

$EO \parallel AD$

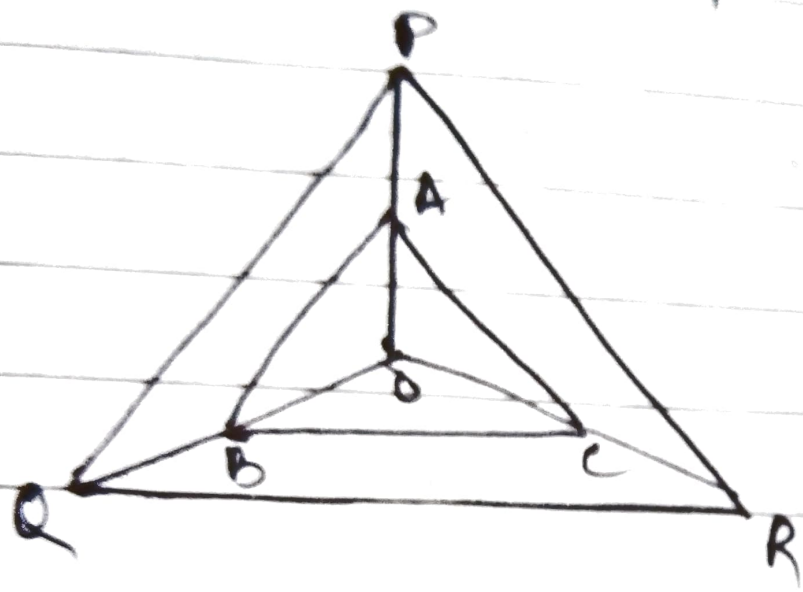
But

$AD \parallel OE$

(by construction)

hence $ADCE$ is a trapezium

(proved)



$AB \parallel PQ$.
(given)

$$\therefore \frac{OA}{AP} = \frac{OB}{BQ} \quad \text{--- (i) (by bpt)}$$

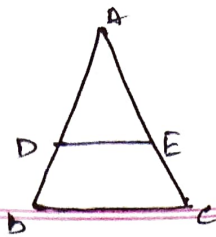
$AC \parallel PR$ (given)

$$\therefore \frac{OA}{AP} = \frac{OC}{CR} \quad \text{--- (ii)}$$

from (i) "

$$= \frac{OB}{BQ} = \frac{OC}{CR}$$

$\therefore BC \parallel QR$ (by converse of bpt)



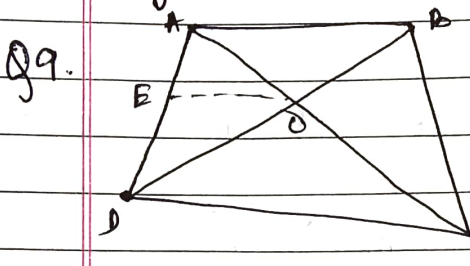
(6.2)

Q8. The given fig, shows $\triangle ABC$, D & E are mid points of AB & AC.

$$= \frac{AD}{DB} = 1, \quad \frac{AE}{EC} = 1. \quad (\text{as D \& E is mid point of AB \& AC})$$

$$\Rightarrow \frac{AD}{DB} = \frac{AE}{EC} \Rightarrow \frac{AD}{DB} \parallel \frac{AE}{EC}$$

\Rightarrow (by basic converse proportionality theorem).



Q9.

ABCD is a trapezium in $AB \parallel DC$

To prove : $\frac{AO}{BO} = \frac{CO}{DO}$

\Rightarrow In $\triangle ABD$,
 $EO \parallel DC$
 $DC \parallel AB$

$$\Rightarrow EO \parallel AB \text{ --- (1) } \therefore \frac{AE}{ED} = \frac{BO}{DO} \quad (\text{by BPT})$$

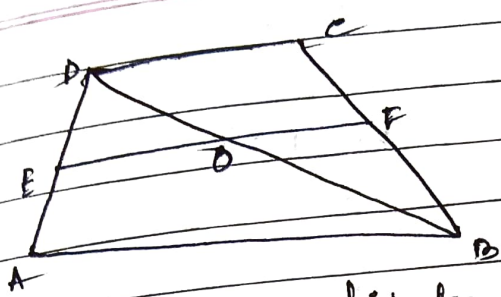
$$\Rightarrow \text{In } \triangle ADC, EO \parallel DC \Rightarrow \frac{AE}{ED} = \frac{AO}{CO} \quad \text{--- (2)}$$

\Rightarrow From 1 & 2

$$\frac{BO}{DO} = \frac{AO}{CO} \Rightarrow \frac{AO}{BO} = \frac{CO}{DO} \quad (\text{proved})$$

(by cross multiplication)

Q10.



ABCD is quadrilateral, $EF \parallel AC$.

$$\Rightarrow \frac{AO}{BO} = \frac{CO}{DO}$$

$$\Rightarrow \frac{AO}{OC} = \frac{CO}{OD} \quad \text{--- (1)}$$

In $\triangle DAB$, $EO \parallel AB$

$$= \frac{DE}{EA} = \frac{DO}{OB} \quad \text{(by bpt)}$$

$$= \frac{AE}{ED} = \frac{BO}{OD} \quad \text{--- (2)}$$

from 1 & 2.,

$$= \frac{AO}{OC} = \frac{AE}{ED} \quad \text{(by converse of bpt)}$$

$\Rightarrow EO \parallel AB$ (by construction)

But, $AB \parallel OE$, hence ABCD is a trapezium. (proved)

Q6.

