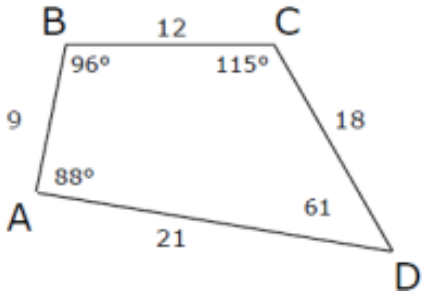
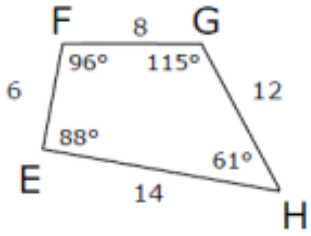
1. Using the following information answer the questions below:

   Polygon RSUV ATXG

   A. Which angle corresponds to X? ∠U
   B. Which side corresponds to AG? RV
   C. Which side corresponds to UV?
   D. Which angle corresponds to U?

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





ANGLES

<B = <F

<C = <G

<D = <H

<A = <E

RATIO OF CORRESPONDING SIDES

$\triangle ABC \sim \triangle EFG$

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

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

1.5

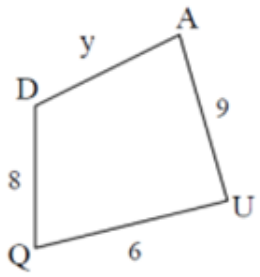
3. Given: Quadrilateral QUAD ~ quadrilateral FIVE

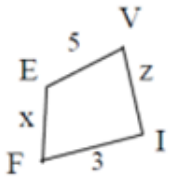
a) State the equal angles pairs.

Q F $\angle Q = \angle F$

b) Identify the ratio for corresponding sides.

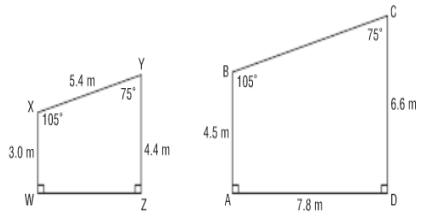
c) Find x, y, and z.





Warm-Up

. These two quadrilaterals are similar.



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

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

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

$BC = 8.1$

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

$\frac{5.4}{BC = 8.1} = \frac{4.4}{6.6} = \frac{ZW}{7.8} = \frac{3}{4.5}$ (5.2)

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

$ZW = 5.2$

Similar Polygons

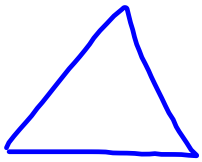
1. The measures of corresponding angles must be equal

AND

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

Similar Triangles

Triangles are a special polygon.

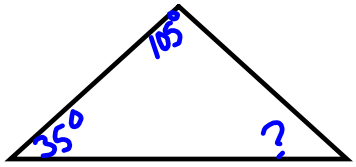


1. The measures of corresponding angles must be equal

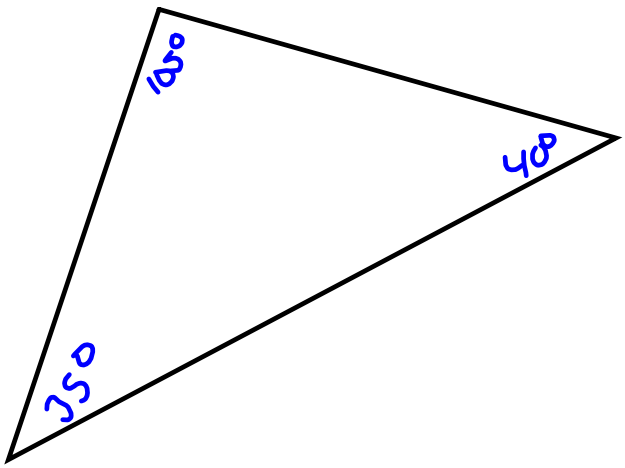
OR

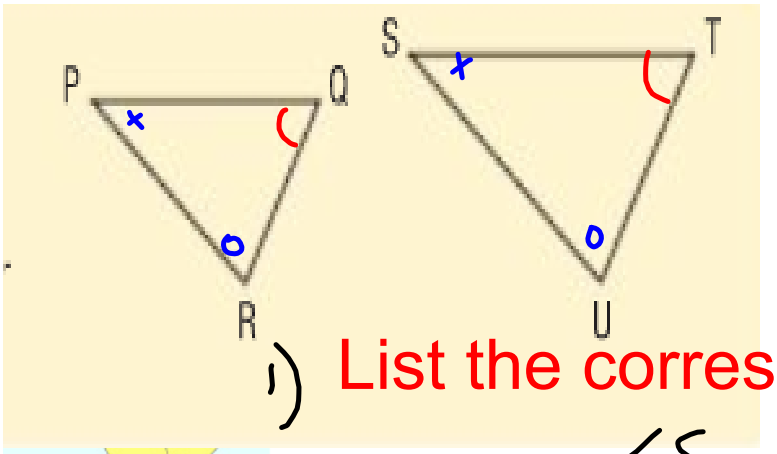
2. The ratios of the lengths of corresponding sides must be equal

sum of the angles of a triangle is 180°



$105^\circ + 35^\circ + 40 = 180^\circ$





1) List the corresponding angles:

$\angle S = \angle P$

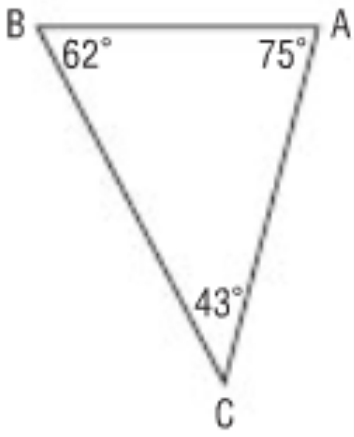
$\angle T = \angle Q$

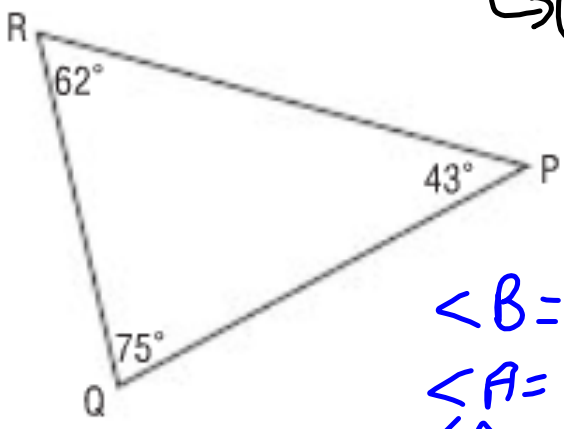
$\angle U = \angle R$

2) Write a similarity statement:

$\Delta PQR \sim \Delta STU$

Are these triangles similar? What evidence DO you have?





↳ 1) Equal angles

or

2) Equal Ratio of sides

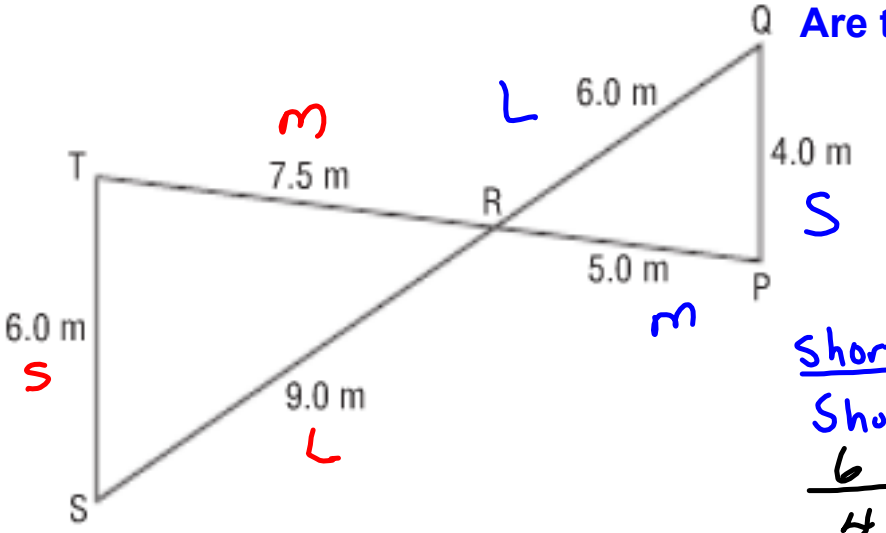
$\angle B = \angle R$

$\angle A = \angle B$

$\angle C = \angle P$

If yes write a similarity statement.

$\Delta BAC \sim \Delta RQP$



Are the triangles similar?

1) Equal angles
or
2) Equal Ratios of sides

$\frac{\text{short}}{\text{short}} = \frac{\text{med.}}{\text{med}} = \frac{\text{long}}{\text{long}}$

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

1.5 = 1.5 = 1.5

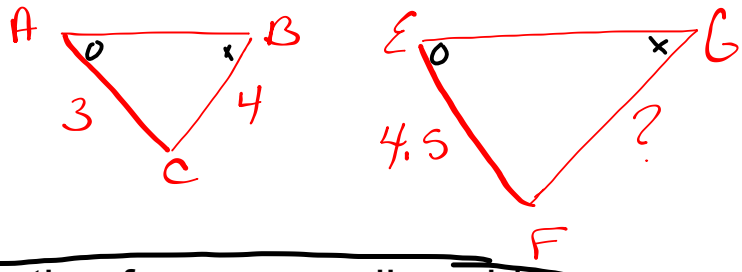
1. In triangle SRT list the sides shortest to longest

ST, RT, SR
6, 7.5, 9

2. In triangle RQP list the sides shortest to longest

QP, PR, RQ
4, 5, 6

Find side GF in similar Triangles's.



Ratio of corresponding sides:

$$\frac{AB}{EG} = \frac{AC}{EF} = \frac{BC}{GF}$$

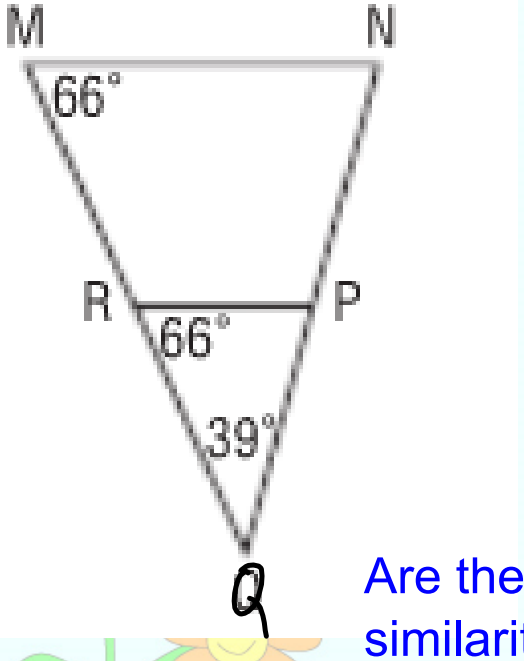
$$\frac{AB}{EG} = \frac{3}{4.5} = \frac{4}{?}$$

$$\frac{4}{?} = \frac{3}{4.5}$$

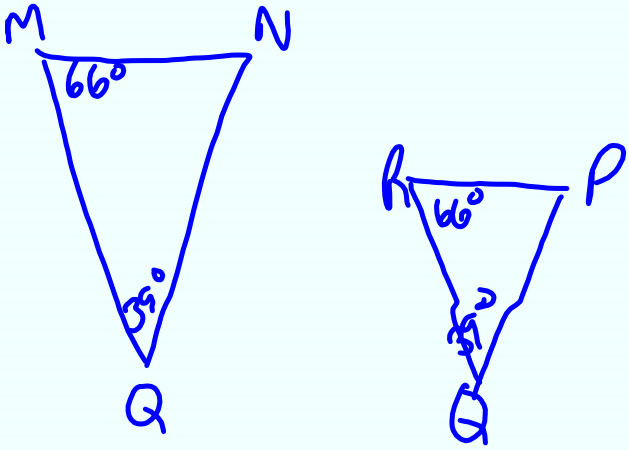
$$\frac{?}{4} = \frac{4.5}{3} \quad (4)$$

$$? = 6$$

$$GF = 6$$

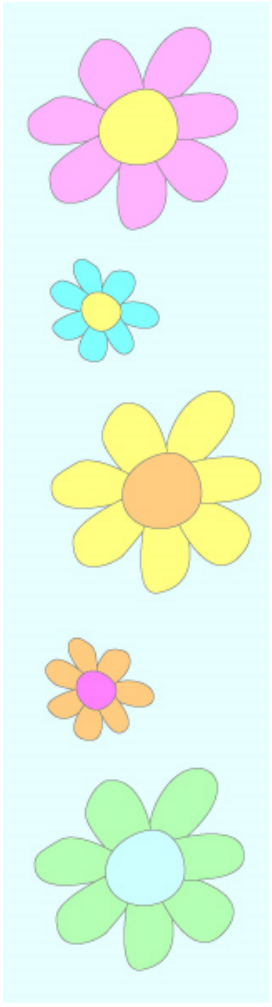


Draw the two triangles separately!



Are these triangles similar?write a similarity statement $\angle M = \angle R$ $\angle N = \angle P$ $\angle Q = \angle Q$

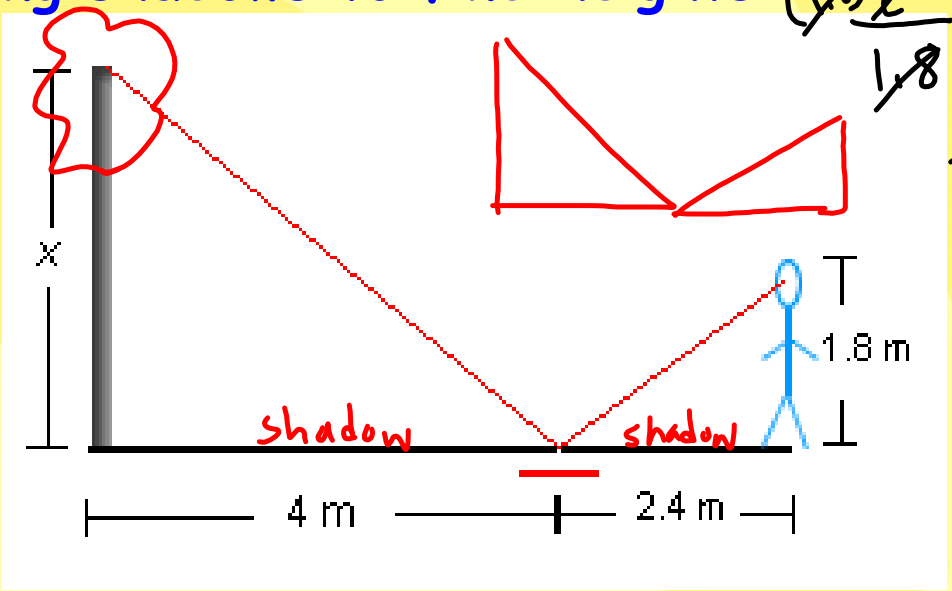
Find the missing angle? $\angle N = 75°$



Using Similar Triangles to Solve Problems...

Solve for x...

Using shadows to find heights



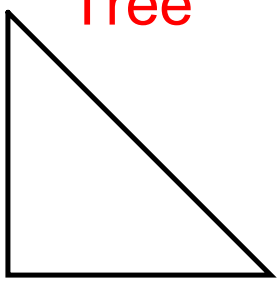
$\frac{\text{height tree}}{\text{height person}} = \frac{\text{shadow tree}}{\text{shadow person}}$

$\frac{x}{1.8} = \frac{4}{2.4}(1.8)$

$x = 3\text{ m}$

George is 1.7 m tall. His shadow is 3 m long. He is standing beside a tree that has a shadow that is 8 m long. How tall is the tree? Sketch a diagram

Tree

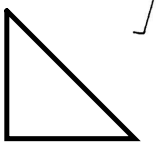


?

8 m

$\frac{\text{Height tree}}{\text{height George}} = \frac{\text{Shadow tree}}{\text{shadow George}}$

George



1.7m

3m

$\frac{x}{1.7} = \frac{8}{3}$

$x = 4.5$