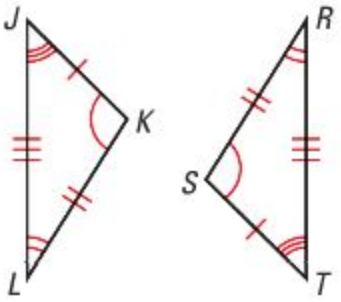
Apply Congruence and Triangles Pg 225

Define congruent figures:

Define corresponding parts:



Write a congruence statement for the triangles.

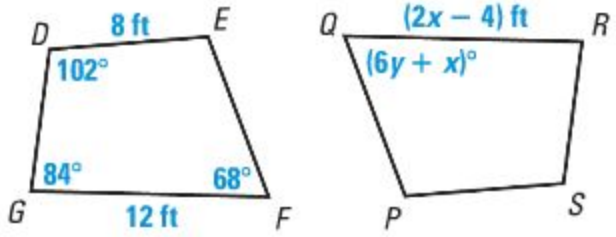
Name the corresponding angles.

Name the corresponding sides.

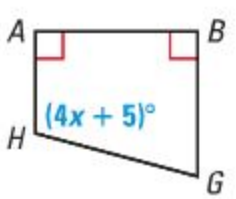
In the diagram, $DEFG \cong SPQR$.

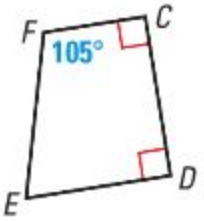
a. Find the value of x.

b. Find the value of y.

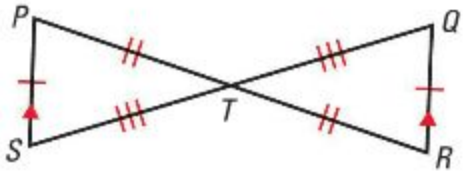


In the diagram at the right, $ABGH \cong CDEF$.





1. Identify all pairs of congruent corresponding parts.
2. Find the value of x and find $m\angle H$.
3. Show that $\triangle PTS \cong \triangle RTQ$.

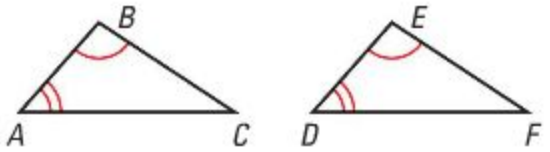


THEOREM *For Your Notebook*

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.

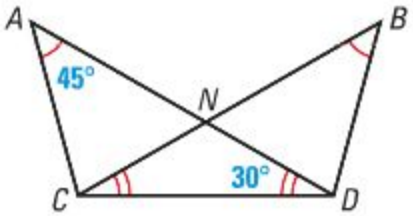
Proof: Ex. 28, p. 230



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

EXAMPLE 4 Use the Third Angles Theorem

Find $m\angle BDC$.



Solution

$\angle A \cong \angle B$ and $\angle ADC \cong \angle BCD$, so by the Third Angles Theorem, $\angle ACD \cong \angle BDC$. By the Triangle Sum Theorem, $m\angle ACD = 180° - 45° - 30° = 105°$.

▶ So, $m\angle ACD = m\angle BDC = 105°$ by the definition of congruent angles.