CHAPTER TEST: QUADRILATERALS

Mathematics | Class IX (2026/QUAD/09/002)

Time: 1.5 Hours **Max. Marks: 33**

GENERAL INSTRUCTIONS

– All questions are compulsory.

– Section A: 5 MCQs (1 mark each).

– Section B: 4 Short Answer Questions (2 marks each).

– Section C: 4 Long Answer Questions (4 marks each).

– Section D: 4 Objective/Concept Questions (1 mark each).

SECTION A

Multiple Choice Questions (1 mark each)

1. In a parallelogram ABCD, if $\angle A = 75°$, then $\angle C$ is equal to:

   (a) $75°$

   (b) $105°$

   (c) $90°$

   (d) $180°$

2. Which of the following is NOT a property of a rhombus?

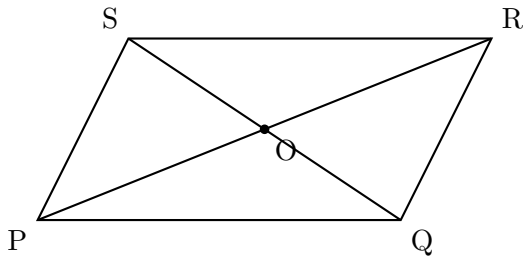
   (a) All sides are equal

   (b) Diagonals bisect each other at right angles

   (c) Diagonals are equal

   (d) Opposite angles are equal

3. In the given parallelogram PQRS, if diagonal PR = 10 cm and diagonal QS = 8 cm, then what is the length of OP where O is the point of intersection of diagonals?



   (a) 5 cm

   (b) 4 cm

   (c) 10 cm

(d) 8 cm

4. A quadrilateral has both pairs of opposite sides parallel and all angles equal to 90°. This quadrilateral is necessarily a:

   (a) Parallelogram only
   (b) Rectangle
   (c) Square
   (d) Rhombus

5. If the diagonals of a quadrilateral bisect each other at right angles, then the quadrilateral is a:

   (a) Rectangle
   (b) Parallelogram
   (c) Rhombus
   (d) Trapezium

6. In a rectangle ABCD, if AC = 13 cm, then BD is equal to:

   (a) 13 cm
   (b) 26 cm
   (c) 6.5 cm
   (d) Cannot be determined

7. The consecutive angles of a parallelogram are:

   (a) Equal
   (b) Supplementary
   (c) Complementary
   (d) In the ratio 1:2

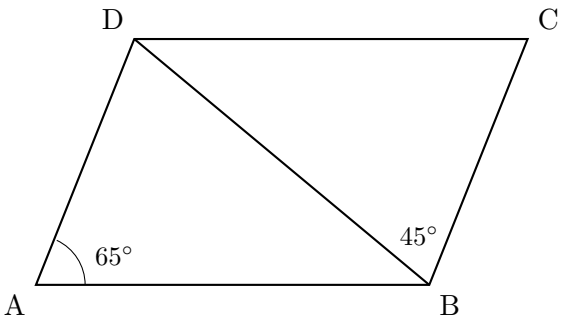
8. A quadrilateral whose all sides are equal and diagonals bisect each other at right angles but angles are not 90° is called:

   (a) Square
   (b) Rectangle
   (c) Rhombus
   (d) Parallelogram

SECTION B

Very Short Answer Questions (2 marks each)

9. In the given figure, ABCD is a parallelogram. If ∠DAB = 65° and ∠DBC = 45°, find ∠BDC.



10. Two adjacent angles of a parallelogram are in the ratio 4:5. Find the measures of all the angles of the parallelogram.

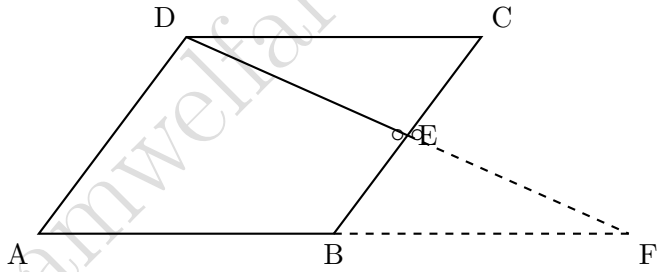
11. ABCD is a rhombus in which $\angle A = 60°$. Find $\angle BCD$ and $\angle ABD$.

12. The diagonals of a rectangle PQRS intersect at O. If $\angle POR = 120°$, find $\angle OPR$.

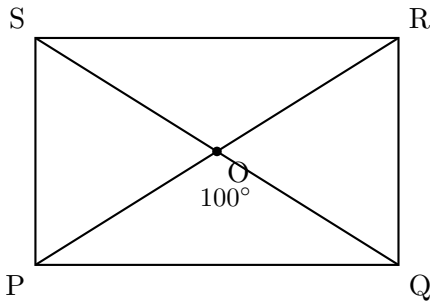
SECTION C

Short Answer Questions (3 marks each)

13. In the given figure, ABCD is a parallelogram and E is the midpoint of side BC. If DE and AB when produced meet at F, prove that AF = 2AB.



14. PQRS is a rectangle with diagonals PR and QS intersecting at O. If $\angle POQ = 100°$, find the measure of $\angle OQR$. Also prove that triangle OPQ is isosceles.



15. Show that the diagonals of a square are equal and bisect each other at right angles. Given a square ABCD with diagonals AC and BD intersecting at O, if the side of the square is 8 cm, find the length of each diagonal.

SECTION D

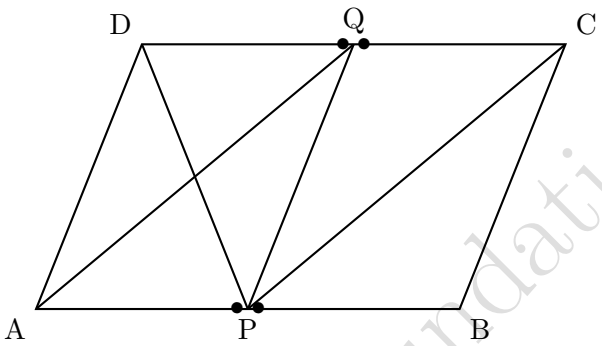
Long Answer Questions (5 marks each)

16. ABCD is a parallelogram in which P and Q are the midpoints of sides AB and CD respectively. Prove that:

    (a) APCQ is a parallelogram

    (b) PBDQ is a parallelogram

    (c) APCQ and PBDQ are congruent



17. In the given figure, ABCD is a rhombus. Prove that:

    (a) Triangle ABD is congruent to triangle CDB

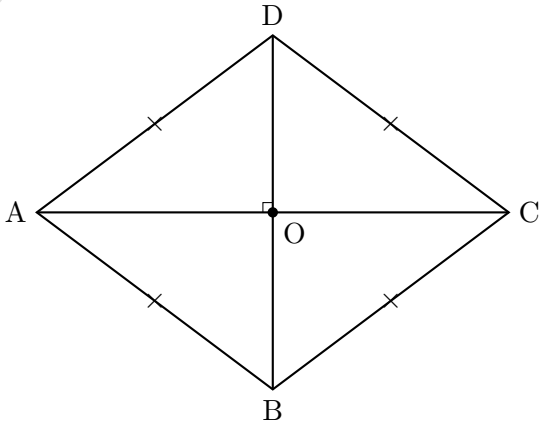
    (b) Triangle ABC is congruent to triangle ADC

    (c) $\angle ABD = \angle CDB$

    (d) AC bisects $\angle A$ and $\angle C$

    (e) The diagonals AC and BD bisect each other at right angles

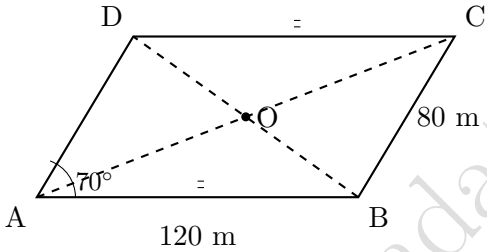
    If the diagonals are 16 cm and 12 cm, find the length of each side of the rhombus.



SECTION E

Case Study Based Question (1 mark each)

18. A city municipal corporation is designing a new park with a special walkway pattern. The main walkway forms a parallelogram ABCD where AB represents the north boundary measuring 120 meters and BC represents the east boundary measuring 80 meters. The angle at vertex A is 70°. Two diagonal pathways AC and BD are constructed that intersect at point O. The park designer wants to create four identical flower beds in the four triangular sections formed by the diagonals. To ensure proper irrigation and maintenance, it is essential that the diagonals bisect each other. Additionally, smaller rectangular rest areas are planned at each corner of the parallelogram. The designer needs to verify that opposite sides are parallel and equal, and that the diagonals create congruent triangles for uniform flower bed areas. Understanding the properties of parallelograms helps urban planners create symmetric and aesthetically pleasing public spaces while ensuring efficient use of resources and maintenance.



Based on the above information, answer the following questions:

(a) What is the measure of ∠C in parallelogram ABCD?
   i. 70°
   ii. 110°
   iii. 90°
   iv. 180°

(b) What is the length of side CD?
   i. 80 meters
   ii. 120 meters
   iii. 100 meters
   iv. 200 meters

(c) If diagonal AC measures 140 meters, what is the length of AO?
   i. 140 meters
   ii. 70 meters
   iii. 280 meters
   iv. 35 meters

(d) What is the measure of ∠B?
   i. 70°
   ii. 110°
   iii. 90°
   iv. 140°

(e) Which pair of triangles formed by the diagonals are congruent?
   i. Triangle AOB and triangle COD only
   ii. Triangle AOD and triangle BOC only
   iii. Both pairs: AOB with COD and AOD with BOC

iv. No triangles are congruent

— END OF QUESTION PAPER —