Mathematics — Ganita Manjari

Chapter 5 Test 5

I'm Up and Down, and Round and Round

Class IX | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. Choose one option in A; show working in B–D.
2. No calculators. Give exact lengths and reasons for angle calculations.
3. Figures are schematic. Use the stated dimensions and show your working.

SECTION A

(5 questions × 1 mark = 5 marks)

1. Which proposed chord is impossible in a circle of radius 8 cm?

(A) A chord of length 6 cm
(B) A chord of length 12 cm
(C) A chord of length 16 cm
(D) A chord of length 18 cm

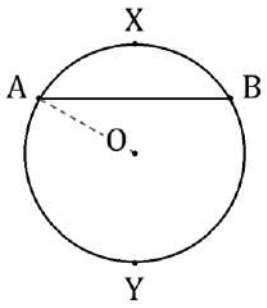
2. Which position of C and D is required to infer concyclicity from $\angle ACB = \angle ADB$?

(A) Both on AB
(B) Same side of AB, off AB
(C) At the midpoint of AB
(D) Opposite sides of AB

3. In a circle with centre O, AB = BC. Which equality must hold for the smaller central angles?

(A) $\angle AOB = \angle BOC$
(B) $\angle OAB = \angle ABC$
(C) $\angle AOC = \angle AOB$
(D) $\angle ABC = 90°$

4. Which named part is the major arc from A to B?



(A) Arc AXB
(B) Arc AYB
(C) Chord AB
(D) Radius OA

5. Which condition determines a unique circle through distinct A and B?

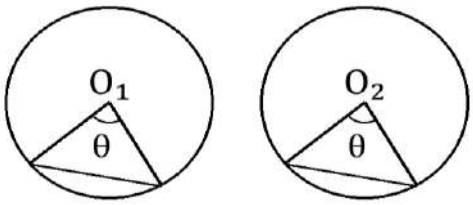
(A) Positive radius
(B) Unspecified centre
(C) AB is a diameter
(D) A third point on line AB

SECTION B

(4 questions × 2 marks = 8 marks)

6. A chord AB subtends 60° at the centre O of a circle of radius 12 cm. Find AB and justify your answer.

7. The circles are congruent and their marked central angles are equal. Find x and both labelled chord lengths.



8. The distinct centres O_1 and O_2 belong to two circles intersecting at A and B. Prove that $O_1O_2 \perp AB$.

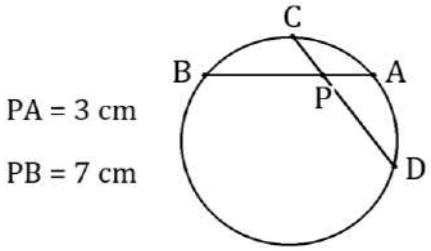
9. In cyclic ABCD, the exterior angle at D is $(3x - 7)°$ and $\angle B = (2x + 13)°$. Find x and the interior angle at D.

SECTION C

(3 questions × 3 marks = 9 marks)

10. Prove that exactly one circle passes through three non-collinear points A, B and C.

11. Equal chords AB and CD meet at P. Given PA = 3 cm, PB = 7 cm and PC < PD, find PC and PD with justification.



12. ABCD is a cyclic quadrilateral with AB = BC and $\angle ADC = 100°$. Find all three angles of triangle ABC.

SECTION D

(1 application question × 3 marks = 3 marks)

13. Three posts form a triangle with sides 5 m, 12 m and 13 m. Locate the centre and find the radius of their circular fence. Explain its uniqueness.