

POSITION AND DIRECTION KNOWLEDGE ORGANISER

Key Concepts

- describe positions on the full coordinate grid (all four quadrants)
- draw and translate simple shapes on the coordinate plane, and reflect them in the axes

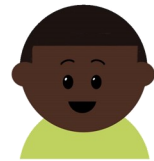
Key Vocabulary

- position
- direction
- coordinates
- quadrants
- shapes
- translate
- units
- plane
- reflect
- axis
- axes

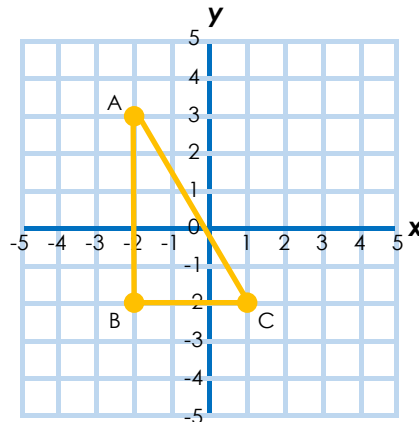


Four Quadrants

We can use all **four quadrants** on a coordinate grid to read, write and plot points.



Remember the number on the x axis comes before the number on the y axis.

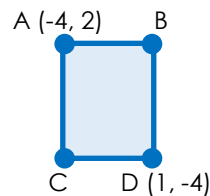


A (-2, 3)

B (-2, -2)

C (1, -2)

We can use our knowledge of the four quadrants and the properties of shapes to work out missing coordinates, even without the grid lines!

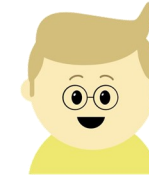


B (1, 2)

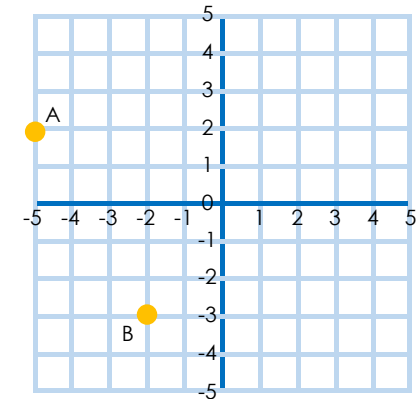
C (-4, -4)

Translations

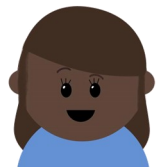
When we **translate** a point on a grid, we move it into a different position without changing it in any other way.



We describe translations using directional language and the number of 'units'.



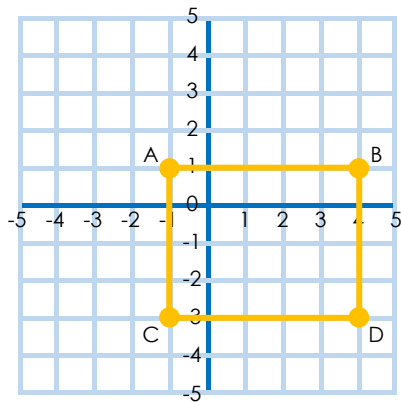
A was translated 3 units to the right and 5 units down to reach the position of B.



We can use translation to change the position of shapes on a grid by translating one coordinate at a time.



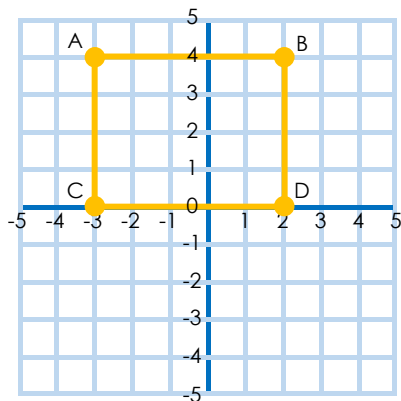
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If we translate the shape 2 units to the left and 3 units up, the new coordinates will be:

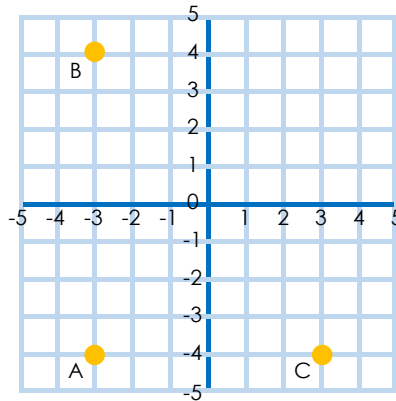


- A (-3, 4)
- B (2, 4)
- C (-3, 0)
- D (2, 0)



Reflections

We can **reflect** points in the four quadrants by using the x or y axis as a mirror line.

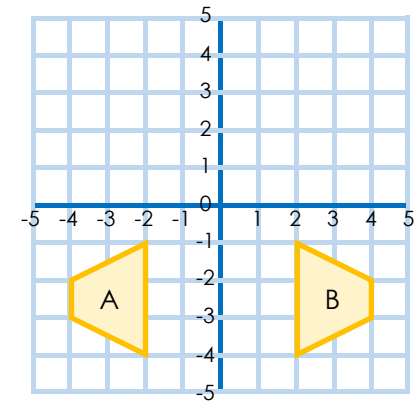


A has been reflected in the x axis to create point B.

A has been reflected in the y axis to create point C.



As with translation, we can change the position of shapes on a grid by reflecting one coordinate at a time.



A has been reflected in the y axis to create shape B.

If we reflect shape B in the x axis, the coordinates for shape C will be:

- (2, 1) (2, 4) (4, 2) (4, 3)

