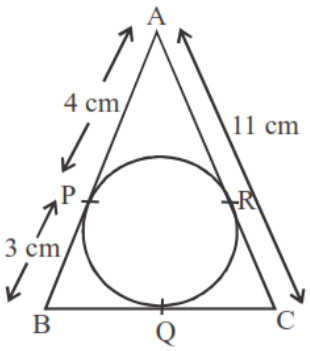
1. **Two concentric circles are of radii 5 cm and 3 cm. Find the length of that chord of the larger circle which touches the smaller circle.**

2. **Prove that the parallelogram circumscribing a circle is a rhombus.**

3. In Fig. 1, ΔABC is circumscribing a circle, the length of BC is _____cm.



4. In Fig. 3, two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$.

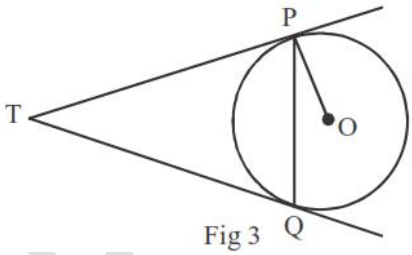
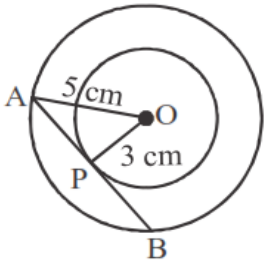


Fig 3

5. In given Fig. 2, the length PB = _____ cm.



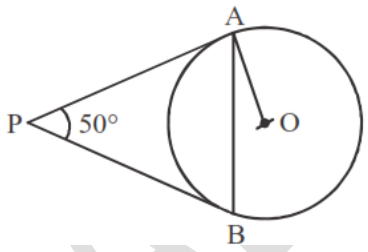
6. If a circle touches the side BC of a triangle ABC at P and extended sides AB and AC at Q and R, respectively, prove that

$$AQ = \frac{1}{2}(BC + CA + AB)$$

7. The distance between two parallel tangents of a circle of radius 4 cm is _____.

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

9. In Fig. 2, PA and PB are tangents to the circle with centre O such that $\angle APB = 50°$, then the measure of $\angle OAB$ is _____.



10. In Fig. 3, PQ is a chord of a circle and PT is tangent at P such that $\angle QPT = 60°$, then the measure of $\angle PRQ$ is _____.

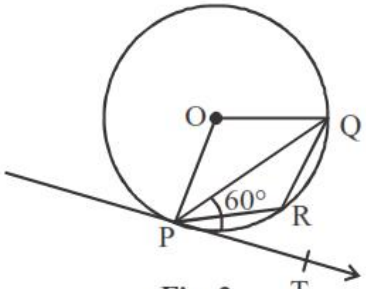
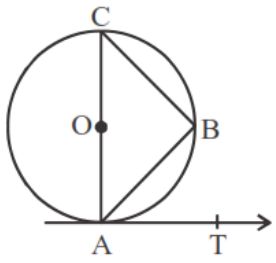


Fig. 3

11. In Fig. 4 AB is a chord of circle with centre O, AOC is diameter and AT is tangent at A. Prove that $\angle BAT = \angle ACB$.



12. 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.

13. Prove that the tangents at the extremities of any chord of a circle make equal angles with the chord.

14. **From an external point Q, the length of the tangent to a circle is 5 cm and the distance of Q from the centre is 8 cm. The radius of the circle is**

(A) 39 cm **(B) 3 cm** **(C) $\sqrt{39}$ cm** **(D) 7 cm**

15. All concentric circles are _____ to each other.

16. In Fig. 4, PA is a tangent from an external point P to a circle with centre O. If $\angle POB = 115°$, find $\angle APO$.

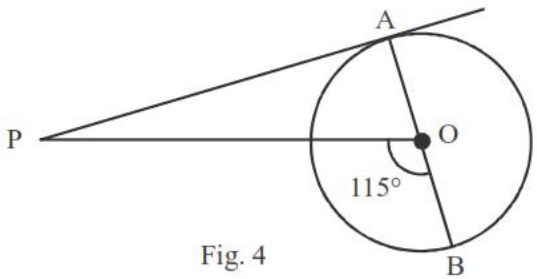


Fig. 4

17. **In Figure-2, TP and TQ are tangents drawn to the circle with centre at O. If ∠POQ = 115° then ∠PTQ is**

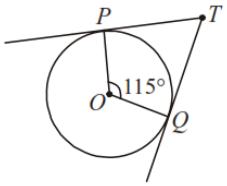
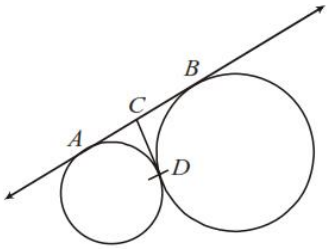


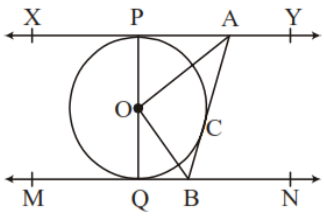
Fig. 2

(A) 115° **(B) 57.5°** **(C) 55°** **(D) 65°**

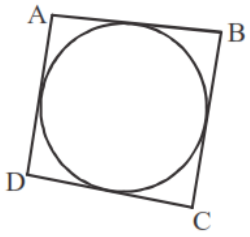
18. **In Figure-4, AB and CD are common tangents to circle which touch each other at D. If AB = 8 cm, then find the length of CD.**



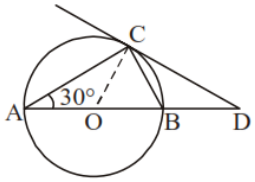
19. **In Figure-7, XY and MN are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and MN at B. Prove that ∠AOB = 90°.**



20. In Figure 6, a quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = BC + AD.



21. **In Figure-7, AB is the diameter of a circle with centre O and AC is its chord such that ∠BAC = 30°. If the tangent drawn at C intersects extended AB at D, then show that BC = BD.**



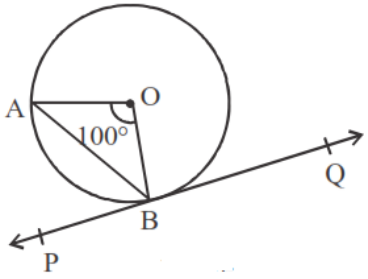
22. In Figure 2, PQ is tangent to the circle with centre at O, at the point B. If ∠AOB = 100°, then ∠ABP is equal to

(a) 50°

(b) 40°

(c) 60°

(d) 80°



23. In Figure 3, from an external point P, two tangents PQ and PR are drawn to a circle of radius 4 cm with centre O. If ∠QPR = 90°, then length of PQ is

(a) 3 cm

(b) 4 cm

(c) 2 cm

(d) $2\sqrt{2}$ cm

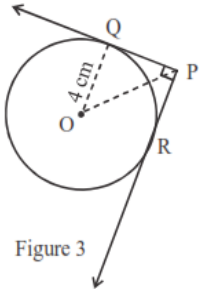


Figure 3

24. In Figure 7, find the perimeter of ΔABC, if AP = 12 cm.

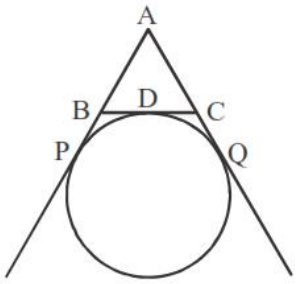


Figure 7

25. If the 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.

26. If the angle between two tangents drawn from an external point 'P' to a circle of radius 'r' and centre O is 60^0, then find the length of OP.