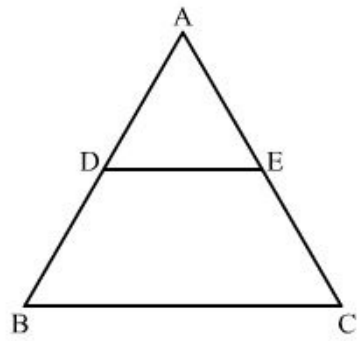Triangles Ex 4.2 Q4

Answer :

It is given that $AD = 2.4\text{cm}$, $AE = 3.2\text{cm}$, $DE = 2\text{cm}$ and $BC = 5\text{cm}$.
We have to find BD and CE.
Since DE‖BC, AB is transversal, then

∠ADE = ∠ABC   (corresponding angles)

Since DE‖BC, AC is a transversal, then

∠AED = ∠ACB   (corresponding angles)

In ΔADE and ΔABC,

∠ADE = ∠ABC (proved above)

∠AED = ∠ACB (proved above)

so, ΔADE ~ ΔABC (Angle Angle similarity)

Since, the corresponding sides of similar triangles are proportional, then

$$\frac{AD}{AB} = \frac{AE}{AC} = \frac{DE}{BC}$$
$$\Rightarrow \frac{AD}{AB} = \frac{DE}{BC}$$
$$\Rightarrow \frac{2.4}{2.4 + DB} = \frac{2}{5}$$
$$\Rightarrow 2.4 + DB = 6$$
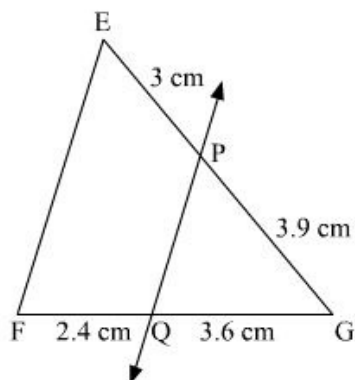$$\Rightarrow DB = 6 - 2.4$$
$$\Rightarrow DB = 3.6 \text{ cm}$$
Similarly,
$$\frac{AE}{AC} = \frac{DE}{BC}$$
$$\Rightarrow \frac{3.2}{3.2 + EC} = \frac{2}{5}$$
$$\Rightarrow 3.2 + EC = 8$$
$$\Rightarrow EC = 8 - 3.2$$
$$\Rightarrow EC = 4.8 \text{ cm}$$

Hence, BD = 3.6 cm and CE = 4.8 cm.

Triangles Ex 4.2 Q5

Answer :

It is given that *EP* = 3 cm, *PG* = 3.9 cm, *FQ* = 3.6 cm and *FQ* = 2.4 cm.
We have to check that $PQ \parallel EF$ or not.
According to Thales theorem we have
$$\frac{PG}{GE} = \frac{GQ}{FQ}$$
Now,

$$\frac{3.9}{3} \neq \frac{3.6}{2.4}$$
Hence, it is not proportional.

So, PQ ∦ EF.

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