



- 1 O is the origin of a coordinate grid.

The point A is 4 units to the right of O and 2 units up from O.

The point B is 3 units to the left of O and 5 units up from O.

a. Write down the coordinates of A.

b. Write down the coordinates of B.

(2 marks)

Right is the positive x direction and up is the positive y direction

A is 4 right and 2 up, so A is $(4, 2)$

B is 3 left and 5 up, so B is $(-3, 5)$

- 2 A point P is 3 squares across and 5 squares up from the origin O.

Write down the coordinates of P.

(1 mark)

across first, then up

$(3, 5)$

- 3 A is the point with coordinates $(2, 4)$.

B is the point with coordinates $(8, 10)$.

Work out the coordinates of the midpoint of AB.

(2 marks)

Halfway between two values is their average: start at one value and add half the difference. Do this separately for the horizontal and vertical positions

The midpoint has the mean of the x coordinates and the mean of the y coordinates

x coordinate

$$(2 + 8) \div 2 = 5$$

y coordinate

$$(4 + 10) \div 2 = 7$$

The midpoint is $(5, 7)$

$(5, 7)$

- 4 Three corners of a rectangle are at (1, 1), (5, 1) and (5, 3).

Write down the coordinates of the fourth corner.

(2 marks)

Same x as (1, 1): $x = 1$

Same y as (5, 3): $y = 3$

(1, 3)

- 5 Three corners of a square are at (2, 2), (2, 5) and (5, 5).

Write down the coordinates of the fourth corner.

(2 marks)

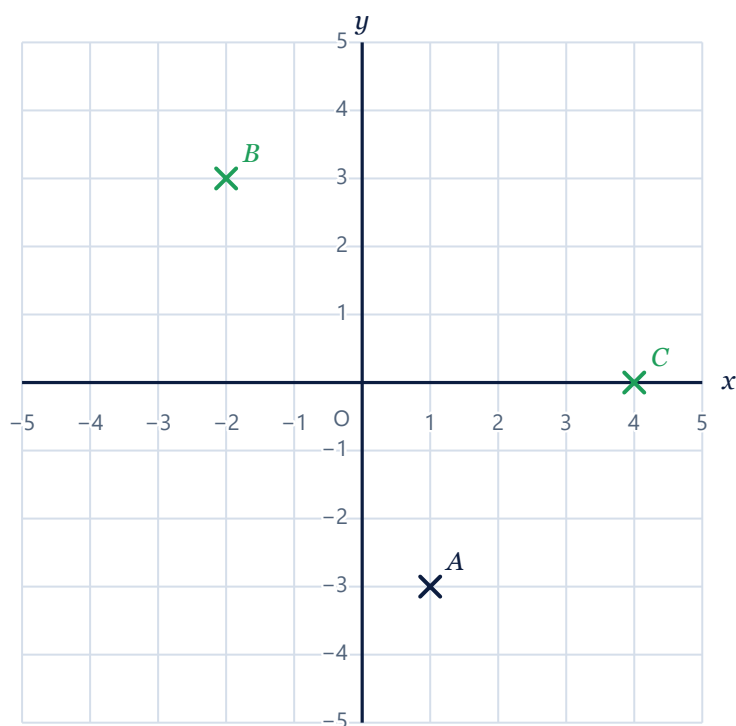
Same y as (2, 2): $y = 2$

Same x as (5, 5): $x = 5$

(5, 2)

- 6 The point A is shown on the grid.

- Write down the coordinates of A.
- On the grid, plot the point B with coordinates $(-2, 3)$.
- On the grid, plot the point C with coordinates $(4, 0)$.



(3 marks)

A is 1 unit right of the origin and 3 units down, so A is (1, -3)

For B, go 2 left and 3 up from the origin, then mark the point

For C, go 4 right along the x -axis; the y coordinate is 0, so C sits on the x -axis

- 7 Point A is at (3, 2). It is moved 4 squares to the right and 1 square up to point B.

Write down the coordinates of B.

(2 marks)

$$x: 3 + 4 = 7$$

$$y: 2 + 1 = 3$$

$$(7, 3)$$

- 8 P is the point (2, 2) and Q is the point (6, 2).

Write down the coordinates of the midpoint of the line PQ.

(2 marks)

y stays 2

$$x: (2 + 6) \div 2 = 4$$

$$(4, 2)$$

- 9 a. The line $x = 5$ and the line $y = -1$ cross at the point P.

Write down the coordinates of P.

- b. The line $y = x$ and the line $x = 3$ cross at the point Q.

Write down the coordinates of Q.

- c. Write down the coordinates of the point where the line $y = 2$ crosses the y-axis.

(3 marks)

Every point on $x = 5$ has x coordinate 5 and every point on $y = -1$ has y coordinate -1, so P is (5, -1)

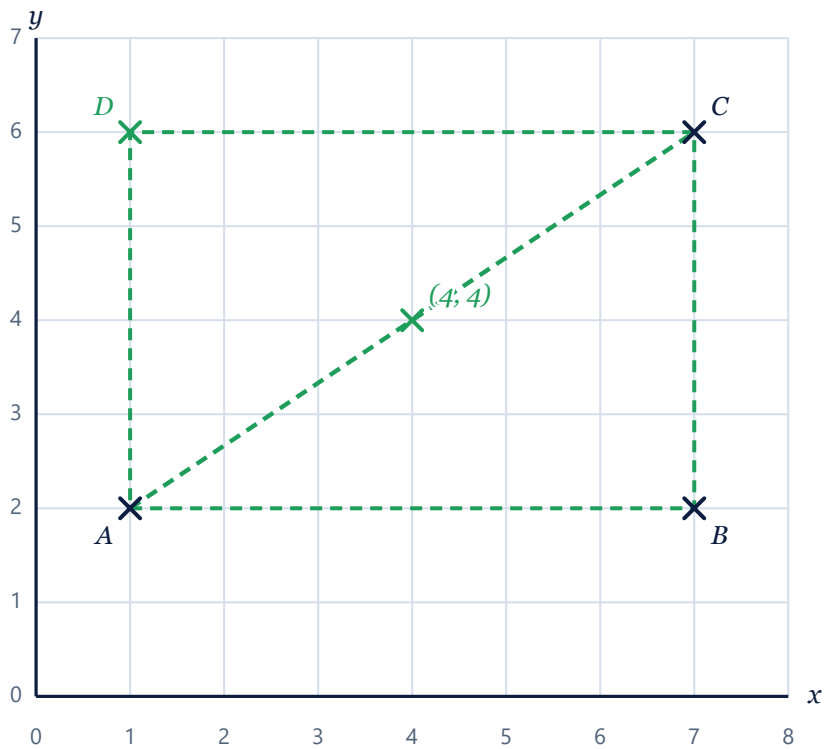
On $y = x$ the two coordinates are equal, so when $x = 3$ the point is (3, 3)

On the y-axis the x coordinate is 0, so the line $y = 2$ crosses it at (0, 2)

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Three vertices of a rectangle ABCD are A (1, 2), B (7, 2) and C (7, 6).

- Work out the coordinates of the vertex D.
- Work out the coordinates of the midpoint of the diagonal AC.



(3 marks)

D is directly above A and level with C, so D has the x coordinate of A and the y coordinate of C

D is (1, 6)

Midpoint of AC

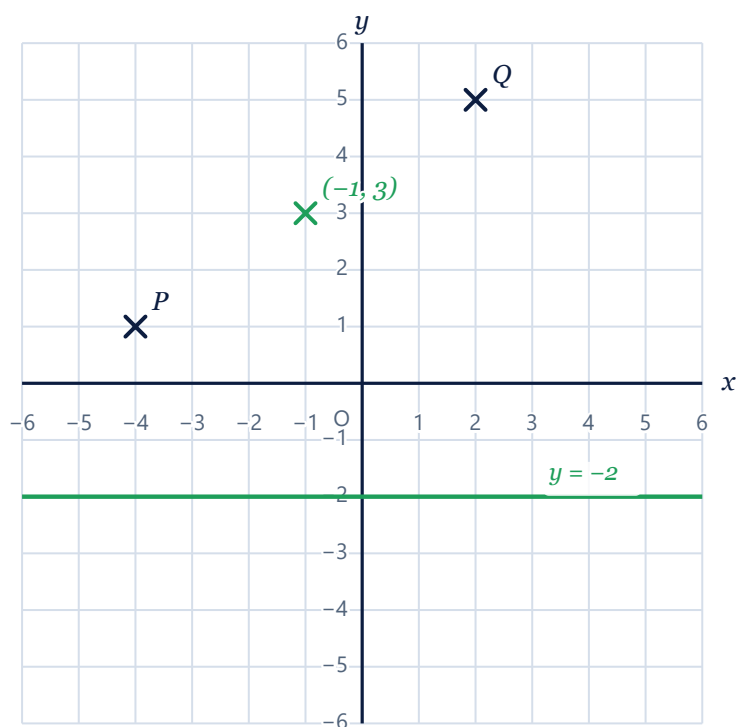
x coordinate $(1 + 7) \div 2 = 4$, y coordinate $(2 + 6) \div 2 = 4$

The midpoint is (4, 4)

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The points P and Q are shown on the grid.

- Write down the coordinates of P.
- Write down the coordinates of Q.
- Work out the coordinates of the midpoint of PQ.
- On the grid, draw the line $y = -2$.



(4 marks)

Read the marked points from the grid: P is $(-4, 1)$ and Q is $(2, 5)$

Midpoint of PQ

x coordinate $(-4 + 2) \div 2 = -1$, y coordinate $(1 + 5) \div 2 = 3$, so
 $(-1, 3)$

The line $y = -2$ is the horizontal line through every point with y coordinate -2