

Maths Revision & Practice Booklet

Name: _____



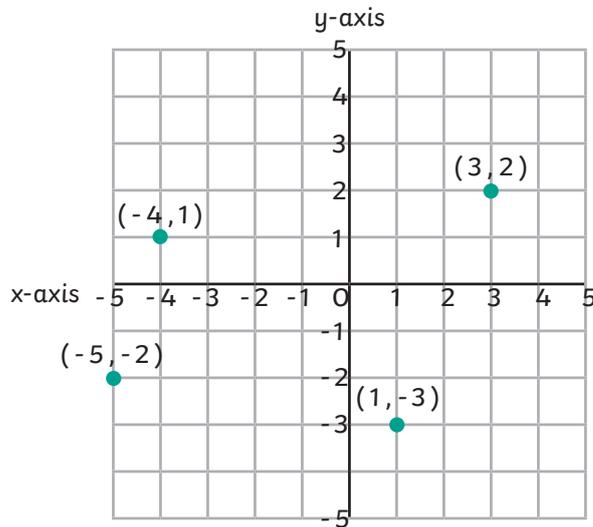
Position and Direction

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.

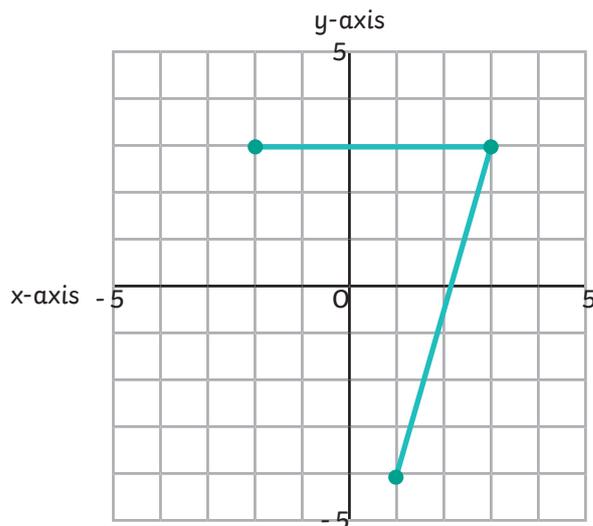


The full coordinate grid has four quadrants which are created by extending both axes into negative numbers.



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.



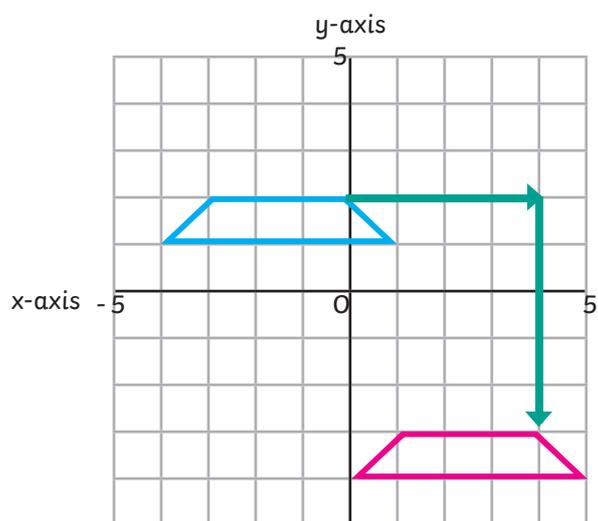
Plot and label the missing coordinate to draw a parallelogram.

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 $(-4, -4)$.

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.



Translations can be written in different ways:

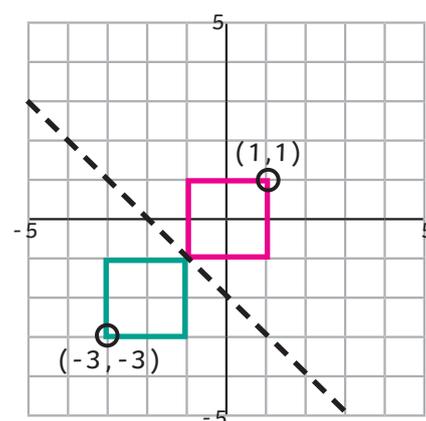
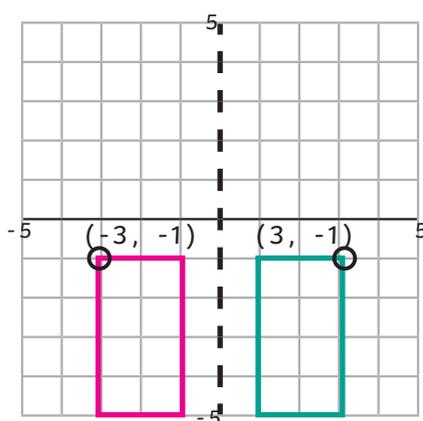
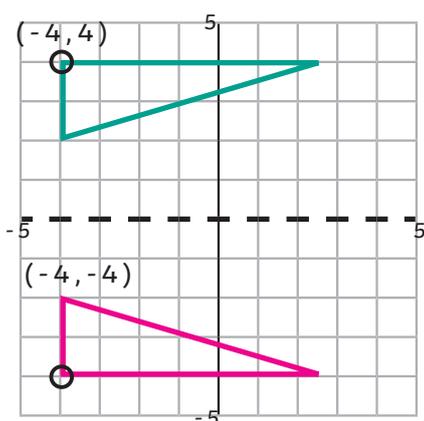
- The trapezium has been translated right 4, down 5;
- The trapezium has been translated $\begin{pmatrix} +4 \\ -5 \end{pmatrix}$;
- The trapezium has been translated using $x = +4$ and $y = -5$.



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.



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.



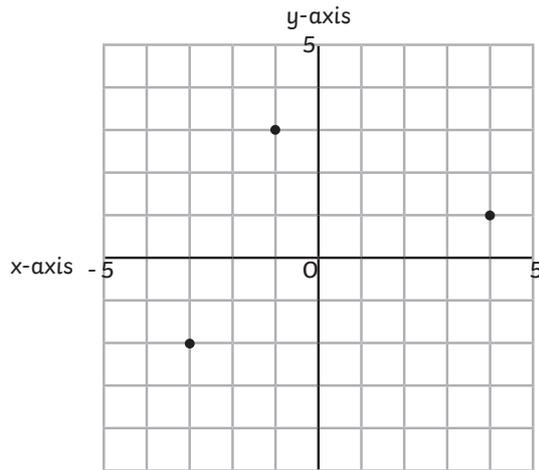
Practise



Supercharge your powers by answering these questions.



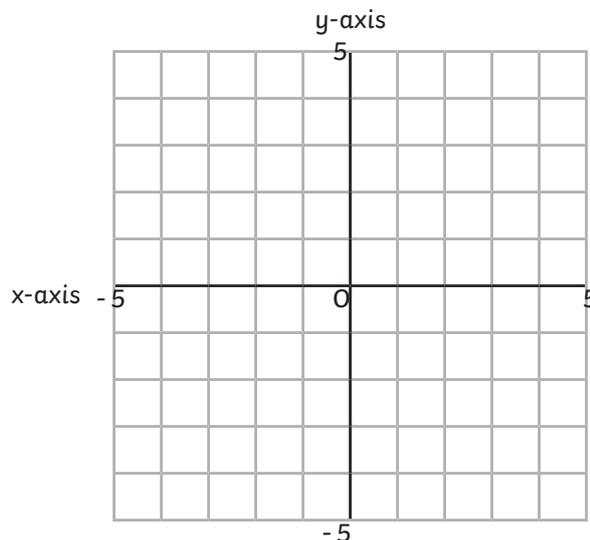
1. I draw a square on this coordinate grid. Three of the vertices are marked.



What are the coordinates of the missing vertex?

(,)

2. The vertices of a quadrilateral have the following coordinates.
(-4, -1) (-2, 3) (2, 4) (4, -4)
Complete the drawing of the quadrilateral on the grid using a ruler.



1 mark



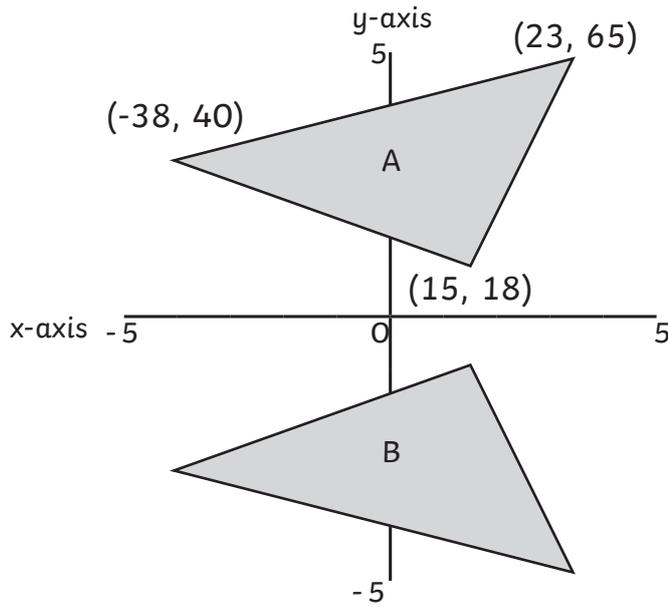
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Practise

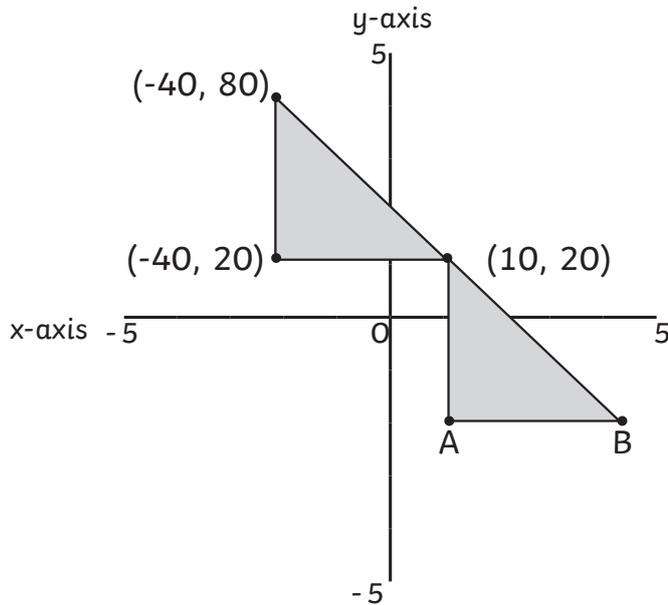
3. Triangle B reflects triangle A in the x-axis.



What are the coordinates of the vertices of triangle B?

| | | |
|---------------|---------------|---------------|
| (,) | (,) | (,) |
|---------------|---------------|---------------|

4. Here are two identical triangles drawn on coordinate axes.



What are the coordinates of vertices A and B?

| | |
|---------------|---------------|
| (,) | (,) |
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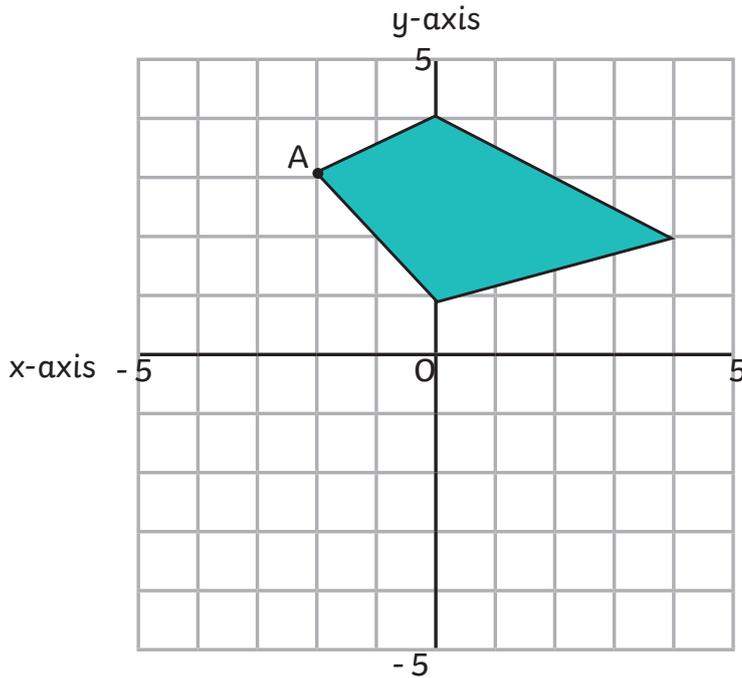
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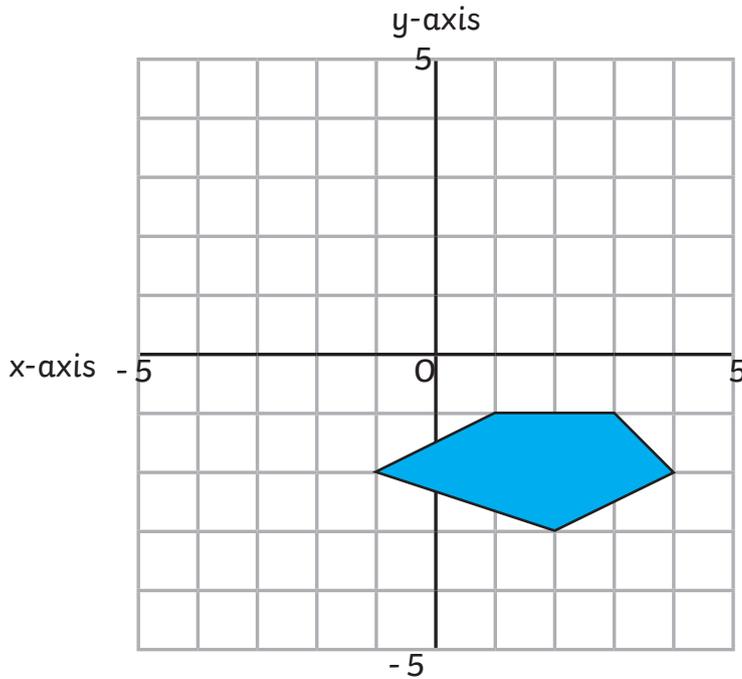
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Practise

5. This quadrilateral is translated so that point A moves to $(-4, -2)$. Draw the shape in its new position using a ruler.



6. This irregular pentagon is translated left 3 and up 5. Draw the shape in its new position using a ruler.



1 mark



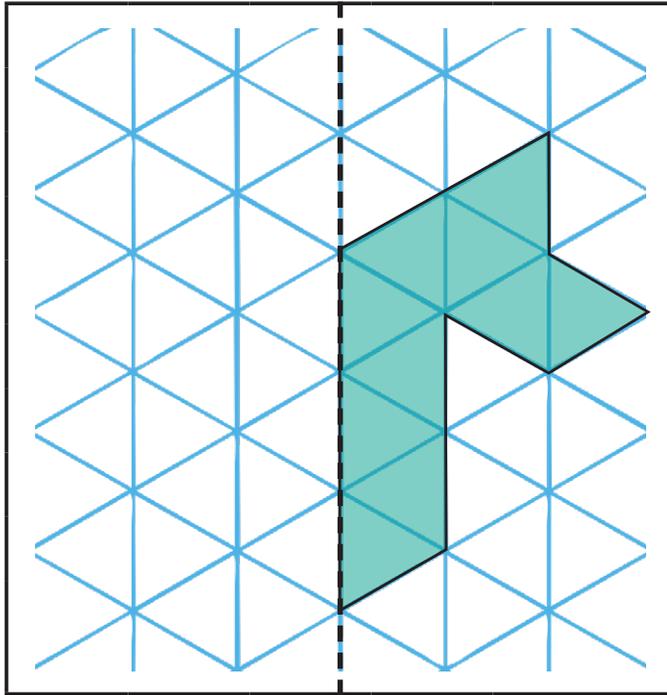
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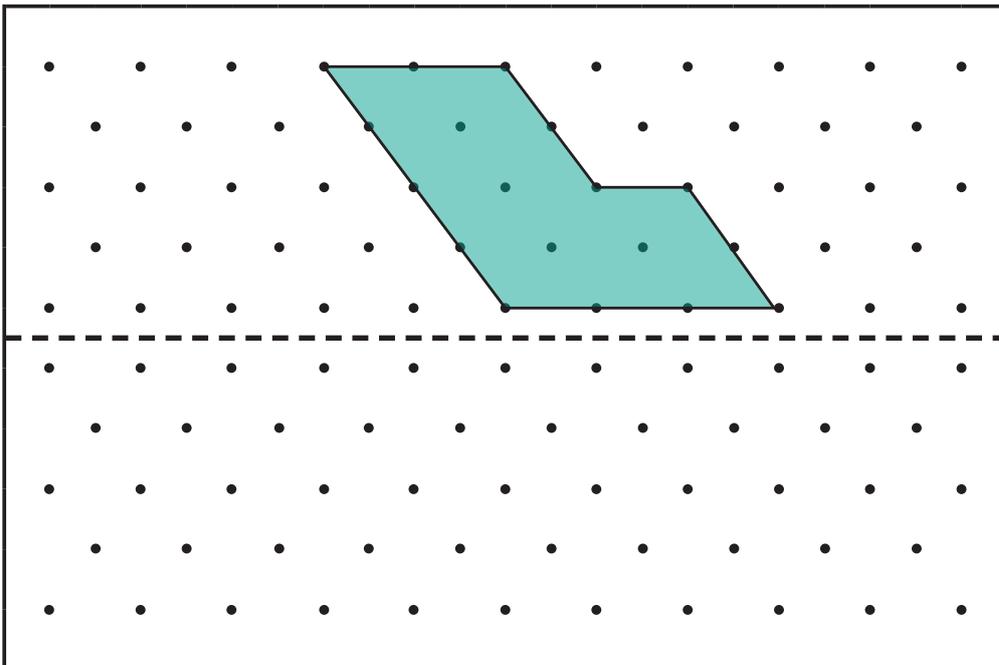
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Practise

7. Complete this shape so that it is symmetrical about the mirror line.
Use a ruler.



8. Complete this shape so that it is symmetrical about the mirror line.
Use a ruler.



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Self-Assessment

Colour in the superhero strength-o-meter to show how you feel about each of these statements:

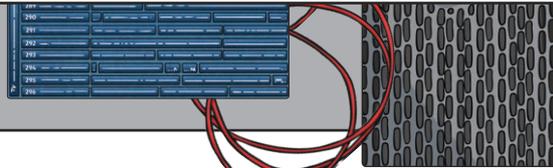


Read and write coordinates in all four quadrants.

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.



Comments