



Attempt questions first; check the separate key afterward. Show all working. Draw accurate figures where required.

A. Very short answers - 1 mark each

1. Define a chord of a circle.
2. Is every diameter a chord?
3. How many diameters can a circle have?
4. What is the longest chord called?
5. A circle has radius 13 cm and chord 24 cm. Find distance from centre to chord.
6. A chord lies 8 cm from centre of a radius 10 cm circle. Find chord length.
7. State the relation between equal chords and their central angles.
8. State the relation between equal chords and distances from centre.

B. Short answers / practice - 2 marks each

9. A central angle is 100° . Find the angle on the remaining arc subtended by the same chord.
10. An inscribed angle is 35° . Find the central angle on the same arc.
11. Find the angle in a semicircle.
12. Explain why it is a right angle.
13. A cyclic quadrilateral has an angle 75° . Find its opposite angle.
14. Its other two opposite angles are $2x$ and $3x$. Find them.
15. Prove the perpendicular from a circle's centre to a chord bisects it.
16. State and prove the converse.
17. Two equal chords subtend angles $3x+5$ and $5x-25$ at the centre. Find x .
18. Find both central angles.
19. Draw a circle through three noncollinear points using perpendicular bisectors.
20. Can a circle pass through three distinct collinear points?

C. Application / reasoning - 3 marks each

21. A chord equals the radius. Find its smaller central angle.
22. Find an angle on the major arc subtended by that chord.
23. Prove equal chords are equidistant from the centre.
24. Which of two unequal chords is nearer the centre?
25. A cyclic quadrilateral's exterior angle is 110° . Find the opposite interior angle.
26. Give a reason for the result.
27. A circle has radius 10 cm. Find the distance from centre to a 16 cm chord.
28. In a cyclic quadrilateral, opposite angles differ by 40° . Find them.
29. Two equal chords subtend angles $2x+10$ and $4x-30$ at the centre. Find x .
30. An inscribed angle is 42° . Find the central angle subtending the same arc.
31. Prove that angles in the same segment of a circle are equal.

D. Extended practice - 5 marks per pair

32. Two angles subtended by the same chord in the same segment are $4x$ and $2x+30$. Find x .
33. Find the angles.
34. A radius 17 cm circle has parallel chords 30 cm and 16 cm. Find separation when on opposite sides of centre.
35. Find separation when on the same side.

ANSWER KEY - Numerical / closed questions

- 2) Yes. 3) Infinitely many. 4) Diameter. 5) 5 cm. 6) 12 cm. 7) Equal central angles. 8) Equal distances. 9) 50° . 10) 70° . 11) 90° . 12) 105° . 13) $72^\circ, 108^\circ$. 14) 15° . 15) 50° each. 16) No. 17) 60° . 18) 30° . 19) The longer chord. 20) 110° . 21) 6 cm. 22) $70^\circ, 110^\circ$. 23) 20° . 24) 84° . 25) 15° . 26) 60° each. 27) 23 cm. 28) 7 cm.