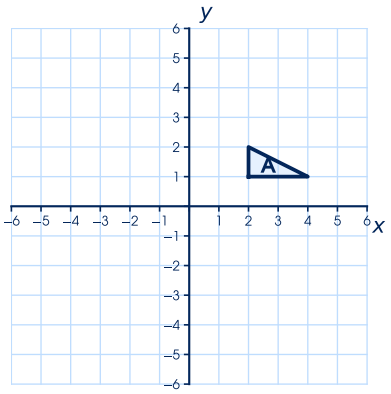
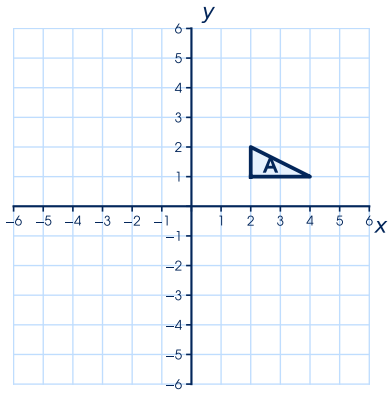
GCSE HIGHER · REVISION MAT 2

Combining transformations

1 Translate A by (–5, 2), then reflect the image in the *x*-axis.

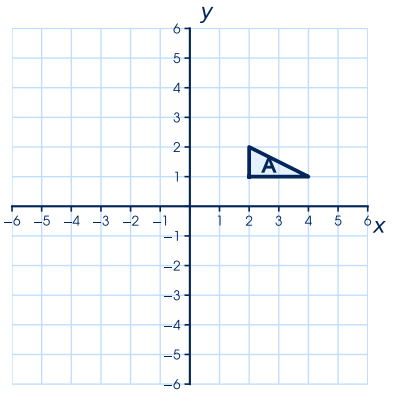


2 Reflect A in $y = x$, then translate the image by (0, 2).



3 Show that a rotation of 180° about O followed by a reflection in the *x*-axis is a reflection in the *y*-axis.

4 A is reflected in $y = 1$, then in $y = 3$.

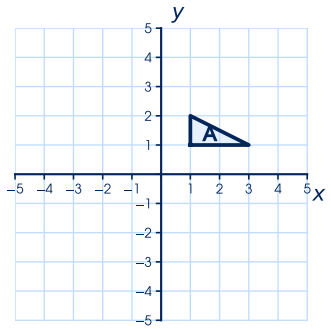


Describe the single transformation.

5 Explain why reflecting a shape twice in the same line returns it to its start.

6 A shape is rotated 90° anticlockwise about O and then reflected in the *y*-axis.

Describe the single transformation.



7 Show that an enlargement by scale factor 2 then scale factor 3, both centre O, is a single enlargement by scale factor 6.

8 A shape is reflected in the *x*-axis and then translated by (4, 0).

Explain why no point is invariant.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 2

Combining transformations

1 Translate: (−3, 3), (−1, 3), (−3, 4)

Reflect: (−3, −3), (−1, −3), (−3, −4)

2 Reflect: (1, 2), (1, 4), (2, 2)

(1, 4), (1, 6), (2, 4)

3 $(x, y) \rightarrow (-x, -y) \rightarrow (-x, y)$

Reflection in the *y*-axis

4 **Translation by (0, 4)**

5 **The second reflection undoes the first.**

6 $(x, y) \rightarrow (-y, x) \rightarrow (y, x)$

Reflection in $y = x$

7 $(x, y) \rightarrow (2x, 2y) \rightarrow (6x, 6y)$

Scale factor 6, centre O

8 $(x, y) \rightarrow (x, -y) \rightarrow (x + 4, -y)$

Every *x*-coordinate increases by 4, so nothing stays fixed.

Mr&Mrs MATHS