

First name: \_\_\_\_\_ Last name: \_\_\_\_\_

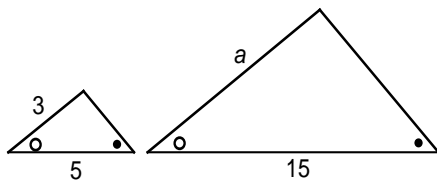
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## Similar Triangles 1 Homework

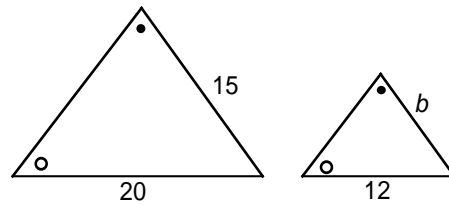
### Basic Problem

1. (i) Determine if the triangles below are similar, and explain how you know.  
 (ii) Find the lengths of the missing sides. All measures are centimeters unless otherwise stated.

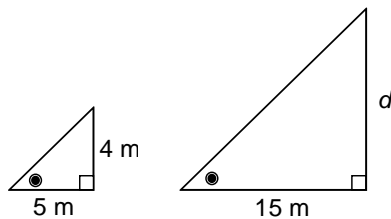
a)



b)

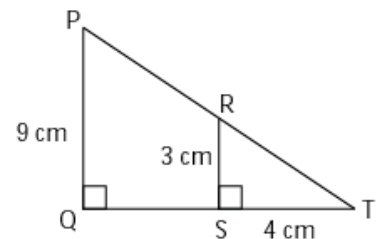


c)



2. Looking at the triangles in the figure on the right:

a) Are the two triangles similar?

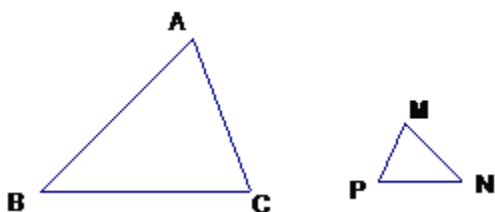


b) What is the length of  $QT$ ?

c) If  $PT$  is 15 cm, what is the length of  $RT$ ?

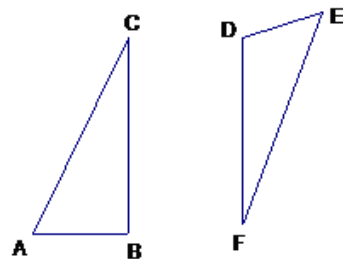
**Fill in the blanks.**

1. In the figure below,  $\triangle ABC \sim \triangle MNP$ , then their corresponding angles are  $\angle A$  and  $\angle$ \_\_\_\_,  $\angle B$  and  $\angle$ \_\_\_\_,  $\angle C$  and  $\angle$ \_\_\_\_; the ratio of corresponding sides are \_\_\_\_\_ = \_\_\_\_\_ = \_\_\_\_\_; if  $AB = 2.7\text{cm}$ ,  $MN = 0.9\text{cm}$ ,  $NP = 1\text{ cm}$ , then the ratio is \_\_\_\_\_,  $BC =$  \_\_\_\_\_  $\text{cm}$ .



2. In the figure below, three sides of  $\triangle ABC$  and  $\triangle EDF$  are 2, 6, 7 and 4, 12, 14 respectively, and these two triangle are similar triangles, then  $\angle A$  and  $\angle$ \_\_\_\_,

$\angle B$  and  $\angle$ \_\_\_\_,  $\angle C$  and  $\angle$ \_\_\_\_,  $\frac{AB}{(\quad)} = \frac{(\quad)}{DF} = \frac{AC}{(\quad)}$ .

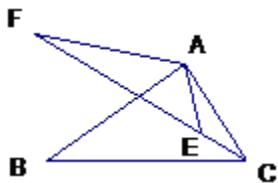


3. In the figure below,  $\triangle ABC \sim \triangle AEF$ , write three pairs of the corresponding angles:

\_\_\_\_\_ = \_\_\_\_\_, \_\_\_\_\_ = \_\_\_\_\_, \_\_\_\_\_ = \_\_\_\_\_, and

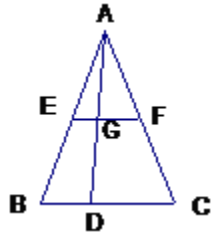
$\frac{AF}{(\quad)} = \frac{(\quad)}{(\quad)} = \frac{(\quad)}{(\quad)}$ , if the ratio of  $\triangle ABC$  and  $\triangle AEF$  is 3:2,  $EF = 8\text{cm}$ , then

$BC =$  \_\_\_\_\_.



4. In the figure below, in  $\triangle ABC$ , point D is on BC,  $EF \parallel BC$ , and intersects AB, AC, AD at E, F, G respectively. How many pairs of the similar triangles are in the figure?

They are \_\_\_\_\_.

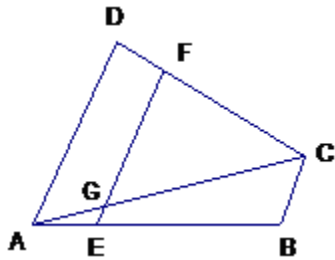


5. In the figure below, in quadrilateral ABCD,  $AD \parallel EF \parallel BC$ , AC intersects EF at G.

How many pairs of triangles are similar? \_\_\_\_\_. They are \_\_\_\_\_,

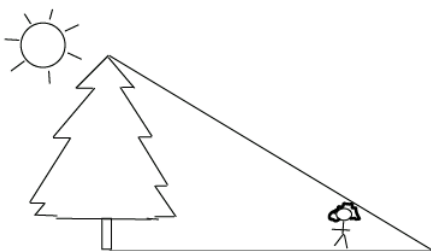
\_\_\_\_\_, If Tom write a proportion according to some similar triangles:

$\frac{FG}{AD} = \frac{BE}{AB}$ , is it right? Why?

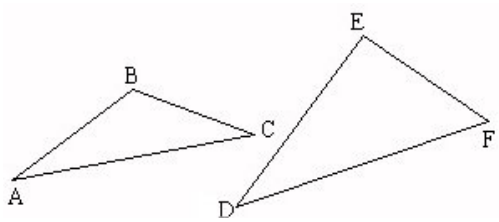


### Word Problem

1. Tonya is 1.3 meters tall. She stands 7 meters in front of a tree and casts a shadow 1.8 meters long. How tall is the tree?

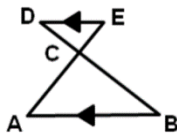


2.  $\angle A \cong \angle D$ ,  $\angle B \cong \angle E$ . The length of the sides of ABC are 469, 441, and 448. The length of the smallest side of DEF is 315, what is the length of the longest side of DEF?

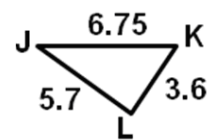
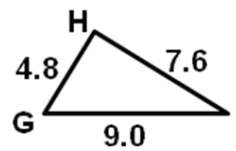


3. Prove the triangles are similar.

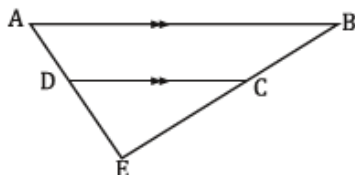
a)



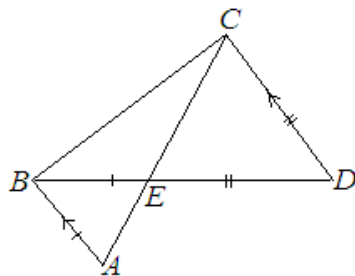
b)



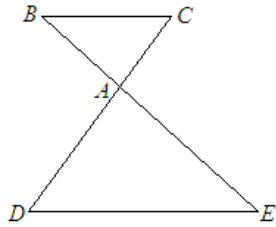
c)



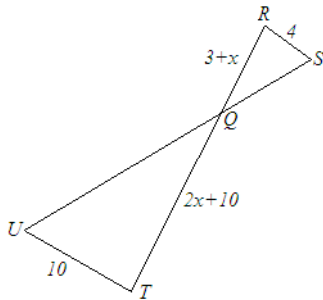
4. In the figure,  $AB \parallel DC$ ,  $BE = 27$ ,  $AE = 21$ , and  $CE = 35$ . Determine  $AB$  and  $CD$ .



5. In the figure,  $BC \parallel DE$ ,  $AC = 7$ ,  $AB = 9$ ,  $AD = 17.5$ , and  $AE = 22.5$ . Given  $BC = 10$ , determine  $ED$ .



6. Given  $RS \parallel UT$ ,  $RS = 4$ ,  $RQ = x + 3$ ,  $QT = 2x + 10$ ,  $UT = 10$ , find  $RQ$  and  $QT$ .



7. Given  $AB \parallel DE$ ,  $AB = 38.5$ ,  $DE = 11$ ,  $AC = 3x + 8$ , and  $CE = x + 2$ , find  $AC$  and  $CE$ .

