



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

### A. Very short answers - 1 mark each

1. Name the horizontal and vertical coordinate axes.

2. Write coordinates of the origin.

3. In which quadrant is  $(-4, 3)$ ?

4. In which quadrant is  $(5, -2)$ ?

5. What is the abscissa of  $(-7, 2)$ ?

6. What is the ordinate of  $(6, -9)$ ?

7. Plot A(2, 3), B(-2, 3), C(-2, -3), D(2, -3).

8. Identify quadrilateral ABCD.

### B. Short answers / practice - 2 marks each

9. Write the reflection of  $(4, -3)$  in the x-axis.

10. Write its reflection in the y-axis.

11. Write coordinates of a point on the x-axis 5 units left of the origin.

12. Write a point on the y-axis 7 units above the origin.

13. Can a point on an axis lie in a quadrant?

14. What condition describes all points on the y-axis?

15. Find the horizontal distance between  $(-3, 2)$  and  $(5, 2)$ .

16. Find the vertical distance between  $(4, -6)$  and  $(4, 3)$ .

17. Starting at  $(2, -1)$ , move 3 units left and 5 up. Find the endpoint.

18. Reverse that movement from  $(0, 0)$ . Find the endpoint.

19. Plot three points satisfying  $y=2$ .

20. Describe the line containing them.

### C. Application / reasoning - 3 marks each

21. Plot  $(1, 2)$ ,  $(2, 4)$ ,  $(3, 6)$ . Are they collinear?

22. Write a relation connecting their coordinates.

23. A square has vertices  $(0, 0)$ ,  $(4, 0)$ ,  $(4, 4)$ , D. Find D.

24. Find its perimeter and area.

25. Can  $(a, b)$  and  $(b, a)$  always represent the same point?

26. Give a point unchanged by reflection in both axes.

27. Find the reflection of  $(-3, 5)$  in the origin.

28. A point is 4 units right and 6 units below the origin. Write its coordinates.

29. Draw the line joining  $(-2, 0)$  and  $(-2, 5)$ . Which axis is it parallel to?

30. Find the fourth vertex of a rectangle with consecutive vertices  $(1, 1)$ ,  $(6, 1)$ ,  $(6, 4)$ .

31. A point on the x-axis is 7 units from the origin. List all possible coordinates.

### D. Extended practice - 5 marks per pair

32. Draw a coordinate map of a park with four labelled landmarks.

33. Explain why an agreed origin, axes and scale are needed.

34. A rectangle has vertices  $(-2, -1)$ ,  $(3, -1)$ ,  $(3, 2)$ ,  $(-2, 2)$ . Find area.

35. Find its centre by reading your plotted figure.

### ANSWER KEY - Numerical / closed questions

1) x-axis; y-axis. 2)  $(0, 0)$ . 3) II. 4) IV. 5)  $-7$ . 6)  $-9$ . 7) Rectangle. 8)  $(4, 3)$ . 9)  $(-4, -3)$ . 10)  $(-5, 0)$ . 11)  $(0, 7)$ . 12) No. 13)  $x=0$ . 14) 8 units. 15) 9 units. 16)  $(-1, 4)$ . 17)  $(3, -5)$ . 18) Examples:  $(0, 2)$ ,  $(1, 2)$ ,  $(2, 2)$ . 19) Parallel to x-axis. 20) Yes. 21)  $y=2x$ . 22)  $(0, 4)$ . 23) 16 units; 16 square units. 24) No; only if  $a=b$ . 25)  $(0, 0)$ . 26)  $(3, -5)$ . 27)  $(4, -6)$ . 28) y-axis. 29)  $(1, 4)$ . 30)  $(7, 0)$ ,  $(-7, 0)$ . 31) 15 square units. 32)  $(0.5, 0.5)$ .