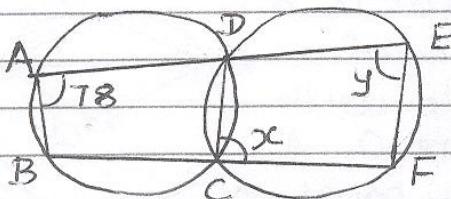


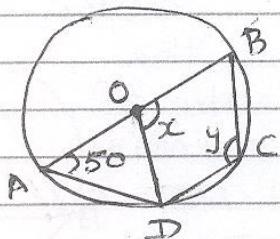
## Worksheet Circles.

Gr IX

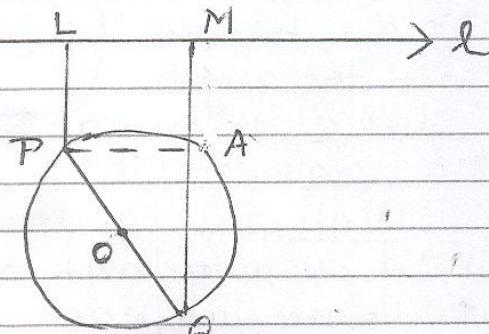
①

Find  $xc$  and  $y$ 

②

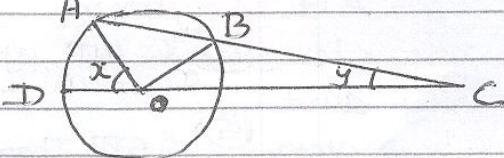
Find  $xc$  and  $y$ .

③



$PQ$  is a diameter of a circle with centre  $O$ . If  $PL$  and  $QM$  are perpendiculars on a line  $l$  and  $QM$  intersects the circle at  $A$ , Prove that  $PL = AM$ .

④.

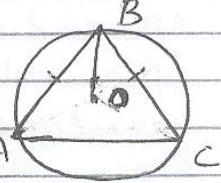


$AB$  is a chord of a circle with centre  $O$  and  $AB$  is produced to  $C$  such that  $BC = OB$ . Also,  $CO$  is joined and produced to meet the circle in  $D$ .

If  $\angle ACD = y$  and  $\angle AOD = x$

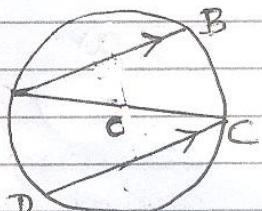
Prove that  $x = 3y$ 

⑤  $\triangle ABC$  is an isosceles triangle in which  $BA = BC$

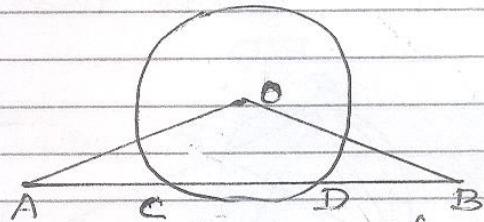


Prove that the line segment joining the centre  $O$  of the circumcircle of  $\triangle ABC$  to the vertex  $B$  bisects  $\angle ABC$ .

⑥  $AC$  is a diameter of a circle with centre  $O$ . If  $AB$  and  $CD$  are two chords such that  $AB \parallel CD$ . Prove that  $AB = CD$ .

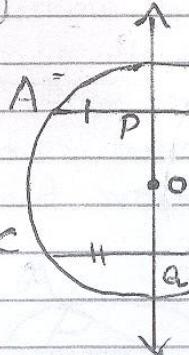


(7)



$O$  is the centre of a circle. In  $\triangle OAB$ ,  $OA = OB$ . Prove that  $AC = BD$

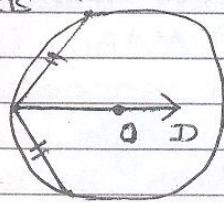
⑧



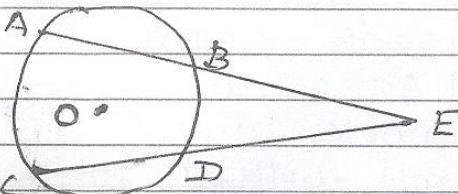
If a diameter

$AB$  of a circle bisects each of the two chords of a circle, prove that the chords are parallel.

- (9) Two chords  $AB$  and  $AC$  of a circle  $A$  are equal. Prove that the centre  $c$  of the circle lies on the angle bisector of  $\angle BAC$

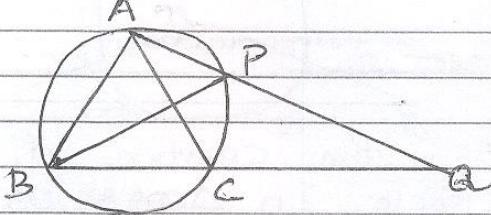


- (10)



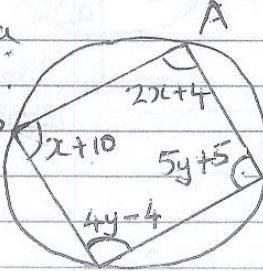
$AB$  and  $CD$  are two cyclic quad. equal chords of a circle whose centre is  $O$ . When produced these chords meet at  $E$ . Prove that  $EB = ED$ .

- (11)

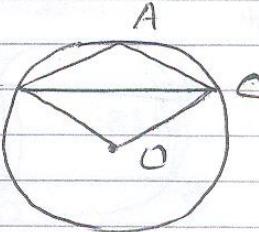


The bisector of  $\angle B$  of an ISOS  $\triangle ABC$  with  $AB = AC$  meets the circum circle of  $\triangle ABC$  at  $P$ . If  $AP$  and  $BC$  produced meet at  $Q$ . Prove that  $CQ = CA$ .

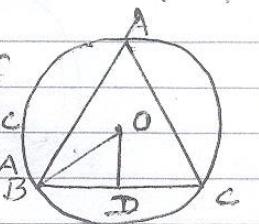
- (12)  $ABCD$  is a cyclic. Quad. Find  $x$  and  $y$ , and thus find angles of Quad.



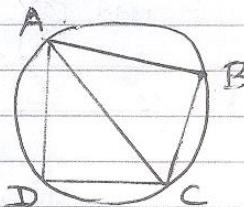
- (13)  $BC$  is a chord of a circle with centre  $O$ .  $A$  is a point on the arc  $CB$ . Prove that  $\angle BAC - \angle OBC = 90^\circ$ .



- (14)  $O$  is the circumcentre of  $\triangle ABC$  and  $OD \perp BC$ . Prove that  $\angle BOD = \angle A$



- (15)  $ABCD$  is a cyclic quad. If  $AC$  bisects both the angles  $A$  and  $C$ , then  $D$  T  $\angle ABC = 90^\circ$



### Hints

(1) Use SAS  $\cong$

(1) Ext.  $\angle$  prop, and prove by  
opp.  $\angle$ s are supp CPCT

$$x = 78 \quad y = 102$$

(2) opp.  $\angle$ s of cyclic, Use  
thm 10.8

(2) Draw lrs.  
make As, prove  
Congruence.

(3) Ext.  $\angle$ les,  
Base  $\angle$ les  $\angle$ le  
in a same  
segment

(2)  $x = 40, y = 25$   
find all  $\angle$ es.

(3) ASP, Thm 10.8

(4) Join  $OC$   
use Cong. Rule

(5) Opp.  $\angle$ s are  
Supp.

— x —

(3) Prove it is a Rectangle

(4) Base  $\angle$ le  
property and

(4) Base  $\angle$ le  
property

(5) Join  $OA, OC$

(5) Use SSS  $\cong$

(6) construct lrs.

(6) prove Cong. As.

(7) Similar to T.B

(7) Ex 10.4, 4th Qn.

(8) Use Thm 10.4