$