



DR. VIRENDRA SWARUP PUBLIC SCHOOL, KALYANPUR

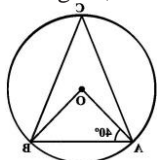
Revision Worksheet

Class IX Session: 2021-2022

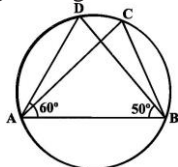
Chapter: Circles

1. Prove that "Equal chords of a circle subtend equal angles at the centre".
2. Prove that "Chords of a circle which subtends equal angles at the centre are equal".
3. Prove that "The perpendicular from the centre of a circle to a chord bisects the chord."
4. Prove that "The line drawn through the centre of a circle to bisect a chord is perpendicular to the chord".
5. Prove that "Chords equidistant from the centre of a circle are equal in length"
6. Prove that "Chords of a circle which are equidistant from the centre are equal"
7. Prove that "Of any two chords of a circle then the one which is larger is nearer to the centre."
8. Prove that "Of any two chords of a circle then the one which is nearer to the centre is larger."
9. Prove that "Line joining the midpoints of two equal chords of circle subtends equal angles with the chord."
10. Prove that "If two chords of a circle bisect each other they must be diameters."
11. If two chords of a circle are equally inclined to the diameter through their point of intersection, prove that the chords are equal.
12. Prove that "The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle."
13. Prove that "Angles in the same segment of a circle are equal."
14. Prove that "Angle in a semicircle is a right angle."
15. Prove that "Arc of a circle subtending a right angle at any point of the circle in its alternate segment is a semicircle."
16. Prove that "Any angle subtended by a minor arc in the alternate segment is acute and any angle subtended by a major arc in the alternate segment is obtuse."
17. Prove that "If a line segment joining two points subtends equal angles at two other points lying on the same side of the line segment, the four points are concyclic."
18. Prove that "Circle drawn on any one side of the equal sides of an isosceles triangle as diameter bisects the side."
19. Prove that "The sum of either pair of opposite angles of a cyclic quadrilateral is  $180^\circ$ ."
20. Prove that "If the sum of a pair of opposite angles of a quadrilateral is  $180^\circ$ , the quadrilateral is cyclic"
21. Prove that "If two sides of a cyclic quadrilateral are parallel, then the remaining two sides are equal and the diagonals are also equal."
22. Prove that "If two opposite sides of cyclic quadrilateral are equal, then the other two sides are parallel."
23. Prove that "If two non parallel sides of a trapezium are equal, it is cyclic."

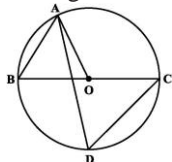
24. In the given figure, if  $\angle OAB = 40^\circ$ , then find  $\angle ACB$



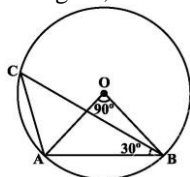
25. In the given figure, if  $\angle DAB = 60^\circ$ ,  $\angle ABD = 50^\circ$  then find  $\angle ACB$



26. In the given figure, BC is a diameter of the circle and  $\angle BAO = 60^\circ$  then find  $\angle ADC$

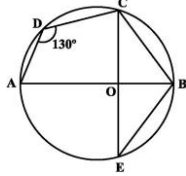


27. In the given figure,  $\angle AOB = 90^\circ$  and  $\angle ABC = 30^\circ$ , then find  $\angle CAO$

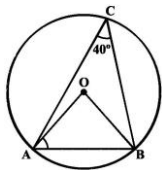


28. The lengths of two parallel chords of a circle are 6 cm and 8 cm. If the smaller chord is at distance 4 cm from the centre, what is the distance of the other chord from the centre?

29. A, B, C, D are four consecutive points on a circle such that  $AB = CD$ . Prove that  $AC = BD$ .
30. 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.
31. 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.
32. If BM and CN are the perpendiculars drawn on the sides AC and AB of the triangle ABC, prove that the points B, C, M and N are concyclic.
33. 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.
34. If a pair of opposite sides of a cyclic quadrilateral are equal, prove that its diagonals are also equal.
35. The circumcentre of the triangle ABC is O. Prove that  $\angle OBC + \angle BAC = 90^\circ$ .
36. A chord of a circle is equal to its radius. Find the angle subtended by this chord at a point in a major segment.
37. In the given figure,  $\angle ADC = 130^\circ$  and chord  $BC =$  chord  $BE$ . Find  $\angle CBE$ .



38. In the given figure,  $\angle ACB = 40^\circ$ . Find  $\angle OAB$ .



39. A quadrilateral ABCD is inscribed in a circle such that AB is a diameter and  $\angle ADC = 130^\circ$ . Find  $\angle BAC$ .
40. Two circles with centres O and O' intersect at two points A and B. A line PQ is drawn parallel to OO' through A (or B) intersecting the circles at P and Q. Prove that  $PQ = 2 OO'$