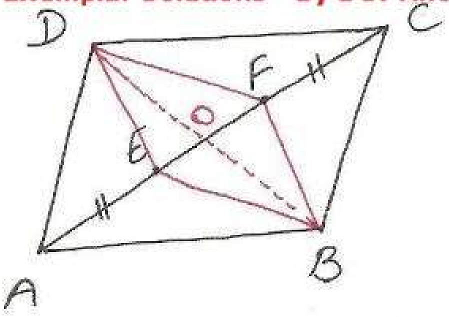
 ex 8.3 exemplar IX

(5)



to show ▱BFDE is a ||gm

proof ABCD is a ||gm

$\therefore OD = OB$ ...(i) [diags of ||gm bisect each other]

$OA = OC$ ...(ii)

$AE = CF$ ...(iii) (given)

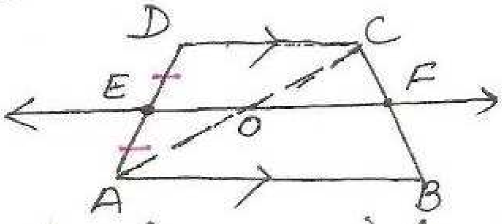
(ii) − (iii)

$OA - AE = OC - CF$

$\Rightarrow OE = OF$ ... (iv)

▱ BFDE is a ||gm $\left(\begin{array}{l} OD = OB \\ OE = OF \end{array}\right)$

(6)



const - join AC intersecting AC at O

proof - In $\triangle ADC$, E is midpt. of AD and EF || DC

[EF || AB
DC || AB
$\Rightarrow$ AB || EF || DC]

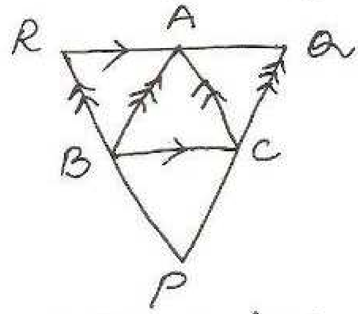
$\therefore$ O is midpt. of AC [converse of midpt. theorem]

In $\triangle CAB$, O is midpt AC, OF || AB

$\Rightarrow$ OF bisects CB (do)

or F is midpt of BC

(7)



Proof ▱RBCA is a ||gm [RA || BC
BR || CA]

$\therefore RA = BC$ ...(i) (opp. sides of a ||gm)

▱BCQA is a ||gm

$AQ = BC$ ...(ii) (do)

(i) + (ii)

$RA + AQ = 2BC$

$\Rightarrow BC = \frac{1}{2} QR$

NCERT Exemplar Solutions - By Dev Anoop (Bathinda)