Mathematics — Ganita Manjari

Chapter 12 Test 2

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 property is guaranteed for every parallelogram?

(A) All sides are equal
(B) All angles are right angles
(C) Opposite sides are equal
(D) Diagonals are perpendicular

2. A parallelogram that is not a rectangle has how many obtuse angles?

(A) Two
(B) One
(C) Three
(D) None

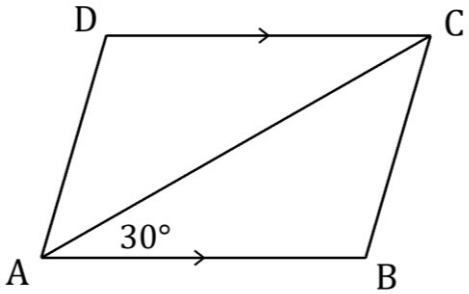
3. The diagonals of parallelogram ABCD meet at O. Which triangle is always congruent to $\triangle AOB$?

(A) $\triangle AOD$
(B) $\triangle BOC$
(C) $\triangle ABC$
(D) $\triangle COD$

4. Which statement need NOT hold for a parallelogram?

(A) Opposite angles are equal
(B) Diagonals are equal
(C) Diagonals bisect each other
(D) Opposite sides are parallel

5. ABCD is a parallelogram in figure. Find $\angle ACD$.



(A) 60°
(B) 150°
(C) 30°
(D) 90°

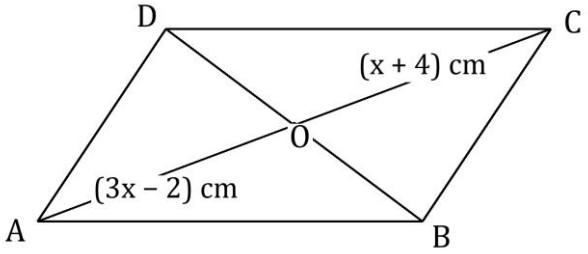
SECTION B

(4 questions × 2 marks = 8 marks)

6. In parallelogram ABCD, AB = $(3x + 2)$ cm, CD = $(5x - 6)$ cm and BC = 7 cm. Find x and the perimeter.

7. In parallelogram ABCD, $\angle A = (2t + 10)°$ and $\angle B = (3t - 5)°$. Find all four angles.

8. The diagonals of parallelogram ABCD meet at O in figure. Find x and the length of AC.



9. Diagonal AC of parallelogram ABCD forms $\triangle ABC$ with perimeter 23 cm. If AB = 7 cm and BC = 9 cm, find AC and the perimeter of $\triangle CDA$.

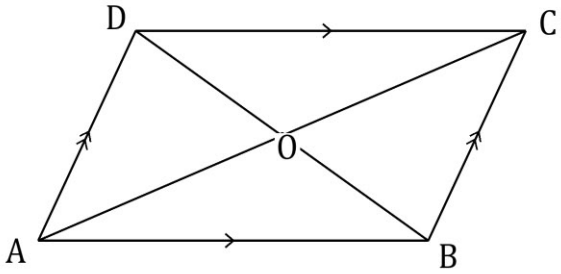
SECTION C

(3 questions × 3 marks = 9 marks)

10. Use one diagonal and triangle congruence to derive the relations between opposite-side lengths of a parallelogram.

11. The internal bisectors of adjacent angles A and B of a parallelogram meet at P. Prove that $\angle APB = 90°$.

12. Using triangle congruence in figure, establish the two half-diagonal equalities for parallelogram ABCD.



SECTION D

(1 application question × 3 marks = 3 marks)

13. A hinged parallelogram frame stays convex while angle A increases from 70° to 85°. (i) Find the initial angle B. (ii) Find the final angles C and D. (iii) Describe the change in angle B.