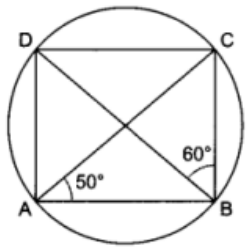
CH – 10 CIRCLES

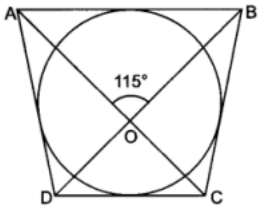
Q1. If a point P is 17 cm from the centre of a circle of radius 8 cm, then find the length of the tangent drawn to the circle from point P.

Q2. The length of the tangent to a circle from a point P, which is 25 cm away from the centre, is 24 cm. What is the radius of the circle?

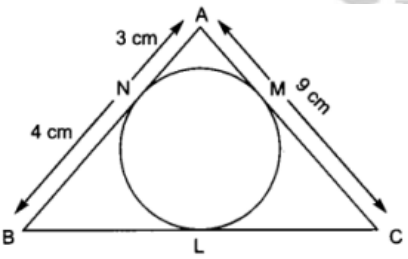
Q3. In Fig, ABCD is a cyclic quadrilateral. If ∠BAC = 50° and ∠DBC = 60° then find ∠BCD.



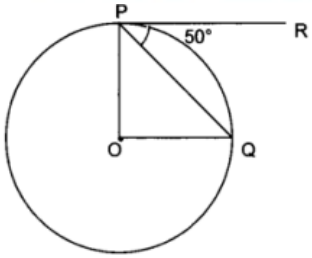
Q4. In Fig. the quadrilateral ABCD circumscribes a circle with centre O. If ∠AOB = 115°, then find ∠COD.



Q5. . In Fig. AABC is circumscribing a circle. Find the length of BC.



Q6. In Fig. O is the centre of a circle, PQ is a chord and the tangent PR at P makes an angle of 50° with PQ. Find ∠POQ.

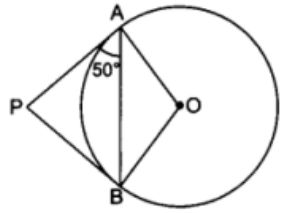


Q7. If two tangents inclined at an angle 60° are drawn to a circle of radius 3 cm, then find the length of each tangent.

Q8. If radii of two concentric circles are 4 cm and 5 cm, then find the length of each chord of one circle which is tangent to the other circle

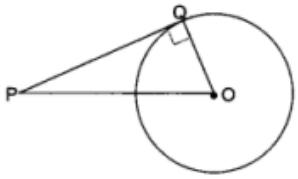
Q9. PQ is a tangent drawn from a point P to a circle with centre O and QOR is a diameter of the circle such that ∠POR = 120° then find ∠OPQ.

Q10. From an external point P, tangents PA and PB are drawn to a circle with centre O. If ∠PAB = 50°, then find ∠AOB.

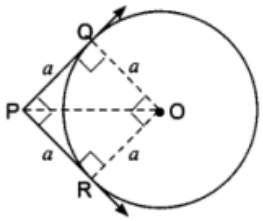


Q11. AB is a diameter of a circle and AC is its chord such that ∠BAC = 30°. If the tangent at C intersects AB extended at D, then BC = BD.

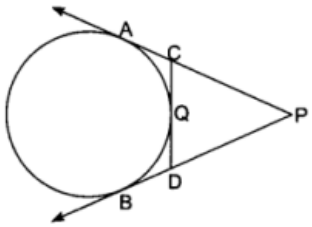
Q12. The length of tangent from an external point P on a circle with centre O is always less than OP.



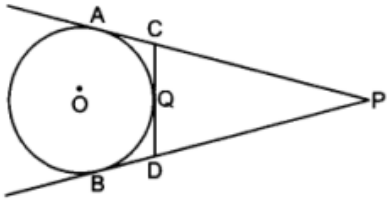
Q13. If angle between two tangents drawn from a point P to a circle of radius 'a' and centre 0 is 90°, then OP = $a\sqrt{2}$.



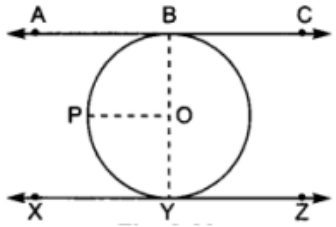
Q14. In Fig. PA and PB are tangents to the circle drawn from an external point P. CD is the third tangent touching the circle at Q. If PA = 15 cm, find the perimeter of ΔPCD.



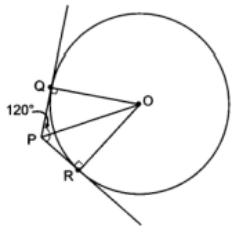
Q15. In Fig. PA and PB are tangents to the circle from an external point P. CD is another tangent touching the circle at Q. If PA = 12 cm, QC = QD = 3 cm, then find PC + PD.



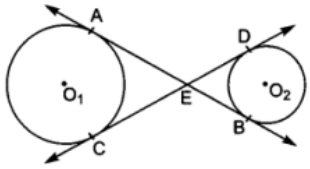
Q16. Prove that the line segment joining the points of contact of two parallel tangents of a circle, passes through its centre.



Q17. If from an external point P of a circle with centre 0, two tangents PQ and PR are drawn such that QPR = 120°, prove that 2PQ = PO.

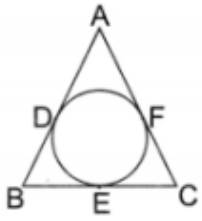


Q18. In Fig. common tangents AB and CD to two circles with centres , and 0, intersect at E. Prove that AB = CD.

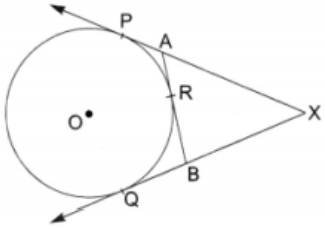


Q19. The in circle of an isosceles triangle ABC, in which AB = AC, touches the sides BC, CA and AB at D, E and F respectively. Prove that BD = DC.

Q20. In Fig. if AB = AC, prove that BE = EC. [Note: D, E, F replace by F, D, E]



Q21. In Fig. XP and XQ are two tangents to the circle with centre O, drawn from an external point X. ARB is another tangent, touching the circle at R. Prove that XA + AR = XB + BR.

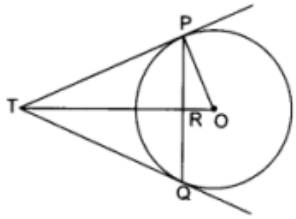


Q22. Prove that the tangent to a circle is perpendicular to the radius through the point of contact.

Q23. Prove that the lengths of two tangents drawn from an external point to a circle are equal.

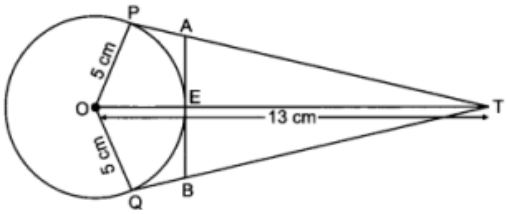
Q24. Prove that the parallelogram circumscribing a circle is a rhombus.

Q25. In Fig. PQ is a chord of length 16 cm, of a circle of radius 10 cm. The tangents at P and Q intersect at a point T. Find the length of TP.

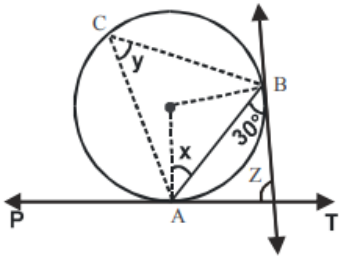


Q26. If PQ is a tangent drawn from an external point P to a circle with centre O and QOR is a diameter where length of QOR is 8 cm such that ∠POR = 120°, then find OP and PQ.

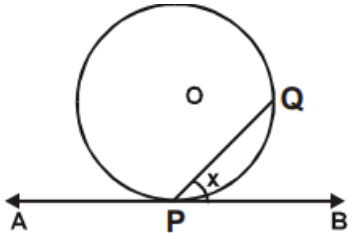
Q27. In Fig. O is the centre of a circle of radius 5 cm. T is a point such that OT = 13 cm and OT intersects circle at E. If AB is a tangent to the circle at E, find the length of AB, where TP and TQ are two tangents to the circle.



Q28. In the given figure, find the values of x, y and z.

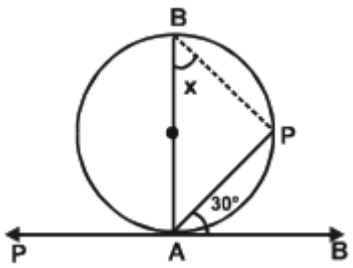


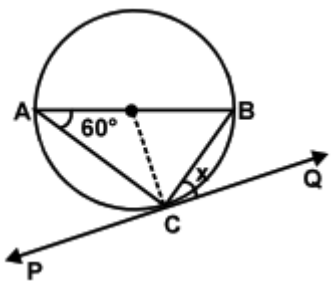
29. In the given figure the length of PQ is equal to the radius of the circle then find the vlaue of x.

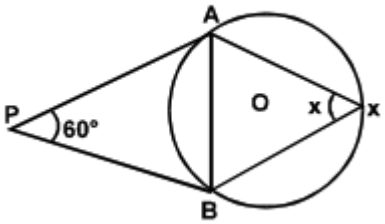


Q30. In the given figure, find the value of x.

(i) (ii) (iii)

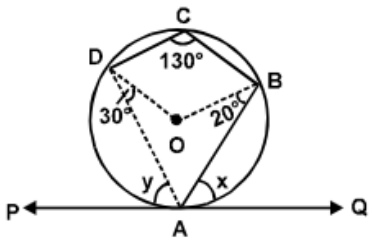


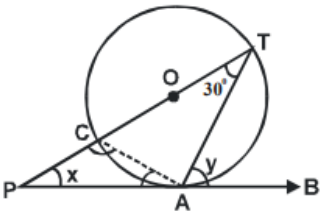


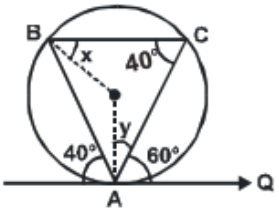


Q31. In the given figure, find the value of x and y.

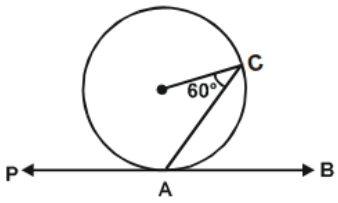
(i) (ii) (iii)



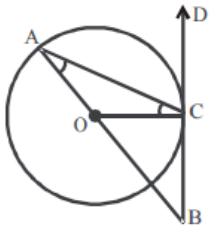




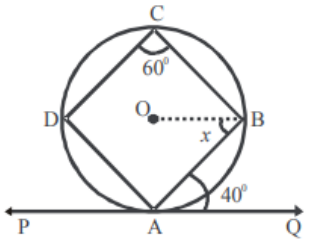
Q32. In the given figure, find ∠CAB.



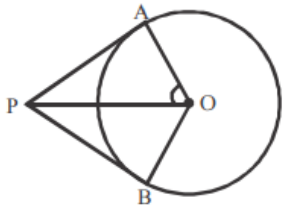
Q33. In the given fig. prove that ∠BAC + ∠DCA = 90^0.



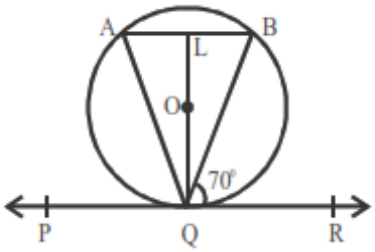
Q34. In the given fig. find the value of x.



Q35. If PA and PB are two tangents to a circle with centre O such that 0 ∠ = APB 80 , find ∠AOP .

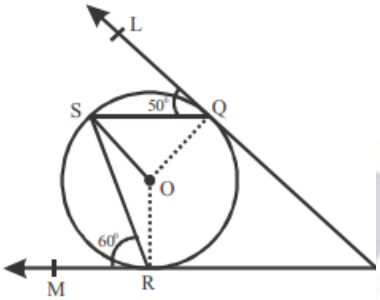


Q36. In the given figure, PQR is a tangent to the circle at Q, whose centre is O and AB is a chord parallel to PR such that ∠BQR = 70^0 , find ∠AQB .

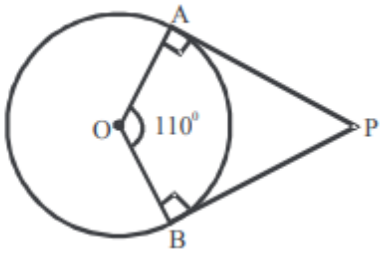


Q37. In the given figure, PQ is a chord of a circle with centre O and PT is tangent at P such that $\angle QPT = 60^0$. Find $\angle PRQ$.

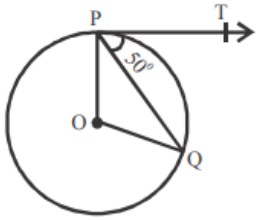
Q38. In the given figure, O is the centre of a circle; PQL and PRM are the tangents at the points Q and R respectively and S is a point on the circle such that $\angle SQL = 50^0$ and $\angle SRM = 60^0$, find $\angle QSR$.



Q39. If PA and PB are two tangents to a circle with centre O such that $\angle AOB = 110^0$, find $\angle APB$.



Q40. In the figure, O is the centre of a circle and PT is the tangent to the circle. If PQ is a chord such that $\angle QPT = 50^0$, find $\angle POQ$.



Q41. If the angle between two radii of a circle is 130^0 , then the angle between the tangents at the ends of the radii is.