RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATION

CBSE PRACTICE PAPER(2024)

(Mathematics)

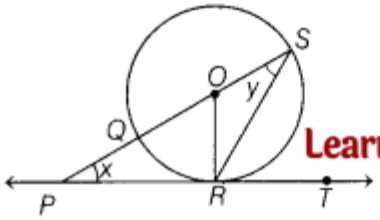
Grade : X **Marks: 40**
marks
Chapter: CIRCLES **SET-2** **Time: 90 minutes**

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

1. If PT is a tangent at T to a circle, where centre is O and OP =17 cm, OT = 8 cm, then the length of the tangent segment PT is

(a) 10 cm (b) 20 cm (c) 15 cm (d) 25 cm

2. In the given figure, PT is a tangent to a circle with centre O, at point R. If diameter SQ is produced, it meets with PT at point P with ∠SPR = x and ∠QSR = y, then the value of ∠x + 2∠y is



(a) 60° (b) 30° (c) 0° (d) 90°

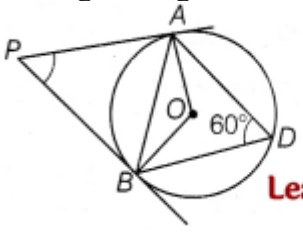
3. PAQ is tangent to a circle with centre O at point A. If ∠OBA = 40°, ∠BOA = 100°, then ∠BAP is equal to

(a) 45° (b) 60° (c) 50° (d) 55°

4. 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 the value of ∠POA is

(a) 60° (b) 90° (c) 0° (d) 50°

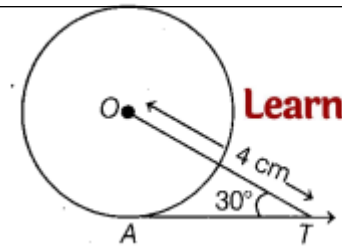
5. In the given figure, O is the centre of the circle with PA and PB as tangents. [1]



If measure of ∠ADB = 60°, then ΔPAB is an

(a) isosceles triangle (b) equilateral triangle (c) scalene triangle (d) None of these

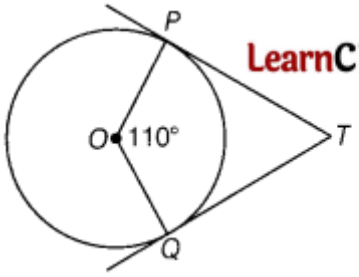
6. In the given figure, AT is a tangent to the circle with centre O such that OT = 4 cm and ∠OTA = 30°. (1)



Then, the value of AT is

(a) $2\sqrt{3}$ cm (b) 4 cm (c) 2 cm (d) None of these

7. In the given figure, if TP and TQ are the two tangents to a circle with centre O so that ZPOQ = 110°, then ZPTQ is equal to



(a) 60° (b) 70° (c) 80° (d) 90°

8. Which of the following pairs of lines in a circle cannot be parallel?

(a) 2 chord (b) a chord and a tangent (c) 2 tangent (d) 2 diameter

9. From a point P which is at a distance of 13 cm from the centre O of a circle of radius 5 cm, the pair of tangents PQ and PR to the circle are drawn. Then the area of the quadrilateral PQOR is

(A) 60 cm^2 (B) 65 cm^2 (C) 30 cm^2 (D) 32.5 cm^2

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

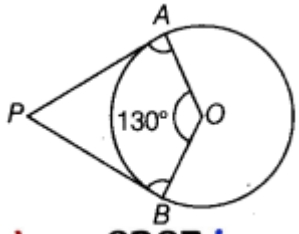
(A) $\frac{3\sqrt{3}}{2}$ cm (B) 6 cm (C) 3 cm (D) $3\sqrt{3}$ cm

SECTION B

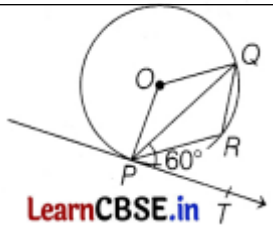
(This section comprises of very short answer type-questions (VSA) of 2 marks each)

11. If two tangents inclined at an angle of 60° are drawn to a circle of radius 5 cm, then find the length of each tangent.

12. In the given figure, if the angle between two radii of a circle is 130°, then find the angle between the tangents at the ends of the radii. [2]



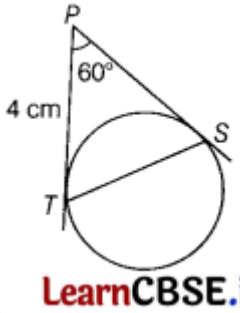
13. In the given figure, PA is a tangent from an external point P to a circle with centre O. If ∠POB = 125°, then find ∠APO. [2]



SECTION C

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

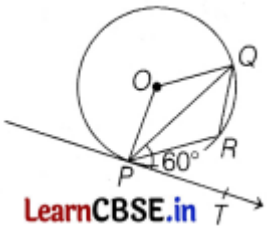
14 In the given figure, PT and PS are tangents to a circle from a point P such that PT = 4 cm and ∠TPS = 60°.



Find the length of chord TS. How many lines of same length TS can be drawn in the circle?

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

16 In the given figure, PQ is a chord of a circle and PT is tangent at P such that ∠QPT = 60°, then find the measure of ∠PRQ.

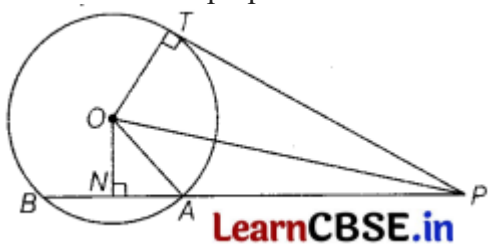


SECTION D

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

17 Two circles with centres O and O' of radii 3 cm and 4 cm, respectively intersect at two points P and Q such that OP and O'P are two perpendicular tangents to the two circles. Find the length of the common chord PQ.

18 In the given figure, from an external point P, a tangent PT and a line segment PAB drawn to a circle with centre O. ON is perpendicular on the chord AB.



Prove that

(a) $PA - PB = PN^2 - AN^2$

(b) $PN^2 - AN^2 = OP^2 - OT^2$

(c) $PA \cdot PB = PT^2$

19 PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at a point T (see figure). Find the length of TP.