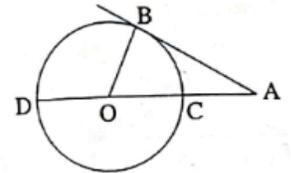


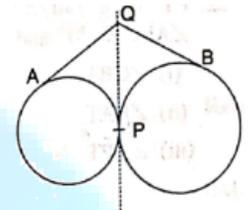
Notes and Theorem

1. The radius of a circle of a circle is 8 cm. Calculate the length drawn to this circle from a point at a distance of 10 cm from its centre.

2. In the figure, O is the centre of the circle and AB is a tangent at B. If $AB = 15$ cm and $AC = 7.5$ cm calculate the radius of the circle.



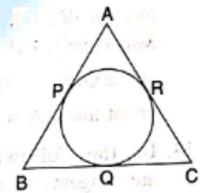
3. Two circles touch each other externally at point P. Q is a point on the common tangent. QA and QB are equal.



4. Two circles touch each other internally. Show that the tangent drawn to the two circles from any point on the common tangent are equal in length.

5. Two circles of radii 5 cm and 3 cm are concentric. Calculate the length of a chord of the outer circle which touches the inner circle.

6. Three circles touch each other externally. A triangle is formed when the centres of these circles are joined together. Find the radii of the circles, if the sides of the triangle formed are 6 cm, 8 cm and 9 cm.



7. From the given figure prove that:

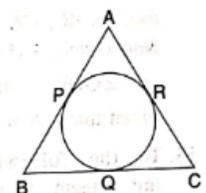
$$AP + BQ + CR = BP + CQ + AR.$$

Also, show that: $AP + BQ + CR = \frac{1}{2} \times \text{Perimeter of } \triangle ABC.$

8. In the figure, If $AB = AC$ then prove that $BQ = CQ$

9. Radii of two circles are 6.3 cm and 3.6 cm. state the distance between their centres if :

- (i) They touch each other externally
- (ii) They touch each other internally



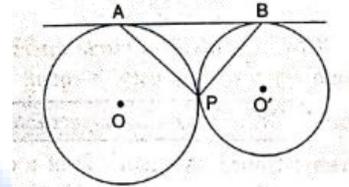
10. From a point P outside a circle with center O, tangents PA and PB are drawn. Prove that:

- (i) $\angle AOP = \angle BOP$
- (ii) OP is the \perp bisector of chord AB.

11. In the given figure, two circles touch each other externally at point P.

AB is the direct common tangent of these circles. Prove that:

- (i) Tangent at point P bisects AB,
- (ii) $\angle APB = 90^\circ$.

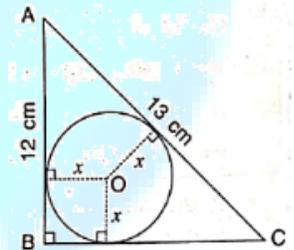


12. Tangents AP and AQ are drawn to a circle, with centre O, from exterior point A. Prove that:

$$\angle PAQ = 2\angle OPQ$$

13. Two parallel tangents of a circle meet a third tangent at point P and Q. Prove that PQ subtends a right at the centre.

14. ABC is a right angled triangle with AB = 12 cm and AC = 13 cm A circle, with centre O, has been inscribed inside the triangle. Calculate the value of x, the radius of the inscribed circle. [2005]



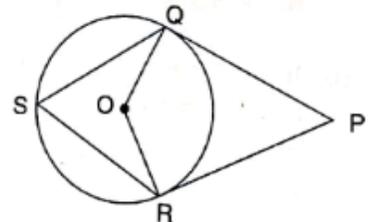
15. In a triangle ABC the incircle (centre O) touches BC, CA and Ab at point P, Q And R respectively. Calculate:

- (i) $\angle QOR$
- (ii) $\angle QPR$ (Given that $\angle A = 60^\circ$)

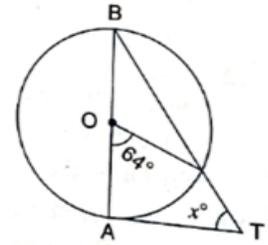
16. In the following figure, PQ and PR are tangents to the circle, with centre O.

If $\angle QPR = 60^\circ$, calculate :

- (i) $\angle QOR$
- (i) $\angle OQR$
- (i) $\angle QSR$



17. In the given figure, AB is the diameter of the circle with centre O, and AT is the numerical value of x.

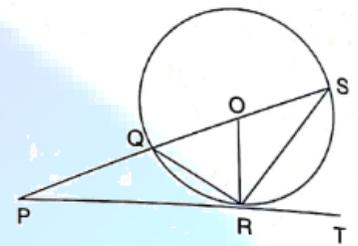


18. In quadrilateral ABCD; angle D = 90° DC = 38 cm and DC = 25 cm. A circle is inscribed in this quadrilateral which touches AB at point Q such that QB = at 27 cm find the radius of the circle. [1990]

19. In the given figure PT touches the circle with centre O at R. Diameter SQ is Produced to meet the tangent TR at P. [1992]

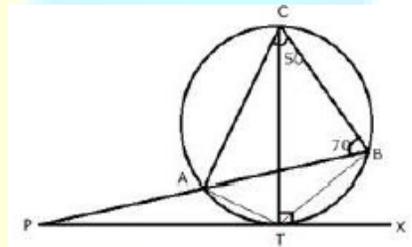
Given $\angle SPR = x^\circ$ and $\angle QRP = y^\circ$; prove that:

- (i) $\angle ORS = y^\circ$
- (ii) Write an expression connecting x and y.



20. PT is a tangent to the circle at T. If $\angle ABC = 70^\circ$ and $\angle ACB = 50^\circ$; Calculate:

- (i) $\angle CBT$
- (ii) $\angle BAT$
- (iii) $\angle APT$



21. In the figure, O is the centre of the circumcircle ABC. Tangent at A and C intersect at P. Given angle AOB = 140° and angle APC = 80°; find the angle BAC. [1996]

