

4.10 Prove Triangles Congruent by ASA and AAS

p. 264 – 266



VOCABULARY

Flow proof

A proof that uses arrows to show the flow of a logical Argument.

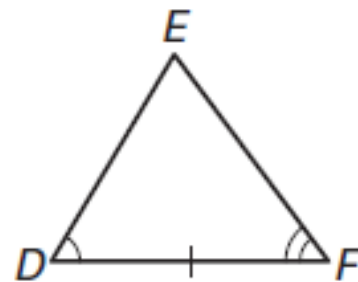
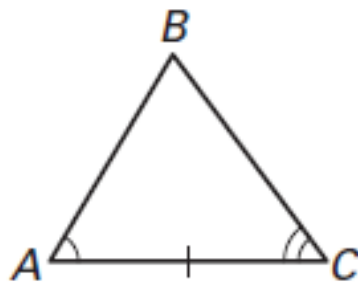


ANGLE-SIDE-ANGLE (ASA) CONGRUENCE POSTULATE

If two angles and the included side of one triangle are congruent to two angles and the included side of a second triangle, then the two triangles are congruent.

If **Angle** $\angle A \cong$ _____,
Side $\overline{AC} \cong$ _____, and
Angle $\angle C \cong$ _____,

then $\triangle ABC \cong$ _____.



THEOREM 4.13: ANGLE-ANGLE-SIDE (AAS) CONGRUENCE THEOREM

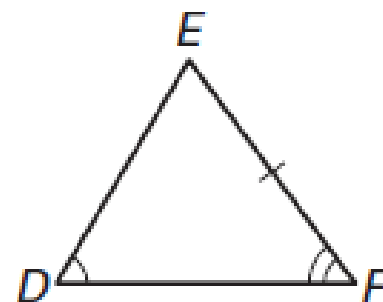
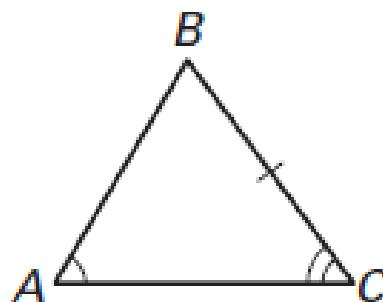
If two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of a second triangle, then the two triangles are congruent.

If Angle $\angle A \cong$ _____,

Angle $\angle C \cong$ _____, and

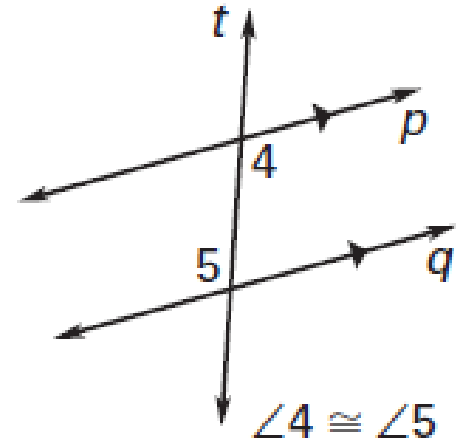
Side $\overline{BC} \cong$ _____,

then $\triangle ABC \cong$ _____.



THEOREM 4.14: ALTERNATE INTERIOR ANGLES THEOREM

If two parallel lines are cut by a transversal, then the pairs of alternate interior angles are _____.



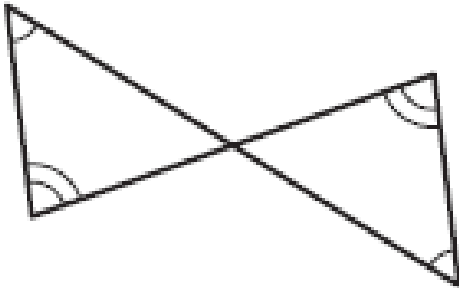
Interior—Inside of Parallel Lines

Alternate—Alternate Sides of the Transversal



Can the triangles be proven congruent with the information given in the diagram? If so, state the postulate or theorem you would use.

a.

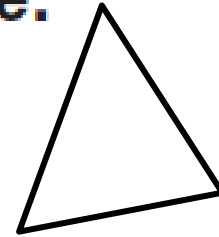
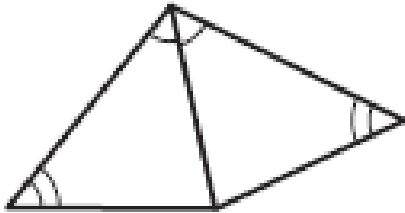


- a.** There is not enough information to prove the triangles are congruent, because no _____ are known to be congruent.



Can the triangles be proven congruent with the information given in the diagram? If so, state the postulate or theorem you would use.

b.

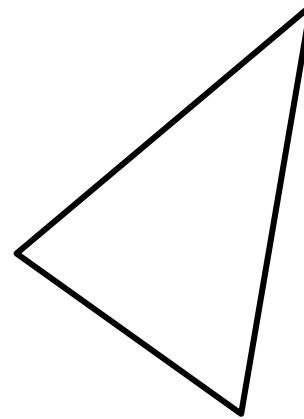
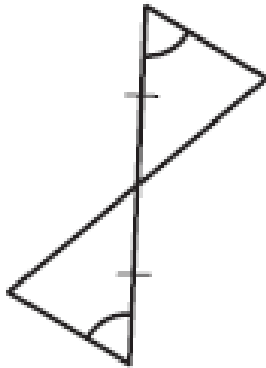


b. Two pairs of angles and a _____ pair of sides are congruent. The triangles are congruent by the _____.



Can the triangles be proven congruent with the information given in the diagram? If so, state the postulate or theorem you would use.

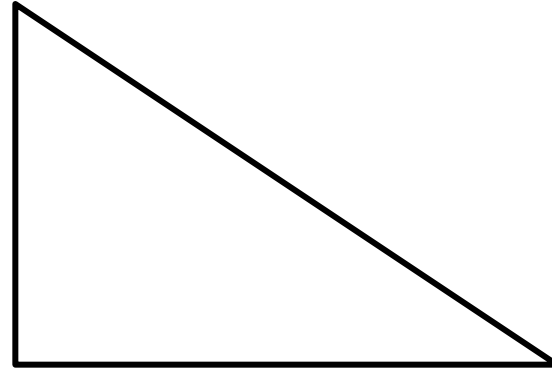
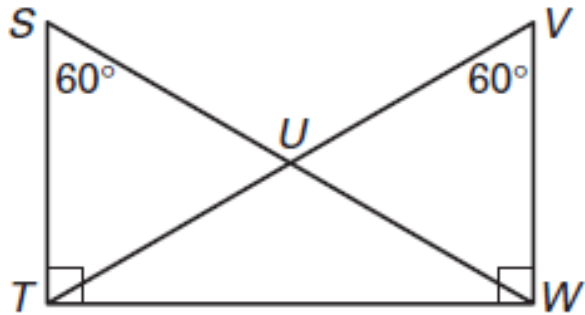
c.



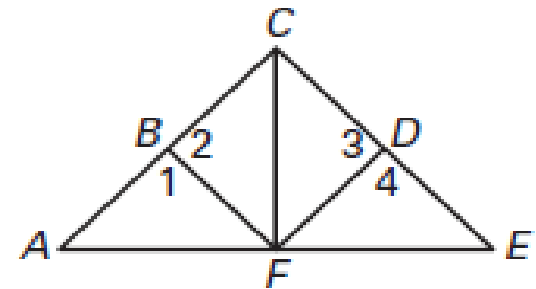
c. The vertical angles are congruent, so two pairs of angles and their _____ are congruent. The triangles are congruent by the _____.



1. Can $\triangle STW$ and $\triangle VWT$ be proven congruent with the information given in the diagram? If so, state the postulate or theorem you would use.



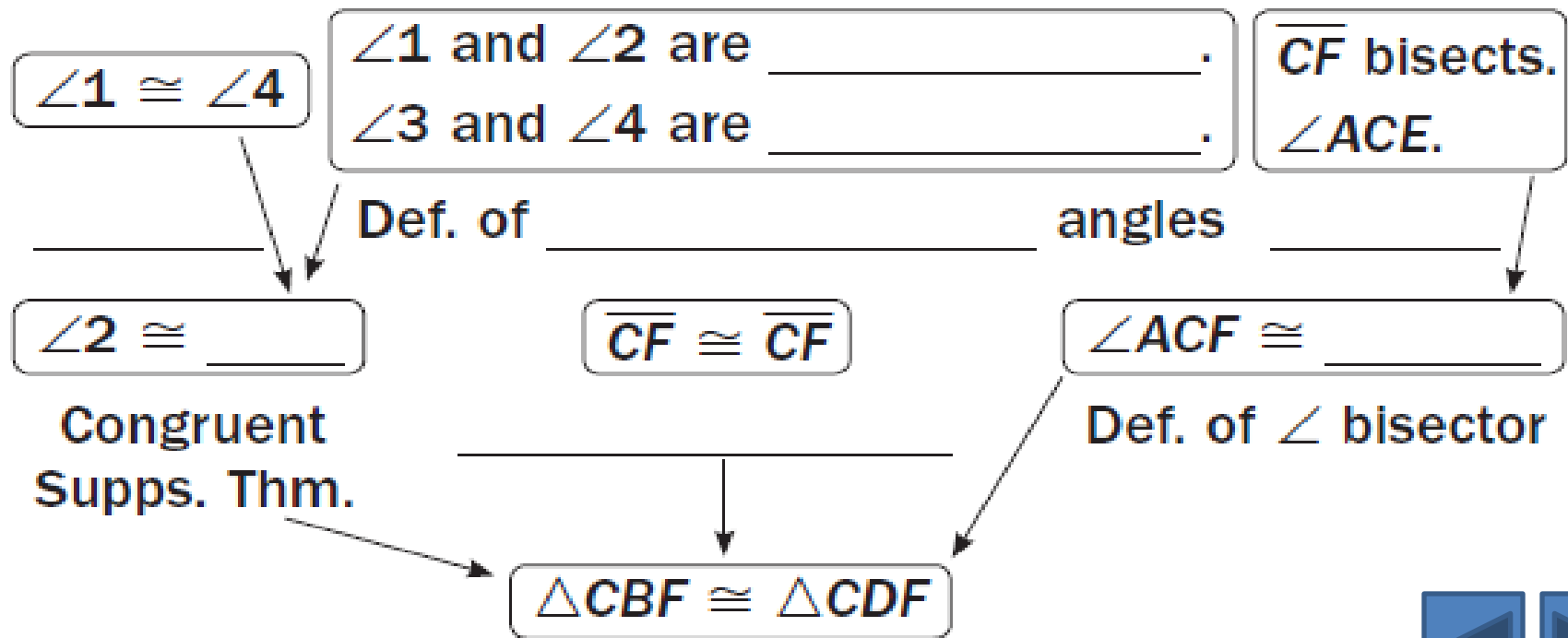
In the diagram, $\angle 1 \cong \angle 4$ and \overline{CF} bisects $\angle ACE$. Write a flow proof to show $\triangle CBF \cong \triangle CDF$.



Solution

Given $\angle 1 \cong \angle 4$, \overline{CF} bisects $\angle ACE$.

Prove $\triangle CBF \cong \triangle CDF$



2. In Example 2, suppose it is given that \overline{CF} bisects $\angle ACE$ and $\angle BFD$. Write a flow proof to show $\triangle CBF \cong \triangle CDF$.



Textbook

- Assignment
- pp. 251-252 1-9 all, 12, 14, 18
- pp. 253-254 2-10 even, 16