CLASS X – MATHEMATICS – CHAPTER 10 CIRCLES

Name: Date:

CHOOSE THE CORRECT OPTION FROM QUES 1 TO 20

Q01. The perimeter of a sector of a circle of radius 8 cm is 25. What is the area of sector?

(a) 50cm²   (b) 42cm²   (c) 52cm²   (d) none of these

Q02. In figure given below PA and PB are a tangent to the circle drawn from an external point P. CD is a third tangent touching the circle at Q. If PA = 10cm and DQ = 2cm. What is length of PC?

(a) 8cm   (b) 7 cm   (c) 4 cm   (d) none of these
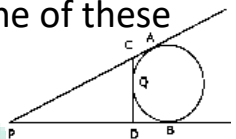
Q03. Tangent of circle intersect the circle

(a) Only one point   (b) Two points   (c) Three points   (d) None of these

Q04. From a point Q the length of the tangent to a circle is 24 cm and the distance of Q from the centre is 25cm. the radius of the circle is

(a) 7 cm   (b) 12cm   (c) 15 cm   (d) 24.5 cm

Q05. How many tangents can a circle have?

(a) 1   (b) 2   (c) 0   (d) infinite

Q06. If PA and PB are tangents from a point P lying outside the circle such that PA = 10 cm and $\angle APB = 60°$. Find length of chord AB?

(a) 10cm   (b) 20cm   (c) 30cm   (d) 40cm

Q07. A tangent PQ at a point P to a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 13cm then the length of PQ.

(a) 11cm   (b) 12cm   (c) 10cm   (d) None of these

Q08. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle of 80°then $\angle POA$ is equal to

(a) 50°   (b) 60°   (c) 70°   (d) 80°

Q09. The length of tangent drawn to a circle with radius 3m from a point 5m from the centre of the circle is

(a) 6 m   (b) 8 m   (c) 4 m   (d) 7 m

Q10. A circle touches all the four sides of a quadrilateral ABCD whose sides AB = 6 cm, BC = 7 cm, CD = 4 cm Then AD =

(a) 2 cm   (b) 3 cm   (c) 5 cm   (d) 6cm

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Q11. If a point lies on a circle, then what will be the number of tangents drawn from that point to the circle?

(a) 1 (b) 2 (c) 3 (d) infinite

Q12. A quadrilateral ABCD is drawn to circumscribe a circle IF AB = 4 cm, CD = 7 cm, BC = 3 cm, Then AD = ?

(a) 7 cm (b) 2cm (c) 8 cm (d) none of these

Q13. How many normal's can a circle have?

(a) 0 (b) 1 (c) 2 (d) Infinite

Q14. A straight line can meet a circle in not more than points

(a) one (b) two (c) Three (d) none of these

Q15. A tangent PQ at point P of a circle of radius 12 cm meets a line through the centre O to a point Q so that OQ = 20 cm Length of PQ is

(a) 14 cm (b) 15 cm (c) 16 cm (d) 10 cm

Q16. A line intersecting a circle in two points is called

(a) Tangent (b) secant (c) diameter (d) none of these

Q17. The length of tangent from a point A at a distance of 5 cm from the centre of the circle is 4 cm. what will be the radius of circle?

(a) 1 cm (b) 2 cm (c) 3 cm (d) none of these

Q18. The tangent of a circle makes angle with radius at point of contact.

(a) 60° (b) 30° (c) 90° (d) none of these

Q19. If tangent PA and PB from a point P to a circle with centre O are inclined to each other at an angle of 40°, then what is the value of ∠POA?

(a) 30° (b) 50° (c) 70° (d) 90°
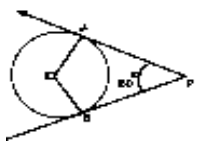
Q01. In two concentric circle. Prove that all chords of the outer circle which touch the inner circle are of equal length.

Q02. PA and PB are tangents from P to the circle with centre O. At the Point M a tangent is drawn cutting PA at K and PB at N. Prove that [KN = AK + BN]
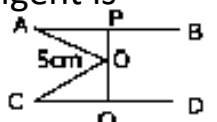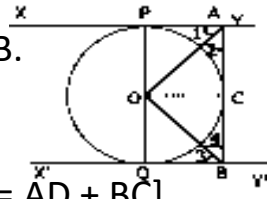
Q03. In the given figure, O is the centre of the circle with radius 5 cm AB||CD, AB = 6cm. Find OP.

Q04. Prove that the tangents at the end of a chord of a circle make equal angles with the chord.

Q05. Two tangents TP and TQ are drawn from an external point T with centre O. If they are inclined to each other at an angle of 100⁰, then what is the value of ∠POQ?

Q06. In the given figure XY and X'Y' are two parallel tangents to a circle with centre 0 and another tangent AB with point of contact C intersecting XY at A and X'Y' at B. Prove that ∠AOB = 90°

Q07. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that [AB + CD = AD + BC].

Q08. PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at point T. Find the length TP?
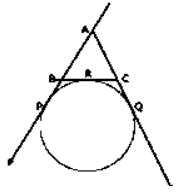
Q09. In the given figure, find the perimeter of triangle ABC, if AP = 10 cm

Q10. Find the focus of the centre of circles which touch a given line at a given point ?

Q11. Two concentric circles are of radii 5 cm and 3 cm. find the length of the chord of the larger circle which touches the smaller circle

Q12. If PA and PB are tangents drawn from external point P such that PA = 10cm and ∠APB = 60°. Find the length of chord AB

**Q13.** Find the focus of centre of circle which having two intersecting lines.

Q14. A circle is touching the side BC of triangle ABC at P and touching AB and AC produced at Q and R respectively. Prove that [AQ = $\frac{1}{2}$(perimeter of triangle ABC)]

Q15. If PA and PB are two tangents drawn from a point P to a circle with centre o touching it at A and B. Prove that OP is the perpendicular bisector of AB.
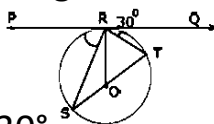
Q16. In the given figure PQ is tangent at point R of the circle with centre O. if ∠TRQ = 30° find m∠PRS

Q17. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle
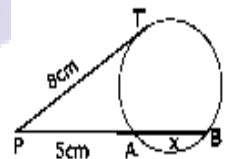
Q18. In the given figure find the unknown length x?

Q19. A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively. Find the sides AB and AC
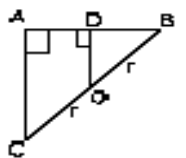
Q20. In the given figure OD is perpendicular the chord AB of a circle whose centre is O. If BC is a diameter. Find CA/OD?
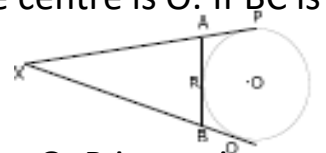
Q21. In the given fig XP and XQ are tangents from X to the circle with centre O. R is a point on the circle such that ARB is a tangent to the circle prove that [(XA + AR) = (XB + BR)].
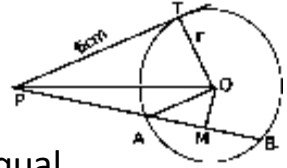
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Q22. Prove that the segment, joining the points of contact of two parallel tangents, passes through the centre.
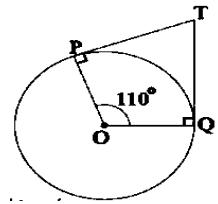
Q23. In the given figure, If TP and TQ are the two tangents to a circle with centre O so that ∠POQ = 110° then find ∠PTO

Q24. Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that ∠PTQ = 2∠OPQ

**Q25.** Prove that parallelogram circumscribing a circle is a rhombus.

Q26. The lengths of two tangents drawn from an external point to a circle are equal

Q27. In the given fig, PT is tangent and PAB in a secant If PT = 6 cm, AB = 5 cm. Find the length PA?

Q28. If AB, AC, PQ are tangents in the given fig and AB = 25cm, find the perimeter of triangle APQ

Q29. Two chords AB and CD of a circle Intersect each other at P outside the circle. If AB = 5cm BP = 3 cm and PD = 2 cm, find CD.

Q30. In the given fig ABCD is a cyclic quadrilateral and PQ is a tangent to the circle at C. If BD is a diameter, ∠OCQ = 40° and ∠ABD = 60°, find ∠BCP.
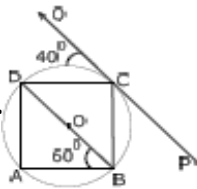
Q31. The length of tangents from a point A at distance of 26 cm from the centre of the circle is 10 cm. What will be the radius of the circle?

Q32. The circle of DABC touches the sides BC, CA and AB at D, E, F respectively. If AB = AC. Prove that BD = CD

Q33. From a point P two tangents are drawn to a circle with centre O. if OP = diameter of the circle, show that triangle APB is equilateral.
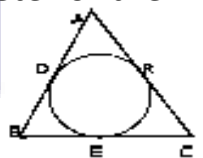
Q34. In the given figure if AB = AC prove that BE = EC

Q35. In the given figure PA and PB are tangents from P to the circle with centre O. R is a point on the circle. Prove that [(PC + CR) = (PD + DR)]

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