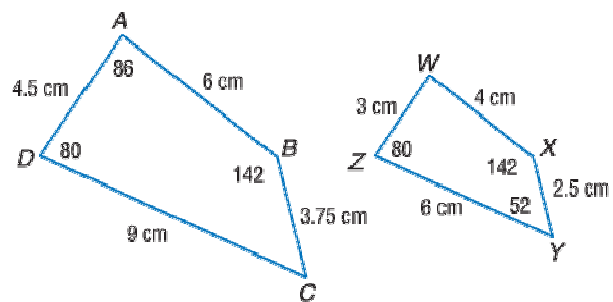


Lesson 7-2

Example 1

Is $ABCD \sim WXYZ$?



Solution

Find the missing angle measures.

$$m\angle W = 360^\circ - (142^\circ + 52^\circ + 80^\circ) = 86^\circ \quad \text{So, } \angle W \cong \angle A.$$

$$m\angle C = 360^\circ - (86^\circ + 142^\circ + 80^\circ) = 52^\circ \quad \text{So, } \angle C \cong \angle Y.$$

All four pairs of corresponding angles are congruent.

Find the ratios of all pairs of corresponding sides.

$$\frac{AB}{WX} = \frac{6}{4} = \frac{3}{2}$$

$$\frac{BC}{XY} = \frac{3.75}{2.5} = \frac{3}{2}$$

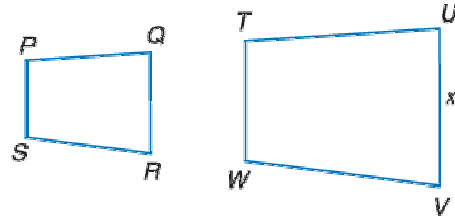
$$\frac{CD}{YZ} = \frac{9}{6} = \frac{3}{2}$$

$$\frac{AD}{WZ} = \frac{4.5}{3} = \frac{3}{2}$$

Each pair of corresponding sides has the same ratio. So, corresponding sides are in proportion. The two polygons are similar.

Example 2

PHOTOGRAPHY Two mats, shown at the right, are cut to display an array of photographs. $PS = 30$ cm, $TW = 40$ cm and $QR = 60$ cm. If the mats are similar figures, what is the measure of UV ?

**Solution**

Because the figures are similar, their corresponding sides are in proportion. Write and solve a proportion to find x .

$$\frac{PS}{TW} = \frac{QR}{UV} \quad \text{Ratios of corresponding sides are equivalent.}$$

$$\frac{30}{40} = \frac{60}{x}$$

$$30x = 2400$$

$$x = 80$$

So, $UV = 80$ cm.

Example 3

Name a pair of similar triangles.

Solution

$$\angle A \cong \angle C, \angle E \cong \angle D, \angle ABE \cong \angle CBD$$

There are 3 pairs of congruent angles.

$$\frac{AB}{CB} = \frac{3}{9} = \frac{1}{3} \quad \frac{BE}{BD} = \frac{3.6}{10.8} = \frac{1}{3} \quad \frac{EA}{DC} = \frac{2}{6} = \frac{1}{3}$$

Corresponding sides are proportional. To name the similar triangles, name the corresponding vertices in the same order.

$$\triangle ABE \sim \triangle CBD$$

