



Triangles Ex 4.2 Q6

Answer :

(1) It is given that $PM = 4\text{cm}$, $QM = 4.5\text{cm}$, $PN = 4\text{cm}$ and $NR = 4.5\text{cm}$.

We have to check that $MN \parallel QR$ or not.

According to Thales theorem we have

$$\frac{PM}{QM} = \frac{PN}{NR}$$

$$\Rightarrow \frac{4}{4.5} = \frac{4}{4.5} \text{ (Proportional)}$$

Hence, $MN \parallel QR$

(2) It is given that $PQ = 1.28\text{ cm}$, $PR = 2.56\text{ cm}$, $PM = 0.16\text{ cm}$ and $PN = 0.32\text{ cm}$.

We have to check that $MN \parallel QR$ or not.

According to Thales theorem we have

$$\frac{PM}{MQ} = \frac{PN}{NR}$$

Now,

$$\frac{PM}{MQ} = \frac{0.16}{1.12} = \frac{1}{7}$$

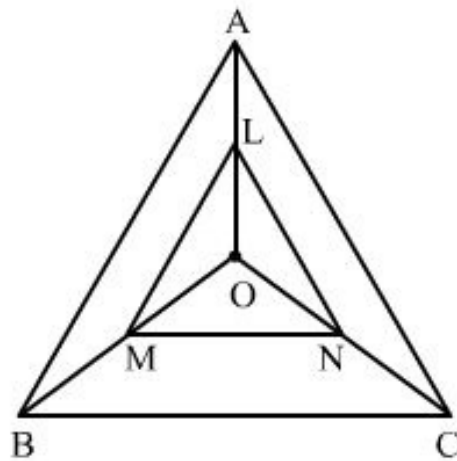
$$\frac{PN}{NR} = \frac{0.32}{2.24} = \frac{1}{7}$$

$$\therefore \frac{0.16}{1.12} = \frac{0.32}{2.24}$$

Hence, $MN \parallel QR$

Triangles Ex 4.2 Q7

Answer :



In $\triangle OAB$, since $LM \parallel AB$, then

$$\frac{OL}{LA} = \frac{OM}{MB} \quad (\text{By BPT}) \quad \dots\dots\dots(1)$$

In $\triangle OBC$, since $MN \parallel BC$, then

$$\begin{aligned} \frac{OM}{MB} &= \frac{ON}{NC} \quad (\text{By BPT}) \\ \Rightarrow \frac{ON}{NC} &= \frac{OM}{MB} \quad \dots\dots\dots(2) \end{aligned}$$

from (1) and (2), we get

$$\frac{OL}{LA} = \frac{ON}{NC} \quad \dots\dots\dots(3)$$

In $\triangle OCA$, we have,

$$\begin{aligned} \frac{OL}{LA} &= \frac{ON}{NC} \\ \Rightarrow LN &\parallel AC \quad (\text{By converse of BPT}) \end{aligned}$$

Answer :

It is given that in $\triangle ABC$, $DE \parallel BC$ and $BD = CE$.

We have to prove that $\triangle ABC$ is isosceles.

By Thales theorem we have

$$\frac{AD}{BD} = \frac{AE}{EC}$$

$$\Rightarrow AD = AE$$

Now $BD = CE$ and $AD = AE$

So $AD + BD = AE + CE$

Hence $\boxed{AB = AC}$

So, $\triangle ABC$ is isosceles

***** END *****