



Attempt questions first; check the separate key afterward. Show all working. Draw accurate figures where required.

A. Very short answers - 1 mark each

1. Find the sum of interior angles of a quadrilateral.
2. Find the fourth angle if the others are 70° , 80° , 100° .
3. Name a quadrilateral with both pairs of opposite sides parallel.
4. Is every square a rectangle?
5. A parallelogram has one angle 65° . Find its other angles.
6. A rhombus has one angle 120° . Find adjacent angles.
7. State two properties of rectangle diagonals.
8. State two properties of rhombus diagonals.

B. Short answers / practice - 2 marks each

9. Can a quadrilateral have three obtuse angles? Give an example of angle measures.
10. Can all four angles be obtuse?
11. A rectangle has perimeter 50 cm and length 15 cm. Find width.
12. A rhombus has perimeter 52 cm. Find side.
13. One diagonal of a parallelogram is 18 cm. How long is either half?
14. Do the diagonals of every parallelogram have equal length?
15. In a parallelogram, opposite sides are $3x+2$ and $5x-8$. Find x .
16. Adjacent angles are $2x$ and $3x$. Find both.
17. Draw a kite and mark its equal adjacent sides.
18. Distinguish a kite from a rhombus.
19. Find each angle of a regular quadrilateral.
20. What is the sum of one exterior angle at each vertex?

C. Application / reasoning - 3 marks each

21. Explain why every rhombus is a parallelogram.

22. Is every parallelogram a rhombus? Give a counterexample.

23. A trapezium has two parallel sides. Draw one with exactly one right-angle pair.

24. In a trapezium, angles on one nonparallel side are x and $2x$. Find them.

25. Draw a rectangle with sides 6 cm and 4 cm; compare its diagonals.

26. Draw a rhombus whose diagonals are 6 cm and 8 cm.

27. The angles of a quadrilateral are in ratio 1:2:3:4. Find them.

28. A rectangle's diagonals intersect at O. If $AO=6$ cm, find BD.

29. Can a rhombus have unequal diagonals? Give an example.

30. Find adjacent angles of a parallelogram if one exceeds the other by 40° .

31. Draw a quadrilateral with perpendicular diagonals that is not a rhombus.

D. Extended practice - 5 marks per pair

32. Explain how diagonal bisection can identify a parallelogram.

33. Can a non-square rectangle have perpendicular diagonals?

34. Organise square, rectangle, rhombus and parallelogram in an inclusion diagram.

35. Explain which extra conditions make a parallelogram a square.

ANSWER KEY - Numerical / closed questions

- 1) 360° . 2) 110° . 3) Parallelogram. 4) Yes. 5) 115° , 65° , 115° . 6) 60° each. 7) Equal; bisect each other. 8) Perpendicular; bisect each other. 9) Yes; 100° , 100° , 100° , 60° . 10) No. 11) 10 cm. 12) 13 cm. 13) 9 cm. 14) No. 15) 5. 16) 72° , 108° . 17) 90° . 18) 360° . 19) No. 20) 60° , 120° . 21) Equal. 22) 36° , 72° , 108° , 144° . 23) 12 cm. 24) Yes; any non-square rhombus. 25) 70° , 110° . 26) No. 27) Equal adjacent sides and a right angle.