

Honors Geometry

Notes Section 4.2

Apply Congruence and Triangles

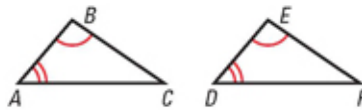
VOCABULARY

Congruent Figures: _____

Corresponding Parts: _____

THEOREM 4.3 Third Angles Theorem

If two angles of one triangle are congruent to two angles of another triangle, then the third angles are also congruent.

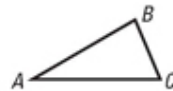


If $\angle A \cong \angle D$, and $\angle B \cong \angle E$, then $\angle C \cong \angle F$.

THEOREM 4.4 Properties of Congruent Triangles

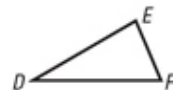
Reflexive Property of Congruent Triangles

For any triangle ABC , $\triangle ABC \cong \triangle ABC$.



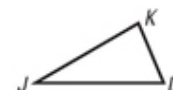
Symmetric Property of Congruent Triangles

If $\triangle ABC \cong \triangle DEF$, then $\triangle DEF \cong \triangle ABC$.



Transitive Property of Congruent Triangles

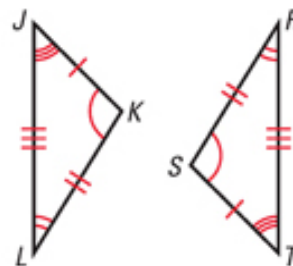
If $\triangle ABC \cong \triangle DEF$ and $\triangle DEF \cong \triangle JKL$, then $\triangle ABC \cong \triangle JKL$.



EXAMPLE 1 Write a congruence statement and identify all congruent corresponding parts.

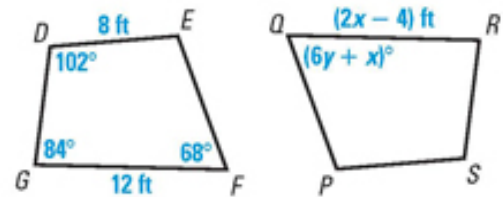
Angles

Sides

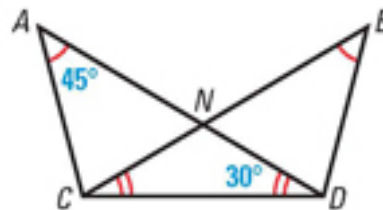


Congruence Statement: _____

EXAMPLE 2 $DEFG \cong SPQR$. Find x and y .



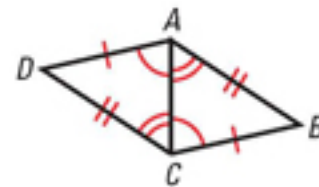
EXAMPLE 3 Find $m\angle BDC$.



EXAMPLE 4 Complete the following proofs.

a) Given: $AD \cong CB$, $DC \cong BA$

$\angle ACD \cong \angle CAB$, $\angle CAD \cong \angle ACB$



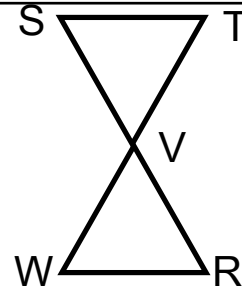
Prove: $\triangle ACD \cong \triangle CAB$

- | | |
|--|----------|
| 1. $AD \cong CB$, $DC \cong BA$ | 1. _____ |
| 2. $AC \cong AC$ | 2. _____ |
| 3. $\angle ACD \cong \angle CAB$, $\angle CAD \cong \angle ACB$ | 3. _____ |
| 4. $\angle B \cong \angle D$ | 4. _____ |
| 5. $\triangle ACD \cong \triangle CAB$ | 5. _____ |

b) Given: $SV \cong RV, TV \cong WV, ST \cong RW$

$\angle T \cong \angle W$

Prove: $\triangle STV \cong \triangle RWV$



1. $SV \cong RV, TV \cong WV, ST \cong RW$

1. _____

2. $\angle T \cong \angle W$

2. _____

3. $\angle SVT \cong \angle RVW$

3. _____

4. $\angle S \cong \angle R$

4. _____

5. $\triangle STV \cong \triangle RWV$

5. _____