LESSON 4.2

NAME _____ DATE _____

Reteaching with Practice

For use with pages 202–210

GOAL **Identify congruent figures and corresponding parts**

VOCABULARY

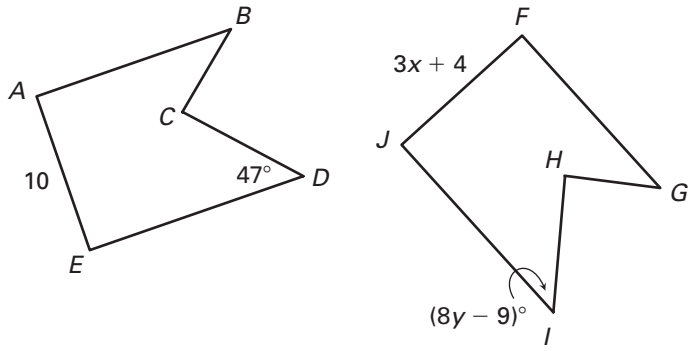
When two geometric figures are **congruent,** there is a correspondence between their angles and sides such that **corresponding angles** are congruent and **corresponding sides** are congruent.

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.

EXAMPLE 1 Using Properties of Congruent Figures

In the diagram, $ABCDE \cong FGHIJ$.

a. Find the value of x.
b. Find the value of y.



SOLUTION

a. You know that $\overline{AE} \cong \overline{FJ}$.

So, $AE = FJ$.

$10 = 3x + 4$

$x = 2$

b. You know that $\angle D \cong \angle I$.

So, $m\angle D = m\angle I$.

$47° = (8y - 9)°$

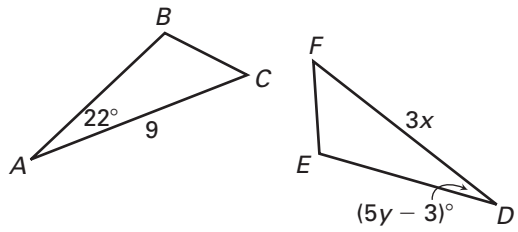
$56 = 8y$

$y = 7$

Exercises for Example 1

In Exercises 1 and 2, for each pair of figures find (a) the value of *x* and (b) the value of *y*.

1. $\triangle ABC \cong \triangle DEF$



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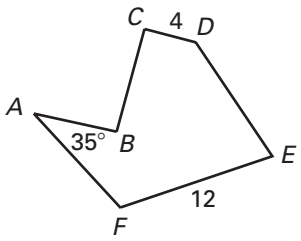
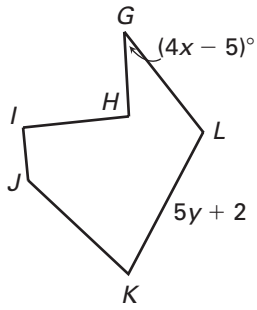
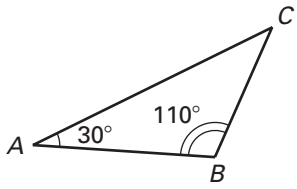
2. $ABCDEF \cong GHIJKL$

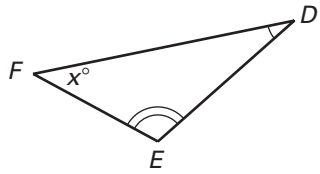




EXAMPLE 2 Using the Third Angles Theorem

Find the value of x.





SOLUTION

In the diagram, $\angle A \cong \angle D$ and $\angle B \cong \angle E$. From the Third Angles Theorem, you know that $\angle C \cong \angle F$. So, $m\angle C = m\angle F$.

From the Triangle Sum Theorem, $m\angle C = 180° - 30° - 110° = 40°$.

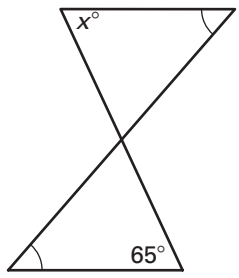
$m\angle C = m\angle F$ Third Angles Theorem

$40 = x$ Substitute.

Exercises for Example 2

Find the value of *x*.

3.



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