



Triangles Ex 4.5 Q7

Answer :

It is given that $BD \perp AC$, $AB = 5.7\text{cm}$, $DB = 3.8\text{cm}$, $CD = 5.4\text{cm}$ and $\angle ABC = 90^\circ$

We have to find BC .

Since $\triangle ABC \sim \triangle BDC$

$$\Rightarrow \frac{AB}{BD} = \frac{BC}{CD}$$

So

$$\Rightarrow \frac{5.7\text{cm}}{3.8\text{cm}} = \frac{BC}{5.4\text{cm}}$$

$$\Rightarrow BC = \frac{5.7\text{cm} \times 5.4\text{cm}}{3.8\text{cm}}$$

$$= 8.1\text{cm}$$

Hence, $BC = 8.1\text{cm}$

Triangles Ex 4.5 Q8

Answer :

It is given that $DE \parallel BC$, $AE = \frac{1}{4}AC$ and $AB = 6\text{cm}$.

We have to find AD .

Since $\triangle ADE \sim \triangle ABC$

$$\Rightarrow \frac{AD}{AB} = \frac{AE}{AC}$$

So

$$\Rightarrow \frac{AD}{6\text{cm}} = \frac{1\text{cm}}{4\text{cm}}$$

$$\Rightarrow 4\text{cm} \times AD = 6$$

$$\Rightarrow AD = \frac{6\text{cm}}{4\text{cm}}$$

$$\Rightarrow AD = \frac{3\text{cm}}{2\text{cm}}$$

Hence, $AD = 1.5\text{cm}$

Triangles Ex 4.5 Q9

Answer :

It is given that PA , QB and RC are each perpendicular to AC .

We have to prove that $\frac{1}{x} + \frac{1}{z} = \frac{1}{y}$

In $\triangle PAC$ we have $BQ \parallel AP$

$$\Rightarrow \frac{BQ}{AP} = \frac{CB}{CA}$$

$$\Rightarrow \frac{y}{x} = \frac{CB}{CA} \dots\dots(1)$$

Now in $\triangle ACR$, we have $BQ \parallel CR$

$$\Rightarrow \frac{BQ}{CR} = \frac{AB}{AC}$$

$$\Rightarrow \frac{y}{z} = \frac{AB}{AC} \dots\dots(2)$$

Adding (1) and (2) we have

$$\begin{aligned} \frac{y}{x} + \frac{y}{z} &= \frac{CB}{AC} + \frac{AB}{AC} \\ &= \frac{AB + BC}{AC} \end{aligned}$$

$$\Rightarrow \frac{y}{x} + \frac{y}{z} = \frac{AC}{AC} = 1$$

$$\Rightarrow \frac{1}{x} + \frac{1}{z} = \frac{1}{y}$$

Hence, $\boxed{\frac{1}{x} + \frac{1}{z} = \frac{1}{y}}$.

***** END *****