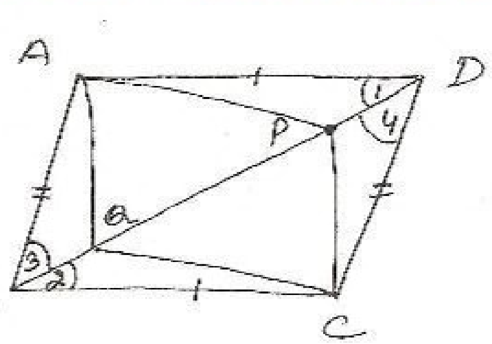
(9)



To show $\triangle APD \cong \triangle CQB$

$AP = CQ$

$\triangle AQB \cong \triangle CPD$

$AQ = CP$

$\square APCQ$ is a ||gm

Proof (i) $AD \parallel BC$

$\Rightarrow \angle 1 = \angle 2$ (al. in. $\angle$s)

In $\triangle APD$ and $\triangle CQB$

$AD = CB$ (opp sides of a ||gm)

$\angle 1 = \angle 2$ (Proved)

$DP = BQ$ (given)

$\therefore \triangle APD \cong \triangle CQB$ by SAS prop.

(ii) $AP = CQ$ (cpct)

(iii) In $\triangle AQB$ and $\triangle CPD$

$AB = CD$ (opp sides of ||gm)

$\angle 3 = \angle 4$ (al. in $\angle$s $AB \parallel DC$)

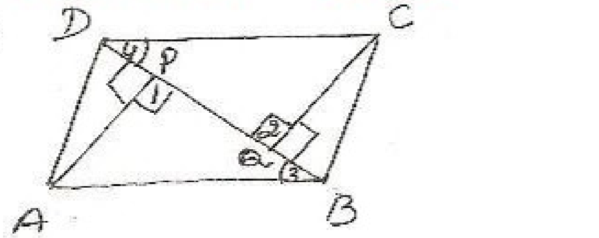
$BQ = DP$ (given)

$\therefore \triangle AQB \cong \triangle CPD$ by SAS p.

$AQ = CP$ (cpct)

(iv) $\square APCQ$ is a ||gm $\left[\begin{matrix} AP = CQ \\ AQ = CP \end{matrix}\right]$

(10)



To show $\triangle APB \cong \triangle CQD$

$AP = CQ$

Proof In $\triangle APB$ and $\triangle CQD$

$\angle 1 = \angle 2 = 90°$

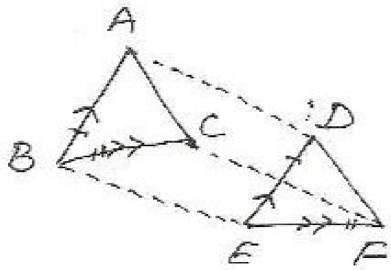
$\angle 3 = \angle 4$ (al. in $\angle$s $DC \parallel AB$)

$AB = CD$ (opp. sides of ||gm)

$\therefore \triangle APB \cong \triangle CQD$ by AAS cor,

$AP = CQ$ (cpct)

(11)



$\triangle ABC \cong \triangle DEF$ by SSS prop.

Proof $\square ABED$ is a ||gm $\left[\begin{matrix} AB \parallel DE \\ AB = DE \end{matrix}\right]$

$AD \parallel BE$ ...(i) [opp. sides of ||gm]

$AD = BE$ ...(ii)

$\square BEFC$ is a ||gm $\left[\begin{matrix} BC \parallel EF \\ BC = EF \end{matrix}\right]$

$CF \parallel BE$ ...(iii)

$CF = BE$ ...(iv)

From (i), (iii) $AD \parallel CF$

From (ii), (iv) $AD = CF$

$\square ACFD$ is a ||gm $\left[\begin{matrix} AD \parallel CF \\ AD = CF \end{matrix}\right]$

$AC = DF$ (cpct)

$AB = DE$

$BC = EF$ (given)