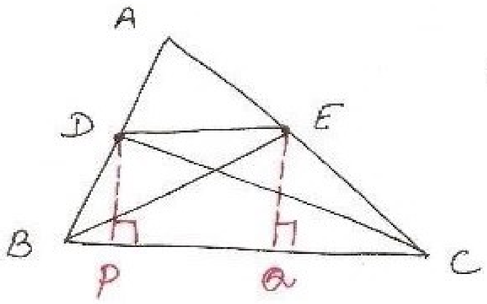
ex 9.3

(7)



To prove – $DE \parallel BC$

Const – draw $DP \perp BC$, $EQ \perp BC$

Proof –

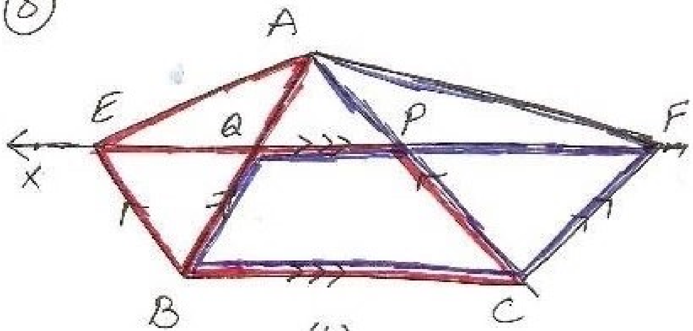
$ar(\triangle DBC) = ar(\triangle EB)$

$\cancel{\frac{1}{2}} \times \cancel{BC} \times DP = \cancel{\frac{1}{2}} \times \cancel{BC} \times EQ$

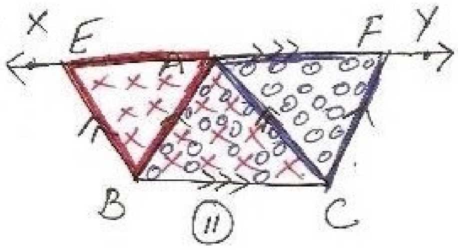
$\Rightarrow DP = EQ$

$\therefore DE \parallel BC$ [$\because$ distance remains constant]

(8)



(I)



(II)

To Prove $ar(\triangle ABE) = ar(\triangle ACF)$

Proof – fig (I) $ar(\triangle ABE) = \frac{1}{2}\, ar(\parallel gm\ EBCP) \ldots (i)$

$ar(\triangle ACF) = \frac{1}{2}\, ar(\parallel gm\ QBCF) \ldots (ii)$

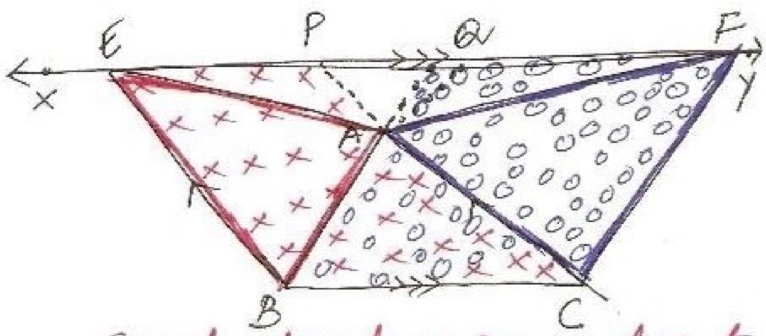
[△ and ∥gm on same base and between same ∥ lines]

$ar(\parallel gm\ EBCP) = ar(\parallel gm\ QBCF) \ldots (iii)$ [∥gms on same base and between same ∥ lines]

From (i), (ii), (iii)

$ar(\triangle ABE) = ar(\triangle ACF)$

Sim. for fig (II), (III)



Const – produce BA and CA to intersect xy at Q and P resp.