

# YR5 Knowledge Organiser - Position and Direction

## Key Concepts

- Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed

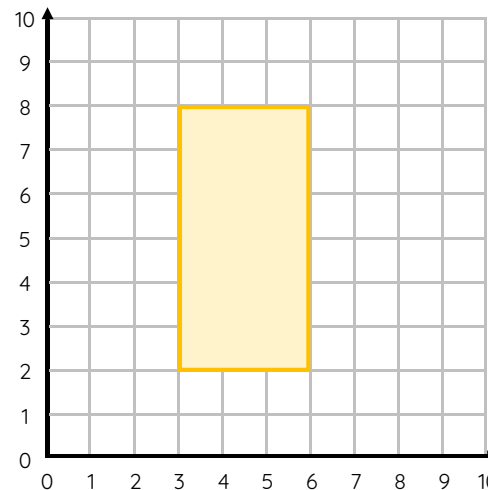
## Key Vocabulary

- position
- direction
- coordinates
- axis
- axes
- origin
- x-axis/ y-axis
- vertices/vertex
- quadrant
- scale
- plot
- movement
- translation
- left/ right/ up/ down
- reflection
- mirror line



## Position

To find the coordinates of a point, we start from the origin (0, 0) and count along the (horizontal) x-axis first. Then, we count along the (vertical) y-axis.



The coordinates of the vertices of the rectangle are: (3, 2), (3, 8), (6, 2) and (6, 8).

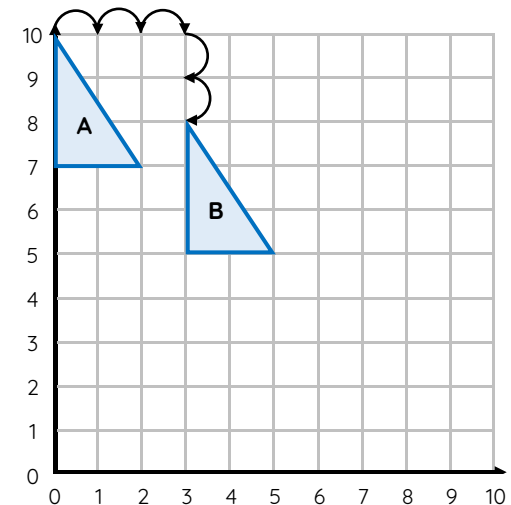
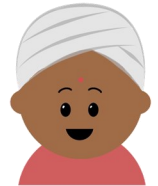
## Translation

Coordinates are fixed positions on the grid, but we can move plotted points into differ-



"If a point moves 1 right, the x-axis coordinate will increase by 1. If it moves 1 left, the x-axis coordinate will decrease by 1."

"If a point moves 1 up, the y-axis coordinate will increase by 1. If it moves 1 down, the y-axis coordinate will decrease by 1."



Shape A was translated 3 right and 2 down to reach the position of shape B.



"If shape B is translated in the same way, I can add 3 to the x-axis coordinates and subtract 2 from the y-axis coordinates. The new position is: (6, 6), (6, 3) and (8, 3)."

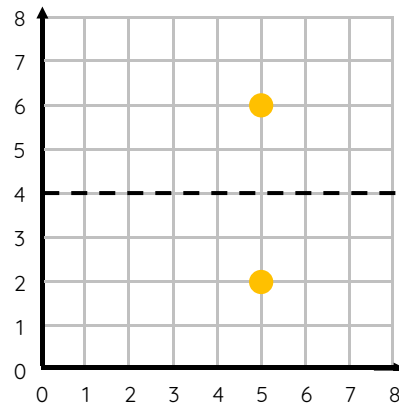
When a shape is translated, only its position changes. Its size and orientation stays the same.



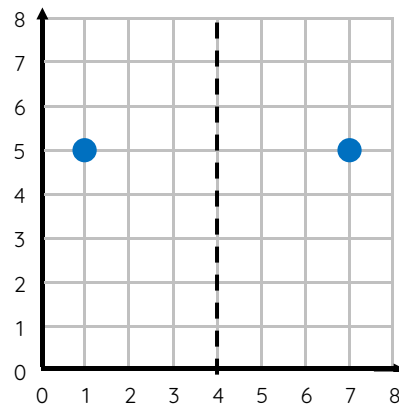
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## Reflection

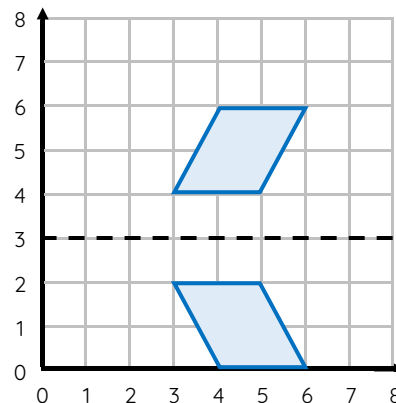
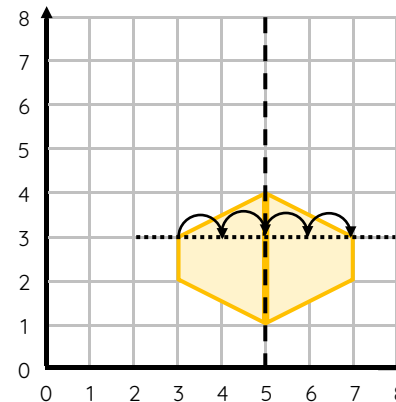
We can reflect points and objects on a grid using mirror lines. Mirror lines can be horizontal, parallel to the x-axis.



Mirror lines can also be vertical, parallel to the y-axis.

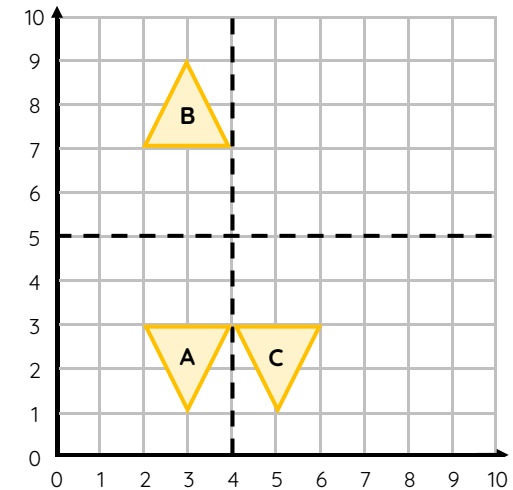


Mirrors can help us to reflect points correctly. We can count how far away the point is from the mirror line to work out the reflected point. When reflecting shapes, it is best to reflect one point at a time, as we do with translation.



In this example, the horizontal (x) coordinates stay the same; only the vertical (y) coordinates change.

We can reflect a shape in more than one way if there are two mirror lines on a grid.



"Shape A has been reflected horizontally to create shape B."

"Shape A has been reflected vertically to create shape C."

