MATHEMATICS · GRADES 7-9

The Cartesian Coordinate System

Difficulty level: Intermediate

Mathematics: Grades 7-9

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Overview of the concept

This is how you pinpoint an exact spot, like a place on a map grid or a point on a graph. You give its position across and up from zero, and anyone else using the same grid finds the same spot. It is the system behind maps, graphs, and GPS, and it is how maths turns a location into numbers.



Rule

A point is named (x, y): across first, then up.

The first number, x, tells you how far across from the origin to go, and the second number, y, tells you how far up or down to go. The origin, where the axes cross, is (0, 0).

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Worked examples

EXAMPLE 1

Q Name the point (4, 1)

SOLUTION

Read the first number, 4, as the horizontal distance: start at the origin and move 4 units right.

Read the second number, 1, as the vertical distance: from there move 1 units up.

Mark the point where you land. The point is 4 right and 1 up from the origin.

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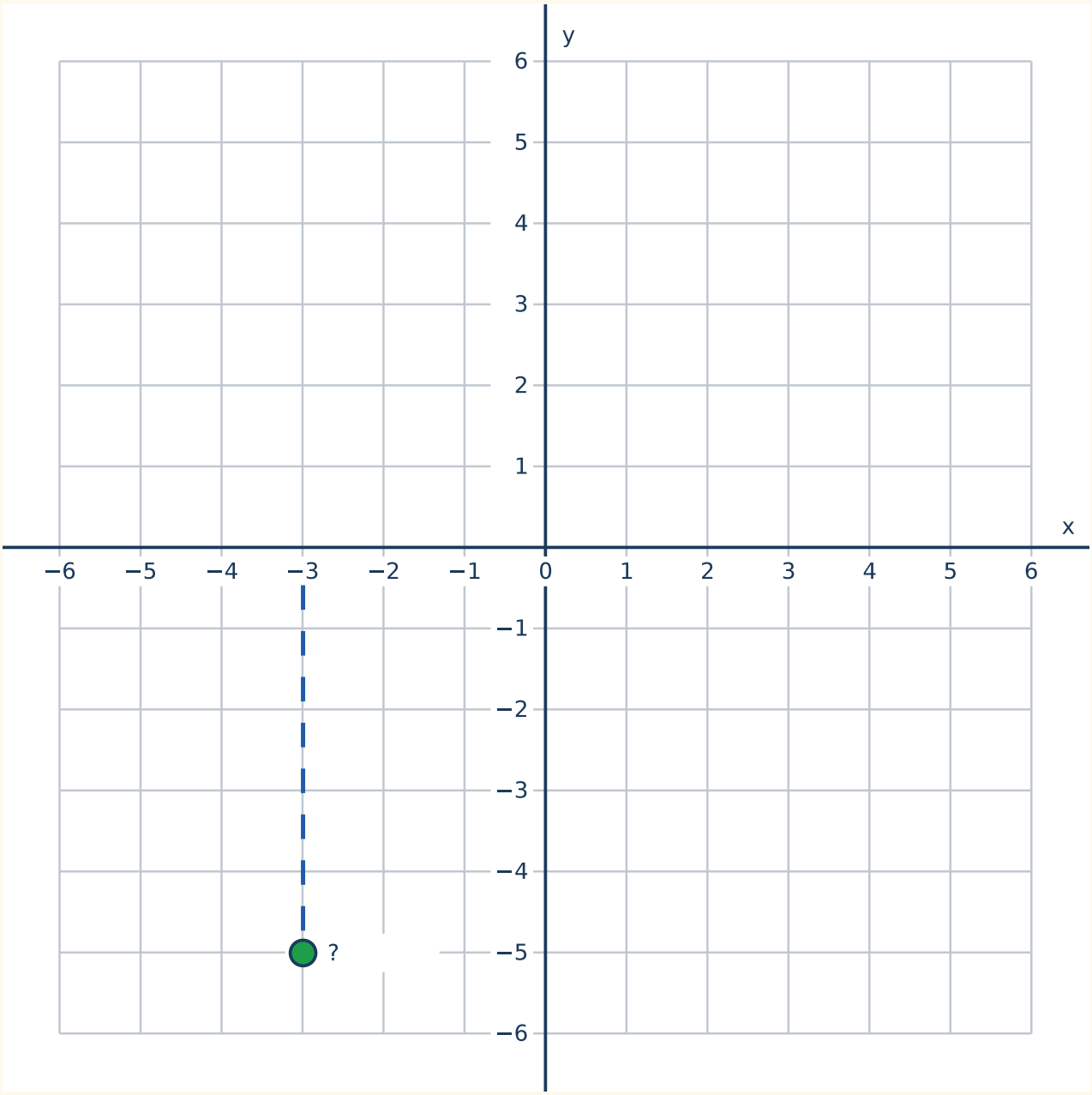
EXAMPLE 2

Q Name the point shown 3 left and 5 down from the origin



SOLUTION

Left means the horizontal number is negative, so the first number is - 3.

Down means the vertical number is negative, so the second number is - 5.

The point is (- 3, - 5).

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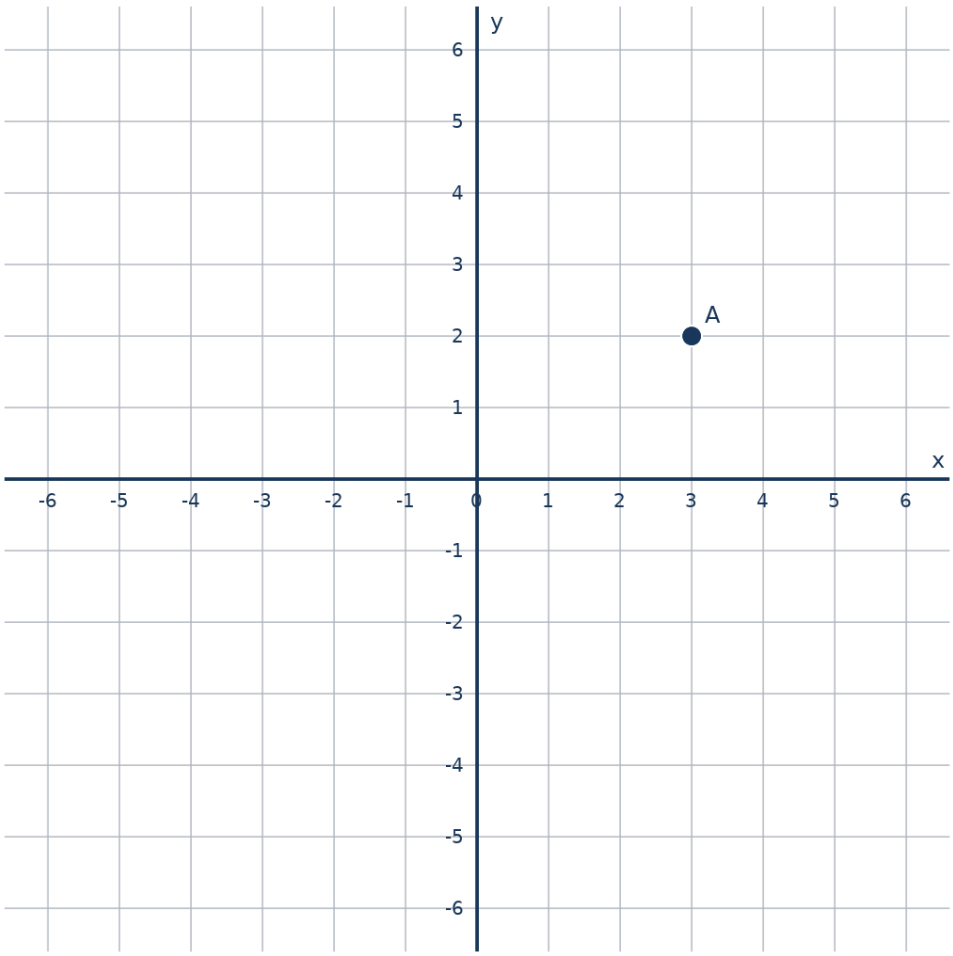
Practice questions

1 Point A is shown on the grid. Name point A in words, saying how far right or left and how far up or down it is from the origin.



- **A** 3 right and 2 up
- **B** 2 right and 3 up
- **C** 3 left and 2 up

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D 3 right and 2 down

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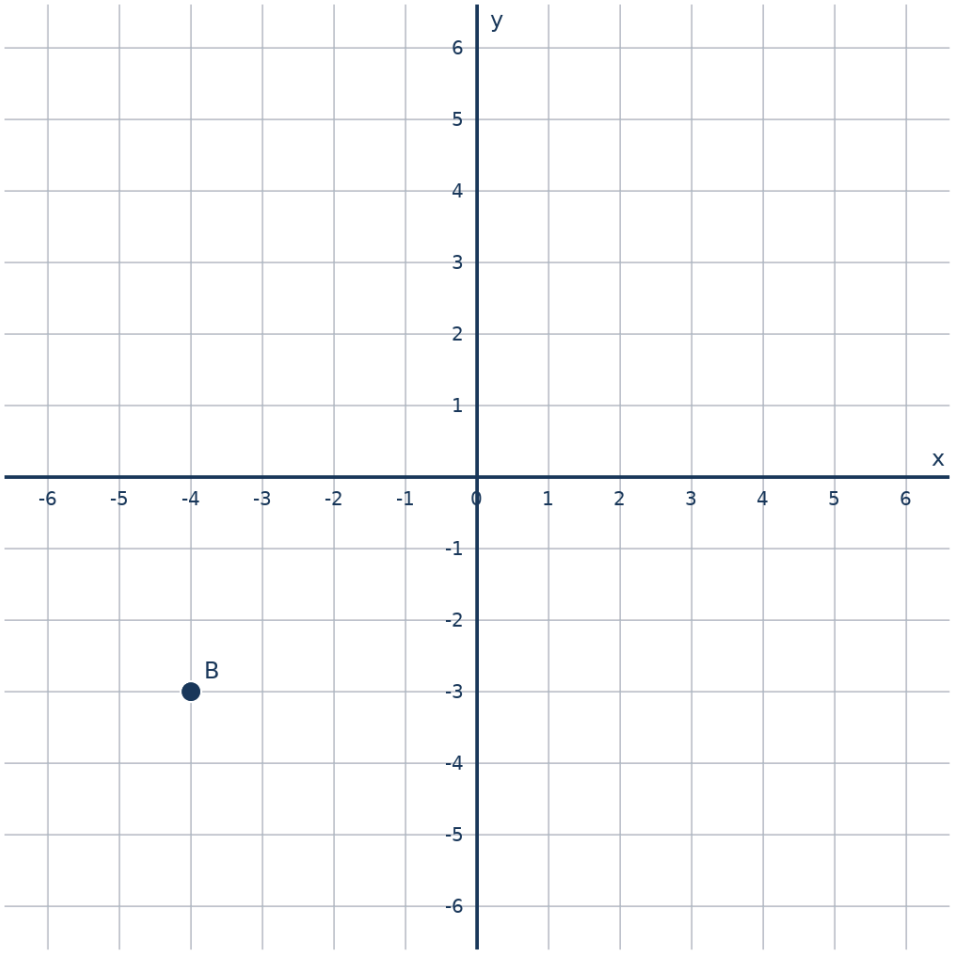
2 Point B is shown on the grid. What are the coordinates of point B?



A (-3, -4)

B (-4, -3)

C (4, 3)

D (-4, 3)

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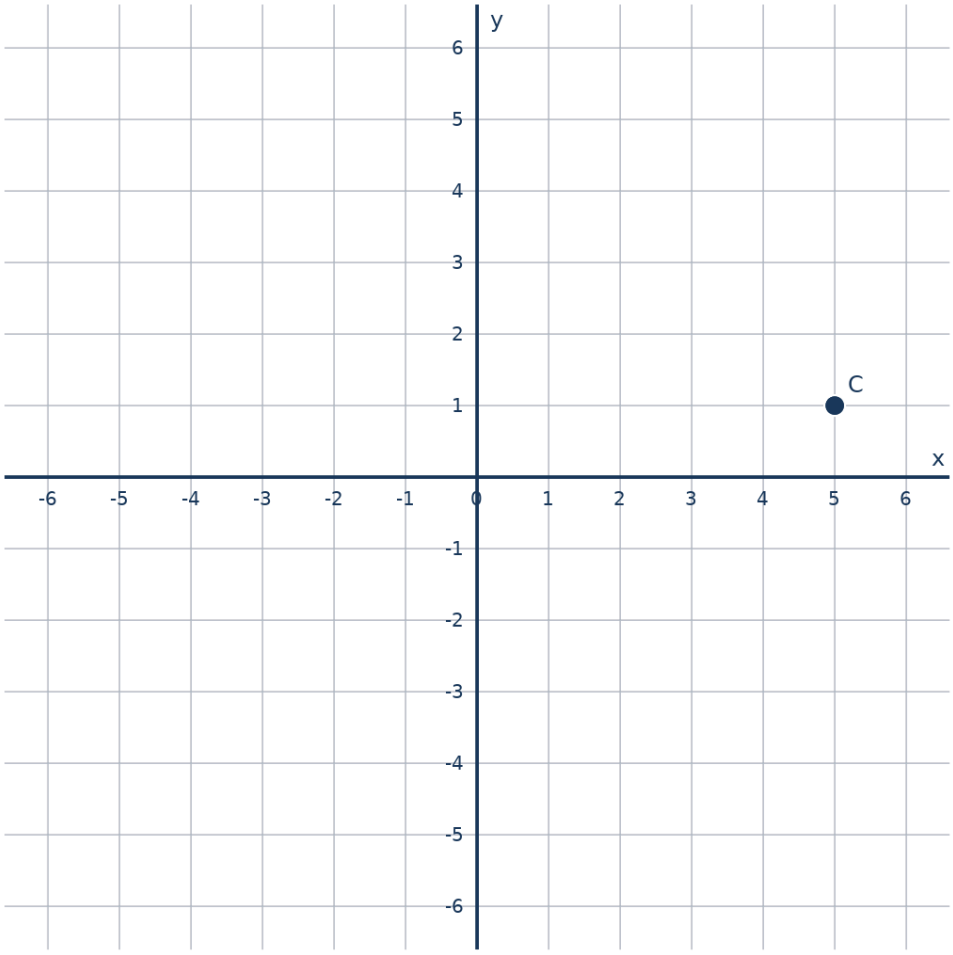
3 **Point C marks a campsite on the grid. Name point C in words.**



A 5 right and 1 up

B 1 right and 5 up

C 5 left and 1 up

D 5 right and 1 down

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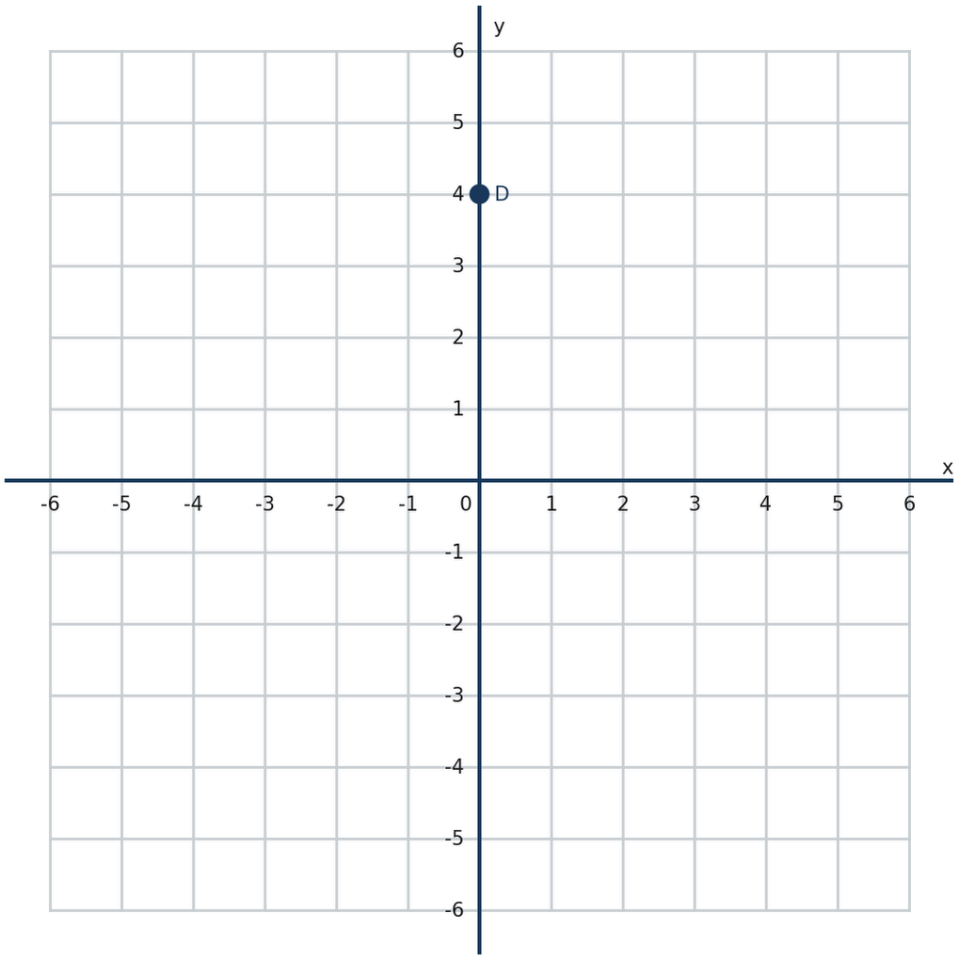
4 **Point D is shown on the grid. Name point D in words.**



A 4 right and 0 up

B 0 right and 4 up

C 0 right and 4 down

D 4 right and 4 up

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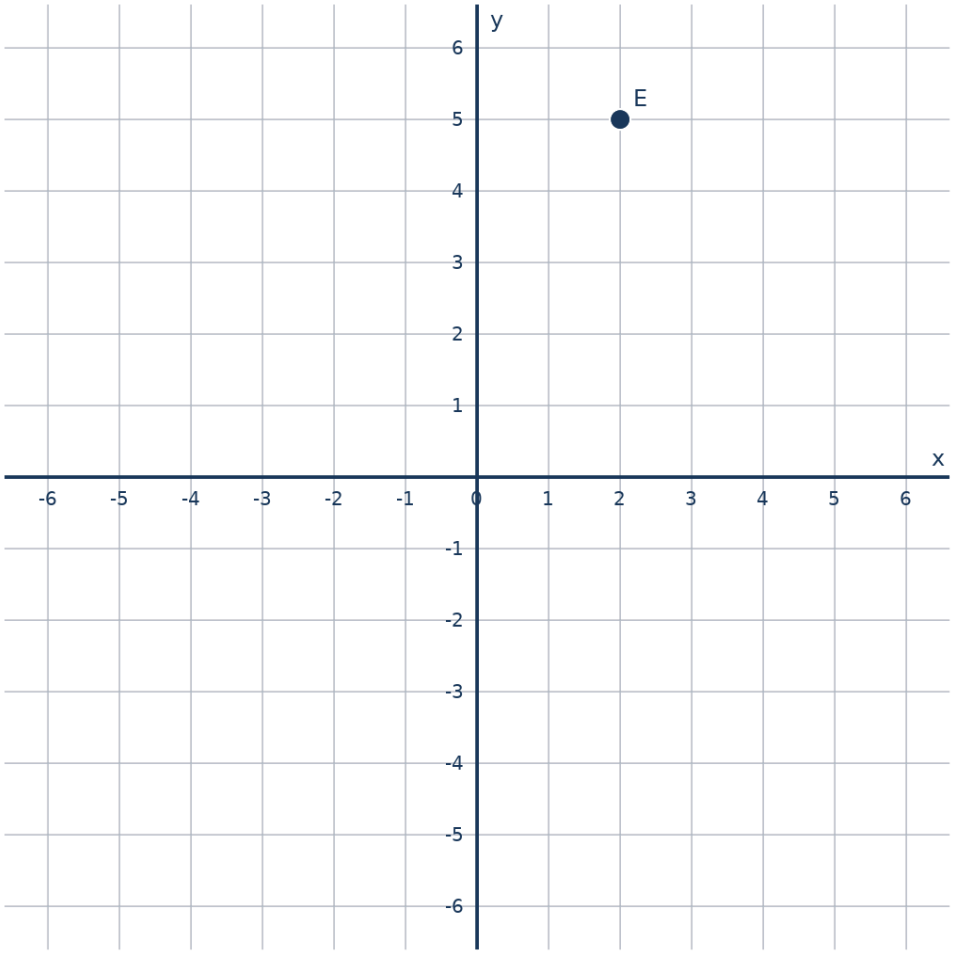
5 A kite is at point E on the grid. What are the coordinates of point E?



A (5, 2)

B (2, 5)

C (-2, 5)

D (2, -5)

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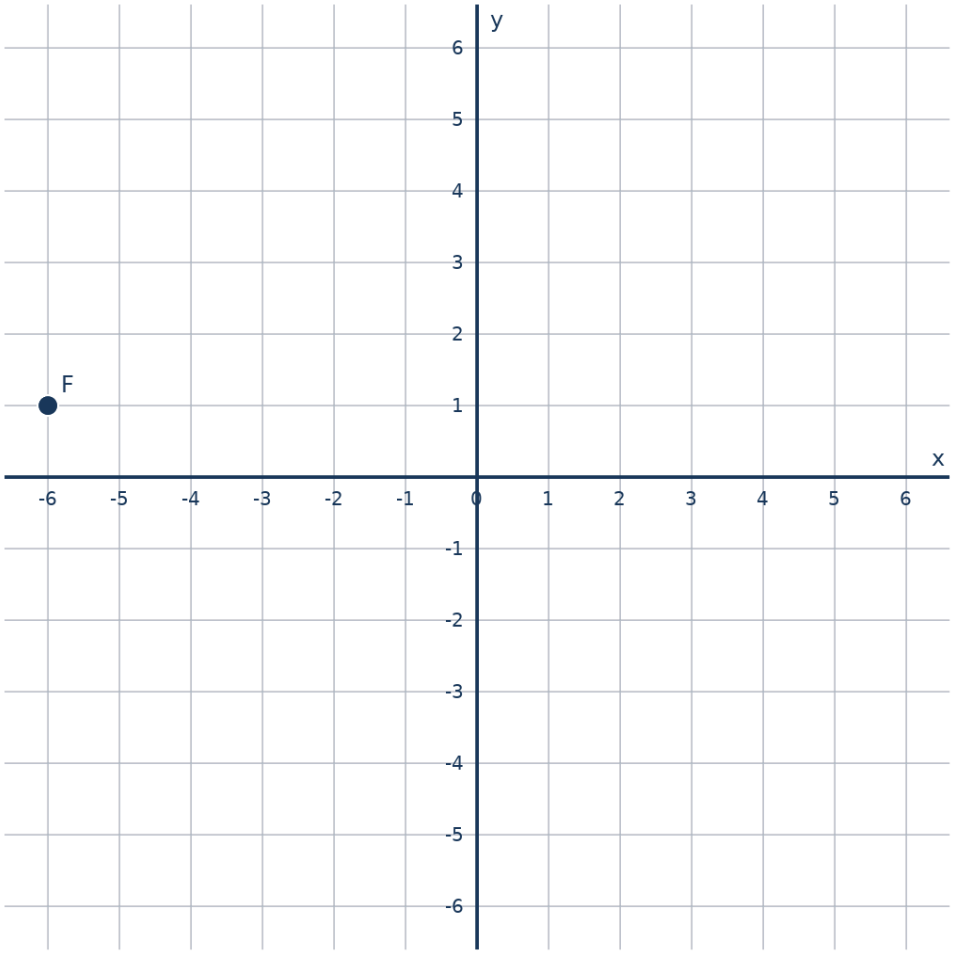
6 Point F is shown on the grid. What are the coordinates of point F?



A (-6, 1)

B (6, 1)

C (-6, -1)

D (-1, 6)

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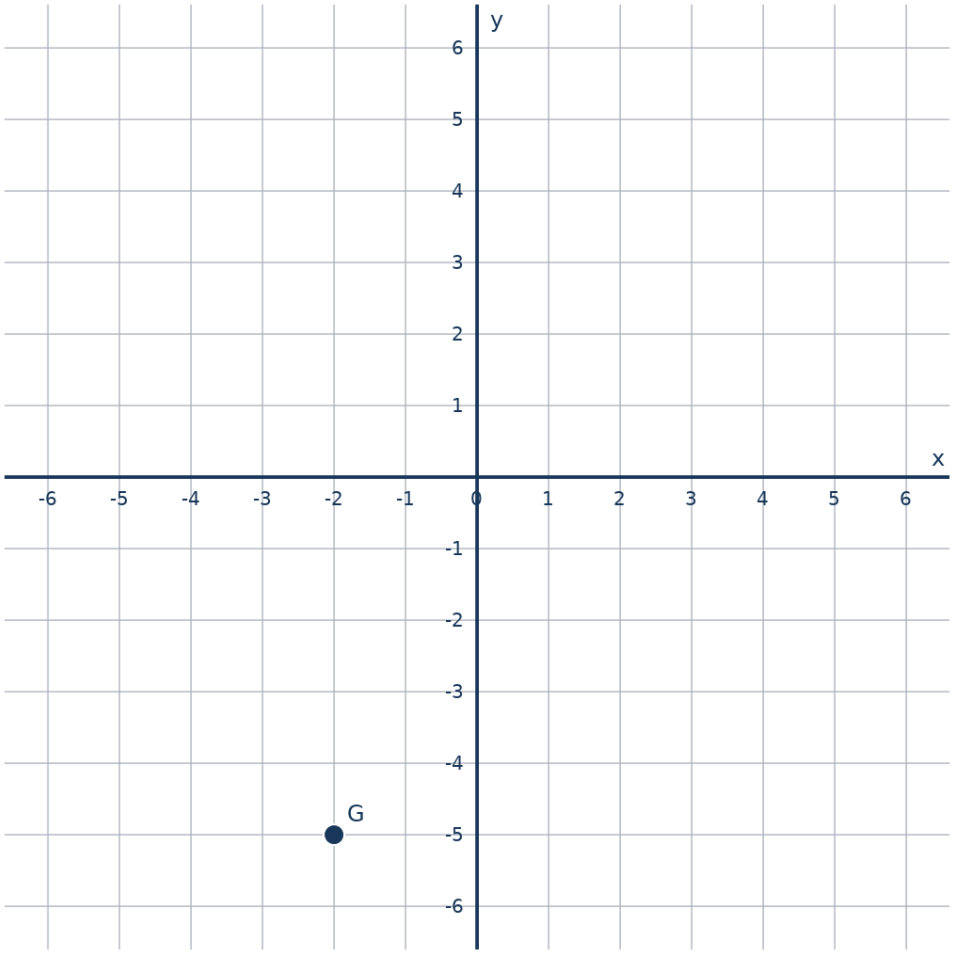
7 Point G is shown on the grid. What are the coordinates of point G?



A (2, 5)

B (-2, -5)

C (-5, -2)

D (-2, 5)

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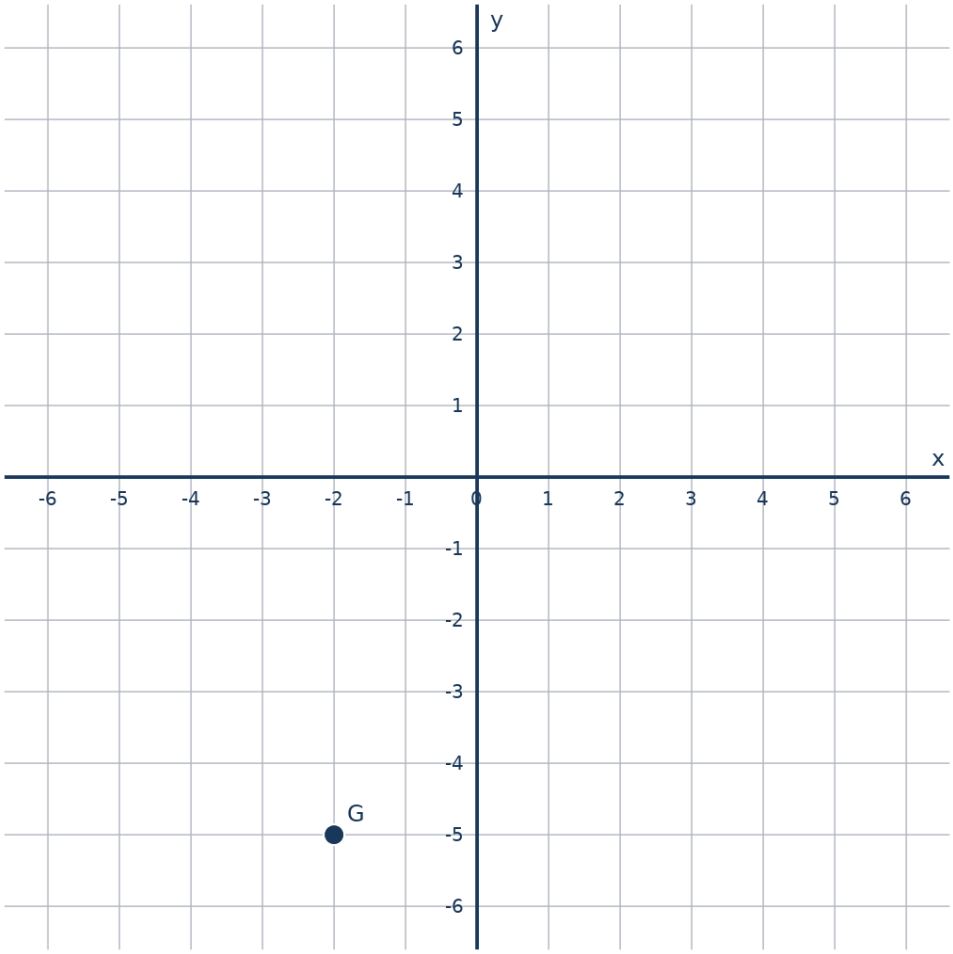
8 Point G is at (-2, -5). Which of these points sits in the same corner of the grid as point G?



A (2, 5)

B (-3, -4)

C (3, -4)

D (-2, 5)

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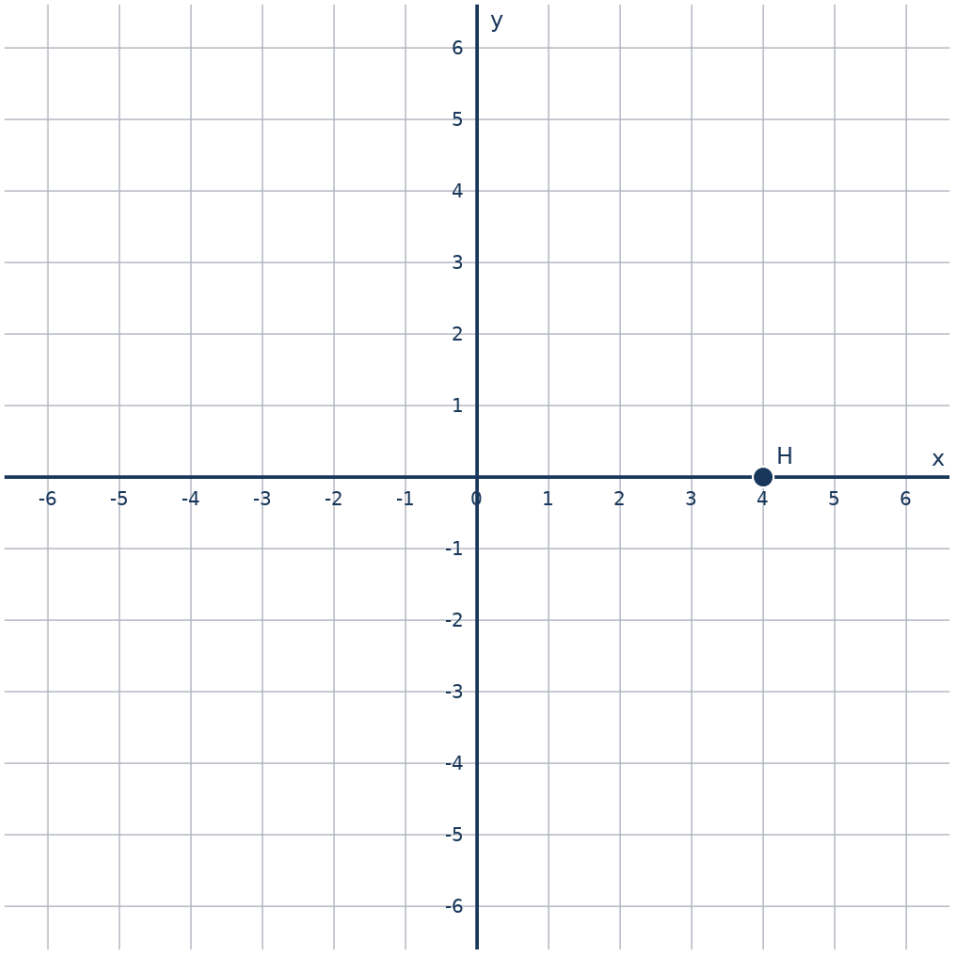
9 Point H is shown on the grid. What are the coordinates of point H?



A (0, 4)

B (4, 0)

C (-4, 0)

D (4, 4)

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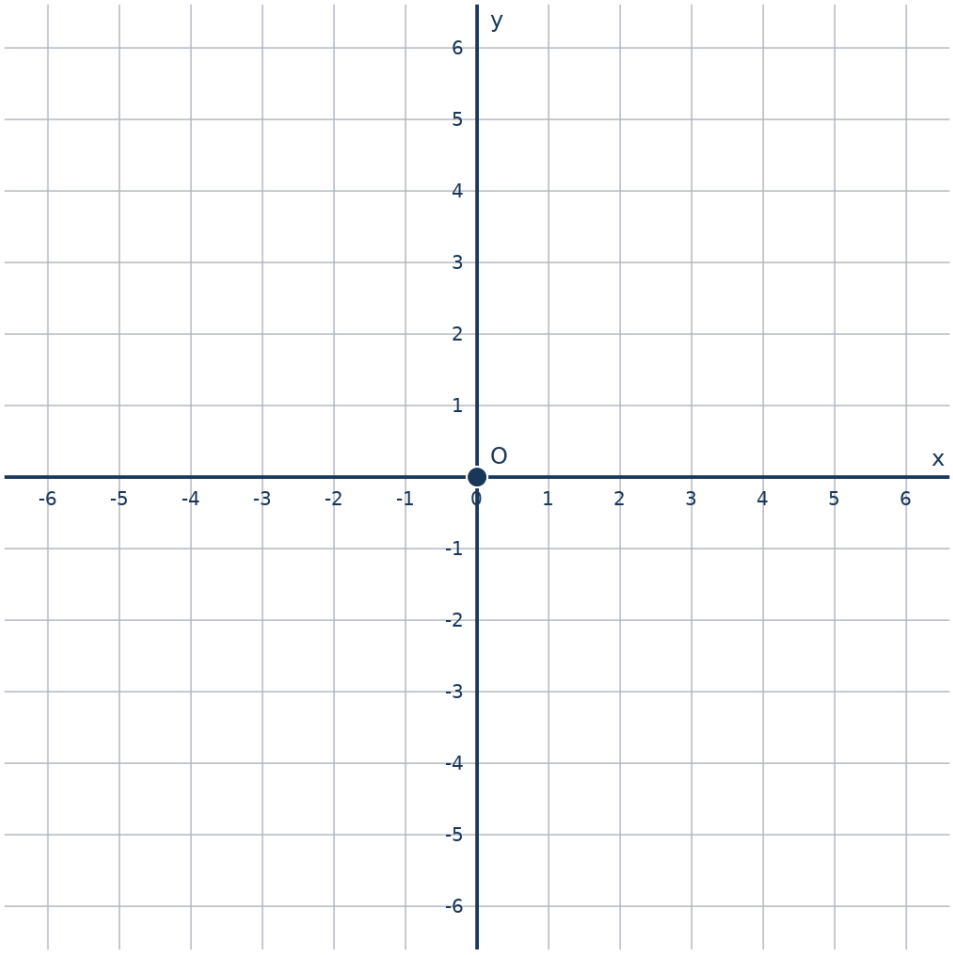
10 **Point O is shown on the grid. Name point O in words.**



A The origin

B The x-axis

C The y-axis

D The first quadrant

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ANSWER KEY

1. 3 right and 2 up

2. (-4, -3)

3. 5 right and 1 up

4. 0 right and 4 up

5. (2, 5)

6. (-6, 1)

7. (-2, -5)

8. (-3, -4)

9. (4, 0)

10. The origin

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