| **CIRCLES** | **CM090901** |
|---|---|

**Multiple Choice Questions :**   **1 mark each**
1. A circle divides a plane in which it lies including itself in
   (a) 2 parts   (b) 3 parts   (c) 4 parts   (d) 5 parts
2. Given two concentric circles with centre O. A line cuts the circles at A, B, C, D, respectively. If AB = 10 cm, then length CD is :
   (a) 5 cm (b) 10 cm   (c) 7.5 cm   (d) none of these
3. Given three collinear points, then the number of circles which can be drawn through these points is :
   (a) zero   (b) one   (c) two   (d) infinite
4. The length of chord which is at a distance of 12 cm from centre of circle of radius 13 cm is :
   (a) 5 cm   (b) 12 cm   (c) 13 cm   (d) 10 cm
5. An equilateral △ABC is inscribed in a circle with centre O. The measure of ∠BOC is :
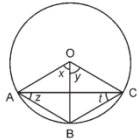   (a) 110°   (b) 100°   (c) 120°   (d) 130°

**Very Short Answer Type Questions :**   **2 marks each**
6. Prove that equal chords of a circle subtend equal.
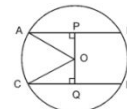7. ABDC is a cyclic quadrilateral and AB = AC. If ∠ACB = 70°, find ∠BDC.
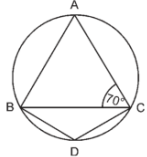


8. In the figure, OA = OB = OC. Show that ∠x + ∠y = 2(∠z + ∠t).



**Short Answer Type Questions :**   **3 marks each**
9. 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.
10. In the figure, O is the centre of the circle of radius 5 cm. OP ⊥ AB, OQ ⊥ CD, AB ∥ CD. If AB = 6 cm, CD = 8 cm, determine PQ.
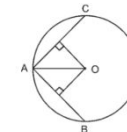


11. In the figure, ABCD is a parallelogram. The circle through A, B and C intersects CD produced at E. Prove that the AE = AD.
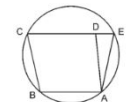


**Long Answer Type Questions :**   **5 marks each**
12. AB and AC are two chords of a circle of radius r units. If AB = 2AC, and the length of the perpendicular from the centre on these chords are a and b respectively, prove that $4b^2 = a^2 + 3r^2$.



13. In the figure, ∠ACE = 36°, ∠CAE = 41°. Find x, y and z.