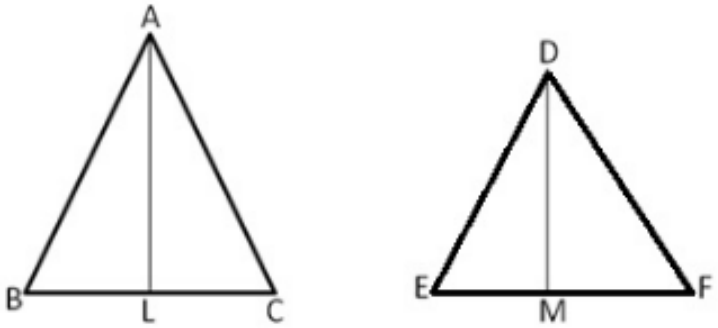
Exercise 4C

Question 6:
Given: ΔACB ~ ΔDEF
Let AL and DM be the corresponding altitudes of ΔABC and ΔDEF 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.

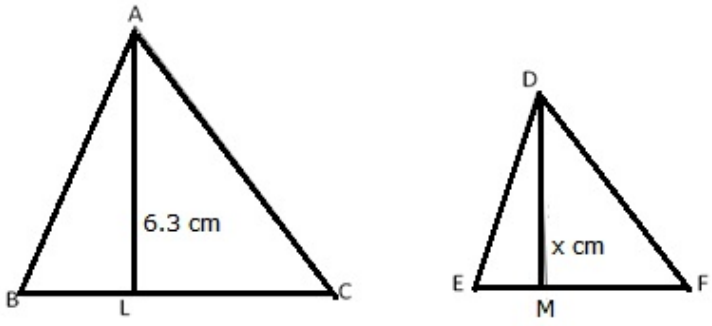


$$\frac{ar(\Delta ABC)}{ar(\Delta DEF)} = \frac{AL^2}{DM^2}$$

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

Hence, ratio of their areas = 4 : 9

Question 7:
Given: ΔACB ~ ΔDEF such that
ar(ΔABC) = 81cm^2 and ar(ΔDEF) = 49cm^2
Let AL and DM be the corresponding altitudes of ΔABC and ΔDEF 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:

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

$$\Rightarrow \frac{81}{49} = \frac{(6.3)^2}{x^2}$$

$$\Rightarrow x^2 = \left(\frac{49 \times 6.3 \times 6.3}{81}\right) = 24.01$$

$$\Rightarrow x = \sqrt{24.01} = 4.9 \text{ cm}$$

Thus, DM = 4.9cm

Hence, the required altitude 4.9 cm

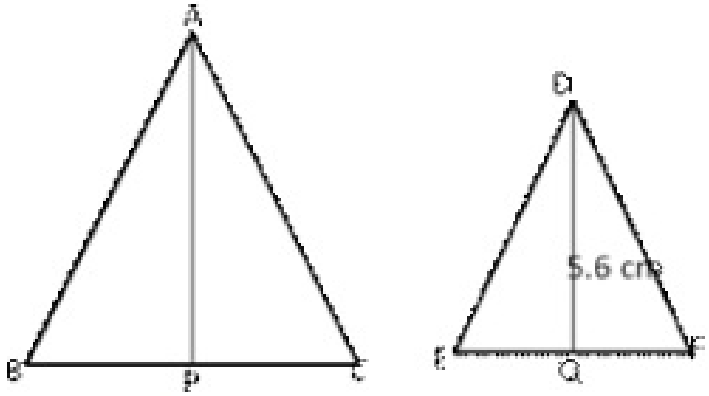
Question 8:

Given: ΔACB ~ ΔDEF such that ar(ΔABC) = 100 cm^2 and ar(ΔDEF) = 64cm^2

Let AP and DQ be the corresponding medians of ΔABC and ΔDEF respectively such that DQ = 5.6cm.

Let AP = x 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.



$$\therefore \frac{ar(\Delta ABC)}{ar(\Delta DEF)} = \frac{AP^2}{DQ^2}$$

$$\Rightarrow \frac{100}{64} = \frac{x^2}{(5.6)^2}$$

$$\Rightarrow x^2 = \frac{100 \times (5.6)^2}{64}$$

$$\Rightarrow x = \sqrt{\frac{100 \times (5.6)^2}{64}}$$

$$\Rightarrow x = \frac{10 \times 5.6}{8} = 7 \text{cm}$$

Hence, AP = 7 cm

********** END **********