NAME _____ DATE _____ PERIOD _____

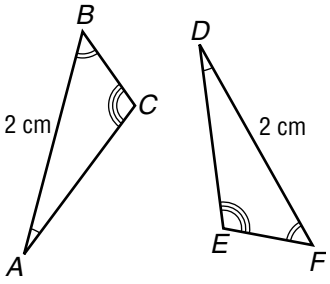
Study Guide and Intervention

7MG3.4

Congruent Polygons

Two polygons are **congruent** if all pairs of corresponding angles are congruent and all pairs of corresponding sides are congruent. The letters identifying each polygon are written so that corresponding vertices appear in the same order.

Example 1 **Determine whether the triangles shown are congruent. If so, name the corresponding parts and write a congruence statement.**

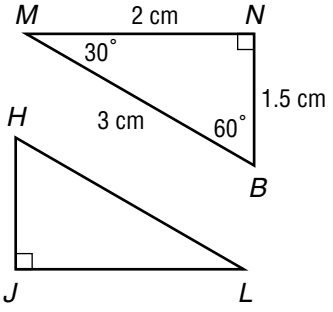


Angles The arcs indicate that $\angle A \cong \angle D$, $\angle B \cong \angle F$, and $\angle C \cong \angle E$.

Sides The side measures indicate that $\overline{AB} \cong \overline{DF}$, $\overline{BC} \cong \overline{FE}$, and $\overline{CA} \cong \overline{ED}$.

Since all pairs of corresponding sides and angles are congruent, the two triangles are congruent. One congruence statement is $\triangle ABC \cong \triangle DFE$.

Examples **In the figure, $\triangle MNB \cong \triangle LJH$.**



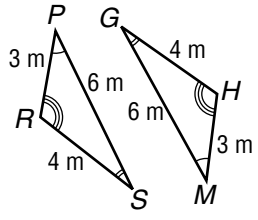
2 **Find *LJ*.**
$\overline{MN}$ corresponds to $\overline{LJ}$ So, $\overline{MN} \cong \overline{LJ}$.
Since $MN = 2$ centimeters, $LJ = 2$ centimeters.

3 **Find $m\angle H$.**
According to the congruence statement, $\angle B$ and $\angle H$ are corresponding angles. So, $\angle B \cong \angle H$. Since $m\angle B = 60°$, $m\angle H = 60°$.

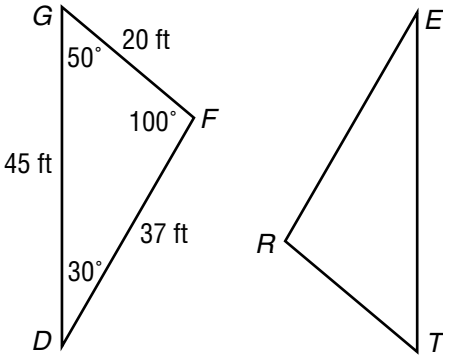
Exercises

Determine whether the polygons shown are congruent. If so, name the corresponding parts and write a congruence statement.

1.



In the figure, $\triangle GFD \cong \triangle TRE$. Find each measure.



2. $m\angle R$

3. RT

4. $m\angle E$