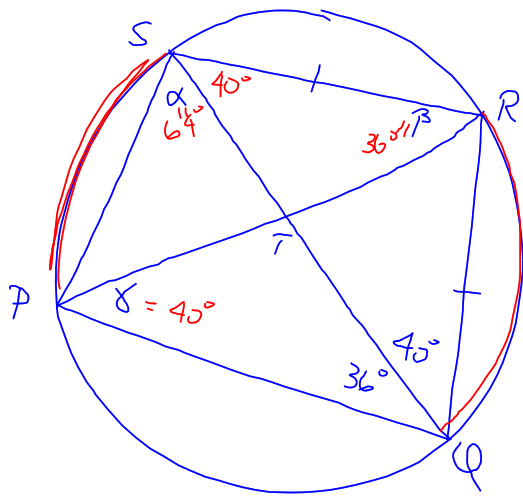
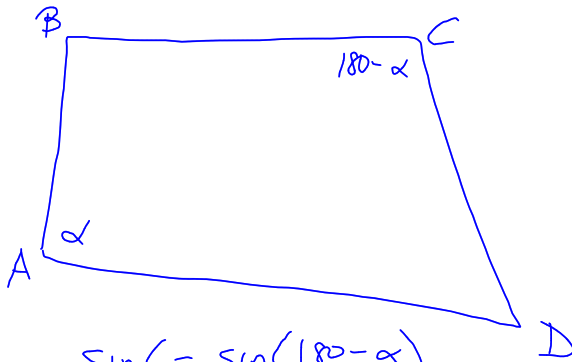


2e)

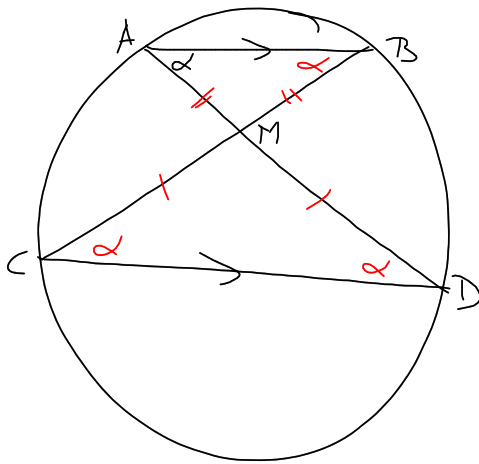


3/



$$\begin{aligned}\sin C &= \sin(180 - \alpha) \\ &= \sin \alpha \\ &= \underline{\sin A}\end{aligned}$$

4b)



$$\angle A = \angle D = \alpha \text{ (alternate } \angle\text{'s, } AB \parallel CD)$$

$$\angle B = \angle C = \alpha \text{ (} \angle\text{'s in same segment)}$$

$$\angle B = \angle C = \alpha \text{ (alternate } \angle\text{'s } AB \parallel CD)$$

$$\therefore \triangle ABM \parallel \triangle DCM \text{ (equiangular)}$$

also  
 $\triangle ABM$  and  $\triangle DCM$  are  
 Isosceles (base  $\angle$ 's are =)

$$AM = BM \quad (= \text{sides in isosceles } \triangle ABM)$$

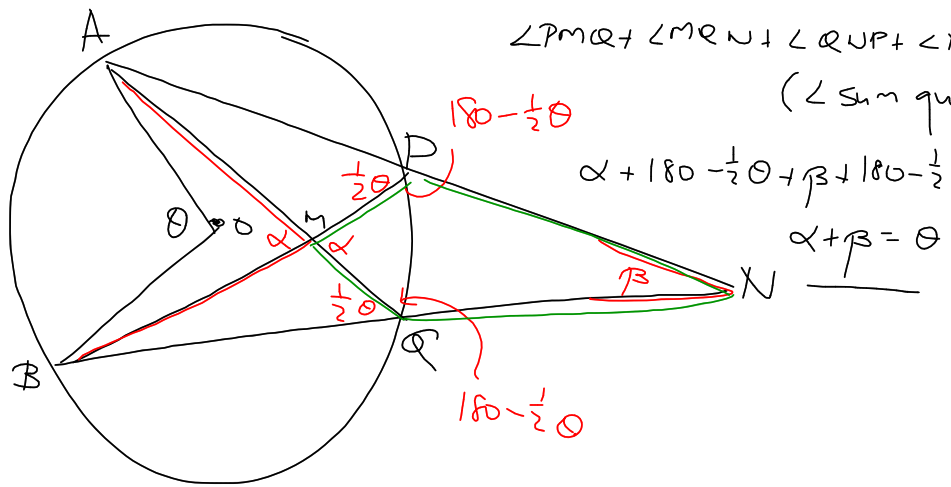
$$DM = CM \quad (= \text{sides in isosceles } \triangle DCM)$$

---


$$AD = BC$$

∑

(b)



$$\angle AMB + \angle ANB = \theta$$

$$\angle PMQ + \angle MRN + \angle QNP + \angle NPM = 360$$

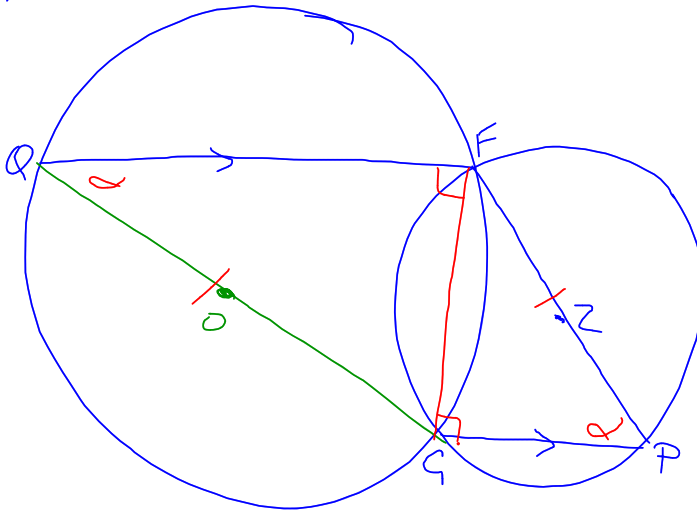
( $\angle$  sum quadrilateral)

$$\alpha + 180 - \frac{1}{2}\theta + \beta + 180 - \frac{1}{2}\theta = 360$$

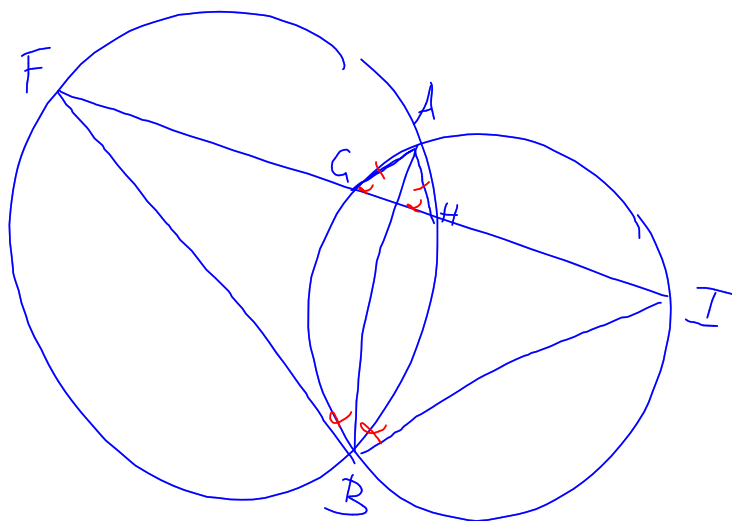
$$\alpha + \beta = \theta$$



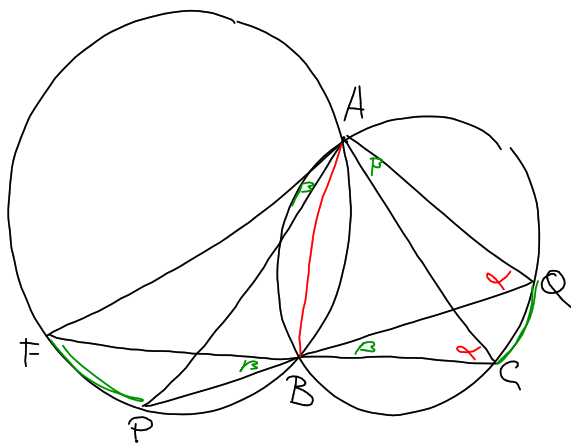
7d)



7e)



7B

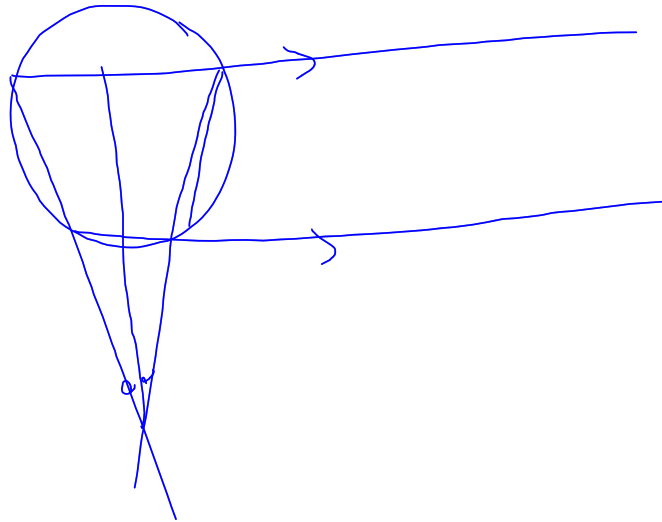


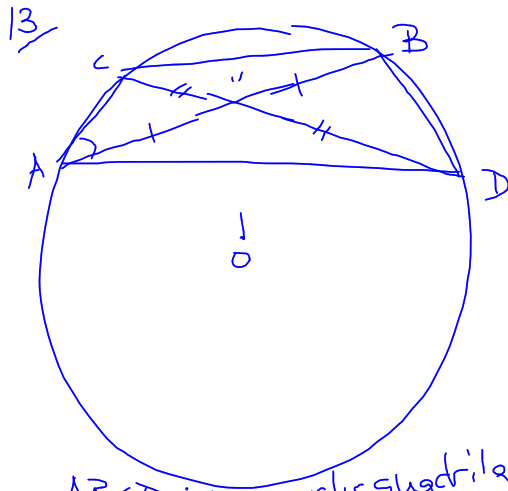
$$\angle FAP = \angle GAQ$$





ds





$$\begin{aligned} \angle OXB &= 90^\circ \quad (\perp \text{ centre, bisects chords}) \\ \angle OXC &= 90^\circ \quad (\perp \text{ centre, bisects chords}) \\ \angle OXC + \angle OXD &= 180^\circ \quad (\text{straight } \angle \text{ CXD}) \\ \therefore \angle OXD &= 90^\circ \end{aligned}$$

$$\text{Thus } \angle BXD = 0^\circ$$

not possible unless AX is B

but AX and BD intersect so

ABCD is a cyclic quadrilateral AX is not BD

$$\therefore \angle CAD + \angle CBD = 180^\circ \quad (\text{opposite } \angle \text{'s supplementary})$$

AB bisects CD

ABCD is ||gram

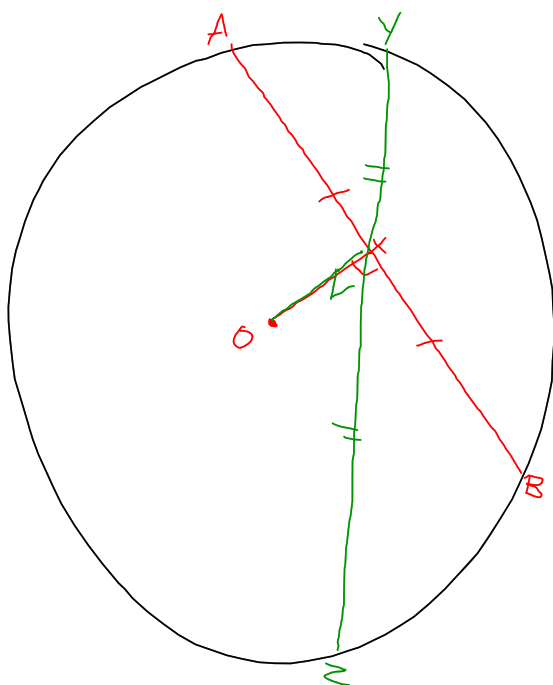
$$\therefore \angle CAD = \angle CBD$$

$$\angle CAD = 90^\circ$$

$\therefore$  CD diameter

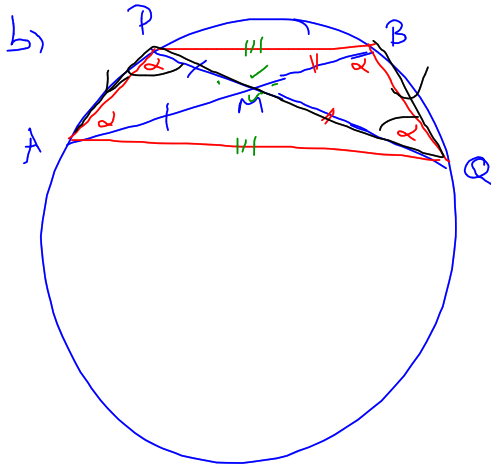
( $\angle$  in a semicircle =  $90^\circ$ )

3a,



$$\angle OXB = 90^\circ$$

$$\angle OXY = 90^\circ$$



$$\begin{aligned}
 MB &= BQ \checkmark \\
 BP &= AQ \checkmark \\
 AP &\parallel QB
 \end{aligned}$$

14

