

Knowledge Organiser

REFLECTION, ROTATION AND TRANSLATION

Key Concepts

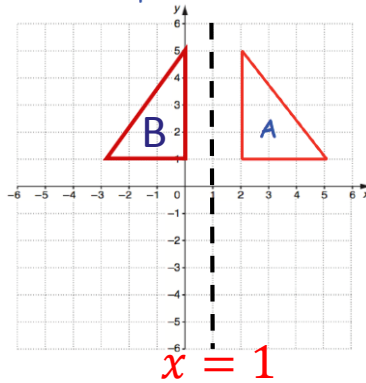
A **reflection** creates a mirror image of a shape on a coordinate graph. The mirror line is given by an equation eg. $y = 2$, $x = 2$, $y = x$. The shape does not change in size.

A **rotation** turns a shape on a coordinate grid from a given point. The shape does not change size but does change orientation.

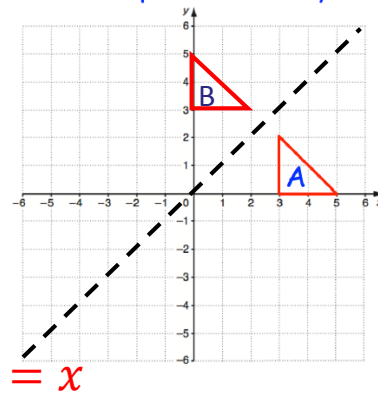
A **translation** moves a shape on a coordinate grid. Vectors are used to instruct the movement:

$\begin{pmatrix} x \\ y \end{pmatrix}$
 Positive-Right
 Negative - Left
 Positive-Up
 Negative - Down

Reflect shape A in the line $x = 1$. Label it B.

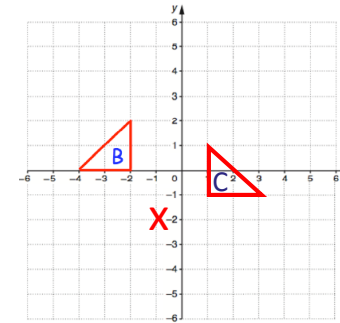


Reflect shape A in the line $y = x$. Label it B.

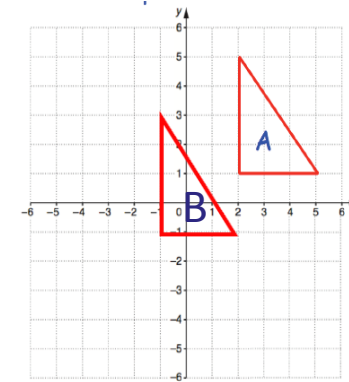


Examples

Rotate shape B from the point $(-1, -2)$



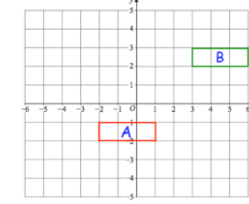
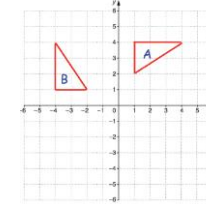
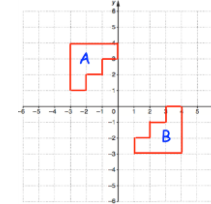
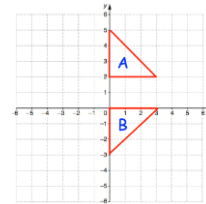
Translate shape A by $\begin{pmatrix} -3 \\ -2 \end{pmatrix}$. Label it B.



Key Words

- Rotate
- Clockwise
- Anticlockwise
- Centre
- Degrees
- Reflect
- Mirror image
- Translate
- Vector

Describe the **single** transformation you see on each coordinate grid from A to B:



ANSWERS: a) reflection, $y = 1$ b) reflection in $(0,0)$, 90° anticlockwise c) translation $\begin{pmatrix} 4 \\ 3 \end{pmatrix}$

Knowledge Organiser

ENLARGEMENT

Key Concepts

An **enlargement** changes the size of an image using a scale factor from a given point.

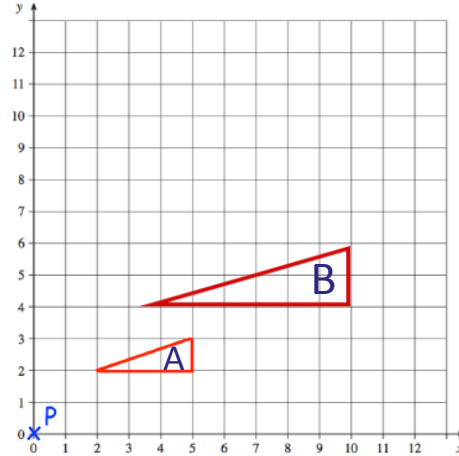
A **positive scale factor** will increase the size of an image.

A **fractional scale factor** will reduce the size of an image.

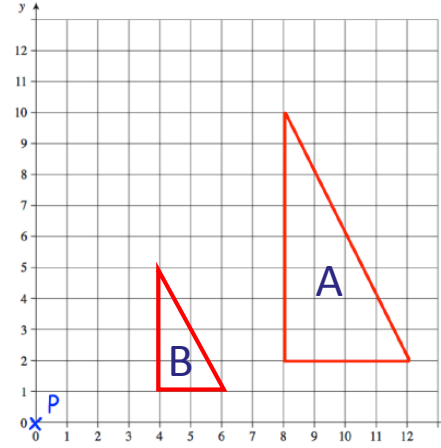
A **negative scale factor** will place the image on the opposite side of the centre of enlargement, with the image inverted.

Examples

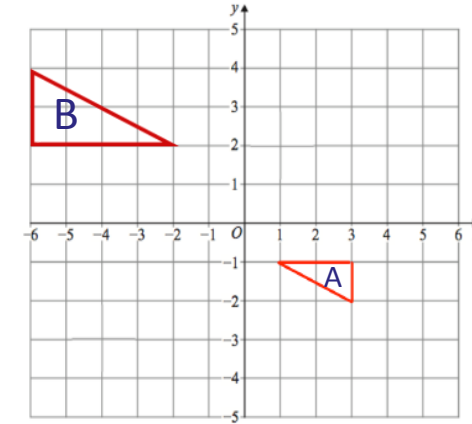
Enlarge shape A by scale factor 2 from point P.



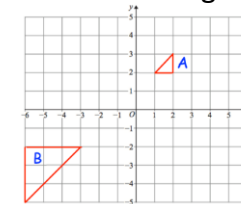
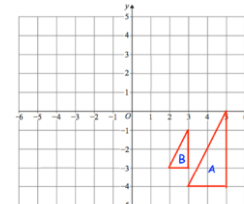
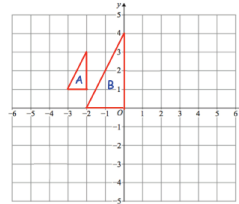
Enlarge by scale factor $\frac{1}{2}$ from point P.



Enlarge by scale factor -2 from (0,0).



Describe the **single** transformation you see on each coordinate grid from A to B:



ANSWERS: a) enlarge, centre (-4,2) scale factor 2 b) enlarge, centre (1,-2) scale factor $\frac{1}{2}$ c) enlarge, centre (0,1) scale factor -3

Key Words
Enlargement
Scale factor
Centre
Positive
Negative