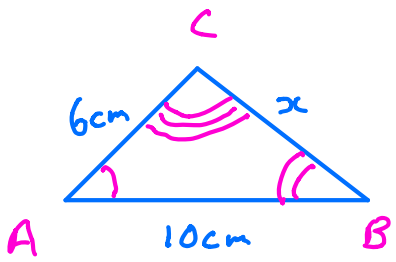
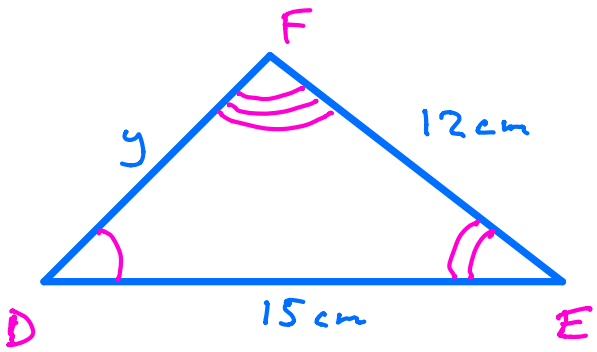
Similar Triangles

Figures are similar if they are the same shape
ie. their angles are the same and the ratio
between their corresponding sides is constant.

In effect, one similar figure is an enlargement of the other.

Ex 1





Triangles ABC and DEF are similar

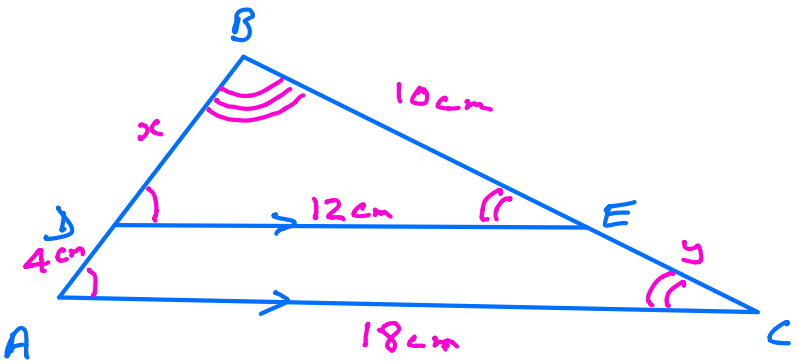
Find x and y

Ratio	Small	:	large
	10	:	15
=	2	:	3

$$y = 6 \times \frac{3}{2} = 9\text{cm}$$

$$x = 12 \times \frac{2}{3} = 8\text{cm}$$

Ex 2



△s ABC and DBE are similar

Ratio small : large

= 12 : 18

= 2 : 3

$$x = (x+4) \times \frac{2}{3}$$

$$3x = 2(x+4)$$

$$3x = 2x + 8$$

$$3x - 2x = 8$$

$$x = 8 \text{ cm}$$

$$y + 10 = 10 \times \frac{3}{2}$$

$$y + 10 = 15$$

$$y = 15 - 10$$

$$y = 5 \text{ cm}$$

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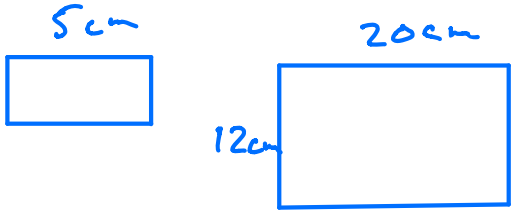
1) a) Scale factor 2 : 4 scale factor = 2

= 1 : 2

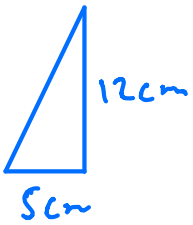
b) Scale factor 2 : 6 scale factor = 3

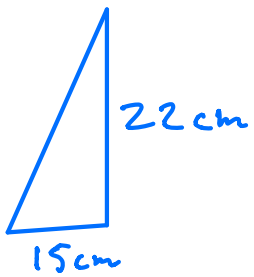
= 1 : 3

2) a) 

Similar scale factor 4

25)





Not similar Ratio $5:15 = 1:3$ $\neq$ Ratio $12:22$ $6:11$

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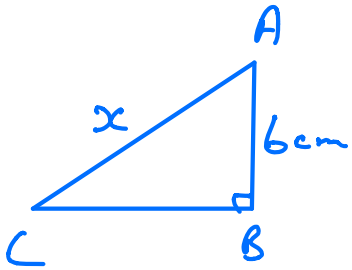
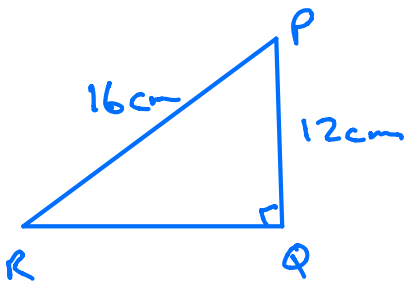
6) a)



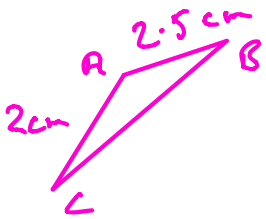


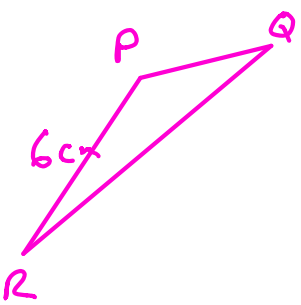
Ratio $6:12$
$1:2$

$x = 16 \times \frac{1}{2} = 8cm$

$x = 8cm$

6b)



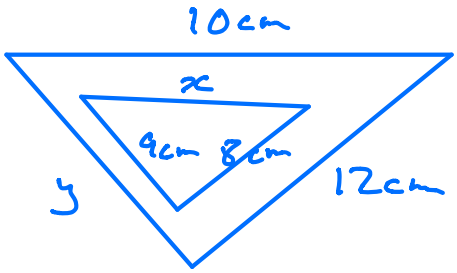


Ratio $2:6$
$= 1:3$

$PQ = 2.5 \times 3$

$PQ = 7.5cm$

6c)



Ratio Small : Large
$8:12$
$= 2:3$

$x = 10 \times \frac{2}{3}$

$x = \frac{20}{3}$

$x = 6\frac{2}{3}$ cm

$y = 9 \times \frac{3}{2}$

$y = \frac{27}{2}$

$y = 13\frac{1}{2}$ cm

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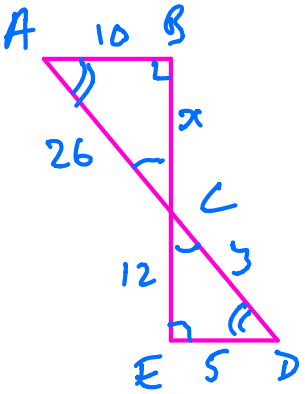
d)



$\triangle$s ABC and DEC are similar

Ratio Large : Small

10 : 5

= 2 : 1

$x = 12 \times \frac{2}{1} = 24$ cm

$x = 24$ cm

$y = 26 \times \frac{1}{2} = 13$ cm

$y = 13$ cm