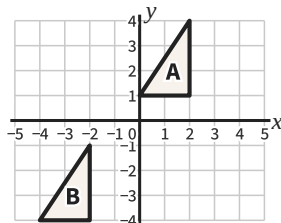


1 Translations

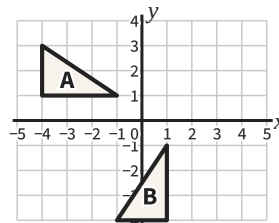
- a) Write the column vector that translates B onto A.
- b) A translation maps $(-3, 2)$ onto $(1, -1)$. Where does it map $(0, 4)$?



a) $\begin{pmatrix} 4 \\ 5 \end{pmatrix}$ b) $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$, so $(4, 1)$

2 Rotations

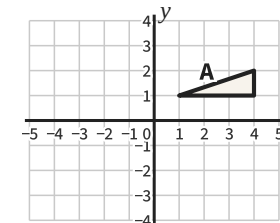
- a) Rotate A 90° clockwise about $(-1, 0)$. Write down the vertices of the image.
- b) Describe fully the single transformation that maps A onto B.



a) $(0, 3), (0, 0), (2, 3)$
b) rotation 90° anticlockwise about $(1, 1)$

3 Reflections

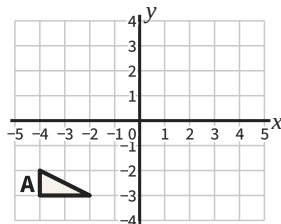
- a) Reflect A in the line $y = -1$. Write down the vertices of the image.
- b) P is reflected in the line $x = 1$. The image is $(-2, 3)$. Find P.



a) $(1, -3), (4, -3), (4, -4)$
b) $1 - (-2) = 3, 1 + 3 = 4$
b) $P = (4, 3)$

4 Enlargement

- a) Enlarge A by scale factor 3, centre $(-5, -4)$.
- b) Sam enlarges $(-3, -2)$ by scale factor 2, centre $(-1, -3)$, and gets $(-6, -4)$. Explain his mistake.



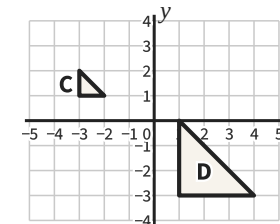
a) $(-2, -1), (4, -1), (-2, 2)$
b) he used centre $(0, 0)$; it is $(-5, -1)$

Transformations

revision mat answers

5 Describing enlargements

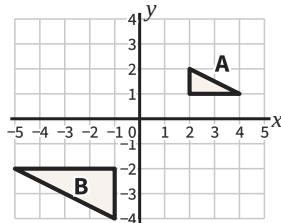
- a) Describe fully the single transformation that maps C onto D.
- b) Describe fully the single transformation that maps D onto C.



a) enlargement, scale factor 3, centre $(-5, 3)$
b) enlargement, scale factor $\frac{1}{3}$, centre $(-5, 3)$

6 Negative scale factors

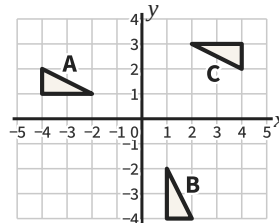
- a) Describe fully the single transformation that maps A onto B.
- b) What is the scale factor of the enlargement that maps B onto A?



a) enlargement, scale factor -2 , centre $(1, 0)$
b) $-\frac{1}{2}$

7 Mixed transformations

- a) Describe fully the single transformation that maps A onto B.
- b) Describe fully the single transformation that maps A onto C.

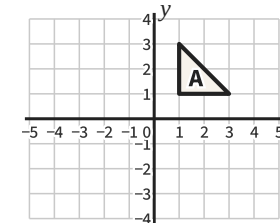


a) reflection in the line $y = x$
b) rotation 180° about $(0, 2)$

8 Combined transformations

A is rotated 180° about $(0, 0)$ to give B. B is reflected in the x axis to give C.

- a) Write down the vertices of C.
- b) Describe fully the single transformation that maps A onto C.



a) $(-1, 1), (-3, 1), (-1, 3)$
b) reflection in the y axis