Name: _____

Date: _____

Period: _____

Geometry Lesson 30

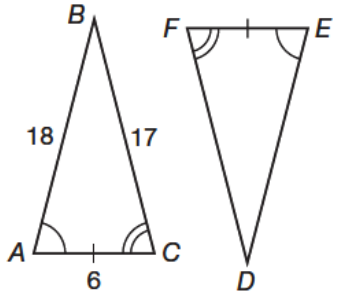
Objective: TSW show triangles are congruent using ASA and AAS.

Postulate 16: Angle-Side-Angle (ASA) Congruence Postulate - If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the triangles are congruent.

Example 1 Using the ASA Postulate

Use ASA congruence to determine the measure of the sides of ΔDEF.

SOLUTION

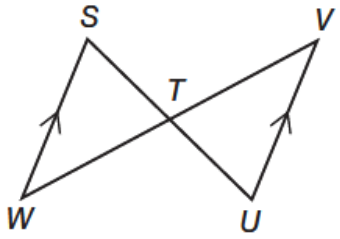


Example 2 Using the ASA Postulate in a Proof

Prove that $\Delta SWT \cong \Delta UVT$, given that *T* is the midpoint of $\overline{WV}$ and $\overline{VU} \parallel \overline{WS}$.

SOLUTION

1.
2.
3.
4.
5.

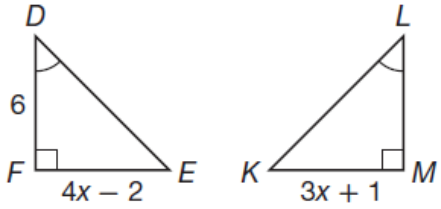


Theorem 30-1: Angle-Angle-Side (AAS) Triangle Congruence Theorem - If two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of another triangle, then the triangles are congruent.

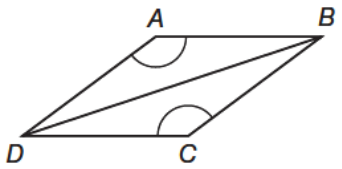
Example 3 Using the AAS Congruence Theorem

Given that $\overline{DE} \cong \overline{LK}$, find the area of each triangle shown below.

SOLUTION



Example 4 Using the AAS Theorem in a Proof



Given: $\overline{BD}$ bisects $\angle ADC$ and $\angle A \cong \angle C$.

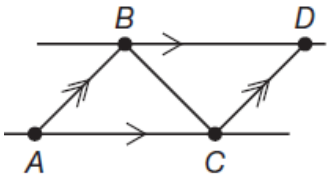
Prove: $\Delta ABD \cong \Delta CBD$

SOLUTION

	Statements	Reasons
1.		
2.		
3.		
4.		

Example 5 Application: Bridges

A diagram of a portion of the truss system of a new bridge is shown below. Prove $\Delta ABC \cong \Delta DCB$.

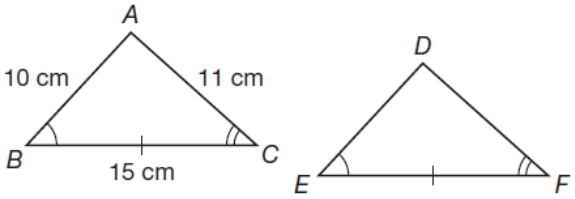


SOLUTION

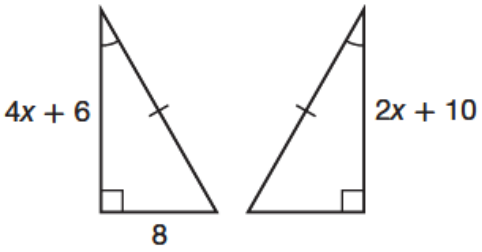
	Statements	Reasons
1.		
2.		
3.		
4.		
5.		

You Try!!!

a. State the postulate that can be used to prove the triangles congruent, and state the measure of the sides of ΔDEF.



c. If the two triangles are congruent by the AAS Theorem, what is the area of each triangle?



d. Prove that $\Delta ADC \cong BDC$.