Mathematics — Ganita Manjari

Chapter 12 Test 8

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. A trapezium has parallel sides 6 cm and 14 cm. Its leg-midpoint connector measures:

(A) 10 cm (B) 4 cm
(C) 20 cm (D) 8 cm

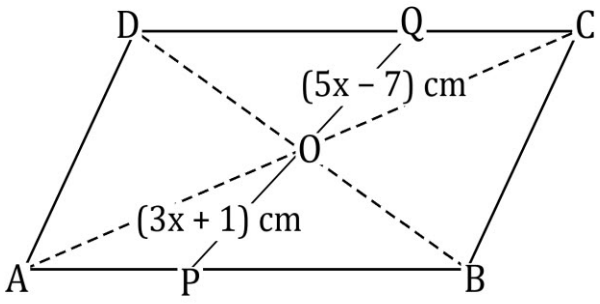
2. A line through one leg's midpoint, parallel to a trapezium's bases, must:

(A) Bisect both base angles (B) Bisect both bases
(C) Bisect the other leg (D) Make the diagonals equal

3. When a trapezium's parallel sides are equal, the midpoints of its diagonals:

(A) Are always distinct (B) Lie on the bases
(C) Are vertices of the trapezium (D) Coincide

4. In figure, $ABCD$ is a parallelogram and O is its diagonal intersection. The marked segments lie on one line through O. Find x.



(A) 2 (B) 4
(C) 3 (D) 7

5. Which four midpoints must be collinear in every trapezium?

(A) Leg and diagonal midpoints (B) All four side-midpoints
(C) Base and diagonal midpoints (D) Three vertices and a side-midpoint

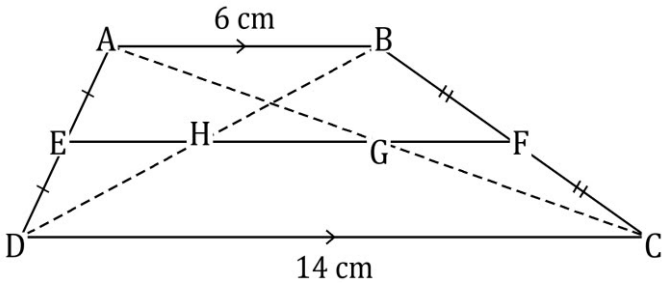
SECTION B

(4 questions × 2 marks = 8 marks)

6. In trapezium $ABCD$, $AB \parallel CD$. Through midpoint E of AD, draw $EF \parallel AB$ meeting BC at F. Compare BF, FC, giving a proof.

7. Explain why the line joining a trapezium's leg-midpoints is equally distant from its parallel bases.

8. In figure, E, F are leg-midpoints and G, H are midpoints of AC, BD. Find HG and the ratio $EH : GF$.



9. Given non-collinear A, O, B, construct a parallelogram with adjacent vertices A, B and diagonal centre O. Justify.

SECTION C

(3 questions × 3 marks = 9 marks)

10. In trapezium $ABCD$ with $AB \parallel CD$, let E, F be the midpoints of AD, BC. Derive the length of EF in terms of AB, CD.

11. A trapezium has unequal parallel bases of lengths $a < b$. Determine the length and direction of the segment joining its diagonal midpoints. Justify.

12. In parallelogram $ABCD$, diagonals meet at O. A line through O meets the interiors of AB, CD at P, Q. Compare OP, OQ and AP, CQ using congruence.

SECTION D

(1 application question × 3 marks = 3 marks)

13. In figure, $AB \parallel DC$ and E, F are leg-midpoints. Find the two park areas and total planting cost if the upper part costs ₹5/m^2 and the lower part ₹3/m^2.

