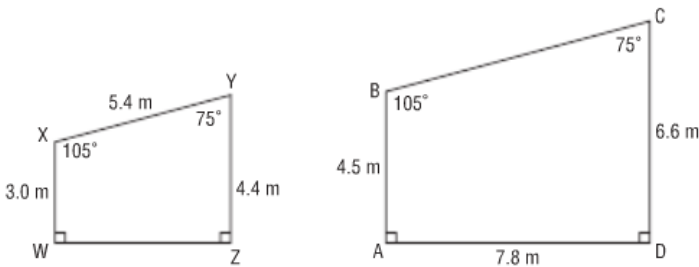


Warm-Up

April 22, 2016

. These two quadrilaterals are similar.



- a) Calculate the length of BC.
- b) Calculate the length of WZ.

$$\frac{XY}{BC} = \frac{YZ}{CD} = \frac{ZW}{DA} = \frac{WX}{AB}$$

$$\frac{5.4}{BC} = \frac{4.4}{6.6} = \frac{ZW}{7.8} = \frac{3}{4.5}$$

$$\frac{5.4}{BC} = \frac{4.4}{6.6}$$

$$\frac{5.4}{5.4} \cdot \frac{BC}{5.4} = \frac{6.6(5.4)}{4.4}$$

$$BC = \frac{35.64}{4.4} \quad BC = 8.1$$

$$\frac{ZW}{7.8} = \frac{4.4}{6.6} \quad (7.8)$$

$$ZW = \frac{34.32}{6.6}$$

$$ZW = 5.2$$

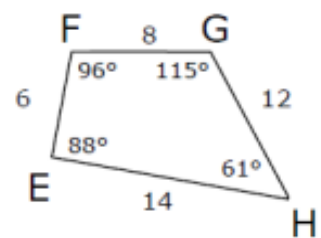
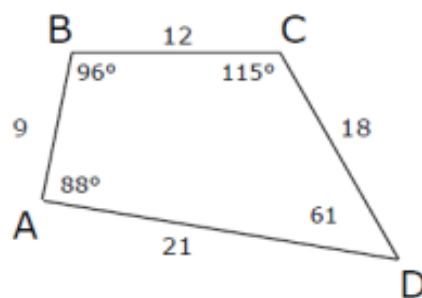
1. Using the following information answer the questions below:

Polygon

$RSUV \sim ATXG$

- A. Which angle corresponds to X? $\angle U$
- B. Which side corresponds to AG? RV
- C. Which side corresponds to UV? XG
- D. Which angle corresponds to U? $\angle u = \angle X$

2. Given the following polygons prove whether or not they are similar.



ANGLES

$\angle B = \angle F$

$\angle C = \angle G$

$\angle D = \angle H$

$\angle A = \angle E$

RATIO OF CORRESPONDING SIDES

$DABC \sim HEFG$

$\frac{BC}{FG} = \frac{CD}{GH} = \frac{DA}{HE} = \frac{AB}{EF}$

$\frac{12}{8} = \frac{18}{12} = \frac{21}{14} = \frac{9}{6}$

THEREFORE...

1.5

3. Given: Quadrilateral QUAD ~ quadrilateral FIVE

a) State the equal angles pairs.

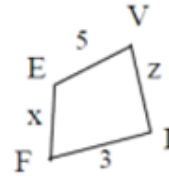
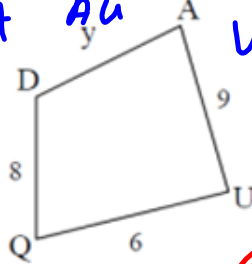
$$QUAD \sim FIVE$$

$$\angle Q = \angle F \quad \angle U = \angle I \quad \angle A = \angle V \quad \angle D = \angle E$$

b) Identify the ratio for corresponding sides.

$$\frac{FE}{QD} = \frac{EV}{DA} = \frac{VI}{AU} = \frac{IF}{UQ}$$

c) Find x, y, and z.



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

$$\frac{x}{8} = \frac{5}{y} = \frac{2}{9} = \frac{3}{6}$$

$$\frac{x}{8} = \frac{3}{6}$$

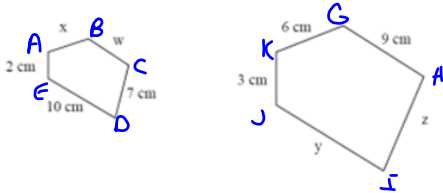
$$x = 4$$

$$y = 10$$

$$2 = 4.5$$

$$\frac{5}{y} = \frac{3}{6}$$

Find the length of each missing side in the two similar polygons below.



$$\frac{AB}{KG} = \frac{BC}{GA} = \frac{CD}{AI} = \frac{DE}{IJ} = \frac{EA}{JK}$$

$$\frac{x}{6} = \frac{w}{9} = \frac{7}{z} = \frac{10}{y} = \frac{2}{3}$$

$$\frac{x}{6} = \frac{2}{3}$$

$$x = \frac{12}{3}$$

$$x = 4$$

$$\begin{aligned} w &\rightarrow 6 \\ z &\rightarrow 4 \\ y &\rightarrow 15 \\ z &\rightarrow 10.5 \end{aligned}$$

$$\frac{w}{9} = \frac{2}{3}$$

$$w = \frac{18}{3}$$

$$w = 6$$

$$\frac{y}{10} = \frac{3}{2}$$

$$y = 15$$

Similar Polygons

1. The measures of corresponding angles must be equal

AND

2. The ratios of the lengths of corresponding sides must be equal.

Similar Triangles

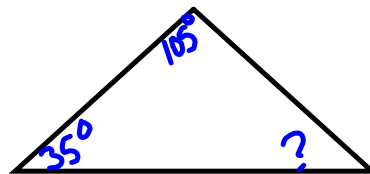
Triangles are a special polygon.

1. The measures of corresponding angles must be equal

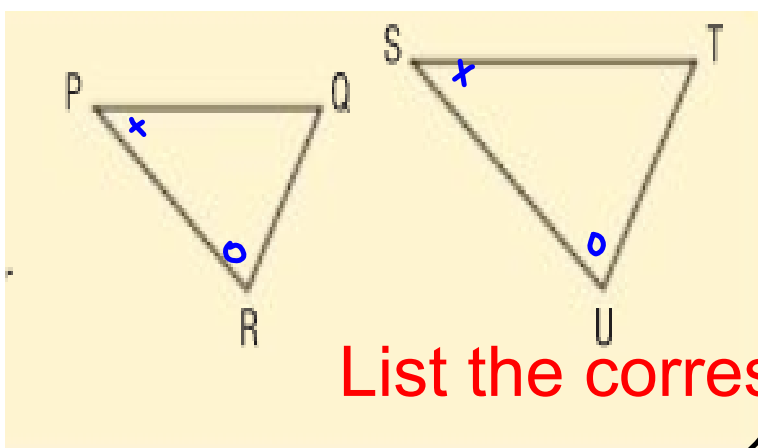
OR

2. The ratios of the lengths of corresponding sides must be equal

sum of the angles of a triangle is 180°



$$105^\circ + 35^\circ + \underline{40} = 180$$



List the corresponding angles:

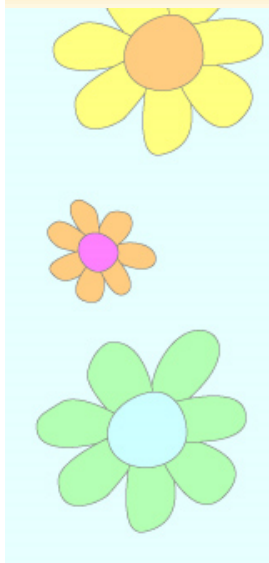
$$\angle P = \angle S$$

$$\angle R = \angle U$$

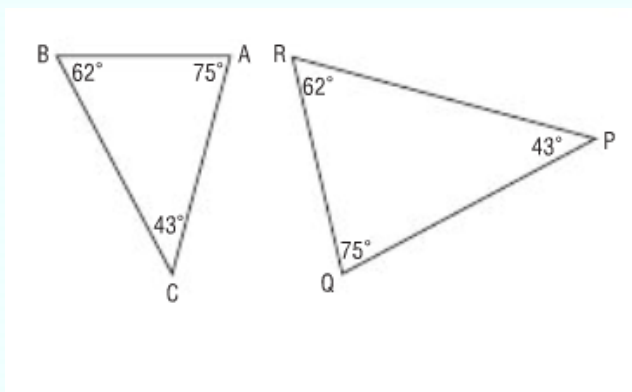
$$\angle Q = \angle T$$

Write a similarity statement:

$$\triangle PQR \sim \triangle SUT$$



Are these triangles similar? What evidence DO you have?



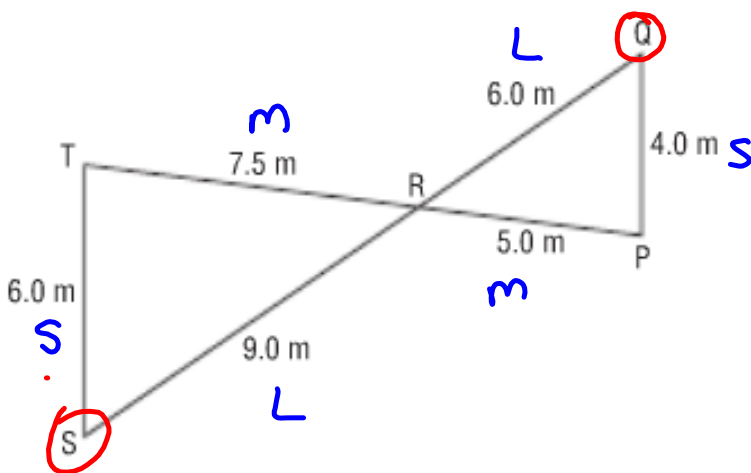
$$\begin{aligned} \angle B &= \angle R \\ \angle A &= \angle Q \\ \angle C &= \angle P \end{aligned}$$

If yes write a similarity statement.

$$\triangle BAC \sim \triangle RQP$$

Therefore the ratio of corresponding sides will be:

$$\frac{BA}{RQ} = \frac{AC}{QP} = \frac{CB}{PR}$$

Ratio of sides
short = medium = long

$$\frac{ST}{QP} = \frac{RT}{RP} = \frac{RS}{RQ}$$

$$\frac{6}{4} = \frac{7.5}{5} = \frac{9}{6}$$

1.5

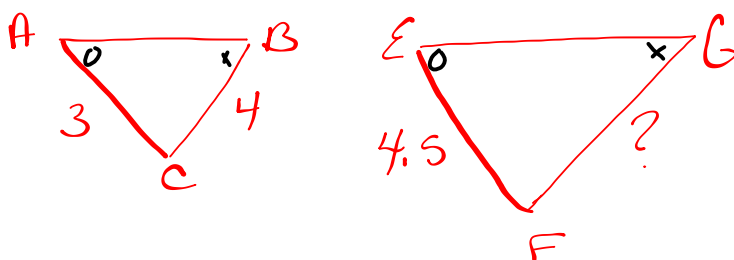
1. In triangle SRT list the sides shortest to longest

ST, RT, SR
TS, TR, RS

2. In triangle RQP list the sides shortest to longest

QP, PR, QR
PQ, RP, RQ

Find side GF in similar Triangles's.



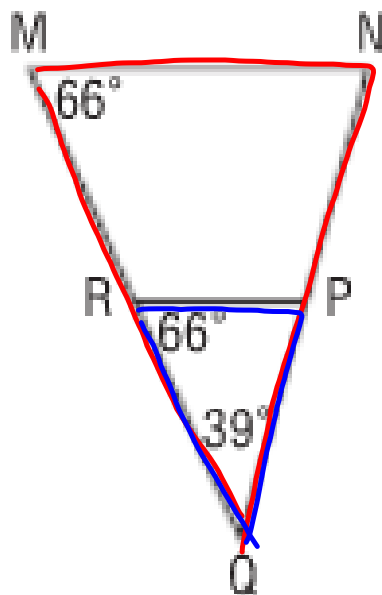
Ratio of corresponding sides:

$$\frac{EG}{AB} = \frac{GF}{BC} = \frac{FE}{CA}$$

$$\cancel{4} \frac{GF}{\cancel{4}} = \frac{4.5(4)}{3}$$

$$GF = \frac{18}{3}$$

$$GF = 6$$



Draw the two triangles separately!

Are these triangles similar?

Find the missing angle?

