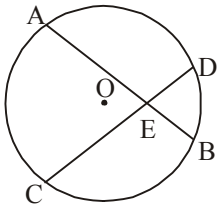
EXERCISE # 1

A. Very Short Answer Type Questions

Q.1 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.

Q.2 Find the length of a chord which is at a distance of 5 cm from the centre of a circle of radius 13 cm.

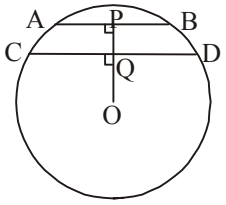
Q.3 In figure two equal chords AB and CD of a circle with centre O, intersect each other at E. Prove that AD = CB.



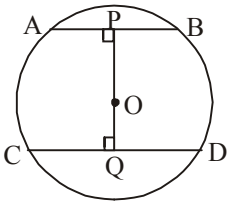
Q.4 A, B, C, D are four consecutive points on a circle such that AB = CD. Prove that AC = BD.

B. Short Answer Type Questions

Q.5 In Figure O is the centre of the circle of radius 5 cm. OP $\perp$ AB, OQ $\perp$ CD, AB || CD, AB = 6 cm and CD = 8 cm. Determine PQ.

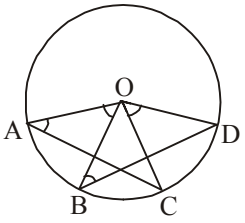


Q. 6 In Figure O is the centre of the circle of radius 5 cm. OP $\perp$ AB, OQ $\perp$ CD, AB || CD, AB = 6 cm and CD = 8 cm. Determine PQ.

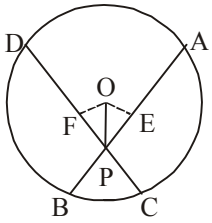


Q.7 If a diameter of a circle bisects each of the two chords of a circle, prove that the chords are parallel.

Q.8 In figure, if $\overset{\frown}{AB} \cong \overset{\frown}{CD}$, prove that $\angle A = \angle B$.

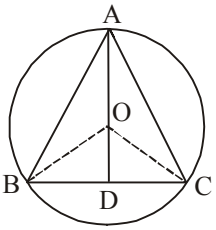


Q.9 In figure O is the centre of a circle and PO bisects $\angle APD$. Prove that AB = CD

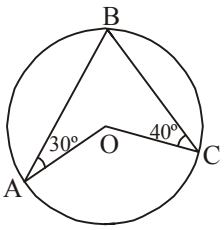


Q.10 Two equal circles intersect in P and Q. A straight line through P meets the circles in A and B. Prove that QA = QB.

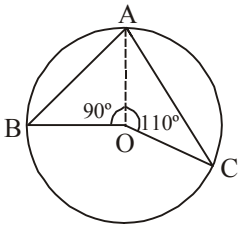
Q.11 Bisector AD of $\angle BAC$ of ΔABC passes through the centre O of the circumcircle of ΔABC as shown in figure. Prove that AB = AC.



Q.12 In figure calculate the measure of $\angle AOC$.

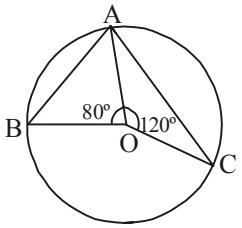


Q.13 In figure A, B, and C are three points on a circle such that the angles subtended by the chords AB and AC at the centre O are 90º and 110º, respectively. Determine ∠BAC.



Q.14 Prove that the circle drawn on any one of the equal sides of an isosceles triangle as diameter bisects the base.

Q.15 In figure A, B, C are three points on a circle such that the angles subtended by the chord AB and AC at the centre O are 80º and 120º respectively. Determine ∠BAC.



C. Long Answer Type Questions

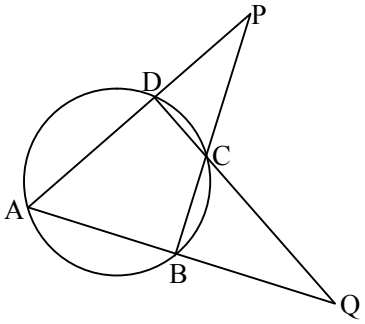
Q.16 In a circle of radius 5 cm, AB and AC are two chords such that AB = AC = 6 cm. Find the length of the chord BC.

Q.17 Prove that the line joining the mid-points of two parallel chords of a circle passes through the centre.

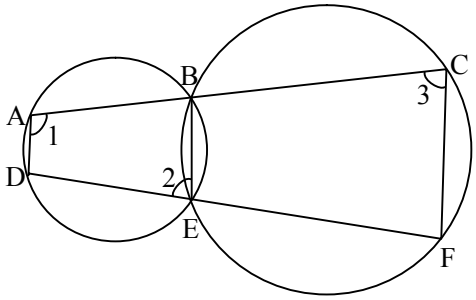
Q.18 In Figure $\overset{\frown}{AB} \cong \overset{\frown}{AC}$ and O is the centre of the circle. Prove that OA is the perpendicular bisector of BC.

Q.19 In an isosceles triangle ABC with AB = AC, a circle passing through B and C intersects the sides AB and AC at D and E respectively. Prove that DE || BC.

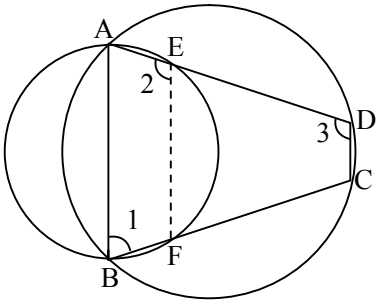
Q.20 In fig. ∠A = 60º and ∠ABC = 80º, find ∠DPC and ∠BQC.



Q.21 In fig. A, B, C and D, E, F are two sets of collinear points, Prove that AD || CF.



Q.22 In fig. ABCD is a cyclic quadrilateral. A circle passing through A and B meets AD and BC in the points E and F respectively. Prove that EF || DC.



ANSWER KRY

A. VERY SHORT ANSWER TYPE QUESTIONS :

1. 12 cm **2.** 24cm

B. SHORT ANSWER TYPE QUESTIONS :

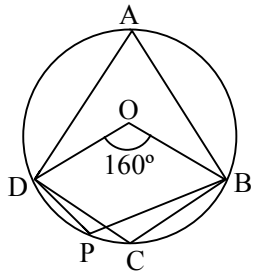
5. 1 cm **6.** 7 cm **12.** 70º **13.** 80º **15.** 80º

C. LONG ANSWER TYPE QUESTIONS :

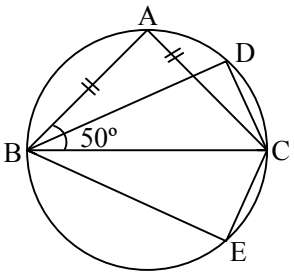
16. 9.6 cm **20.** 40º, 20º

EXERCISE # 2

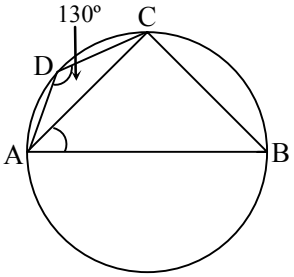
Q.1 In fig. ABCD is a cyclic quadrilateral; O is the centre of the circle. If ∠BOD = 160º, find the measure of ∠BPD.



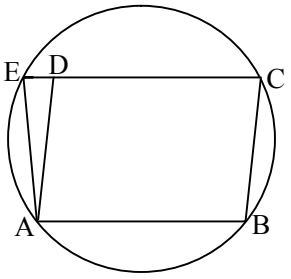
Q.2 In fig. ΔABC is an isosceles triangle with AB = AC and m ∠ABC = 50º. Find m ∠BDC and m ∠BEC



Q.3 In fig. ABCD is a cyclic quadrilateral whose side AB is a diameter of the circle through A, B, C, D. If (∠ADC) = 130º, Find ∠BAC.



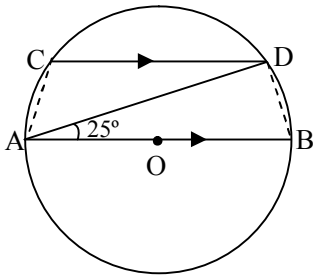
Q.4 In the given figure, ABCD is a parallelogram. The circle through A, B, C intersects CD produced at E. Prove that AD = AE.



Q.5 Prove that the quadrilateral formed by angle bisectors of a cyclic quadrilateral is also cyclic.

[NCERT]

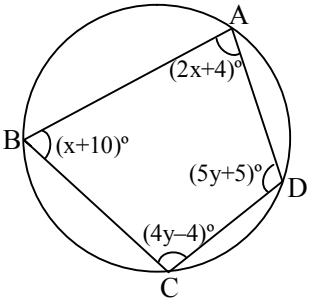
Q.6 In the given figure, AB is a diameter of the circle and CD ‖ AB. If ∠DAB = 25º, calculate (i) ∠ACD, and (ii) ∠CAD



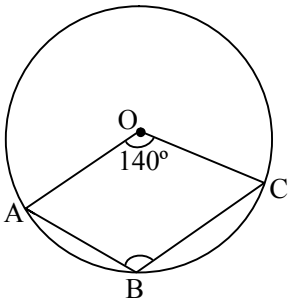
Q.7 From the given figure, find out the values of x and y, when

∠A = (2x + 4)º, ∠B = (x + 10)º

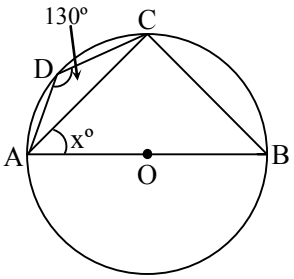
∠C = (4y – 4)º and ∠D = (5y + 5)º



Q.8 In the given figure, O is the centre of a circle and ∠AOC = 140º. Find ∠ABC.

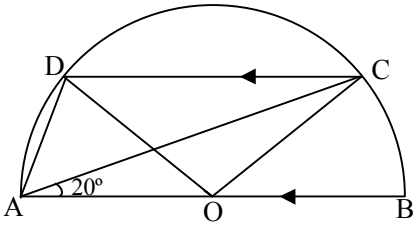


Q.9 In the given figure, O is the centre of a circle and ∠ADC = 130º. If ∠BAC = xº, find the value of x.



Q.10 In the given figure, AB is a diameter of a circle with centre O and CD || BA. If ∠BAC = 20º, find .

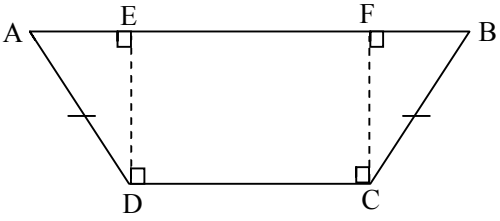
(i) ∠BOC (ii) ∠COD (iii) ∠CAD (iv) ∠ADC



Q.11 Prove that an isosceles trapezium is always cyclic. Or

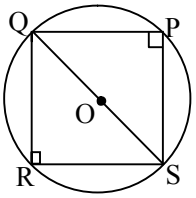
If two nonparallel sides of a trapezium are equal, prove that it is cyclic.

Q.12 In the figure, ABCD is a qudrilateral in which AD = BC and ∠ADC = ∠BCD. Show that the points A, B, C, D lie on a circle.



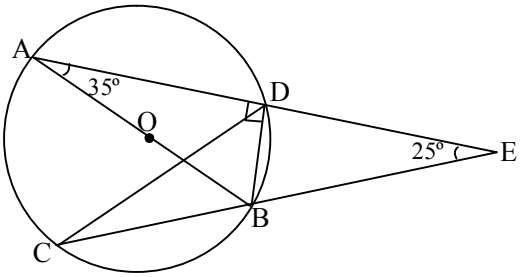
Q.13 The diagonals of a cyclic quadrilateral are at right angles. Prove that the perpendicular from the point of their intersecton on any side when produced backwards, bisects the opposite side.

Q.14 PQ and RQ are the chords of a circle equidistant from the centre. Prove that the diameter passing through Q bisects ∠PQR and ∠PSR.



Q.15 In the given figure, AB is a diameter of a circle with centre O. If ADE and CBE are straight lines, meeting at E such that ∠BAD = 35º and ∠BED = 25º, find

(i) ∠DBC (ii) ∠DCB (iii) ∠BDC.



ANSWER KEY

1. 100º
2. 80º, 100º
3. 40º
6. 115º, 40
7. 40, 25
8. 110º
9. 40
10. 40º, 100º, 50º, 110º
15. 115º, 35º, 30º