

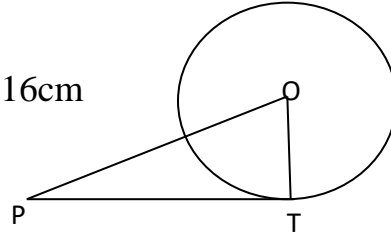
WORKSHEET

LEVEL -I (BASIC)

MCQ

1. PT is a tangent to the circle with centre O. If $OT = 6\text{cm}$. & $OP = 10\text{cm}$, then length of tangent PT is

(a) 8cm (b) 12cm (c) 10cm (d) 16cm

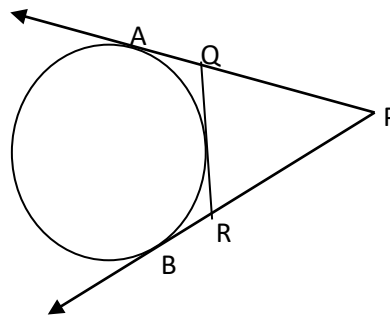


2. TP & TQ are two tangents from an external point T to a circle with centre O so that $\angle POQ = 110^\circ$, then $\angle PTQ =$

(a) 60° (b) 70° (c) 80° (d) 90°

3. The length of the tangent drawn from a point 8cm away from the centre of a circle of radius 6cm is

(a) $\sqrt{7}\text{cm}$ (b) $2\sqrt{7}\text{cm}$ (c) 10cm (d) 5cm



4. A line which is perpendicular to the radius of the circle through the point of contact is called a _____

(a) tangent (b) chord (c) normal (d) segment

5. If tangent PA & PB from an external point P to a circle with centre O are inclined to each other at an angle of 80° . Then $\angle POA$ is equal to

(a) 50° (b) 60° (c) 70° (d) 80°

6. Two concentric circles are of radii 5 cm and 3 cm. The length of the chord of the larger circle which touches the smaller circle is

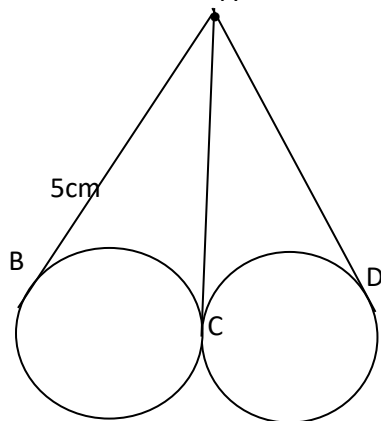
- (a) 5 cm (b) 4 cm (c) 6 cm (d) 8 cm

FILL IN THE BLANKS

1. From a point P outside a circle exactly _____-tangents can be drawn to the circle.
2. A tangent drawn to a circle intersect the circle in _____ point/ points.
3. A circle can have _____ parallel tangents at most.
4. There is _____ tangent to a circle passing through a point lying inside a circle.
5. The common point of a tangent to a circle and the circle is called _____-
6. The length of the tangents drawn from an external point to a circle are _____

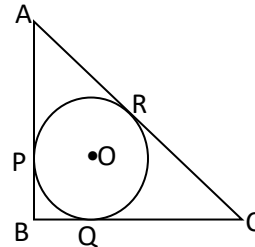
VSA

1. From a point P, the length of the tangent to a circle is 15cm & distance of P from the centre of the circle is 17cm. What is the radius of the circle ?
2. What is the distance between two parallel tangents of a circle of radius 10cm
3. In the given fig. if PA = 20cm, what is the perimeter of the ΔPQR
4. AP & AQ are tangents from a point A to a circle with centre O & radius 9cm. If OA = 15cm, then find AP + AQ
5. If PT is a tangent drawn from a point P to a circle touching it at T & O is the centre of the circle, then find $\angle OPT + \angle POT$
6. In the given fig. AB, AC & AD are tangents. If AB = 5 cm find AD.



Short Answer Type – I

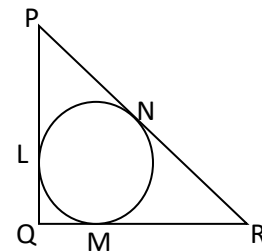
1. A circle touches all four sides of a quadrilateral ABCD. Prove that $AB + CD = BC + AD$
(NCERT, CBSE 2008,2009,2012,2013,2014,2015,2017)
2. Out of two concentric circles,the radius of the outer circle is 5 cm & chord AC of length 8cm is a tangent to the inner circle. Find the radius of the inner circle.
3. If PA & PB are tangents from an outside point P such that $PA = 10$ cm & $\angle APB = 60^\circ$. Find length of chord AB. (CBSE 2016)
4. In fig. ABC is a right Δ right angled at B such that $BC = 6$ cm & $AB = 8$ cm .Find radius of the incircle.



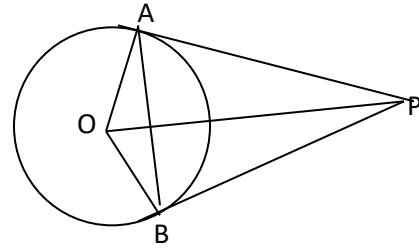
5. If the sides of a quadrilateral touch a circle, prove that the sum of a pair of opposite sides is equal to the sum of the other pair.

Short Answer Type – II

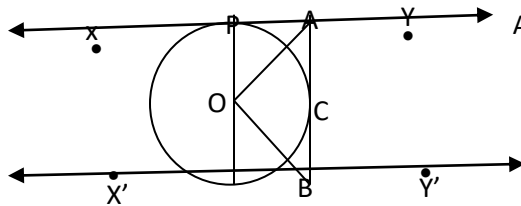
1. Prove that tangent at any point of a circle is perpendicular to the radius through the point of contact.
2. In given fig. a circle is inscribed in a ΔPQR with $PQ = 10$ cm, $QR = 8$ cm and $PR = 12$ cm. Find the length of QM, RN & PL



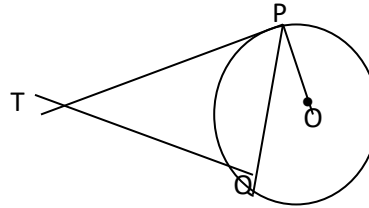
3. In given fig. OP is equal to diameter of the circle, Prove that ΔAPB is an equilateral triangle.



4. In fig. XY & X'Y' are two parallel tangents to a circle with centre O & another tangent AB with point of contact C intersecting XY at A & X'Y' at B. Prove that $\angle AOB = 90^\circ$



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



6. Prove that 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 center.

Long Answers

1. Prove that lengths of tangents drawn from an external point to a circle are equal.
2. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.
3. In the given fig. a circle touches the side BC of a ΔABC at P & touches AB & AC produced at Q & R respectively. Show that $AQ = \frac{1}{2}(\text{perimeter of } \Delta ABC)$
4. PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P & Q intersect at a point T. Find the length of TP.

