MATHS

BOOKS - NCERT MATHS (HINGLISH)

CIRCLES

Circles

1. AD is a diameter of a circle and AB is a chord. If AD = 34cm, AB = 30cm, the distance of AB form the centre of the circle is

A. 17 cm

B. 15 cm

C. 4 cm

D. 8 cm

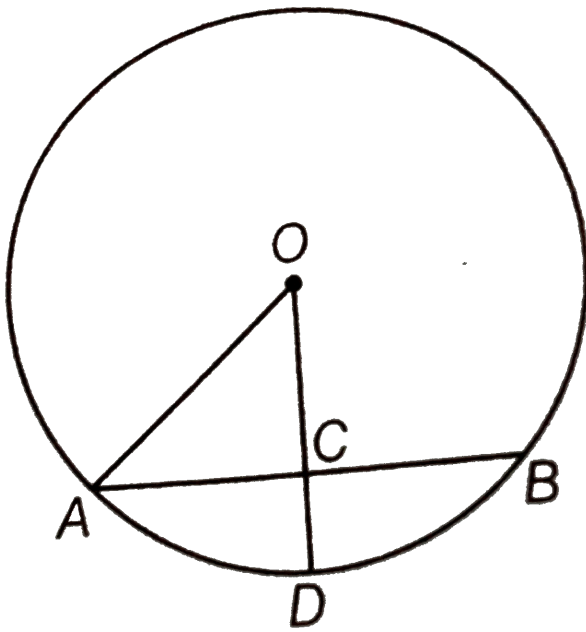**Answer: D**

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2. In figure, if OA=5cm, AB=8 cm and OD is perpendicular to AB, then CD is equal to

A. 2 cm

B. 3 cm

C. 4 cm

D. 5 cm

Answer: A

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3. If AB =112cm, BC=16 cm and AB is perpendicular to BC, then the radius of the circle passing through the points A, B and C is
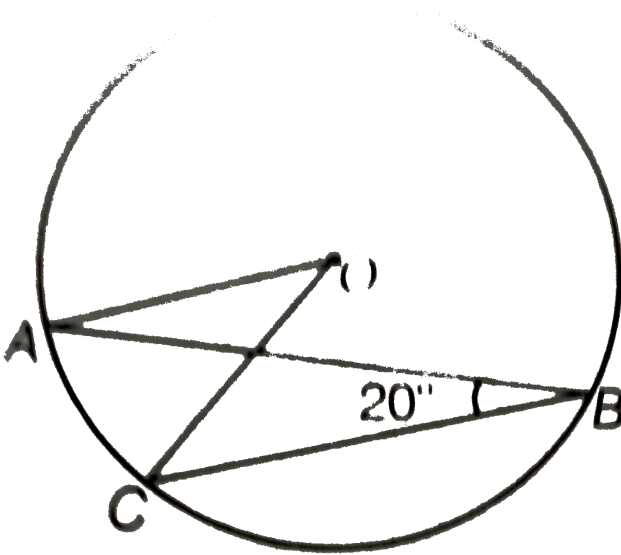
    A. 6 cm

    B. 8 cm

    C. 10 cm

    D. 12 cm

Answer: C

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4. If figure, if$\angle ABC = 20°$, then$\angle AOC$ is equal to

A. $20°$

B. $40°$

C. $60°$

D. $10°$

Answer: B

5. If AOB is a diameter of the circle and AC=BC, then $\angle CAB$ is equal to

    A. 30°

    B. 45°

    C. 60°

    D. 90°

Answer: B

6. In figure, if

$\angle OAB = 40°$, then $\angle ACB$ is equal to
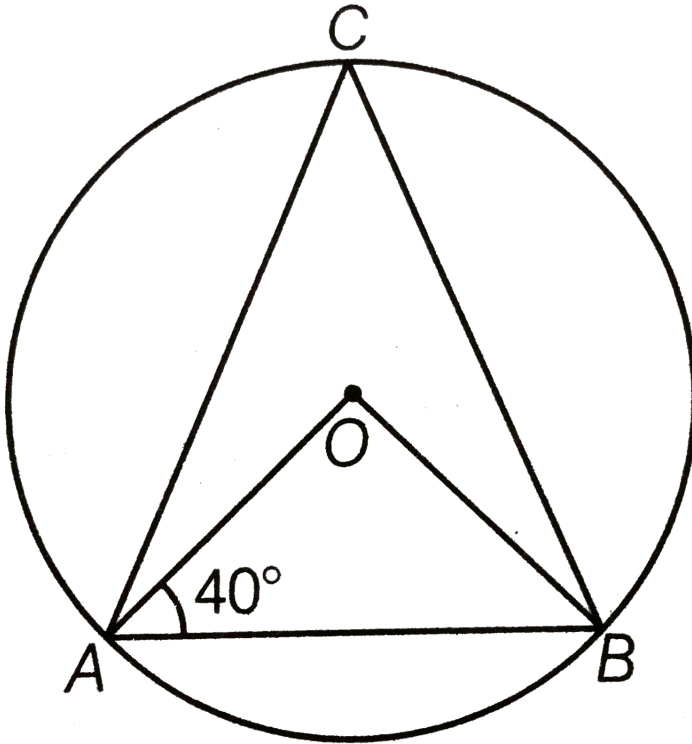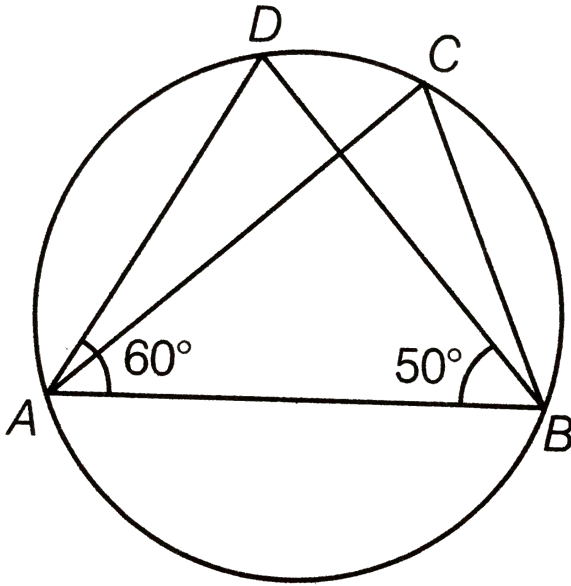

A. $50°$

B. $40°$

C. $60°$

D. 70°

Answer: A

7. In figure, if $\angle DAB = 60^\circ, \angle ABD = 50^\circ,$ then $\angle ACB$ is equal

to

A. $60°$

B. $50°$

C. $70°$

D. $80°$

Answer: C

8. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 140°$, than $\angle BAC$ is equal to

    A. $80°$

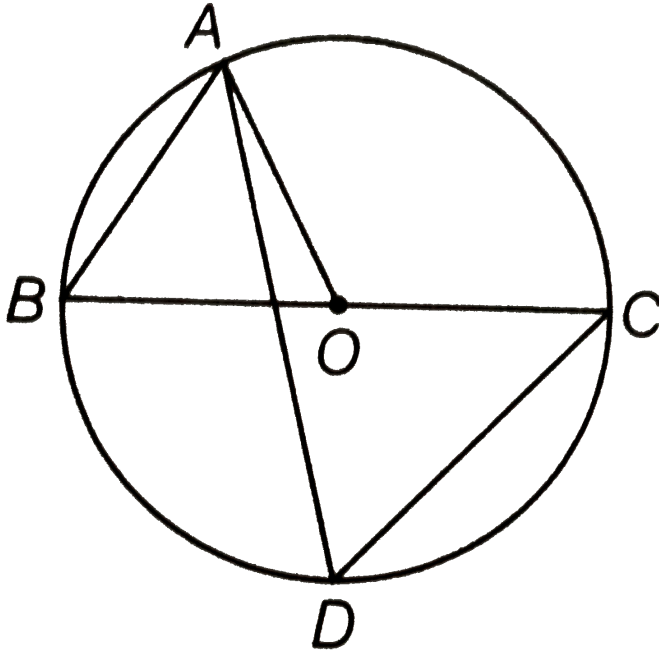   B. $50°$

    C. $40°$

    D. $30°$

Answer: B

9. In figure, BC is a diameter of the circle and $\angle BAO = 60°$. Then, $\angle ADC$ is equal to

A. $60°$

B. $45°$

C. $50°$

D. $120°$

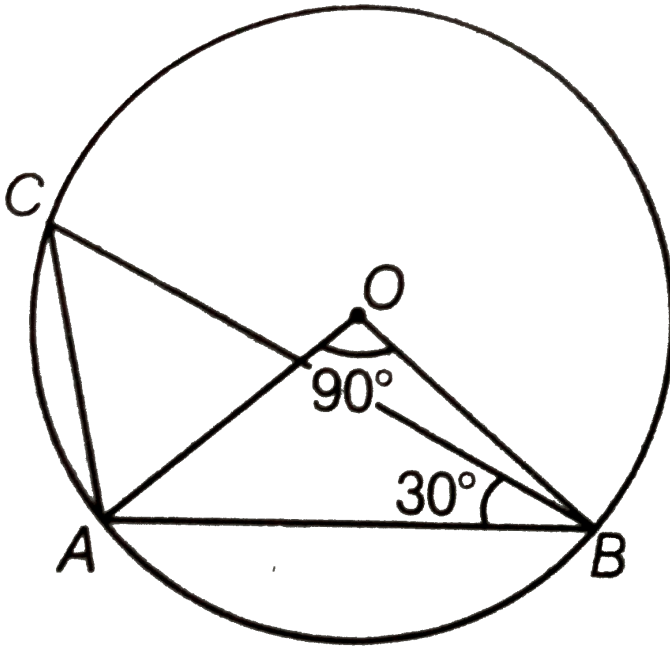**Answer: A**

10. In figure, if $\angle AOB = 90°$ and $\angle ABC = 30°$, then$\angle CAO$ is

equal to

A. $30°$

B. $45°$

C. $90°$

D. $60°$

Answer: D

11. Two chords AB and CD of a circle are each at distances 4 cm from the centre. Then,

   A. AB=CD.

   B. AB is not equal to CD.

   C. AB there is no relation between CD.

   D. AB is greater than CD.

Answer: A

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

13. The congruent circles with centres Oand O' intersect at two points A and B. Then, $\angle AOB = \angle AO'B$.

14. Through three collinear points a circle can be draw.

15. A circle of radius 3 cm can be drawn through two points A, B such that AB=6 cm.

16. If AOB is a diameter of a circle and C is a point on the circle, then $AC^2 + BC^2 = AB^2$.

17. state true of false

$$\angle A = 90°, \angle B = 70°, \angle C = 95° \text{ and } \angle D = 105°$$

can be the vertex of cyclic quadrilateral

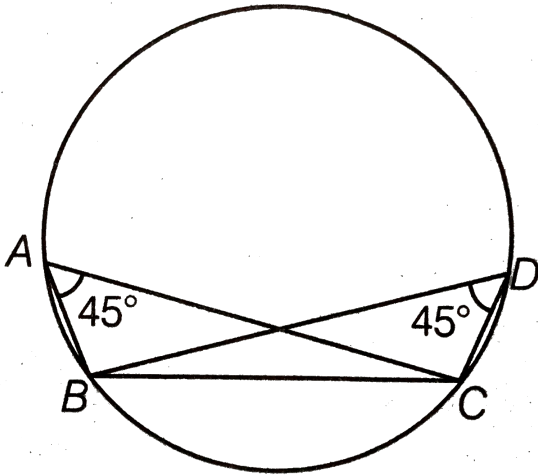**18.** If A, B, C and D are four points such that

$$\angle BAC = 30° \text{ and } \angle BDC = 60°, \text{then } D \text{ is the}$$

centre of the circle through A, B and C.

19. If A, B, C and D are four points such that $\angle BAC = 45°$ and $\angle BDC = 45°$, then A, B, C and D are concyclic.

20. In figure, if AOB is a diameter and $\angle ADC = 120°$, then$\angle CAB = 30°$.
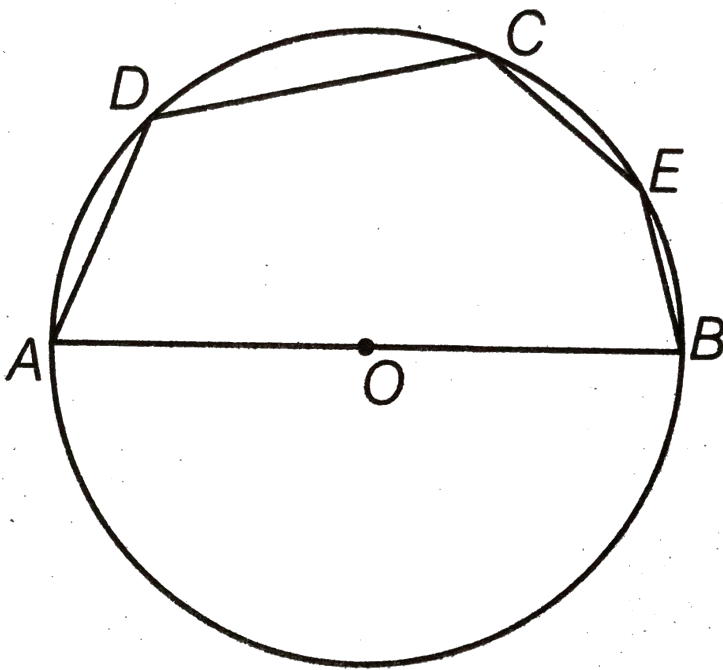
21. If two arcs of a circle (or of congruent circles) are congruent, then corresponding chords are equal.

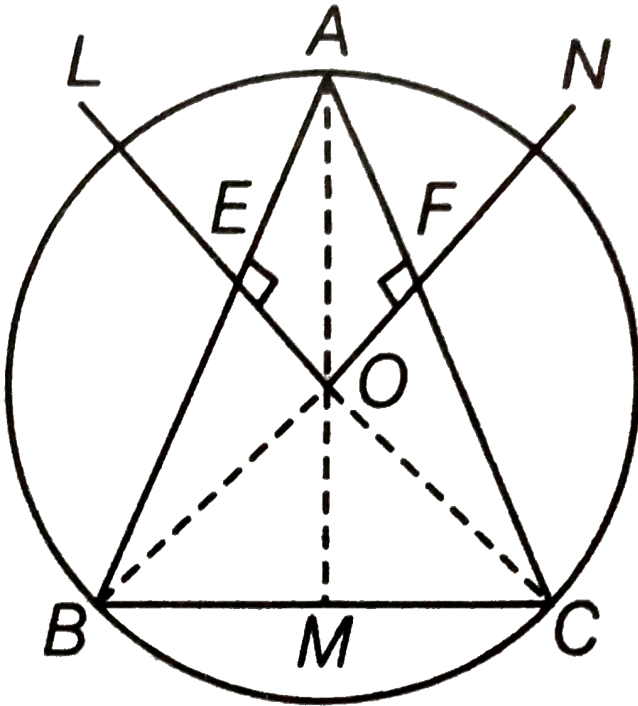**22.** If the perpendicular bisector of a chord AB of a circle PXAQBY intersects the circle at P and Q, prove that arc $PXA \cong$ arc PYB.
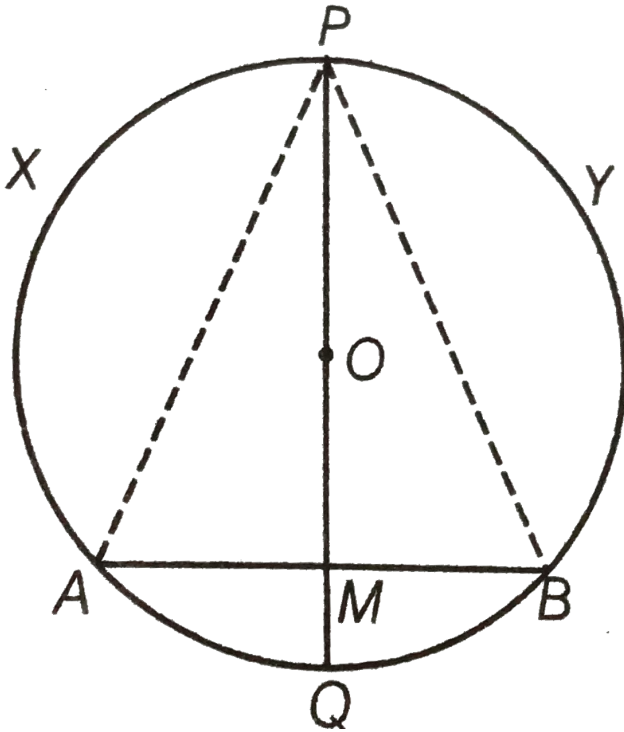
23. A, B and C are three points on a circle. Prove that the perpendicular bisectors of AB, BC and CA are concurrent.

24. Two chords AB and AC of a circle are equal. Prove that the centre of the circle lies on the angle bisector of $\angle BAC.$
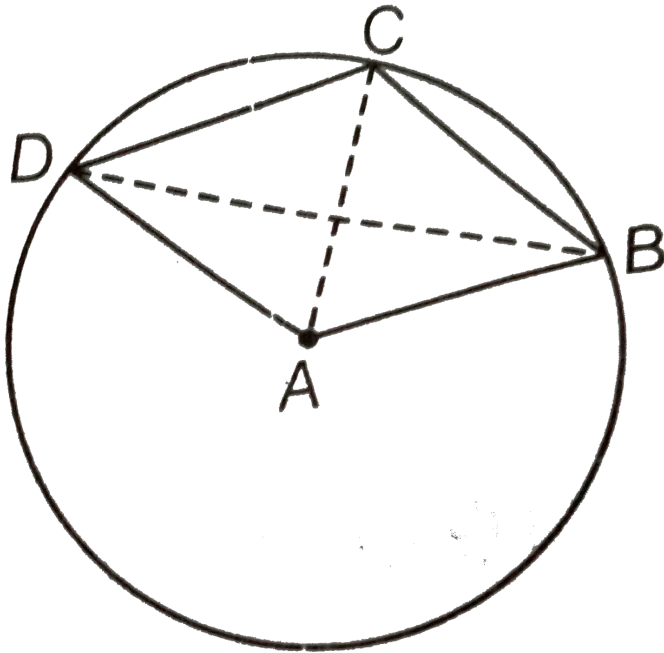
25. If a line segment joining mid-points of two chords of a circle passes through the centre of the circle, prove that the two chords are parallel.

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

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

28. On a common hypotenuse AB, two right angled triangles, ACB and ADB are situated on opposite sides. Prove that $\angle BAC = \angle BDC$.

29. Two chords AB and AC of a circle subtends angles equal to $90°$ and $150°$, respectively at the centre.

Find$\angle BAC$, if AB and AC lie on the opposite sides of the centre.

30. If BM and CN are the perpendiculars drawn on the sides AC and BC of the $\triangle ABC$, prove that the points B, C, M and N are concyclic.

31. If a line is drawn parallel to the base of an isosceles triangle to intersect its equal sides, prove that the quadrilateral, so formed is cyclic.

32. If the two sides of a pair of opposite sides of a cyclic quadrilateral are equal, then

33. The circumcentre of the $\triangle ABC$ is O. Prove that $\angle OBC + \angle BAC = 90°$.

34. A chord of a circle is equal to the radius of the circle find the angle subtended by the chord at a point on the monor arc and also at a point on the major arc.
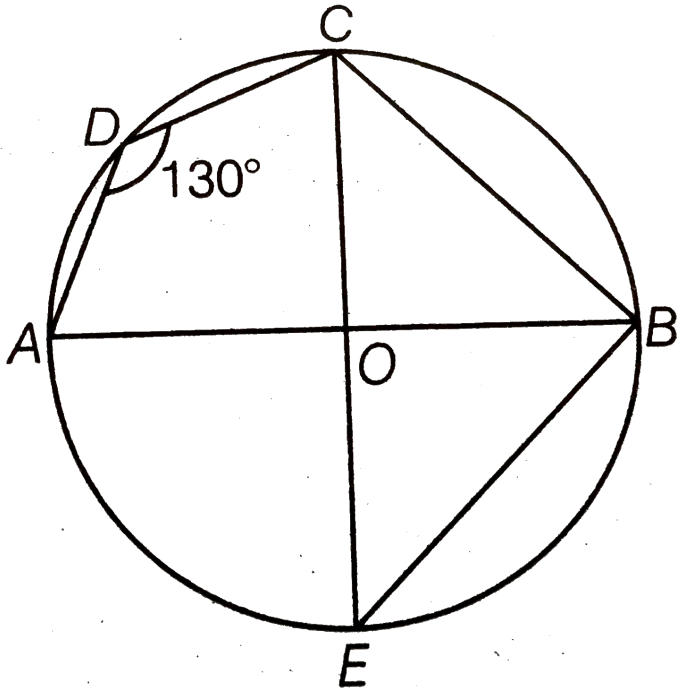
35. In figure, $\angle ADC = 130°$ and chord BC=chord BE. Find $\angle CBE$

A. $110°$

B.

C.

D.

Answer:

36. In figure, $\angle ACB = 40°$. Find $\angle OAB$.
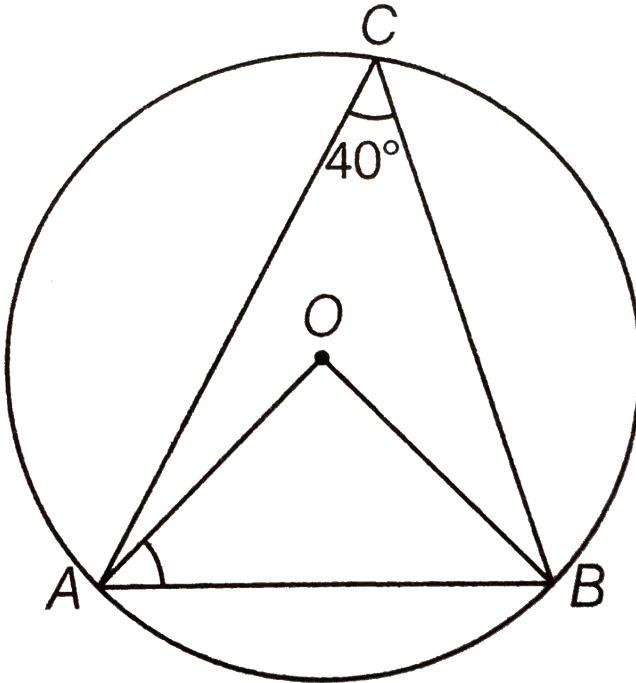
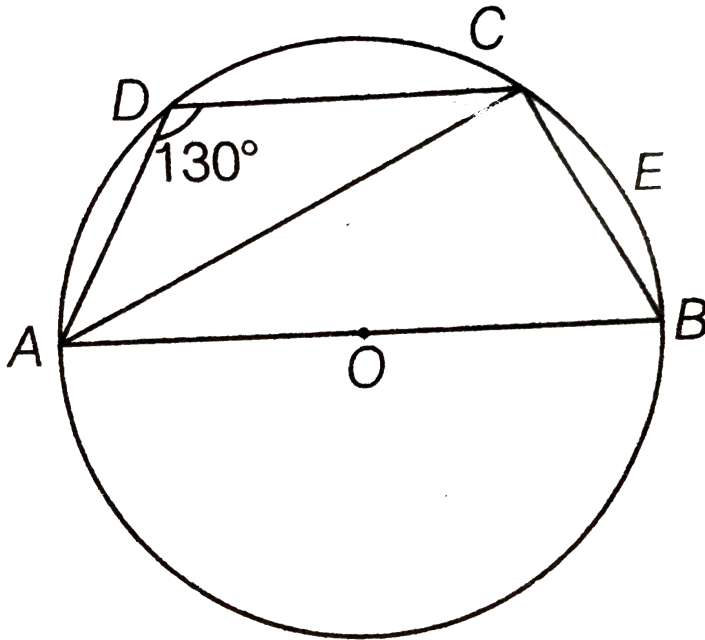A. $80°$

B.

C.

D.

Answer:

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37. In Figure, $ABCD$ is a cyclic quadrilateral whose side AB is a diameter of the circle through

$A,\ B,\ C,\ D.$ If $(\angle ADC) = 130^0$, find $\angle BAC$

38. Two circles whose centres are O and O' intersect

at $P.$ Through $P,$ a line l parallel to OO' intersecting

the circles at $C \, and \, D$ is drawn. Prove that
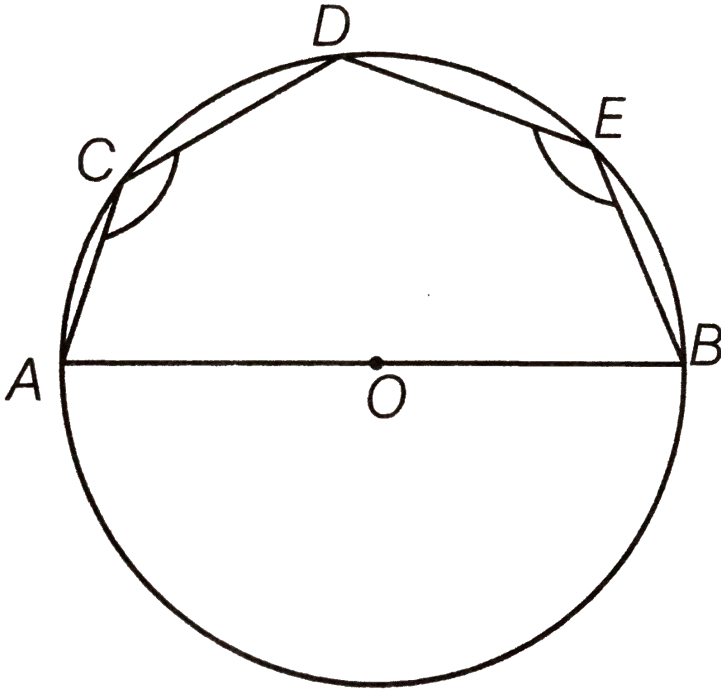
$CD = 2\,OO'$

39. In figure, AOB is a diameter of the circle and C, D, E

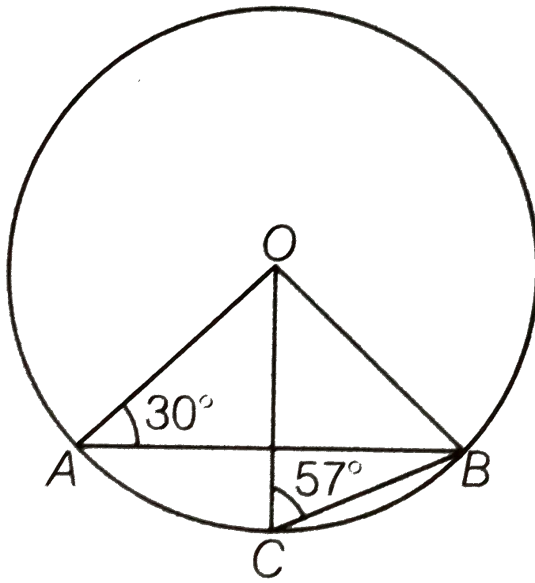are any three points on the semi-circle. Find the value

of $\angle ACD + \angle BED$.

40. In figure,

$\angle OAB = 30°$ and $\angle OCB = 57°$. Find $\angle BOC$

41. 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.

42. If the non-parallel sides of a trapezium are equal, then

43. $P, \ Q \ and \ R$ are, respectively, the mid points of sides $BC, \ CA \ and \ AB$ of a triangle ABC

44. Prove that If the bisector of any angle of a triangle and the perpendicular bisector of its opposite side

intersect, they will intersect on the circumcircle of the triangle.

45. 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, then prove that PA is angle bisector of $\angle BPC$.

46. In the figure, AB and CD are two chords of a circle, interacting each other at a point E. Prove that $\angle AEC$

$= \dfrac{1}{2}$(angle subtended by arc $CXA.$ at the center + angle subtended by arc DYB at the center).

47. If bisectors of opposite 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.

48. A circle has radius $\sqrt{2}$cm it is divided into 2 segments by a chord of length 2cm prove that angle

subtended by the chord at a point in major segment is

$45°$

49. AB and CD are equal chords of a circle whose centre is O, when produced these chords meet at E,Prove that $EB = ED$.

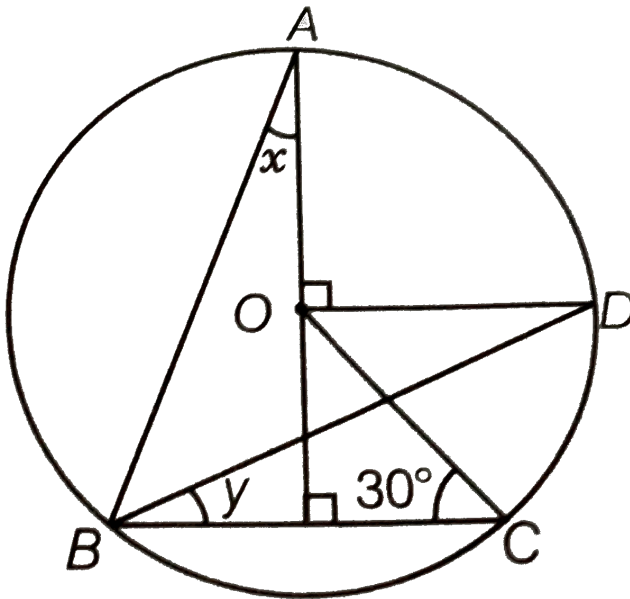**50.** AB and AC are two chords of a circle of radius r such that AB=2AC. If p and q are the distances of AB and AC from the centre Prove that $4q^2 = p^2 + 3r^2$.

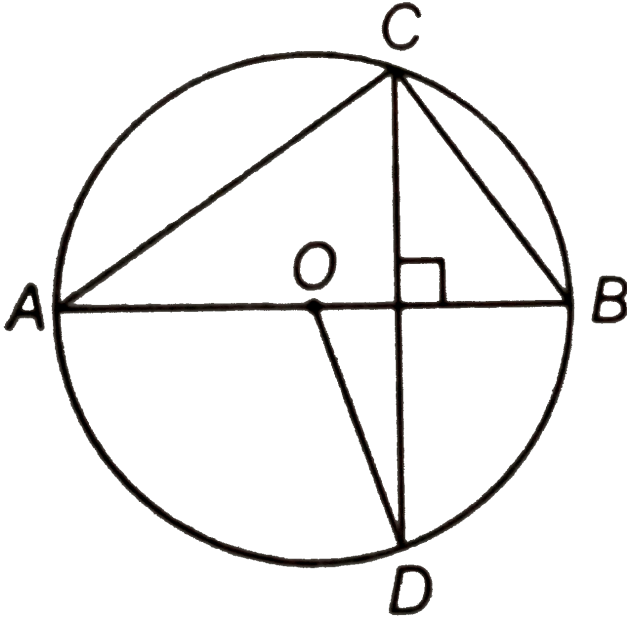**51.** In figure, O is the centre of the circle $\angle BCO = 30°$

. Find X and Y.

52. If figure, O is the centre of the circle, $BD = OD$ and $CD \perp AB$. Find$\angle CAB$.
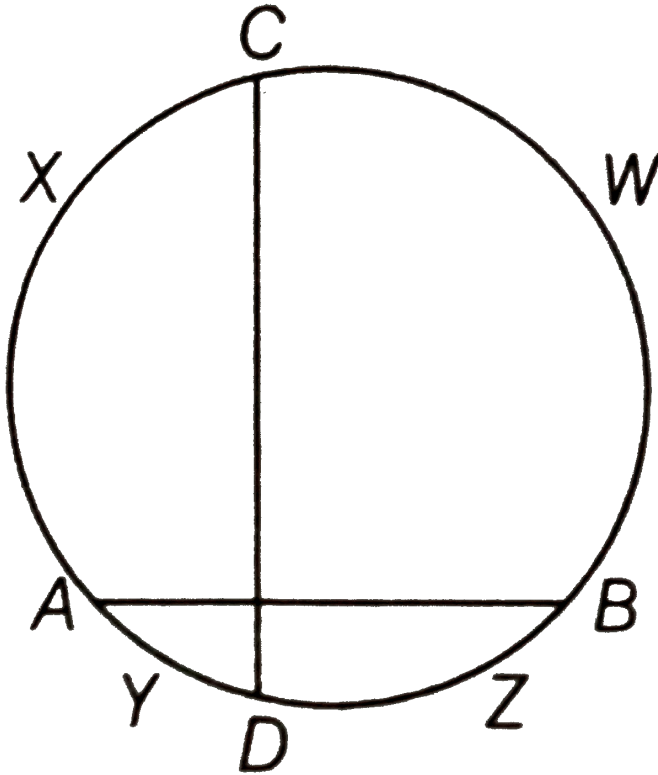
Exercise 10 4

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

2. If two chords AB and CD of a circle AYDZBWCX intersect at right angles, then prove that arc CXA+arc

DZB=arc AYD+arc BWC =semi-circle.