Ravi Maths Tuition

Circles

9th Standard

Mathematics

Multiple Choice Question 83 x 1 = 83

1) The path traced by the tip of the second's hand is a

(a) circle (b) square (c) rectangle (d) straight line

2) The shape of the coin of RS 1 is

(a) triangle (b) rhombus (c) circle (d) trapezium

3) The wheels of a vehicle are in

(a) rectangular (b) triangular (c) circular shape (d) trapezoidal

4) The longest chord of a circle is called

(a) radius (b) diameter (c) segment (d) sector.

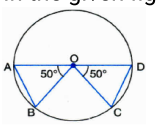
5) The centre of a circle lies

(a) outside the circle (b) inside the circle (c) on the circle (d) none of these

6) The minute hand of a clock is at 12 and the smaller hour's hand is at 2. The angle between the hands of the clock is

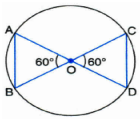
(a) 10° (b) 20° (c) 30° (d) 60°

7) In the given figure, O is the centre of the circle. $\angle AOB = \angle COD = 50^\circ$ and CD = 5 cm then AB is equal to:



(a) 2.5 cm (b) 10cm (c) $\frac{10}{3}$ cm (d) 5 cm

8) In the figure, $\angle AOB = \angle COD = 60^\circ$, chord CD = 4 cm and 0 is the centre of the circle. Length of chord AB will be:

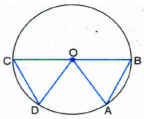


(a) 4 cm (b) 8 cm (c) 2 cm (d) 6 cm.

9) Equal chords of a circle subtend equal angles at

(a) the centre (b) any interior point (c) any exterior point (d) any point of a diameter

10) In the given figure, O is the centre of the circle. ΔAOB is equilateral. CD = AB, then $\angle COD =$



(a) 30° (b) 45° (c) 60° (d) 90°

11) The perpendicular from the centre of a circle bisects the:

(a) circle (b) circumference (c) chord (d) radius.

12) The length of a chord of a circle is 16 cm and its distance from the centre is 6 cm. The measure of the radius of the circle is

(a) 6 cm (b) 8 cm (c) 10 cm (d) 12 cm.

13) Given a circle with centre O and smallest chord AB is of length 6 cm and the longest chord CD of the circle is of length 10 cm, then the radius of the circle is:

(a) 15 cm (b) 6 cm (c) 5 cm (d) 3.5 cm.

14) A chord of length 12 cm of a circle is at a distance of 8 cm from its centre. The radius of the circle is

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

15) A chord of length 24 cm of a circle is at a distance of 5 cm from the centre. The radius of the circle is

(a) 13 cm (b) 12 cm (c) 11 cm (d) 19 cm.

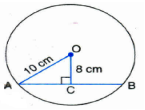
16) The length of the chord of a circle, of radius 13 cm, at a distance of 5 cm from the centre is

(a) 12 cm (b) 18 cm (c) 20 cm (d) 24 cm

17) The length of the perpendicular from the centre of a circle of radius 5 cm on a chord of it of length 8 cm is

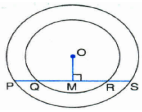
(a) 6 cm (b) 5 cm (c) 4 cm (d) 3 cm

18) In the following figure, O is the centre of the circle. OA = 10 cm and perpendicular OC on chord AB = 8 cm, then the length of the chord AB is



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

19) In the figure, two concentric circles with centre O are given. OM⊥PS. If PS = 20 cm and QR = 15 cm, then PQ is:

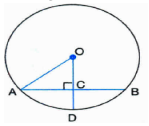


(a) 5 cm (b) 3 cm (c) 2.5 cm (d) 4 cm.

20) AD is a diameter of a circle and AB is a chord. If AD = 34 cm and AB = 30 cm, the distance of AB from the centre of the circle is:

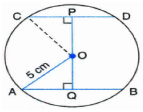
(a) 17 cm (b) 15 cm (c) 4 cm (d) 8 cm

21) In figure, if OA = 5 cm, AB = 8 cm and OD⊥AB then CD is equal to:



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

22) In the figure below, O is the centre of the circle. Its radius is 5 cm, chord AB = 8 cm and chord CD = 6 cm. PQ is equal to:



(a) 8 cm (b) 6 cm (c) 9 cm (d) 7 cm

23) How many circles can pass through three given non-collinear points?

(a) one and only one (b) two (c) three (d) infinitely many.

24) To determine a unique circle, the number of points required is:

(a) 1 (b) 2 (c) 3 non collinear points (d) 3 collinear points

25) How many points are sufficient to determine a line?

(a) 1 (b) 2 (c) 3 (d) none of these

26) Three chords AB, CD and EF of a circle are respectively 3 cm, 3.5 cm and 3.8 cm away from the centre. Then which of the following is correct?

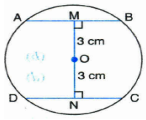
(a) AB > CD > EF (b) AB < CD < EF (c) AB = CD = EF (d) AB = CD < EF.

27) Equal chords of a circle are equidistant from

(a) the centre (b) an extremity of a diameter (c) any point on the circumference

(d) any point on the diameter

28) In the adjacent figure, what is the relation between AB and CD?



(a) AB > CD (b) AB < CD (c) AB = CD (d) AB = 2CD

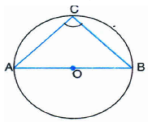
29) The measure of the angle of a semi -circle is

(a) 30° (b) 45° (c) 60° (d) 90°

30) The angle of a minor segment is

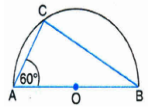
(a) acute (b) right (c) obtuse (d) straight.

31) In the figure, AOB is the diameter of the circle. Measure of $\angle ACB$ is



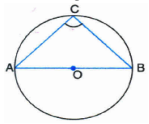
(a) 80° (b) 70° (c) 90° (d) 50°

32) In the figure, AOB is a diameter of the semicircle. If $\angle A = 60^\circ$, then $\angle B$ is equal



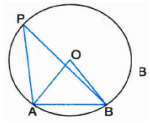
(a) 60° (b) 30° (c) 50° (d) 40°

33) In the given figure, if AOB is the diameter of the circle and AC = BC, then L CAB is equal to:



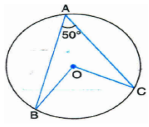
(a) 30° (b) 60° (c) 90° (d) 45°

34) In the following figure, O is the centre of the circle PAB and ΔOAB is equilateral. The measure of $\angle APB$ is equal to



(a) 60° (b) 45° (c) 40° (d) 30°

35) In the following figure, O is the centre of the circle. If measure of $\angle BAC = 50^\circ$, then the measure of $\angle BOC$

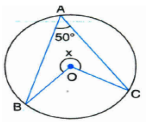


(a) 120° (b) 100° (c) 80° (d) 70°

36) The length of a chord of a circle is equal to its radius. Find the measure of the angle subtended by that chord in major segment.

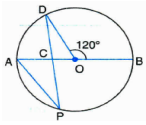
(a) 30° (b) 60° (c) 45° (d) none of these.

37) Find x in the adjoining figure, O is the centre of the circle:



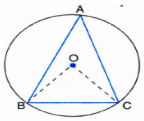
(a) 100° (b) 200° (c) 250° (d) 260°

38) In the figure, O is the centre and AB is a diameter of the circle. $\angle APC$ is equal to:



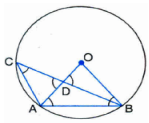
(a) 68° (b) 40° (c) 50° (d) 30°

39) A chord of a circle is equal to its radius, $\angle BAC$ is equal to:



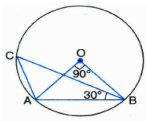
(a) 90° (b) 60° (c) 30° (d) 45°

40) $\angle ADB = 90^\circ$ and $\angle ABC = 30^\circ$ then $\angle ACB$ is:



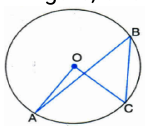
(a) 30° (b) 45° (c) 90° (d) 60°

41) In the given figure, $\angle AOB = 90^\circ$ and $\angle ABC = 30^\circ$, then $\angle CAB$ is equal to:



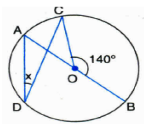
(a) 30° (b) 105° (c) 90° (d) 60°

42) In figure, O is the centre of the circle and $\angle ABC = 40^\circ$, then $\angle AOC$ is:



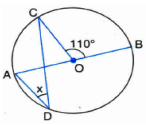
(a) 140° (b) 40° (c) 20° (d) 80°

43) O is the centre of the circle. If $\angle BOC = 140^\circ$, then x = ...



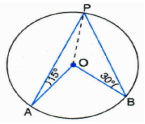
(a) 70° (b) 40° (c) 35° (d) 20°

44) The value of x in figure is:



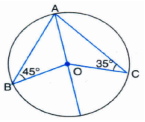
(a) 35° (b) 45° (c) 55° (d) 30°

45) In the following figure, O is the centre of the circle PAB. If $\angle PAO = 15^\circ$ and $\angle PBO = 30^\circ$, then the measure of $\angle AOB$ is



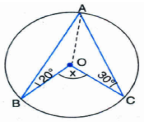
(a) 30° (b) 60° (c) 90° (d) 45°

46) In the given figure, is the centre of circle, $\angle ACO = 35^\circ$ and $\angle ABO = 45^\circ$, then $\angle BOC$ is:



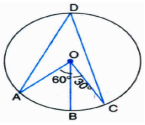
(a) 80° (b) 160° (c) 90° (d) 70°

47) In the figure 'O' is the centre of the circle, $\angle ABO = 20^\circ$ and $\angle ACO = 30^\circ$ where A, B, C are points on the circle. The value of x is:



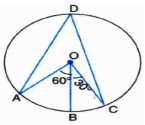
(a) 120° (b) 130° (c) 100° (d) 150°

48) In the circle with centre O, $\angle AOB = 60^\circ$ and $\angle BOC = 30^\circ$, the measure of $\angle ADC$ is:



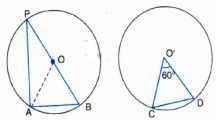
(a) 30° (b) 45° (c) 60° (d) 90°

49) The degree measure of an angle of a segment of a circle is 60°. The degree measure of the angle subtended by the chord of the segment at the centre of the circle is



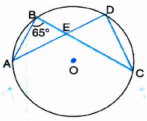
(a) 60° (b) 90° (c) 120° (d) 150°

50) In the following figure, there are two congruent circles whose centres are O and O' and chord AB = chord CD. If $\angle CO'D = 60^\circ$, then the measure of $\angle APB$ is equal to



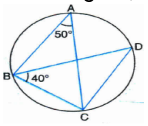
(a) 45° (b) 40° (c) 30° (d) 15°

51) In figure, if $\angle ABE = 65^\circ$, then value of $\angle ADC$ is



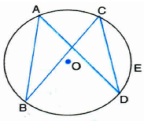
(a) 35° (b) 25° (c) 65° (d) 115°

52) In the figure, if $\angle BAC = 50^\circ$ and $\angle DBC = 40^\circ$, then $\angle BDC$ is equal to:



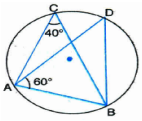
(a) 140° (b) 40° (c) 50° (d) 90°

53) In the figure, O is the centre of the circle. If $\angle BAD = 48^\circ$, then $\angle BCD =$



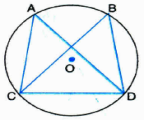
(a) 96° (b) 48° (c) 42° (d) 84°

54) In the given figure, A, B, C and D are points on the circle such that $\angle ACB = 40^\circ$ and $\angle DAB = 60^\circ$,the measure of $\angle DBA$ is



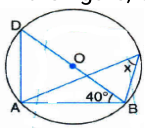
(a) 70° (b) 80° (c) 60° (d) 100°

55) A and B are points on the circle with centre O. If a chord CD of the circle subtends an angle of 50° at the point A on the circle and $\angle BDC = 70^\circ$, then $\angle BCD$ equals:



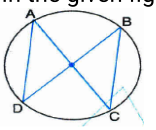
(a) 60° (b) 50° (c) 70° (d) 90°

56) In the figure, O is the centre of the circle. The value of x is:



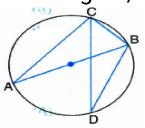
(a) 50° (b) 40° (c) 60° (d) 20°

57) In the given figure, AD || BC and $\angle BCA = 40^\circ$. The measure of $\angle DBC$ is equal to:



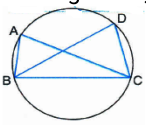
(a) 50° (b) 80° (c) 40° (d) 20°

58) In the figure, AB is a diameter. $\angle BDC = 35^\circ$ then $\angle ABC$ is:



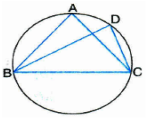
(a) 35° (b) 55° (c) 90° (d) 125°

59) In the given figure, $\angle ABC = 80^\circ$, $\angle BDC = 40^\circ$ then $\angle ACB$ is:



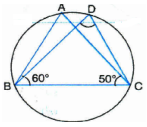
(a) 120° (b) 60° (c) 80° (d) 40°

60) In this figure AB = AC and $\angle ABC = 50^\circ$. Then $\angle BDC$ is equal to:



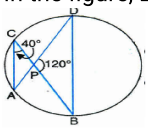
(a) 50° (b) 65° (c) 90° (d) 80°

61) In the following figure, $\angle BAC$ and $\angle DBC$ are the angles on the same segment of a circle. If the measure of $\angle ABC = 60^\circ$ and the measure of $\angle ACB = 50^\circ$, then the measure of $\angle BDC$ is equal to



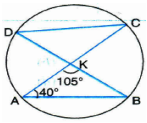
(a) 120° (b) 100° (c) 70° (d) 60°

62) In the figure, $\angle ACP = 40^\circ$ and $\angle BPD = 120^\circ$. Then $\angle CBD =$



(a) 40° (b) 60° (c) 20° (d) 30°

63) In the following figure, $\angle CAB = 40^\circ$, $\angle AKB = 105^\circ$. Then measure of $\angle KCD$ is

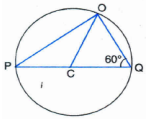


(a) 72.5° (b) 40° (c) 35° (d) 65°

64) In a semi-circle, ΔPQR is formed on diameter PQ. If $\angle RPQ = \angle RQP$, $\angle PQR$ has measure

(a) 30° (b) 45° (c) 60° (d) 75°

65) In the following figure, PCQ is a diameter of the circle and C is the centre. The point O lies on the circle. If $\angle OQP = 60^\circ$,then $\angle OCP =$

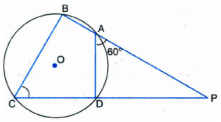


(a) 80° (b) 100° (c) 120° (d) 130°

66) The opposite angles of a cyclic quadrilateral

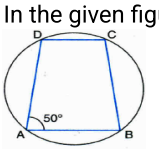
(a) are complementary (b) are supplementary (c) are equal (d) form a linear pair.

67) Two secants PAB and PDC drawn from P to a circle ABCD to intersect it at points A, B and C, D respectively. If $\angle PAD = 60^\circ$, then the degree measure of $\angle BCD$ is



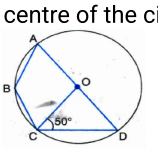
(a) 30° (b) 120° (c) 60° (d) 150°

68) In the given figure, AB || DC. If $\angle A = 50^\circ$, then measure of $\angle ABC$ is:



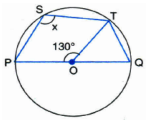
(a) 50° (b) 130° (c) 100° (d) 80°

69) In the following figure, ABCD is a cyclic quadrilateral whose side AD is a diameter of the circle and the point O is the centre of the circle. If $\angle OCD = 50^\circ$, then the measure of $\angle ABC$ is



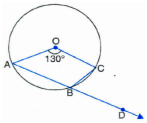
(a) 100° (b) 120° (c) 110° (d) 130°

70) In the figure, O is the centre of the circle. Quadrilateral PQTS is a cyclic quadrilateral. If $\angle POT = 130^\circ$, then the measure of $\angle x$ is:



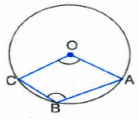
(a) 50° (b) 65° (c) 115° (d) 130°

71) In the figure, arc ABC of the circle subtends angle of 130° at the centre O. If AB is produced to D, then $\angle CBD$ will be:



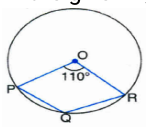
(a) 60° (b) 65° (c) 70° (d) 130°

72) In the figure, O is the centre of a circle and $\angle AOC = 130^\circ$, $\angle ABC$ will be:



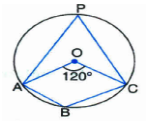
(a) 120° (b) 115° (c) 90° (d) 65°

73) In the given figure, if $\angle POR$ is 110°, then the value of $\angle PQR$ is:



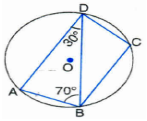
(a) 140° (b) 125° (c) 60° (d) 70°

74) In the figure, the magnitude of angle ABC if angle AOC = 120° will be:



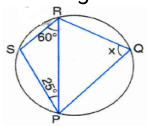
(a) 125° (b) 120° (c) 130° (d) 135°

75) In the figure, $\angle ABD = 70^\circ$, $\angle ADB = 30^\circ$ then $\angle BCD$ is equal to:



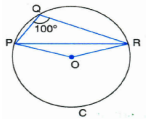
(a) 80° (b) 110° (c) 120° (d) 100°

76) In the figure below, PQRS is cyclic quadrilateral. If $\angle SPR = 25^\circ$ and $\angle PRS = 60^\circ$, the value of x is:



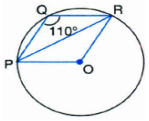
(a) 105° (b) 85° (c) 95° (d) 115°

77) In the adjoining figure, O is the centre of the circle and P, Q and R are points on the circle such that $\angle PQR = 100^\circ$, then $\angle OPR$ equals:



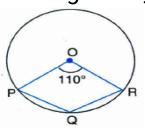
(a) 80° (b) 10° (c) 100° (d) 60°

78) In figure, O is the centre of the circle and $\angle PQR = 110^\circ$. $\angle OPR$ equals to:



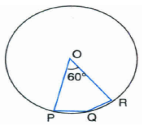
(a) 55° (b) 20° (c) 40° (d) 70°

79) In the given figure, if $\angle POR$ is 110°, then the value of $\angle PQR$ is:



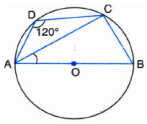
(a) 140° (b) 125° (c) 60° (d) 70°

80) In the following figure, O is the centre of the circle. $\angle POR = 60^\circ$. Then, $\angle PQR =$



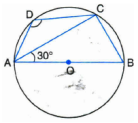
(a) 60° (b) 80° (c) 120° (d) 150°

81) In the following figure, ABCD is a cyclic quadrilateral whose side AB is a diameter of the circle. If $\angle ADC = 120^\circ$, then the value of $\angle CAB$ is



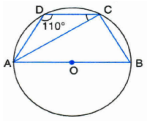
(a) 30° (b) 45° (c) 60° (d) 90°

82) In the following figure, 0 is the centre of the circle. $\angle BAC = 30^\circ$. Then, the measure of $\angle ADC$ is



(a) 60° (b) 45° (c) 90° (d) 120°

83) In the given figure, O is the centre of the circle. ABCD is a trapezium in which AB || DC and $\angle ADC = 110^\circ$ The measure of $\angle ADC$ is equal to:



(a) 35° (b) 70° (c) 20° (d) 55°

1 Marks 55 x 1 = 55

84) AB is a chord of a circle having centre O. If ∠ AOB = 60°, then prove that the chord AB is of radius length.

85) If A, Band C are three points on a circle such that AB = BC = CA and O is the centre of the circle, then find the angle subtended by the chords AB, BC and CA at the centre O.

86) Find the length of a chord of a circle which is at a distance of 6 cm from the centre of the circle. The radius of the circle is 10 cm.

87) The radius of a circle is 13 cm and the length of one of its chords is 10 cm. Find the distance of the chord from the centre.

88) Two circles of radii 10 cm and 8 cm intersect and the length of the common chord is 12 m. Find the distance between their centres.

89) AB and CD are two chords of a circle such that AB = 6 em, CD = 12 em and AB || CD. If the distance between AB and CD is 3 cm, find the radius of the circle.

90) In the following figure, equal chords AB and CD of a circle with centre O, cut at right angles at E.If M and N are the mid-points of AB and CD respectively, then prove that OMEN is a square.

91) In the following figure, O is the centre of a circle. If AB and AC are chords of the circle such that AB = AC, OP⊥ 1 AB and OQ⊥ AC, then prove that PB = OC.

92) In the given figure, O is the centre of the circle and the measure of arc ABC is 100°. Determine ∠ ADC and ∠ ABC.

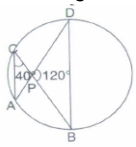
93) AB is the diameter of the circle C(O, r) and radius OD is perpendicular to AB. If there is any point C on arc DB, then find ∠ BAD and ∠ ACD.

94) In the given figure, A, Band C are three points on a circle such that the angles subtended by the chords AB and AC at the centre 0 are 80° and 120°, respectively.Determine ∠ BAC.

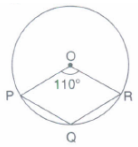
95) In the given figure, ABCD is a cyclic quadrilateral, in which AC and BD are its diagonals. If ∠ DBC = 60° and ∠ BAC = 30°, then find ∠ BCD.

96) If ABCD is a cyclic quadrilateral, in which AD || BC, then prove that ∠ B = ∠ C.

97) In the figure, ∠ACP=40 and ∠BPD=120, then ∠CBD=_____

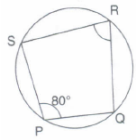


98) In the given figure, if ∠POR is 110, then find the value of ∠PQR.

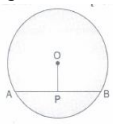


99) The sum of the opposite angles of a cyclic quadrilateral is : _____.

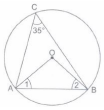
100) In the figure, quadrilateral PQRS is cyclic. If ∠P=80°, then R is equal to _____



101) Figure,O is centre of the circle and PA=PB Find ∠OPA



102) In the figure, if ∠ACB = 35°, then find the measure of ∠OAB.

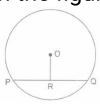


103) The angles sub tended by a chord at any two points of a circle are equal. Write true or false for the above statement and justify your answer.

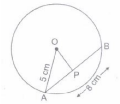
104) Two chords of a circle of length 10 cm and 8 cm are at the distance 8.0 cm and 3.5 cm, respectively from the centre, state true and false for the above statement.

105) In the figure, $\overline{AB}$ = $\overline{CD}$ P and Q are the mid-points of AB and CD respectively. What is the length of OQ?

106) In the figure, R is the midpoint of $\overline{PQ}$. What is the measure of ∠ORQ?

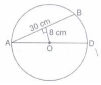


107) In the figure, OP ⊥ AB. OA is 5 cm and AB is 8 cm, then what is the length of OP?



108) In the figure, AB and CD are two equal chords of the circle with centre O. OP and OQ are perpendiculars on chords AB and CD respectively. If ∠POQ = 150°, then what is ∠APQ?

109) AD is a diameter of a circle and AB is a chord. If AB = 30 cm and its perpendicular distance from the centre of the circle is 8 cm, then what is the length of the diameter AD?



110) Where does the centre of a circle lie:
(i) on the circle.
(ii) in the interior of the circle. or
(iii) in the exterior of the circle?

111) A circle of 30 cm diameter has a 24 cm chord. What is the distance of the chord from the centre?

112) A chord AB of a circle with centre O is 10 cm. If the chord is 12 cm away from centre, then what is the radius of the circle?

113) If the diameter AD of a circle is 34 cm and the length of a chord AB is 30 cm. What is the distance of AB from the centre?

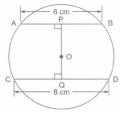
114) What is the length of a chord which is at a distance of 4 cm from the centre of a circle of radius 5 cm?

115) If the radius of a circle is 13 cm and the length of its chord is 10 cm then what is the distance of chord from the centre?

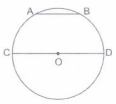
116) If the distance of 10 cm long chord from the centre of the circle is 12 cm then what is the diameter of the circle?

117) The chords AB and CD of a circle are each at a distance of 3 cm from the centre of the circle, then which of the following is true?
(i) AB = CD
(ii) AB > CD
(iii) AB < CD

118) In the figure, is the centre of the circle and radius of the circle is 5 Cm. What is the length of PQ?



119) In the figure, AB and CD are two chords of a circle with centre O, such that C, O, D are collinear and AB = $\frac{1}{3}$ CD. If AB = 3 ecm, then what is the radius of the circle?

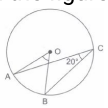


120) XY and AB are two parallel chords of a circle 1 cm apart each other. If XY = 6 ecm and AB = 8 cm, then what is the radius of the circle?

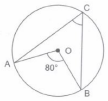
121) Two circles having radii 5 cm and 3 cm intersect each other at two distinct points. If the distance between their centres is 4 cm, then what is the length of the common chord?

122) In the figure, what is the value of x?

123) In the figure, if O is the centre of the circle, then what is the measure of ∠AOB?



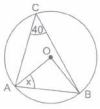
124) In the figure, if O is the centre of a circle, then the measure of ∠ACB is:



(i) 80°
(ii) 100°
(iii) 40°

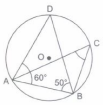
125) The angle subtended by the diameter of a semicircle is:
(i) 45°
(ii) 180°
(iii) 90°

126) In the figure, if O is the centre of the circle, then the measure of x is:



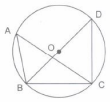
(i) 40°
(ii) 80°
(iii) 50°

127) In the figure, if ∠DAB = 60°, ∠ABD = 50°, then the measure of ∠ACB is equal to:

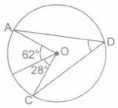


(i) 50°
(ii) 60°
(iii) 80°
(iv) 70°

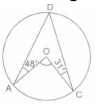
128) In the figure, ∠ABC = 91° and ∠ACB = 29°. What is the measure of ∠BDC?



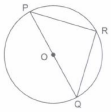
129) In the figure, if O is the centre of the circle, then what is the measure of ∠ADC?



130) In the figure, O is the centre of the circle. What is the measure of ∠AOC?

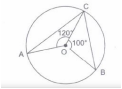


131) In the figure, O is the centre of the circle and PR = QR. What is the measure of ∠PQR?

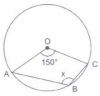


132) In the figure, O is the centre of the circle. If ∠OAB = 40°. Then what is the measure of ∠ACB?

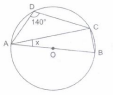
133) In the figure, O is the centre of the circle. What is the measure of ∠ACB?



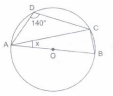
134) In the figure, O is the centre of the circle. What is the value of x?



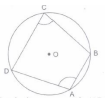
135) In the figure, O is the centre of the circle. If ∠ADC = 140°, then what is the value of x?



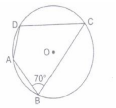
136) ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and ∠ADC = 140°, then what is measure of ∠BAC?



137) If ∠A and ∠C are in the ratio 3 : 2, then we have:
∠A = _____ and ∠B = _____



138) In the figure, ∠ABC = 70°. What is the measure of ∠ADC?



2 Marks 70 x 2 = 140

139) Given an arc of a circle, complete the circle.

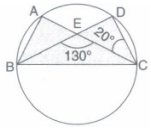
140) Write true or false. Give reason for your answer.
(i) Line segment joining the centre to any point on the circle is a radius ofthe circle.
(ii) A circle has only finite number of equal chords.
(iii) If a circle is divided into three equal arcs, each is a major arc.
(iv) A chord of a circle, which is twice as long as its radius, is a diameter of the circle.
(v) Sector is the region between the chord and its corresponding arc.
(vi) A circle is a plane figure.

141) The lengths of two parallel chords of a circle are 6 cm and 8 cm. If the smaller chord is at distance 4 cm from the centre, then what is the distance of the other chord from the centre?

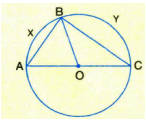
142) ABCD is a cyclic quadrilateral in which AC and BD are its diagonals. If ∠DBC=55° and ∠BAC=45°, find ∠BCD.

143) Prove that" equal chords of a circle subtend equal angles at the centres."

144) In the given figure, A, B, C and D are four points on a circle. AC and BD intersect at E such that ∠ BEC = 130° and ∠ ECD = 20°. Find ∠ BAC



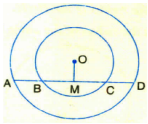
145) In the figure, AOC is a diameter of the circle and arc AXB = $\frac{1}{2}$ arc BYC. Find $\angle BOC$.



146) Find the length of a chord which is at a distance of 3 cm from the centre of a circle whose radius is 5 cm.

147) Find the length of a chord of a circle which is at a distance of 4 cm from the centre of the circle with radius 5 cm.

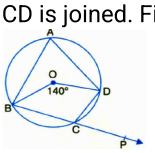
148) Two concentric circles are with centre O. A, B, C, D are the points of intersection with a line. If AD = 12 cm and BC = 8 cm, find the length of AB, CD, AC and BD.



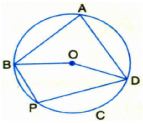
149) A chord 12 cm long is 8 cm away from the centre of the circle. What is the length of a chord which is 6 cm away from the centre?

150) Two circles of radii 10 cm and 8 cm intersect and the length of the common chord is 12 cm. Find the distance between their centres.

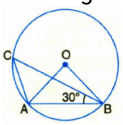
151) In the figure, O is the centre of the circle. Arc BCD subtends an angle of 140° at the centre. BC is produced to P and CD is joined. Find measure of $\angle DCP$.



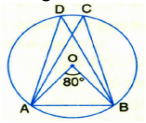
152) ABCD Is a cyclic quadrilateral. O is the centre of the circle. If $\angle BOD = 160^\circ$, find $\angle BPD$.



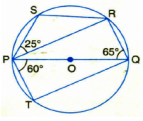
153) In the figure, $\angle AOB = 90^\circ$ and, $\angle ABC = 30^\circ$ then find the measure of $\angle CAO$.



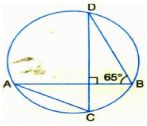
154) In figure, O is the centre of the circle. If $\angle AOB = 80^\circ$. then find the measures of $\angle ABD$ and $\angle ACB$.



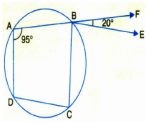
155) In given figure, PQ is the diameter of the circle. If $\angle PQR = 65^\circ$, $\angle RPS = 25^\circ$ and $\angle QPT = 60^\circ$. Then find the measure of
(i) $\angle QPR$
(ii) $\angle PRS$
(iii) $\angle PSR$
(iv) $\angle PQT$



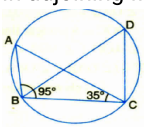
156) In adjacent figure, two chords AB and CD of a circle intersect at right angle. If $\angle ABD = 65^\circ$, find the measure of $\angle CAB$.



157) In figure, ABCD is a cyclic quadrilateral in which AB is extended till F and BE || DC. If $\angle FBE = 20^\circ$ and $\angle DAB = 95^\circ$, then find $\angle ADC$.

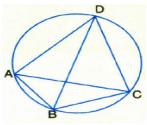


158) In adjoining figure, $\angle ABC = 95^\circ$, $\angle ACB = 35^\circ$, find $\angle BDC$.

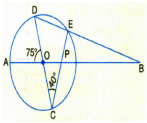


159) PQRS is a cyclic quadrilateral, in which $\angle P = 2x^\circ$, $\angle Q = y^\circ$, $\angle R = 3x^\circ$ and $\angle S = 2y^\circ$. Find the values of x and y.

160) In the figure, ABCD is a cyclic quadrilateral in which AC and BD are its diagonals. If $\angle DBC = 55^\circ$ and $\angle BAC = 45^\circ$, find $\angle BCD$.



161) In the figure, straight lines AB and CD pass through the centre O of the circle. If $\angle OCE = 40^\circ$ and $\angle AOD = 75^\circ$, find $\angle CDE$ and $\angle OBE$.



162) AOB is a diameter of a circle with centre O and C is a point on the circle. Check whether $AC^2 + BC^2 = AB^2$. Give reasons.

163) In the adjoining figure is a circle with centre O. If $\angle BAC = 60^\circ$ and $\angle DCB = 100^\circ$, then find $\angle DBC$.

164) Fill in the blanks.
(i) A point whose distance from the centre of a circle is less than its radius. lies ... of the circle.
(ii) The region between a chord and either of the arc is called a ...
(iii) The region between an arc and the two radii. joining the centre to the ends of the arc is called ...

165) Write true or false. Give reason for your answer.
(i) If two chords AB and AC of a circle with centre O are on the opposite sides of OA, then ∠ OAB = ∠ OAC.
(ii) Congruent arcs of a circle subtend equal angles at the centre.

166) If O is the centre of a circle and points A. B. C. D. E. F. G and H are on the circle such that AB = BC = CD = DE = EF = FG = GH = HA Find ∠ AOB. ∠ AOC. ∠ DOF and ∠ EOH.

167) If arcs AXB and CYD of a circle are congruent. find the ratio of AB and CD.

168) How many circles can be passed through given three non-collinear points?

169) What will be the angles subtended by the equal chords at the centre of the same circle?

170) Arcs AB and CD of a circle are such that $A\hat{B} = C\hat{D}$, then what will be the ratio of the lengths of AB and CD?

171) AB and CD are equal chords of a circle with centre O. If OM ⊥ AB and ON⊥ CD, then prove that ∠ OMN= ∠ ONM.

172) If two chords of a circle with a common end-point are inclined equally to the diameter through this common end-point, then prove that the chords are equal.

173) In the given figure, ∠ ACB = 400.Find ∠ OAB.

174) If arcs AXB and eyo of a circle are congruent, then find the ratio of AB and CD.

175) In the given figure, O is the centre of a circle, BC is its chord and A is any point on the circle. If ∠ BAC = a and.∠ OBC = b, then find a+ b.

176) ABCD is a parallelogram. A circle through A and B is drawn, so that it intersects AD at P and BC at Q. Prove that P, Q, C and Dare concyclic.

177) In the given figure, AB and CD are two chords of a circle intersecting each other at point O. Prove that ∠ AEC = 1/2X(Angle subtended by arc CXA at the centre + Angle subtended by arc DYB at the centre).

178) Recall that two circles are congruent, if they have the same radii. Prove that equal chords of congruent circles subtend equal angles at their centres.

179) Prove that, if chords of congruent circles subtend equal angles at their centres, then the chords are equal.

180) In how many parts, a plane can divide a circle, if it intersects perpendicularly?

181) A circle of radius 5 cm with centre O is given. Draw OL perpendicular to the chord AB. If OL = 3cm, then find the length of the chord AB.

182) Two concentric circles with centre O are given. A line cuts the circle at A, B, C and D, respectively. If AB=10cm, then find the length of CD.

183) A chord of a circle of radius 7.5cm with centre O is of length 9cm. Find its distance from the centre.

184) In the given figure, if AOB is a diameter of the circle and AC = BC, then find ∠ CAB.

185) If AB = 12 cm, BC = 16cm and AB is perpendicular to BC, then find the radius of the circle passing through the points A, Band C.

186) If the length of a chord of a circle is 16 cm and is at a distance of 15 cm from the centre of the circle, then find the radius of the circle.

187) In the given figure, ABCE is a cyclic quadrilateral and O is the centre of circle. If ∠ AEC= 110°, then find ∠ ABC and ∠ ADC.

188) Prove that the right bisector of a chord of a circle bisects the corresponding arc of the circle.

189) If the perpendicular bisector of a chord AB of a circle PXA QBY intersects the circle at P and Q, then prove that arc PXA ≅ arc PYB.

190) Prove that the line joining the mid-points of two parallel chords of a circle passes through the centre.

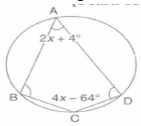
191) AB and AC arc two equal chords of a circle. Prove that the bisector of the ∠ BAC passes through the centre of the circle.

192) If a line segment joining mid-points of two chords of a circle passes through the centre of the circle. Prove that the two chords are parallel.

193) If BM and CN are the perpendiculars drawn on the sides AC and AB of the MBC, then prove that the points B, C, M and N are concyclic.

194) If a pair of opposite sides of a cyclic a quadrilateral is equal, then prove that its diagonals are also equal.

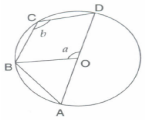
195) In the figure, find the value of x.



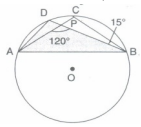
196) A Chord of length 10 cm is at a distance of 12 cm from the centre of a circle. Find the radius of the circle.

197) ABCD is a cyclic quadrilateral in which AB II CD. If ∠D=70, find all the remaining angles.

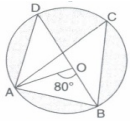
198) In the given figure, AB is a chord equal to the radius of the given circle with centre O. Find the values of a and b.



199) In the given figure, O is the centre of the circle and chord AC and BD intersect at P such that $\angle$ APB = 120° and $\angle$ PBC = 15°, find the value of $\angle$ ADB.

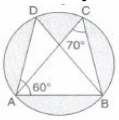


200) In the figure, O is the centre of the circle. If $\angle$ AOB = 80°, then find the measure of $\angle$ ADB and $\angle$ ACB.



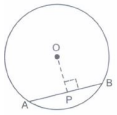
201) If a line intersects two concentric circles with common centre O, at A, B, C and D. Prove that AB = CD

202) In the adjoining figure if ∠DAB=60^o and ∠ACB=70^o, find the measure of ∠DBA



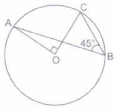
203) The diameter of circle is 3.8 cm. Find the length of its radius.

204) In the adjoining figure, O is the centre of the circle. The chord AB = 10 cm is such that OP $\perp$ AB. Find the length of AP.

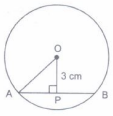


205) In the figure AOC is a diameter of the circle and arc AXB = $\frac{1}{2}$ arc BYC . Find ∠BOC.

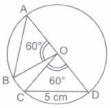
206) In the figure ∠ABC = 45°. Prove that OA $\perp$ OC.



207) Look at the adjoining figure, in which O is the centre of the circle. If AB = 8 cm and OP = 3 cm, then find the radius of the circle.



208) In the adjoining figure, O is the centre of the circle. Find the length of AB.



3 Marks 73 x 3 = 219

209) (i) The centre of a circle lies in _____ of the circle. (exterior/interior).
(ii) A point, whose distance from the centre of a circle is greater than its radius lies in_____ of the circle. (exterior/interior).
(iii) The longest chord of circle is a _____ of the circle.
(iv) An arc is a _____ when its ends are the ends of a diameter.
(v) Segment of a circle is the region between an arc and _____ of the circle.
(vi) A circle divides the plane, on which it lies, _____ parts.

210) Recall that two circles are congruent if they have the same radii. Prove that equal chords of congruent circles subtend equal angles at their centres.

211) Prove that if chords of congruent circles subtend equal angles at their centres, then the chords are equal.

212) Draw different pairs of circles. How many points does each pair have in common? What is the maximum number of common points?

213) Suppose you are given a circle. Give a construction to find its centre.

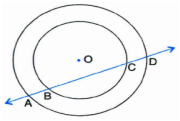
214) If two circles intersect at two points, prove that their centres lie on the perpendicular bisector of the common chord.

215) Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm. Find the length of the common chord.

216) If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.

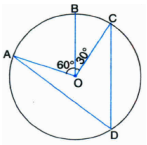
217) If two equal chords of a circle intersect within the circle, prove that the line joining the point of intersection to the centre makes equal angles with the chords.

218) If a line intersects two concentric circles (circles with the same centre) with centre O at A, B, C and D, prove that AB = CD [see figure].



219) Three girls Reshma, Salma and Mandip are playing a game by standing on a circle of radius 5 m drawn in a park. Reshma throws a ball to Salma, Salma to Mandip, Mandip to Reshma. If the distance between Reshma and Salma and between Salma and Mandip is 6 m each, what is the distance between Reshma and Mandip?

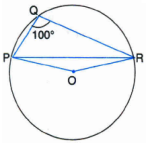
220) In figure, A, Band C are three points on a circle with centre O such that $\angle BOC = 30^\circ$ and $\angle AOB = 60^\circ$. If D is a point on the circle other than the arc ABC, find $\angle ADC$.



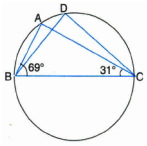
221) A circular park of radius 20 m is situated in a colony. Three boys Ankur, Syed and David are sitting at equal distance on its boundary each having a toy telephone in his hands to talk each other. Find the length of the string of each phone.

222) A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc and also at a point on the major arc.

223) In figure, $\angle PQR = 100^\circ$, where P, Q and R are points on a circle with centre O. Find $\angle OPR$.



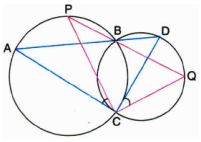
224) In figure, $\angle ABC = 69^\circ$, $\angle ACB = 31^\circ$, find $\angle BDC$.



225) If diagonals of a cyclic quadrilateral are diameters of the circle through the vertices of the quadrilateral, prove that it is a rectangle.

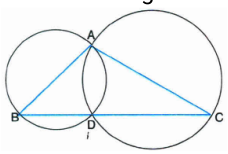
226) If the non-parallel sides of a trapezium are equal, prove that it is cyclic.

227) Two circles intersect at two points Band C. Through B, two line segments ABD and PBQ are drawn to intersect the circles at A, D and P, Q respectively (see figure). Prove that $\angle ACP = \angle QCD$.



228) If circles are drawn taking two sides of a triangle as diameters, prove that the point of intersection of these circles lies on the third side.

229) Two circles intersect at two points A and B. AD and AC are diameters to the two circles (see Fig). Prove that B lies on the line segment DC.



230) ABC and ADC are two right triangles with common hypotenuse AC. Prove that $\angle CAD = \angle CBD$.

231) Prove that a cyclic parallelogram is a rectangle.

232) Prove that the line of centres of two intersecting circles subtends equal angles at the two points of intersection.

233) Let the vertex of an angle ABC be located outside a circle and let the sides of the angle intersect equal chords AD .and CE with the circle. Prove that $\angle ABC$ is equal to half the difference of the angles subtended by the chords AC and DE at the centre.

234) Prove that the circle drawn with any side of a rhombus as diameter, passes through the point of intersection of its diagonals.

235) ABCD is a parallelogram. The circle through A, B and C intersect CD (produced if necessary) at E. Prove that AE = AD.

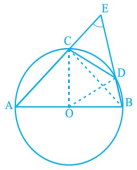
236) Bisectors of angles A, Band C of a triangle ABC intersect its circumcircle at D, E and F respectively. Prove that the angles of the triangle DEF are $90^\circ - \frac{1}{2}A,\ 90^\circ - \frac{1}{2}B$ and $.90^\circ - \frac{1}{2}C$.

237) Two congruent circles intersect each other at points A and B. Through A any line segment PAQ is drawn so that P, Q lie on the two circles. Prove that BP = BQ.

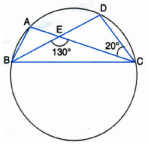
238) In any triangle ABC, if the angle bisector of $\angle A$ and perpendicular bisector of BC intersect, prove that they intersect on the circumcircle of the triangle ABC.

239) Equal chords of a circle (or of congruent circles) are equidistant from the centre (or centres).

240) AB is a diameter of the circle, CD is a chord equal to the radius of the circle. AC and BD when extended intersect at a point E. Prove that $\angle$ AEB = 60°.



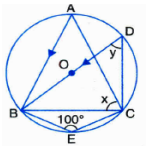
241) In figure, A, B,C and Dare four points on a circle. AC an BD interest at a point E such that $\angle BEC = 130^\circ$ and $\angle ECD = 20^\circ$. Find $\angle BAC$.



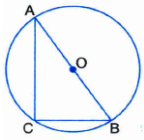
242) ABCD is a cyclic quadrilateral whose diagonals interest at a point E. If $\angle DBC = 70^\circ, \angle BAC$ is 40°, find $\angle BCD$. Further, if AB=BC, find $\angle ECD$.

243) Prove that an isosceles trapezium is cyclic

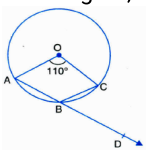
244) In the given figure, ΔABC is inscribed in a circle, with centre 0, such that AB = AC and $\angle BEC = 100^\circ$. Find the values of x and y.



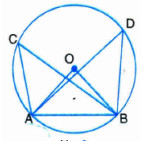
245) Find $\angle CAB$. in the figure, if AOB is a diameter, C is any point on the circle and $\angle B = 40^\circ$.



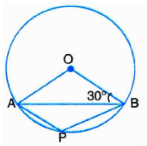
246) In the figure, if O is the centre of the circle and $\angle AOC = 110^\circ$, find $\angle CBD$.



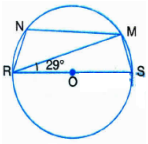
247) In the given figure O is the centre of the circle, $\angle ADB = 30^\circ$ and $\angle ABc = 40^\circ$. Find the measure of $\angle CAB$.



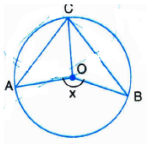
248) In the given figure, if O is the centre of circle, determine $\angle APB$.



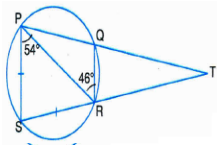
249) In the given figure, RS is a diameter of the circle, NM is parallel to RS and $\angle MRS = 29^\circ$, find the measure of $\angle NMS$.



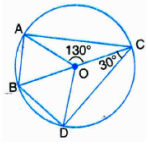
250) In figure, O is the centre of the circle, $\angle CAO = 40^\circ$ and $\angle CBO = 30^\circ$, find x.



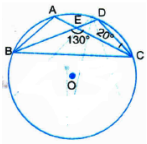
251) In figure, PS = SR, angle RPS = 54° and angle PRQ = 46°. Find the measure of angle TQR and measure of angle RTQ.



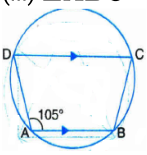
252) In the given figure, O is the centre of the circle. Find $\angle BAO,\ \angle AOB,\ \angle BOD,\ \angle ODB$ if $\angle AOC = 130^\circ$ and $\angle OCD = 30^\circ$.



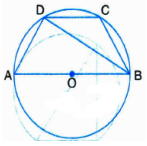
253) In the above figure, chords BD and AC intersect at the point E such that $\angle BEC = 130^\circ$ and $\angle ECD = 20^\circ$. Find the measure of $\angle BAC$.



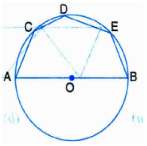
254) In the given figure, ABCD is a cyclic quadrilateral in which AB || DC. If $\angle BAD = 105^\circ$, find
(i) $\angle BCD$
(ii) $\angle ADC$
(iii) $\angle ABC$



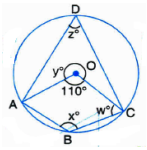
255) In figure, if $\angle ADC = 128^\circ$, and $\angle DBC = 32^\circ$, find $\angle DCB$.



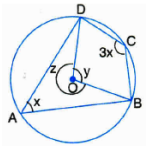
256) In the given figure, if AOB is a diameter of a circle, with centre O, $\angle EBD = 15^\circ$ and $\angle ACD = 120^\circ$, find the measure of $\angle ABE$.



257) Find the values of x, y, z, w from the figure, where O is the centre of the circle, $\angle AOC = 110^\circ$ and $\angle OAB = 65^\circ$.



258) In the given figure, O is the centre of the circle. Find the values of x, y, z.



259) Prove that the line joining the mid-points of two equal chords of circle subtends equal angles with the chord.

260) The circumcentre of the ∠ ABC is O. Prove that ∠ OBC + ∠ BAC = 90°

261) a is the circumcentre of the Δ ABC and D is the mid-point of the base Be. Prove that
∠ BOD = ∠ A.

262) Prove that the rhombus, inscribed in a circle, is a square.

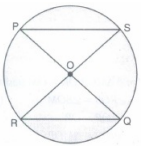
263) Twocircles with centres O and O' intersect at two points A and B. A line PQ is drawn parallel to OO' through A (or B) intersecting the circles at P and Q. Prove that
PQ = 2 OO'.

264) A circle has radius .$\sqrt{2}$ cm. Itis divided into two segments by a chord of length 2 cm. Prove that the angle subtended by the chord at a point in major segment is 45°.

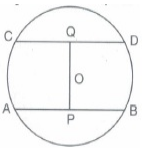
265) Two equal chords AB and CDof a circle when produced, intersect at a point P. Prove that PB = PD.

266) Prove that if any two chords of a circle are drawn, then the one which is nearer to the centre, is larger.

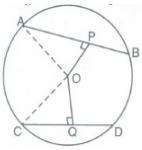
267) In the given figure, a diameter PQ of a circle bisects the chord RS at the point O. If PS is parallel to RQ, prove that RS is also a diameter of the circle.



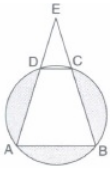
268) In the figure, AB and CD are two parallel chords of a circle with centre O and radius 5 cm such that AB = 8 cm and CD = 6 cm. If OP is perpendicular to AB and OQ is perpendicular to CD, determine the length of PQ.



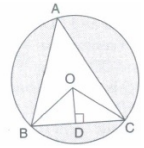
269) In the figure, AB and CD are two chords of a circle with centre O at a distance of 6 cm and 8 cm from O. If the radius of the circle is 10 cm, find the length of chords.



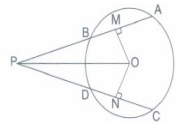
270) In Δ ABE, AE = BE. Circle through A and B intersects AE and BE at D and C. Prove that DC II AB.



271) If O is the circumcentre of a Δ ABC and OD$\perp$ BC, then prove that $\angle$ BOD = $\angle$ BAC.

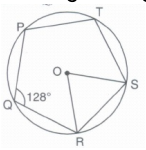


272) In the figure, AB and CD are two chords of a circle with centre O such that MP = NP. If OM $\perp$ AB and ON $\perp$ DC, show that AB = CD.

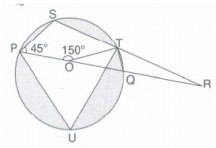


273) If a line is drawn parallel to the base of an isosceles triangle to intersect its equal sides, prove that the quadrilateral so formed is cyclic.

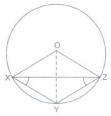
274) In the given figure, PQ = QR = RS and $\angle$ PQR =128°. Find $\angle$ PTQ, $\angle$ PTS and $\angle$ ROS.



275) In the given figure $\angle$SPQ=45, $\angle$POT=150 and O is the centre of circle. Find the measures of $\angle$RQT, $\angle$RTQ and $\angle$ PUT.



276) In the adjoining figure, O is the centre of the circle. Prove that $\angle$XOZ = 2($\angle$XZY + $\angle$YXZ).



277) Show that the sum of the opposite angles of a cyclic quadrilateral is 180°.

278) Prove that the quadrilateral formed by angle bisectors of a cyclic quadrilateral is also cyclic.

279) In the adjoining figure, O is the centre of the circle and OP = OQ. If AP = 4 cm, then find the length of CD.

280) AB and CD are two parallel chords of a circle which are on opposite sides of the centre such that AB = 24 cm and CD = 10 cm and the distance between AB and CD is 17 cm. Find the radius of the circle.

281) The radius of a circle is 17 cm. A chord of length 30 cm is drawn. Find the distance of the chord from the centre.

4 Marks 54 x 4 = 216

282) Prove that the line drawn through the centre of a circle to bisect a chord is perpendicular to the chord.

283) If two intersecting chords of a circle make equal angles with the diameter passing through their point of intersection, prove that the chords are equal.

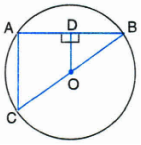
284) ABCD is a cyclic quadrilateral whose diagonals intersect at E. If $\angle$ DBC = 70°, $\angle$ BAC = 30°, find $\angle$ BCD. Further, if AB = BC, find $\angle$ ECD.

285) AC and BD are chords of a circle which bisect each other. Prove that:
(i) AC and BD are diameters
(ii) ABCD is a rectangle.

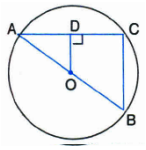
286) Prove that the quadrilateral formed by internal angle bisectors of any quadrilateral is cylic.

287) Two chords PQ and RS of a circle are parallel to each other and AB is the perpendicular bisector of PQ. Without using any construction, prove that AB bisects RS.

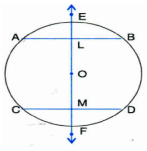
288) OD is perpendicular to chord AB of a circle whose centre is O. If BC is a diameter, prove that CA = 20D.



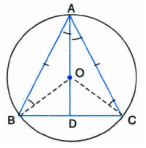
289) In the figure, diameter AB and a chord AC have a 'common end point A. If the length of AB is 20 cm and of AC is 12 cm, how far is AC from the centre of the circle?



290) In figure, EF is a line passing through the centre 0 of a circle. If EF bisects chords AB and CD of the circle, prove that AB || CD.

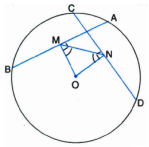


291) Bisector AD of $\angle BAC$ of ΔABC passes through the centre of the circumcircle of ΔABC as shown in the figure. Prove that AB = AC.

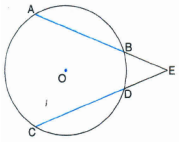


292) Prove that the perpendicular from the centre of a circle to a chord, bisects the chord.

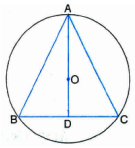
293) In figure, AB and CD are equal chords of a circle whose centre is O. If OM ⊥ AB and ON ⊥ CD, prove that $\angle OMN = \angle ONM$



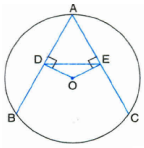
294) AB and CD are equal chords of a circle whose centre is O. When produced, these chords meet at E. Prove that EB = ED and AE = CE.



295) Bisector AD of $\angle BAC$ of ΔABC passes through the centre O of the circumcircle of ΔABC Prove that AB = AC.

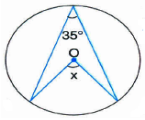


296) In figure, AB andAC are two equal chords of a circle whose centre is O. If OD⊥AB and OE⊥AC, prove that ADE is an isosceles triangle and ∠ ABC=∠ ACB

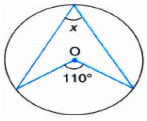


297) Find the angle marked as x in each of following figures where O is the centre of the circle:

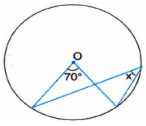
(i)



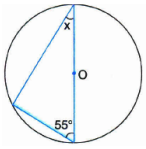
(ii)



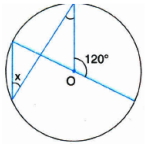
(iii)



(iv)

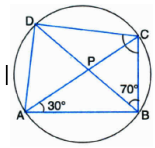


(v)

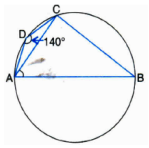


298) ABCD is a cyclic trapezium with AD || BC. If $\angle B$ = 70°, determine other three angles of the trapezium.

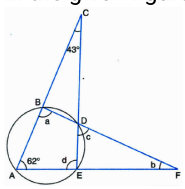
299) In the given figure, ABCD is a cyclic quadrilateral whose diagonals intersect at P. If $\angle DBC = 70^\circ$ and $\angle BAC = 30^\circ$, find $\angle BCD$.



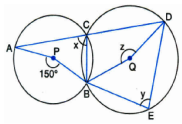
300) In the given figure, ABCD is a cyclic quadrilateral whose side AB is a diameter of the circle through A, B, C, D. If $\angle ADC = 140^\circ$, find $\angle BAC$.



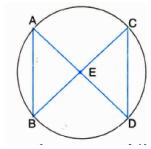
301) In the given figure, find the values of a, b, c and d. Given that $\angle BCD = 43^\circ$ and $\angle BAE = 62^\circ$.



302) P and Q are centres of the two circles which intersect at B and C. ACD is a straight line. Find the values of x, y, z.



303) In figure, AB = CD. Prove that BE = DE and AE = CE, where E is the point of intersection of AD and BC.



304) ABCD is a cyclic quadrilateral with AD || BC Prove that AB = DC.

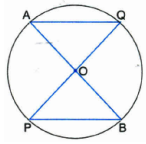
305) Prove that the circle drawn on any equal side of an isosceles triangle as diameter, bisects the third side.

306) Prove that the opposite angles of an isosceles trapezium are supplementary.

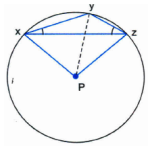
307) ABCD is a cyclic quadrilateral. If AC bisects both the angles A and C then prove that $\angle ABC = 90^\circ$.

308) ABC is an isosceles triangle with AB = AC. A circle through B and C intersects AB and AC at D and E respectively. Prove that BC || DE.

309) In figure, a diameter AB of a circle bisects a chord PQ. If AQ || PB, prove that the chord PQ is also a diameter of the circle.



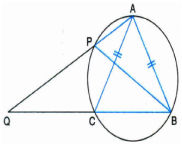
310) In the figure, P is the centre of a circle. Prove that $2(\angle XZY + \angle YXZ) = \angle XPZ$



311) If the bisectors of the opposite angles of a cyclic quadrilateral ABCD intersect the circle circumscribing it at the points P and Q, prove that PQ is a diameter of the circle.

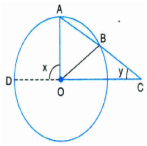
312) ABC is a triangle and P is a point on the side BC such that AB = AP. If AP produced meets the circumcircle of ΔABC at Q, prove that CP = CQ.

313) The bisector of $\angle B$ of an isosceles triangle ABC with AB = AC meets the circumcircle of ΔABC ABC at P as shown in the figure. If AP is produced and meets BC produced at Q, prove that CQ = CA.

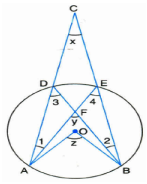


314) D is a point on the circumference of the circumcircle of ΔABC in which AB =AC such that Band D is on opposite sides of AC. If CD is produced to point E such that CE = BD, prove that AD = AE.

315) In the figure, chord AB of a circle with centre O, is produced to C such that BC = OB. CO is joined and produced to meet the circle in D. If $\angle ACD = y$ and $\angle AOD = x$, show that x = 3y.



316) If O is the centre of a circle as shown in figure, then prove x + y = z.



317) In a $\triangle$ ABC, if $\angle$ A = 60° and the altitudes from Band C meet AC and AB at P and Q, respectively and intersect each other at I.
(i) Prove that APIQ and PQBC are cyclic quadrilaterals.
(ii) Find the measure of $\angle$ BIC

318) Prove that the mid-point of the hypotenuse of a right angled triangle is equidistant from its vertices.

319) Prove that any angle subtended by a minor arc in the alternate segment is acute and any angle subtended by a major arc in the alternate segment is obtuse.

320) AB and AC are two chords of a circle of radius t such that AB = 2Ae. If p and q are the distances of AB and AC from the centre, then prove that $4q^2 = p^2 + 3r^2$

321) If bisectors of opposite angles of a cyclic quadrilateral ABCD intersect the circle circumscribing it at the points P and Q, then prove that PQ is a diameter of the circle.

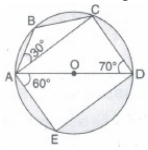
322) PQ and RS are two parallel chords of a circle whose centre is O and the radius is 10 cm. If PQ = 16 cm and RS = 12 cm, find the distance b/w PQ and RS when they lie,
(i)On the same side of centre O.
(ii)On the opposite sides of centre O.

323) Prove that "The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle." OR In the given figure, O is the centre of the circle. Prove that $\angle$ BOC = 2$\angle$ BAC.

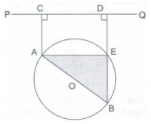
324) Three boys Rohit, Samir and Tarun are sitting at equal distances from each other on the boundary of a circular garden. The radius of the circular garden is 40 m. Find their distances from each other.

325) In a circle with centre O, chord SR = chord SM. Radius OS intersects the chord RM at P. Prove that RP = PM.

326) Find the angles ABC, ADE, BCD in the adjacent figure, where 'O' is the centre of the circle.

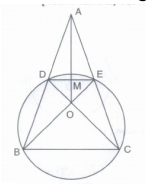


327) In the given figure, AB is the diameter of the circle with centre O. If AC and BD are perpendicular on a line PQ and BD meets the circle at E, then prove that AC = ED.

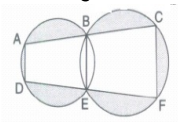


328) Two circles intersect at two points A and B. AD and AC are the diameters of the two circles. Prove that D, B and C are collinear.

329) D and E are respectively the points on equal sides AB and AC of an isosceles triangle ABC such that B, C, E and D are concylic, as shown in the given figure, if 0 is the point of intersection of CD and BE, prove that AO is the bisector of the line segment DE.

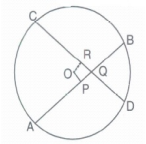


330) In the figure, Band E are points on line segment AC and DF respectively. Prove that AD || CF.



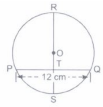
331) PQRS is a trapezium with PQ || SR and PS = QR. Prove that the trapezium is cyclic.

332) In figure, equal chords AB and CD intersect each other at Q at right angle. P and R are the midpoints of AB and CD respectively. Show that OPQR is a square.



333) D and E are points on equal sides AB and AC of isosceles △ ABC such that AD = AE. Prove that the points B, C, E and D are concyclic.

334) Look at the adjoining figure. If O is the centre of the circle and ST = 3 cm, then find the radius of the circle when RS ⊥ PQ.



335) An equilateral triangle is inscribed in a circle. Find the radius of the circle.

5 Marks 10 x 5 = 50

336) Two chords AB and CD of lengths 5 cm and 11 cm respectively of a circle are parallel to each other and are on opposite sides of its centre. If the distance between AB and CD is 6 cm, find the radius of the circle.

337) The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

338) Angles in the same segment of a circle are equal.

339) If a line segment joining two points subtends equal angles at two other points lying on the same side of the line containing the line segment, the four points lie on a circle (i.e. they are concyclic).

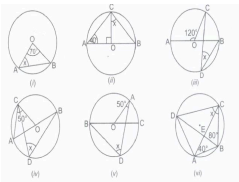
340) The lengths oftwo parallel chords of a circle are 6 em and 8 cm. If the smaller chord is at distance 4 cm from the centre, then what is the distance ofthe other chord from the centre?

341) Raja, Renu and Reena are three friends. They decided to sweep a circular park near their homes. They divided the park into three parts by two equal chords AB and AC for convenience.
(i) Prove that the centre of the park lies on the angle bisector of $\angle$ BAC
(ii) Which mathematical concept is used in the above problem?
(iii) By deciding sweeping, which value is depicted by the three friends?

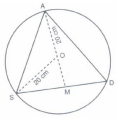
342) Three students Priyanka, Sania and David are protesting against killing innocent animals for commercial purposes in a circular park of radius 20 m. They are standing at equal distance on its boundary by holding banners in their hands.
(i) Find the distance between each of them?
(ii) Which mathematical concept is used in it?
(iii) How does an act like this reflects their attitude towards society?

343) Mr. Mehta, owner of a biscuit manufacturing company, wants to stick butter on a circular biscuit, in the form of two equal chords. He wishes the length of each chord should be more than the radius and less than the diameter of the biscuit. Assuming
that the thickness of the biscuits is negligible.
(i) Prove that the butter-chords subtend equal angles at the centre of the biscuit.
(ii) What is the measure-range of the angle subtended by either butter-chord at the centre?
(iii) Which mathematical concept is used in the above problem?
(iv) Which value is depicted by Mr. Mehta as an owner of a manufacturing company?

344) If O be the centre of the circle, find the value of 'x ' in each of the following figures.



345) Amit, Deepak and Prabha have saved a good amount from their pocket money. They wish to donate it for a good cause. They sat on a round table of 20 cm radius, to decide the mode of donation. In the adjoining figure, Amit, Deepak and Prabha are sitting at A, S and D respectively, such that AS = SD = AD i.e., ΔASD is an equilateral triangle.
(a) Find the distance between Amit, Deepak and Prabha.
(b) Which mathematical concept is used in the above problem?
(c) By donating the savings from the pocket money what values are depicted by Amit, Deepak and Prabha?



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