

Name _____

Date _____

11.1 Coordinates — worksheet

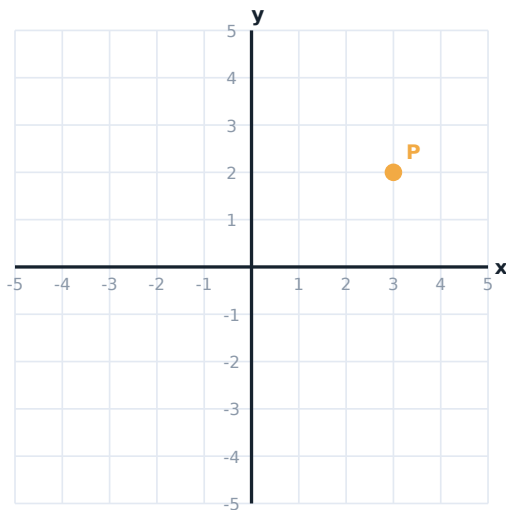
Read and plot coordinates in all four quadrants, and use them to describe positions, distances and midpoints. · 67 questions · Show your working.

Remember

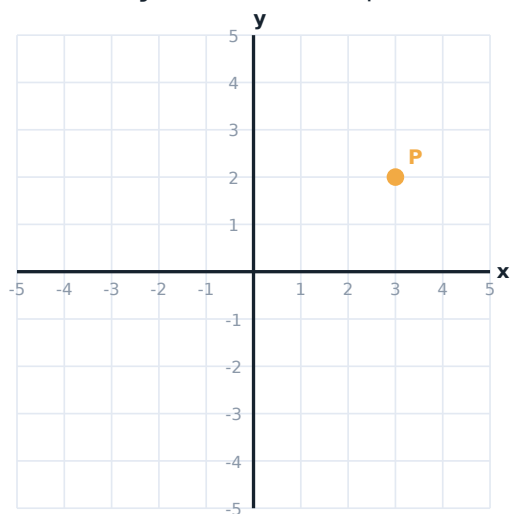
- Coordinates are written **(x, y)** — always across first, then up or down.
- The **origin** is (0, 0), where the two axes cross.
- The axes divide the plane into **four quadrants**, numbered anticlockwise from the top right.
- Quadrant 1 (+, +), quadrant 2 (−, +), quadrant 3 (−, −), quadrant 4 (+, −).
- A point with $x = 0$ lies on the **y-axis**; a point with $y = 0$ lies on the **x-axis**.
- Points with the same y-coordinate lie on a **horizontal** line; same x-coordinate gives a **vertical** line.
- The distance between two points on the same horizontal line is the difference in their x-coordinates.
- The **midpoint** is found by averaging the x-coordinates and averaging the y-coordinates.

A · Fluency — Read points, name quadrants, measure gaps.

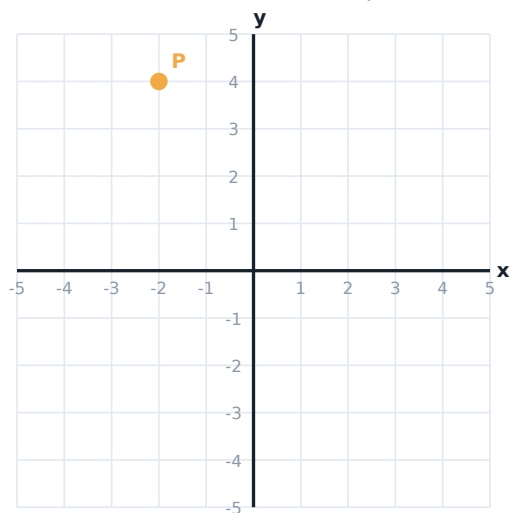
- 1 What is the **x-coordinate** of point P?



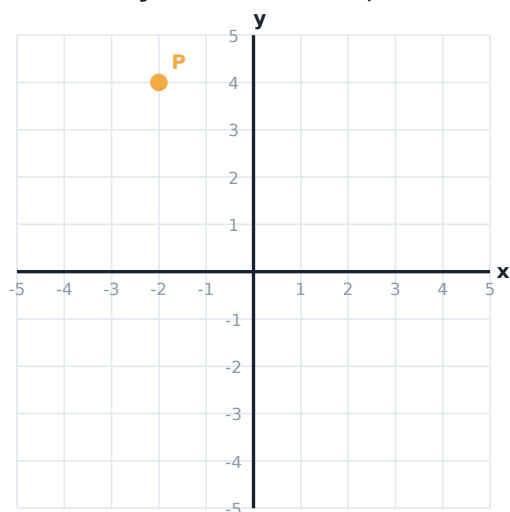
- 2 What is the **y-coordinate** of point P?



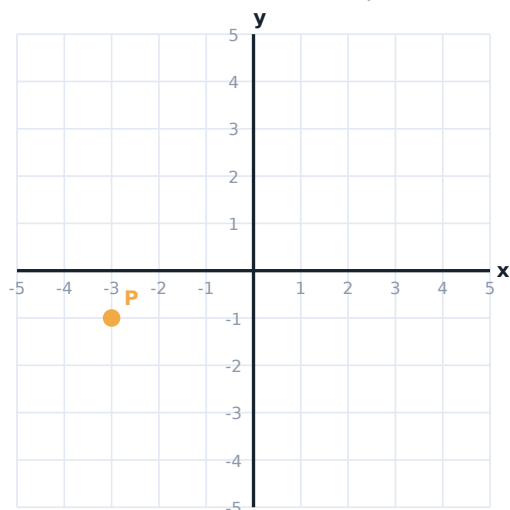
- 3 What is the **x-coordinate** of point P?



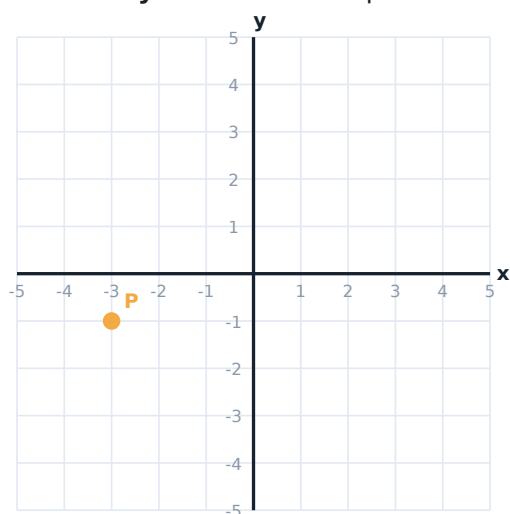
- 4 What is the **y-coordinate** of point P?



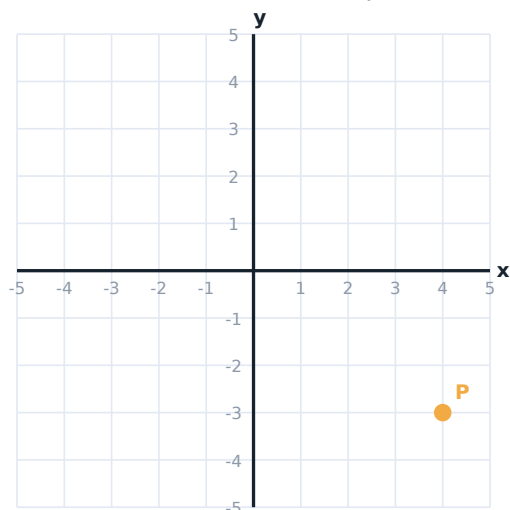
- 5 What is the **x-coordinate** of point P?



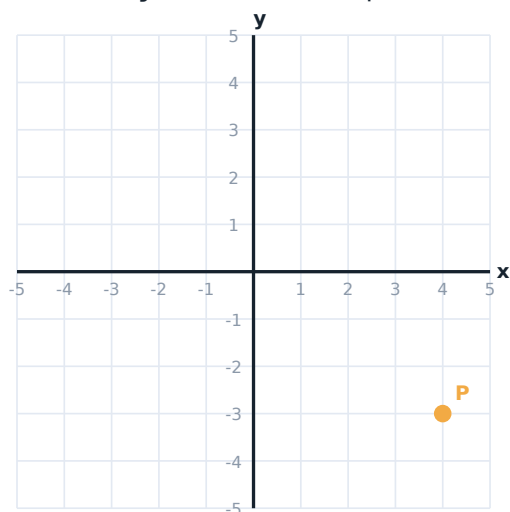
6 What is the **y-coordinate** of point P?



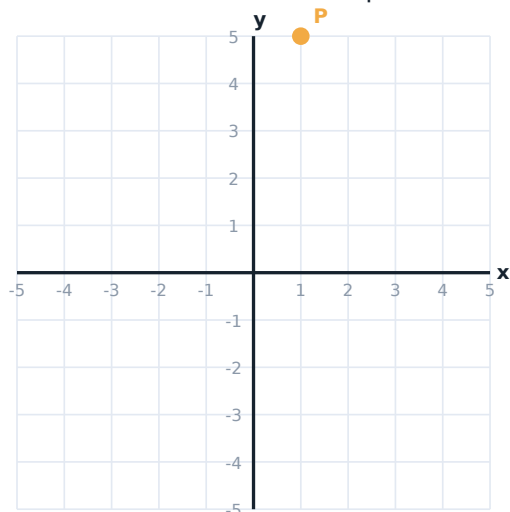
7 What is the **x-coordinate** of point P?



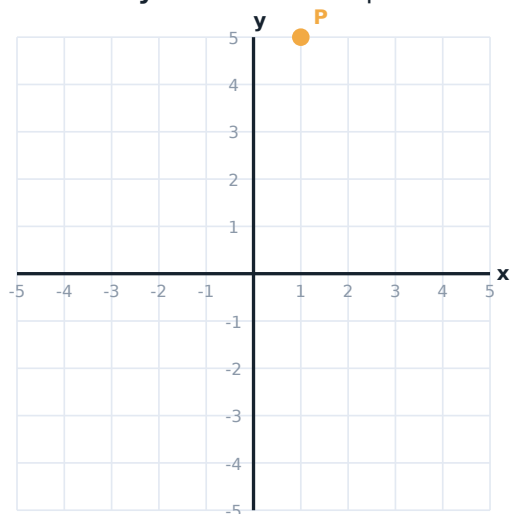
- 8 What is the **y-coordinate** of point P?



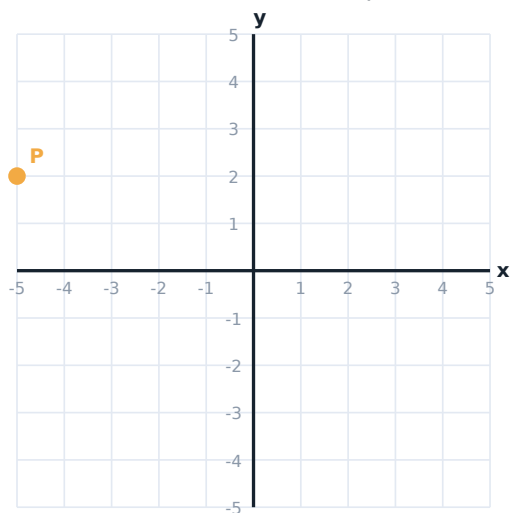
- 9 What is the **x-coordinate** of point P?



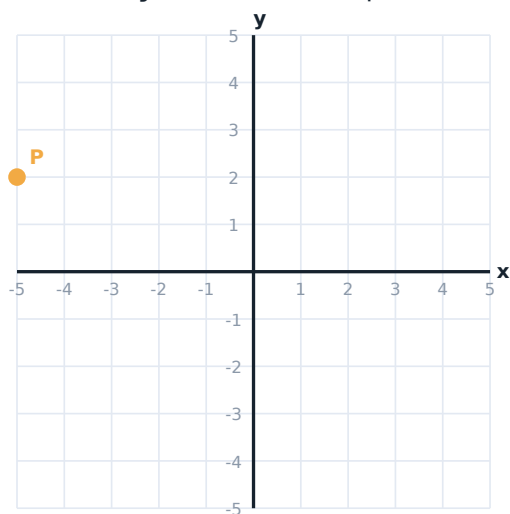
10 What is the **y-coordinate** of point P?



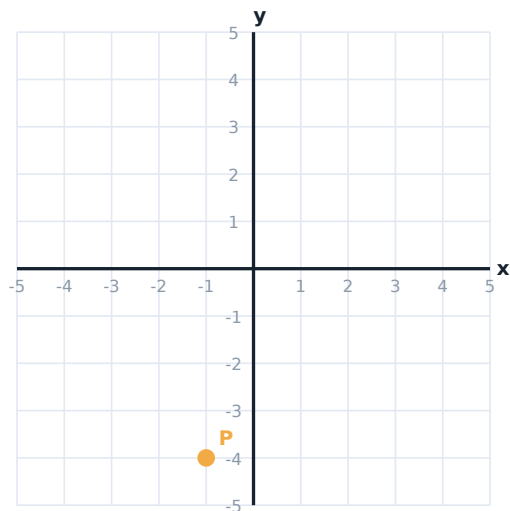
11 What is the **x-coordinate** of point P?



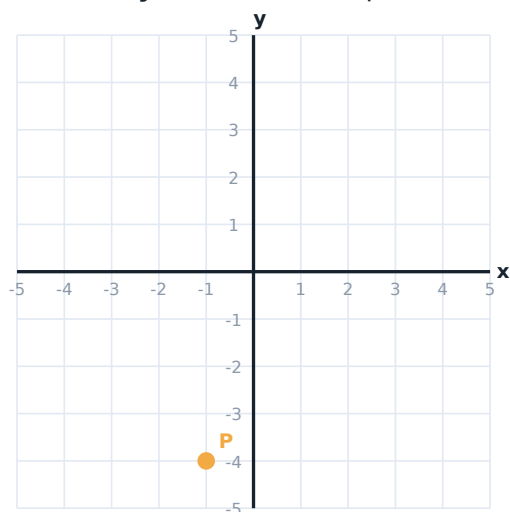
12 What is the **y-coordinate** of point P?



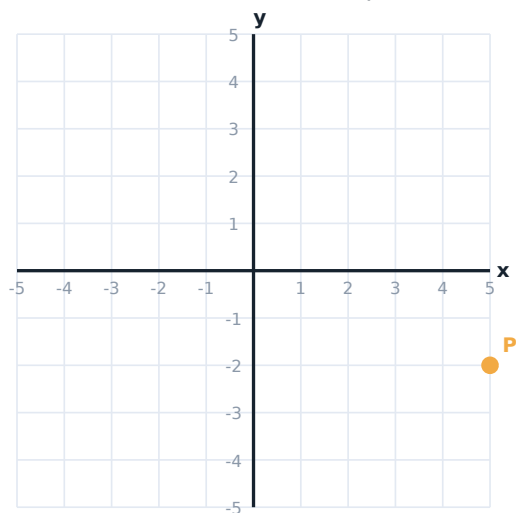
13 What is the **x-coordinate** of point P?



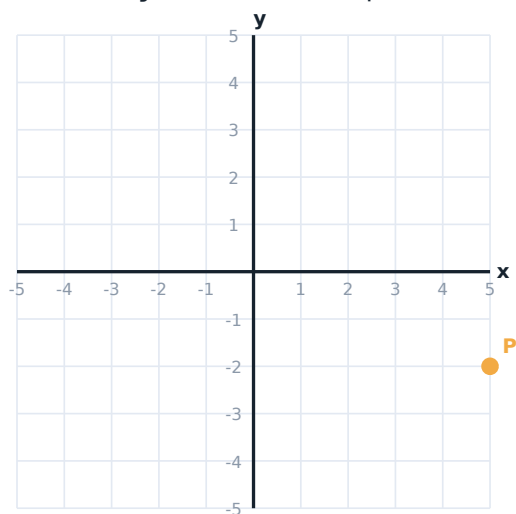
14 What is the **y-coordinate** of point P?



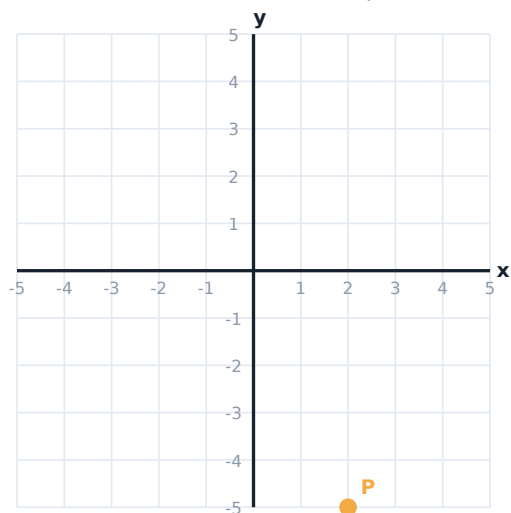
15 What is the **x-coordinate** of point P?



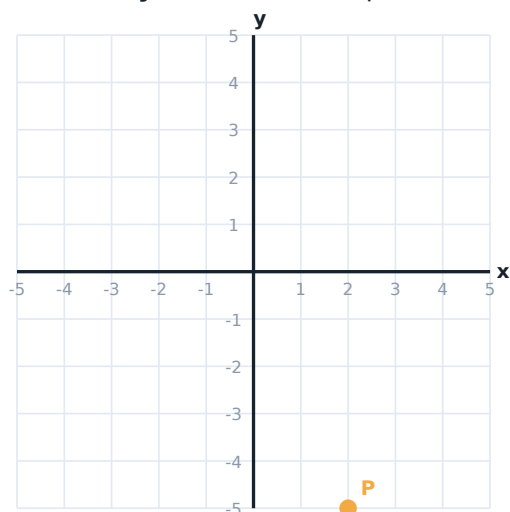
16 What is the **y-coordinate** of point P?



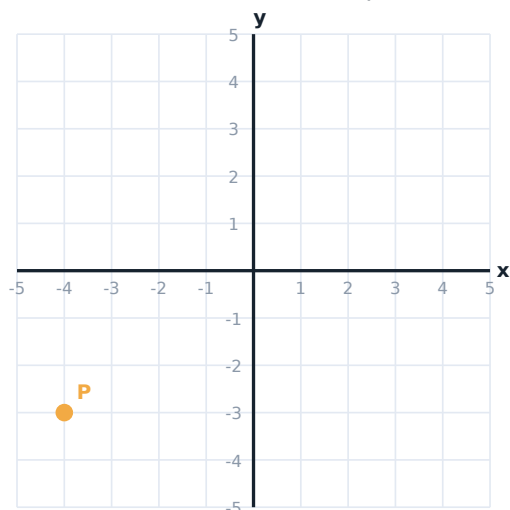
17 What is the **x-coordinate** of point P?



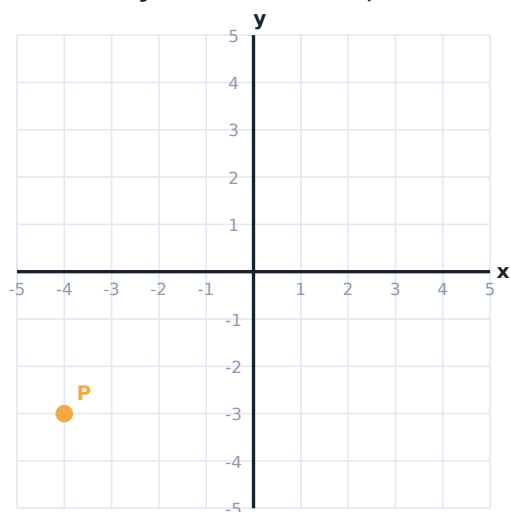
18 What is the **y-coordinate** of point P?



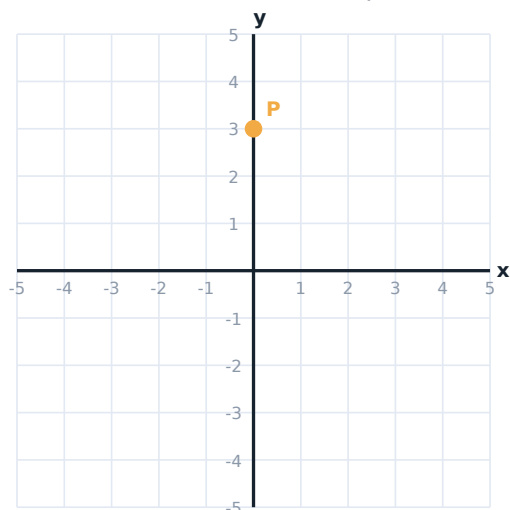
19 What is the **x-coordinate** of point P?



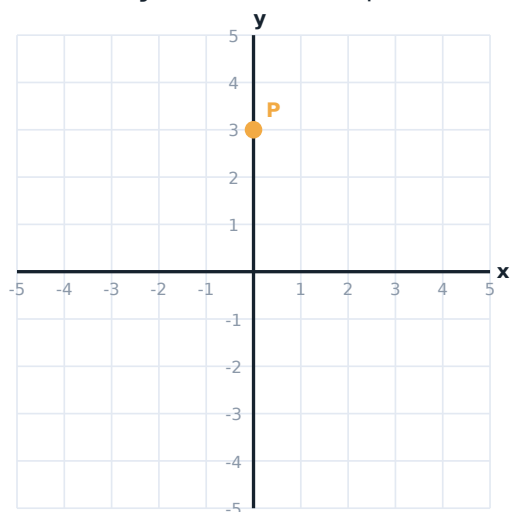
20 What is the **y-coordinate** of point P?



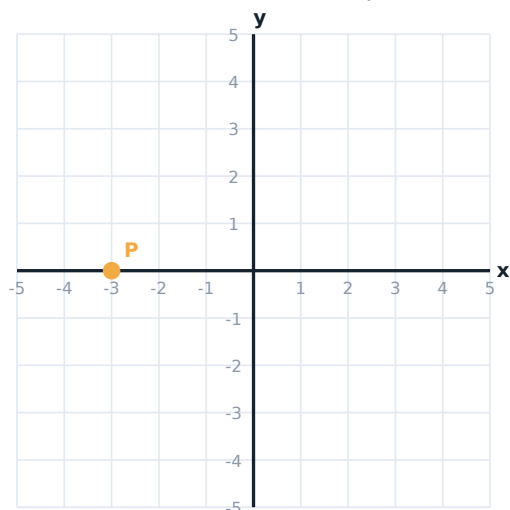
21 What is the **x-coordinate** of point P?



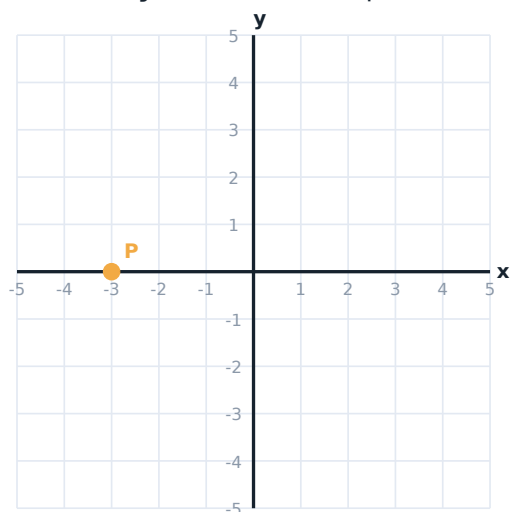
22 What is the **y-coordinate** of point P?



23 What is the **x-coordinate** of point P?



24 What is the **y-coordinate** of point P?



25 In which quadrant is the point (3, 2)? Give the number.

26 In which quadrant is the point (−2, 4)? Give the number.

27 In which quadrant is the point (−3, −1)? Give the number.

28 In which quadrant is the point (4, −3)? Give the number.

29 In which quadrant is the point (1, 5)? Give the number.

30 In which quadrant is the point (−5, 2)? Give the number.

31 In which quadrant is the point (−1, −4)? Give the number.

32 In which quadrant is the point (5, −2)? Give the number.

33 In which quadrant is the point (2, −5)? Give the number.

34 In which quadrant is the point (−4, −3)? Give the number.

35 How far apart are (1, 2) and (5, 2)?

36 How far apart are (−3, 4) and (2, 4)?

37 How far apart are (0, −1) and (6, −1)?

38 How far apart are (−4, −2) and (−1, −2)?

39 How far apart are (2, 1) and (2, 5)?

- 40 How far apart are $(-1, -3)$ and $(-1, 2)$?

- 41 How far apart are $(4, -4)$ and $(4, 0)$?

- 42 What is the x-coordinate of the midpoint of $(1, 1)$ and $(5, 5)$?

- 43 What is the x-coordinate of the midpoint of $(-4, 2)$ and $(2, -4)$?

- 44 What is the x-coordinate of the midpoint of $(0, 0)$ and $(6, 4)$?

- 45 What is the x-coordinate of the midpoint of $(-3, -3)$ and $(3, 3)$?

B · Reasoning — Order, signs and what they mean.

- 46 In the coordinate pair $(3, -2)$, which number comes first?
☐ The y-coordinate
☐ The x-coordinate
☐ Either
☐ The larger one
- 47 Where is the origin?
☐ Top left
☐ $(0, 0)$, where the axes cross
☐ $(1, 1)$
☐ Bottom right
- 48 A point has a negative x and a positive y. Which quadrant?
☐ 1
☐ 2
☐ 3
☐ 4
- 49 A point has a positive x and a negative y. Which quadrant?
☐ 1
☐ 2
☐ 3
☐ 4
- 50 Where does a point with $x = 0$ lie?
☐ On the x-axis
☐ On the y-axis
☐ At the origin
☐ Nowhere
- 51 Is $(3, 5)$ the same point as $(5, 3)$?
☐ Yes
☐ No

52 Two points have the same y-coordinate. What can you say about the line joining them?

- ☐ It is vertical
- ☐ It is horizontal
- ☐ It is diagonal
- ☐ Nothing

53 How do you find the midpoint of two points?

- ☐ Add the coordinates
- ☐ Average the x-coordinates and average the y-coordinates
- ☐ Subtract them
- ☐ Multiply them

C · Challenge — Rectangles, midpoints and reflections.

54 Three corners of a rectangle are (1, 1), (5, 1) and (5, 4). What is the x-coordinate of the fourth corner?

55 Three corners of a rectangle are (1, 1), (5, 1) and (5, 4). What is the y-coordinate of the fourth corner?

56 A rectangle has corners (−2, 1), (4, 1), (4, 5) and (−2, 5). What is its width?

57 A rectangle has corners (−2, 1), (4, 1), (4, 5) and (−2, 5). What is its area?

58 The midpoint of (2, 3) and another point is (5, 7). What is the x-coordinate of the other point?

59 A point is reflected in the y-axis. Its image is (−4, 3). What was its x-coordinate?

D · Word problems — Maps, robots and plots of land.

60 On a map, a school is at (3, 4) and a shop at (3, 9). How far apart are they, in grid squares?

61 A treasure map marks a chest 4 east and 2 south of the origin. What is its y-coordinate?

62 A chess-style grid has a piece at (−3, −5). Which quadrant is it in?

63 A robot starts at (0, 0), moves 5 right and 3 up. What is its x-coordinate?

64 A robot at (2, 6) moves 4 down. What is its new y-coordinate?

65 Two flags are at (−4, 2) and (6, 2). How far apart are they?

66 A garden plot has corners $(0, 0)$, $(8, 0)$, $(8, 5)$, $(0, 5)$. What is its area, in square units?

67 A point is 3 left and 7 down from the origin. What is its x-coordinate?
