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# MATHS

# BOOKS - MODERN PUBLICATION

# CIRCLES

## Example

**1.** The radius of a circle is 13 cm and the length of one of its chord is 10 cm. Find the distance of the chord from the centre.

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**2.** Find the length of a chord which is at a distance of 24 cm from the centre of a circle whose diameter is 50 cm.

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**3.** Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their

centres is 4 cm. Find the length of the common chord.

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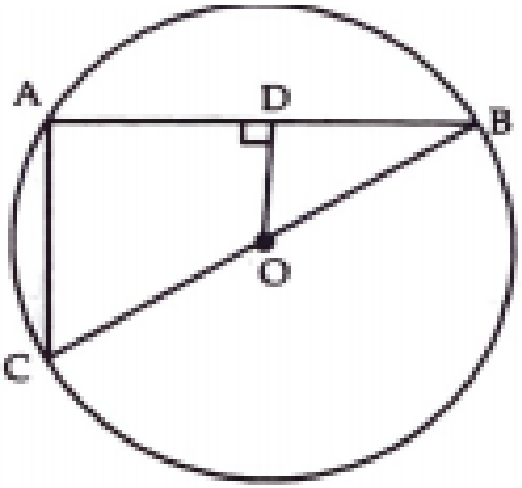
**4.** In the figure




OD is perpendicular to the chord AB of a circle

whose centre is O. If BC is a diameter, show that CA = 2OD

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**5.** Two cocentric circle common centre O. A line 'l' intersects these circle A,B,C and D. Prove that AB = CD.

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**6.** Two circles with centres O and O' intersect at P. Through P, a line 'l' parallel to a OO', meeting circles at C and D, is drawn. Prove that CD = 2OO'

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**7.** Two chords PQ and RS of a circle are parallel to each other and AB is the perpendicular bisector of PQ. Without using any construction, prove that AB bisects RS.

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**8.** Prove that the right-bisector of a chord of a circle bisects the corresponding minor arc of the circle.

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**9.** If a diameter of a cirlce bisects each of the chords of the circle, prove that the chordds are parallel.

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**10.** If two intersecting chords of a circle make equal angles with the diameter passing through their point of intersection, prove that the chords are equal.

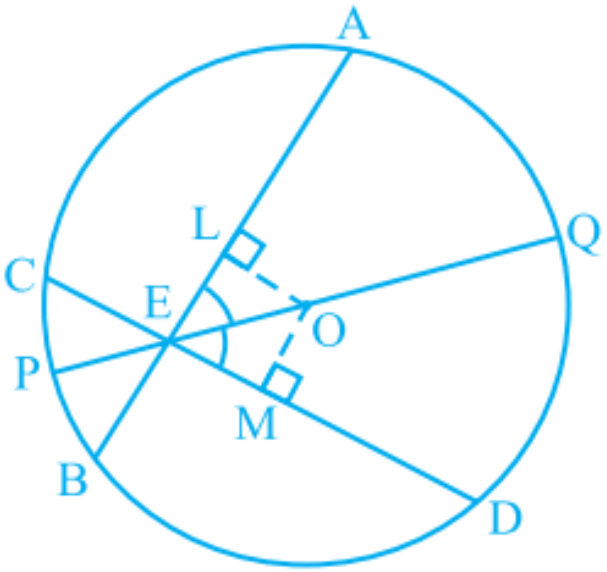


Fig. 10.24

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**11.** AB and CD are two chords of a circle such that AB = 6 cm, CD = 12 cm and AB is parallel to CD. The distance between AB and CD is 3 cm. Find the radius of the circle.

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**12.** Prove that the line of centres of two intersecting circles subtends equal angles at the two points of intersection.

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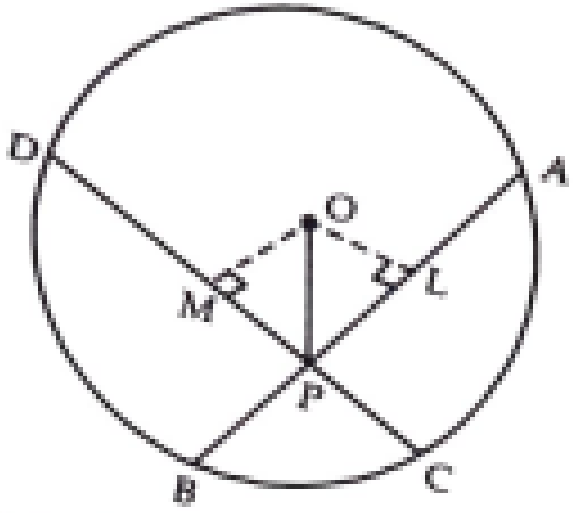
**13.** In the given figure




O is the centre of a circle and PO bisects $\angle APD$. Prove that AB = CD

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**14.** L and M are mid-points of two eqal chords AB and CD of a circle with centre O Prove that $\angle OLM = \angle OML$

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**15.** L and M are mid-points of two equal chords AB and CD of a circle with centre O Prove that $\angle ALM = \angle CML$

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**16.** Two equal chords AB and CD of a circle with centre O, intersect each other at E. Prove that AD = CB

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**17.** Equal chords AB and CD of a circle with centre O, cut at right angles at E. If L and M are the mid-points of AB and CD respectively, prove that OLEM is a square.

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**18.** If two chords of a circle bisect one another they must be diameters.

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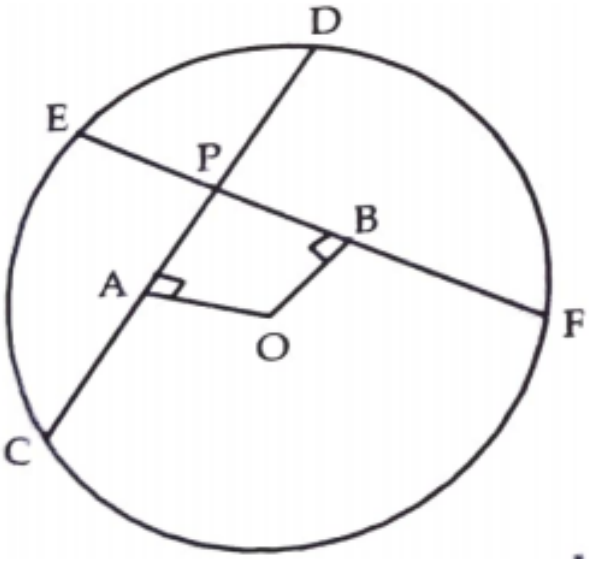
**19.** OA and OB are respectively perpendicular to chors CD and EF of a circle whose centre is

O. If OA = OB, prove that $CE \cong DF$

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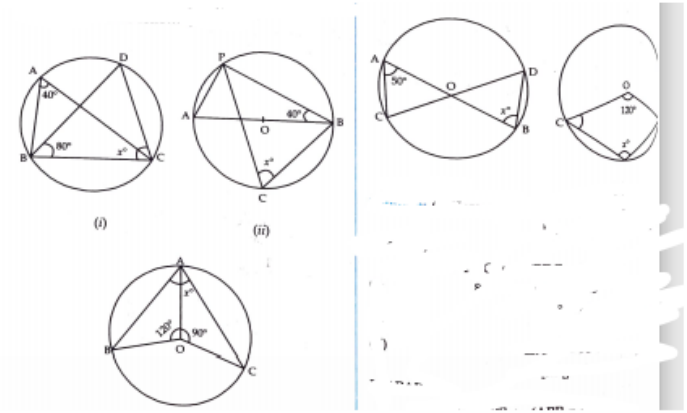
**20.** If O is the centre of a circle, find the value of x in each of the following figures

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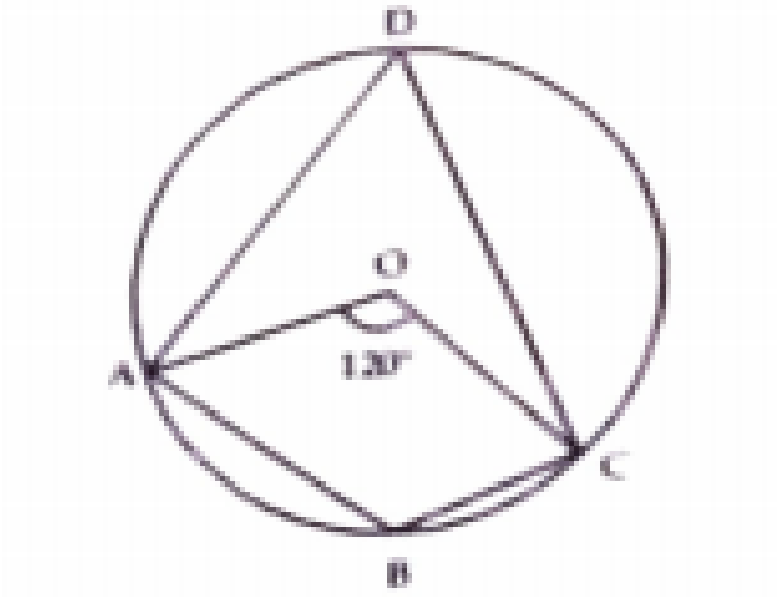
**21.** O is the centre of the circle and the measure of arc AOC is $120^\circ$. Find

$\angle ADC$ and $\angle ABC$

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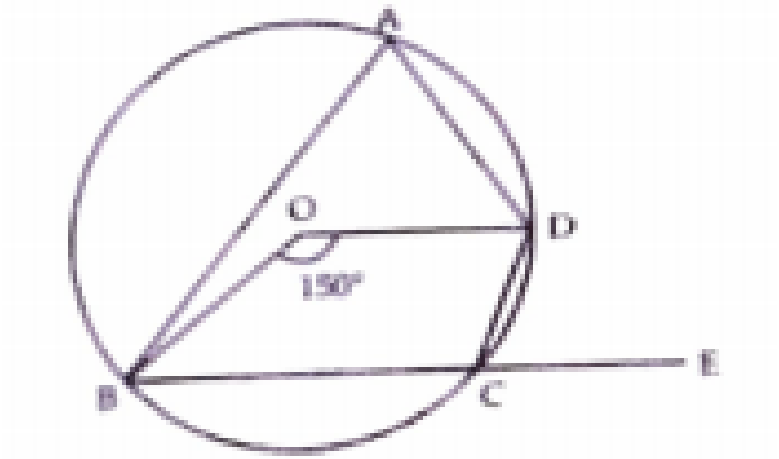
**22.** O is the centre of the circle. The angle subtended by the ar BCD at the centre is $150^\circ$.

BC is produced to E. Find $\angle BAD$ and $\angle BCD$

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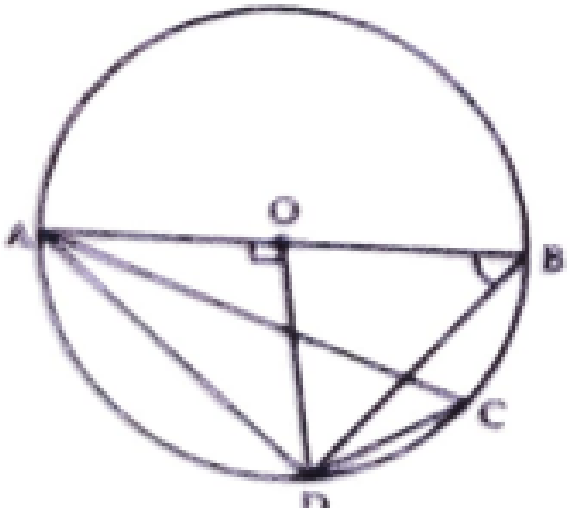
**23.** AB is a diameter of the circle C(AO,R) and the radius OD is perpendicular to AB. If C is any point on the arc DB, find

$\angle BAD$ and $\angle ACD$

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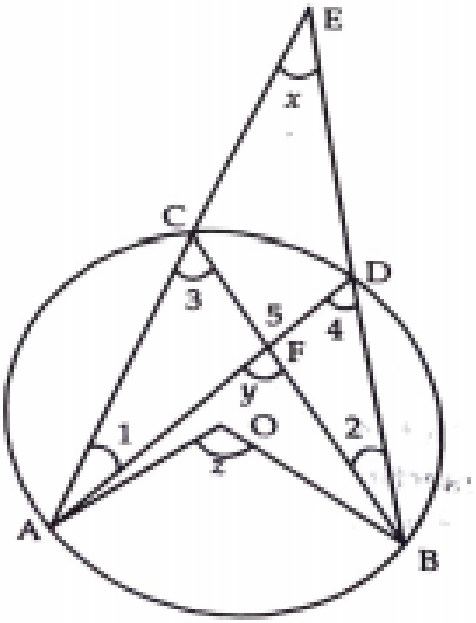
**24.** O is the centre of the circle. Prove that

$\angle x + \angle y = \angle z$

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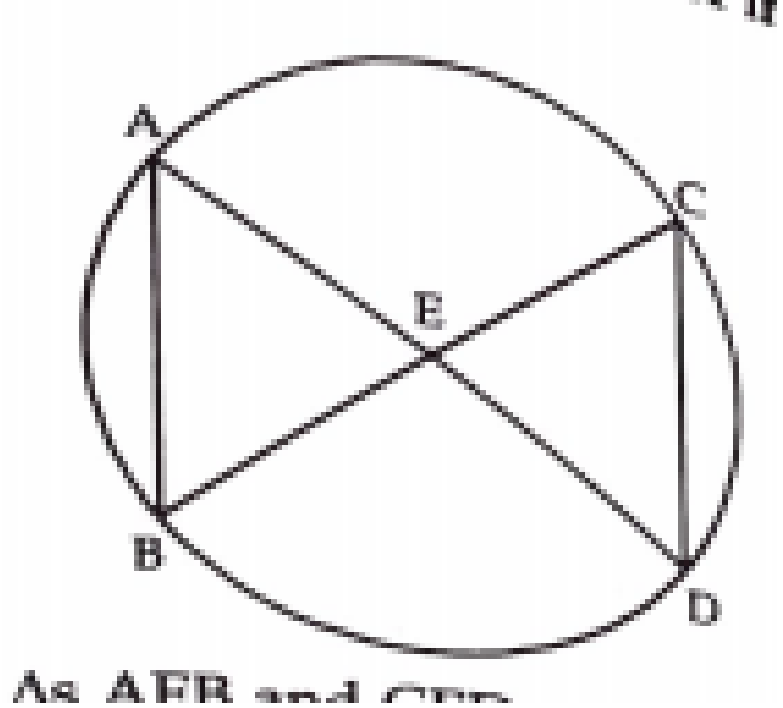
**25.** AB = CD. Prove that BE = and AE = Ce, where

E is the point of intersection AD and BC.

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**26.** ABC and ADC are two right triangles with common hypotenuse AC. Prove that $\angle CAD = /_\text{CBD}$`.

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**27.** If O is the circumcentre of a $\triangle ABC, OD \perp BC,$ prove that $\angle BOD = \angle A$

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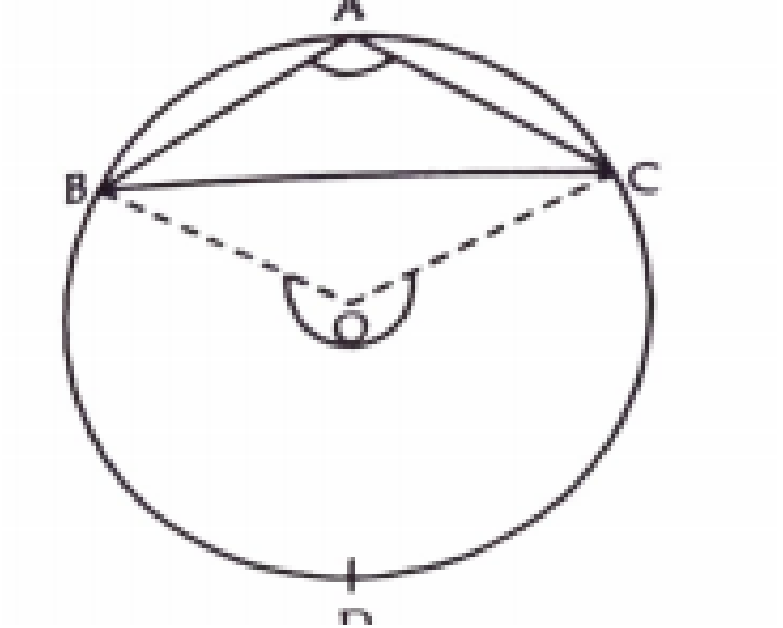
**28.** Prove that the angle in a segment smaller than a semi-cricle is greater than a right angle.

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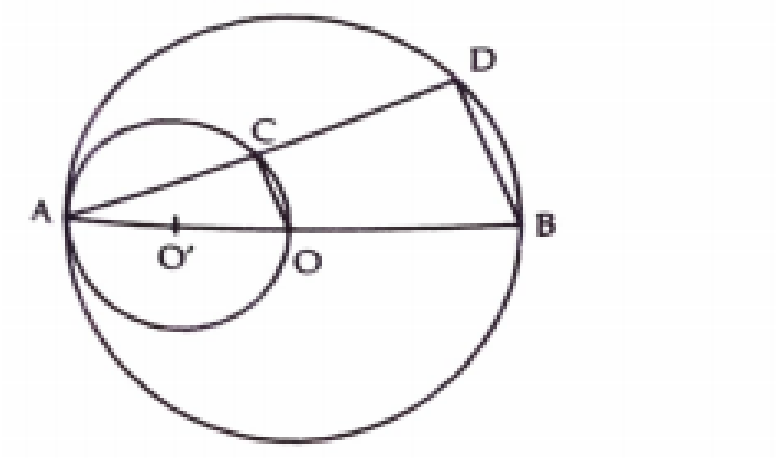
**29.** AB is a diameter of a circle having centre O and a circle is described having AO as diameter. A chord AD of the bigger circle intersects the smaller circle at C. Prove that BD

= 2OC.

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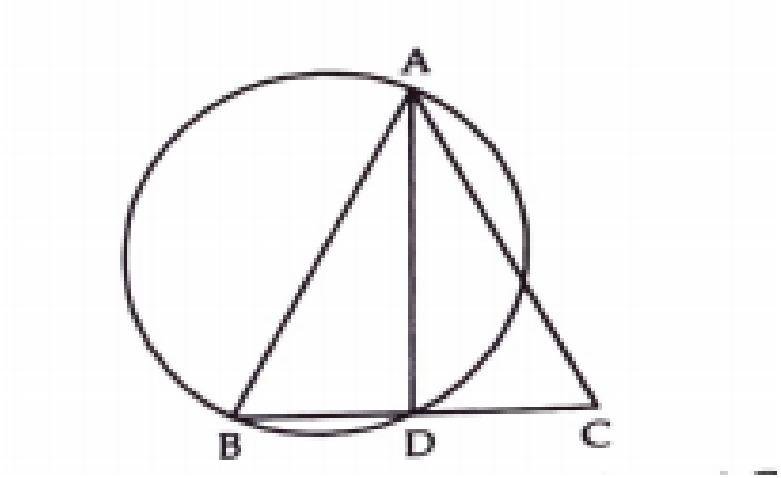
**30.** Prove that the circle drawn on any one of the equal sides of an isosceles triangle as

diameter bisects the base.

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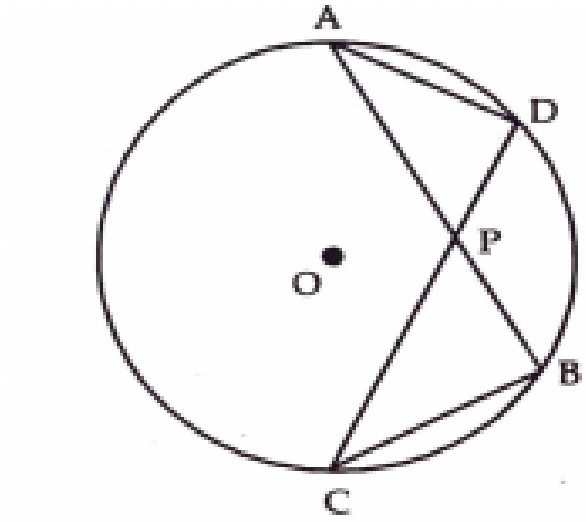
**31.** In the figure




AB and CD are two chords of a circle, intersecting each other at P such that AP = CP show thawt AB = CD.

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**32.** Prove that in a right angled triangle the mid-point of the hypotenuse is equidistant from its vertices.

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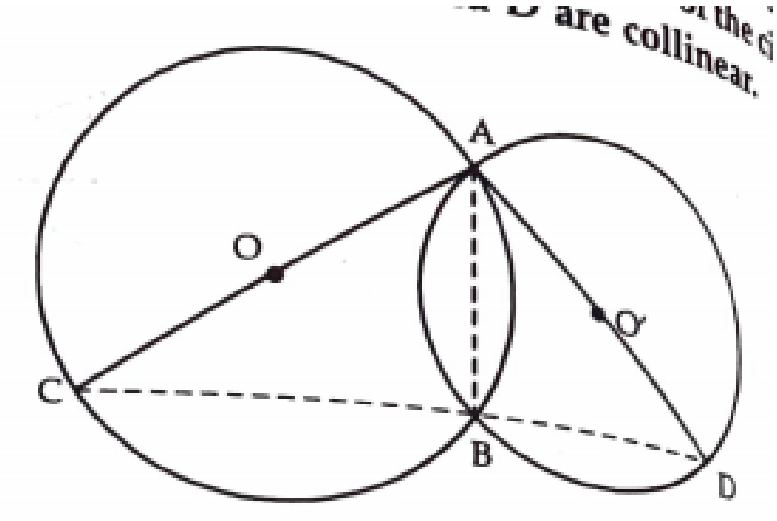
**33.** Two circles intersect at A and and AC,AD are respectively the diameter of the circle .

Prove that the points C,B and D are collinear.

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**34.** ABCD is a cyclic quadrilateral in which AC and BD are its diagonals.If $\angle DBC = 70^\circ$ and $\angle BAC = 30^\circ$ find $\angle BCD$

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**35.** ABCD is a cyclic quadrialteral O is the centre of the circle. If $\angle BOD = 160^\circ$, find $\angle BPD$

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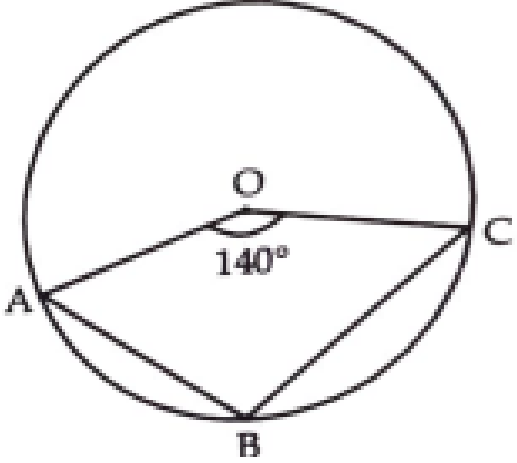
**36.** O is the4 centre of the circle. If $\angle AOC = 140^\circ$. Find $\angle ABC$

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**37.** If O is the centre of the circle, $\angle AOC = 110^\circ$ and side AB is produced to D, find $\angle CBD$

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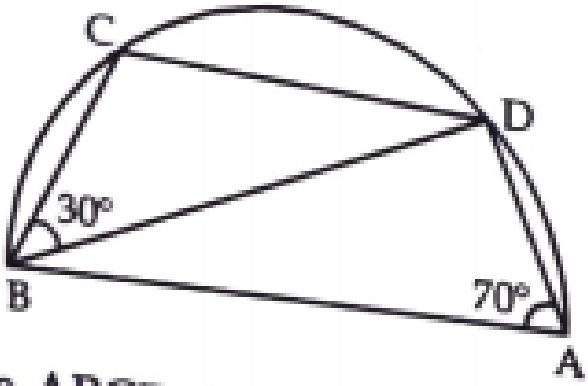
**38.** C and D are the points on the semi-circle described on BA as diameter. Given $\angle BAD = 70^\circ$ and $\angle DBC = 30^\circ$. Find $\angle ABD$ and $\angle BDC$

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**39.** A,B,C and D,E,f are two of collinear points. Prove that AD||CF

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**40.** ABC is an isosceles triangle in which AB = AC. If D and E are the mid-points of AB and respectively, prove that B,C,D and E are concyclic.

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**41.** AOB is a diameter of the circle withi centre O. Find the numerical value of $\angle ACD + \angle DEB$

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**42.** ABCD is a cyclic quadrilateral. A circle passing through A and B meets AD and BC in E and F respectively. Prove that EF||DC

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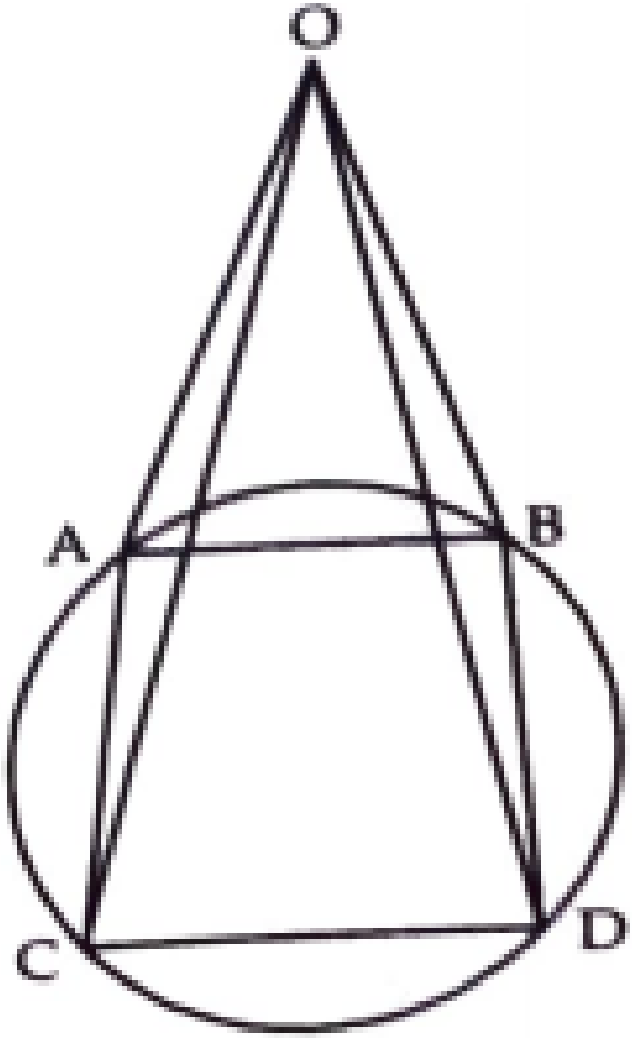
**43.** AB and CD are two parallel chords of a circle and lines CA and DB intersect each other at O. Show that OA = OB.



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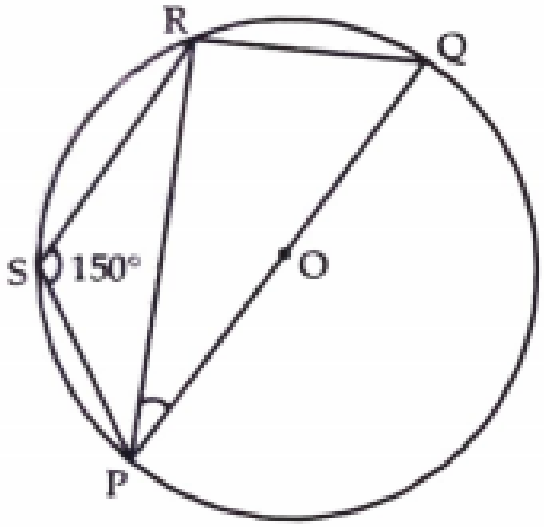
**44.** POQ is a diameter and PQRS is a cyclic quadrilateral. If $\angle PSR = 150^\circ$, find $\angle RPQ$

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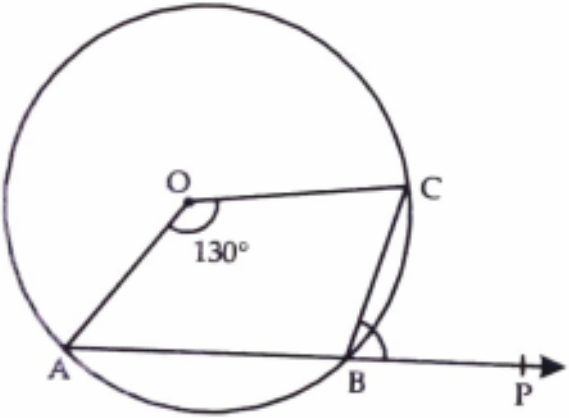
**45.** O is the centre of the circle and arc ABC subtends an angle of $130^\circ$ at the centre. If AB is extended to P, find $\angle PBC$

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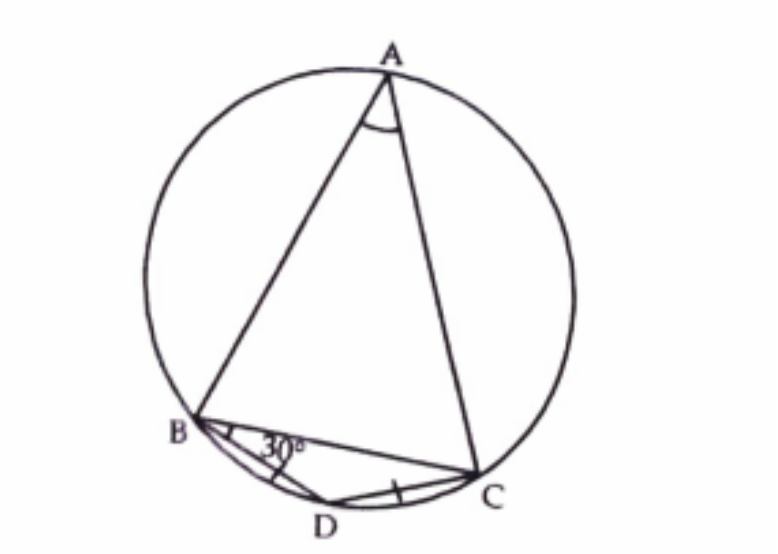
**46.** BD = DC and $\angle CBD = 30^\circ$, find $m\angle BAC$

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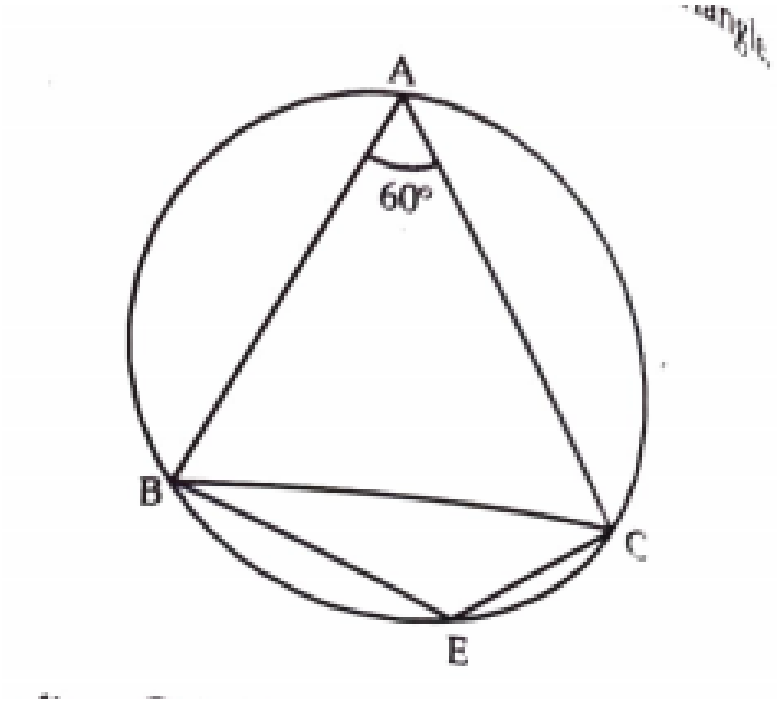
**47.** $\triangle ABC$ is an equilateral triangle $\angle BEC$

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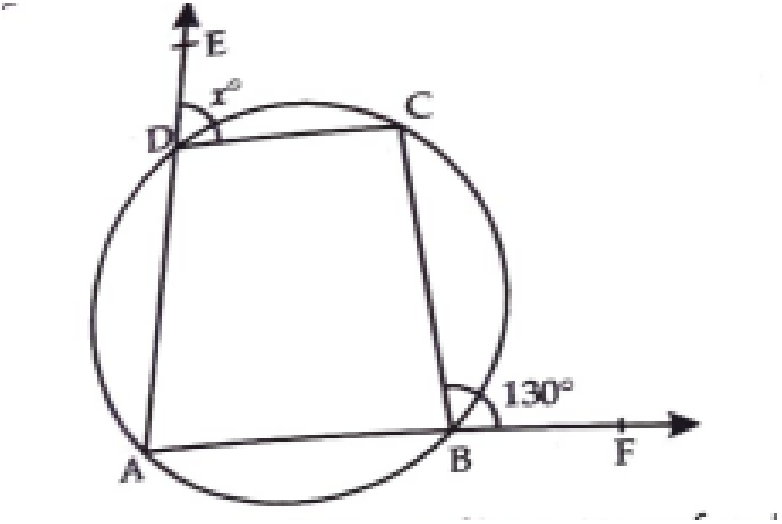
**48.** Sides AD and AB of cyclic quadrilateral ABCD are produced to E and F respectively. If $\angle CBF = 130^\circ$ and $\angle CDE = x^\circ$, find the value of x.

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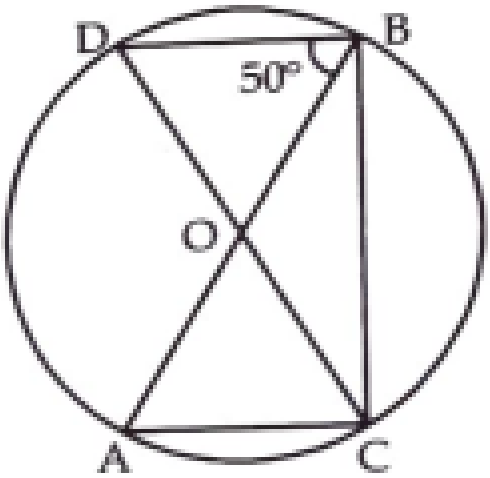
**49.** AB and CD are diameters of a circle with centre O. If $\angle OBD = 50^\circ$, find $\angle AOC$

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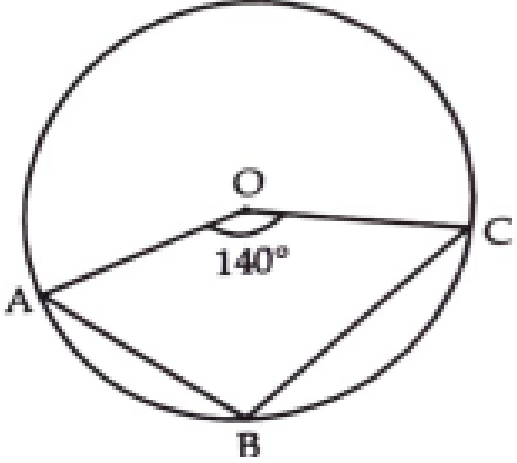
**50.** O is the4 centre of the circle. If $\angle AOC = 140^\circ$. Find $\angle ABC$

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**51.** O is the centre of a circle. If $\angle AOD = 140^\circ$ and $\angle CAB = 50^\circ$, calculate the $\angle EBD$

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**52.** Prove that the circle drawn with any side of a rhombus as diameter, passes through the point of intersection of its diagonals.

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**53.** Chords AB and Cd of a circle are produced to meet at E. Prove that $\triangle EDB$ and $\triangle EAC$ are similar.

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**54.** Prove that the centre of the circle circumscribing the cyclic rectangle ABCD is the point of intersection of its diaognsls.

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**55.** Prove that the circle drawn with any side of a rhombus as diameter, passes through the point of intersection of its diagonals.

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**56.** ABCD is a cyclic quadrilateral in which BA and CD when produced meet in E and EA = Ed. Prove that AD ||BC

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**57.** ABCD is a cyclic quadrilateral in which BA and CD when produced meet in E and EA = Ed. Prove that EB = EC

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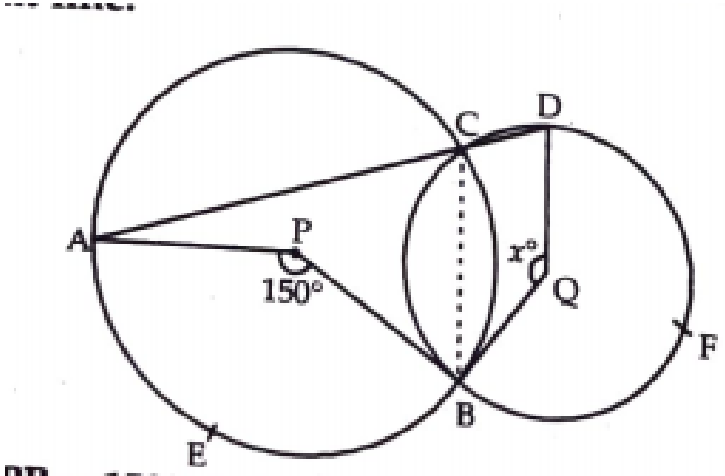
**58.** P and Q are centres of two circles, intersecting at B and C, and ACD is a striaght line.




If $\angle APB = 150^\circ$ and $\angle BQD = x^\circ$, find the value of x.

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**59.** Prove that any four vertices of a regular pantagon are concyclic.

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**60.** If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.

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**61.** If two equal chords of a circle intersect within the circle, prove that the line joining the point of intersection to the centre makes equal angles with the chord.

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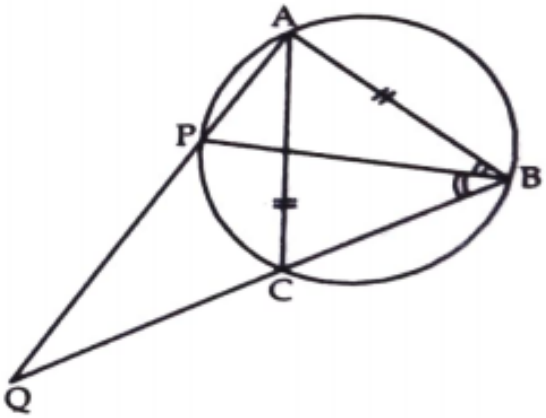
**62.** The bisector of $\angle B$ of an isosceles triangle $\triangle ABC$ with AB = AC meets the circumcircle of $\triangle ABC$ at P as shown in the figure. If AP and BC produced meet at Q, prove that CQ =

CA.

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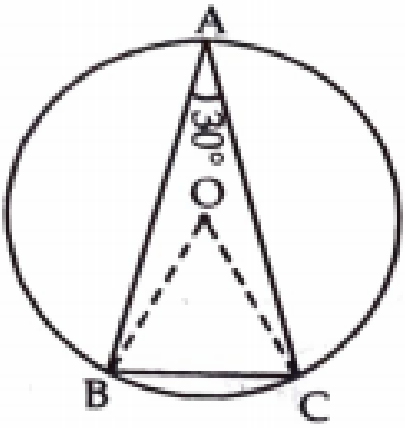
**63.** ABC is a triangle in which $\angle BAc = 30^\circ$.

Prove that BC is the radius of the circumcircle

of $\triangle ABC$, whose centre O.

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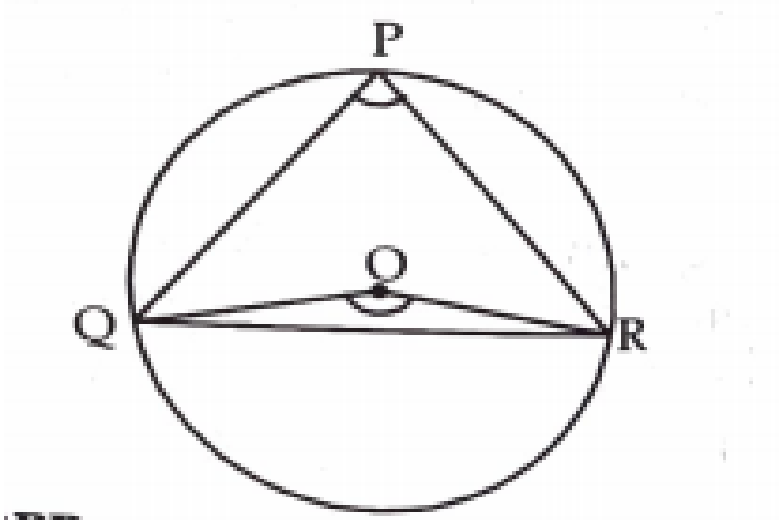
**64.** Three STd booths situated at P,Q and R is the fiure are operated by handicaped ersons. These three booths are equidistant from each other




Find

$\angle QPR$

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**65.** Recall that two circles are congruent if they have the same radii. Prove that equal chords of congruent circles subtend equal angles at their centres.

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**66.** Prove that if chords of congruent circlessubtend equal angles at their centres, then the chords are equal.

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**67.** Draw different pairs of circles. How many points does each pair have in common ? What is the maximum number of common points ?

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**68.** Suppose you are given a circle. Give a construction to find its centre.

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**69.** If two circles intersect at two points, prove that their centres lie on the perpendicular bisector of the common chord.

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**70.** Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm. Find the length of the common chord.

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**71.** If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.

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**72.** If two equal chords of a circle intersect within the circle, prove that the line joining the point of intersection to the centre makes equal angles with the chord.

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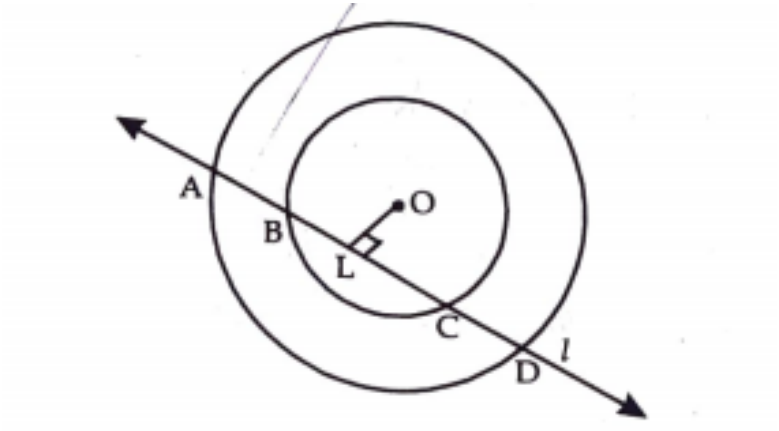
**73.** If a line intersects two concentric circles (circles with the same centre) with centre O at

A,B,C and D, prove that AB = CD

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**74.** A circular park of radius 20 m is situated in a colony. Three boys Ankur, Syed and David are sitting at equal distance on its boundary each having a toy telephone in his hands to talk

each other. Find the length of the string of each phone.

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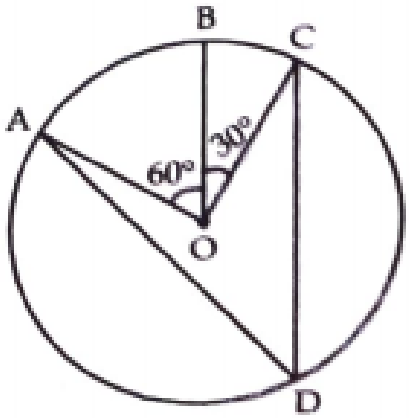
**75.** A,B and C are three points on a circle with centre AO such that $\angle BOC = 30^\circ, \angle AOB = 60^\circ$. If D is a point on the circle other than the are ABC, find

$\angle ADC$

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**76.** A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord on a point on the minor arc and also at a point on the major arc.

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**77.** In the given figure, $\angle PQR = 100^\circ$, where P, Q and R are points on a circle with centre O. Find $\angle OPR$.

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**78.** In Fig. 10.38, $\angle ABC = 69^\circ$, $\angle ACB = 31^\circ$, find $\angle BDC$.

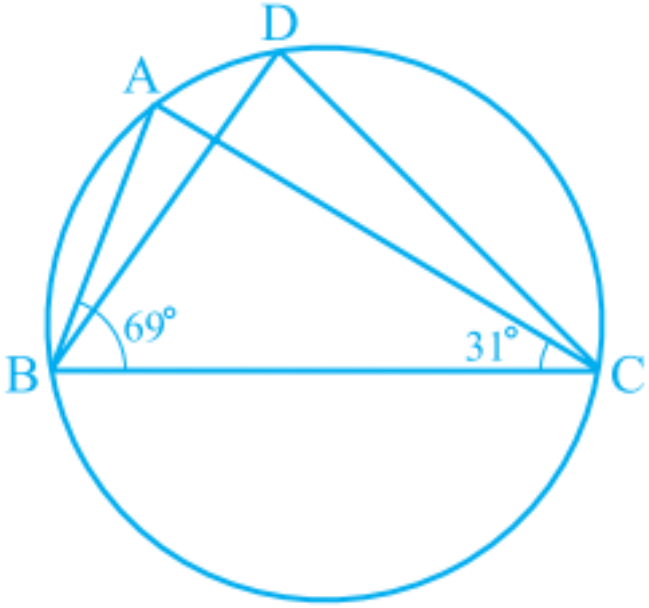


Fig. 10.38

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**79.** ABCD is a cyclic quadrilateral whose diagonals intersect at a point E.

$\angle DBC = 70^\circ$, $\angle BACis30^\circ$, find $\angle BCD$.

Futher, if AB = BC, find $\angle ECD$.

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**80.** If diagonals of a cyclic quadrilateral are diameters of the circle through the vertices of the quadrilateral, prove that it is a rectangle.

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**81.** If the non-parallel sides of a trapezium are equal, prove that it is cyclic.

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**82.** If circles are drawn taking two sides of a triangle as diameters, prove that the point of intersection of these circles lie on the third side.

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**83.** ABC and ADC are two right triangles with common hypotenuse AC. Prove that $\angle CAD = /_\text{CBD}$`.

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**84.** Prove that a cyclic parallelogram is a rectangle.

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**85.** Prove that the line of centres of two intersecting circles subtends equal angles at the two points of intersection.

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**86.** Two chords AB and CD of lengths 5 cm and 11 cm respectively of a circle are parallel to each other and are on opposite sides of its centre. If the distance between AB and CD is 6 cm, find the radius of the circle.

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**87.** The lengths of two parallel chords of a circle are 6 cm and 8 cm. If the smaller chord is at a distance of 4 cm from the centre, what is the distance of the other chord from the centre ?

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**88.** Let vertex of an angle ABC be located outside a circle and let the sides of the angle

intersect chords AD and CE with the circle. Prove that $\angle ABC$ is equal to half the difference of the angles subtended by the chords AC and DE at the centre.

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**89.** Prove that the circle drawn with any side of a rhombus as diameter, passes through the point of intersection of its diagonals.

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**90.** ABCD is a parallelogram. The circle through A, B and C intersect CD (produced if necessary) at E. Prove that AE = AD.

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**91.** AC and BD are chords of a circle which bisect each other. Prove that (i) AC and BD are diameters, (ii) ABCD is a rectangle.

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**92.** AC and BD are chords of a circle which bisect each other. Prove that (i) AC and BD are diameters, (ii) ABCD is a rectangle.

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**93.** Bisectors of angles A, B and C of a triangle ABC intersect its circumcircle at D, E and F respectively. Prove that angles of the triangle are $90^\circ - \frac{A}{2}, 90^\circ - \frac{B}{2}$ and $90^\circ - \frac{C}{2}$ respectively.

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**94.** Two congruent circles intersect each other at points A and B. Through A any line segment PAQ is drawn so that P, Q lie on the two circles. Prove that BP = BQ.

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**95.** In any triangle ABC, if the angle bisector of $\angle A$ and perpendicular bisector of BC

intersect, prove that they intersect on the circumcircle of the triangle ABC.

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**96.** (True/ False) Two chords AB and CD of a circle are each at distances 4 cm from the centre. Then AB = CD.

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**97.** Two chords AB and AC of a circle with centre O are on the opposite sides of OA. Then $\angle OAB = \angle OAC$

Watch Video Solution

**98.** (True/ False) Two congruent circles with centres O and O' intersect at two points A and B. Then $\angle AOB = \angle AO'B$.

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**99.** Through three collinear points a circle can be drawn.

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**100.** (True/ False) A circle of radius 3 cm can be drawn through two points A, B such that AB = 6 cm.

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**101.** (True/ False) If AOB is a diameter of a circle and C is a point on the circle, then $AC^2 + BC^2 - AB^2$.

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**102.** (True/ False) ABCD is a cyclic quadrilateral such that $\angle A = 90^\circ$, $\angle B = 70^2$, $\angle C = 95^\circ$ and $\angle D = 105^2$.

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**103.** (True/ False) If A, B, C, D are four points such that $\angle BAC = 30^\circ$ and $\angle BDC = 60^\circ$, then D is the centre of the circle through A, B and C.

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**104.** (True/ False) If A, B, C and D are four points such that $\angle BAC = 45^\circ$ and $\angle BDC = 45^\circ$, then A, B, C, D are concyclic.

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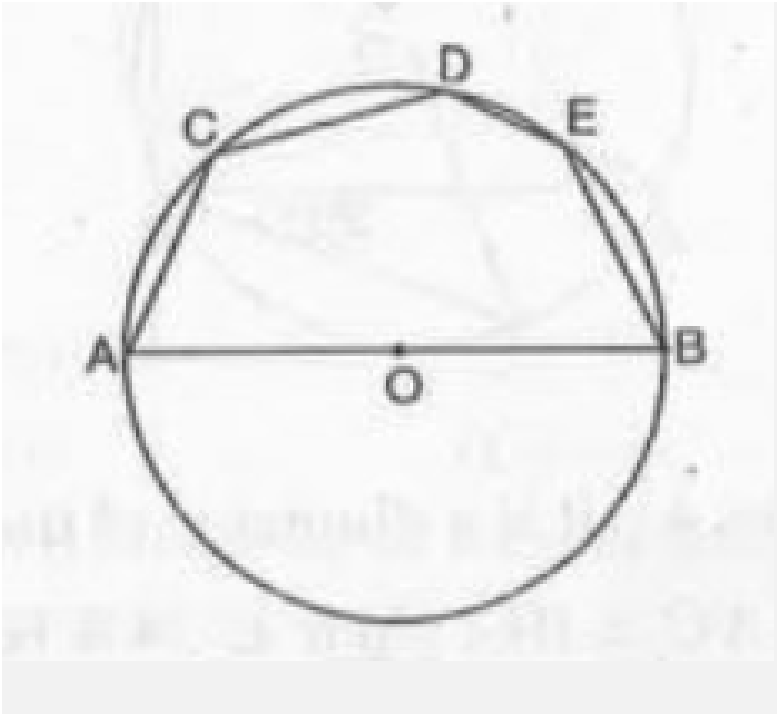
**105.** (True/ False) In Fig.




If AOB, is a diameter and $\angle ADC = 120^\circ$, then

$\angle CAB = 30^\circ$.

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**106.** If arcs AXB and CYD of a circle are congruent, find the ratio of AB and CD.

Watch Video Solution

**107.** If the perpendicular bisector of a chord AB of a circle PXAQBY intersects the crlce at P and Q, prove tawt arc PXA $\cong$ arc PYB.

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**108.** Two triangles ABC and PQR are such that the perpendiculars from A to QR ,B to RP and C to PQ are concurrent .Show that the perpendicular from P to BC ,Q to CA and R to AB are also concurrent .

Watch Video Solution

**109.** If two equal chords intersect each other, then the bisector of the angle between them pass through the centre.

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**110.** If a diameter of a cirlce bisects each of the chords of the circle, prove that the chordds are parallel.

**111.** ABCD is such a quadrilateral A is the centre of the circle passing through B,C and D. Prove that : $\angle CBD + \angle CDB = \frac{1}{2}\angle BAD$

**112.** O is the circumcentre of the triangle ABC and D is the mid-point of the base BC. Prove that $\angle BOD = \angle A$

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**113.** On a common hypotenuse AB, two right triangles ACB and ADB are situated on opposite $\angle BAC = \angle BDC$

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**114.** Two chords AB and AC of a circle subtend angles equal to $90^\circ$ and $150^\circ$, respectively at the centre. Find $\angle BAC$, if AB and AC lie on the opposite sides of the centre.

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**115.** If D, E and F are three points on the sides BC, CA and AB, respectively, of a triangle ABC such that the lines AD, BE and CF are

concurrent, then show that

$$\frac{BD}{CD} \cdot \frac{CE}{AE} \cdot \frac{AF}{BF} = 1$$

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**116.** If a pair of opposite sides of a cyclic quadrialteral are equal, prove that its diagonals are also equal.

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**117.** If O is the circumcentre of a $\triangle ABC, OD \perp BC,$ prove that $\angle BOD = \angle A$

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**118.** A chord of a circle is equal to the radius. Find the angle subtended by this chord at a point in major segment.

Watch Video Solution

**119.** ABCd is a cyclic quadrialteral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 140^\circ$, $then \angle BAC$ is equal to

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**120.** Two circles with centres O and O' intersect at P. Through P, a line 'l' parallel to a OO', meeting circles at C and D, is drawn. Prove that CD = 2OO'

Watch Video Solution

**121.** AOB is a diameter of the circle withi centre O. Find the numerical value of $\angle ACD + \angle BED$

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**122.** If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.

Watch Video Solution

**123.** If the non-parallel sides of a trapezium are equal, prove that it is cyclic.

Watch Video Solution

**124.** If P,Q and R are the mid-point of the side BC,CA and AB of a triangle and AD is the perpendicular form A and BC, prove that P,Q and D are concylic.

Watch Video Solution

**125.** ABCD is a parallelogram. The circle through A,B is so drawn that it intersects AD at P and CB at Q. Prove that P,Q,C and D are concyclic.

Watch Video Solution

**126.** The angle bisector of any angle of a triangle and perpendicular bisector of the opposite side if intersect, they will intersect on the circumcircle of the triangle.

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**127.** If the chords AB and CD of a circle AYDZBWCX intersect at right angle prove that arc CXA + ar DZB = arc AYD+ arc BWC = Semicircle.

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**128.** If ABC is an equilateral triangle inscribed in a circle and P be any point on the minor arc

BC which does not coincide with B or C, prove that PA is angle bisector of $\angle BPC$.

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**129.** If bisectors of opposiste angles of a cyclic quadrilateral ABCD intersect the circle, circumscribing it at the points P and Q, prove that PQ is a diameter of the circle.

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**130.** A circle has radius $\sqrt{2}cm$. It is divided into two segments by a chord of length 2 cm. prove that angle subtended by chord at a point in major segment is $45^\circ$

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**131.** Two equal chords AB and CD of a cirlce when produced intersect at a point P. Prove that PB = PD.

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**132.** AB and AC are two chords of a circle of radius r such that AB = 2AC. If p and q are the distances of AB and AC from the centre, prove that $4q^2 = p^2 + 3r^2$

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## Exercise

**1.** The radius of a circle is 8 cm and the length of its chords is 12 cm. Fid the distance of the

from the centre.

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**2.** Find the length of a chord which is at a distance of 24 cm from the centre of a circle whose diameter is 50 cm.

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**3.** A chord of length 16 cm is drawn in a circle of radius 10 cm. Find the distance of the chord

from the of the circle.

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**4.** Find the length of a chord which is at a distance of 24 cm from the centre of a circle whose diameter is 50 cm.

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**5.** PQ and RS are two parallel chords of a circle whose centre is O and radius is 10 cm. If PQ =

16 cm and RS = 12 cm, find the distance between PQ and RS, if they lie on the same side of the centre O.

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**6.** PQ and RS are two parallel chords of a circle whose centre is O and radius is 10 cm. If PQ = 16 cm and RS = 12 cm, find the distance between PQ and RS, if they lie on the opposite side of the centre O.

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**7.** AB and CD are two chords of a circle such that AB = 6 cm, CD = 12 cm and AB is parallel to CD. The distance between AB and CD is 3 cm. Find the radius of the circle.

**8.** Two parallel chords of lengths 30 cm and 16 cm are drawn on the opposite sides of the centre of a circle of radius 17 cm. find the distance between the chords.

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**9.** In an equilateral triangle, prove that centroid and circumcentre coincide.

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**10.** Two chords PQ and RS of a circle are parallel to each other and AB is the perpendicular bisector of PQ. Without using any construction, prove that AB bisects RS.

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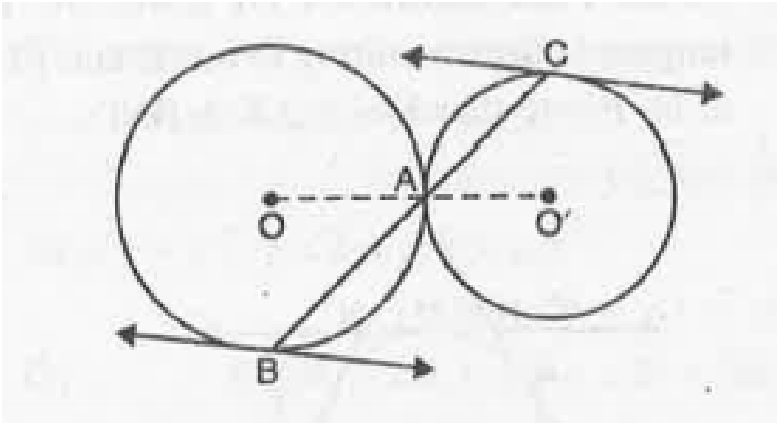
**11.** In fig., two circles with centres O, O' touch externally at a point A. A line through A is drawn to intersect these circles in B and C. Prove that the tangents at B and C are parallel.

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**12.** Prove that the right-bisector of a chord of a circle bisects the corresponding minor arc of the circle.

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**13.** Two chords AB and AC of a circle are equal. Prove that the centre of the circle lies on the angle bisector of $\angle BAC$.

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**14.** Two equal chords AB and CD of a circle C(O,r) when produced meet at a point E. Prove that:

BE = DE

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**15.** Two equal chords AB and CD of a circle C(O,r) when produced meet at a point E. Prove that:

AE = CE

Watch Video Solution

**16.** If a diameter of a cirlce bisects each of the chords of the circle, prove that the chordds are parallel.

Watch Video Solution

**17.** Prove that the perpendicular at the point of contact to the tangent to a circle passes through the centre.

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**18.** Diameter is the largest chord of the circle. (True/False)

Watch Video Solution

**19.** PQ and RQ are chords of a circle equidistant from the centre. Prove that the diameter passing through Q bisects $\angle PQR$

Watch Video Solution

**20.** In given Fig.

, AD = AE and D and E are points on BC, such that BD = EC. Prove that AB = AC.

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**21.** Prove that of all chords of a circle through a given point within it, the least is one. Which is bisected at that point.

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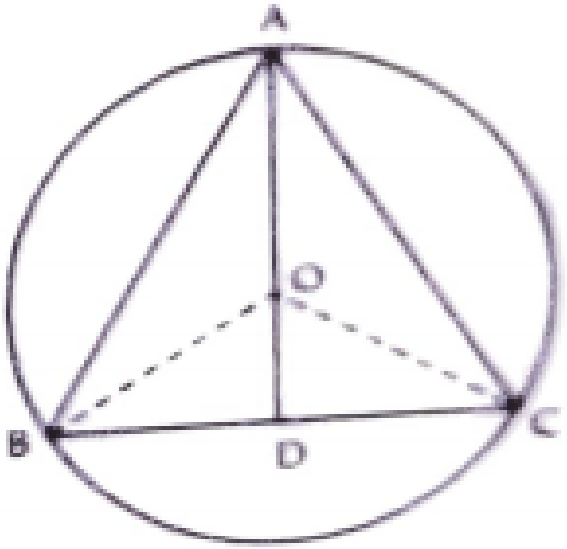
**22.** Bisector AD of $\angle BACof \triangle ABC$ passes through the centre O of the circumcircle of $\triangle ABC$ as shown in the figure Prove that AB = AC

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**23.** If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.

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**24.** If two equal chords of a circle intersect within the circle, prove that the line joining the point of intersection to the centre makes equal angles with the chord.

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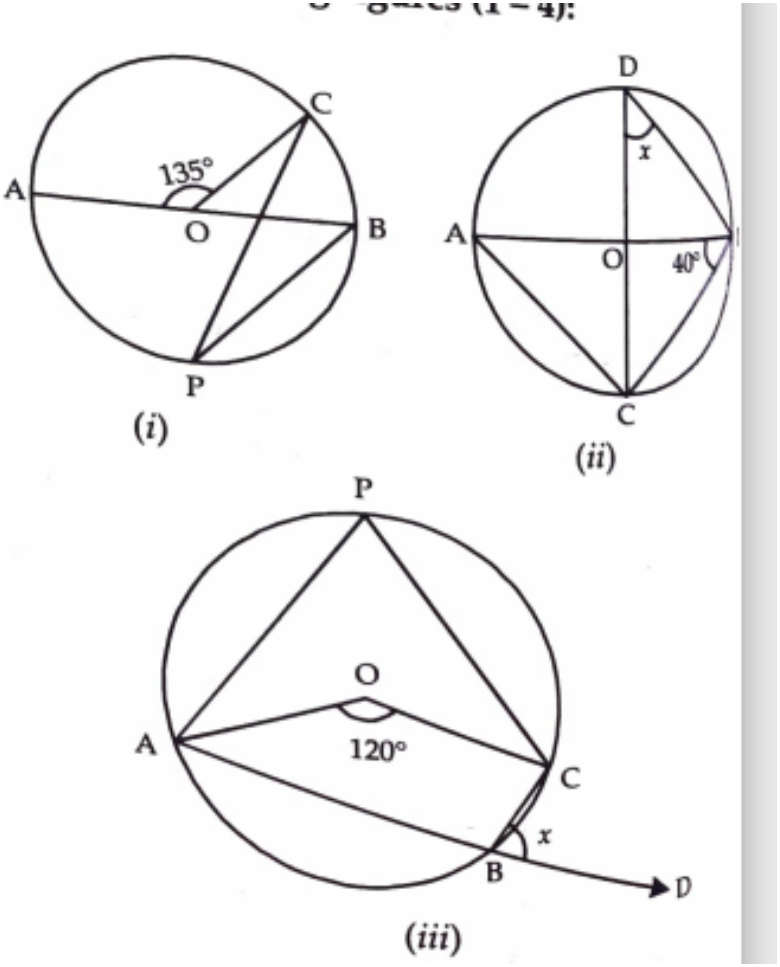
**25.** If O is the centre of the circle, find the value of x in each of the following

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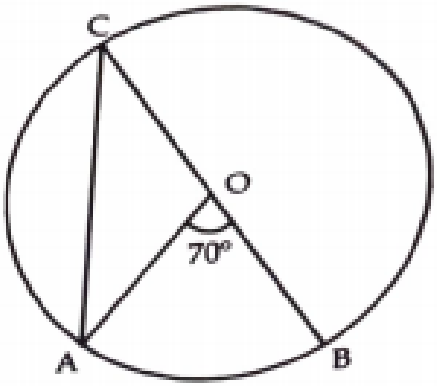
**26.** O is the centre of the circle and $\angle AOB = 70^\circ$. Calculate the values of $\angle OCA$

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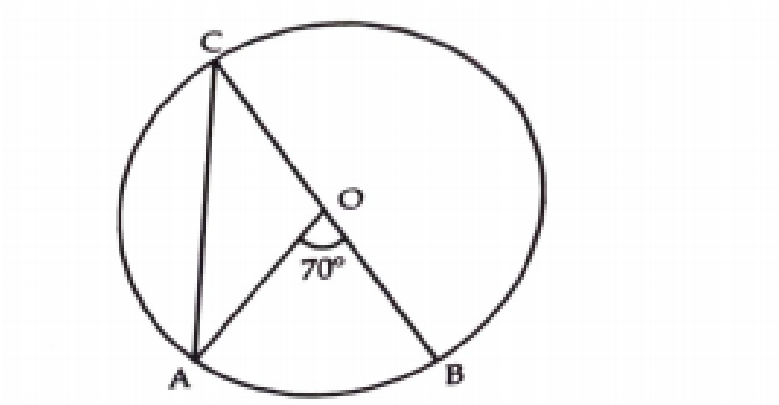
**27.** O is the centre of the circle and $\angle AOB = 70^\circ$. Calculate the values of $\angle OAC$

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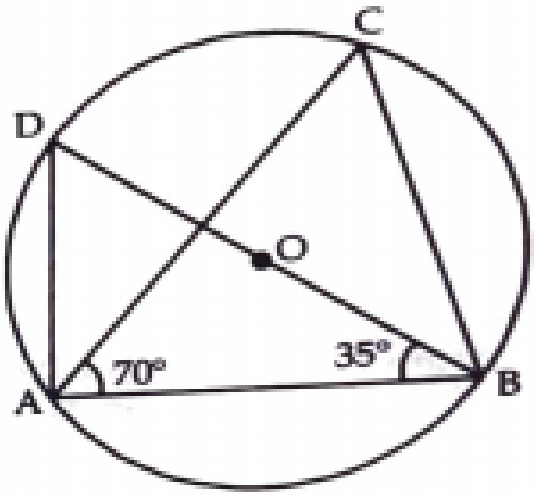
**28.** O is the centre of the circle. If $\angle ABD = 35^\circ$ and $\angle BAC = 70^\circ$. Find

$\angle ACB$

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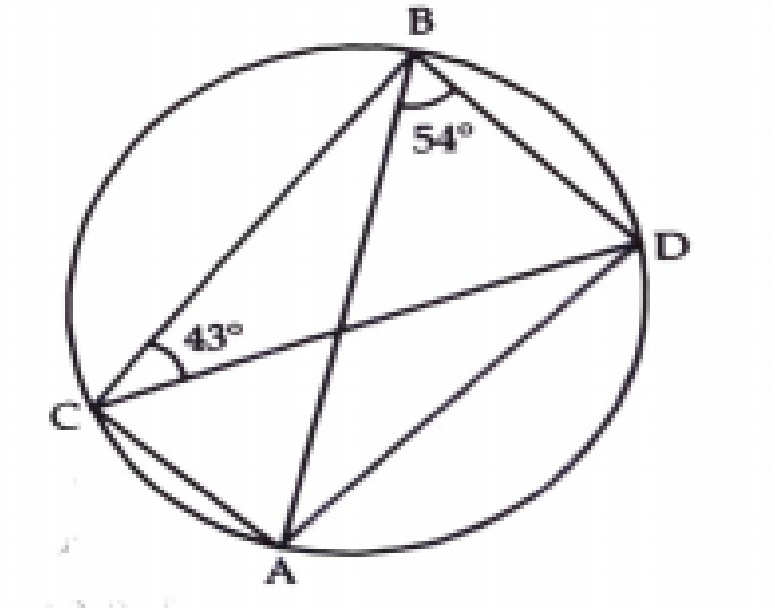
**29.**




$\angle ABD = 54^\circ$ and $\angle BCD = 43^\circ$, calculate the $\angle ACD$

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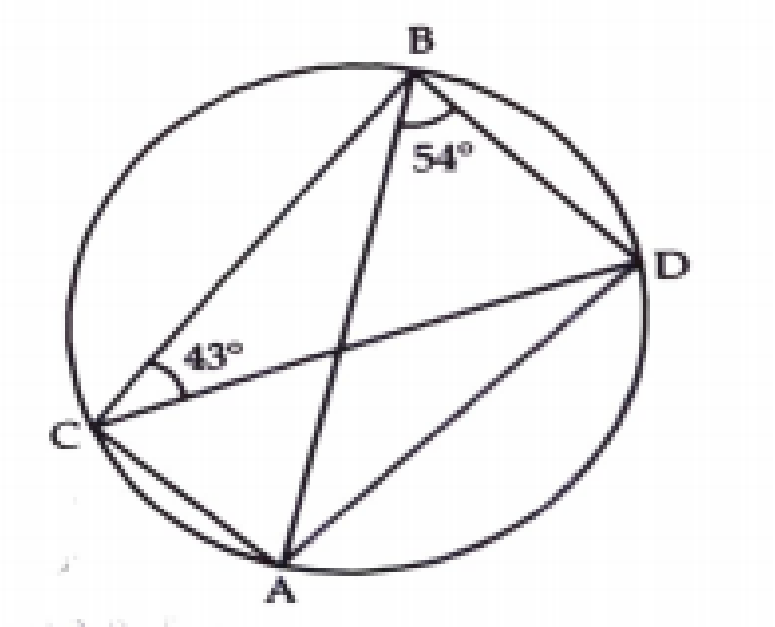
30.




$\angle ABD = 54^\circ$ and $\angle BCD = 43^\circ$, calculate the $\angle BAD$

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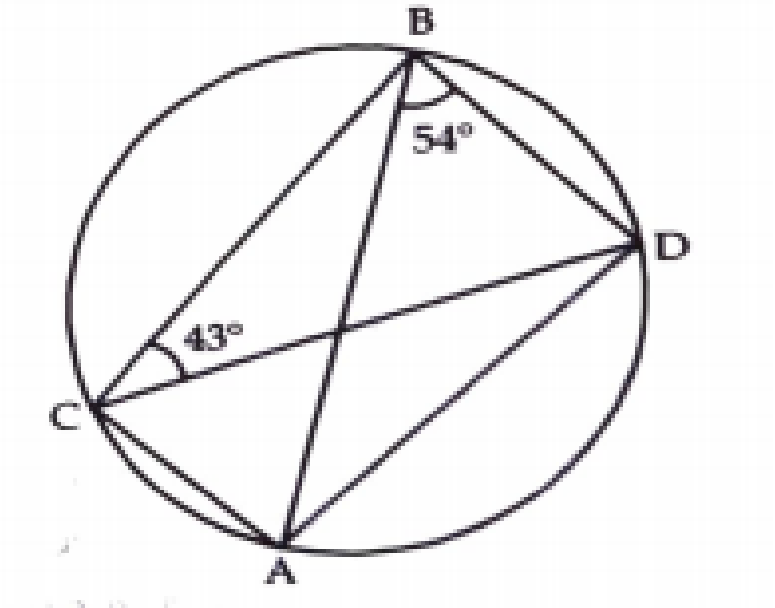
**31.**




$\angle ABD = 54^\circ$ and $\angle BCD = 43^\circ$, calculate the $\angle BDA$

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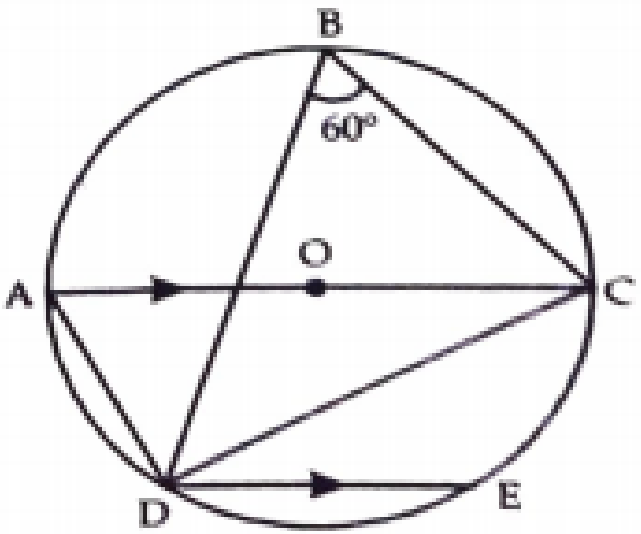
**32.** DE is a chord parallel to diameter AC of the circle with centre O. If $\angle CBD = 60^\circ$, calculate the $\angle CDE$

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**33.** C is a point on the minor arc of the circle, with centre O. If $\angle ACB = x^\circ$ and express y in terms of x. Calculate x, if $ACBO$ is a parallelogram.

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**34.** If O is the circumcentre of a $\triangle ABC, OD \perp BC,$ prove that $\angle BOD = \angle A$

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**35.** Two diameters of a circle intersect each other at right angles. Prove that the quadrilateral formed by joining their end points is a square.

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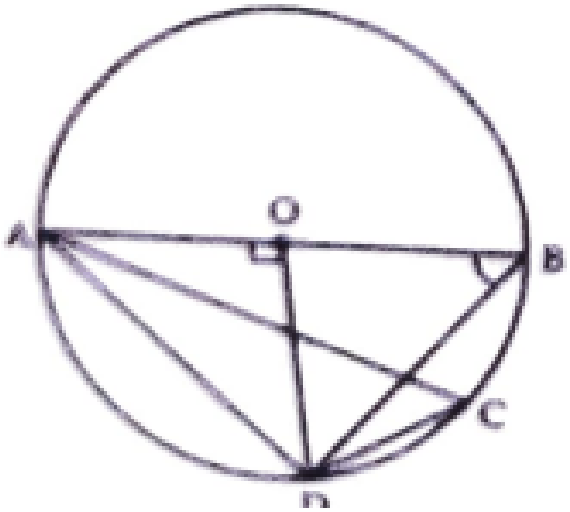
**36.** AB is a diameter of the circle C(AO,R) and the radius OD is perpendicular to AB. If C is any point on the arc DB, find

$\angle BAD$ and $\angle ACD$

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**37.** Prove that the circle drawn on any one of the equal sides of an isosceles triangle as diameter bisects the third side of the triangle.

Watch Video Solution

**38.** AC is the diamter of a circle with centre AO and chord $BD \perp AC$, intersecting each other at E. Find the values p,q,r in terms of x.

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**39.** Fill in the Blanks:

The centre of a cirlce lies in _____ of the cirlce. (exterior/interior)

Watch Video Solution

**40.** A point, whose distance from the centre of a circle is greater than its radius lies in ..... Of the circle.

Watch Video Solution

**41.** The longest chord of a circle is a ..... of the circle.

Watch Video Solution

**42.** An arc is a ..... When its ends are the ends of a diameter.

Watch Video Solution

**43.** Segment of a circle is the region between an arc and ..... of the circle.

Watch Video Solution

**44.** Fill in the Blanks:

A circle divides the plane, on which it lies, in _____ parts.

Watch Video Solution

**45.** (True/ False) Line segment joining the centre to any point on the circle is a radius of the circle.

Watch Video Solution

**46.** (True/ False) A circle has only finite number of equal chords.

Watch Video Solution

**47.** (True/ False) If a circle is divided into three equal arcs each is a major arc.

Watch Video Solution

**48.** (True/ False) A chord, which is twice as long as its radius is a diameter of the circle.

Watch Video Solution

**49.** (True/ False) Sector is the region between the chord and its corresponding arc.

Watch Video Solution

**50.** (True/ False) A circle is a plane figure.

Watch Video Solution

**51.** Name the region between a chord and either of the arcs.

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**52.** If diagonals of a cyclic quadrilateral are diameters of the circle through the vertices of the quadrilateral, prove that it is a rectangle.

Watch Video Solution

**53.** Given three non-collinear points. How many circles can be drawn through these three points?

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**54.** In a triangle with one angle $\frac{2\pi}{3}$, the lengths of the sides form an A.P. If the length of the greatest side is 7 cm, the radius of the circumcircle of the triangle is

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**55.** In a circle C(O,r), AOB and COD are two diameters perpendicular to each other. Find length of chord AC.

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**56.** Two congruent circles with centres C and O' intersect at A and B. If $\angle AO'B = 50^\circ$, then find $\angle ACB$

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**57.** True/False:

The degree measure of a semi-circle is $180^\circ$

Watch Video Solution

**58.** (True/ False) A circle has only finite number of equal chords.

Watch Video Solution

**59.** True/False:

The perimeter of circle is called its circumference .

Watch Video Solution

**60.** True/False:

A circle divides the plane into three parts.

Watch Video Solution

**61.** True/False:

Let O be the centre of a circle with radius r. Then a point P such that OP < r is called an interior point of the circle.

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**62.** True/False:

An equilateral triangle ABC is inscribed in a circle with centre O. The measure of $\angle BOC$ is $60^\circ$

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**63.** The perpendicular from the centre of a circle to a chord bisects the chord.

Watch Video Solution

**64.** In a circle C(O,r), AOB and COD are two diameters perpendicular to each other. Find length of chord AC.

Watch Video Solution

**65.** True/False:

The degree measure of a semi-circle is $180^\circ$

Watch Video Solution

**66.** Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm. Find the length of the common chord.

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**67.** Fill in the Blanks:

Angles in the same segment of a circle are _____

Watch Video Solution

**68.** Fill in the Blanks:

Equal arcs of a circle subtend____ angles at the centre.

Watch Video Solution

**69.** Fill in the Blanks:

Angles subtended by an arc at the centre of a circle is _____ the angle subtended by the same arc at any other point on the remaining part of the circle.

Watch Video Solution

**70.** Fill in the Blanks:

Equal chords of a cirlce (or congruent circles) are _____ from the centre.

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**71.** Fill in the Blanks:

The line drawn through the centre of a circle to _____ a chord is perpendicular to the chord.

Watch Video Solution

**72.** Fill in the Blanks:

Chords ____ from the centre of a circle are equal in length.

Watch Video Solution

**73.** Fill in the Blanks:

The perpendicular from the centre of a circle to a chord _____ the chord.

Watch Video Solution

**74.** Fill in the Blanks:

The sum of either pair of opposite angles of a _____ quadriateral is $180^\circ$

Watch Video Solution

**75.** The longest chord of a circle is a ..... of the circle.

Watch Video Solution

**76.** An arc is a ..... When its ends are the ends of a diameter.

Watch Video Solution

**77.** A chord is at a distance of 8 cm from the centre of a circle of radis 17 cm. The length of the chord is

A. 25 cm

B. 30 cm

C. 12.5 cm

D. 9 cm

**Answer:**

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**78.** An equilateral triangle of side 9 cm.

A. 3 cm

B. $3\sqrt{3}cm$

C. $3\sqrt{2}cm$

D. 6 cm

**Answer:**

Watch Video Solution

**79.** Is every diameter of a circle also a chord?

A. 17 cm

B. 15 cm

C. 4 cm

D. 8 cm

**Answer:**

Watch Video Solution

**80.** If OA = 5 cm , AB = 8 cm and OD is perpendicular to AB, then OD is equal to

A. 2 cm

B. 3 cm

C. 4 cm

D. 5 cm

**Answer:**

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**81.** (True/ False) If AOB is a diameter of a circle and C is a point on the circle, then $AC^2 + BC^2 - AB^2$.

A. $30^\circ$

B. $60^\circ$

C. $90^\circ$

D. $45^\circ$

**Answer:**

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**82.** ABCd is a cyclic quadrialteral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 140^\circ$, $then \angle BAC$ is equal to

A. $80^\circ$

B. $50^\circ$

C. $40^\circ$

D. $30^\circ$

**Answer:**

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**83.** Prove that the circle drawn with any side of a rhombus as diameter, passes through the point of intersection of its diagonals.

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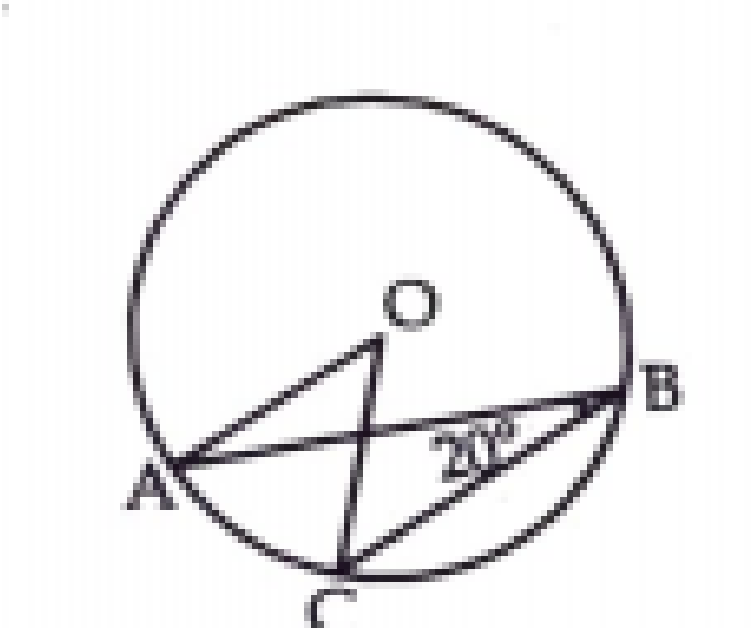
**84.** If $\angle ABC = 20^\circ$ m find $\angle AOC$

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**85.** $\angle DAB = 60^\circ$, $\angle ABD = 50^\circ$ find $\angle ACB$

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**86.** If arc AXB and CYD of a circle are congruent, find the ratio of AB and CD

Watch Video Solution

**87.** Two triangles ABC and PQR are such that the perpendiculars from A to QR ,B to RP and C to PQ are concurrent .Show that the perpendicular from P to BC ,Q to CA and R to AB are also concurrent .

Watch Video Solution

**88.** If a diameter of a cirlce bisects each of the chords of the circle, prove that the chordds are parallel.

Watch Video Solution

**89.** The whole angle at the centre of a circle is :

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**90.** In a triangle ABC, D is the mid point of the side AC and $BD = \frac{1}{2}AC$. Show that $\angle ABC$ is a right angle.

Watch Video Solution

**91.** On a common hypotenuse AB, two right triangles ACB and ADB are situated on opposite $\angle BAC = \angle BDC$

Watch Video Solution

**92.** If the non-parallel sides of a trapezium are equal, prove that it is cyclic.

Watch Video Solution

**93.** In fig, two chords AB and CD intersect each other at the point P. Prove that:

(i) $\triangle APC \sim \triangle DPB$

(ii) AP.PB= CP.DP

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**94.** Draw a circle of radius 5 cm and divide it into 6 equal sectors .

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