



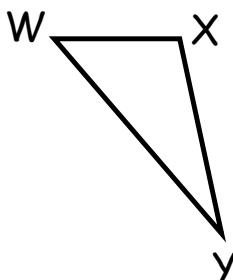
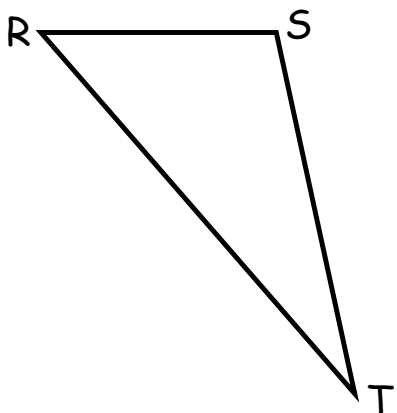
## 8-3 Triangle Similarity Theorems

Objective: I can determine whether triangles are similar by using triangle similarity theorems AA, SSS, or SAS.

In two similar figures all corresponding angles are congruent and corresponding sides are proportional.

Identify all of the corresponding congruent angles and all of the corresponding proportional sides using the similar triangles shown.

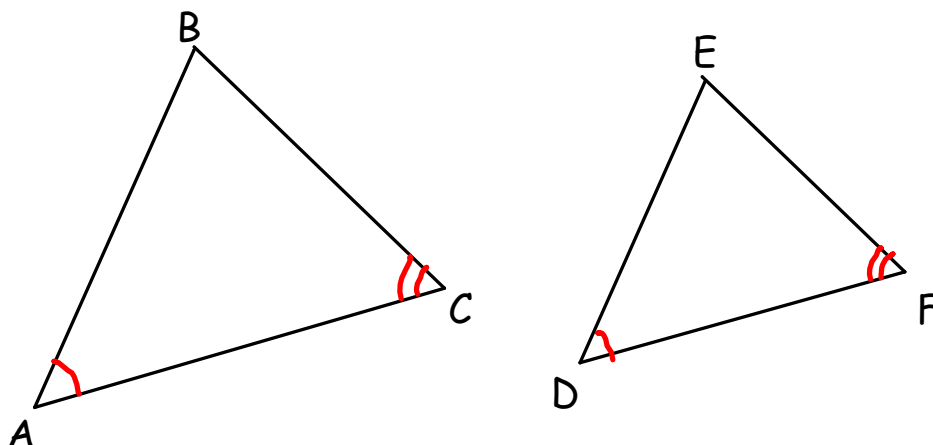
$$\triangle RST \sim \triangle WXY$$



$$\begin{aligned} \angle R &\cong \angle W \\ \angle S &\cong \angle X \\ \angle T &\cong \angle Y \\ \overline{RS} &\sim \overline{WX} \\ \overline{RT} &\sim \overline{WY} \\ \overline{ST} &\sim \overline{XY} \end{aligned}$$

**Angle-Angle Similarity Theorem:**

If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar .



If  $\angle A \cong \angle D$  and  $\angle C \cong \angle F$ , then  $\triangle ABC \sim \triangle DEF$

Explain why this similarity theorem is Angle-Angle instead of Angle-Angle-Angle .

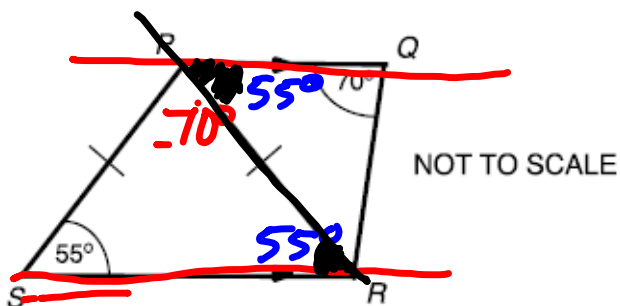
$$180 = A + B + C$$

27 + 90 + 63

$$180 = D + E + F$$

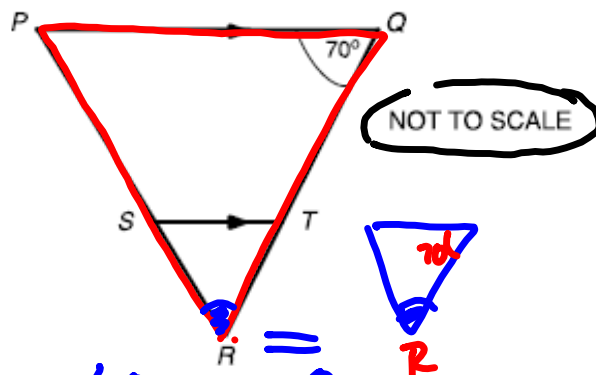
90 + 27 + 63

Are triangles  $PQR$  and  $SPR$  similar?



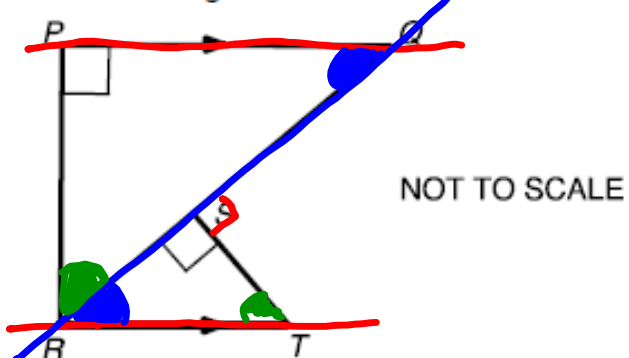
$\overline{PQ} \cong \overline{SR}$   
 $\angle S = 55^\circ$   
 $\angle Q = 70^\circ$   
 $180 - 55 - 70 = 55$   
 $\overline{SR} \parallel \overline{PQ} \rightarrow$

Are triangles  $PQR$  and  $STR$  similar?

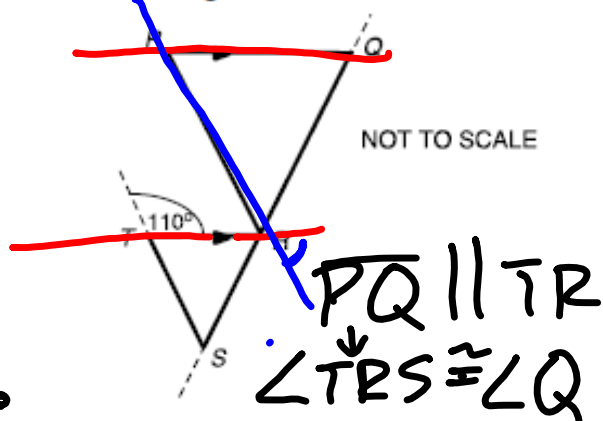


$\angle Q = 70^\circ$   
 $\overline{PQ} \parallel \overline{ST} \rightarrow \angle Q = \angle STR$   
 $\angle TSR = \angle P$

Are triangles  $PQR$  and  $STR$  similar?



Are triangles  $PQR$  and  $TRS$  similar?



$$\angle P = \angle RST = 90^\circ$$

$$\overline{PQ} \parallel \overline{RT} \rightarrow \angle Q \cong \angle SRT$$

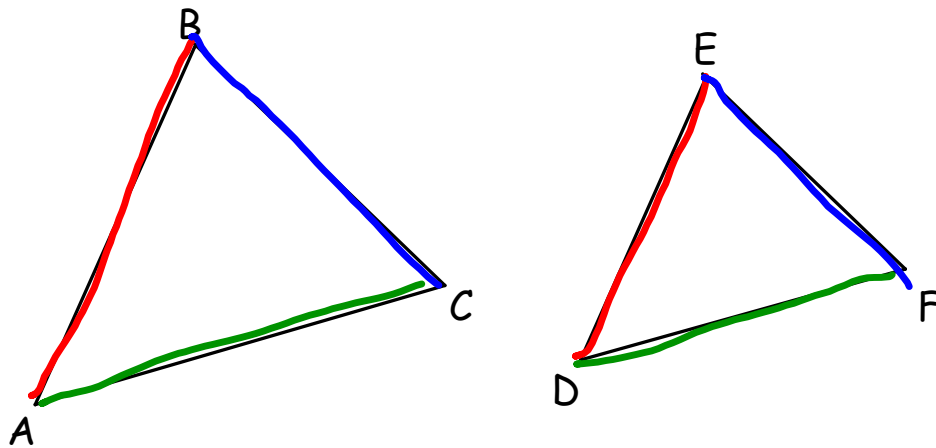
Not  
enough  
info

$$\overline{PQ} \parallel \overline{TR}$$

$$\angle TRS \cong \angle Q$$

**Side-Side-Side Similarity Theorem:**

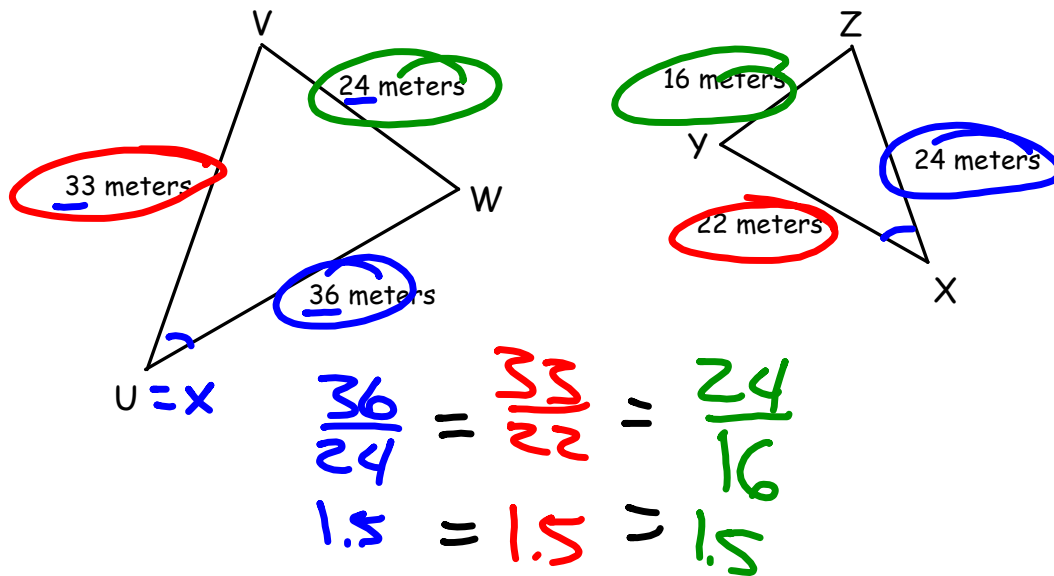
If all three corresponding sides of two triangles are proportional, then the triangles are similar .



$$\text{If } \frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}, \text{ then } \triangle ABC \sim \triangle DEF$$

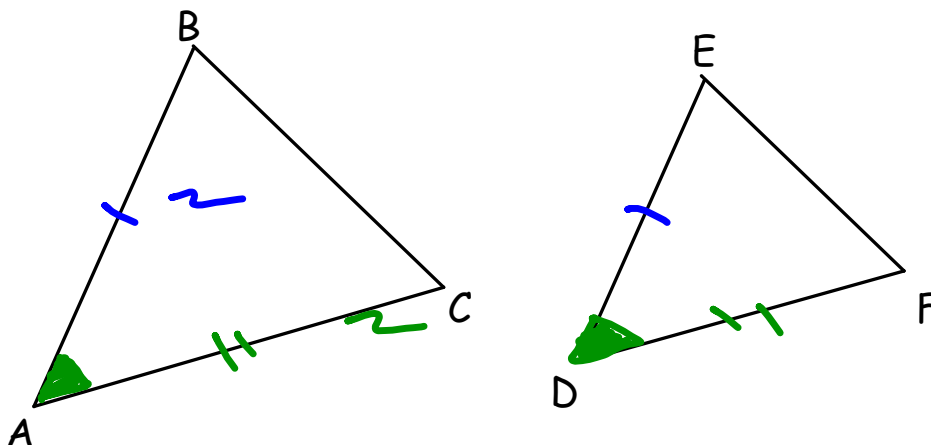


Determine whether  $\triangle UVW$  is similar to  $\triangle XYZ$ . If so, use symbols to write a similarity statement.



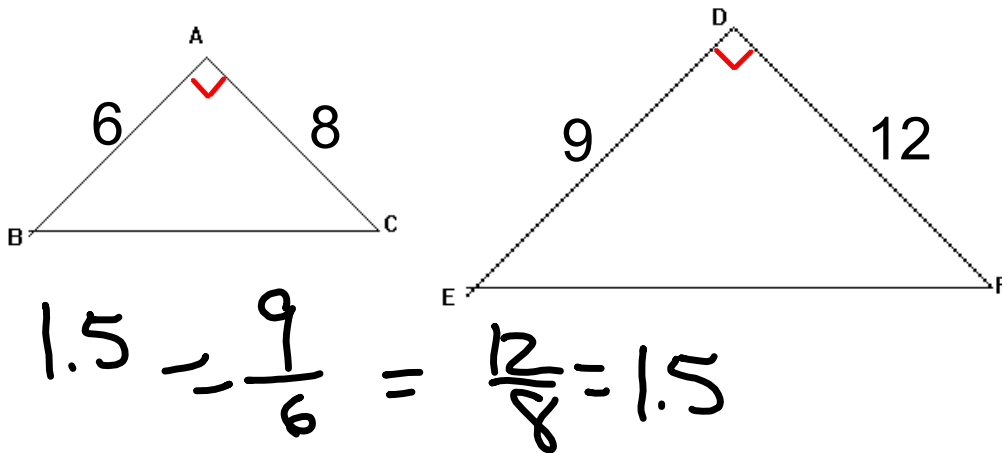
**Side-Angle-Side Similarity Theorem:**

If two of the corresponding sides of two triangles are proportional and the included angles are congruent, then the triangles are similar .



$$\text{If } \frac{AB}{DE} = \frac{AC}{DF} \text{ and } \angle A \cong \angle D, \text{ then } \triangle ABC \sim \triangle DEF$$

Determine whether  $\triangle ABC$  is similar to  $\triangle DEF$ . If so, what is the scale factor? Name the theorem that can be used to prove they are similar.

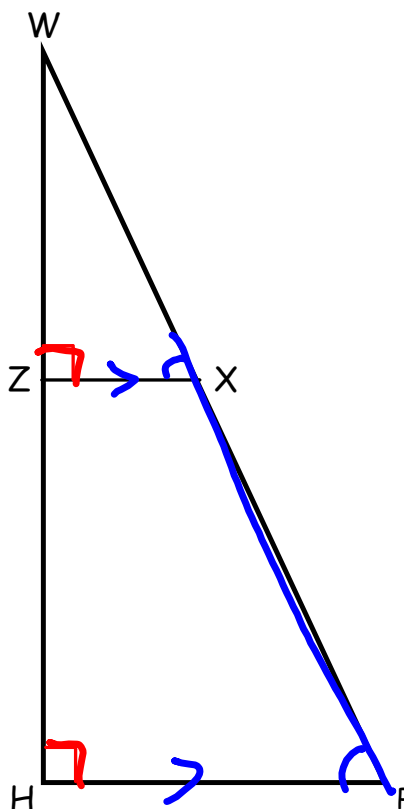


Are triangles WZX and WHP similar?

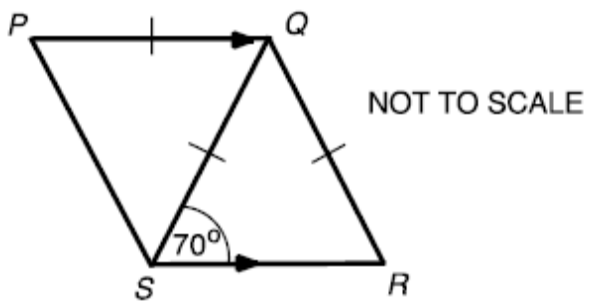
Explain.

If yes, write a similarity statement.

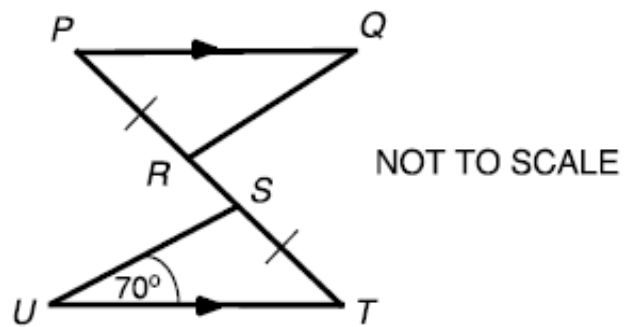
$$\angle WZX = \angle ZHP$$



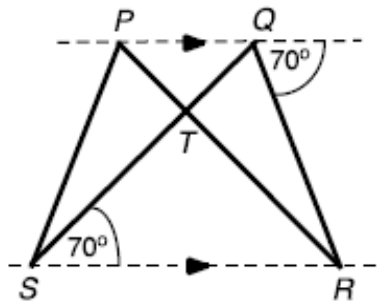
Are triangles  $PQS$  and  $QRS$  similar?



Are triangles  $PQR$  and  $STU$  similar?



Are triangles  $PRS$  and  $QRS$  similar?



NOT TO SCALE

