

Lesson 7-4

Example 1

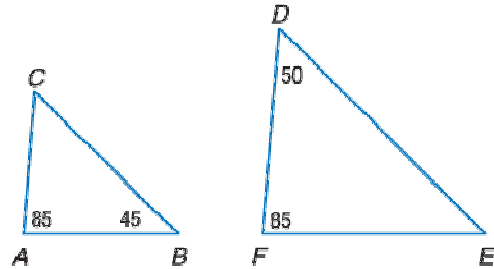
Is $\triangle ABC \sim \triangle FED$?

Solution

Find one of the missing angle measures in either triangle. To find $m\angle C$, subtract the sum of $m\angle A$ and $m\angle B$ from 180° .

$$180^\circ - (85^\circ + 45^\circ) = 50^\circ$$

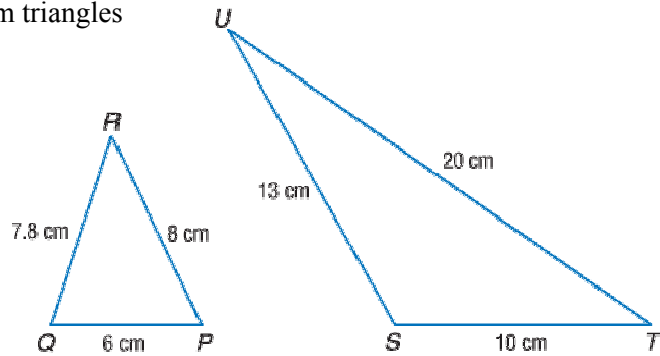
Because $\angle A \cong \angle F$ and $\angle C \cong \angle D$, the two triangles are similar by the AA Similarity Postulate. $\triangle ABC \sim \triangle FED$



Example 2

ART A wire sculpture is formed from triangles of the two sizes shown at the right.

Is $\triangle PQR \sim \triangle STU$?



Solution

Find the ratio of each pair of corresponding sides.

$$\frac{PQ}{ST} = \frac{6}{10} = \frac{3}{5}$$

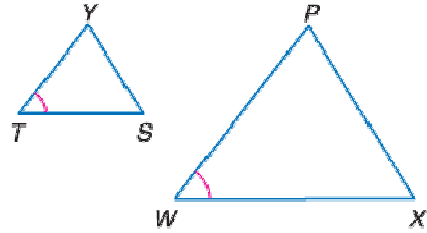
$$\frac{QR}{TU} = \frac{7.8}{20}$$

$$\frac{PR}{SU} = \frac{8}{13}$$

Because not all three pairs of corresponding sides are proportional, the triangles are not similar.

Example 3

If $PW = 2YT$ and $WX = 2TS$
is $\triangle PXW \sim \triangle YST$?

**Solution**

Use the given information to show that two pairs of corresponding sides are proportional.

$$\frac{PW}{YT} = \frac{2YT}{YT} = \frac{2}{1} \qquad \frac{WX}{TS} = \frac{2TS}{TS} = \frac{2}{1}$$

You are given $\angle PWX \cong \angle YTS$. Therefore, $\triangle PXW \sim \triangle YST$ by the SAS Similarity Postulate.