RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATION

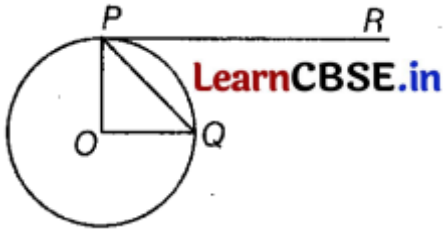
CBSE PRACTICE PAPER(2024)

(Mathematics)

Grade : X **Marks: 40**
marks
Chapter: CIRCLES **SET-1** **Time: 90 minutes**

SECTION A
(This section comprises of Multiple-choice questions (MCQ) of 1 mark each.)

1. If O is centre of a circle and chord PQ makes an angle 50° with the tangent PR at the point of contact P, then the angle made by the chord at the centre is



(a) 130° (b) 100° (c) 50° (d) 30°

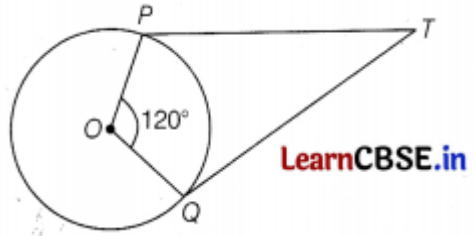
2. A quadrilateral PQRS is drawn to circumscribe a circle. If PQ =12 cm, QR = 15 cm and RS = 14 cm, then the length of SP is

(a) 15 cm (b) 14 cm (c) 12 cm (d) 11 cm

3. A point P is 45 cm away from the centre O of a circle and the length PT of the tangent drawn from P to the circle is 36 cm. The radius of the circle is

(a) 27 cm (b) 17 cm (c) 37 cm (d) 12 cm

4. In the given figure, if TP and TQ are the two tangents to a circle with centre O, so .that ∠POQ = 120°. The value of ∠PTQ is



(a) 30° (b) 120° (c) 60° (d) None of these

5. If point P lies inside the circle, then the number of tangent(s) drawn from point P, is

(a) 0 (b) 1 (c) 2 (d) None of these

6. If a semi-circle is rolled along its diameter, then the figure formed is

(a) spherical (b) conical (c) cylindrical (d) None of these

7. The distance between two parallel tangents to a circle of radius 7 cm, is

(a) 7 cm (b) 0 cm (c) 14 cm (d) None of these

8. In the given figure, if ΔACB ~ ΔAPQ, BA = 6 cm, BC = 8 cm and PQ = 4 cm, then the length of AQ is [1]

(a) 3 cm (b) 5 cm (c) 4 cm (d) 6 cm

9. If radius of circle is 3 cm and tangent drawn from an external point to the circle is 4 cm, then the distance from centre of circle to the external point is

(a) 3 cm (b) 2 cm (c) 5 cm (d) 4 cm

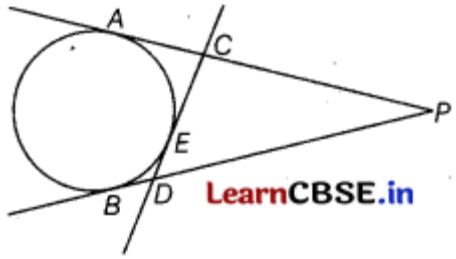
10. Two tangents, drawn at the end points of diameter of a given circle are always

(a) parallel (b) perpendicular (c) intersect each other (d) None of the above

SECTION B

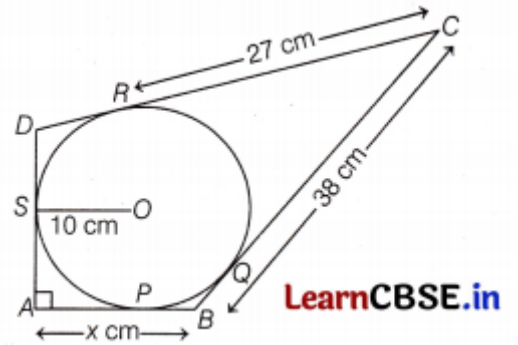
(This section comprises of very short answer type-questions (VSA) of 2 marks each)

11. From an external point P, two tangents, PA and PB are drawn to a circle with centre O.

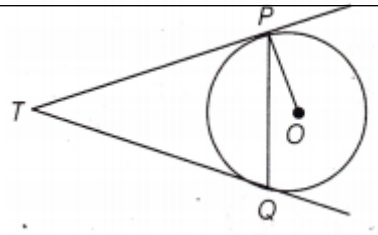


At a point E on the circle, a tangent is drawn to intersect PA and PB at C and D, respectively. If PA = 10 cm, find the perimeter of APCD.

12. In the figure, quadrilateral ABCD is circumscribing a circle with centre O and AD ⊥ AB. If radius of incirclte is 10 cm, then find the value of x.



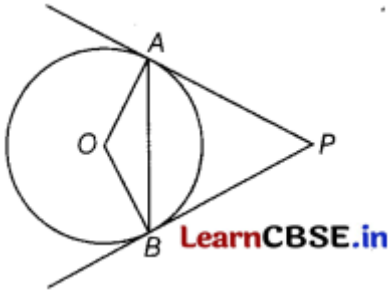
13. In the figure, two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that ∠PTQ = 2∠OPQ.



SECTION C

(This section comprises of short answer type questions (SA) of 3 marks each)

14 PA and PB are tangents drawn to a circle of centre O from an external point P. Chord AB makes an angle of 30° with the radius at the point of contact.
If length of the chord is 6 cm, find the length of the tangent PA and the length of the radius OA.



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

16 From an external point P, two tangents PA and PB are drawn to the circle with centre O. Prove that OP is the perpendicular bisector of AB.

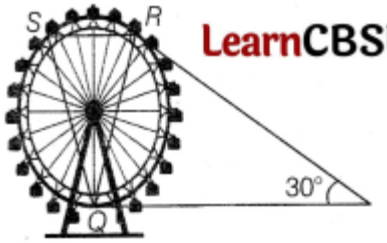
SECTION D

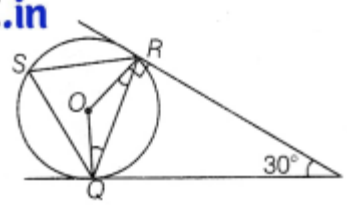
(This section comprises of long answer-type questions (LA) of 5 marks each)

17 Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line segment joining the points of contact at the centre.

18 The radii of two concentric circles are 13 cm and 8 cm. AB is a diameter of the bigger circle. BD is a tangent to the smaller circle touching it at D. Find the length AD.

19 A ferris wheel (or a big wheel in the United Kingdom) is an amusement ride consisting of a rotating upright wheel with multiple passenger-carrying components (commonly referred to as passenger cars, cabins, tubes, capsules, gondoals, or pods) attached to the rim in such a way that as the wheel turn, they are kept upright, usually by gravity.
After taking a ride in Ferris wheel, Aarti came out from the crowd and was observing her friends who from the crowd and was observing her friends who were enjoying the ride. She was curious about the different angles and measures that the wheel will form. She forms the figure as given below.





(i) In the given figure, find ∠ROQ. [1]
(ii) Find ∠RSQ. [2]
(iii) Find ∠ORP [1]

(iv) Find ∠RQP [1]