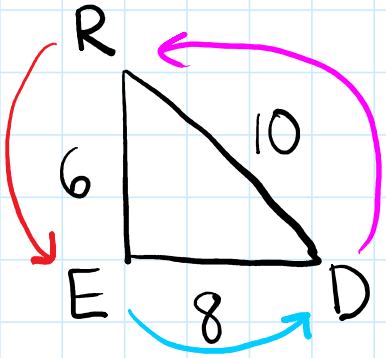
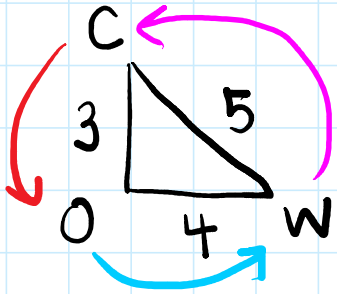
Similar Triangles

October 13, 2016 12:07 PM

- Shapes are SIMILAR if two shapes have the same side RATIOS



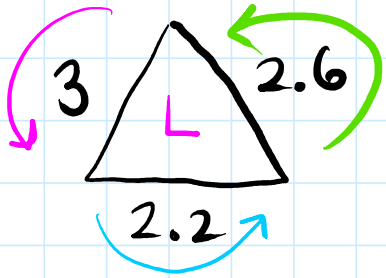


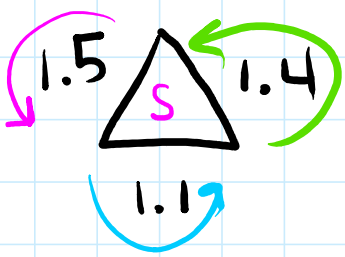
$\frac{\triangle RED}{\triangle COW}$ $\frac{RE}{CO} = \frac{ED}{OW} = \frac{DR}{WC}$

$\frac{6}{3} = \frac{8}{4} = \frac{10}{5}$

$2 = 2 = 2$ ← All the same Similar triangles.

Are these Similar?





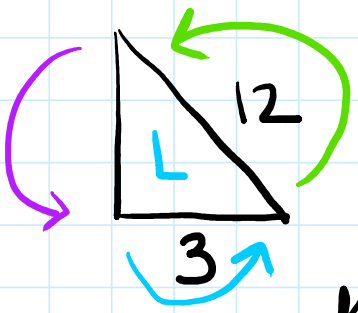
$\frac{L}{S}$ $\frac{3}{1.5}$ $\frac{2.2}{1.1}$ $\frac{2.6}{1.4}$

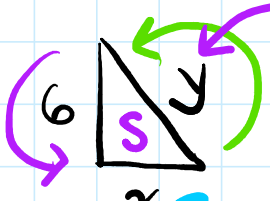
$2 = 2 \neq 1.857$

Not equal so Not Similar.

The following triangles are similar. Find the value of the missing side

a)





missing side top of ratio

When you have a Ratio with a missing value: CROSS MULTIPLY and DIVIDE!

$\frac{S}{L} \quad \frac{6}{8} \overset{\times}{=} \frac{x}{3} = \frac{y}{12}$

$\frac{6 \times 3}{8}$

$18 \div 8 = \boxed{2.25 = x}$

$\frac{6}{8} = \frac{y}{12}$

$6 \times 12 \div 8$

$\boxed{9 = y}$

You try:

a) $\frac{5}{8} = \frac{x}{12}$

$5 \times 12 \div 8$

b)

3 x

flip

7 44

$5 \times 12 \div 8$

$60 \div 8$

$7.5 = x$

b) flip

$\frac{3}{7} = \frac{x}{44}$

$3 \times 44 \div 7$

$18.9 = x$

b) $\frac{7}{3} = \frac{44}{x}$

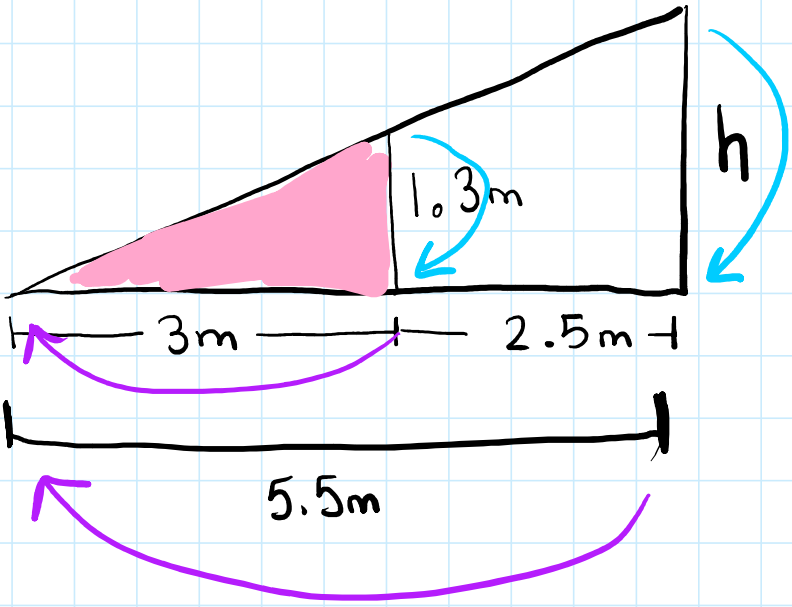
$7(x) = 3 \times 44$

$7x = 132$

$\div 7$

$x = 18.9$

How tall is the ramp?



$\frac{Lg}{sm}$

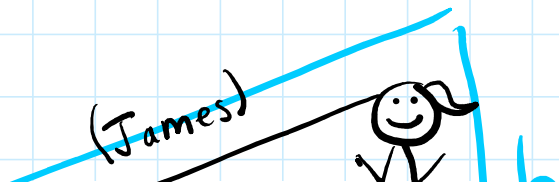
$\frac{h}{1.3m} = \frac{5.5m}{3m}$

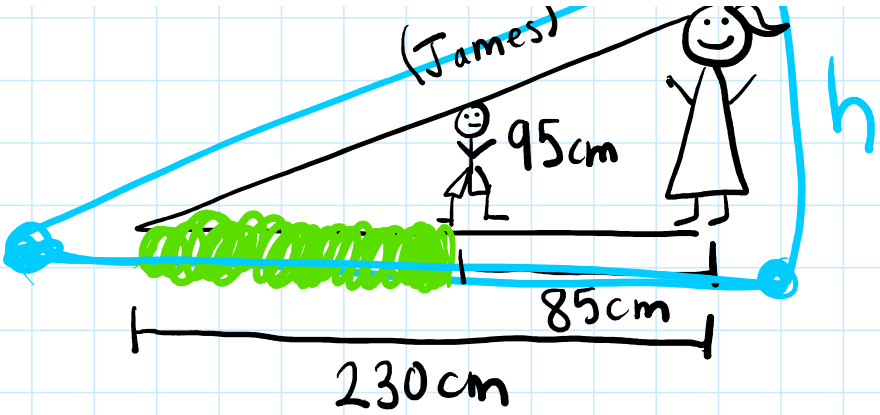
$1.3m \times 5.5m$

$7.15 \div 3$

$h = 2.4m$

How tall is the girl?





$$230 - 85 = 145$$

$$\frac{L}{S} = \frac{h}{95} = \frac{230}{145}$$

$$h = 230 \times 95 \div 145$$

$$\boxed{h = 150.7\text{ cm}}$$