INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2024-25

## CLASS: X   SUBJECT: MATHEMATICS   DATE: 30-10-2024

LESSON: 10 CIRCLES

Level 1

1. O is the centre of the circle of radius 8cm. The tangent at point A on the circle cuts a line through O at B such that AB = 15cm. Find OB   (Ans: 17cm)

2. In two concentric circles, a chord of length 24cm of a larger circle becomes tangent to the smaller circle whose radius is 5cm. Find the radius of the larger circle

    (Ans: 13cm)

3. If AB is a chord of a circle with centre O. AOC is a diameter and AT is the tangent at A as drawn in the figure. Prove that ∠BAT = ∠ACB.
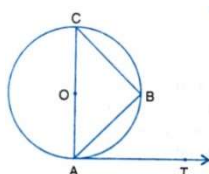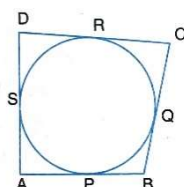

4. In the figure ΔABC is circumscribing a circle.   Find the length of BC
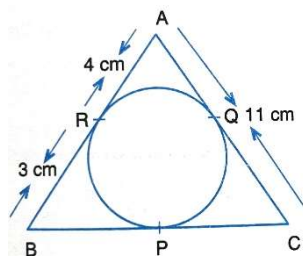

    (Ans: 10cm)

5. In the figure a circle touches all four sides of a quadrilateral ABCD with AB = 6cm, BC = 7cm, and CD = 4cm. Find AD.   (Ans: 3cm)

6. If PA and PB are tangents from an outside point P, such that PA = 10cm and ∠APB = 60°. Find the length of the chord AB   (Ans: 10cm)

7. Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that ∠PTQ = 2 ∠OPQ

8. In the figure PA and PB are the tangents to the circle with centre O such that ∠APB = 50°. Find the measure of ∠OAB (Ans: 25°)
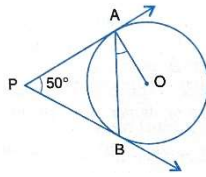

9. In the figure, two circles touch each other at a point C. Prove that the common tangent to the circles at C, bisects the common tangent at P and Q
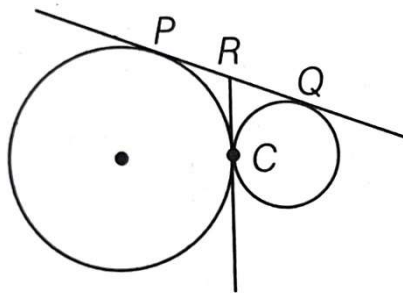

10. In the given figure, AB is the chord of length 6cm of a circle of radius 5cm. The tangents at A and B intersect at a point P. Find the length of PB (Ans: 3.75)
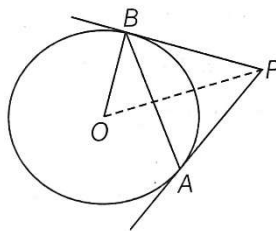
11. Prove that the parallelogram circumscribing a circle is a rhombus. Also, find the area of the rhombus, if the radius of the circle is 3cm and the length of one side of the rhombus is 10cm.

12. Prove that the tangents drawn at the endpoints of a chord of a circle make equal angles with the chord.

13. In the given figure, O is the centre of a circle of radius 10cm.T is a point such that OT = 26cm and OT intersects the circle at E. If AB is the tangent to the circle at E, then find the length of AB (Ans : $\frac{20}{3}$)
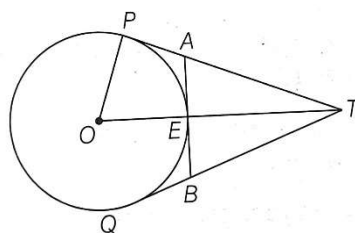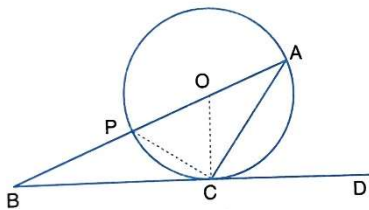
14. In the adjoining figure, from an external point P, two tangents PA and PB are drawn to a circle with centre O and radius r. If OP = 2r, show that ∠OAB = ∠ OBA = 30°
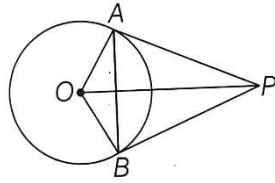
Level2:

15. From a point P two tangents PA and PB are drawn to a circle with centre at O. If OP= 2r, show that ΔPAB is equilateral.
16. In the figure, O is the centre of the circle and BCD is tangent to it at C. Prove that ∠BAC + ∠ACD = 90°

17. If from an external point, B of a circle with centre O, two tangents BC and BD are drawn such that ∠DBC = 120°, prove that BO = 2BC
18. If an isosceles triangle ABC in which AB = AC = 6cm is inscribed in a circle of radius 9cm, Find the area of the triangle.   (Ans: $8\sqrt{2}$ cm^2)

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