Ravi Maths Tuition

CIRCLES

10th Standard

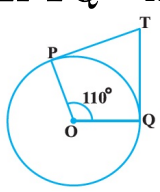
Maths

Multiple Choice Question 63 x 1 = 63

1) From a point Q, the length of the tangent to a circle is 24 cm and the distance of Q from the centre is 25 cm. The radius of the circle is

(a) 7 cm (b) 12 cm (c) 15 cm (d) 24.5 cm

2) In the given figure, if TP and TQ are the two tangents to a circle with centre O so that $\angle POQ$ = 110°, then $\angle PTQ$ is equal to



(a) 60° (b) 70° (c) 80° (d) 90°

3) If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle of 80°, then $\angle POA$ is equal to

(a) 50° (b) 60° (c) 70° (d) 80°

4) A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q, so that OQ= 12 cm. Length of PQ is

(a) 12 cm (b) 13 cm (c) 8.5 cm (d) $\sqrt{119}$ cm

5) In the given figure, PA and PB are tangents from P to a circle with centre O. If ∠AOB = 130°, then find ∠APB.

(a) 40° (b) 55° (c) 50° (d) 60°

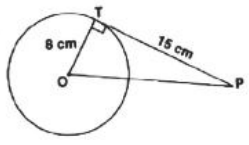
6) In the given figure, PT is a tangent to a circle whose centre is O. If PT = 12 cm and PO = 13 cm then find teh radius of the circle.

(a) 5 cm (b) 4 cm (c) 6 cm (d) 4.5 cm

7) In the given figure, PT is a tangent to the circle and O is its centre. Find OP.

(a) 16 cm (b) 15 cm (c) 18 cm (d) 17 cm

8) In the figure, Ab is a chord of length 16 cm, of a circle of radius 10 cm. The tangents at A and B intersect at a point P. Find the length of PA.

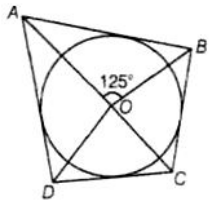


(a) $\frac{20}{5}$ cm (b) $\frac{40}{5}$ cm (c) $\frac{20}{3}$ cm (d) $\frac{40}{3}$ cm

9) If radii of two concentric circles are 4 cm and 5 cm, then length of each chord of one circle which is tangent to the other circle, is

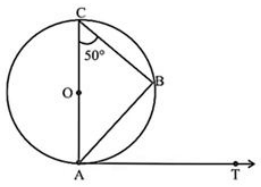
(a) 3 cm (b) 6 cm (c) 9 cm (d) 1 cm

10) in figure , if ∠AOB = 125°, then ∠COD is equal to



(a) 62° (b) 45° (c) 35° (d) 55°

11) In figure, AB is a chord of the circle and AOC is its diameter such that $\angle ACB = 50°$. If AT is the tangent to the circle at the point A, then $\angle BAT$ is equal to



(a) 45° (b) 60° (c) 50° (d) 55°

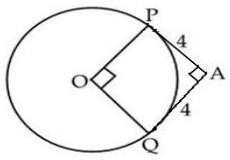
12) From a point P which is at a distance of 13 cm from the centre O of a circle of radius 5 cm, the pair of tangents PQ and PR to the circle is drawn. Then, the area of the quadrilateral PQOR is

(a) 60 cm^2 (b) 65 cm^2 (c) 30 cm^2 (d) 32.5 cm^2

13) At one end A of a diameter AB of a circle of radius 5 cm, tangent XAY is drawn to the circle. The length of the chord CD parallel to XY and at a distance 8 cm from A, is

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

14) In the figure, the pair of tangents AP and AQ, drawn from an external point A to a circle with centre O, are perpendicular to each other and length of each tangent is 4 cm, then the radius of the circle is



(a) 10 cm (b) 4 cm (c) 7.5 cm (d) 2.5 cm

15) The length of the tangent drawn from a point 8 cm away from the centre of a circle, of radius 6 cm, is :

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

16) Number of tangents, that can be drawn to a circle, parallel to a given chord is

(a) 3 (b) zero (c) Infinite (d) 2

17) How many tangents can be drawn to a circle from a point in its interior?

(a) One (b) Infinite (c) None (d) Two

18) The tangents drawn at the ends of a diameter of a circle are:

(a) intersecting at a point inside the circle (b) perpendicular

(c) intersecting at the centre of the circle (d) parallel

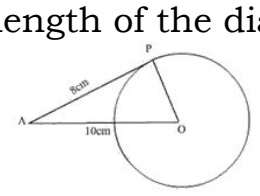
19) A circle can pass through

(a) 3 non- collinear points (b) 3 collinear points (c) 4 collinear points (d) 2 collinear points

20) If tangents PA and PB from a point P to a circle with centre O are inclined to each other an angle of 70° , then find $\angle POA$.

(a) 60° (b) 65° (c) 55° (d) 50°

21) From a point A, the length of a tangent to a circle is 8cm and distance of A from the circle is 10cm. The length of the diameter of the circle is

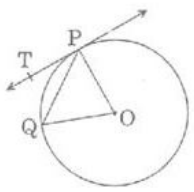


(a) 6 cm (b) 12 cm (c) 16 cm (d) 14 cm

22) PQ is a tangent drawn from a point P to a circle with centre O and QOR is a diameter of the circle such that $\angle POR=120°$, then $\angle OPQ$ is

(a) 60° (b) 30° (c) 90° (d) 45°

23) If figure 1, O is the centre of a circle, PQ is a chord and PT is the tangent at P. If ∠POQ = 70o, then ∠TPQ is equal to



(a) 45° (b) 5° (c) 35° (d) 70°

24) A line that intersects a circle in exactly one point is called a

(a) Diameter (b) Tangent (c) Radius (d) Secant

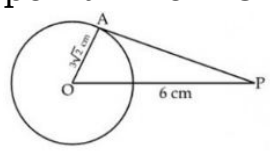
25) Number of tangents from a point lying inside the circle is

(a) None (b) Infinitely many (c) Two (d) One

26) The angle between two tangents drawn from an external point to a circle is 110°. The angle subtended at the centre by the segments joining the points of contact to the centre of circle is:

(a) 70° (b) 90° (c) 55° (d) 110°

27) A tangent PA is drawn from an external point P to a circle of radius $3\sqrt{2}$ cm such that the distance of the point P from O is 6 cm as shown figure. The value of ∠APO is

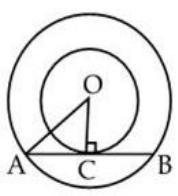


(a) 30° (b) 60° (c) 45° (d) 75°

28) What is the distance between two parallel tangents of a circle of the radius 4 cm?

(a) 8 cm (b) 4 cm (c) 2 cm (d) 6 cm

29) In fig., two concentric circles of radii a and b (a > b) are given. The chord AB of larger circle touches the smaller circle at C. The length of AB is



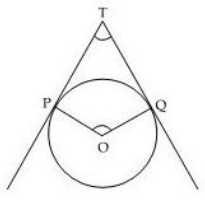
$\sqrt{a^2 + b^2}$
$2\sqrt{a^2 - b^2}$
$\sqrt{a^2 - b^2}$
$2\sqrt{a^2 + b^2}$

(a) A (b) B (c) C (d) D

30) A tangent to a circle is a line that intersects the circle in

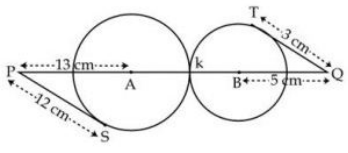
(a) Exactly one point (b) 2 points (c) 3 points (d) 4 points

31) In the figure, if from an external point T, TP and TQ are two tangents to a circle with centre O so that POQ = 110°, then, PTQ is:



(a) 80° (b) 60° (c) 70° (d) 90°

32) In fig., two circles with centres A and B touch each other externally at k. The length of PQ (in cm) is



(a) 24 cm (b) 20 cm (c) 27 cm (d) 18 cm

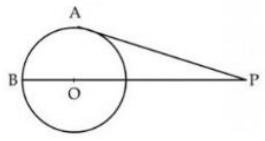
33) The distance between two parallel tangents to a circle of radius 5 cm is

(a) 5cm (b) 8cm (c) 10cm (d) 9cm

34) A circle may have.....

(a) Infinite tangents (b) No tangent (c) 1 tangent (d) 2 tangent

35) In fig., PA is a tangent to a circle of radius 6 cm and PA = 8 cm, then length of PB is



(a) 10 cm (b) 16 cm (c) 18 cm (d) 12 cm

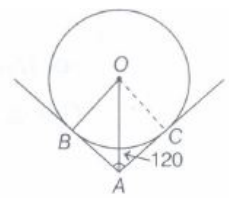
36) A tangent PO at a point P of a circle of radius 6 cm meets a line through the centre o at a point Q, so that OQ = 14 cm, then length of PO is

(a) $4\sqrt{10}$ cm (b) $6\sqrt{10}$ cm (c) $5\sqrt{10}$ cm (d) $7\sqrt{10}$ cm

37) Tangents AP and AO are drawn to circle with centre 0 from an external point A, then $\angle PAQ$ is equal to

(a) $2\angle OPQ$ (b) $\frac{\angle OPQ}{2}$ (c) $\frac{\angle OPQ}{3}$ (d) $\frac{\angle OPQ}{4}$

38) In the given figure, two tangents AB andAC are drawn to a circle with centre O such that $\angle BAC = 120^\circ$, then OA is equal to

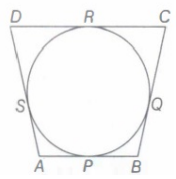


(a) 2 AB (b) 3 AB (c) 4 AB (d) 5 AB

39) Two concentric circles are of radii 10 cm and 8 cm, then the length of the chord of the larger circle which touches the smaller circle is

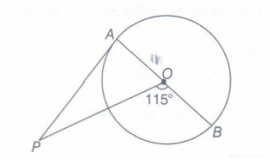
(a) 6 cm (b) 12 cm (c) 18 cm (d) 9 cm

40) In the given figure, a circle touches all the four sides of quadrilateral ABCD with AB = 6 cm, BC = 7 cm and CD = 4 cm, then length of AD is



(a) 3 cm (b) 4 cm (c) 5 cm (d) 6 cm

41) In the given figure, PA is a tangent from an external point P to a circle with centre O. If ∠ POB = 115°, then ∠ APO is



(a) 25° (b) 20° (c) 30° (d) 65°

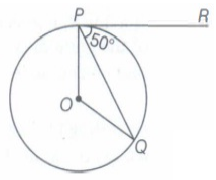
42) From an external point P, tangents PA and PB are drawn to a circle with centre O. If CD is the tangent to the circle at a point E and PA = 14 cm, then perimeter of ∆PCD is

(a) 14 cm (b) 21 cm (c) 28 cm (d) 35 cm

43) Tangents AP and AO are drawn to circle with centre O from an external point A, then ∠ PAO is equal to

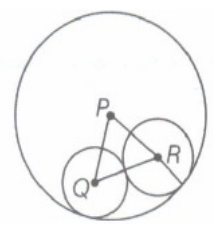
(a) $2\angle OPQ$ (b) $\frac{\angle OPQ}{2}$ (c) $\frac{\angle OPQ}{3}$ (d) $\frac{\angle OPQ}{4}$

44) In figure, if O is the centre of a circle, PQ is a chord and the tangent PR at P makes an angle of 50° with PQ, then ∠ POQ is equal to



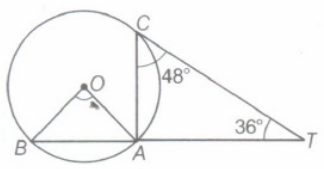
(a) 100° (b) 80° (c) 90° (d) 75°

45) In the adjoining figure, three circles with centres P, Q and R are drawn, such that the circles with centres Q and R touch each other externally and they touch the circle with centre P, - internally. If PQ = 10 cm, PR = 8 cm and QR = 12 cm, then the diameter of the largest circle is



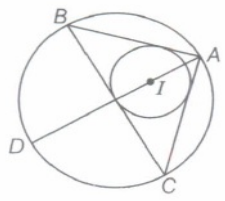
(a) 30 cm (b) 20 cm (c) 10 cm (d) None of these

46) Let A, B and C are three points on a circle. The tangent at C meets BA produced at T. Given that, ∠ATC = 36° and ∠ACT = 48°. Calculate the angle sub tended by AB at the centre of the circle.



(a) 36° (b) 48° (c) 84° (d) 96°

47) In the given figure, I is the incenter of ΔABC. AI, when produced, meets the circumcircle of ΔABC. If ∠BAC = 66° and ∠ACB = 80°, then the sum of ∠DBC, ∠IBC and ∠BID, is

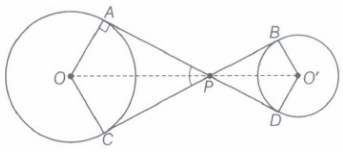


(a) 50° (b) 80° (c) 100° (d) None of these

48) A is a point at a distance 13 cm from the centre O of a circle of radius 5 cm. AP and AQ are the tangents to the circle at P and Q. If a tangent BC is drawn at a point R lying on the minor arc PQ to intersect AP at Band AQ at C, then the perimeter of the MBC is

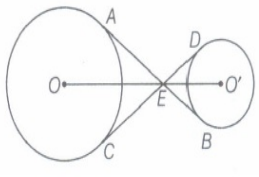
(a) 12 cm (b) 24 cm (c) 36 cm (d) 48 cm

49) In the following figure, diameters of two wheels have measures 4 cm and 2 cm. Determine the length of the belts AP and BC that pass around the wheels, if it is given that belts cross each other at right angles.



(a) 4 cm (b) 3 cm (c) 2 cm (d) 1 cm

50) If common tangents AB and CD of two circles with centres O and O' intersect at E, then OEO' is



(a) a triangle (b) a line (c) an arc (d) None of these

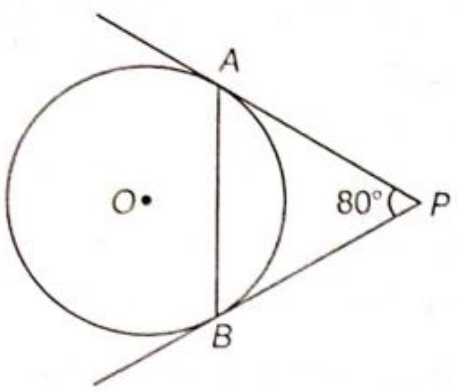
51) There are two concentric circles. PQ is a diameter of the bigger circle. The radius of bigger circle is 13 cm and radius of smaller circle is 8 cm, QR is a tangent to the smaller circle touching it at R. Then the length of PR will be

(a) $\sqrt{105}$ (b) 19 (c) 38 (d) $2\sqrt{105}$

52) From an external point P, a tangent PA is drawn to circle. The number of tangents through P parallel to PA is

(a) 2 (b) more than 2 (c) 1 (d) 0

53) In the given figure, tangents PA and PB drawn from P to circle are inclined to each other at an angle of 80°.The measure of $\angle$ PAB is

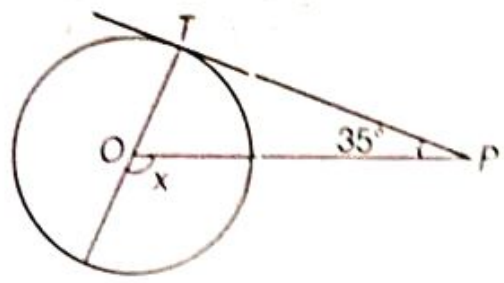


(a) 80° (b) 60° (c) 50° (d) 40°

54) Maximum number of common tangents that can be drawn to two circles intersecting at two distinct points is

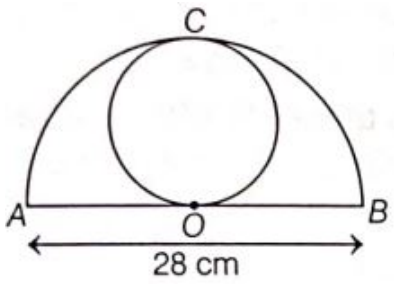
(a) 4 (b) 3 (c) 2 (d) 1

55) In the given figure, if PT is a tangent to a circle with centre O and $\angle$ TPO = 35°, then the measure of $\angle$ x is



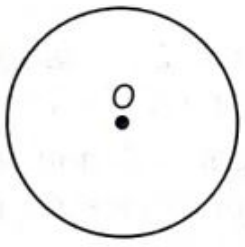
(a) 110° (b) 115° (c) 120° (d) 125°

56) In the given figure, a circle is touching a semi-circle at C and its diameter AB at O. If AB= 28 cm, what is the radius of the inner circle?



(a) 14 cm (b) 28 cm (c) 7 cm (d) $\frac{7}{2}$ cm

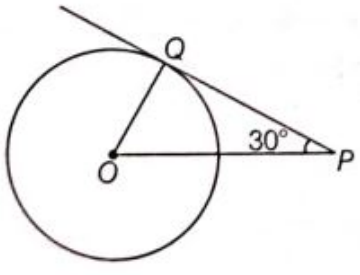
57) Here is a circle with centre O.



Manu wants to draw a tangent RS to the circle. What is the number of points at which the line RS will meet the circle?

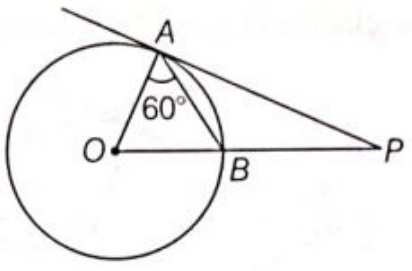
(a) 0 (b) 1 (c) 2 (d) 3

58) PQ is tangent to a circle centered at O. If the radius of the circle is 5 cm, then the length of the tangent PQ is



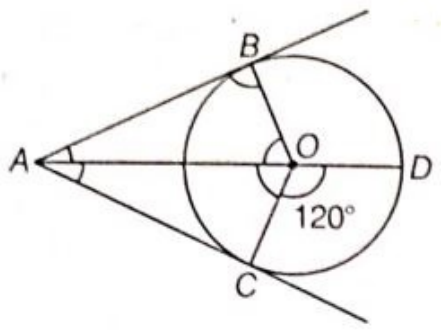
(a) $5\sqrt{3}$ cm (b) $\frac{10}{\sqrt{3}}$ cm (c) 10 cm (d) $\frac{5}{\sqrt{3}}$ cm

59) In the given figure, O is the centre of the circle and PA is a tangent to the circle. If $\angle OAB = 60°$, then $\angle OPA$ is equal to



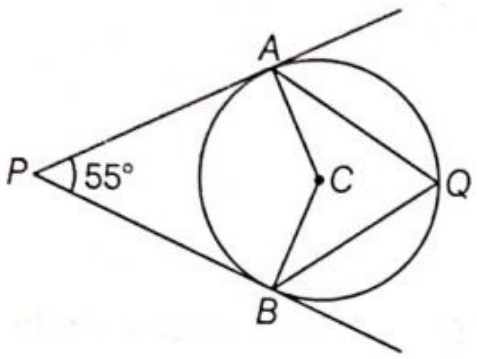
(a) 60° (b) 30° (c) 15° (d) 20°

60) In the given figure, AC and AB are tangents to a circle centered at O. If $\angle COD=120°$, then $\angle BAO$ is equal to



(a) 30° (b) 60° (c) 45° (d) 90°

61) In the given figure, PA and PB are tangents from external point P to a circle with centre C and Q is any point on the circle. Then, the measure of $\angle AQB$ is

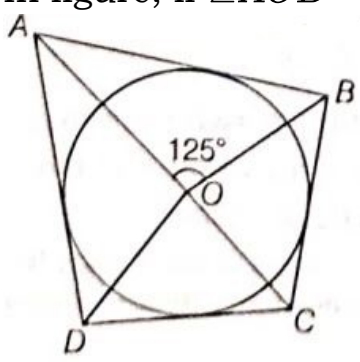


(a) 62.5° (b) 125° (c) 55° (d) 90°

62) From a point P which is at a distance of 13 cm from the centre O of a circle of radius 5 cm, the pair of tangents PQ and PR to the circle is drawn. Then, the area of the quadrilateral PQOR is

(a) 60 cm^2 (b) 65 cm^2 (c) 30 cm^2 (d) 32.5 cm^2

63) In figure, if $\angle AOB = 125°$, then $\angle COD$ is equal to



(a) 62.5° (b) 45° (c) 35° (d) 55°

Fill up / 1 Marks 23 x 1 = 23

64) A tangent to a circle intersects it in _____ point(s).

65) A line intersecting a circle in two points is called a _____

66) A circle can have _____ parallel tangents at the most.

67) The common point of a tangent to a circle and the circle is called _____.

68) The common point of the tangent and the circle is called

69) The length of the tangents drawn from an external point to a circle are _____

70) If a line and a circle have no point common, then the line lies _____

71) At the point of contact, angle between the tangent and the radius is is _____

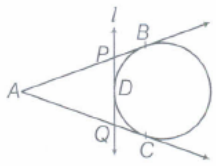
72) A line segment drawn through the end of a radius and perpendicular to it, is a _____to the circle.

73) The distance between two parallel tangents drawn ta a circle is ..... .

74) The distance between two parallel tangents drawn to a circle is equal to _____

75) A tangent is always _____ to the radius at the point of contact.

76) In the figure, if AB, AC and line I are tangents to the circle and semi-perimeter of $\triangle APQ$ = 14 cm, then AC = _____cm.



77) If TP and TQ are two tangents to a circle with centre O such that $\angle POQ = (2x + 3)^\circ$ and, $\angle PTQ = (3x - 8)^\circ$ then the value of x is._____

78) If two tangents inclined at an angle of 60° are drawn to a circle of radius 3 cm, then the length of each tangent is equal to _____

79) If angle between two radii of a circle is 130°. The angle between the tangents at the ends of the radii is _____

80) There are exactly_____ tangents through a point lying outsides a circle.

81) The common point of the tangent and the circle is called the_____

82) The _____of the circle lies on the _____of the angle between the two tangents.

83) A pair of_____ drawn at two points of a circle are either _____or they intersect each other at a point outside the circle.

84) If two tangents are drawn to a circle from an external point, then they subtend_____angles at the_____.

85) _____circumscribing a circle is a rhombus.

86) The line segment joining the point of contact of two parallel tangents to a circle is a _____of the circle.

True or False 21 x 1 = 21

87) The length of tangents drawn from an external point to a circle are equal.

(a) False (b) True

88) The distance between two parallel tangents drawn to a circle is equal to the diameter of the circle.

(a) False (b) True

89) A tangent line intersects the circle in two points.

(a) True (b) False

90) The parallelogram circumscribing a circle is a rectangle.

(a) True (b) False

91) The length of the tangent is the length of the segment from an external point to the point of contact.

(a) False (b) True

92) A circle can have maximum two tangents.

(a) True (b) False

93) The distance between two parallel tangents drawn to circle is equal to radius of circle.

(a) True (b) False

94) The common point of a tangent to a circle with circle is called point of contact.

(a) False (b) True

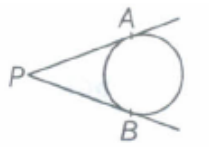
95) The secant line intersects the circle in one point only.

(a) True (b) False

96) If two circles touch, the point of contact lies on the straight line through the centres.

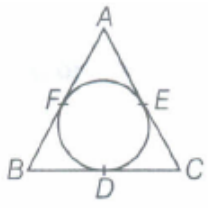
(a) False (b) True

97) In the given figure, PA and PB are tangents to a circle from an external point P. Then, PA and PB may or may not be equal.



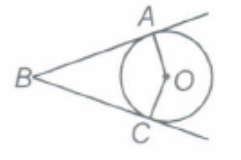
(a) True (b) False

98) In the given figure, incircle of MBC touches its sides at D, E and F. If perimeter of $\triangle$ ABC = 24 cm, then AF + BD + CE = 12 cm.



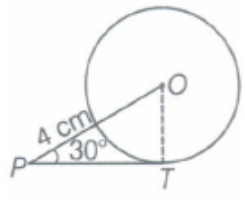
(a) False (b) True

99) In the given figure, BA and BC are tangents to a circle with centre O. If $\angle ABC = 63^\circ$, then $\angle AOC = 117^\circ$.



(a) False (b) True

100) In the figure, PT is a tangent to the circle with centre O such hat OP is 4 cm and $\angle OPT = 30^\circ$, then length of tangent is 5 cm.



(a) True (b) False

101) The common point of a tangent and a circle is called point of contact.

(a) False (b) True

102) The tangent at any point of a circle is perpendicular to the radius through the point of contact.

(a) True (b) False

103) A circle can have maximum three parallel tangents which can be drawn to the opposite sides of the centre

(a) True (b) False

104) The length of the tangent drawn from a point 12 cm away from the centre of a circle of radius 5 cm, is 16 cm

(a) True (b) False

105) There is only one tangent at a point of the circle.

(a) True (b) False

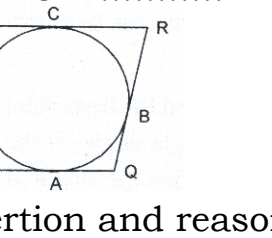
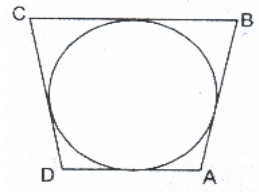
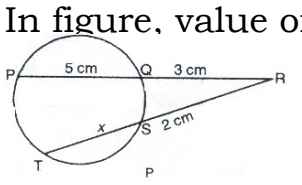
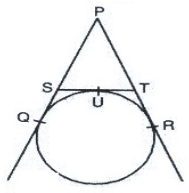
106) If two concentric circles, chord of outer circles which touches inner circle are of unequal length.

(a) True (b) False

107) If two circles touch internally or externally, then point of contact lies on the straight line through the two centres.

(a) True (b) False

Match the following 9 x 1 = 9

108)	A circle have	(1) 20 cm
109)	A circle may have	(2) 3 cm
110)	Length of the tangent from a point 5 cm from the centre of circle of radius 4 cm	(3) parallelogram circumscribing a circle
111)	Radius of circle given below is 	(4) infinite tangents
112)	Rhombus can obtain, when a	(5) 10 cm
113)	In figure, a circle touches all four sides of quadrilateral ABCD with AB = 18 cm, BC = 21 cm and CD = 12 cm, AD =_____ 	(6) two parallel tangents
114)	In figure, value of x is..... . 	(7) 5 cm
115)	Perimeter of $\triangle PST$ with PQ=10 cm is 	(8) 9 cm
116)	In figure, PQ = 6 cm, QR = 7cm, RS = 4 cm PS = ...	(9) 3 cm

Assertion and reason 4 x 1 = 4

117) **Assertion :** A tangent PA at point A of a circle of radius 6 cm meets a line through the centre O at a point P so that OP = 10 cm, then PA = 9 cm.

Reason : The tangents drawn at the ends of a diameter of a circle are parallel.

Codes :

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.

(c) If Assertion is correct but Reason is incorrect

(d) If Assertion is incorrect but Reason is correct.

118) **Assertion :** If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle of 76°, then L.POA is 52°**.**

Reason : Two tangents AP and AQ are drawn to a circle with centre O from a point A. Then, $\angle APO = \angle AQO$

Codes :

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.

(c) If Assertion is correct but Reason is incorrect

(d) If Assertion is incorrect but Reason is correct

119) **Assertion :** If TA and TB are tangents to the circle with centre O such that $\angle \mathrm{OAB} = 35^\circ$,then $\angle OAB = 35^\circ$

Reason : Two tangents TP and TO are drawn to a circle with centre O from an external point T, then $\angle PTQ = 2\angle OPQ$, $\angle OAB = 35^\circ$.

Codes :

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.

(c) If Assertion is correct but Reason is incorrect.

(d) If Assertion is incorrect but Reason is correct.

120) **Assertion :** In the given figure, AP and AO are tangents to a circle such that AP = 11cm and $\angle PAQ = 60^\circ$, then length of PQ is 8 cm.

Reason : The centre of the circle lies on the bisector of the angle between the two tangents.

Codes :

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.

(c) If Assertion is correct but Reason is incorrect.

(d) If Assertion is incorrect but Reason is correct.

2 Marks 274 x 2 = 548

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

122) How many tangents can a circle have?

123) The tangent at any point of a circle is perpendicular to the radius through the point of contact.

124) From a point Q, the length of the tangents to a circle is 24cm and the distance of Q from the centre is 25cm. The radius of the circle is

(a) 7cm

(b) 12cm

(c) 15cm

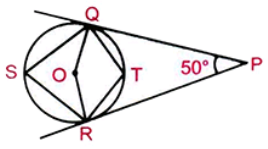
(d) 24.5cm

125) Find the length of the tangent drawn from a point whose distance from the centre of a circle is 35 cm.Given that radius of the circle is 7cm.

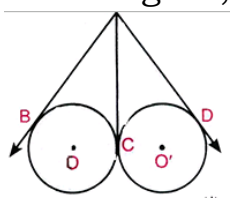
126) What is the angle between a tangent to a circle and the radius through the point of contact? Justify your answer

127) What is the distance between two parallel tangents of a circle of radius 7cm?

128) In the figure given below, find $\angle QSR$.

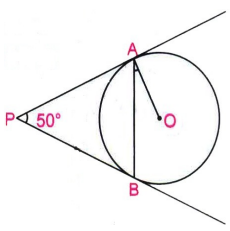


129) In the figure, AB, AC and AD are tangents. If AB - 5 cm, find AD.



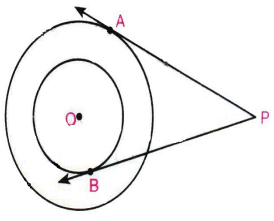
130) In figure if $\angle ATO = 40^0$, $find\ \angle AOB$.

131) In figure, CP and CQ are tangents to a circle with centre O. ARB is another tangent touching the circle at R. If CP = 11cm, and BC = 7cm, then find the length of BR.

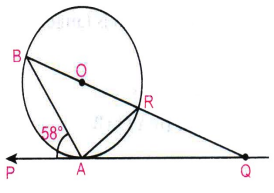


132) In figure, ΔABC is circumscribing a circle.Find the length of BC.

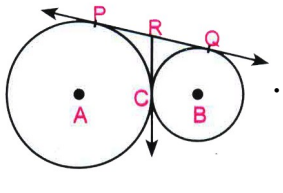
133) In figure, there are two concentric circles, with centre O and of radii 5cm and 3cm. From an external point P, tangents PA are drawn to these circles. If AP = 12cm, find the length of BP.



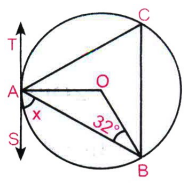
134) In figure, O is the centre of the circle, PQ is a tangent to the circle at A.If $\angle PAB = 50^0$ *find* $\angle ABQ$ *and* $\angle AQB$.



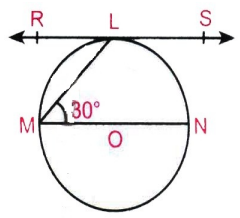
135) In figure, a circle touches the side BC of ΔABC at P and touches AB and AC produced at Q and R respectively. If AQ = 5cm, find the perimeter of ΔABC



136) In the given figure, TA S is a tangent to the circle, with centre O, at the point A. If $\angle OBA = 32^0$, find the value of x.



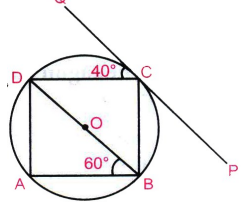
137) In the given figure, RS is the tangent to the circle at L and MN is a diameter. If, determine $\angle RLM$.



138) Two tangents PA and PB are drawn to the circle with centre O, such that $\angle = 120^0$. Prove that OP = 2AP.

139) A point P is 26cm from the centre of the circle.The length of the tangent drawn from P to the circle is 24cm.Find the radius of the circle.

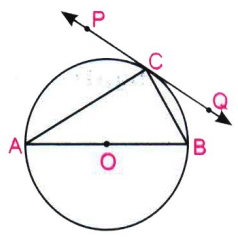
140) In the figure, ABCD is a cyclic quadrilateral and PQ is tangent to the circle at C.If BD is a diameter, $\angle DCQ = 40^0 and \angle ABD = 60^0$ *find* $\angle BCP$.



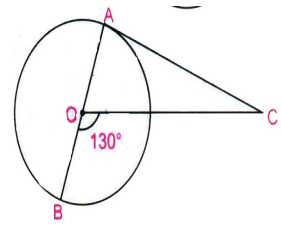
141) From a point P, the length of the tangent to a circle is 15cm and distance of P from the centre of the circle is 17cm.Then what is the radius of the circle?

142) The two tangents from an external point P to a circle with centre O are PA and PB.If $\angle APB = 70^0$, what is the value of $\angle AOB$?

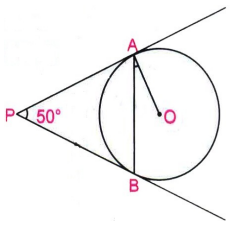
143) In figure, PQ is a tangent at a point C to a circle with centre O.If AB is a diameter and $\angle CAB = 30^0$, *and* $\angle PCA$.



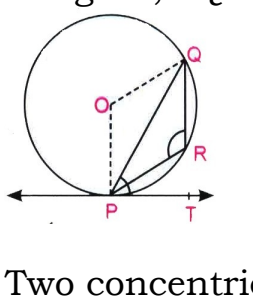
144) In figure, AOB is a diameter of a circle with centre O and AC is a tangent to the circle at A.If $\angle BOC = 130^0$, then find $\angle ACO$.



145) In figure, PA and PB are tangents to the circle with centre O such that$\angle APB = 50^0$ .Write the measure of $\angle OAB$



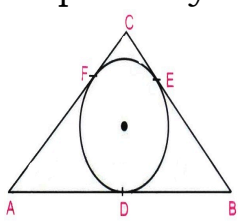
146) In figure, PQ is a chord of a circle with centre O and PT is a tangent.If $\angle QPT = 60^0$, $find \angle PRQ$.



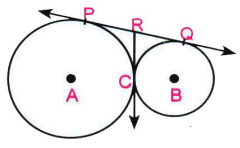
147) Two concentric circle of radii a and b (a > b) are given.FGind the length of the chord of the larger circle which touches the smaller circle

148) If d_1, d_2 ($d_2 > d_1$) be the diameters of two concentric circles and c be the length of a chord of a circle which is tangent to the other circle, prove that $d_2^2 = c^2 + d_1^2$

149) In figure, a circle inscribed in triangle ABC touches its sides AB, BC and AC at points D, E and F respectively. If AB=12cm, BC=8cm, and AC=10cm, then find the lengths of AD, BE, and CF.

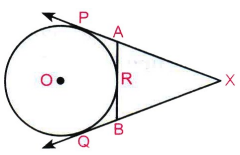


150) In figure, two circles touch each other at the point C.Prove that the common tangent to the circles at C, bisects the common tangent at P and Q.

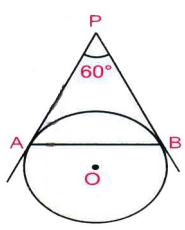


151) A tangent PT is drawn parallel to a chord AB as shown in figure. Prove that APB is an isosceles triangle.

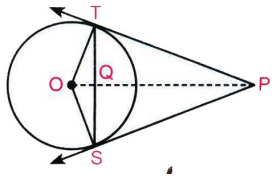
152) In figure, XP and XQ are two tangents towo tangents to a circle with centre O from a point X outside the circle.ARB is tangent to circle at R.Prove that XA+AR=XB+BR



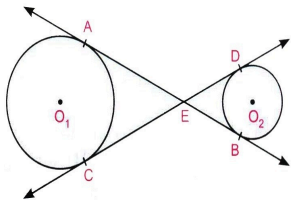
153) In figure, AP and BP are tangents to a circle with centre O, such that AP = 5cm and $\angle APB = 60^0$ .Find the length of chord AB.



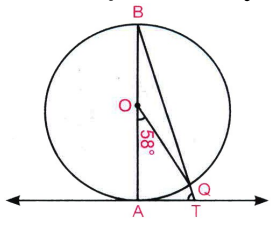
154) In figure from an external point P, two tangents PT and PS are drawn to a circle with centre O radius r.If OP=2r, show that $\angle OTS = \angle OST = 30^0$.



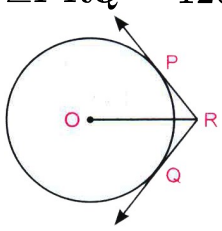
155) In figure common tangents AB and CD to the two circles with centres O_1 and O_2 intersect at E. Prove that AB = CD.



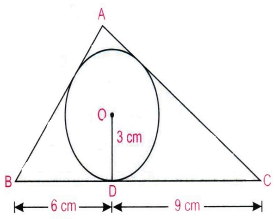
156) In figure AB is the diameter of a circle with centre O and AT is a tangent. If $\angle AOQ = 58^0$ $find \angle ATQ$.



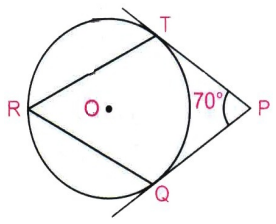
157) In figure, two tangents RQ and RP are drawn from an external point R to the circle with centre O. If $\angle PRQ = 120^0$, then prove that OR = PR + RQ



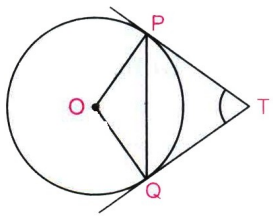
158) In figure, a triangle ABC is drawn to circumscribe a circle of radius 3cm, such that the segments BD and DC are respectively of lengths 6cm and 9cm.If the area of Δ ABC is 54cm^2, then find the lengths of sides AB and AC.



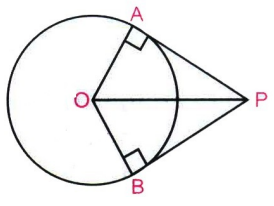
159) In figure O is the centre of a circle.PT and PQ are tangents to the circle from an external point P. If $\angle TPQ = 70^0$, $find \angle TRQ$



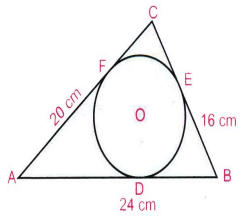
160) In figure, PQ is a chord of length 8cm of a circle of radius 5cm. The tangents at P and Q intersect at a point T. Find the lengths of TP and TQ.



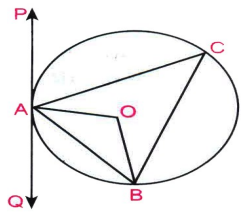
161) In figure OP is equal to diameter of the circle.Prove that ΔABC is an equilateral triangle.



162) A circle is inscribed in a ΔABC having sides 16cm, 20cm and 24 cm as shown in figure.Find AD, BE and CF.



163) PAQ is a tangent to the circle with centre O at point A as shown in figure.If $\angle OBA = 35^0$, find the value of $\angle BAQ$ *and* $\angle ACB$

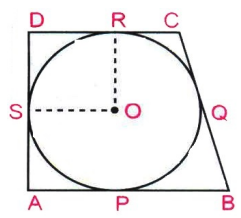


164) AB is a diameter and AC is a chord of a circle such that $\angle BAC = 30^0$ .If tangent at C intersects AB produced in D, prove that BC = BD

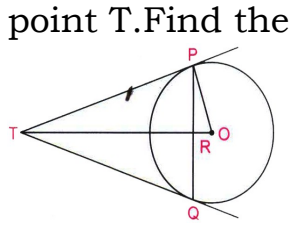
165) In a right triangle ABC, a circle with a side AB as diameter is drown to intersect the hypotenuse AC at P.Prove that the tangent to the circle at P bisects the side BC.

166) O is the centre of a circle.PA and PB are tangents to the circle fom a point P.Prove that (i) quadrilateral PAOB is a cyclic quadrilateral (ii) PO is the bisector of $\angle APB$ (iii) $\angle OAB = \angle OPA$.

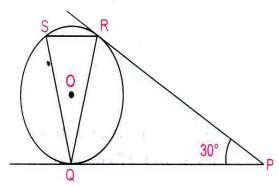
167) A quadrilateral ABCD is drawn so that $\angle D = 90^0$, BC = 38 cm and CD = 25 cm. A circle is inscribed in the quadrilateral and it touches the side AB, BC CD and DA at P, Q, R and S respectively. If BP = 27cm find the radius of the inscribed circle



168) In figure PQ is a chord of length 16cm, of a circle of radius 10cm. The tangents at P and Q intersect at a point T.Find the length of TP.

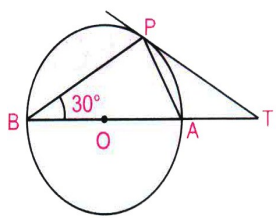


169) In figure, tangents PQ and PR are drawn from an external point P to a circle with centre O, such that $\angle RPQ = 30^0$. A chord RS is drawn parallel to the tangent PQ.Find $\angle RQS$.

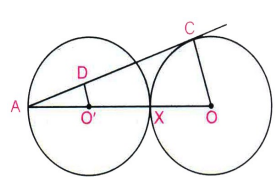


170) Prove that the tangent drawn at the mid-point of an arc of a circle is parallel to the chord joining the end points of the arc

171) In figure, O is the centre of the circle and TP is the tangent to the circle from an external point T. If $\angle PBT = 30^0$, prove that BA: AT = 2:1.



172) In figure two equal circles, with centres O and O', touch each other at X.OO' produced meets the circle with centre O' at A.AC is tangent to the circle with centre O, at the point C.O'D is perpendicular to AC. Find the value $\frac{DO'}{CO}$



173) How many tangents parallel to a secant can a circle have?

174) How many common tangents can be drawn to two circles touching externally and when do not touch and lie farther about?

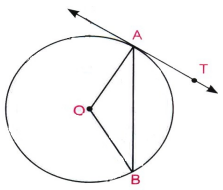
175) How many common tangents can be drawn to two circles intersecting in two distinct points?

176) How many common tangents can be drawn to two circles touching internally?

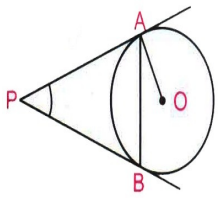
177) From an external point P, k tangents can be drawn to a circle. Find the value of k.

178) PQ is a tangent drawn from a point P to a circle with centre O and QOR is a diameter of the circle such that $\angle POR = 110^0$ Find $\angle OPQ$.

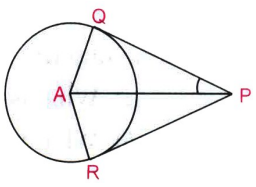
179) In given figure, O is the centre of the circle, AB is a chord and AT is the tangent at If $\angle AOB = 100^0$ then find $\angle BAT$



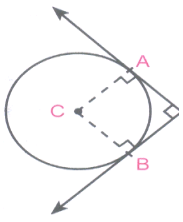
180) In the figure PA and PB are tangents to the circle with centre O.If $\angle APB = 60^0$, then find $\angle OAB$.



181) In figure PQ and PR are tangents to circle with centre A.If $\angle QPA = 27^0$, then find $\angle QAR$.



182) In the figure, PA and PB are two tangents drawn from an external point P to a circle with centre C and radius 4cm.If PA⊥ PB, find the length of each tangent.



183) A quadrilateral ABCD is drawn to circumscribe a circle.If AB = 12 cm, BC = 15 cm and CD = 14 cm, find AD

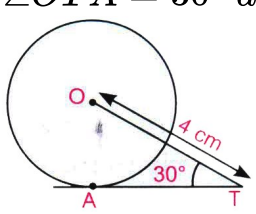
184) Distance between two parallel lines is 14 cm.Find the radius of the circle which will touch both the lines.

185) A line m is tangent to the circle with radius 5 cm.Find the distance between the centre and the line m.

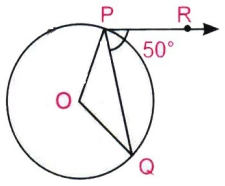
186) A line touches a circle of radius 4cm.Another line is drawn which is tangent to the circle.If the two lines are parallel find the distance between them.

187) Two parallel lines touch the circle at points A and B respectively. If area of the circle is $25\pi cm^2$ find AB.

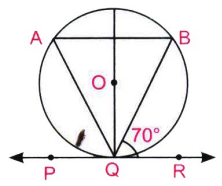
188) In figure AT is a tangent to the circle with centre O such that OT = 4cm and $\angle OTA = 30^0$ *and* $\angle OTA = 30^0$. Find AT.



189) In figure id O is the centre of a circle, PQ is a chord and the tangent PR at P makes an angle of 50^0 with PQ. Find $\angle POQ$.

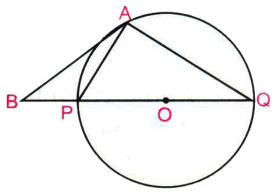


190) In the given figure PQR is the tangent to a circle at Q whose centre is O, AB is a chord parallel to PR and $\angle BQR = 70^0$ .FInd $\angle AQB$.



191) P is the mid-point of an arc QPR of a circle.Show that the tangent at P is parallel to the chord QR.

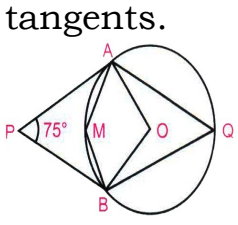
192) The tangent at a point A of a circle with centre O intersects the diameter PQ of the circle (when extended) at the point B.IF $\angle BAQ = 105^0,\ find\ \angle APQ$



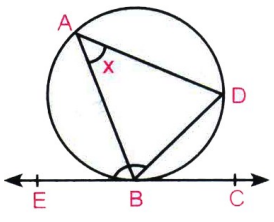
193) If Δ ABC is isosceles with AB = AC, prove that the tangent at A to the circumcircle of Δ ABC is parallel to BC.

194) Two circles touch internally at a point P and from a point T the common tangent at P, tangent segments TQ, TR are drawn to the two circles. Prove that TQ = TR.

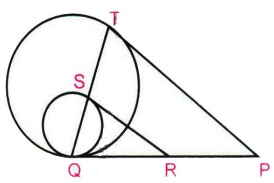
195) In the given figure, O is the centre of the circle.Determine $\angle AQB$ and $\angle AMB$, if PA and PB are tangents.



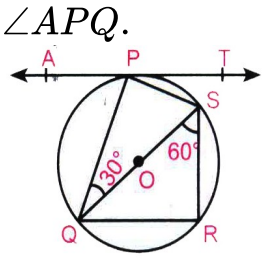
196) In the given figure, find x if $\angle EBD = 146^0$.



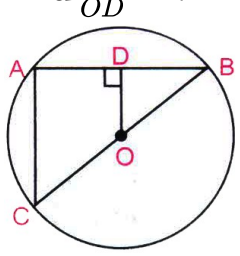
197) In the following figure, PQ is the common tangent to both the circles.SR and PT are tangents. If SR = 4cm, PT = 7cm, then find RP.



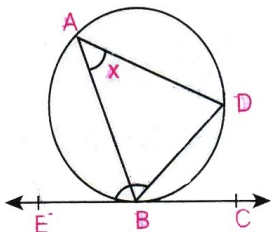
198) In the following figure, QS is the diameter and O is the centre of circle. APT is the tangent at P.Find $\angle APQ$.



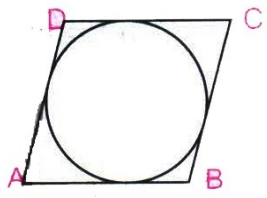
199) In the given fig., OD is perpendicular to the chord AB of a circle whose centre is O. If BC is a diameter, find $\frac{CA}{OD}$ =?



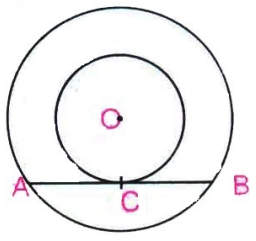
200) In the figure, find x if $\angle EBD = 152^0$



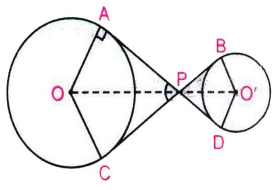
201) Prove that the lengths of tangents drawn from an external point to a circle are equal. Using the above, prove the following: A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC.



202) Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact. Using the above, do the following: In figure, O is the centre of the two concentric circles.AB is a chord of the larger circle touching the smaller circle at C. Prove that AC = BC.

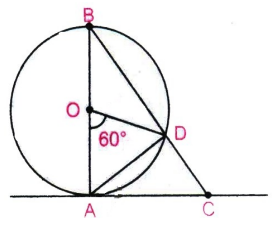


203) In the given figure, the diameters of two circles have measures 6 cm and 3 cm. Determine the lengths of the tangents AD and BC that tangents cross each other at right angles.



204) AB and AC are two tangents to a circle having centre O.If $\angle BOC = (3x - 8)^0$ and $\angle BAC = (2x + 3)^0$ find x.

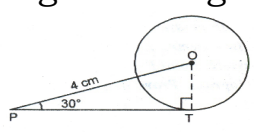
205) In figure, AB is a diameter of a circle with centre O and AC is a tangent.If $\angle AOD = 60^0$, find $\angle ACD$.



206) Distance between two parallel line is 24cm.What will be the radius of circle, drawn in such a way that it touches both the lines?

207) C(0, r_1) and C(0, r_2) are two concentric circles, with r_1 > r_2.AB is a chord of C(0, r_1) touching C(0, r_2) at C, then the relation between AB, r_1 and r_2.

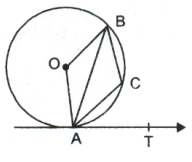
208) In Figure, PT is tangent to the circle with centre O such that OP is 4 cm and $\angle OPT = 30^\circ$, find the length of tangent PT



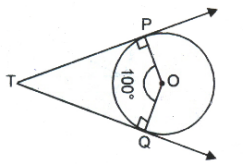
209) A tangent PQ at point of contact P to a circle of radius 12 cm meets the line through centre O to a point Q such that OQ = 20 cm, then find the length of tangent PQ.

210) From a point Q, the length of tangent to a circle is 24 cm and the distance of Q from the centre is 25 cm, then find the radius of circle.

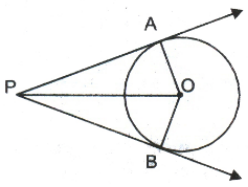
211) In figure, AB is a chord of a circle and AT is a tangent at A such that $\angle BAT = 60^\circ$. then find the measure of $\angle ACB$.



212) In the adjacent figure, if TP and two tangent to a circle with centre O, so that $\angle POQ = 100^\circ$, then find $\angle PTQ$.



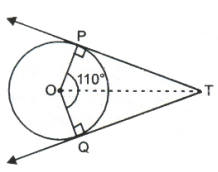
213) If tangent PA and PB from a point P to a circle with centre O are inclined to each other at angle of 80° , then find $\angle POA$.



214) At one end P of a diameter PQ of a circle of radius 5 cm, tangent XPY is drawn. Find the length of the chord RS parallel to XY and at a distance of 8 cm from P.

215) If angle between two radii of a circle is 130° , then find the angle between tangent at the ends if radii.

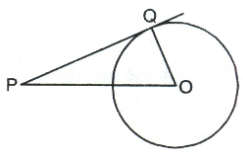
216) In the given figure, if TP and TQ are the two tangent to a circle with centre O, so that $\angle POQ = 110^\circ$, then find $\angle PTQ$.



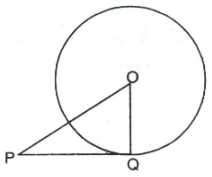
217) Two chords PQ and RS intersect at T outside the circle. If PQ = 5 cm, OT = 3cm. TS = 2 cm, then find the length of RS.

218) A circle is inscribed in a quadrilateral ABCD in which, if AD = 23cm, AB = 29cm and DS = 5cm, then find the radius of the circle.

219) PQ is tangent to circle with centre O. Find the radius of the circle, if PO = 5 cm and PQ = 4 cm.



220) In the given figure, if PQ is a tangent to the circle with centre O, OP =13 cm and OQ = 5 cm, then find the length of tangent P



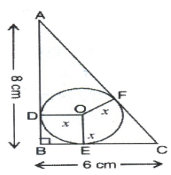
221) A pair of tangents to a circle are inclined to each other at an angle of 35° . It is required to draw tangents at the end points of these two radii of the circle, then find the angle between them.

222) A tangent PQ at the point P of a circle meets a line through the centre O at a point Q, so that OQ = 12 cm and $PQ = \sqrt{119}\, cm$, find the diameter of circle.

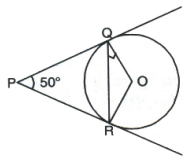
223) Two circles touch each other externally at C and AB is common tangent to the circles, then find the diameter of the circle.

224) From a point Q, the length of tangent to a circle is 24 cm and the distance of Q from the centre is 25 cm. Then find the diameter of the circle.

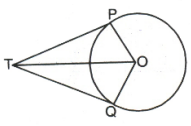
225) ABC is a triangle right-angled at point B with BC=6 cm and AB=8cm. A circle with centre O and radius x cm has been inscribed in $\triangle ABC$ as shown in figure. Find the value of x.



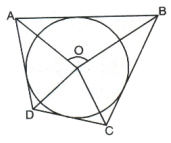
226) In figure, PQ and PR are the tangents to the circle with centre O such that $\angle QPR = 50^\circ$. Then find the degree measure of $\angle OQR$.



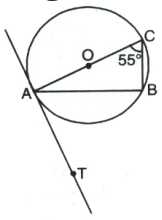
227) In the figure, TP and TQ are the tangents to a circle with centre O, so that $\angle POQ = 180^\circ$. Then find the degree measure of $\angle PTO$.



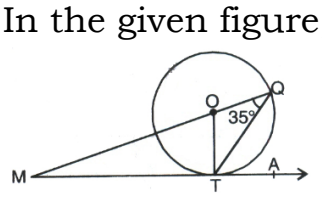
228) In figure, if $\angle AOB = 105^\circ$, then find the degree measure of $\angle COD$.



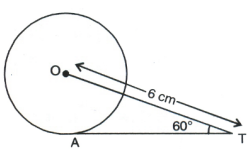
229) In the given figure, AB is a chord of circle and AOC is diameter such that angle ACB = 55° . If AT is a tangent to the circle at point A, then find angle BAT.



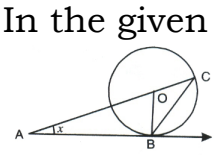
230) In the given figure, O is the centre of the circle with $\angle TQM = 35^\circ$, then find angle ATQ.



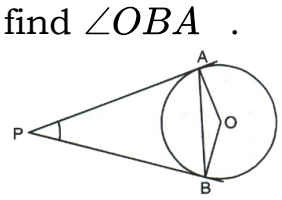
231) In the given figure, AT is the tangent to the circle with centre O such that OT=6 cm and $\angle OTA = 60^\circ$. Then find the length of AT.



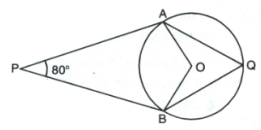
232) In the given fig., angle $OBC = 30^\circ$, then find the value of x.



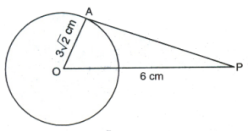
233) In the given fig., if PA and PB are tangents to the circle with centre O such that $\angle APB = 80^\circ$, then find $\angle OBA$.



234) In the given figure, O is the centre of the circle. If PA and PB are tangents from an external point P to the circle, then find the measure of $\angle AQB$.

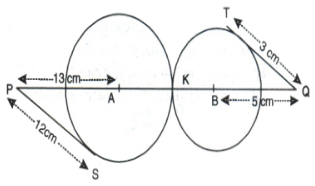


235) A tangent PA is drawn from an external point P to a circle of radius $3\sqrt{2}$ cm such that the distance of the point P from O is 6 cm as shown in figure. Find the value of $\angle APO$.

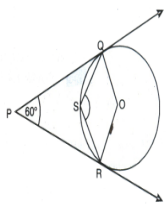


236) Two concentric circles of radii a and b, where a > b are given. Find the length of the chord of the larger circle which touches the smaller circle.

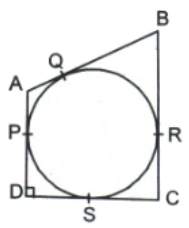
237) In fig., two circles with centres A and B touch each other externally at K. Find the length of PQ.



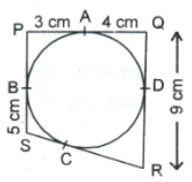
238) In fig., determine the measure of $\angle QSR$.



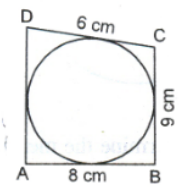
239) In the given figure, a circle is inscribed in the quadrilateral ABCD.
Given BC = 38 cm, QB = 27 cm, DC = 25 cm and $\angle ADC = 90^\circ$, find the radius of the circle.



240) In the given figure, quadrilateral PQRS inscribes a circle. Find SR and PS.

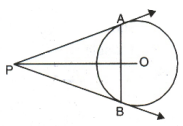


241) In the given figure, a circle touches all the four sides of a quadrilateral ABCD, whose sides AB = 8cm, BC = 9 cm and CD = 6 cm. Find AD.

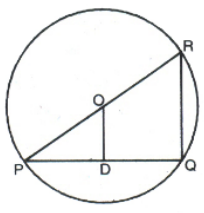


242) In two concentric circles with centre O, PQ is the diameter of outer circle and Q is the tangent line to the inner circle touching it in R and outer circle in S. Find the length of PR, if radii of two circles are 13 cm and 8 cm.

243) In the given figure, AB is a chord of length 9.6 cm of a circle with centre O and radius 6 cm. Tangents at A and B intersect at P. Find the length of tangent AP.



244) In the given OD is perpendicular to the chord PQ of a circle with centre O. If PR is a diameter of the circle, then find $\frac{RQ}{OD}$.



245) If a chord AB subtends an angle of at the centre of a circle, then find the angle between the tangents at A and B.

246) Write the relation between the length of tangent from an external point P to a circle with centre O and OP.

247) Write the degree measure of minimum angle between two tangent to a circle.

248) If the length of a tangent from an external point A, 5cm away from the centre of the circle is 3 cm, then find the radius of the circle.

249) Define tangent to a circle.

250) Define a secant line.

251) Write the number of tangent (s) to a circle from a point P lies inside the circle.

252) Write the relation between the tangent and the radius through the point of contact.

253) If angle between two radii of a circle is 130° , then write the angle between the tangents at the ends of the radii.

254) Are the length of the tangents from an extarnal point to a circle equal?

255) Find the distance between two parallel tangents to a circle whose diameter is 6 cm.

256) A point P is 7 cm from the centre of a circle whose diameter is 8cm. How many tangents can be drawn to the circle?

257) Angle between two tangents PQ and PR from point P to a circle with centre O, is right angle. If the radius of the circle is 4cm, then find the length of each tangent.

258) Find the radius of the circle, if the length of the tangent drawn from P, which is 10 cm away from the centre is 8 cm.

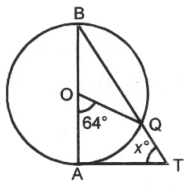
259) AB and AC are two tangent drawn to a circle with centre O. If angle between the tangents is 35° , then find the degree measure of angle between their radii.

260) Two parallel lines touch the circle at points A and B separately. If the area of the circle is $25\pi\ cm^2$, then find the distance between them.

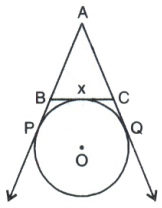
261) The length of tangent from a point A at a distance of 5 cm from the centre of the circle is 4 cm. What will be radius of the circle?

262) ABC is raght-angled triangle, right angled at B, such that AB=8 cm and BC=6 cm, find the radius of its circumcircle.

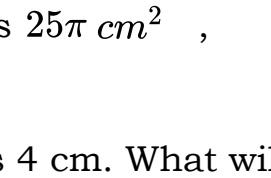
263) In the given figure, AB is a diameter of the circle, with centre O and AT is a tangent. Calculate the numerical value of x.



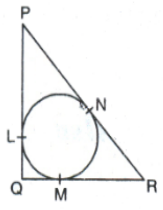
264) In given figure, find the perimeter of $\angle ABC$, if AP = 10 cm.



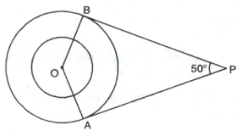
265) In figure, CP and CQ are tangents from an external point C to a circle with centre O. AB is another tangent which touches the circle at R. If CP=11 cm and BR=4cm, find the length of BC.



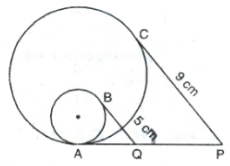
266) In figure, a circle is inscribed in a triangle PQR with PQ = 10cm, QR = 8 cm and PR = 12 cm. Find the lengths QM, RN and PL.



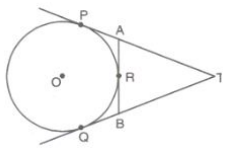
267) In the figure, PA and PB are the two tangents to the circle with centre O. Prove that $\angle AOB$ and $\angle APB$ are supplementary. If $\angle AOB = 50^\circ,\ find\ \angle AOB$.



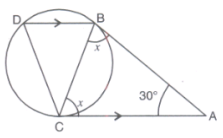
268) In the given figure, PA is a common tangent and QB and PC are the tangents from Q and P to the smaller and larger circle respectively. If QB = 5 cm and PC = 9cm, then evaluate length of PQ.



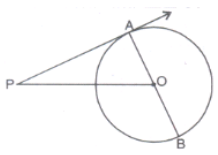
269) In the given figure, three tangents TP, TQ and AB are respectively drawn at the points P, Q and R to a circle. Find the semi-perimeter of, $\triangle TAB$ if length of TP is 13 cm.



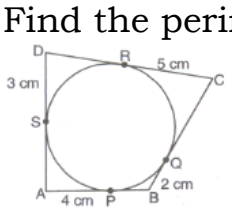
270) In the given figure, tangents AC and AB are drawn to a circle from a point A such that $\triangle BAC = 30^\circ$. A chord BD is drawn parallel to the tangent AC. Find $\triangle DBC$.



271) In the given figure, PA is a tangent from an external point P to a circle with centre O. If $\angle POB = 115^\circ$, then find $\angle APO$.

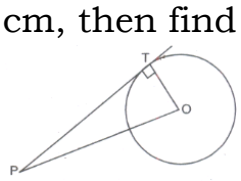


272) Find the perimeter of quadrilateral ABCD.



273) From a point Q13 cm away from the centre of a circle, the length of tangent PQ to the circle is 12 cm. Find the radius of the circle (in cm).

274) In the figure, PT is a tangent to the circle with centre O. If PT = 30 cm and the diameter of circle is 32 cm, then find the length of the segment OP.



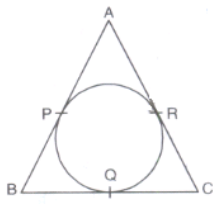
275) If a pair of tangents to a circle which are inclined to each other at an angle of 60° , then find the degree measure of $\angle POQ$.

276) If tangent PA and PB from a point P to a circle with centre O are inclined to each other at an angle of 110° , then find the degree measure of angle POA.

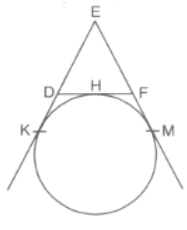
277) From a point P which is at a distance of 13 cm from the centre O of a circle of radius 5 cm, a pair of tangents PQ and PR to the circle are drawn. What are the lengths (in cm) of tangents PQ and PR?

278) Find the length of all the chord drawn in the outer circle which touch the inner circle, in two concentric circles.

279) In figure, the sides AB, BC and CA of a triangle ABC, touch a circle at P, Q and R respectively. If PA = 4cm, BP = 3 cm AC = 11 cm, then find the length of BC (in cm).

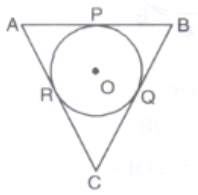


280) In figure, a circle touches the side DFof at H and touches ED and EF produced at K and M respectively. If EK = 9 cm, then find the perimeter of $\triangle EDF$ (in cm).

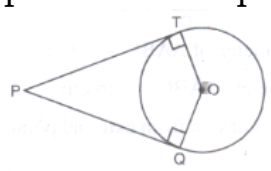


281) If the radii of two concentric circles are 5 cm and 13 cm, then find the length of the chord of one circle which is tangent to the other circle.

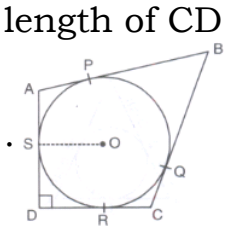
282) In fig., AP = 2 cm, BQ = 3 cm and RC = 4 cm, then find the perimeter of $\triangle ABC$.



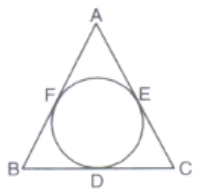
283) PQ and PT are tangents to a circle with centre O and radius 5 cm. If PQ = 12 cm, then find the perimeter of quadrilateral PQOT.



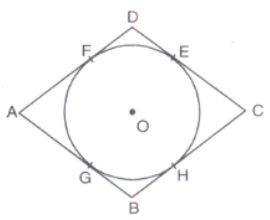
284) In figure, a circle is inscribed in a quadrilateral ABCD touching the sides AB, BC, CD and AD at P, Q, R and S respectively. If the radius of the circle is 10 cm, BC = 38 cm, PB = 27 cm and , then find the length of CD



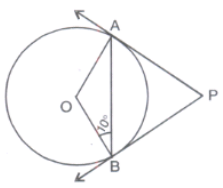
285) In figure, if the semi-perimeter of $\triangle ABC = 23cm$, then find the value of AF+BD+CE.



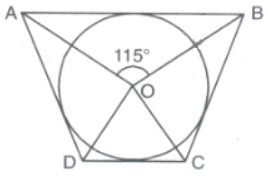
286) In fig., a quadrilateral ABCD drawn to circumscribe a circle. Find the value of AB+BC.



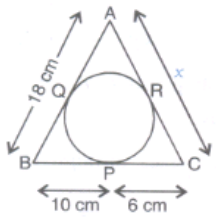
287) In fig., two tangents are drawn from an external point P to the circle such that $\angle OBA = 10^\circ$. Then find the value of $\triangle BPA$.



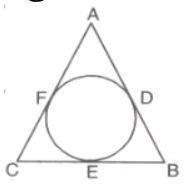
288) In the given figure, the quadrilateral ABCD is circumscribed to a circle with centre O. If $\angle AOB = 115^\circ$, then find $\angle COD$.



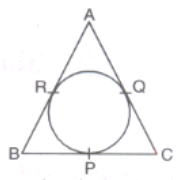
289) In fig., all three sides of a triangle touch the circle. Find the value of x.



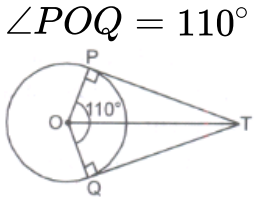
290) A circle is inscribed in a triangle ABC having sides AB = 8 cm, BC = 10 cm and CA = 12 cm as shon in fig. Find AD, BE and CF.



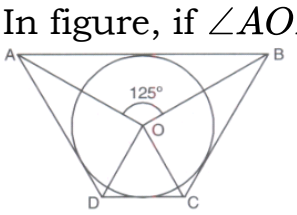
291) In the adjoining figure, an isosceles triangle $\triangle$ABC, with AB = AC, circumscribes a circle. Prove that the point of contact P bisects the base BC.



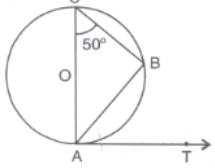
292) Find $\angle PTQ$ in fig., if TP and TQ are the two tangents to a circle with centre O so that $\angle POQ = 110^\circ$.



293) In figure, if $\angle AOB = 90^\circ$, then find the degree measure of $\angle COD$.

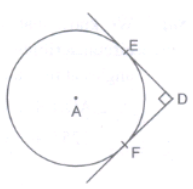


294) In figure, AB is a chord of the circle and AOC is its diameter such that $\angle ACB = 50^\circ$. If AT is the tangent to the circle at the point A, then find the measure of $\angle BAT$.



295) At one end A of a diameter AB of a circle of radius 5 cm, tangent XAY is drawn to the circle. Find the length of the chord CD parallel to XY and at a distance 8 cm from A.

296) In figure, DE and DF, are tangents from an external point D to a circle with centre A. If DE = 5 cm and $DE \perp DF$, then find the radius of the circle.

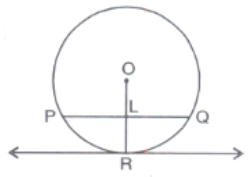


297) If two tangents inclined at an angle of 60° are drawn to a circle of radius 3 cm, then find the length of each tangent.

298) Out of the two concentric circles, the radius of the outer circle is 5 cm and the chord AC is of length 8 cm is a tangent to the inner circle. Find the radius of the inner circle.

299) Prove that the centre of a circle touching two intersecting lines lies on the angle bisector of the lines.

300) A chord PQ of a circle is parallel to the tangent drawn at a point R of the circle. Prove that R bisects the arc PRQ.



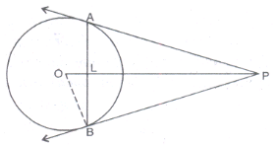
301) The diagonals of a parallelogram ABCD intersect at O. Show that the circumcircle $\triangle ADO$ *and* $\triangle BCO$ touch each other at O.

302) Prove that the tangent drawn at the ends of a chord of a circle make equal angles with the chord.

303) Two tangents PL and PM are drawn to a circle with centre O from an external point P. Prove that $\angle LPM = 2\angle OLM$.

304) In the given figure, two circles with centres A and B of radius 5 cm and 3 cm touching each other internally. If the perpendicular bisector of segment AB, meets the bigger circle at P and Q, find the length of PQ.

305) In the given figure, AB is a chord of length 16 cm, of a circle of radius 10 cm. Tangents at A and B intersect at a point P. Find the length of tangent AP.



306) Two circles intersect each other at two points A and B. From point A, tangents AP and AQ are drawn to two circles which intersect the circles at the pointsP and Q respectively. Prove that AB is the bisector of $\angle PBQ$.

307) Let A be a point of intersection of two intersecting circles with centres O and O'. The tangents at A to the two circles meet the circles at B and C respectively. Point P is located so that AOPO; is a parallelogram. Prove that P is the circumcentre of $\triangle ABC$.

308) How many tangents can be drawn to a circle from a point Plies outside the circle?

309) At which point a tangent is perpendicular to the radius?

310) What term will you use for a line which intersect a circle at two distinct points?

311) Write the name of the common point of the tangent to a circle and the circle.

312) What do you say about the line Which is perpendicular to the radius of the circle through the point of contact?

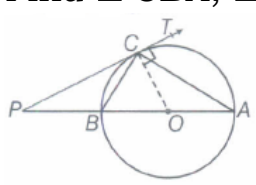
313) Write the number of tangents to a circle which are parallel to a secant

314) Find the distance between two parallel tangents of a circle of radius 3 cm.

315) If a point P is 17 cm from the centre of a circle of radius 8 cm, then find the length of the tangent drawn to the circle from point P.

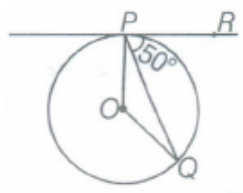
316) Two concentric circles of radii 13 cm and 12 cm are given. Find the length of the chord of the larger circle which touches the smaller circle.

317) PC is a tangent to the circle at C. AOB is the diameter which when extended meets the tangent at P. Find $\angle$ CBA, $\angle$ AOC and $\angle$ BCO, if $\angle$ PCA = 110°.

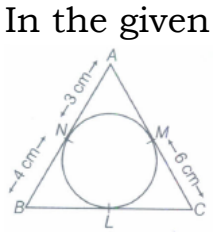


318) If the angle between two radii of a circle is 100°, then find the angle between the tangents at the ends of those radii.

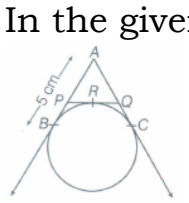
319) In the given figure, PO is a chord of a circle with centre O, PR is a tangent at P, making an angle of 50° with PQ, then find $\angle$ POQ.



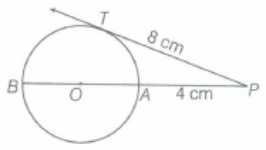
320) In the given figure, $\triangle$ ABC is circumscribing a circle. Then, find the length of BC.



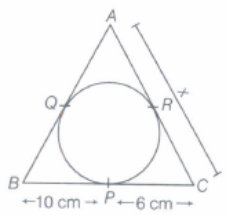
321) In the given figure, AB, AC and PQ are tangents. If AB = 5 cm, then find the perimeter of $\triangle$ APQ.



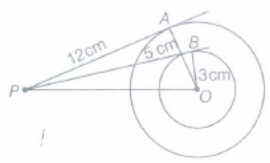
322) In the given figure, O is the centre of the circle, PT is the tangent and PAB is the secant passes through the centre O. If PT = 8 cm and PA = 4 cm, then find the length of the radius.



323) In the given figure, all three sides of triangle touch the circle. Find the value of x.

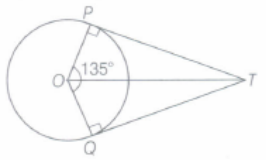


324) Two concentric circles with centre O are of radii 5 cm and 3 cm. From an external point P, two tangents PA and PB are drawn to their circles respectively. If PA=12 cm, then find length of PB.

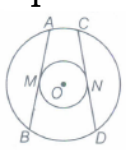


325) Two concentric circles are of radii 10 cm and 6 cm. Find the length of the chord of the longer circle which touches the smaller circle.

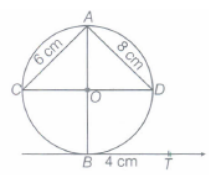
326) In the given figure, if TP and TQ are the two tangents to a circle with centre O, so that $\angle$ POQ = 135°, then find $\angle$ PTQ.



327) In two concentric circles, prove that all chords of the outer circle which touch the inner circle are of equal length.



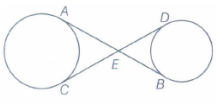
328) In the given figure, AD = 8 cm, C = 6 cm and TB is the tangent at B to the circle with centre O.Find OT, if BT is 4 cm.



329) The tangents drawn at the end points of two perpendicular diameters of a circle are parallel to each other, which form of a square and whose length of side is 2 cm. Find the radius of circle.

330) PA is a tangent to the circle with centre O.If BC = 3 cm, AC =4cm and ΔACB - ~ΔPAO, then find OA and $\frac{OP}{AP}$

331) In the given figure, common tangents AB and CD to two circles intersect at E. Prove that AB = CD



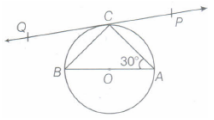
332) In two concentric circles, a chord of the, larger circle touches the smaller circle.If the length of this chord is 8 cm and the diameter of the smaller circle is 6 cm, then find the diameter of the larger circle

333) If a, b, c are the sides of a right angled triangle, where c is hypotenuse, then prove that the radius r of the circle which touches the sides of the triangle is given by $r = \frac{a+b-c}{2}$

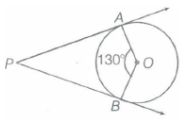
334) A point is 26 cm away from the centre of a circle and the length of tangent drawn from P to the circle is 24 cm. Find the radius of the circle.

335) Out of two concentric circles, the diameter of the outer circles is 10 cm and the chord AC of length 8 cm is a tangent to the inner circle, then find the diameter of the inner circle.

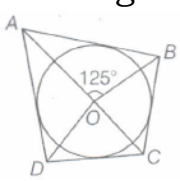
336) In the following figure, PQ is a tangent at a point C to circle with centre O. If AB is a diameter and $\angle CAB = 30^\circ$, then find $\angle PCA$.



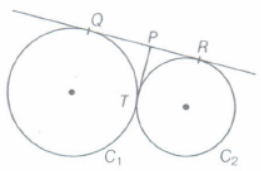
337) In the adjoining figure, PA and PB are tangents from P to a circle with centre O. If $\angle AOB = 130^\circ$, then find $\angle$ APB.



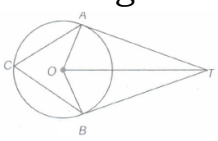
338) In the given figure, if $\angle$ AOB = 125°, then find $\angle$ COD.



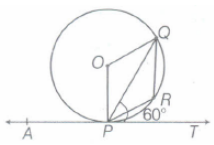
339) In adjoining figure, QR is common tangent to the circles C_1 and C_2 touching externally at T. Find the length of QR if QP = 3.2 cm



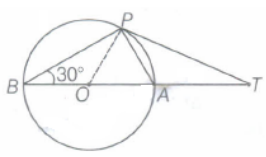
340) In the given figure, if $\angle$ ACB = 50° , then find $\angle$ ATO.



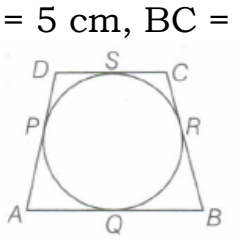
341) In the adjoining figure, PQ is a chord of a circle with centre O and PT is a tangent at P such that $\angle$ QPT = 60°, then find $\angle$ PRQ.



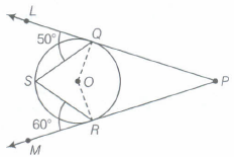
342) In the given figure, O is the centre of a circle, BOA is its diameter and the tangent at the point P meets BA extended at T. If $\angle$ PBO = 30°,then find $\angle$ PTA.



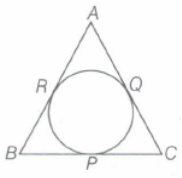
343) In the adjoining figure, quadrilateral ABCD is circumscribed, touching the circle at P, Q, R and S. If AP = 5 cm, BC = 7 cm and CS = 3 cm, then find the length of AB.



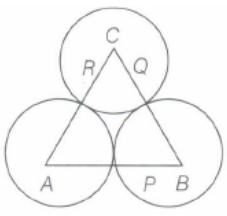
344) In adjoining figure, PQ and PR are tangents to the circle with centre O and S is a point on the circle such that $\angle$ SQL = 50° and $\angle$ SRM = 60° Find $\angle$ QSR.



345) In the given figure, the incircle of Δ ABC touches the sides BC, CA and AB at P, Q and R, respectively. Prove that (AR + BP + CQ) = (AQ + BR + CP) $= \frac{1}{2}(Perimeter \quad of \quad \Delta ABC)$



346) In the given figure, three circles with centres, A, B and C, respectivelytouch each other externally. If AB=5 cm, BC=7cm and CA =6 cm, then find the radius of the circle with centre A



347) In the given figure, AOB is a diameter of the circle with centre O and AC is a tangent to the circle at A. If $\angle BOC$ = 130°, then find $\angle ACO$

348) From an external point P, tangents PA and PB are drawn to circle with centre O. If $\angle PAB = 50^\circ$ then find $\angle AOB$

349) What is the maximum number of parallel tangents a circle can have on a diameter?

350) In fig., PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$ Write the measure of $\angle OAB$.

351) In the given figure, PQ and PR are tangents to the circle with centre O such that $\angle QPR = 50^\circ$ then find $\angle OQR$

352) If PQ and PR are two tangents to a circle with centre O. If $\angle QPR = 46^\circ$ find $\angle QOR$

353) If a circle can be inscribed in a parallelogram how will the parallelogram change?

354) In the figure, QR is a common tangent to given circle which meet at T. Tangent at T meets QR at P. If QP = 3.8 cm, then find length of QR.

355) In the figure, PA and PB are tangents to a circle with centre O. If $\angle AOB = 120^\circ$, then find $\angle OPA$

356) From a point P, which is at a distance of 13 cm from the centre O of a circle of radius 5 cm, the pair of tangents PQ and PR are drawn to the circle, then find the area of the quadrilateral PQOR (in cm^2).

357) If O is centre of a circle, PQ is a chord and the tangent PR at P makes an angle of 50° with PQ, find $\angle POQ$.

358) What is the length of the tangent drawn from a point 8 cm away from the centre of a circle of radius 6 cm?

359) If the angle between two radii of a circle is 130°, then what is the angle between the tangents at the end points of radii at their point of intersection?

360) To draw a pair of tangents to a circle which are inclined to each other at an angle of 30°, it is required to draw tangents at end points of two radii of the circle, what will be the angle between them?

361) Two tangents making an angle of 60° between them are drawn to a circle of radius $\sqrt{3}$ cm, then find the length of each tangent.

362) If a line intersects a circle in two distinct points, what is it called?

363) In the given figure, find $\angle QSR$.

364) A triangle ABC is drawn to circumscribe a circle. If AB = 13 cm, BC = 14 cm and AE = 7 cm then find AC.

365) In the given figure, there are two concentric circles of radii 6 cm and 4 cm with centre O. If AP is a tangent to the larger circle and BP to the smaller circle and length of AF is 8 cm, find the length of BP.

366) In the given figure, from a point P, two tangents PT and PS are drawn to a circle with centre O such that $\angle SPT$ = 120°, Prove that OP = 2 PS

367) In the given figure PQ is chord of length 6 cm of the circle of radius 6 cm. TP and TQ are tangents to the circle at points P and Q respectively. Find $\angle PTQ$.

368) ABC is an isosceles triangle in which AB = AC which is circumscribed about a circle as shown in the figure. Show that BC is bisected at the point of contact.

369) In given figure PA and PB are tangents from a point P to the circle with centre O. Prove that AOBP is a cyclic quadrilateral.

370) Two tangents PA and PB are drawn from an external point P to a circle inclined to each other at an angle of 70°,then what is the value of $\angle PAB$?

371) The incircle of an isoceles triangle ABC, in which AB = AC, touches the sides BC, CA and AB at D, E and F respectively. Prove that BD = DC.

372) In the given figure, if BC = 4.5 cm, find the length of AB.

373) PB is a tangent to the circle with centre O to B. AB is a chord of length 24 cm at a distance of 5 cm from the centre. If the tangent is of length 20 cm, find the length of PO.

374) 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 line segment PQ.

375) AB is a chord of circle with centre O. At B, a tangent PB is drawn such that its length is 24 cm. The distance of P from the centre is 26 cm, If the chord AB is 16 cm, find its distance from the centre.

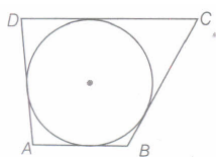
376) Prove that the intercept of a tangent between a pair of parallel tangents to a circle subtend a right angle at the centre of the circle.

377) ABC is a right triangle in which $\angle B$ = 90°. A circle is inscribed in the triangle. If AB = 8 cm and BC = 6 cm, find the radius r of the circle.

378) In given figure, PA and PB are tangents from a point P to the circle with centre O. At the point M, another tangent to the circle is drawn cutting PA and PB at K and N. Prove that the perimeter of $\triangle PNK$ = 2PB.

379) In the given figure, all the sides of a quadrilateral ABCD touch a circle with centre O. Prove that $\angle AOB + \angle COD$ = 180° and$\angle BOC + \angle AOD$ = 180°. OR Prove that the opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of circle.

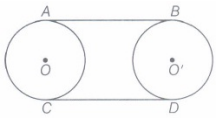
380) In the following figure, a quadrilateral ABCD circumscribing a circle such that AB = 20 cm, BC = 24 cm and AD = 21 cm.



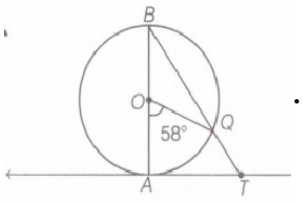
Two friends Rahul and Santosh observed the figure, Santosh said that length of DC is 30 cm. Is he right? Explain.

381) Prove that a diameter AB of a circle bisects all those chords which are parallel to the tangent at the point A.

382) In figure, AB and CD are common tangents to two circles of equal radii. Prove that AB = CD. Further prove that ΔOAB = ΔOCD.



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



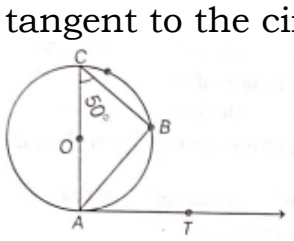
384) If A(1,1) and B(7, 9) are the end points of a diameter of a circle, then find the coordinates of the centre of the circle.

385) Points A (-1, y) and B (5, 7) lie on a circle with centre O(2, -3y) such that AB is a diameter of the circle. Find the value of y. Also, find the radius of the circle.

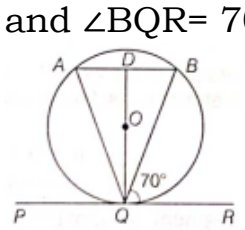
386) From an external point P, two tangents PA and PB are drawn to the circle with centre O. Prove that OP is the perpendicular bisector of chord AB.

387) Anu says, 'A circle of radius 10 cm can have 100 tangents.' Is Anu correct? Give a reason to justify your answer.

388) In the given figure, AB is a chord of a circle and AOC is its diameter such that ∠ACB =50°. If AT is the tangent to the circle at point A then find ∠BAT.

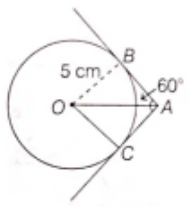


389) Inthe given figure, if POR is the tangent to a circle at Q whose centre is O, AB is a chord parallel to PR and ∠BQR= 70°, then find ∠AQB.

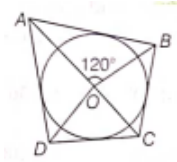


390) If two tangents inclined at an angle of 60° are drawn to a circle of radius 3 cm, then find the length of each tangent.

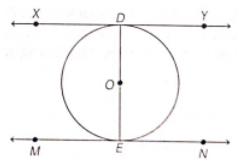
391) In the given figure, tangents ABand AC are drawn to a circle centred at O. ∠OAB = 60° and OB=5cm, then find the length OA and AC.



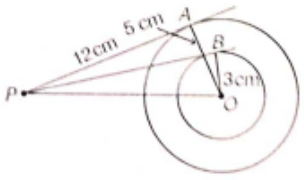
392) In the given figure, if ∠AOB=120° ,then find ∠COD.



393) XY and MN are the tangents drawn at the end points of the diameter DE of the circle with centre O. Prove that XY || MN.



394) To concentric circles with centre O are of radii 5 cm and 3 cm. From an external point P two tangents PA and PB are drawn to these circles, respectively. If PA=12cm, then find length of PB.



3 Marks 84 x 3 = 252

395) Prove that the perpendicular at the point of contact to the tangent to a circle passes through the centre.

396) Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

397) Draw a circle and two lines parallel to a given line, such that one is a tangent and other a secant to the circle.

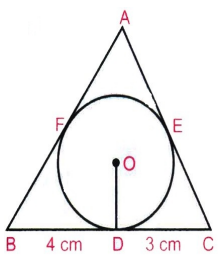
398) The lengths of tangents drawn from an external point to a circle are equal.

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

400) ABC is an isosceles triangle, in which AB=AC, circumscribed about a circle.Show that BC is bisected at the point of contact.

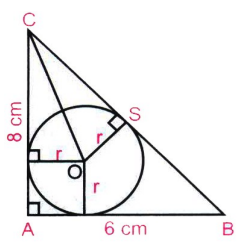
401) In the figure, a circle is inscribed in a quadrilateral ABCD in which $\angle 90^0$ .If AD = 23 cm, AB = 29 cm and DS = 5 cm, find the radius(r) of the circle.

402) In figure, a triangle ABC is drawn to circumscribe a circle of radius 2cm such that the segments BD and DC into which BC is divided by the point of contact D are the lengths 4cm and 3cm respectively.If area of $\Delta ABC = cm^2$, then find the lengths of sides AB and AC.

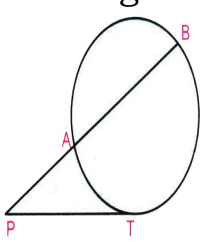


403) Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the centre.

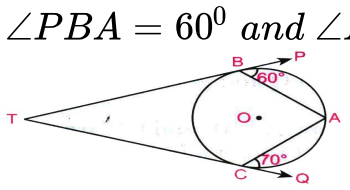
404) In the given figure, ABC is a right-angled triangle, right angled at A, with AB =6cm and AC=8cm.A circle with centre O has been inscribed inside the triangle Calculate the value of r, the radius of the inscribed circle.



405) In the given figure, PT is tangent to the circle at T.If PA=4cm and AB=5cm find PT.



406) In the given figure, TBP and TCQ are tangents to the circle whose centre isO.Also $\angle PBA = 60^0 \; and \; \angle ACQ = 70^0.$ Determine $\angle BAC \; and \; \angle BTC.$

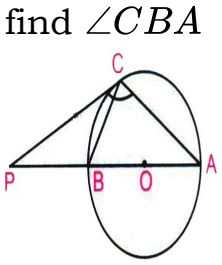


407) ABC is a right-angled triangle, right angled at A.A circle is inscribed in it.The lengths of two sides containing the angle are 24cm and 10cm.Find the radius of the incircle.

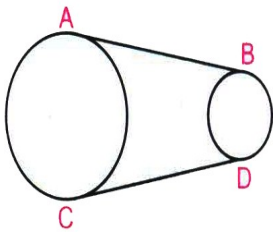
408) In two concentric circles, a chord of length 24 cm of larger circle becomes a tangent to the smaller circle whose radius is 5 cm. Find the radius of the larger circle.

409) AB is a diameter of a circle. AH and BK are perpendicular from A and B respectively to the tangent at P.Prove that AH + BK = AB.

410) The tangent at a point C of a circle and a diameter AB when extended intersect at P.If $\angle PCA = 110^0$, find $\angle CBA$ [see figure] Join C with centre O

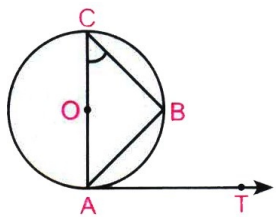


411) In figure, AB and CD are common tangents to two circles of unequal radii.Prove that AB=CD.

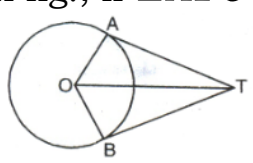


412) From an external point P, two tangents, PA and PB are drawn to a circle with centre O.At one point E on the circle tangent is drawn which intersect PA and PB at C and D, respectively.If PA = 10cm, find the perimeter of the triangle PCD.

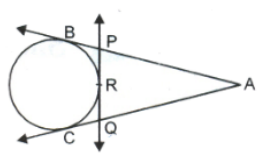
413) If AB is a chord of a circle with centre O, AOC is a diameter and AT is the tangent at A as shown in figure.Prove that $\angle BAT = \angle ACB$



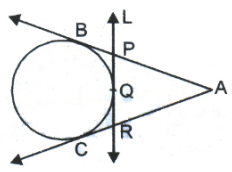
414) In fig., if $\angle ATO = 40^\circ$, find$\angle AOB$.



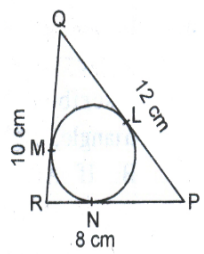
415) Two tangents are drawn to a circle from an exterior point A, touching the circle at B and C. From another point R, on circle a third tangent is drawn to the circle intersecting AB in P and AC in Q and touching the circle at R. If AB = 20 units, find the perimeter of $\triangle APQ$.



416) Two tangents are drawn to a circle from an external point A, touching the circle at B and C. From another point L, a third tangent is drawn to the circle intersecting AB in P and AC in R and touching the circle at Q. If AB = 32 cm, find the perimeter of $\triangle APR$.



417) In a triangle PQR, PQ = 12 cm, QR = 10 cm and PR = 8 cm, a circle is inscribed touching PQ in L, QR in M and PR in N. Find PL, QM and RN.

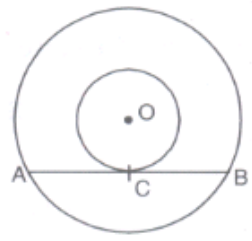


418) In a right triangle ΔABC, right angled at B, BC = 15 cm and AB = 8 cm. A circle is inscribed in triangle ABC. Find the radius of the circle.

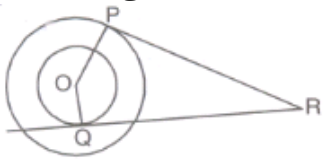
419) At the point of contact the angle between radius and tangent to a circle is 90°.

420) If PA and PB are two tangents drawn from a point P to a circle with centre O touching it at A and B, prove that OP is perpendicular bisector of AB.

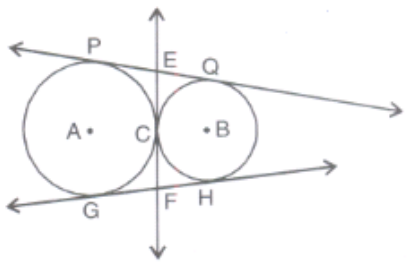
421) In the given figure, the chord AB of the larger of the two concentric circles, with centre O, touches the smaller circle O, touches the smaller circle at C. Prove that, AC = CB.



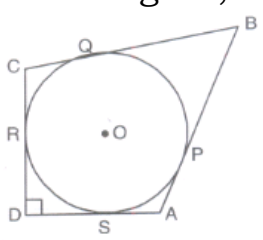
422) Two concentric circles are of radii 10 cm and 8 cm. RP and RQ are tangents to the two circles from R. If the length of RP is 24 cm, find the length of RQ.



423) In fig., two circles touch each other externally at C. Prove that the common tangent at C bisects the other two common tangents



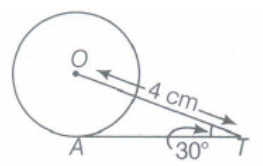
424) In the figure, $\angle ADC = 90^\circ$, BC = 38 cm, CD = 28 cm and BP = 25 cm. Find the radius of the circle.



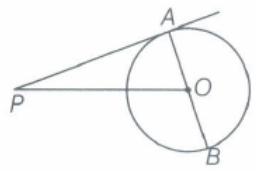
425) How many tangents you can draw to a circle which are parallel to a secant?

426) If a line which is perpendicular to the radius of the circle through the point of contact. What will you call that line?

427) In the adjoining figure, AT is a tangent to the circle with centre O such that OT = 4 cm and $\angle OTA = 30^\circ$. Find the length of AT.



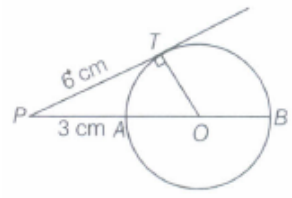
428) In the adjoining figure, PA is a tangent from an external point P to a circle with centre O. If $\angle POB = 115^\circ$, then find $\angle APO$.



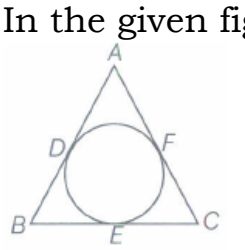
429) If the radius of a circle is 3 cm, then find the distance between two parallel tangents.

430) What will you call a line, if it intersect a circle at two distinct points?

431) In the given figure, O is the centre of the circle and PT is the tangent drawn from the point P to the circle. Secant PAB passes through the centre 0 of the circle. If PT = 6 cm and PA = 3 cm, then find the radius of the circle.

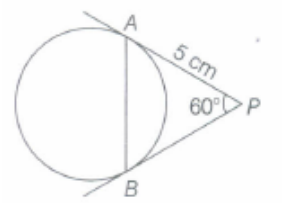


432) In the given figure, if AB = AC, then prove that BC = 2CE.



433) ABCD is a quadrilateral such that $\angle D = 90^\circ$. A circle C (O, r) touches the sides AB, BC, CD and DA at P, Q, R and S, respectively. If BC = 38 cm, CD = 25 cm and BP = 27 cm, then find the value of r.

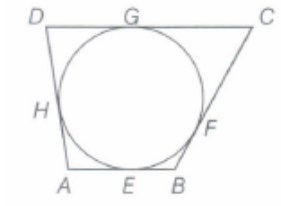
434) In the given figure, PA and PB are tangents to the given circle such that PA = 5 cm and $\angle APB = 60^\circ$. Find the length of chord AB.



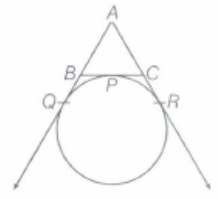
435) A village Panchayat constructed a circular tank to serve as a bird bath. A fencing was made in the shape of a quadrilateral. Sides of the quadrilateral touched the circle as shown in the figure. If AB = 5 m, CD = 6 m and BC = 7 m, then

(a) findAD.

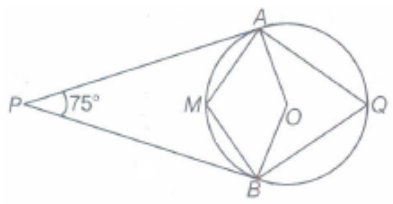
(b) what values does village Panchayat depict through this action?



436) A circle touches the side BC of a ΔABC at P and AB and AC when produced at O and R respectively as shown in the figure. Show that AQ =$\frac{1}{2}$ or show that AQ =$\frac{1}{2}(BC+CA+AB)$

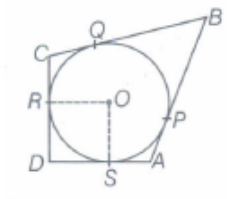


437) In the given figure, O is the centre of the circle.Determine ∠APB and ∠AMB, if PA and PB are tangent and ∠APB=75^0

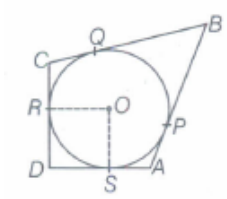


438) Tangents AP and AQ are drawn to circle with centre O from an external point A.Prove that ∠PAQ = 2∠OPQ.

439) In the given figure, ∠ADC = 90°, BC = 38 cm, CD = 28 cm and BP = 25 cm, then find the radius of the circle.



440) A circle is inscribed in a ΔBC having sides AB=8 cm, BC = 10 cm and CA = 12 cm as shown in figure. Find AD, BE and CF



441) 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 of AD.

442) If an isosceles ΔABC in which AB = AC = 6 cm is inscribed in a circle of radius 9 cm, then find the area of the triangle

443) AB is a diameter of a circle and AC is its chord such that $\angle BAC = 30^\circ$. If the tangent at C intersects AB extended at D, then prove that BC = BD.

444) A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q such that PQ = 12 cm. Find the length of OQ.

445) Find the radius of a circle, if the length of tangent from a point at distance of 25 cm from the centre of the circle, is 24 cm.

446) If PQ is a tangent to a circle with centre O and radius 6 cm such that $\angle PQO = 60^\circ$, then find the length of a tangent PQ and a line OQ.

447) If AB is a tangent drawn from a point A to a circle with centre O and BOC is a diameter of the circle such that $\angle AOC = 120^\circ$, then find ∠OAB .

448) In the given figure, XP and XQ are tangents from X to the circle with centre O. R is a point on the circle. Prove that XA + AR = XB + BR.

449) ABC is a right angled triangle with $\angle B = 90^\circ$, BC = 3 cm and AB = 4 cm. A circle with centre O and radius r cm has been inscribed in Δ ABC. Find the radius of the incircle.

450) ABC is triangle. A circle touches sides AB an AC produced and side BC at X, Y and Z respectively. Show that AX = $\frac{1}{2}$ perimeter of $\triangle ABC$.

451) In the given figure, OP is equal to the diameter of a circle with centre 0 and PA and PB are tangents. Prove that ABP is an equilateral triangle.

452) Point A(-1, y) and B(5, 7) lie on a circle with centre 0(2, - 3y). Find the values of y. Hence find the radius of the circle.

453) In the figure, PQ is a tangent to a circle with centre O. If $\angle OAB$ = 30°, find $\angle ABP$ and $\angle AOB$.

454) In $\triangle ABC$, AB = AC. If the interior circle of $\triangle ABC$ touches the sides AB, BC and CA at D, E, F respectively. Prove that E bisects BC.

455) Two concentric circles are of radii 6.5 cm and 2.5 cm. Find the length of chord of the larger circle which is tangent to the smaller circle.

456) Find the length of the tangents to the circle from a point at any distance of x cm from centre of the circle of radius r cm. x = 5,r = 3

457) Find the length of the tangents to the circle from a point at any distance of x cm from centre of the circle of radius r cm.
x = 13,r = 12

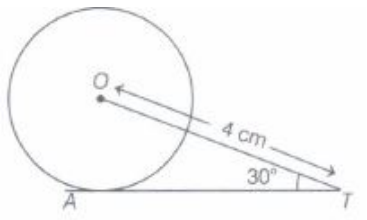
458) Find the length of the tangents to the circle from a point at any distance of x cm from centre of the circle of radius r cm
x = 25,r = 24

459) Find the length of the tangents to the circle from a point at any distance of x cm from centre of the circle of radius r cm
$x = 3\sqrt{3}, r = 3\sqrt{2}$

460) If the length of a tangent to a circle from a point is 0.5 cm and distance of a point from its centre is 1.5 cm, then find its radius.

461) If AB is a tangent drawn from a point B to a circle with centre C and radius 1.5 cm such that $\angle CBA = 30^\circ$,then find the length of a tangent AB.

462) In the given figure, AT is a tangent to the circle with centre 0 such that OT = 4 cm and $\angle OTA = 30^\circ$ Find the length of AT.

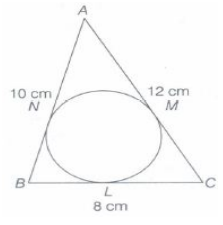


463) PQ is a tangent drawn from a point P to a circle with centre O and QOR is a diameter of the circle such that $\angle POR = 135^\circ$,then find $\angle OPQ$.

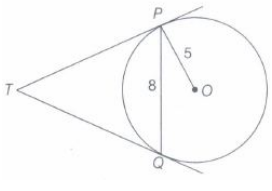
464) If O is the centre of a circle, PQ is a chord and the tangent PR at P makes an angle of 50° with PQ, then find $\angle$POQ .

465) In the given figure, FG is a tangent to the circle with centre A.If $\angle DCB = 15^\circ$ and CE = DE, then find $\angle GCE$ and $\angle BCE$.

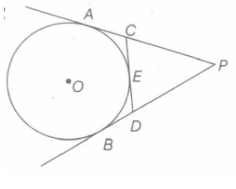
466) In figure a circle is inscribed in a ΔABC .having sides BC = 8 cm, AB = 10 cm and AC = 12 cm Find the lengths at BL, CM and AN.



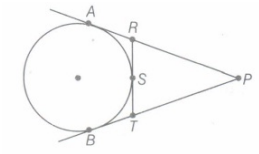
467) In figure, PO is a chord at length 8 cm at a circle at radius 5 cm and centre O. The tangents at P and O intersect at point T Find the length at TP.



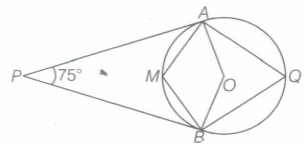
468) From an external point P, tangents PA and PB are drawn to a circle with centre O. If CD is the tangent to the circle at a point E and PA = 14 cm, then find the perimeter of ∆PCD.



469) Vistrit prepared a model for rain water harvesting. In the following figure PA and PB are the pipes touching the circular pond. If perimeter of ΔPRT is 72 cm, then determine the length of each pipes and verify our answer.



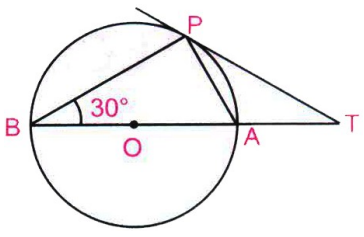
470) In the given figure, O is the centre of the circle. Determine ∠AOB and ∠AMB, if PA and PB are tangents and LAPB = 75°.



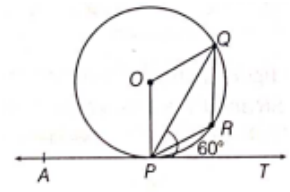
471) Prove that the tangents drawn at the end points of a chord of a circle makes equal angles with the chord.

472) From a point P, the length of the tangent to a circle is 24 cm and the distance of P from the centre of the circle is 25 cm. Find the radius of the circle.

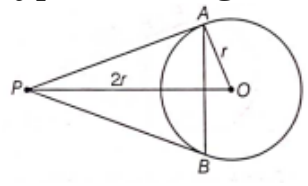
473) In the given figure, O is the centre of a circle, BOA is its diameter and the tangent at the point P meets BA extended at T. If ∠PBO=30°, then find ∠PTA.



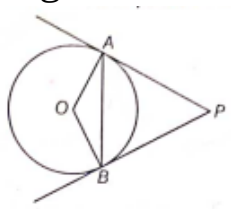
474) In the given figure, PQ is a chord of a circle with centre O and PT is a tangent at P such that ∠QPT =60°, then find ∠PRQ.



475) From a point P, two tangents PA and PB are drawn to a circle C(O, r). If OP = 2r, then find ∠APB. What type of triangle is APB?



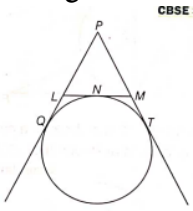
476) PA and PB are tangents drawn to a circle of centre O from an external point P. Chord AB makes an angle of 30° with the radius at the point of contact.



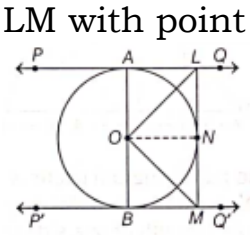
If length of the chord is 6 cm, find the length of the tangent PA and the length of the radius OA

477) If PQ = 28cm, then find the perimeter of △PLM

CBSE

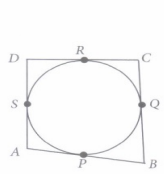


478) In the given figure, PQ and P'O' are two parallel tangents to a circle with centre O and another tangent LM with point of contact N intersecting PQ at L and P at M. Find ∠LOM.



Case Study Questions 13 x 4 = 52

479) In a park, four poles are standing at positions A, B, C and D around the fountain such that the cloth joining the poles AB, BC, CD and DA touches the fountain at P, Q, Rand S respectively as shown in the figure.



Based on the above information, answer the following questions.

(i) If 0 is the centre of the circular fountain, then ∠ OSA =

(a) 60° (b) 90°

(c) 45° (d) None of these

(ii) Which of the following is correct?

(a) AS = AP (b) BP= BQ (c) CQ = CR (d) All of these

(iii) If DR = 7 cm and AD = 11 ern, then AP =

(a) 4 cm (b) 18 cm (c) 7 cm (d) 11 cm

(iv) If O is the centre of the fountain, with ∠ QCR = 60°, then ∠ QOR

(a) 60° (b) 120° (c) 90° (d) 30°

(v) Which of the following is correct?

(a) AB + BC = CD + DA (b) AB + AD = BC + CD

(c) AB + CD = AD + BC (d) All of these

480) Smita always finds it confusing with the concepts of tangent and secant of a circle. But this time she has determined herself to get concepts easier. So, she started listing down the differences between tangent and secant of a circle along with their relation. Here, some points in question form are listed by Smita in her notes. Try answering them to clear your concepts also.

(i) A line that intersects a circle exactly at two points is called

(a) Secant (b) Tangent (c) Chord (d) Both (a) and (b)

(ii) Number of tangents that can be drawn on a circle is

(a) 1 (b) 0 (c) 2 (d) Infinite

(iii) Number of tangents that can be drawn to a circle from a point not on it, is

(a) 1 (b) 2 (c) 0 (d) Infinite

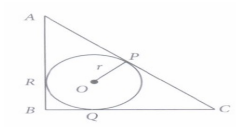
(iv) Number of secants that can be drawn to a circle from a point on it is

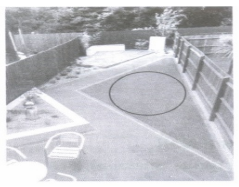
(a) Infinite (b) 1 (c) 2 (d) 0

(v) A line that touches a circle at only one point is called

(a) Secant (b) Chord (c) Tangent (d) Diameter

481) A backyard is in the shape of a triangle with right angle at B, AB = 6 m and BC = 8 m. A pit was dig inside it such that it touches the walls AC, BC and AB at P, Q and R respectively such that AP = x m.





Based on the above information, answer the following questions.

(i) The value of AR =

(a) 2x m (b) x/2 m (c) x m (d) 3x m

(ii) The value of BQ =

(a) 2x m (b) (6-x) m (c) (2 - x) cm (d) 4x m

(iii) The value of CQ =

(a) (4+x)m (b) (10 - x) m (c) (2+x)m (d) both (b) and (c)

(iv) Which of the following is correct?

(a) Quadrilateral AROP is a square.

(b) Quadrilateral BROQ is a square.

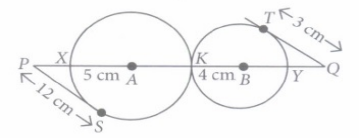
(c) Quadrilateral CQOP is a square.

(d) None of these

(v) Radius of the pit is

(a) 2 cm (b) 3 cm (c) 4 cm (d) 5 cm

482) In a maths class, the teacher draws two circles that touch each other externally at point K with centres A and B and radii 5 em and 4 em respectively as shown in the figure.



Based on the above information, answer the following questions.

(i) The value of PA =

(a) 12 cm (b) 5 cm (c) 13 cm (d) Can't be determined

(ii) The value of BQ =

(a) 4 cm (b) 5 cm (c) 6 cm (d) None of these

(iii) The value of PK =

(a) 13 cm (b) 15 cm (c) 16 cm (d) 18 cm

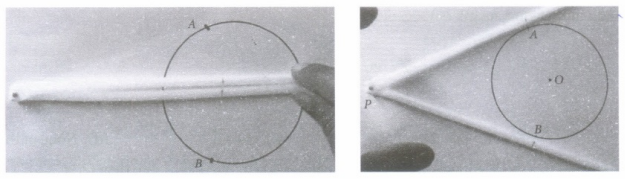
(iv) The value of QY =

(a) 2 cm (b) 5 cm (c) 1 cm (d) 3 cm

(v) Which of the following is true?

(a) $PS^2 = PA.PK$ (b) $TQ^2 = QB.QK$ (c) $PS^2 = PX.PK$ (d) $TQ^2 = QA.QB$

483) Prem did an activity on tangents drawn to a circle from an external point using 2 straws and a nail for maths project as shown in figure.



Based on the above information, answer the following questions.

(i) Number of tangents that can be drawn to a circle from an external point is

(a) 1 (b) 2 (c) infinite (d) any number depending on radius of circle

(ii) On the basis of which of the following congruency criterion, $\Delta OAP \cong \Delta OBP$?

(a) ASA (b) SAS (c) RHS (d) SSS

(iii) If $\angle AOB = 150°$, then $\angle APB =$

(a) 75° (b) 30° (c) 60° (d) 100°

(iv) If $\angle APB = 40°$, then $\angle BAO =$

(a) 40° (b) 30° (c) 50° (d) 20°

(v) If $\angle ABO = 45°$, then which of the following is correct option?

(a) $AP \perp BP$ (b) PAOB is square (c) $\angle AOB = 90°$ (d) All of these

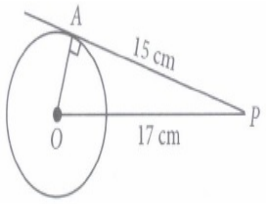
484) In an online test, Ishita comes across the statement - If a tangent is drawn to a circle from an external point, then the square of length of tangent drawn is equal to difference of squares of distance of the tangent from the centre of circle and radius of the circle.

Help Ishita, in answering the following questions based on the above statement.

(i) If AB is a tangent to a circle with centre O at B such that AB = 10 cm and OB = 5 cm, then OA =

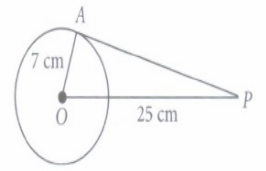
$(a) 3\sqrt{5}\text{ cm}$ $(b) 5\sqrt{5}\text{ cm}$ $(c) 4\sqrt{5}\text{ cm}$ $(d) 6\sqrt{5}\text{ cm}$

(ii) In the adjoining figure, radius of the circle is



(a) 8 cm (b) 7 cm (c) 9 cm (d) 10 cm

(iii) In the adjoining figure, length of tangent AP is

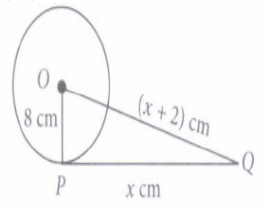


(a) 12 cm (b) 24 cm (c) 30 cm (d) None of these

(iv) PT is a tangent to a circle with centre 0 and diameter = 40 cm. If PT = 21 cm, then OP =

(a) 33 cm (b) 29 cm (c) 37 cm (d) None of these

(v) In the adjoining figure, the length of the tangent is



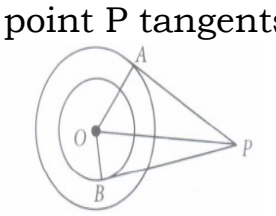
(a) 15 cm (b) 9 cm (c) 8 cm (d) 10 cm

485) If a tangent is drawn to a , circle from an external point, then the radius at the point of contact is perpendicular to the tangent. Answer the following questions using the above condition.

(i) Two concentric circles are of radii 5 ern and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

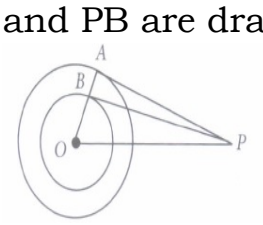
(a) 8 cm (b) 4 cm (c) 10 cm (d) 6 cm

(ii) In the given figure, 0 is the centre of two concentric circles of radii 5 cm and 3 cm. From an external point P tangents PA and PB are drawn to these circles. If PA = 12 cm, then PB=



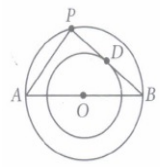
$(a) 2\sqrt{10}$ cm $(b) 2\sqrt{5}$ cm $(c) 4\sqrt{10}$ cm $(d) 4\sqrt{5}$ cm

(iii) In the given figure, O is the centre of two concentric circles. From an external point P tangents PA and PB are drawn to these circles such that PA = 6 cm and PB = 8 cm. If OP = 10 cm, then AB =



(a) 1 cm(b) 2 cm(c) 4 cm(d) Can't be determined

(iv) The diameter of two concentric circles are 10 ern and 6 cm. AB is a diameter of the bigger circle and BD is the tangent to the smaller circle touching it at D and intersecting the larger circle at P on producing. Find the length of BP.



a) 4 cm (b) 16 cm (c) 10 cm (d) 8 cm

(v) Two concentric circles are such that the difference between their radii is 4 ern and the length of the chord of the larger circle which touches the smaller circle is 24 em. Then the radius of the smaller circle is

a) 16 cm	**(b) 20 cm**	**(c) 18 cm**	**(d) None of these**

486) Following are questions of section-A in assessment test on circle that Eswar attend last month in school. He scored 5 out of 5 in this section. Answer the questions and check your score if 1 mark is allotted to each question.

(i) If two tangents AB and CDdrawn to a circle with centre 0 at P and Q respectively, are parallel to each other, then which of the following is correct?

(a) $\angle$POQ = 180° **(b) PQ is a diameter**

(c) $\angle$APQ = $\angle$PQD = 90° **(d) All of these**

(ii) If I is a tangent to the circle with centre 0 and line m is passing through 0 intersects the tangent I at point of contact, then

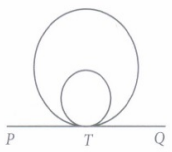
(a) I || m **(b) 1 $\perp$ m**

(c) line I and line m intersects and makes an angle of 60° **(d) can't be determined**

(iii) Number of tangents that can be drawn to a circle from a point inside it, is

(a) 1 **(b) 2** **(c) infinite** **(d) 0**

(iv) Which of the following is true?



(a) PQ is a tangent to both the circles **(b) Two circles are concentric**

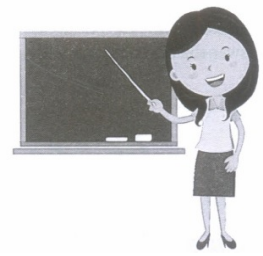
(c) PQ is a tangent to bigger circle only **(d) PQ is a tangent to smaller circle only**

(v) A parallelogram circumscribing a circle is called a

(a) rhombus **(b) rectangle**

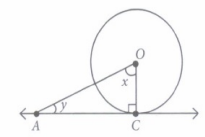
(c) square **(d) none of these**

487) For class 10 students, a teacher planned a game for the revision of chapter circles with some questions written on the board, which are to be answered by the students. For each correct answer, a student will get a reward. Some of the questions are given below .



Answer these questions to check your knowledge.

(i) In the given figure, x + y =

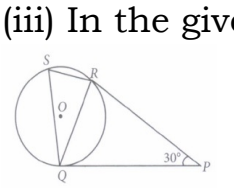


(a) 60° (b) 90° (c) 120° (d) 145°

(ii) If PA and PB are two tangents drawn to a circle with centre O from P such that ∠PBA = 50°, then ∠OAB=

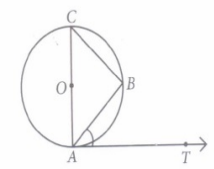
(a) 50° (b) 25° (c) 40° (d) 130°

(iii) In the given figure, PQ and PR are two tangents to the circle, then ∠ROQ =



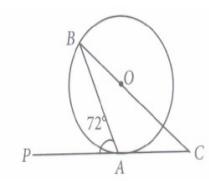
(a) 30° (b) 60° (c) 105° (d) 150°

(iv) In the adjoining figure, AB is a chord of the circle and AOC is its diameter such that ∠ACB = 55°, then ∠BAT=



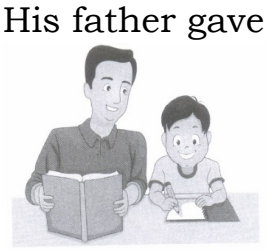
(a) 35° (b) 55° (c) 125° (d) 110°

(v) In the adjoining figure, if PC is the tangent at A of the circle with ∠PAB = 72° and ∠AOB = 132°, then ∠ABC=

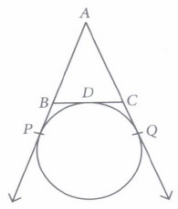


(a) 18° (b) 30° (c) 60° (d) can't be determined

488) Raghav loves geometry. So he was curious to know more about the concepts of circle. His father is a mathematician. So, he reached to his father to learn something interesting about tangents and circles. His father gave him knowledge on circles and tangents and ask him to solve the following questions.

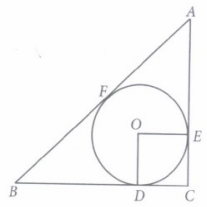


(i) In the given figure, AP, AQ and BC are tangents to the circle such that AB = 7 cm, BC = 5 cm and AC = 8 cm, then AP is equal to



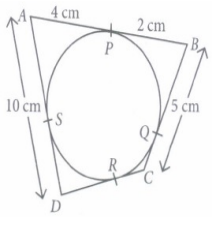
(a) 12 cm (b) 15 cm (c) 13 cm (d) 10 cm

(ii) A circle of radius 3 cm is inscribed in a right angled triangle BAC such that BD = 9 cm and DC = 3 cm. Find the length of AB.



(a) 6 cm (b) 12 cm (c) 15 cm (d) 10 cm

(iii) In the given figure, the length of CD is

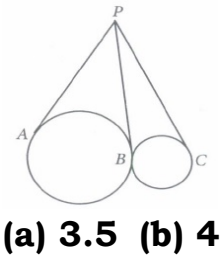


(a) 11 cm (b) 9 cm (c) 7 cm (d) 13 cm

(iv) If PA and PB are two tangents to a circle with centre O from an external point P such that $\angle OPB = 40°$, then $\angle BPA =$

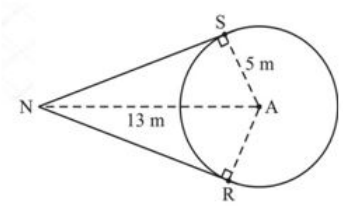
(a) 60° (b) 50° (c) 120° (d) 80°

(v) In the given figure, P is an external point from which tangents are drawn to two externally touching circles. If PA = 7 cm, then PC =



(a) 3.5 cm (b) 4 cm (c) 7 cm (d) Can't be determined

489) In an international school in Hyderabad organised an Interschool Throwball Tournament for girls just after the pre-board exam. The throw ball team was very excited. The team captain Anjali directed the team to assemble in the ground for practices. Only three girls Priyanshi, Swetha and Aditi showed up. The rest did not come on the pretext of preparing for pre-board exam. Anjali drew a circle of radius 5 m on the ground. The centre A was the position of Priyanshi. Anjali marked a point N, 13 m away from centre A as her own position. From the point N, she drew two tangential lines NS and NR and gave positions S and R to Swetha and Aditi. Anjali throws the ball to Priyanshi, Priyanshi throws it to Swetha, Swetha throws it to Anjali, Anjali throws it to Aditi, Aditi throws it to Priyanshi, Priyanshi throws it to Swetha and so on.



(a) What is the measure of ∠NSA?

(i) 30º **(ii) 45º** **(iii) 60º** **(iv) 90º**

(b) Find the distance between Swetha and Anjali

(i) 8m **(ii)) 12 m** **(iii) 15m** **(iv) 18m**

(c) How far does Anjali have to throw the ball towards Aditi

(i) 18m **(ii) 15m** **(iii) 12m** **(iv) 8m**

(d) If ∠SNR is equal to θ, then which of the following is true?

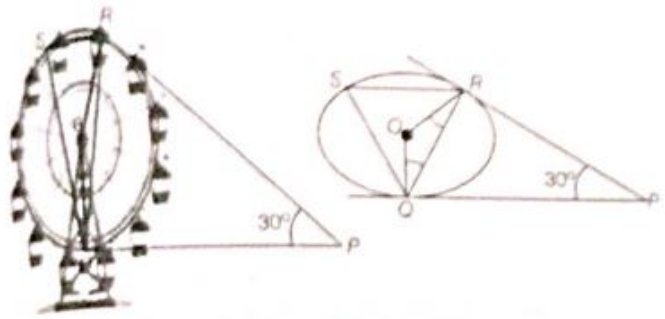
(i) $\angle \mathrm{ANS} = 90^\circ - \theta$ **(ii)** $\angle \mathrm{SAN} = 90^\circ - \theta$ **(iii)** $\angle \mathrm{RAN} = \theta$ **(iv)** $\angle \mathrm{RAS} = 180^\circ - \theta$

(e) If ∠SNR SNR is equal to θ ,then ∠NAS is equal

(i) $90^\circ - (\theta/2)$ **(ii)** $1180^\circ - 2\theta$ **(iii)** $90^\circ - \theta$ **(iv)** $90^\circ + \theta$

490) A Ferris wheel (or a big wheel in the United Kingdom) is an amusement ride consisting of a rotating upright wheel with multiple passenger-carrying components (commonly referred to as passenger cars, cabins, tubs, capsules, gondolas, or pods) attached to the rim in such a way that as the wheel turns, they are kept upright, usually by gravity.

After taking a ride in Ferris wheel, Aarti came out from the crowd and was observing her friends who were enjoying the ride . She was curious about the different angles and measures that the wheel will form. She forms the figure as given below.



(i) In the given figure, find ∠ ROQ

(a) 60° (b) 100° (c) 150° (d) 90°

(ii) Find ∠ RQP.

(a) 75° (b) 60° (c) 30° (d) 90°

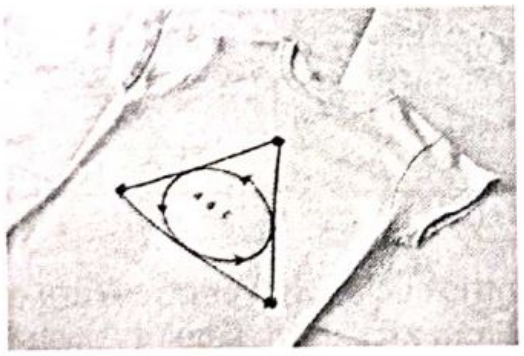
(iii) Find ∠ RSQ

(a) 60° (b) 75° (c) 100° (d) 30°

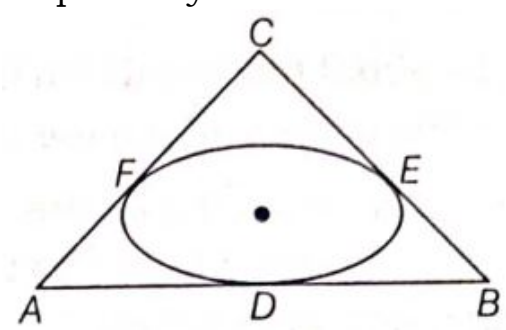
(iv) Find ∠ ORP.

(a) 90° (b) 70° (c) 100° (d) 60°

491) Varun has been selected by his school to design logo for sports day t-shirts for students and staff. The logo design is as given in the figure and he is working on the fonts and different colours according to the theme.



In given figure, a circle with centre O is inscribed in a Δ ABC, such that it touches the sides AB, BC and CA at points D, E and F, respectively. The lengths of sides AB, BC and CA are 12 cm, 8 cm and 10 cm, respectively.



(i) Find the length of AD.

(a) 7 cm (b) 8 cm (c) 5 cm (d) 9 cm

(ii) Find the length of BE.

(a) 8 cm (b) 5 cm (c) 2 cm (d) 9 cm

(iii) Find the length of CF.

(a) 9 cm (b) 5 cm (c) 2 cm (d) 3 cm

(iv) If radius of the circle is 4 cm, Find the area of Δ OAB.

(a) 20 cm^2 (b) 36 cm^2 (c) 24 cm^2 (d) 48 cm^2

(v) Find area of Δ ABC.

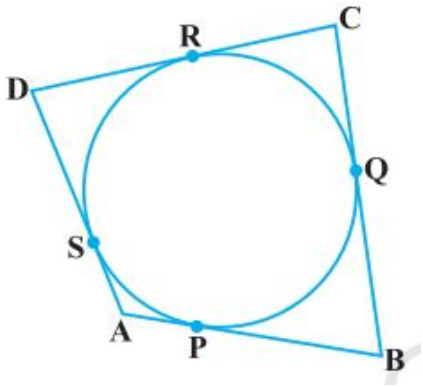
(a) 50 cm^2 (b) 60 cm^2 (c) 100 cm^2 (d) 90 cm^2

5 Marks 73 x 5 = 365

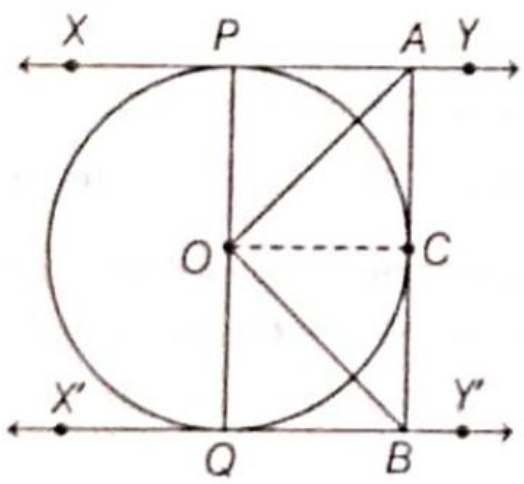
492) The length of a tangent from a point A at distance 5cm from the centre of the circle is 4cm.Find the radius of the circle.

493) Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

494) A quadrilateral ABCD is drawn to circumscribe a circle (see figure). Prove that AB+CD=AD+BC.



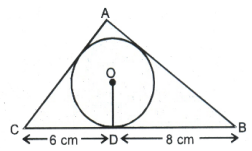
495) In the given figure, XY and X'Y' are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and X'Y' at B.Prove that $\angle AOB = 90^0$



496) Prove that the angle between 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 centre.

497) Prove that the parallelogram circumscribing a circle is a rhombus.

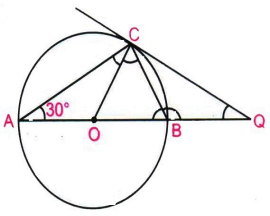
498) A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively (see Fig). Find the sides AB and AC.



499) 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 (see the fig). Find the length TP.

500) Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle \mathrm{PTQ} = 2\angle \mathrm{OPQ}$.

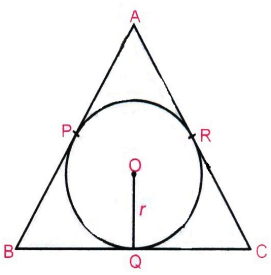
501) In the figure, AB is diameter of a circle with centre O and QC is a tangent to the circle at C.If $\angle CAB = 30^0,\ find\ \angle CQA\ and \angle CBA.$



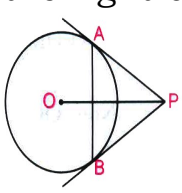
502) In figure, the sides AB, BC and CA of triangle ABC touch a circle with centre O and radius r at P, Q and R respectively.Prove that

(i) AB + CQ = AC + BQ

(ii)area (Δ ABC) = $\frac{1}{2}$ (perimeter of Δ ABC) x r



503) In figure, PA 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.



504) PQR is a right angled triangle right angled at Q.PQ=5cm, QR=12cm.A circle with centre O is inscribed in Δ PQR, touching its ll sides.Find the radius of the circle.

505) AB is a chord of length 24cm of a circle of radius 13cm.The tangents at A and B intersect at a point C.Find the length AC.

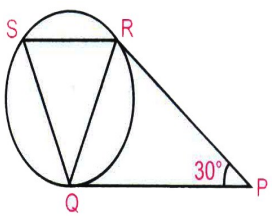
506) If a hexagon ABCDEF circumscribe a circle, prove that AB + CD + EF= BC + DE + FA.

507) Lets denote the semiperimeter of a triangle ABC in which BC = a, CA = b, AB = c.If a circle touches the sides BC, CA, AB at D, E, F respectively, prove that BD = s - b.

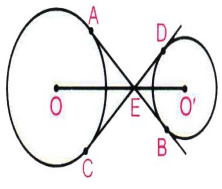
508) Two circles with centres O and O' of radii 3cm and 4cm, respectively intersect at two points P and Q such that OP and O'P are tangents to the two circles.Find the length of the common chord PQ.

509) In figure, tangents PQ and PR are drawn to a circle such that $\angle RPQ = 30^0$. A chord RS is drawn parallel to the tangent PQ. Find the $\angle RQS$.

Draw a line through Q and perpendicular to QP



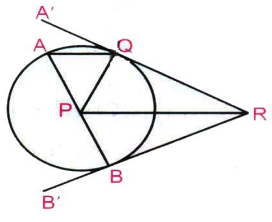
510) In figure, the common tangent, AB and CD are tangents to two circles with centres O and O' intersect at E. Prove that the points O, E, O' are collinear.



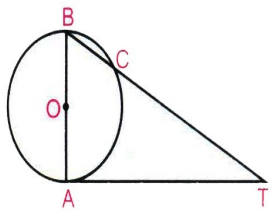
511) A is a point at a distance 13cm from the centre O of a circle of radius 5cm.AP and AQ are the tangents to the circle at P and Q.If a tangent BC is drawn at a point R lying on the minor arc PQ to intersect AP at B and AQ at C, find the perimeter of the ΔABC .

512) Two circles touch each other externally at C.AB and CD are two common tangents.If D lies on AB such that CD=6cm, then find AB.

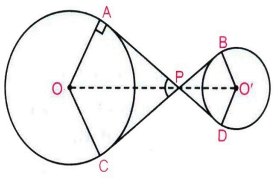
513) QR is a tangent Q.PR||AQ, where AQ is a chord through A and P is a centre, the end point of the diameter AB.Prove that BR is tangent at B.



514) In the given figure, AB is a diameter of the circle. The length of AB = 5 cm. If O is the centre of the circle and the length of tangent segment AT = 12cm, determine CT.



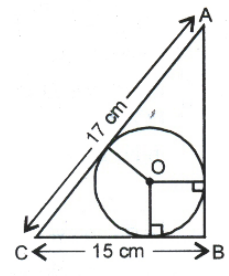
515) In the given figure, the diameters, of two wheels have measures 4cm and 2cm. Determine the lengths of the belts AD and BC that pass around the wheels if it is given that belts cross each other at right angles.



516) The radius of the incircle of a triangle is 6 cm and the segments into which one side is divided by the point of contact are 9 cm and 12 cm. Determine the other two sides of the triangle.

517) With the vertices of a $\triangle PQR$ as the centres, three circles are described each touching the other two externally. If the sides of the triangle are 9 cm, 7 cm and 6 cm. Find the radii of the circles.

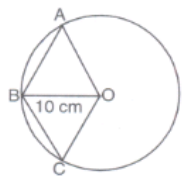
518) In the given figure, a circle with centre O, inscribed in a right triangle, right-angled at B. If AC = 17 cm, BC = 15 cm, Then find the radius of the circle.



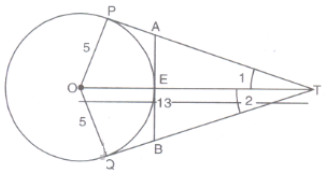
519) With the vertices of a triangle ABC as centres, three circles are described each touching the other two externally. If the sides of the triangle are 4 cm, 6 cm, and 8 cm, find the radii of the circles.

520) PA and PB are two tangents from an exterior point P to a circle of radius 5 cm. If length of the chord AB is 8 cm, then find the length of the tangent.

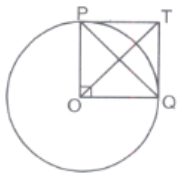
521) OABC is a rhombus whose three vertices A, B and C lie on a circle with centre O. If the radius of the circle is 10 cm, find the area of the rhombus.



522) In figure, O is the centre of a circle of radius 5 cm. T is a point such that OT = 13 cm and OT intersects circle at E. If AB is a tangent to the circle at E, find the length of AB, where TP and TQ are two tangents to the circle.

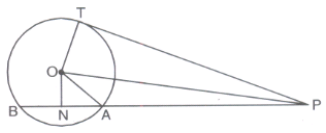


523) In the figure, The tangents to the circle with centre O at P and Q intersect at a point T. Prove that PQ and OT are right bisectors of each other.



524) If from an external point B of a circle with centre O, two tangents BC and BD are drawn such that $\angle DBC = 120^\circ$, prove that BC + CD = BO i.e., BO = 2BC.

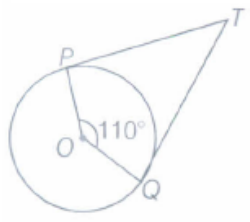
525) In the given figure, from an external point P, a tangent PT and a line segment PAB is drawn to a circle with centre O. ON is perpendicular on the chord AB. Prove that:
(i) PA. PB = PN^2 - AN^2
(ii) PN^2 - AN^2 = OP^2 - OT^2
(iii) PA. PB = PT^2



526) Two circles with centres O and O' of radii 3 cm and 4 cm respectively intersect at two points P and Q such that OP and O'P are tangents to the two circle. Find the length of the common chord PQ.

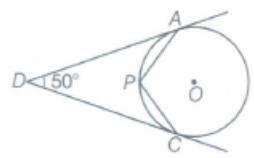
527) A tangent PO at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Length of PQ is
(a) 12 cm
(b) 13 cm
(c) 8.5 cm
(d) $\sqrt{119}cm$

528) Choose the correct option and given justification:
In the given figure, if TP and TO are the two tangents to a circle with centre O, so that $\angle$ POQ = 110°, then $\angle$ PTO is equal to

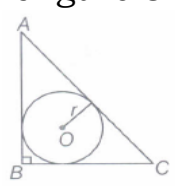


(a) 60°
(b) 70°
(c) 80°
(d) 90°

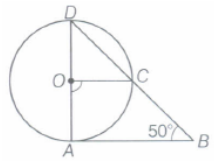
529) In the given figure, O is the centre of the circle. Determine $\angle$AOC, if DA and DCare tangents and $\angle$ADC = 50^0.



530) In the adjoining figure, a right angled ΔABC, circumscribes a circle of radius r. If AB and BCare of lengths 8 cm and 6 cm respectively, then find the value of r.



531) In the given figure, AD is a diameter of a circle with centre 0 and AB is a tangent at A.C is a point on the circle such that DC produced intersects the tangent at Band ∠ABC = 50°. Find ∠COA.

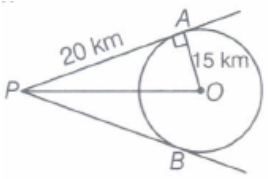


532) Two roads starting from P are touching a circular path at A and B.Sarita runs from P to A, 20 km and A to 0, 15 km and Rita runs from P to 0 directly.

(i) Find the distance covered by Rita.

(ii)Who will win the race?

(iii)Which value is depicted by Rita?



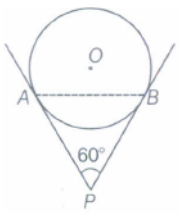
533) People of village want to construct a road nearest to a circular village Rampur. The road cannot pass through the village. But the people want the road should be at the shortest distance from the centre of the village.

(i) Which road will be the nearest to the centre of village?

(ii) If the road start from point O which is outside the circular village and touch the boundary of the circular village at point A such that OA = 20 cm. If the straight distance of the point O from the centre of the village C is 25 cm, then find the shortest distance of the road from the centre of the village.

(iii) Which method should be apply to find the shortest distance?

534) As a part of a campaign, a huge balloon with message of "AWARENESS OF CANCER" was displayed from the terrace of a tall building. It was held by strings of length 8 m each and inclined at an angle of 60° at the point, where it was tied as shown in the figure.



(i) What is the length of AB?

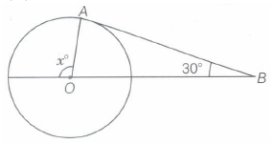
(ii) If the perpendicular distance from the centre of the circle to the chord AB is 3 m, then, find the radius of the circle.

(iii) Which method should be apply to find the radius of circle?

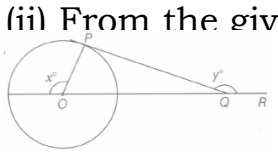
(iv) What do you think of such campaign?

535) If the radius of a circle is 5 cm, then find the distance between two parallel tangents.

536) (i) In the given figure, find the value of x^o .



(ii) From the given figure, find the value of $x^o + y^o$.



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