INDIAN SCHOOL NIZWA - WORKSHEET

9. CIRCLES

Name: _____ Date:_____ Class: IX Sec:

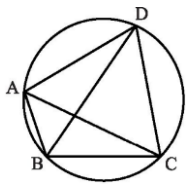
1. A Circle is the collection of all those points in a plane which are _____from a fixed point in the plane called _____.
2. What are concentric circles?
3. A perpendicular drawn from the centre of the circle to a chord _____the chord.
4. Chords equidistant from the centre of a circles are _____in length.
5. Angles in the same segment of a circle are _____.
6. The angle in a semicircle is _____.
7. If all vertices of a quadrilateral lie on a circle, it is called a _____quadrilateral.
8. The sum of either pair of opposite angles of a cyclic quadrilateral is _____.
9. The length of a chord of circle of radius 10 cm is 12cm. Determine the distance of the chord from the center:

   a) 8cm b) 7cm c) 6cm d) 5cm
10. Two circles of radii 5cm and 3cm intersect at two points and the distance between their centres is 4cm. Find the length of the common chord.

    a) 4cm b) 7cm c) 6cm d) 5cm
11. In the given figure, ABCD is cyclic quadrilateral in which AC and BD are its diagonals.

    If $\angle DBC = 55^0$ *and* $\angle BAC = 45^0$, *find* $\angle BCD$.

    (a) 80^o (b) 60^o (c) 90^o (d) none of these



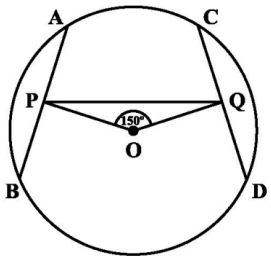
12. A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc:

    (a) 150^0 (b) 30^o (c) 60^o (d) none of these
13. 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 major arc.

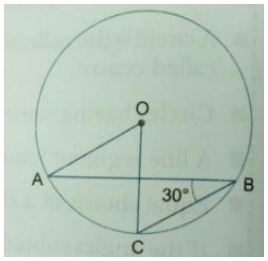
    (a) 150^0 (b) 30^o (c) 60^o (d) none of these
14. ABCD is a cyclic quadrilateral. If ∠DBC= 80°, ∠BAC is 40°, find ∠BCD.

    (a) 80^o (b) 60^o (c) 90^o (d) 70^0
15. In a cyclic quadrilateral PQRS. If $\angle QRS = 110^0$, then find $\angle SPQ$.
16. If a circle is divided into 8 equal parts, find the angle subtended by each arc at the centre.

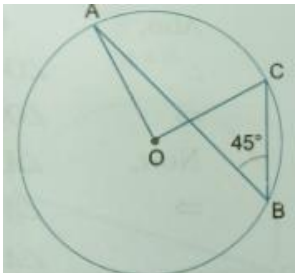
17. In the given figure, AB and CD are two equal chords of a circle with centre O. OP and OQ are perpendiculars on chords AB and CD, respectively. If $\angle POQ = 150^0, then\ find\ \angle APQ$.



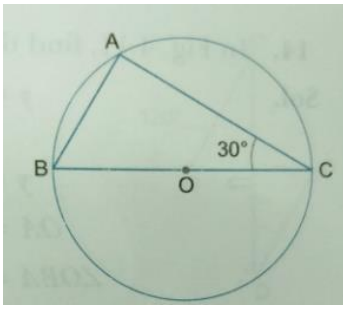
18. In the given figure $\angle ABC = 30^0$, then find $\angle AOC$.



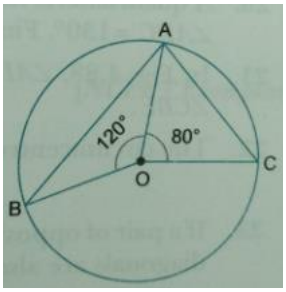
19. In the given figure $\angle ABC = 45^0$, prove that OA⊥OC.



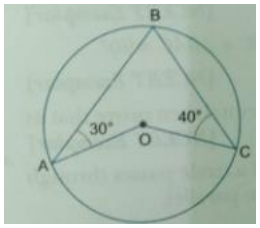
20. In the given figure, O is the centre of the circle. If $\angle ACB = 30^0$, then find $\angle ABC$.



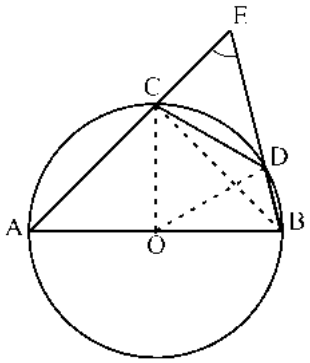
21. Find $\angle BAC$ in the given figure.



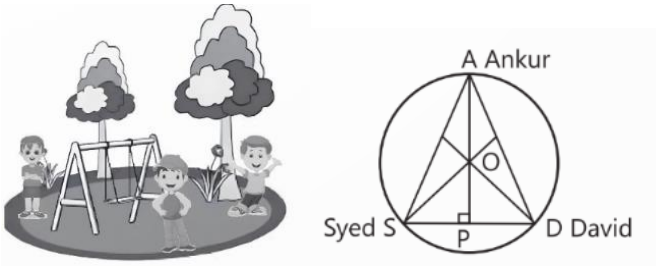
22. Find $\angle AOC$.



23. AB is a diameter of the circle, CD is a chord equal to the radius of the circle. AC and BD when extended intersect at a point E. Prove that ∠ AEB = 60°



24. A circular park of radius 20m is situated in a colony. Three boys Ankur, Syed and David are standing at equal distance on its boundary each having a toy telephone in his hands to talk to each other.
If A,S and D are the positions of Ankur, Syed and David who are standing at equal distance and O be the position of the centroid of a triangle.



On the basis of the above information, solve the following questions:

i) The length of AP is:_____.

ii) The distance between any two boys is : _____.

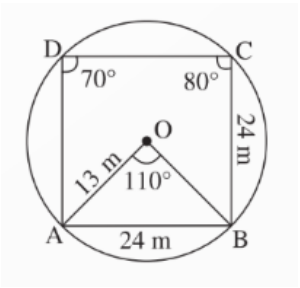
iii) The angle between AS and SD is _____.

iv) $\angle SOD =$ _____.

v) $\angle OSP =$ _____.

25. There is a circular garden outskirts of the city. Municipality decided to put some benches, so that the people can sit there and can have some fresh air.
In the given figure, there are two benches of same colour A and B, which are placed at a distance AB=24m. Similarly, two other benches of same colour C and D are also placed at a same distance of 24m from each other.





Based on the above information, answer the following:

i) The measure of $\angle BOC$ is _____.

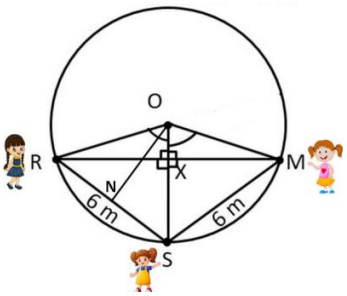
ii) The measure of $\angle ABC$ is _____.

iii) The perpendicular distance from centre O to the chord AB is _____.

iv) The value of angle $\angle BAO$ is _____.

v) The measure of $\angle DAO$ is _____.

26. Three girls Reshma, Salma and Mandip are playing a game by standing on a circle of radius 5m drawn in a park. Reshma throws a ball to Salma, Salma to Mandip, Mandip to Reshma. The distance between Reshma and Salma and between Salma and Mandip is 6m each. In the given figure Reshma's position is denoted by R,Salma's position is denoted by S and Mandip's position is denoted by M.

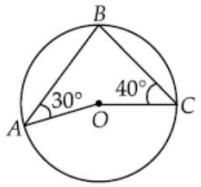


i) Find the area of triangle ORS.

ii) What is the distance between Reshma and Mandip?

iii) If BC is a diameter of a circle of centre O and OD is perpendicular to the chord AB of a circle, show that CA=2OD.

27. **Assertion**: In the given figure, $\angle BAO = 30^0$ and $\angle BCO = 40^0$. Then the measure of $\angle AOC = 60^0$.



Reason: Angle subtended by an arc of a circle at the centre of the circle is twice the angle subtended by that arc on the remaining part of the circle.

28. **Assertion** : In the given figure, $\angle ABC = 70^0$ and $\angle ACB = 30^0$. Then $\angle BDC = 80^0$.

Reason: Angles in the same segment of a circle are equal.

