Year 6 Maths: Geometry - Position and direction.

What should I already know?

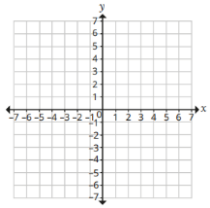
- Identify and plot co-ordinates in the first quadrant.
- Identify, describe and represent the position of a shape or point following translation.
- Reflect a shape around a mirror line vertically and horizontally.

Key Knowledge

Read and plot co-ordinates of points in all four quadrants:

When an x and y axis cross then 4 quadrants are created. The axes are labelled using equal scaling and includes the use of negative numbers:

Second quadrant
x negative, y positive



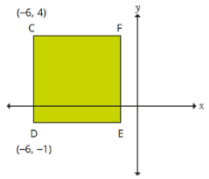
First quadrant
x positive, y positive

Third quadrant
x negative, y negative

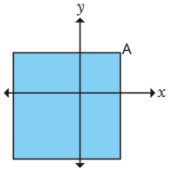
Fourth quadrant
x positive, y negative

The co-ordinates are plotted:
1st quadrant (x,y)
2nd quadrant (-x,y)
3rd quadrant (-x,-y)
4th quadrant (x,-y)

Read and plot co-ordinates of shapes in all four quadrants:

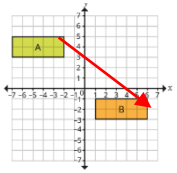


F = (-1,4)
E = (-1,-1)



A vertex is at point (2,2) and the square has a perimeter of 20 units. Calculate the co-ordinates of the other 3 vertices.

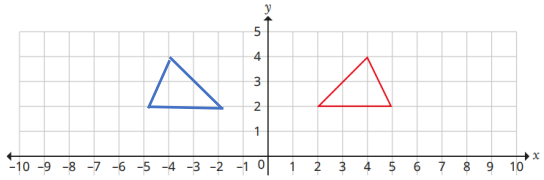
Translation:



Describe the translation from A to B. Follow the movement of the same vertex in each shape.

Give a shape on the grid and translate directions then draw the new position.

Reflection:



Reflect the red triangle across the y axis to create a mirror image in the second quadrant.

Key Vocabulary and definitions

Axis/Axes	Vertical (y) and horizontal (x) lines which cross to make 4 quadrants.
Quadrants	Areas created by the intersection of the x and y axis.
Co-ordinate	Numbers which specify a point on a map or grid.
x-axis	The horizontal line drawn to create an axis.
y-axis	The vertical line drawn to create an axis.
Reflection	When a shape is flipped over a line to create a mirror image.
Translation	Moves every point in a shape by the same distance in the same direction without rotating or resizing.