Maths SATs Survival

Revision Guide and Quiz

Geometry – Position and Direction

twinkl

twinkl
Quality Standard
Approved

Read and write coordinates in all four quadrants

Draw sides to complete a given polygon on a four-quadrant coordinate grid

Describe movements between positions as translations

Identify, describe and represent the position of a shape following a reflection

twinkl.com

Revise

Read and write coordinates in all four quadrants

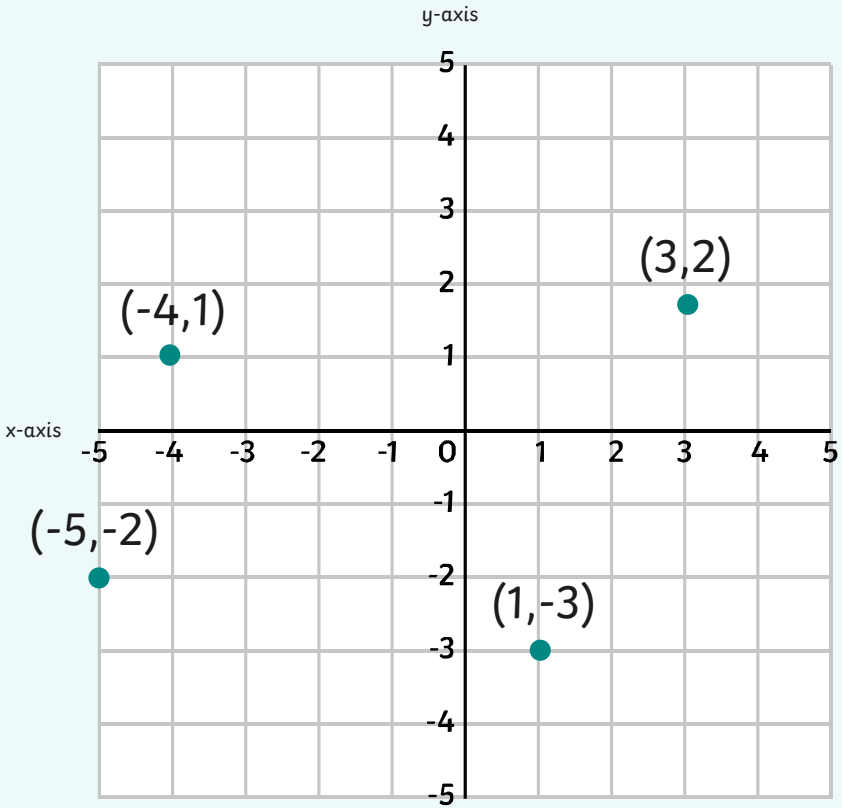
Coordinates are pairs of numbers which show position on a grid.

The first number shows the position along the **horizontal x-axis**.

The second number shows the position along the **vertical y-axis**.

The point where these two lines on the axis meet is the coordinate position.

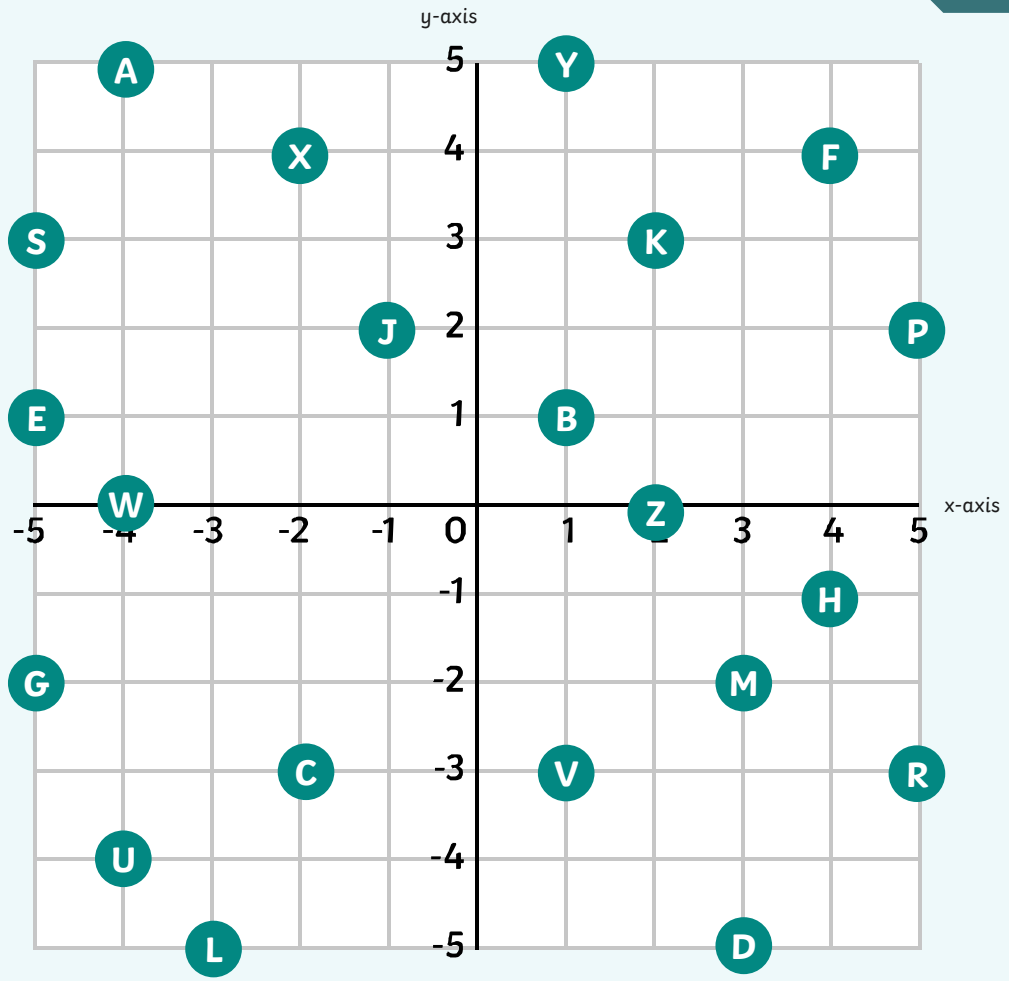
The full coordinate grid has **four quadrants** which are created by extending both axes into **negative numbers**.



twinkl.com

Quiz

Read and write coordinates in all four quadrants



Which letter is at coordinate (-5,3)?

A

E

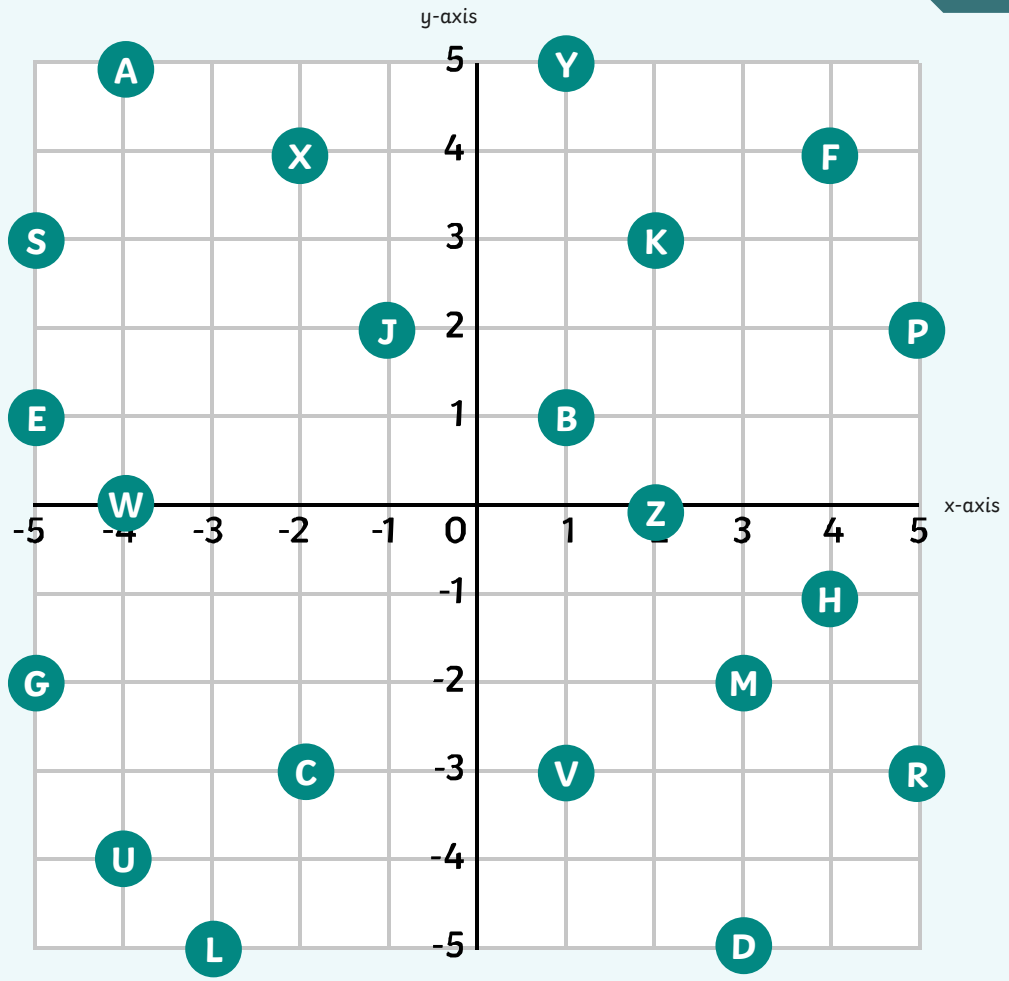
S

Try again!

twinkl.com

Quiz

Read and write coordinates in all four quadrants



Which letter is at coordinate (4,-1)?

F

H

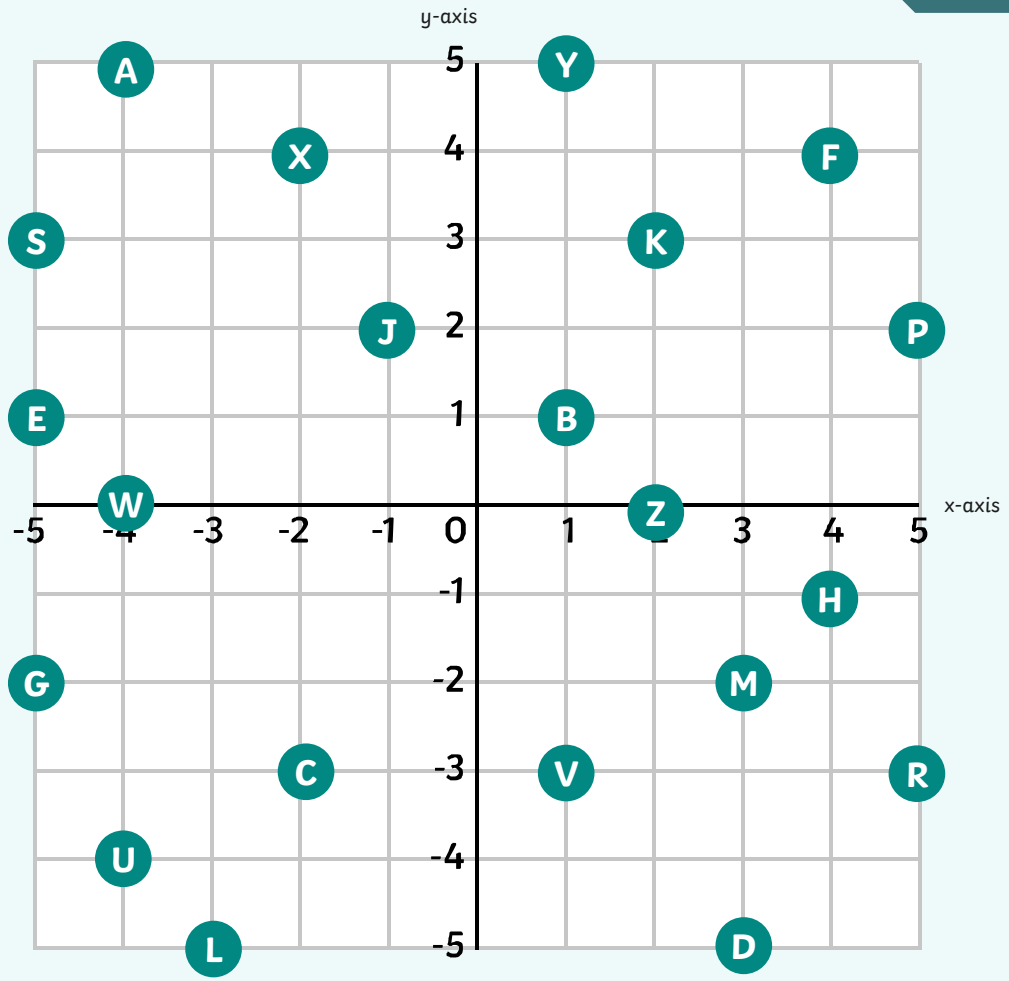
W

Try again!

twinkl.com

Quiz

Read and write coordinates in all four quadrants



Which letter is at coordinate (-2,-3)?

C

X

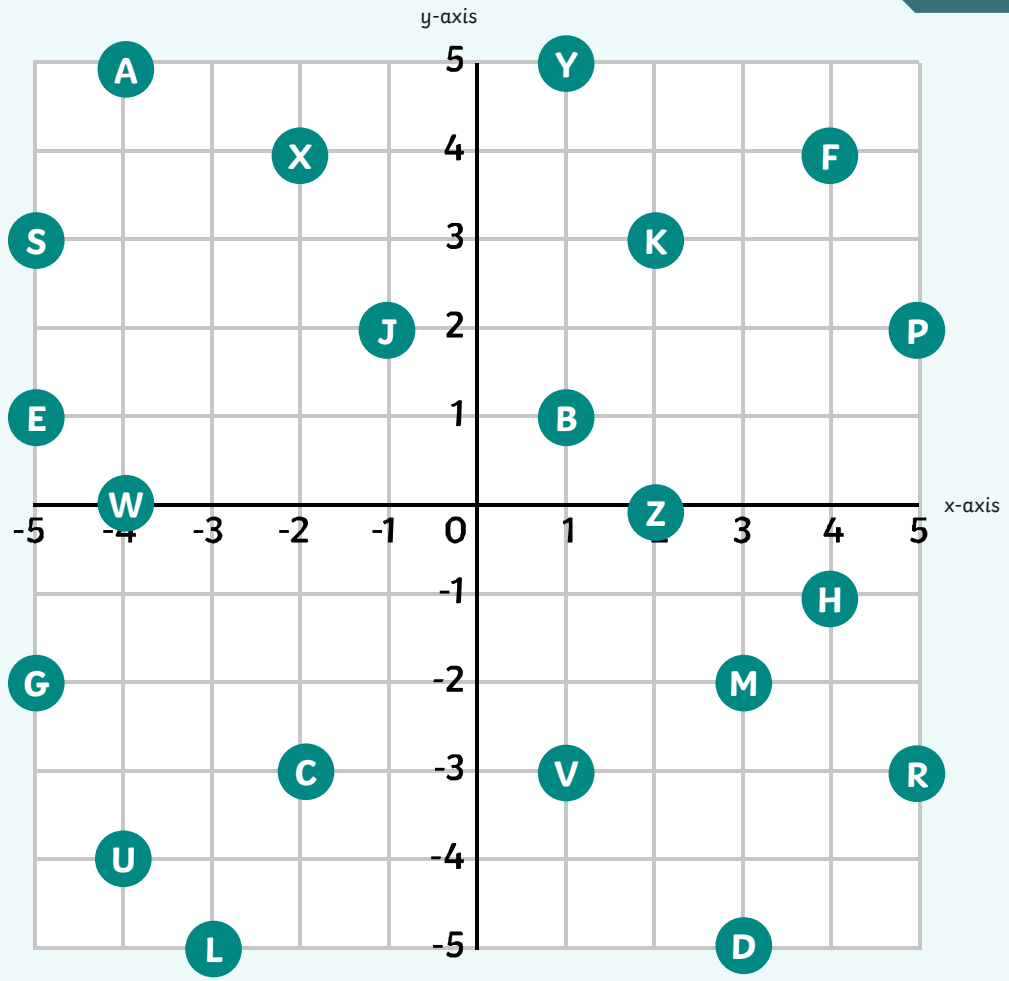
K

Try again!

twinkl.com

Quiz

Read and write coordinates in all four quadrants



Which letter is at coordinate (1,5)?

V

Y

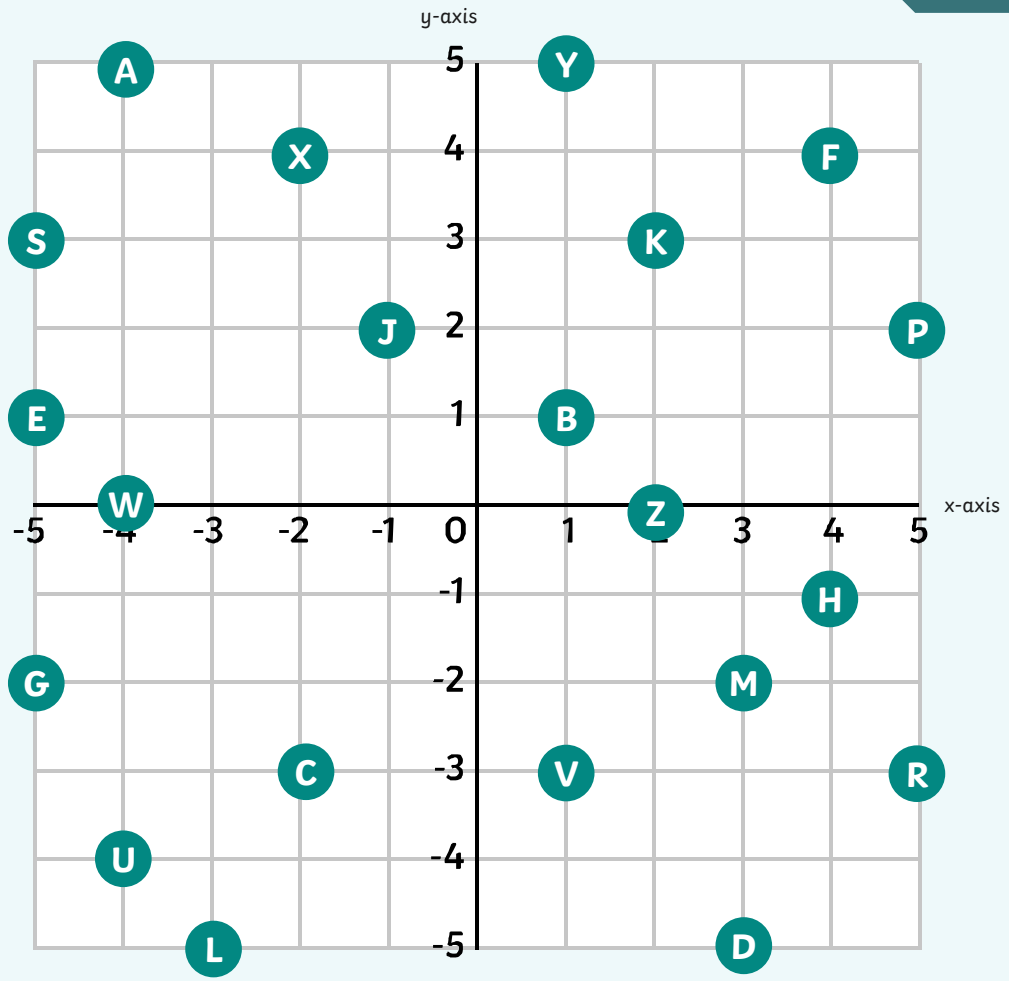
J

Try again!

twinkl.com

Quiz

Read and write coordinates in all four quadrants



What is the coordinate of tha letter W?

(4,0)

(0,-4)

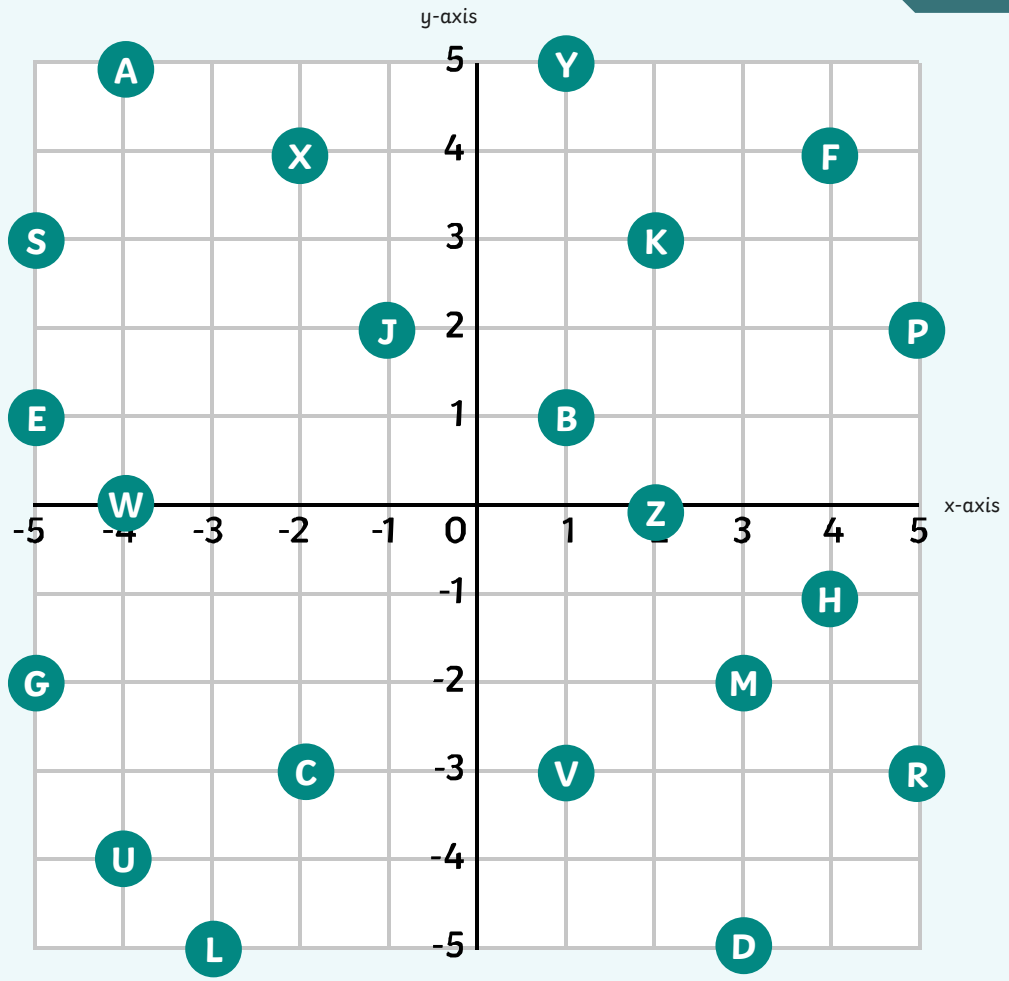
(-4,0)

Try again!

twinkl.com

Quiz

Read and write coordinates in all four quadrants



What is the coordinate of the letter D?

(3,-5)

(-3,-5)

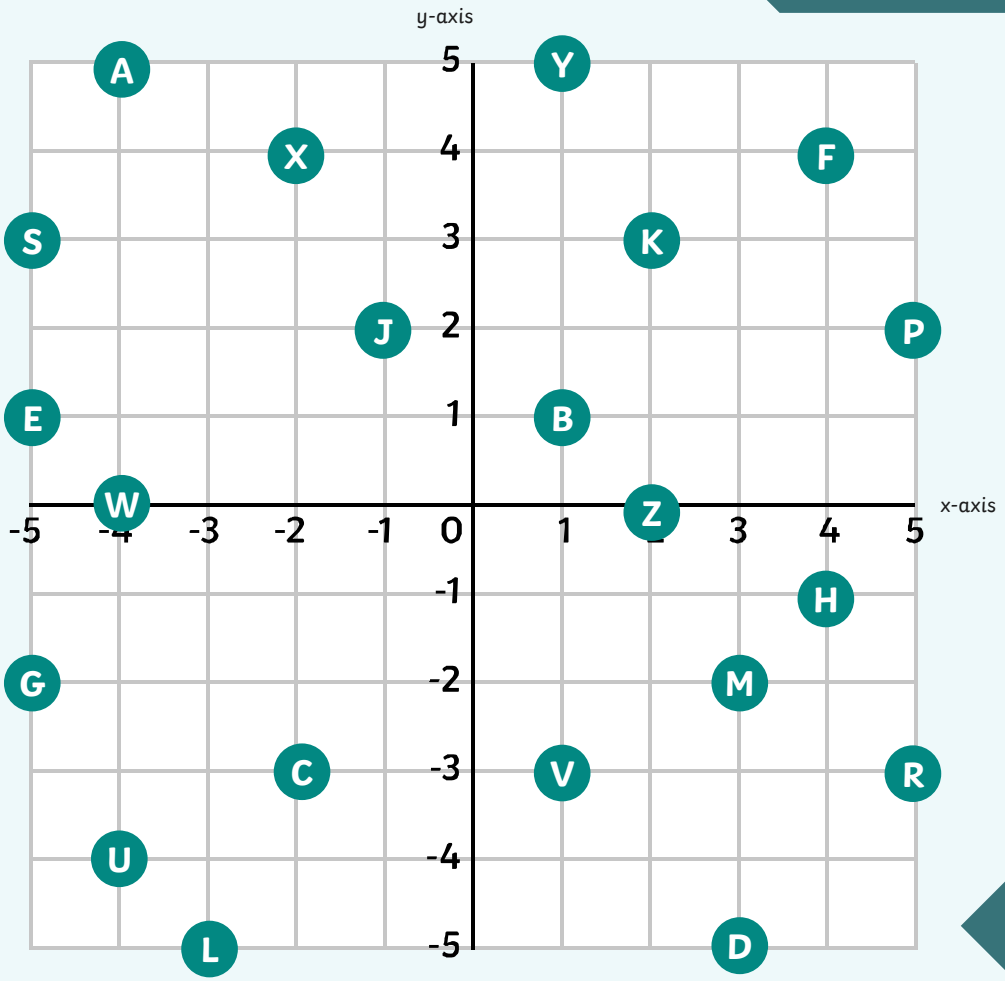
(-5,3)

Try again!

twinkl.com

Quiz

Compare and classify 2D shapes based on their properties



What is the coordinate of the letter Z?

(0,2)

(2,0)

(-2,0)

Correct!

Choose another objective

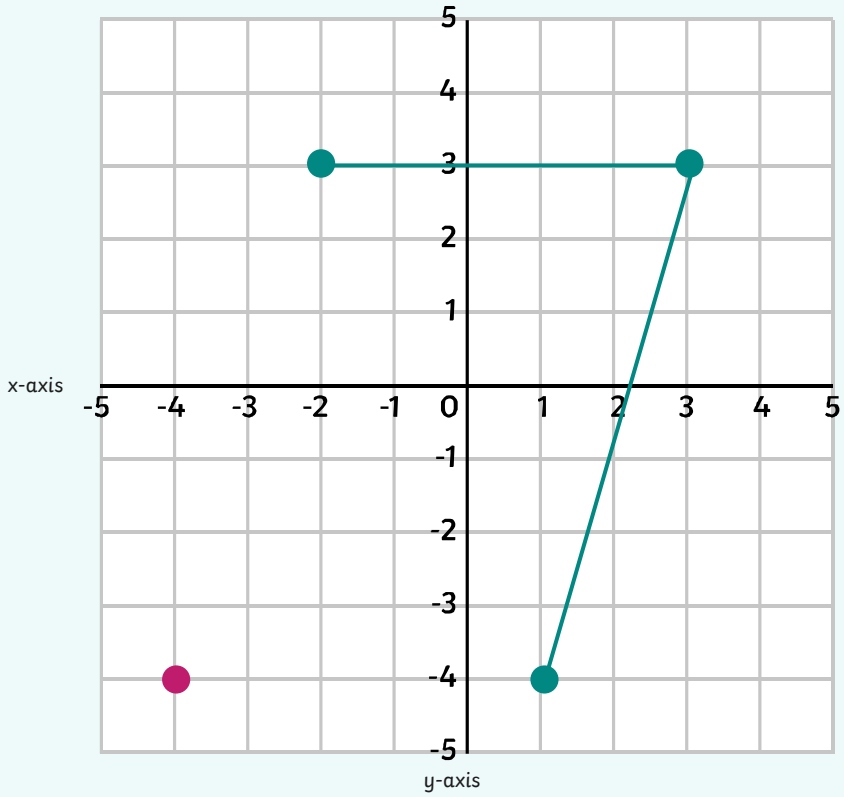
twinkl.com

Revise

Draw sides to complete a given polygon on a four-quadrant coordinate grid

We know that a parallelogram has two pairs of parallel, equal sides. We can use the dimensions given to identify the missing coordinate corner as **(-4,-4)**.

Plot and label the missing coordinate to draw a parallelogram.



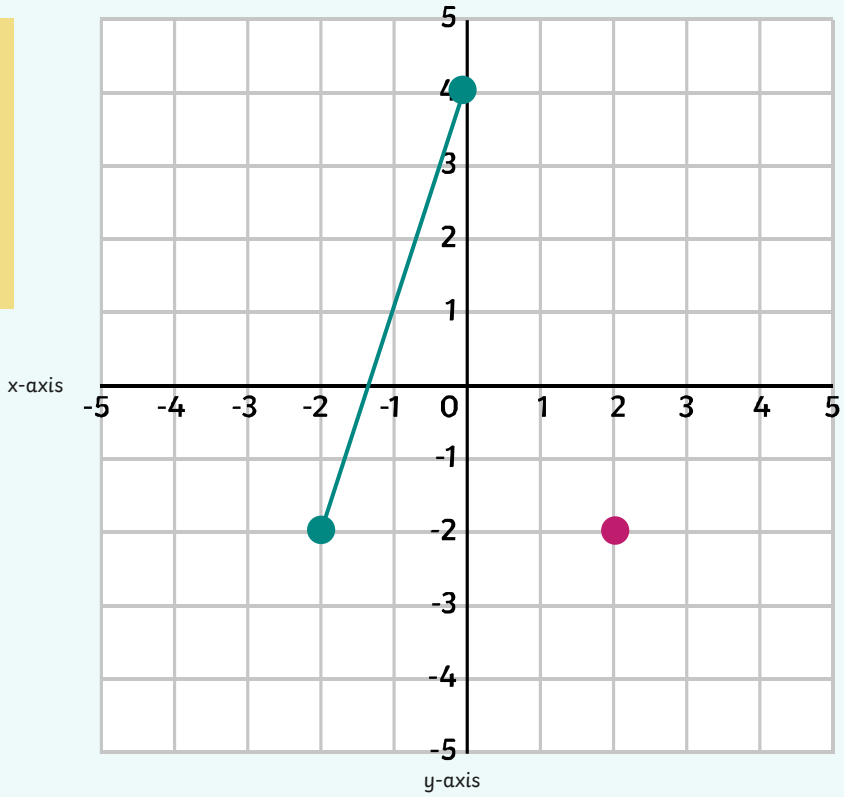
twinkl.com

Revise

Draw sides to complete a given polygon on a four-quadrant coordinate grid

We know that an isosceles triangle has two sides of equal length and two angles of equal size. We can use the length given to identify the missing coordinate corner as **(2,-2)**.

Plot and label the missing coordinate to draw an isosceles triangle.



twinkl.com

Revise

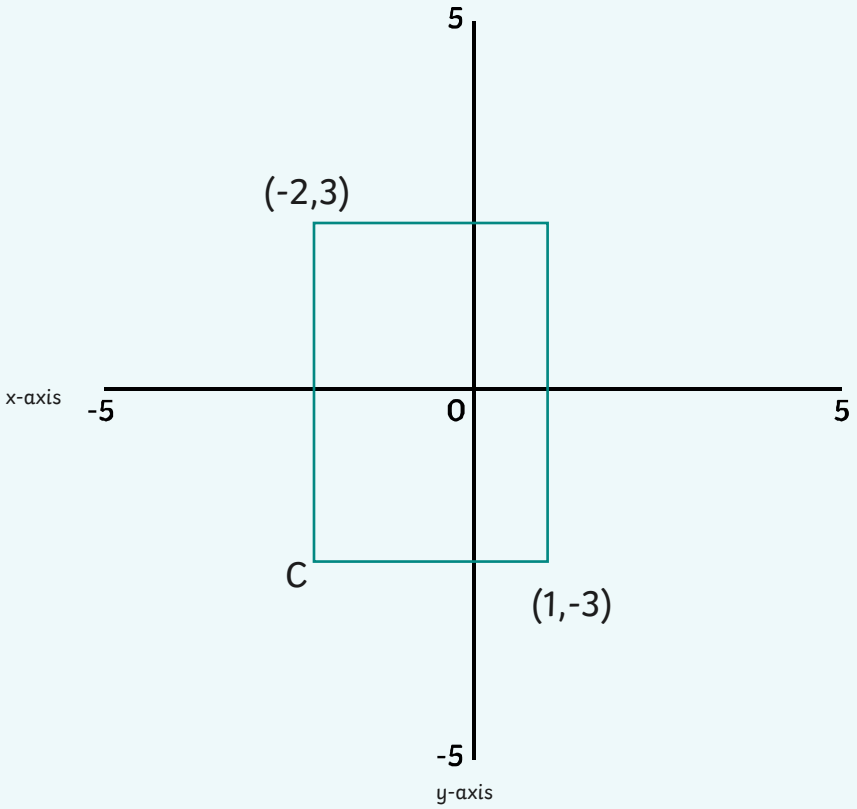
Draw sides to complete a given polygon on a four-quadrant coordinate grid

Several coordinate points can be joined together on the grid to create polygons.

We can use our reasoning about the properties of different polygons to identify or plot missing coordinates of polygons on the coordinate grid.

We know that a rectangle has two pairs of parallel, equal sides and four right angles of 90°.
We can identify, using the given coordinates, that C is at -2 on the x-axis and -3 on the y-axis. The coordinate position of C is **(-2,-3)**.

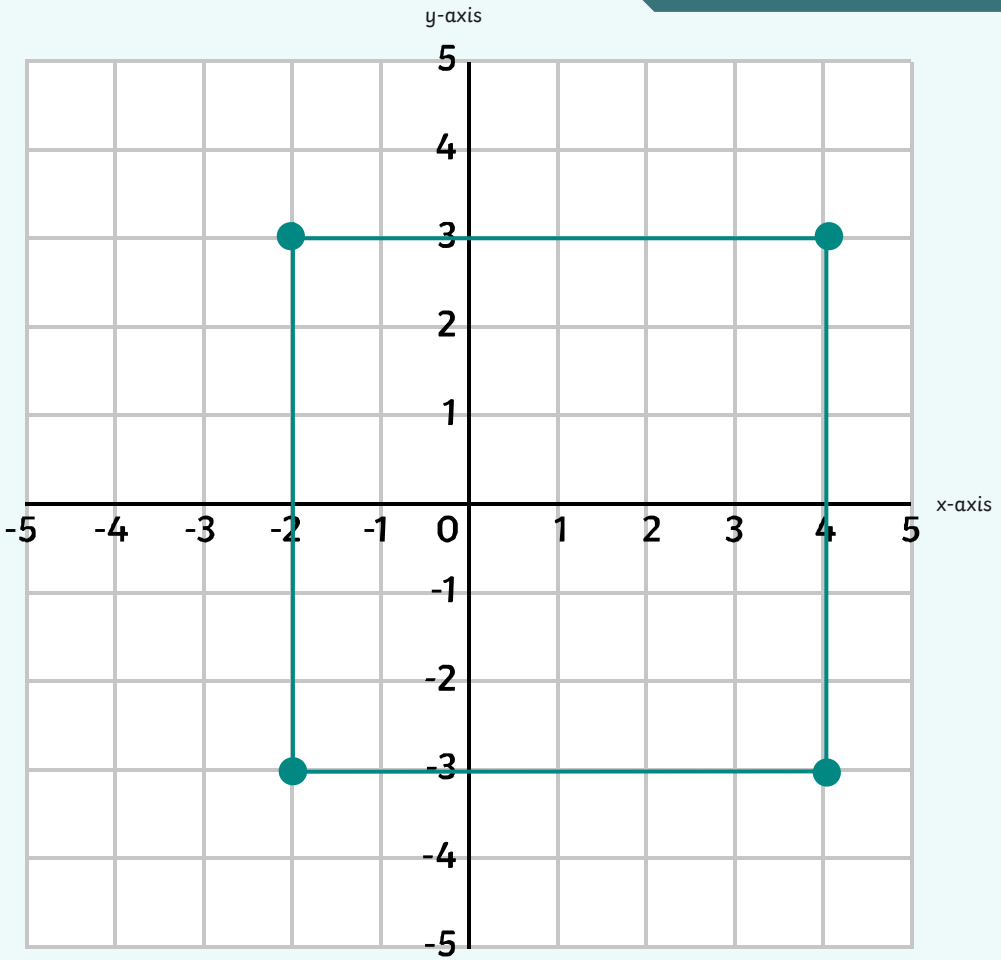
What is the position of C on this rectangle?



twinkl.com

Quiz

Draw sides to complete a given polygon on a four-quadrant coordinate grid



What is the missing coordinate needed to complete the drawing of the square?

(-3,-4)

(-3,4)

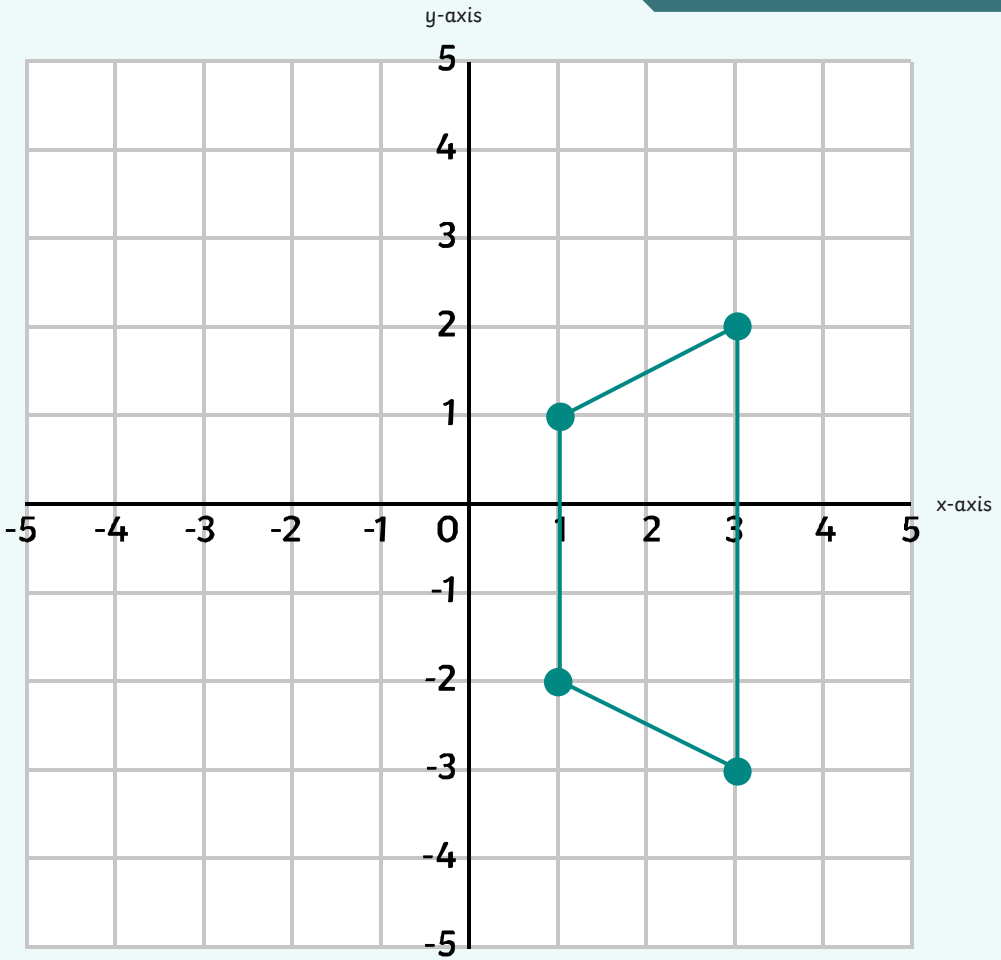
(4,-3)

Try again!

twinkl.com

Quiz

Draw sides to complete a given polygon on a four-quadrant coordinate grid



What is the missing coordinate needed to complete the drawing of the isosceles trapezium?

(1,-2)

(1,2)

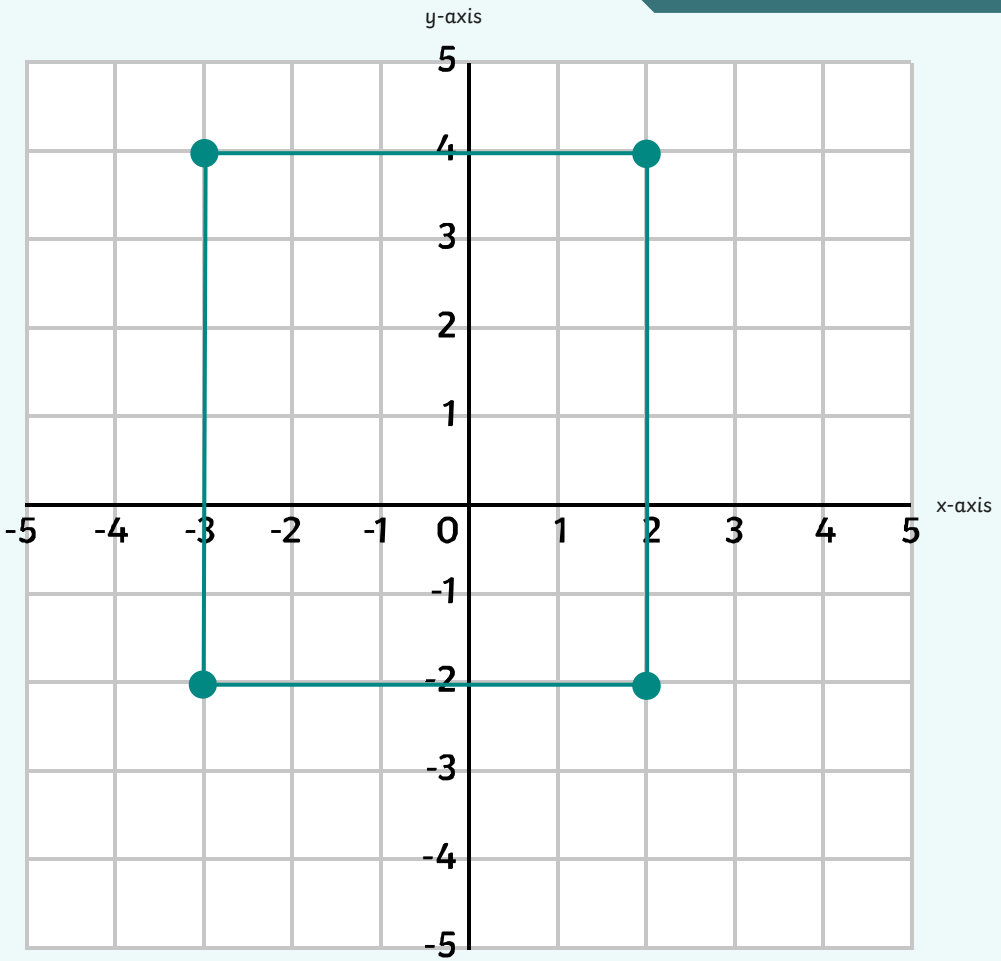
(-2,1)

Try again!

twinkl.com

Quiz

Draw sides to complete a given polygon on a four-quadrant coordinate grid



What is the missing coordinate needed to complete the drawing of the rectangle?

(3, -2)

(-3, -2)

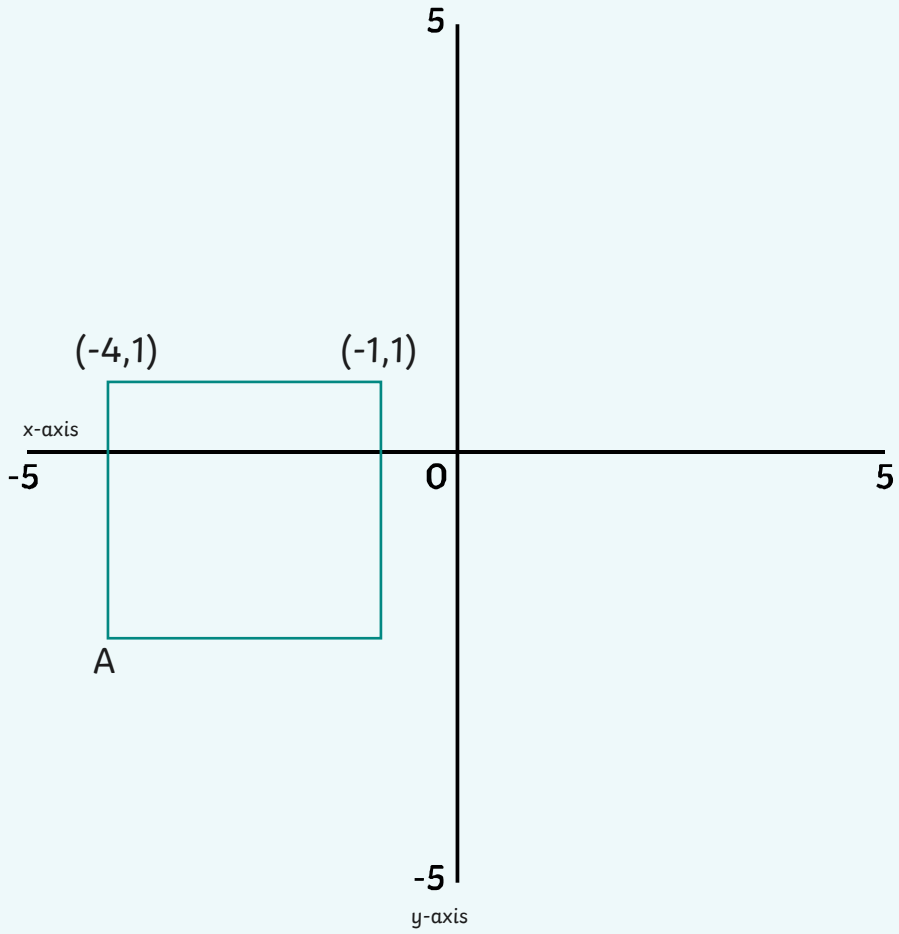
(-2, 3)

Try again!

twinkl.com

Quiz

Draw sides to complete a given polygon on a four-quadrant coordinate grid



What is the coordinate position of A on this square?

(2,-4)

(-4,2)

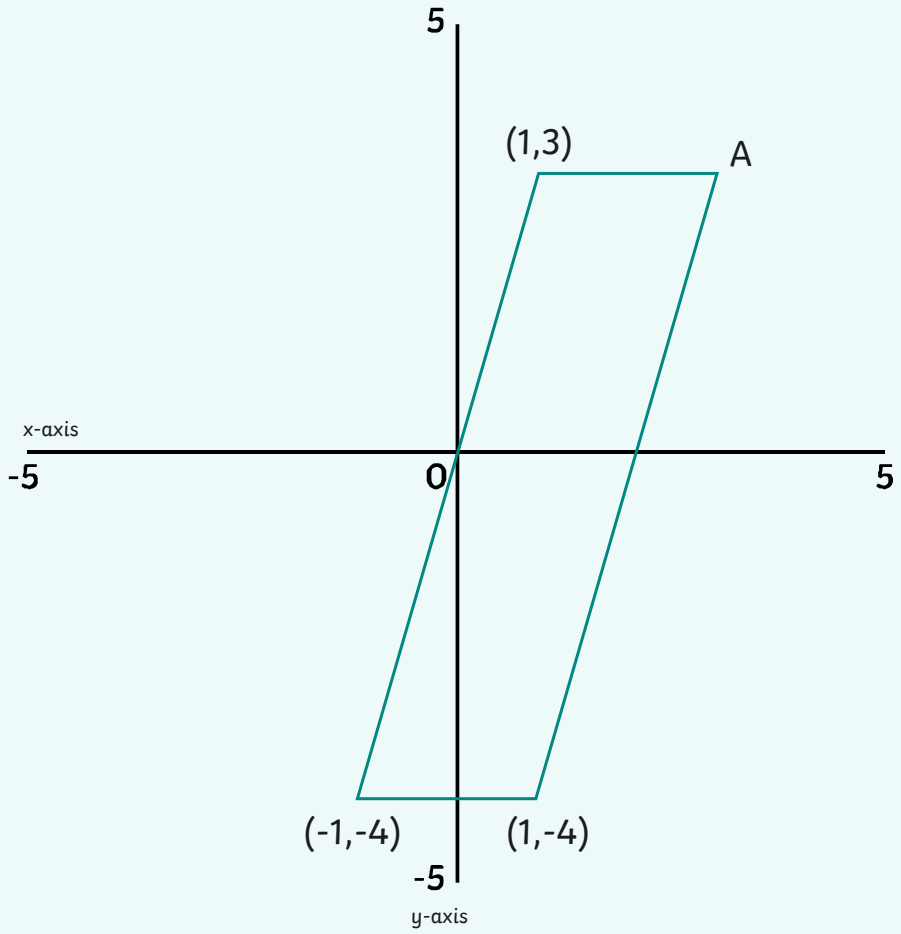
(-4,-2)

Try again!

twinkl.com

Quiz

Draw sides to complete a given polygon on a four-quadrant coordinate grid



What is the coordinate position of A on this parallelogram?

(3,3)

(1,3)

(4,3)

Correct!

Choose another objective

twinkl.com

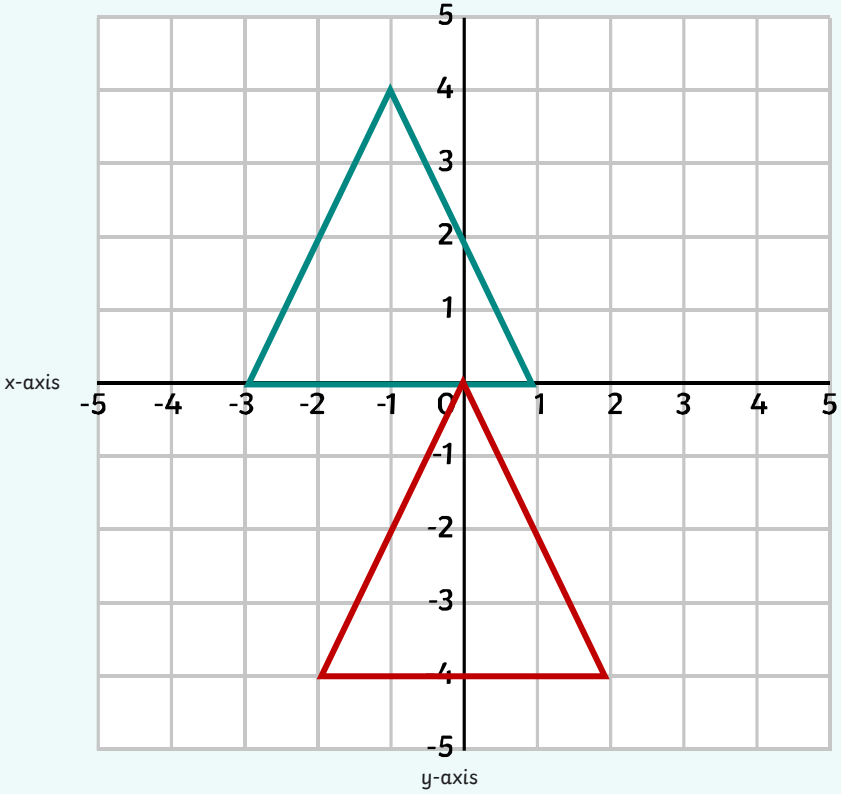
Revise

Describe movements between positions as translations

Coordinate positions can be moved on a coordinate grid through translation.

Translations can move a coordinate point horizontally, vertically or both.

If a polygon is being translated, every point must be translated the same direction to ensure that the shape doesn't change.



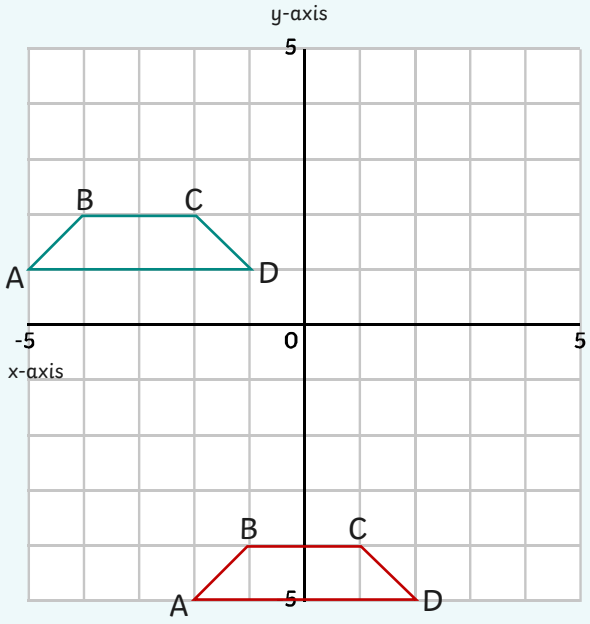
twinkl.com

Revise

Describe movements between positions as translations

Translations can be shown in different ways:

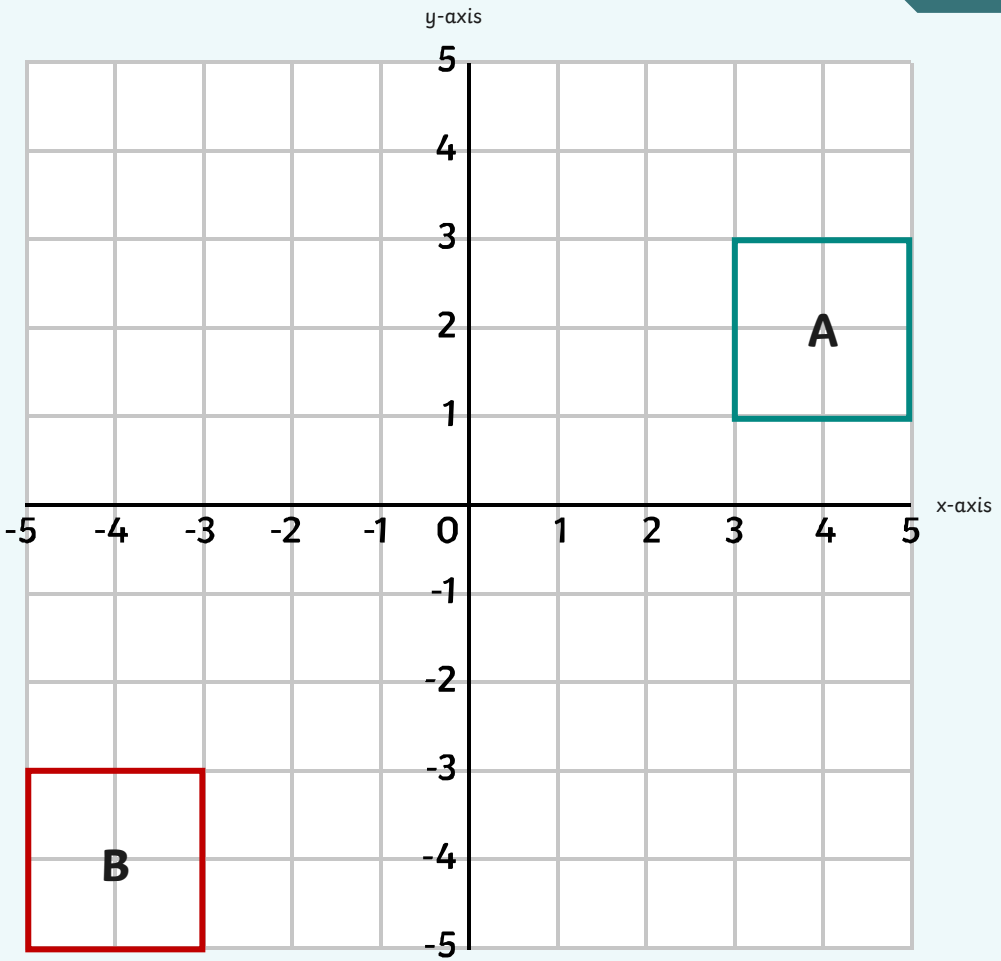
Translation using positional language	Translation using vectors	Translation using algebraic expressions
Horizontal movement can be described using 'left' or 'right'. Vertical movement can be described using 'up' or 'down'.	In a vector, the top number describes horizontal movement (negative means left and positive means right) and the bottom number describes vertical movement (positive means up and negative means down).	The x-axis and y-axis are represented as unknown variables using algebra. Horizontal movement is represented by x and vertical movement is represented by y.
The trapezium has been translated right 3, down 6.	**The trapezium has been translated** $\begin{pmatrix} +3 \\ -6 \end{pmatrix}$	**The trapezium has been translated using** **x = +3 and y = -6**



twinkl.com

Quiz

Describe movements between positions as translations



How has square A been translated to square B?

left 6, down 8

left 8, down 6

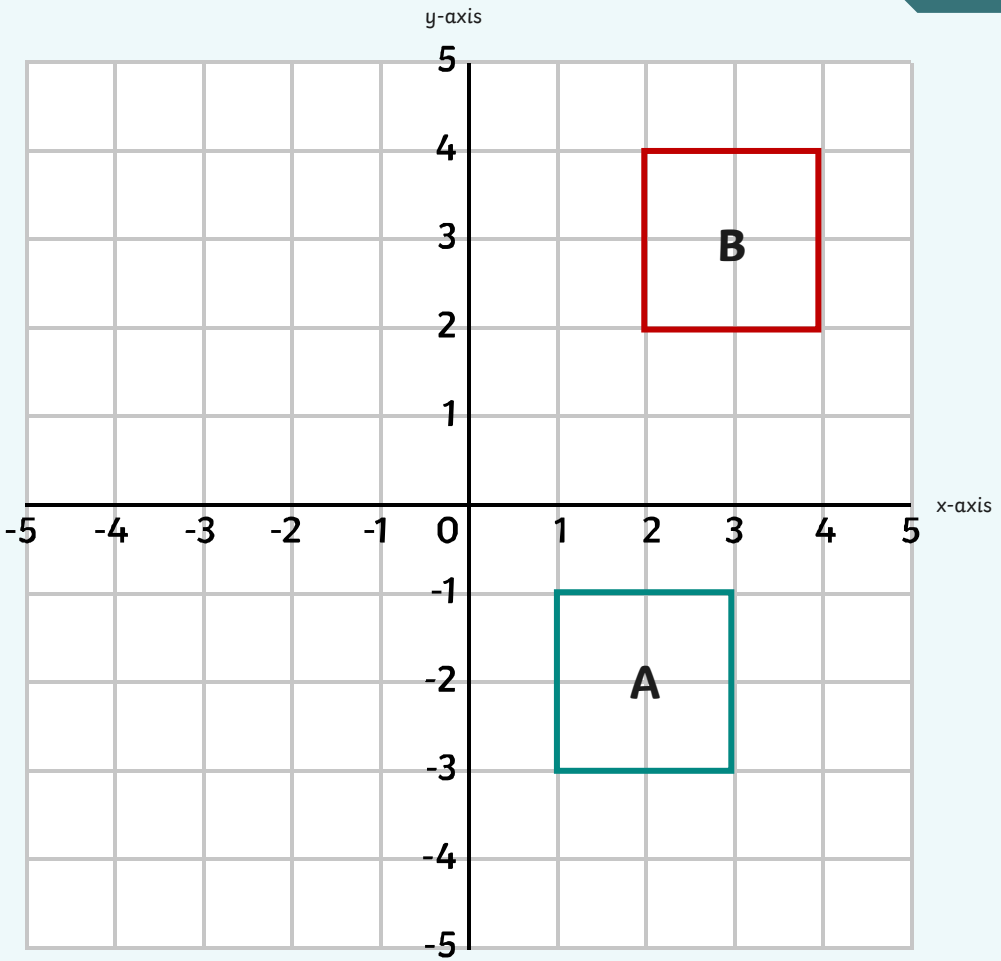
right 8, down 6

Try again!

twinkl.com

Quiz

Describe movements between positions as translations



How has square A been translated to square B?

$\begin{pmatrix} +1 \\ +5 \end{pmatrix}$

$\begin{pmatrix} -1 \\ -5 \end{pmatrix}$

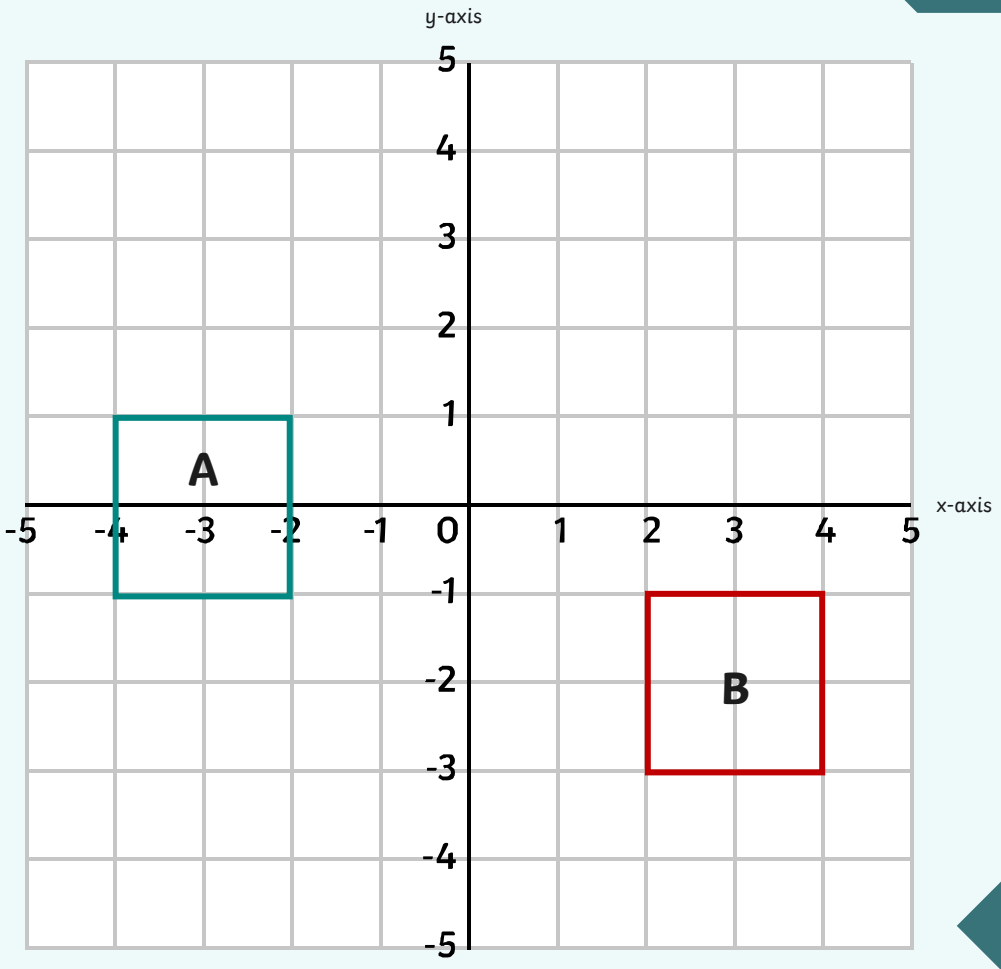
$\begin{pmatrix} +5 \\ +1 \end{pmatrix}$

Try again!

twinkl.com

Quiz

Describe movements between positions as translations



How has square A been translated to square B?

x = -6 and y = +2

x = +2 and y = -6

x = +6 and y = -2

Correct!

Choose another objective

twinkl.com

Revise

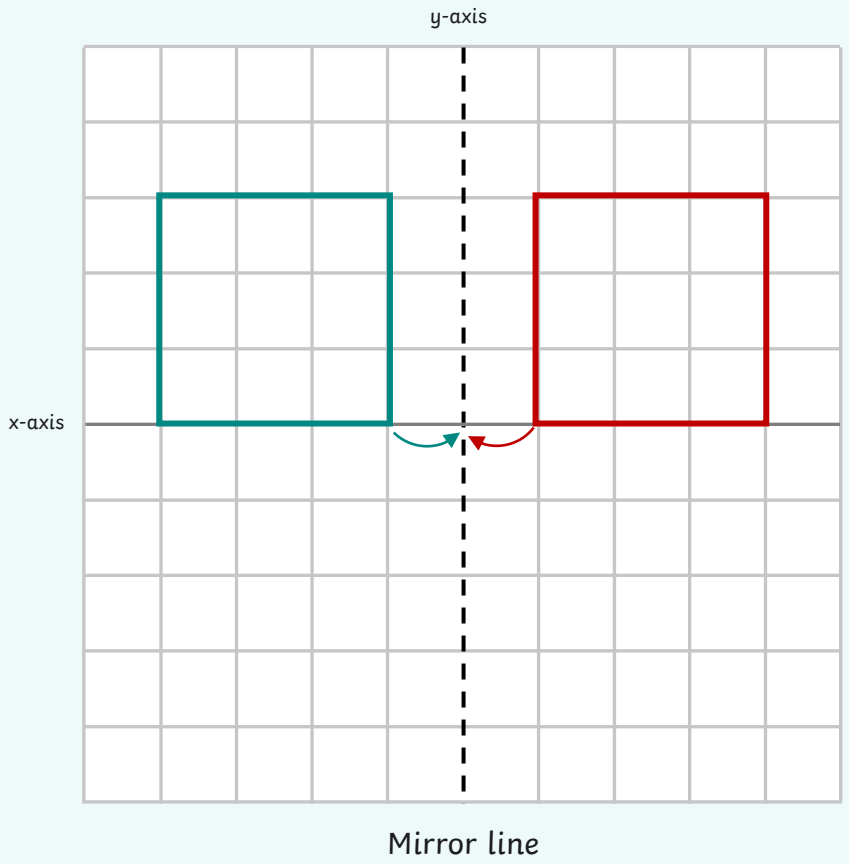
Identify, describe and represent the position of a shape following a reflection

Coordinate positions can be reflected on a coordinate grid.

Reflection flips a shape over a mirror line.

The mirror line may be on the x-axis, the y-axis or may be a dashed straight line shown anywhere on the coordinate grid.

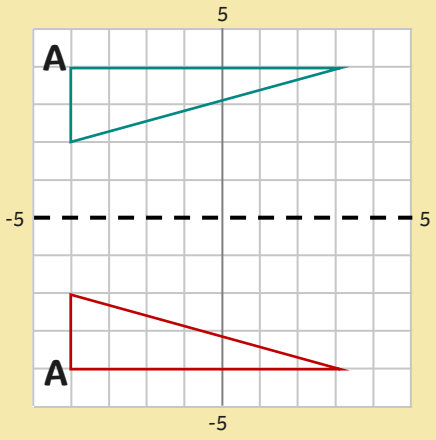
Remember: measure each corner of the shape from the mirror line and repeat this measurement on the other side of the mirror line so that the shape doesn't change size.



twinkl.com

Revise

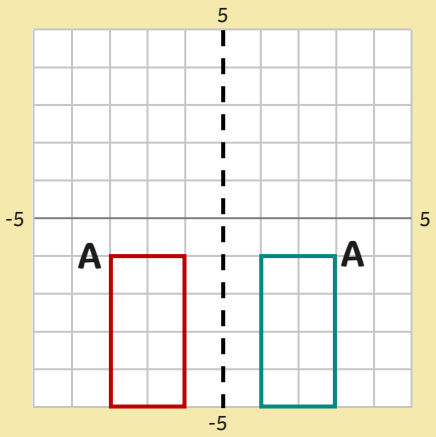
Identify, describe and represent the position of a shape following a reflection



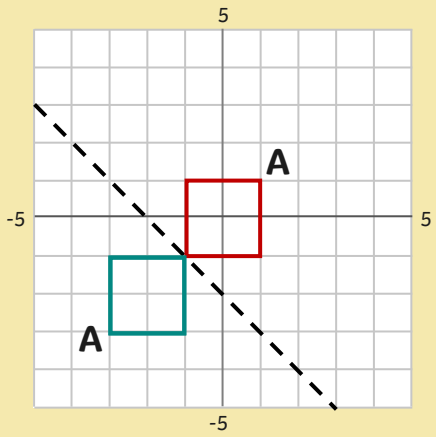
When the triangle is reflected over the x-axis, the coordinate position of A changes from (-4,4) to (-4,-4).

Top Tip!

When the y-axis is the mirror line, the x-axis coordinates reverse their sign. When the x-axis is the mirror line, the y-axis coordinates reverse their sign.



When the rectangle is reflected over the y-axis, the coordinate position of A changes from (3,-1) to (-3,-1).



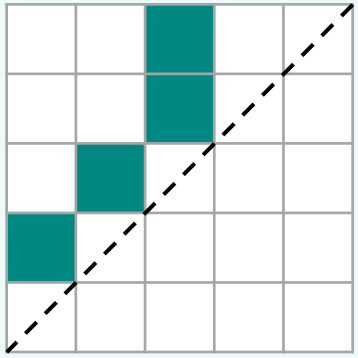
When the square is reflected over the diagonal mirror line, the coordinate position of A changes from (-3,-3) to (1,1).

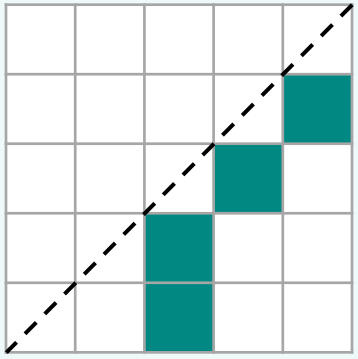
twinkl.com

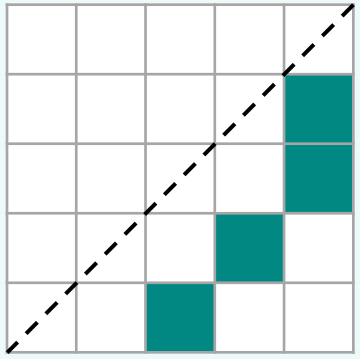
Quiz

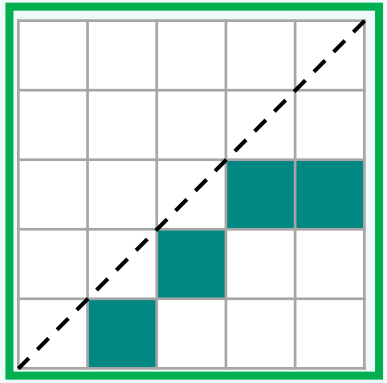
Identify, describe and represent the position of a shape following a reflection

Which shape shows the correct reflection of this shape?







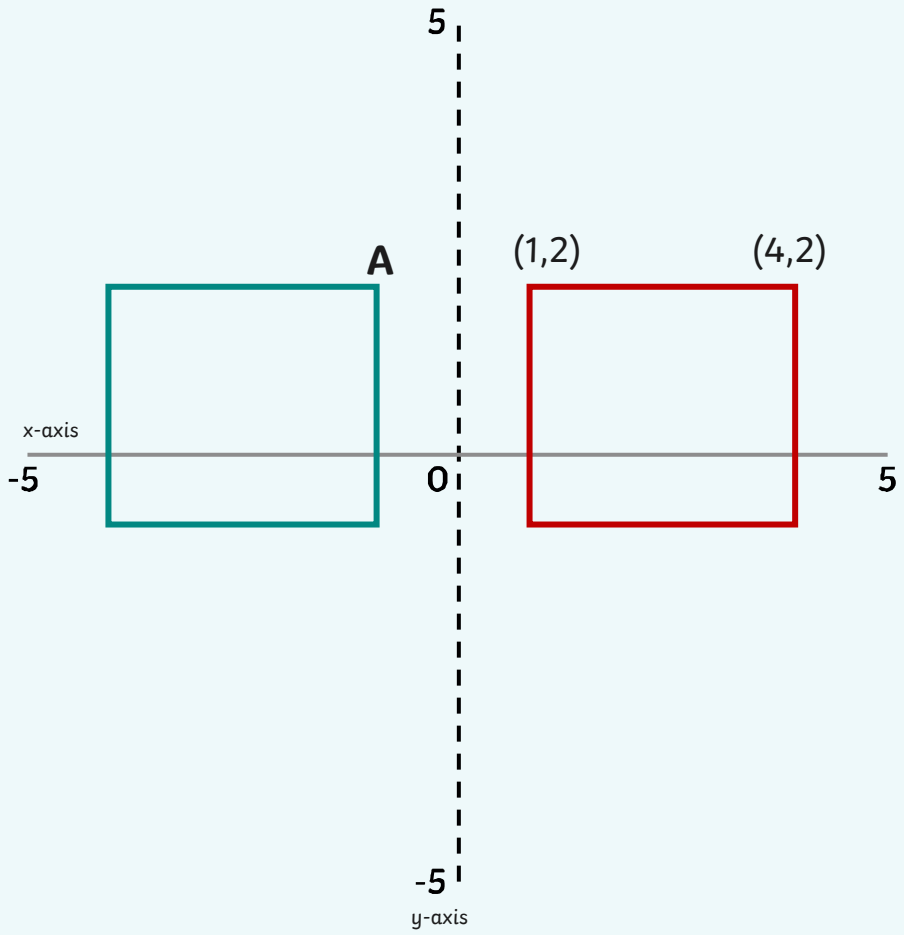


Try again!

twinkl.com

Quiz

Identify, describe and represent the position of a shape following a reflection



What is the coordinate position of A?

(-1,-2)

(1,-2)

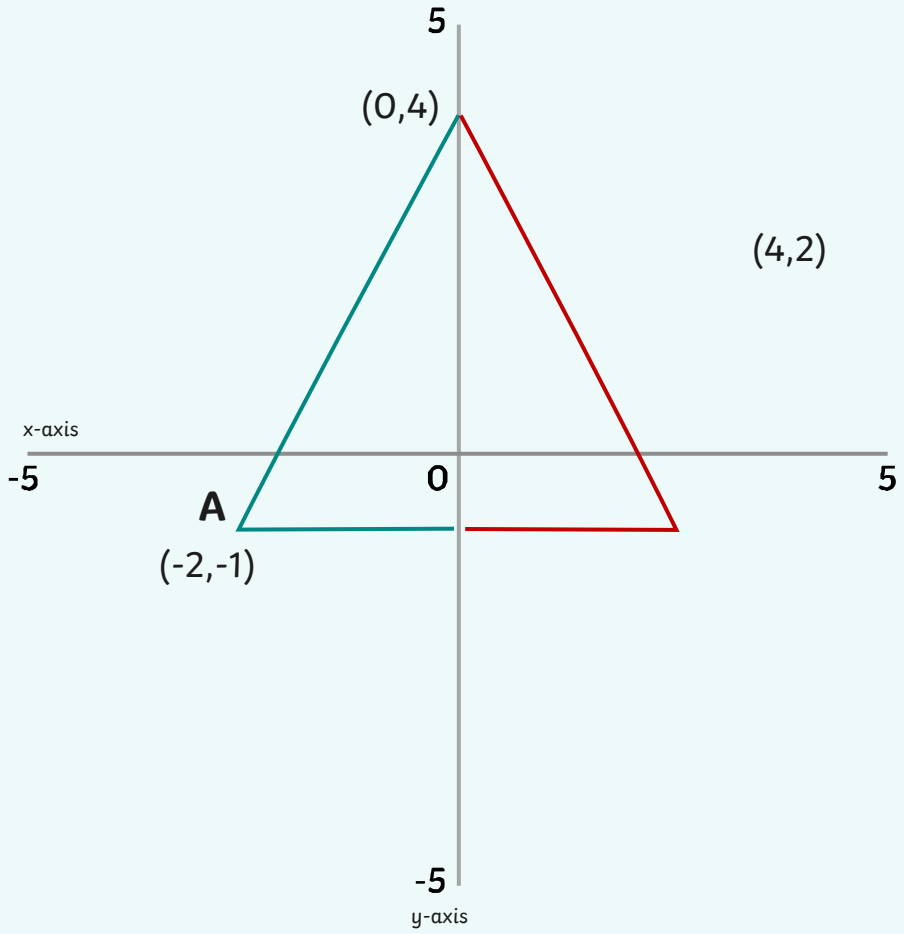
(-1,2)

Try again!

twinkl.com

Quiz

Identify, describe and represent the position of a shape following a reflection



What is the coordinate position of A **after** it is reflected across the y-axis?

(-2,-1)

(2,-1)

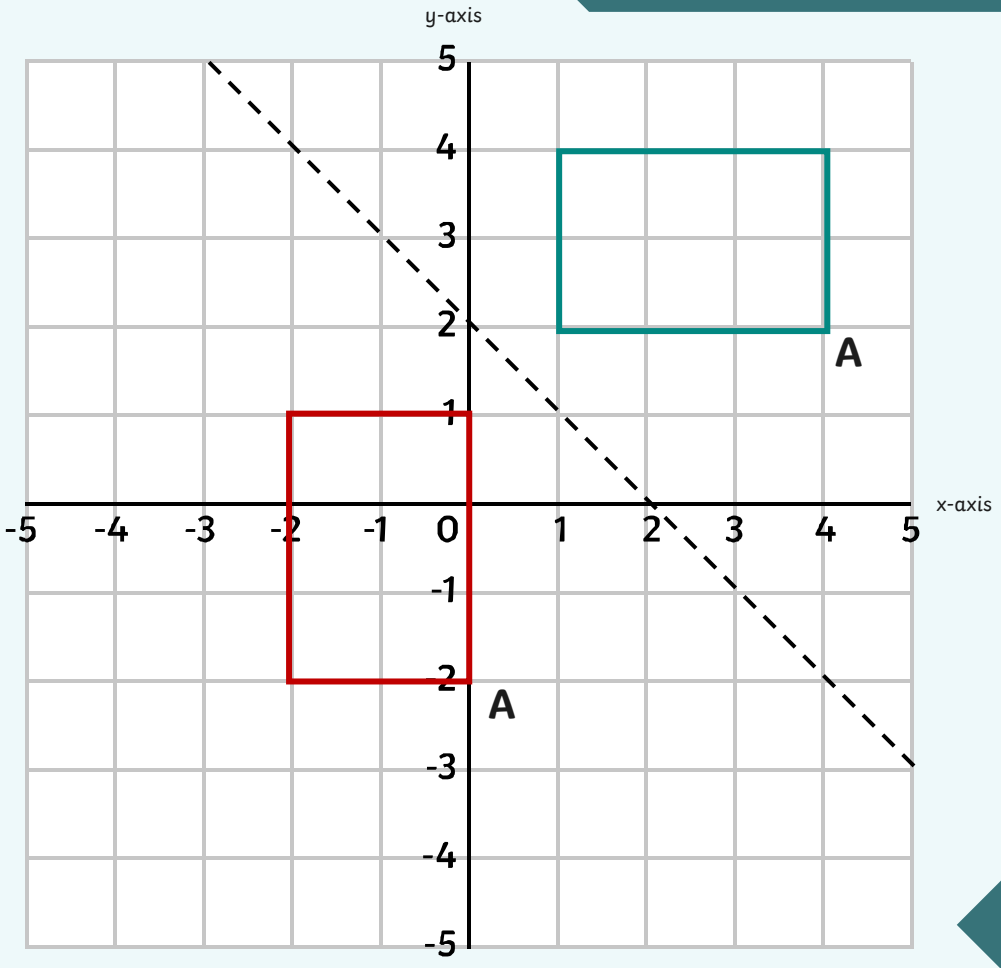
(2,1)

Try again!

twinkl.com

Quiz

Identify, describe and represent the position of a shape following a reflection



What is the coordinate position of vertex **A** after it is reflected across the mirror line?

(-2,-2)

(-2,0)

(0,-2)

Correct!

Choose another objective

twinkl.com