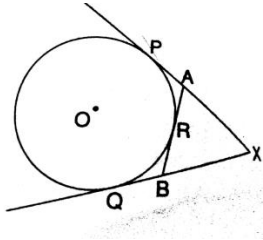
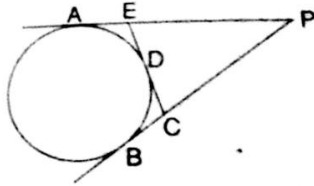
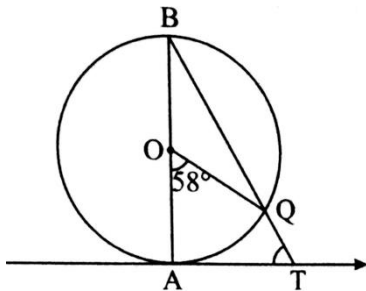
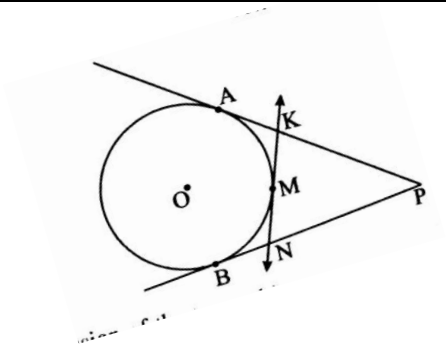
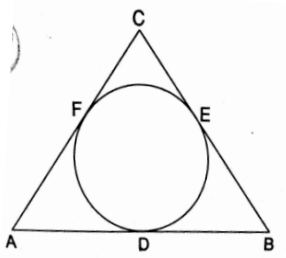


Mathematics Assignment (Class-X)

Chapter-10 Circles

	1 MARKER QUESTIONS
1	The opposite sides of a quadrilateral circumscribing a circle subtends _____ angles at the centre of the circle. (a) supplementary (b) complementary (c) both a and b (d) none of these
2	If all the sides of a parallelogram touch a circle, then the parallelogram is a _____. (a) rhombus (b) square (c) trapezium (d) none of these
3	Two concentric circles of radii a and b, where $a > b$ is given. The length of chord of the larger circles which touches the other circles is _____.
4	The distance between two parallel tangents to a circle whose radius is 4.5 cm is _____.
5	In a circle with centre C, PQ is a tangent at Q. If CP = 17 cm and the radius of the circle is 8 cm, then the length of the tangent is _____.
6	If PA and PB are tangents from P to a circle with centre C and $\angle APB = 50^\circ$, find $\angle ACB$.
7	In a circle with centre C, PA and PB are tangents from P. If the radius of the circle is 4 cm and $PA \perp PB$, then find the length of each tangent.
8	If PQ and PR are tangents from an external point P to a circle with centre O, $\angle POR = 55^\circ$, find $\angle QPR$.
	2 MARKER QUESTIONS
9	A point P is 7 cm from the centre of a circle whose diameter is 8 cm. How many tangents can be drawn to the circle? Justify.
10	The sides AB, BC and AC of a triangle ABC, touch a circle at P, Q and R respectively. If PA = 4 cm, BP = 3 cm and AC = 11 cm, find the length of BC.
11	Two circles are touching externally at the point T. QR is a common tangent to these circles at Q and R. the tangent at T meets QR at P. If PT = 3.8 cm, find the length of QR.
12	Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact.
13	Prove that the lengths of tangents drawn from an external point to a circle are equal.
14	Prove that in two concentric circles, the chord of the larger circle, which touches the smaller circle, is bisected at the point of contact.
15	Prove that the sum of opposite sides of a quadrilateral circumscribing a circle is equal.

	3 MARKER QUESTIONS
16	Prove that the perpendicular at the point of contact of the tangent to a circle passes through the centre of the circle.
	A circle is touching the side BC of a ΔABC at P and is touching AB and AC when produced at Q and R respectively. Prove that $AQ = \frac{1}{2}$ (perimeter of ΔABC)
17	In figure, XP and XQ are two tangents to a circle with centre O from a point X outside the circle. ARB is a tangent to the circle at R. Prove that $XA + AR = XB + BR$. 
18	In figure, from an external point P, tangents PA and PB are drawn to a circle. CE is a tangent to the circle at D. If $AP = 15$ cm, find the perimeter of the triangle PEC. 
19	If all sides of a parallelogram touches a circle, show that the parallelogram is a rhombus. (In other words, prove that the parallelogram circumscribing a circle is a rhombus.)
20	AD is a diameter of a circle with centre O and AB is a tangent at A. C is a point on the circle such that DC produced intersects at B and $\angle ABC = 50^\circ$. Find $\angle AOC$.
	4 MARKER QUESTIONS
21	PA and PB are tangents drawn from an external point P to a circle with centre O. Prove that $\angle APB = 2 \angle OAB$.
22	PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at a point T. Find the length TP.
23	In figure, AB is the diameter of a circle with centre O and AT is a tangent. If $\angle AOQ = 58^\circ$, find $\angle ATQ$. 
	HOTS
24	The radii of two concentric circles are 13 cm and 8 cm. AB is a diameter of the bigger circle. BD is a tangent to the smaller circle, touching it at D. Find the length AD.

25	In figure, PA and PB are tangents from P to the circle with centre O. At the point M, a tangent is drawn cutting PA at K and PB at N. Prove that $KN = AK + BN$. 
26	In the figure, a circle is inscribed in a $\triangle ABC$ having sides $BC = 8$ cm, $AC = 10$ cm and $AB = 12$ cm. Find AD, BE and CF. 
27	In the figure, ABC is a right angled triangle with $AB = 6$ cm and $AC = 8$ cm. A circle with centre O has been inscribed inside the triangle. Calculate the value of r, the radius of the inscribed circle. 