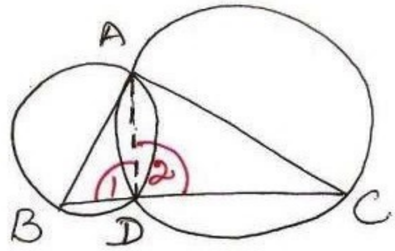
(10)



to prove D lies on BC

const - join AD

proof

$\angle 1 = 90°$ (angles in Semicircle)

$\angle 2 = 90°$

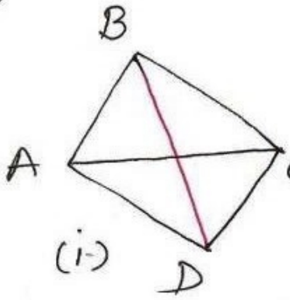
$\therefore \angle 1 + \angle 2 = 90° + 90°$

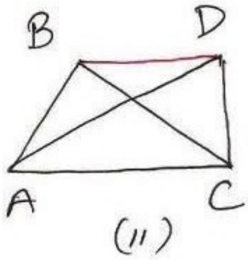
$= 180°$

$\therefore$ Pts B, D, C are collinear

D lies on BC

(11)





to prove $\angle CAD = \angle CBD$

proof fig (i)

$\angle B + \angle D = 90° + 90°$

$= 180°$

$\therefore \square$ ABCD is cyclic

$\angle CAD = \angle CBD$ (angles in same seg.)

fig (ii)

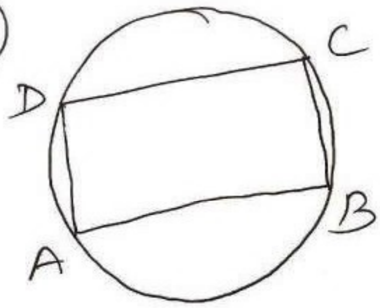
AC subtends $\angle B$ and $\angle D$ on same side and

$\angle B = \angle D$ (each 90°)

$\therefore$ Points A, B, D, C are concyclic

$\therefore \angle CAD = \angle CBD$ (angles in same segment)

(12)



to prove ||gm ABCD is a rect.

proof

$\angle A + \angle C = 180°$ (opp. angles of a ||gm)

But $\angle A = \angle C$

$\angle A + \angle A = 180°$

$\Rightarrow 2\angle A = 180°$

$\Rightarrow \angle A = 90°$

$\therefore$ ||gm ABCD is a rect.