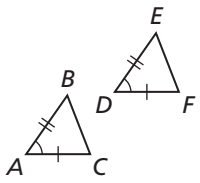
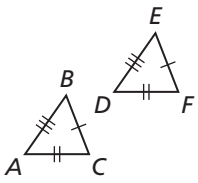
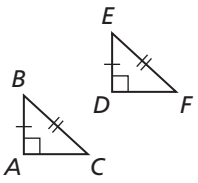
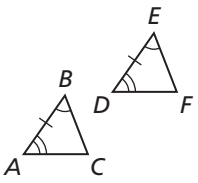
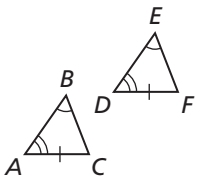
Name _____ Date _____

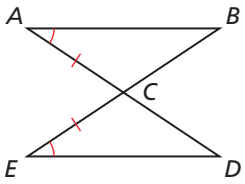
Congruent Triangles

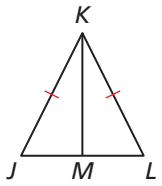
Triangle Congruence Theorems

Five valid methods for proving that triangles are congruent are given below.

SAS	SSS	HL (right triangles only)	ASA	AAS
 Two sides and the included angle are congruent.	 All three sides are congruent.	 The hypotenuse and one of the legs are congruent.	 Two angles and the included side are congruent.	 Two angles and a non-included side are congruent.

Example 1 **Determine whether there is enough information to prove that the triangles are congruent. Explain your reasoning.**

a. 

b. 

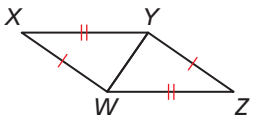
a. You are given that $\angle A \cong \angle E$ and $\overline{AC} \cong \overline{EC}$. By the Vertical Angles Congruence Theorem, $\angle ACB \cong \angle ECD$. So, two pairs of angles and their included sides are congruent. By the ASA Congruence Theorem, $\triangle ABC \cong \triangle EDC$.

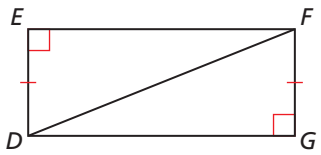
b. You are given that $\overline{JK} \cong \overline{LK}$. You know that $\angle J \cong \angle L$ by the Base Angles Theorem. You also know that $\overline{KM} \cong \overline{KM}$ by the Reflexive Property of Segment Congruence. Because two pairs of sides and their non-included angles are congruent, you cannot conclude that $\triangle JKM \cong \triangle LKM$.

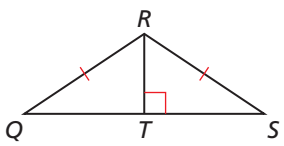
Practice

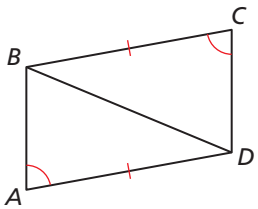
Check your answers at BigIdeasMath.com.

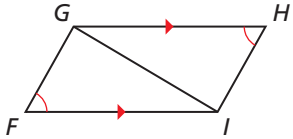
Determine whether there is enough information to prove that the triangles are congruent. If so, state the theorem you would use.

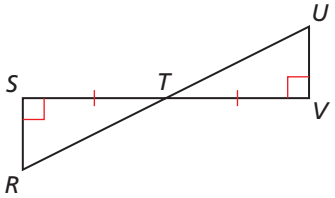
1. 

2. 

3. 

4. 

5. 

6. 

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