Date: _____

Solving for an Unknown Side

Solving Proportions

Solve for the unknown variable. Round to 1 decimal place.

a. $\frac{x}{5} = \frac{6}{15}$ b. $\frac{2}{x} = \frac{5}{6}$ c. $\frac{x}{2} = \frac{6}{y} = \frac{4}{5}$

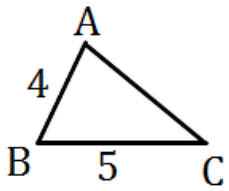
If you know that two triangles are similar, you can solve for a missing side using proportions.

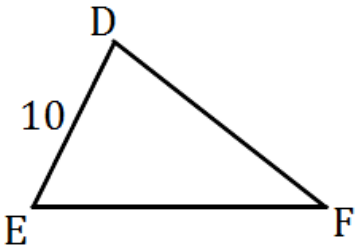
Steps: Solving for an unknown side.

1. State the proportion (only one unknown).
2. Substitute the side lengths.
3. Solve for the unknown.

Example 1

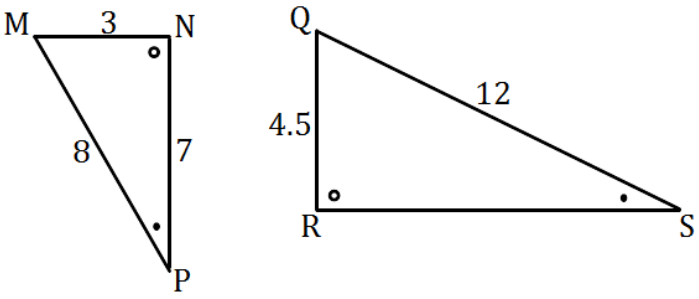
Given that ΔABC~ ΔDEF, determine the length of EF.





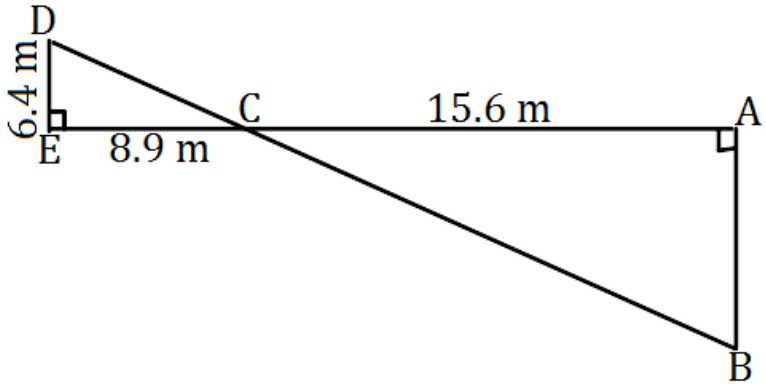
Example 2

Given that ΔMNP~ΔQRS, find the missing side length.



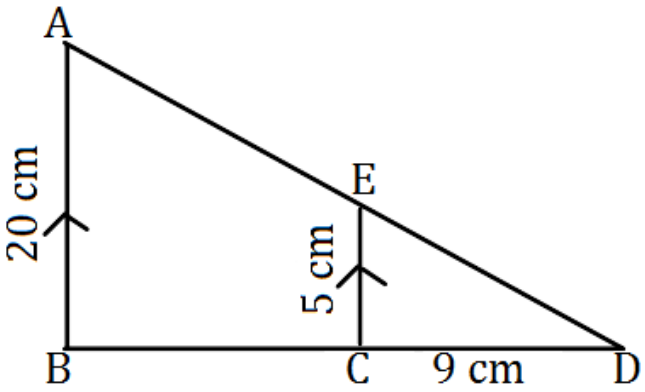
Example 3

Find the length of AB.



Example 4

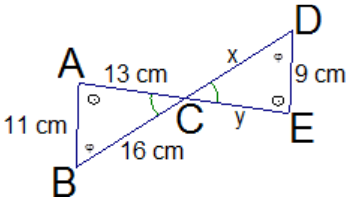
Find the lengths of BD and BC.



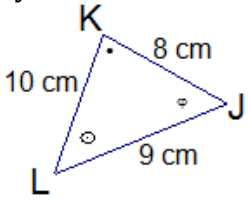
Homework

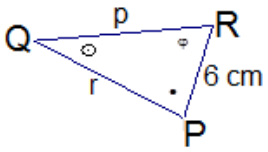
1. The following triangles are similar. Find the value of the unknown side lengths. Round final answers to 1decimal place, if necessary.

a)



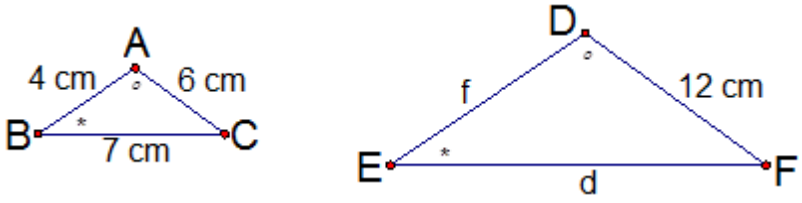
b)



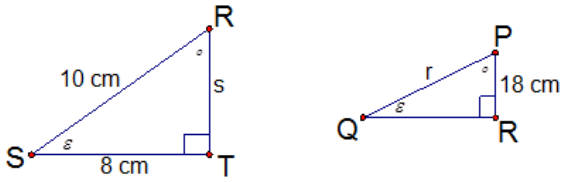


2. The triangles in each pair are similar. Find the unknown side lengths.

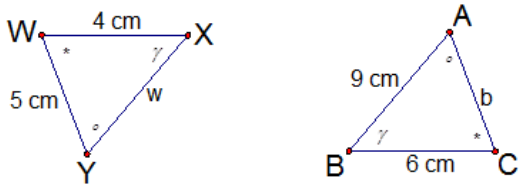
a)



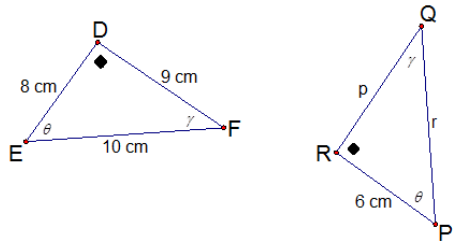
b)



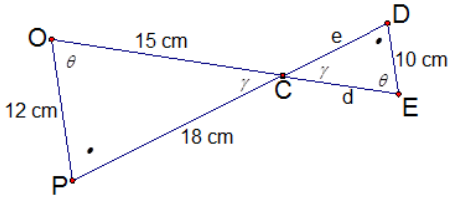
c)



d)



e)



Answers

1.

a) x = 13.1 cm, y = 10.6 cm b) p = 6.8 cm, r = 7.5 cm

2.

a) d = 14 cm, f = 8 cm b) r = 30 cm, s = 6 cm c) b = 7.5 cm, w = 6 cm

d) p = 6.8 cm, r = 7.5 cm, e) d= 12.5 cm, e = 15 cm