Triangles Ex 4.6 Q6

Answer :

Given: The area of two similar triangles is $25cm^2$ and $36cm^2$ respectively. If the altitude of first triangle is 2.4cm

To find: The altitude of the other triangle

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

$$\frac{ar(\text{triangle1})}{ar(\text{triangle2})}=\left(\frac{\text{altitude1}}{\text{altitude2}}\right)^2$$

$$\frac{25}{36}=\left(\frac{2.4}{\text{altitude2}}\right)^2$$

Taking square root on both sides, we get

$$\frac{5}{6}=\frac{2.4}{\text{altitude 2}}$$

$$\Rightarrow \text{altitude}\,2=2.88\ \text{cm}$$

Hence, the corresponding altitude of the other is 2.88 cm.

Triangles Ex 4.6 Q7

Answer :

Given: The corresponding altitudes of two similar triangles are 6 cm and 9 cm respectively.

To find: Ratio of areas of triangle.

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

$$\frac{ar(\text{triangle1})}{ar(\text{triangle2})}=\left(\frac{\text{altitude1}}{\text{altitude2}}\right)^2$$

$$\frac{ar(\text{triangle1})}{ar(\text{triangle2})}=\left(\frac{6}{9}\right)^2$$

$$\frac{ar(\text{triangle1})}{ar(\text{triangle2})}=\frac{4}{9}$$

$$\boxed{ar(\text{triangle1}):ar(\text{triangle2})=4:9}$$

Hence, the ratio of areas of two triangles is 4 : 9.

Triangles Ex 4.6 Q8

Answer :

Given: In ΔABC, $\angle A=90°$, $AN\perp BC$, BC = 12cm and AC = 5cm.

TO FIND: Ratio of the triangles Δ*ANC* and Δ*ABC*.

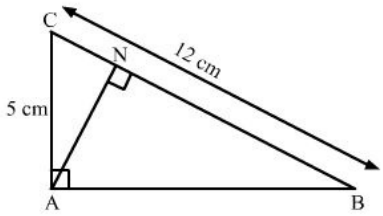
In Δ*ANC* and Δ*ABC*,

$\angle ACN=\angle ACB$ (Common)

$\angle A=\angle ANC$ (90° each)

∴ Δ*ANC* ~ Δ*ABC* (AA Similarity)

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



$$\therefore \frac{Ar(\triangle ANC)}{Ar(\triangle ABC)} = \left(\frac{AC}{BC}\right)^2$$

$$\Rightarrow \frac{Ar(\triangle ANC)}{Ar(\triangle ABC)} = \left(\frac{5\ \text{cm}}{12\ \text{cm}}\right)^2$$

$$\Rightarrow \frac{Ar(\Delta ANC)}{Ar(\Delta ABC)} = \frac{25}{144}$$

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