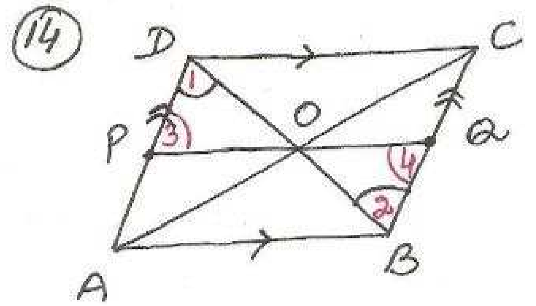
(14)



to show $OP = OQ$

proof

$OD = OB$ (diagonals of ||gm bisect each other)

$AD \parallel BC$ (opp sides of ||gm)

$\Rightarrow PD \parallel BQ$

$\angle 1 = \angle 2$
$\angle 3 = \angle 4$ (alternate in. angles)

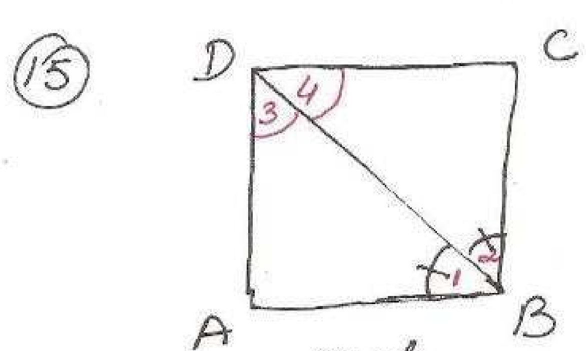
In $\triangle DOP$ and $\triangle BOQ$

$\angle 3 = \angle 4$
$\angle 1 = \angle 2$ (proved)
$OD = OB$

$\therefore \triangle DOP \cong \triangle BOQ$ by AAS cor.

$\therefore OP = OQ$ (cpct)

(15)



to prove rect ABCD is a Square

proof

$DC \parallel AB$ (opp sides of rect.)

$\angle 4 = \angle 1$ ...(i)

Sim. $\angle 3 = \angle 2$ ...(ii)

$\angle 1 = \angle 2$ ...(iii) (given)

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

$\angle 3 = \angle 4$

In $\triangle BDA$ and $\triangle BDC$

$\angle 1 = \angle 2$ (given)
$BD = BD$ (common)
$\angle 3 = \angle 4$ (proved)

$\therefore \triangle BDA \cong \triangle BDC$ by ASA prop

$AB = CB$ (cpct)

$\therefore$ rect. ABCD is a Square