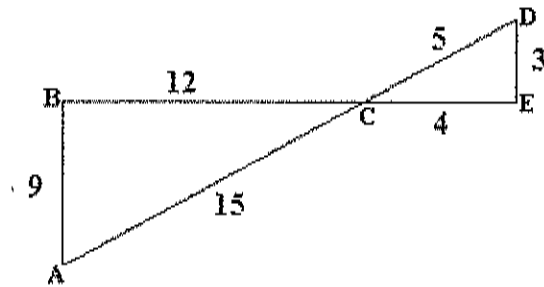


finding missing sides of similar triangles

In similar triangles the corresponding sides are in ratio.

1) In the diagram below, is $\triangle ABC \sim \triangle DEC$?



$$\frac{SM}{LG} = \frac{3}{9} = \frac{4}{12} = \frac{5}{15}$$

$$\frac{1}{3} = \frac{1}{3} = \frac{1}{3}$$

$\triangle ABC \sim \triangle DEC$ by SSS ~

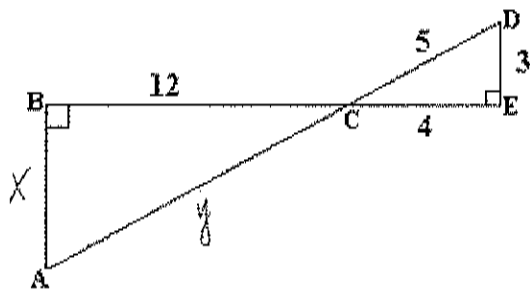
Are their cross products equal?

$$\frac{3}{9} = \frac{4}{12}$$

$$3 \cdot 12 = 4 \cdot 9$$

$$36 = 36$$

What if we didn't know all the sides?



$$\frac{SM}{LG} = \frac{4}{12} = \frac{3}{x}$$

$$4x = 36$$

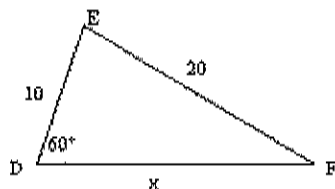
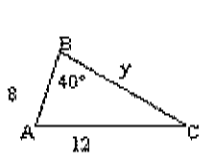
$$x = 9$$

$$\frac{5}{y} = \frac{4}{12}$$

$$4y = 60$$

$$y = 15$$

2) $\triangle ABC \sim \triangle DEF$. Find x & y.



$$\frac{SM}{LG} = \frac{8}{10} = \frac{y}{20}$$

$$10y = 160$$

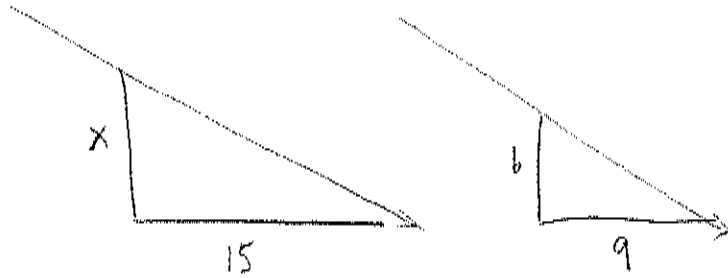
$$y = 16$$

$$\frac{SM}{LG} = \frac{8}{10} = \frac{12}{x}$$

$$8x = 120$$

$$x = 15$$

- 3) A tree casts a 15 foot long shadow on level ground. At the same time, a 6 foot tall man casts a shadow that is 9 feet in length. How tall is the tree?

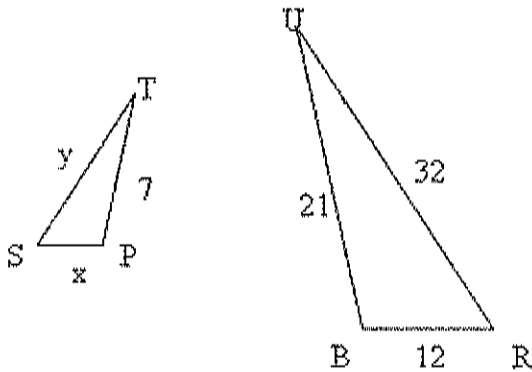


$$\frac{SM}{LG} = \frac{6}{x} = \frac{9}{15}$$

$$9x = 90$$

$$\boxed{x = 10}$$

- 4) In the accompanying diagram, $\triangle STP \sim \triangle RUB$. Find x and y .



$$\frac{SM}{LG} = \frac{7}{21} = \frac{x}{12}$$

$$21x = 84$$

$$\boxed{x = 4}$$

$$\frac{SM}{LG} = \frac{7}{21} = \frac{y}{32}$$

$$21y = 224$$

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