



Triangles Ex 4.5 Q19

Answer :

It is given that $AB \perp BC$, $DC \perp BC$ and $DE \perp AC$.

We have to prove that $\triangle CED \sim \triangle ABC$.

Now,

$AB \perp BC$, $DC \perp BC$, so $AB \parallel DC$.

In $\triangle ABC$ and $\triangle CED$,

$$\angle B = \angle E = 90^\circ \quad (\text{Given})$$

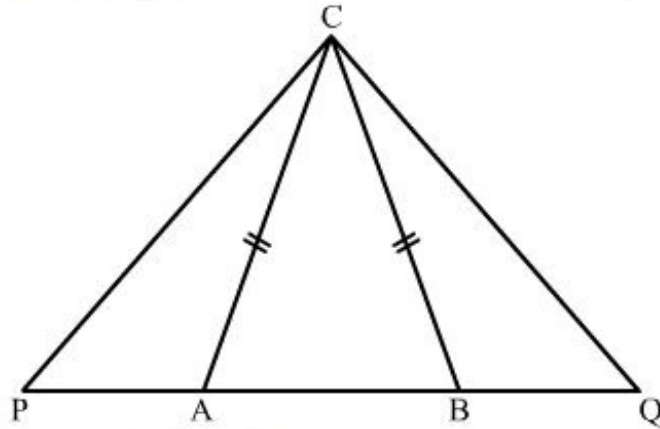
$$\angle A = \angle ECD \quad (\text{Alternate angles})$$

So, $\triangle CED \sim \triangle ABC$ (AA similarity rule)

Triangles Ex 4.5 Q20

Answer :

It is given that $\triangle ABC$ is isosceles and $AP \times BQ = AC^2$.



We have to prove that $\triangle APC \sim \triangle BCQ$.

It is given that $\triangle ABC$ is an isosceles triangle, so $AC = BC$.

Now,

$$AP \times BQ = AC^2 \quad (\text{Given})$$

$$AP \times BQ = AC \times AC$$

$$\Rightarrow \frac{AP}{AC} = \frac{AC}{BQ}$$

$$\Rightarrow \frac{AP}{AC} = \frac{BC}{BQ}$$

Also,

$$\angle CAB = \angle CBA \quad (\text{Equal sides have equal angles opposite to them})$$

$$\Rightarrow 180^\circ - \angle CAP = 180^\circ - \angle CBQ$$

$$\Rightarrow \angle CAP = \angle CBQ$$

Hence, $\triangle APC \sim \triangle BCQ$ (SAS Similarity)

***** END *****