



### Exercise 4C

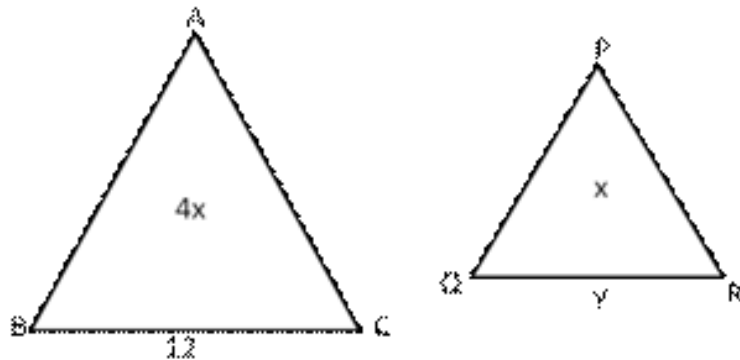
Question 3:

Given:  $\triangle ABC \sim \triangle PQR$ ,

area of  $\triangle ABC = 4$  area of  $\triangle PQR$ .

Let area of  $\triangle PQR = x$ . Then area of  $\triangle ABC = 4x$ .

We know that the ratio of the areas of two similar triangle is equal to the ratio of the square of their corresponding sides.



$$\therefore \frac{\text{area of } \triangle ABC}{\text{area of } \triangle PQR} = \frac{BC^2}{QR^2}$$

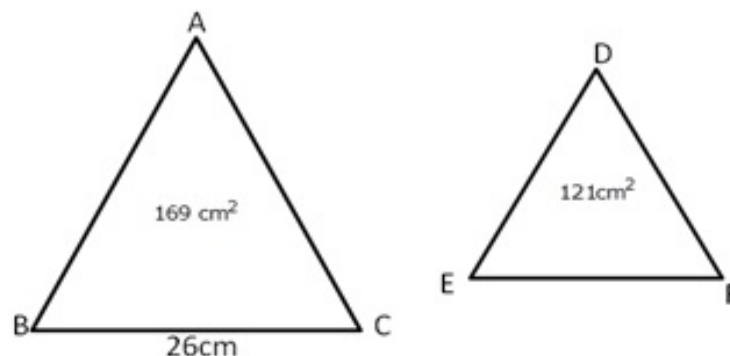
$$\frac{4x}{x} = \frac{(12)^2}{QR^2} \Rightarrow 4 = \frac{(12)^2}{y^2}$$

$$\Rightarrow 4y^2 = 144$$

Hence,  $QR = 6$  cm

Question 4:

Given:  $\triangle ACB \sim \triangle DEF$  such that  $\text{ar}(\triangle ABC) = 169\text{cm}^2$  and  $\text{ar}(\triangle DEF) = 121\text{cm}^2$



We know that the ratio of the area of similar triangles is equal to the ratio of the square of their corresponding sides.

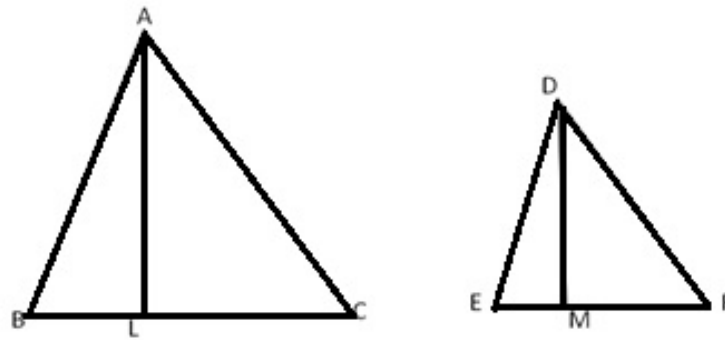
$$\therefore \frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle DEF} = \frac{BC^2}{EF^2} \Rightarrow \frac{169}{121} = \frac{(26)^2}{EF^2}$$

$$EF^2 = (26)^2 \times \frac{121}{169}$$

$$EF = \sqrt{(26)^2 \times \frac{121}{169}} = 26 \times \frac{11}{13} = 22 \text{ cm}$$

Hence, the longest side of smallest triangle side is 22 cm.

Question 5:



Given:  $\triangle ACB \sim \triangle DEF$

$\text{ar}(\triangle ABC) = 100\text{cm}^2$  and  $\text{ar}(\triangle DEF) = 49\text{cm}^2$

Let AL and DM be the corresponding altitude of ABC and DEF respectively such that AL = 5 cm and let DM = x cm

We know that the ratio of the area of two similar triangles is equal to the ratio of the square of corresponding altitudes.

$$\therefore \frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle DEF)} = \frac{AL^2}{DM^2}$$

$$\Rightarrow \frac{100}{49} = \frac{(5)^2}{x^2}$$

$$\Rightarrow x^2 = (5)^2 \times \frac{49}{100}$$

$$\Rightarrow x = \sqrt{(5)^2 \times \frac{49}{100}}$$

$$\Rightarrow x = 5 \times \frac{7}{10} = 3.5 \text{ cm}$$

Hence,  $DM = 3.5 \text{ cm}$

Therefore, the required altitude is 3.5 cm

\*\*\*\*\* END \*\*\*\*\*