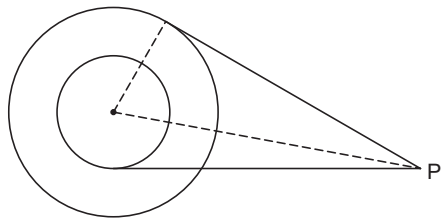
WORKSHEET 1

CHAPTER 12 – CIRCLES

1. In the given figure, O is the centre of two concentric circles of radii 5 cm and 3 cm. From an external point P tangents PA and PB are drawn to these circles. If PA = 12 cm, then PD = ?



(*a*) $3\sqrt{5}$ cm (*b*) $4\sqrt{10}$ cm (*c*) $5\sqrt{2}$ cm (*d*) $5\sqrt{3}$ cm

2. If the angle between two radii of a circle is 130°, then the angle between the tangents at the ends of the radii is

(*a*) 50° (*b*) 60° (*c*) 30° (*d*) 65°

3. How many parallel tangents can a circle have?

(*a*) 2 (*b*) 5 (*c*) 8 (*d*) infinite

4. 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 ∠OPQ is

(*a*) 30° (*b*) 60° (*c*) 45° (*d*) 35°

5. Prove that the tangents drawn at the ends of a diameter of a circle are parallel.

6. Find the length of tangent drawn to a circle with radius 8 cm from a point 17 cm away from the centre of the circle.

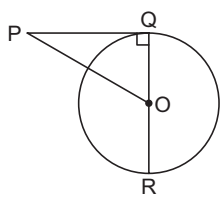
7. Prove that the parallelogram circumscribing a circle is a rhombus.

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

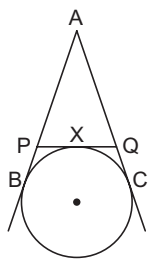
9. Prove that the lengths of tangents drawn from an external point to a circle are equal.

10. Prove that the perpendicular at the point of contact to the tangent to a circle passes through the centre of the circle.

11. In the given figure OQ : PQ = 3 : 4 and perimeter of ΔPOQ = 60 cm. Find the length of PQ, QR and OP.



12. In the given figure if AB, AC, PQ are tangents and AB = 5 cm, find the perimeter of APQ.



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

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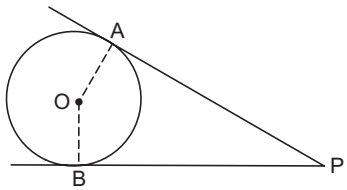
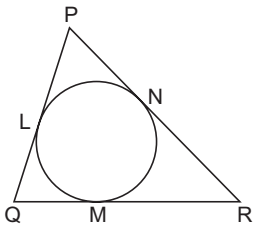
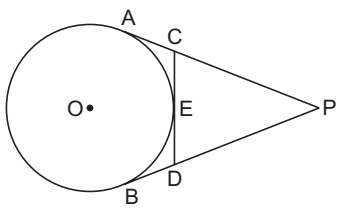
14. In a given figure, O is the centre of circle. PA and PB are tangent segments. Show that the quadrilateral AOBP is cyclic.



15. In the given figure, a circle is inscribed in ΔPQR with PQ = 10 cm, QR = 8 cm and PR = 12 cm. Find the lengths of QM, RN and PL.



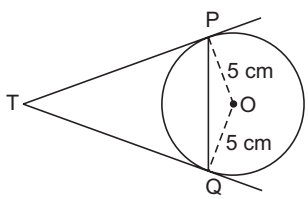
16. From an external point P, tangents PA and PB are drawn to a circle with centre O. If CD is the tangent to the circle at a point E and PA = 14 cm, find the perimeter of ΔPCD.



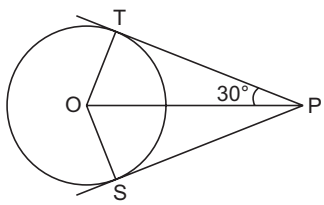
17. In two concentric circles, prove that a chord of larger circle which is tangent to the smaller circle is bisected at the point of contact.

18. Out of two concentric circles, the radius of the outer circle is 5 cm and its chord AC of length 8 cm is a tangent to the inner circle. Find the radius of the inner circle.

19. 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 of TP.



20. In the given figure, O is the centre of the circle. Find ∠TOS.



ANSWERS

WORKSHEET 1

1. (*b*) $4\sqrt{10}$ cm **2.** (*a*) 50° **3.** (*d*) infinite **4.** (*a*) 30° **6.** 15 cm

11. PQ = 20 cm, QR = 30 cm, OP = 25 cm **12.** 10 cm **13.** 10 cm

15. QM = 3 cm, RN = 5 cm, PL = 7 cm **16.** 28 cm **18.** 3 cm **19.** $\frac{20}{3}$ cm **20.** 120°