Mathematics — Ganita Manjari

Chapter 12 Test 3

Quadrilaterals

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 answers unless an approximation is requested.
3. Figures are not necessarily to scale. Give reasons for geometrical conclusions.

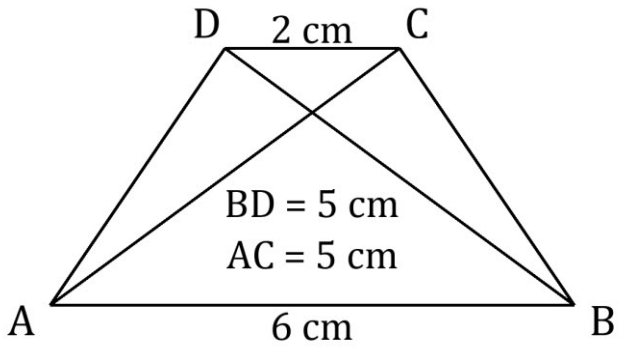
SECTION A

(5 questions × 1 mark = 5 marks)

1. Which condition alone guarantees that a quadrilateral is a parallelogram?

(A) One equal opposite-side pair
(B) Both opposite-side pairs equal
(C) One parallel opposite-side pair
(D) Equal diagonals

2. Which claim is disproved by the measurements in figure?



(A) Equal diagonals imply rectangle
(B) Rectangle ⇒ opposite sides ∥
(C) Rhombus ⇒ all sides equal
(D) Square ⇒ four right angles

3. Every square is:

(A) Rectangle, not rhombus
(B) Rhombus, not rectangle
(C) Neither rectangle nor rhombus
(D) Both rectangle and rhombus

4. A rhombus has perpendicular diagonals. Must it be a square?

(A) Yes, always
(B) No rhombus is a square
(C) Not necessarily
(D) Yes, by diagonal bisection

5. A parallelogram with one right angle must be a:

(A) Rectangle
(B) Square
(C) Rhombus with no right angles
(D) Non-convex quadrilateral

SECTION B

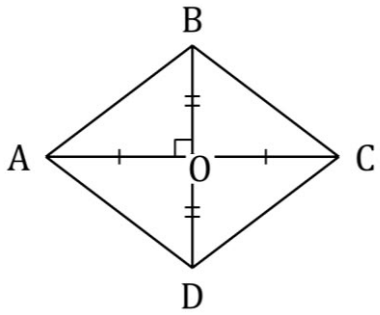
(4 questions × 2 marks = 8 marks)

6. In quadrilateral ABCD, AB ∥ CD and AB = CD. What follows about AD and BC? Give the reason.

7. Quadrilateral ABCD has consecutive angles 64°, 116°, 64°, 116°. Prove it is a parallelogram using parallel-line angle tests.

8. The diagonals of a quadrilateral bisect each other but have unequal lengths. Is it a parallelogram? Can it be a rectangle? Explain.

9. Use the marks in figure to prove that ABCD is a rhombus.



SECTION C

(3 questions × 3 marks = 9 marks)

10. In quadrilateral ABCD, AB = CD and BC = DA. Use triangle congruence to determine which opposite-side pairs are parallel.

11. In parallelogram ABCD, diagonal AC bisects angle A. Prove it also bisects angle C and that ABCD is a rhombus.

12. A parallelogram ABCD has AC = BD. Prove it is a rectangle by comparing triangles ABC and BAD.

SECTION D

(1 application question × 3 marks = 3 marks)

13. A designer draws the four internal angle bisectors of parallelogram ABCD, with AB ≠ BC. Their neighbouring intersections form PQRS in figure. Prove PQRS is a rectangle. Why exclude AB = BC?

