

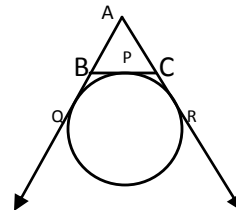
Class – X

Assignment

Circles

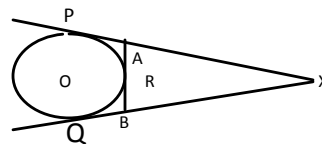
1. PT is the tangent of the circle with centre O & PAB is a secant. If $PT = 6\text{ cm}$, $AB = 5\text{ cm}$, find the length of PA.
2. Two tangents PA & PB are drawn to the circle with centre O, such that $\angle APB = 120^\circ$. Prove that $OP = 2AP$.
3. Prove that the intercept of a tangent between two parallel lines to a circle with the centre O subtends a right angle at the centre.
4. Prove that, the tangent at any point of a circle is perpendicular to the radius through the point of contact.
5. If all the sides of a parallelogram touch a circle, prove that the ||gm is a rhombus.
6. ABC is a right-angled Δ , right angled at A, with $AB = 6\text{ cm}$ & $AC = 8\text{ cm}$. A circle with centre O has been inscribed inside the Δ . Calculate the value of r , the radius of the inscribed circle.

7. In the figure, a circle touches the side BC of ΔABC at P & touches AB & AC produced at Q & R respectively. If $AQ = 5\text{ cm}$, find the perimeter of ΔABC .



8. Two circles touch internally at a point P & from a point T on the common tangent at P, tangent segments TQ, TR are drawn to the two circles. Prove that $TQ = TR$.

9. XP & XQ are two tangents to a circle with centre O. From a point X outside the circle. ARB is tangent to a circle at R. Prove that $XA + AR = AB + BR$.



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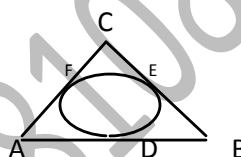
10. Two circles touch internally at a point P & from a point T on the common tangent at P, tangent segments TQ, TR are drawn to the two circles. Prove that $TQ = TR$.

11. PQ & PR are tangents to a circle with centre O. If $\angle OPR = 80^\circ$, find $\angle QOR$.

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

13. A circle is inscribed in a $\triangle ABC$ having sides 8cm , 10cm , & 12cm .

Find AD, BE & CF.



14. Prove that the opposite sides of a quadrilateral circumscribing a circle subtended supplementary angles at the centre of the circle.

15. Two tangents TP & TQ are drawn to a circle with centre O from an external point T. prove that $\angle PTQ = 2\angle OPQ$.

16. In the given figure a circle touches the side BC of $\triangle ABC$ at P and touches AB and AC B produced at Q and R respectively. If $AQ = 5\text{cm}$, find the perimeter of $\triangle ABC$.

17. A circle touches all the four sides of a quadrilateral ABCD whose sides are $AB = 6\text{cm}$, $BC = 7\text{cm}$ and $CD = 4\text{cm}$. Find AD.

18. Prove that, in two concentric circles, the chord of a larger circle, which touches the smaller circle, is bisected at a point of contact.