



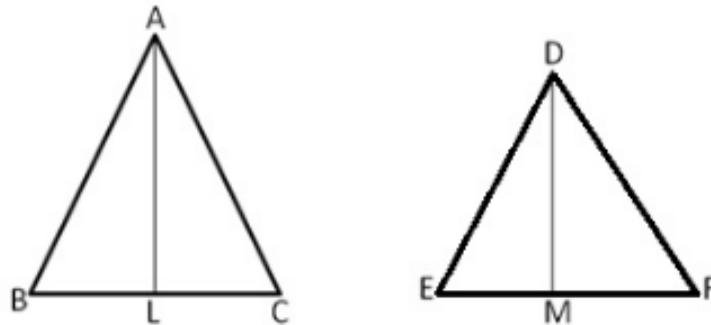
Exercise 4C

Question 6:

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

Let AL and DM be the corresponding altitudes of $\triangle ABC$ and $\triangle DEF$ respectively such that AL = 6 cm and DM = 9 cm.

We know that the ratio of squares of altitudes of two similar triangles is equal to the ratio of the corresponding areas.



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

$$\frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle DEF)} = \frac{6^2}{9^2} = \frac{36}{81} = \frac{4}{9} = 4 : 9$$

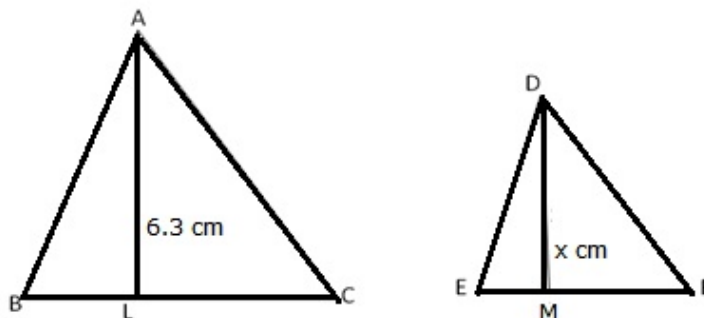
Hence, ratio of their areas = 4 : 9

Question 7:

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

$\text{ar}(\triangle ABC) = 81\text{cm}^2$ and $\text{ar}(\triangle DEF) = 49\text{cm}^2$

Let AL and DM be the corresponding altitudes of $\triangle ABC$ and $\triangle DEF$ respectively, such that AL = 6.3 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:

$$\begin{aligned}\therefore \frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle DEF)} &= \frac{AL^2}{DM^2} \\ \Rightarrow \frac{81}{49} &= \frac{(6.3)^2}{x^2} \\ \Rightarrow x^2 &= \left(\frac{49 \times 6.3 \times 6.3}{81} \right) = 24.01 \\ \Rightarrow x &= \sqrt{24.01} = 4.9 \text{ cm}\end{aligned}$$

Thus, DM = 4.9 cm

Hence, the required altitude 4.9 cm

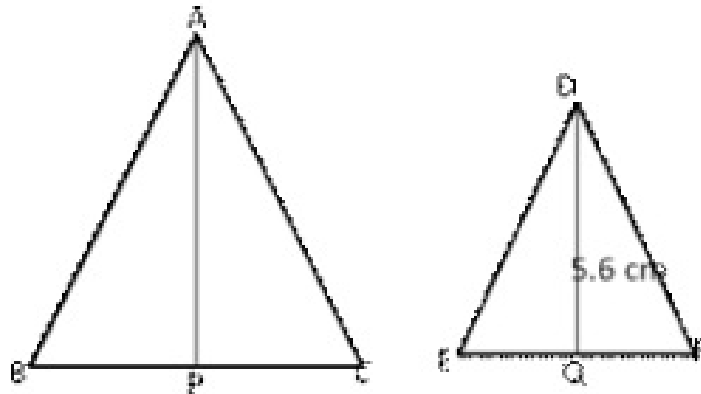
Question 8:

Given: $\triangle ACB \sim \triangle DEF$ such that $\text{ar}(\triangle ABC) = 100 \text{ cm}^2$ and $\text{ar}(\triangle DEF) = 64 \text{ cm}^2$

Let AP and DQ be the corresponding medians of $\triangle ABC$ and $\triangle DEF$ respectively such that $DQ = 5.6 \text{ cm}$.

Let $AP = x \text{ cm}$.

We know that the ratio of the areas of two similar triangle is equal be the ratio of the squares of their corresponding medians.



$$\begin{aligned}\therefore \frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle DEF)} &= \frac{AP^2}{DQ^2} \\ \Rightarrow \frac{100}{64} &= \frac{x^2}{(5.6)^2} \\ \Rightarrow x^2 &= \frac{100 \times (5.6)^2}{64} \\ \Rightarrow x &= \sqrt{\frac{100 \times (5.6)^2}{64}} \\ \Rightarrow x &= \frac{10 \times 5.6}{8} = 7 \text{ cm}\end{aligned}$$

Hence, AP = 7 cm

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