MATHEMATICS

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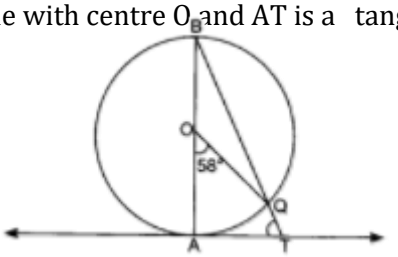
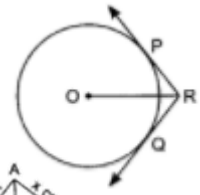
Board –	Class –	Topic –

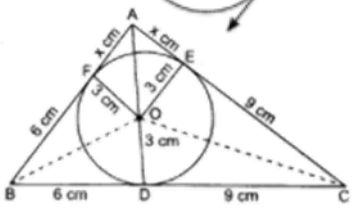
1. In figure, AB is the diameter of a circle with centre O and AT is a tangent.
   If ∠AOQ = 58°, find ∠ATQ



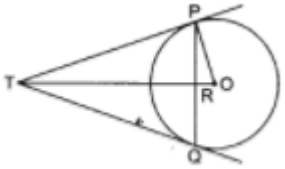
2. From a point T outside a circle of centre O, tangents TP and TQ are drawn to the circle. Prove that OT is the right bisector of the line segment PQ.
3. In figure, two tangents RQ and RP are drawn from an external point R to circle with centre O. If ∠PRQ = 120°, then prove that OR = PR + RQ.



4. In figure, a triangle ABC is drawn to circumscribe a circle of radius 3 cm, such that the segments BD and DC are respectively of lengths 6 cm and 9 cm. If the area of ΔABC is 54 cm^2, then find the lengths of sides AB and AC

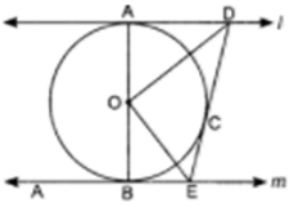


5. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact
6. Prove that the lengths of the tangents drawn from an external point to a circle are equal
7. In figure, PQ is a chord of length 16 cm, of a circle of radius 10 cm. The tangents at P and Q intersect at a point T. Find the length of TP.

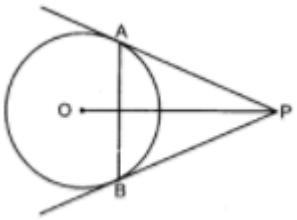


8. Prove that the length of the tangents drawn from an external point to a circle is equal.
9. In figure, a triangle ABC is drawn to circumscribe a circle of radius 4 cm, such that the segments BD and DC are of lengths 8 cm and 6 cm respectively. Find the sides AB and AC.

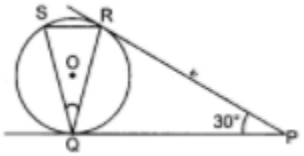
10. Prove that the tangent drawn at the mid-point of an arc of a circle is parallel to the chord joining the end points of the arc.



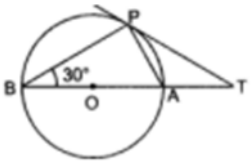
11. In the given figure l, m are two parallel tangents to the circle with centre O, touching the circle at A and B respectively. Another tangent at C intersect the line l at D and at E. prove that ∠DOE=90 °
12. Prove that a parallelogram circumscribing a circle is a rhombus
13. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact
14. In the given figure, PA and PB are two tangents drawn from an external point P to a circle with centre O. Prove that OP is the right bisector of line segment AB.



15. A quadrilateral is drawn to circumscribe a circle. Prove that the sums of opposite sides are equal
16. In figure, tangents PQ and PR are drawn from an external point P to a circle with centre O, such that ∠RPQ = 30°. A chord RS is drawn parallel to the tangent PQ. Find ∠RQS



17. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact
18. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact
19. In figure, O is the centre of the circle and TP is the tangent to the circle from an external point T. If ∠PBT = 30°, prove that BA: AT = 2:1



20. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact
21. Prove that the lengths of tangents drawn from an external point to a circle are equal.
22. Two concentric circles are of radii 7 cm and r cm respectively, where r >7 .A chord of the larger circle, of length 48 cm, touches the smaller circle. Find the value of r.
23. If radii of the two concentric circles are 15cm and 17cm, then find the length of each chord of one circle which is tangent to one other. **[Ans. 16cm]**
24. If two tangents making an angle of 1200 with each other, are drawn to a circle of radius 6cm, then find the angle between the two radii, which are drawn to the tangents.

[Ans. 60]

25. PQ is a chord of a circle and R is point on the minor arc. If PT is a tangent at point P such that ∠QPT = 60 then find <PRQ. **[Ans. 120°]**

26. If a tangent PQ at a point P of a circle of radius 5cm meets a line through the centre O at a point Q such that OQ = 12 cm then find the length of PQ. **[Ans.$\sqrt{119}$cm]**
27. If the angle between two radii of a circle is 130, then find the angle between the tangents at the end of the radii. **[Ans. 50°]**
28. ABCD is a quadrilateral. A circle centered at O is inscribed in the quadrilateral. If AB = 7cm, BC = 4cm, CD = 5cm then find DA. **[Ans. 8 cm]**
29. If PA and PB are two tangents drawn to a circle with centre O, from an external point P such that PA=5cm and ∠APB = 60 , then find the length of the chord AB. **[Ans. 5cm]**
30. CP and CQ are tangents from an external point C to a circle with centre O. AB is another tangent which touches the circle at R and intersects PC and QC at A and B respectively. If CP = 11cm and BR = 4cm, then find the length of BC. **[Ans. 7cm]**
31. AB is a chord of length 9.6cm of a circle with centre O and radius 6cm.If the tangents at A and B intersect at point P then find the length PA. **[Ans. 8cm]**
32. Prove that the length of tangents drawn from an external point to a circle is equal. Hence, find BC, if a circle is inscribed in a ABC touching AB, BC &CA at P, Q &R respectively, having AB=10cm, AR=7cm &RC=5cm. **[Ans. 8cm]**