

GCSE MATHS • GRADE 3

MATHS



EXAM QUESTION PACK

TRANSFORMATIONS

SCORE

/92

PERCENTAGE

%

STEMUP

- 1 Here are four transformations: translation, reflection, rotation, enlargement.
Which one is described using a column vector?

.....
 / 1

- 2 Here are four transformations: translation, reflection, rotation, enlargement.
Which one needs a mirror line?

.....
 / 1

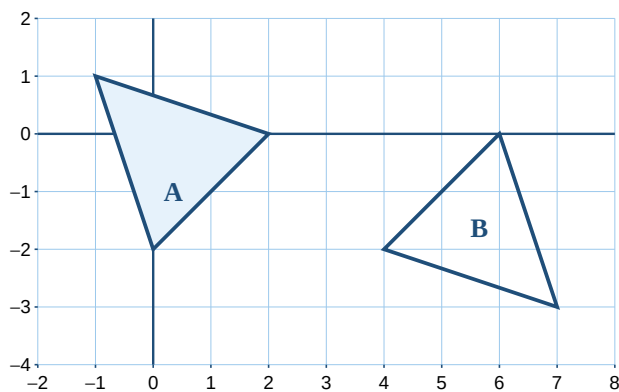
- 3 Here are four transformations: translation, reflection, rotation, enlargement.
Which one needs a scale factor to describe it fully?

.....
 / 1

- 4 Here are four transformations: translation, reflection, rotation, enlargement.
Which one changes the size of a shape?

/ 1

- 5 Write down the name of the single transformation that maps shape A onto shape B.



/ 1

- 6 Here are four transformations: translation, reflection, rotation, enlargement.
Which one needs an angle and a direction to describe it fully?

/ 1

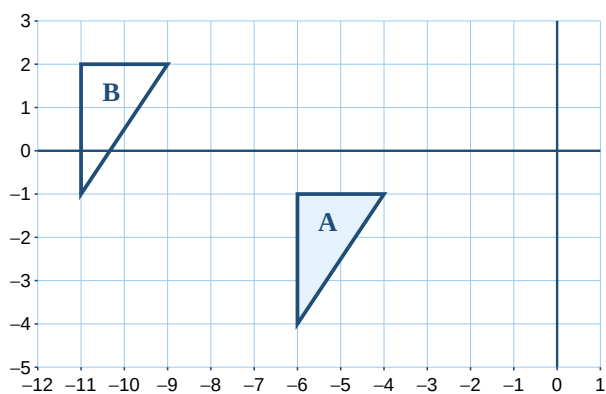
- 7 Here are four transformations: translation, reflection, rotation, enlargement.
Which of these do not change the size of a shape?

/ 1

- 8 Here are four transformations: translation, reflection, rotation, enlargement.
Which two need a centre to describe them fully?

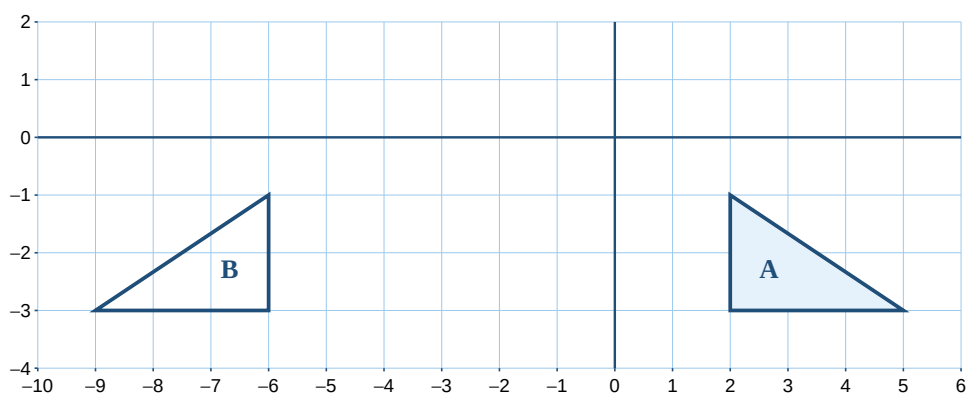
/ 1

- 9 Describe fully the single transformation that maps shape A onto shape B.



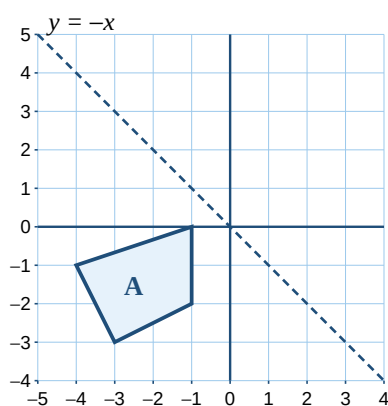
/ 1

- 10 Describe fully the single transformation that maps shape A onto shape B.



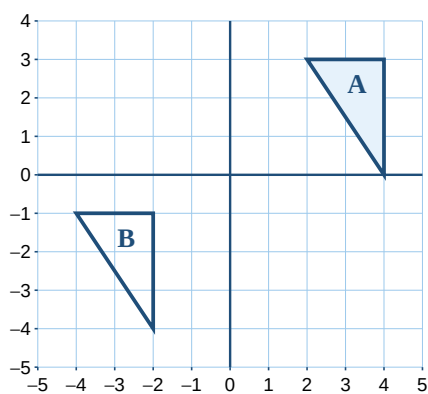
/ 1

- 11 Reflect shape A in the line with equation $y = -x$.



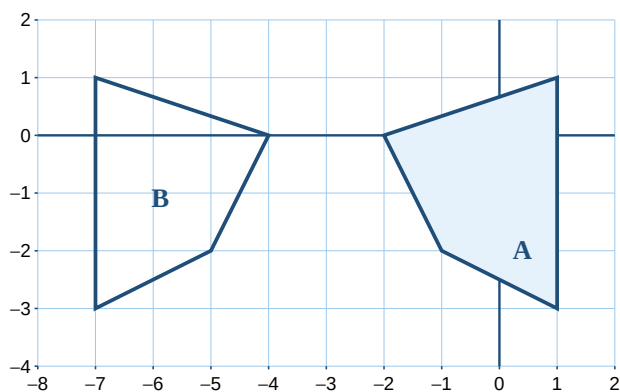
/ 1

- 12 Describe fully the single transformation that maps shape A onto shape B.



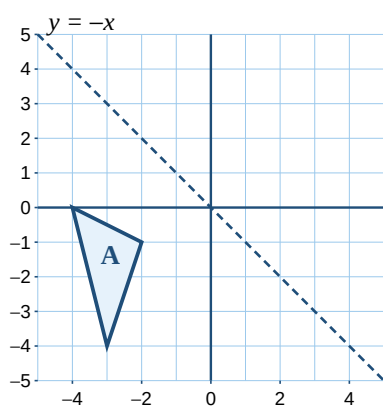
/ 1

- 13** Describe fully the single transformation that maps shape A onto shape B.



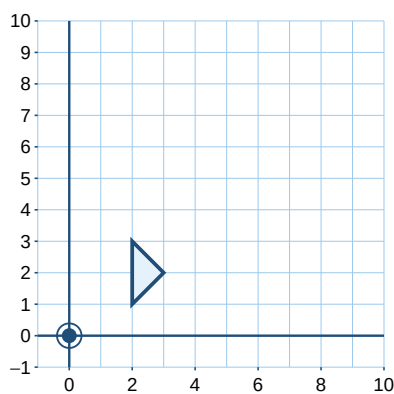
/ 1

- 14** Reflect shape A in the line with equation $y = -x$.



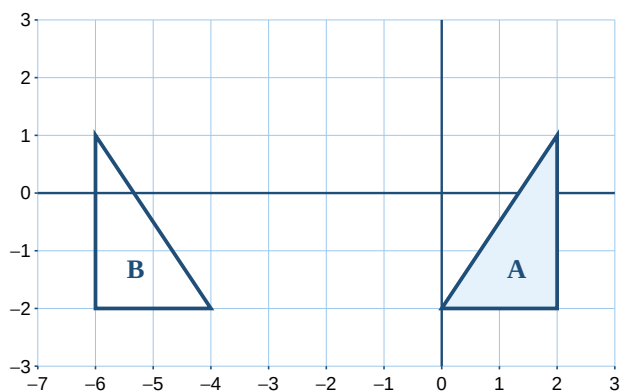
/ 1

- 15** Enlarge the shaded triangle by scale factor 3, centre O.



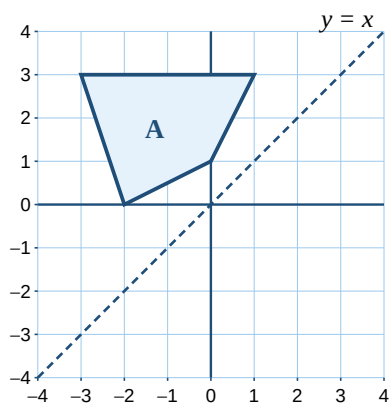
/ 1

- 16** Describe fully the single transformation that maps shape A onto shape B.



/ 1

- 17** Reflect shape A in the line with equation $y = x$.

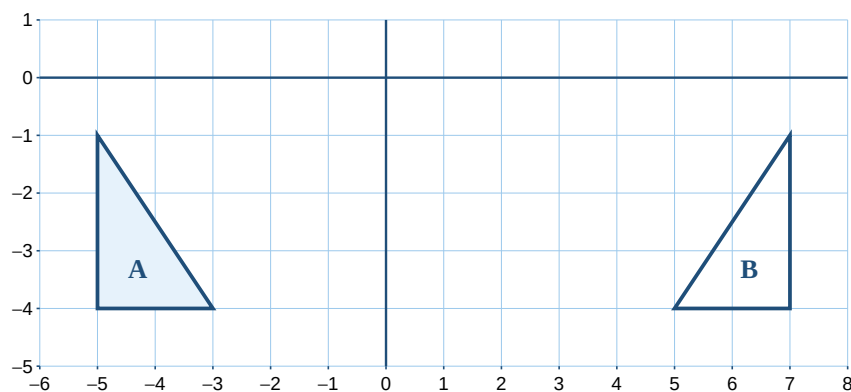


/ 1

- 18** The point P has coordinates (1, 2).
P is reflected in the x-axis.
The image is then translated 3 left and 3 up.
Write down the coordinates of the final image.

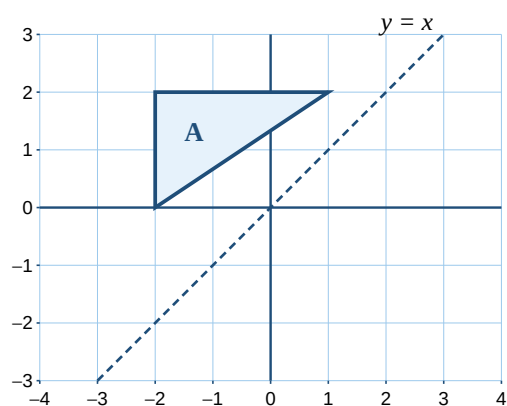
/ 1

- 19 Describe fully the single transformation that maps shape A onto shape B.



/ 1

- 20 Reflect shape A in the line with equation $y = x$.



/ 1

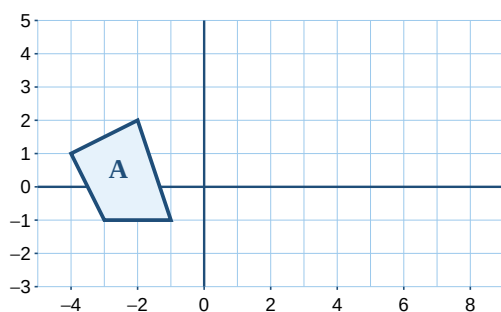
- 21 Shape A is translated 5 right and 4 up.
The image is then translated 4 right and 2 down.
Describe fully the single transformation that is equivalent to these two translations.

/ 2

- 22 The point P has coordinates (3, 4).
P is reflected in $y = -x$.
The image is then translated 1 right and 4 down.
Write down the coordinates of the final image.

.....
 / 2

- 23 Rotate shape A 180° about the origin O.
Then translate the image 4 squares to the right and 3 squares up.
Draw the final image.

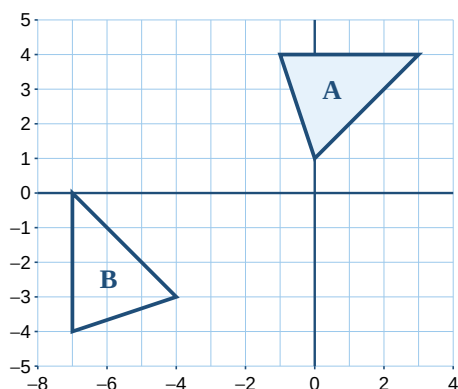


.....
 / 2

- 24 Shape A is rotated 90° anticlockwise about the origin O.
The image is then rotated 90° anticlockwise about the origin O.
Describe fully the single transformation that is equivalent to these two rotations.

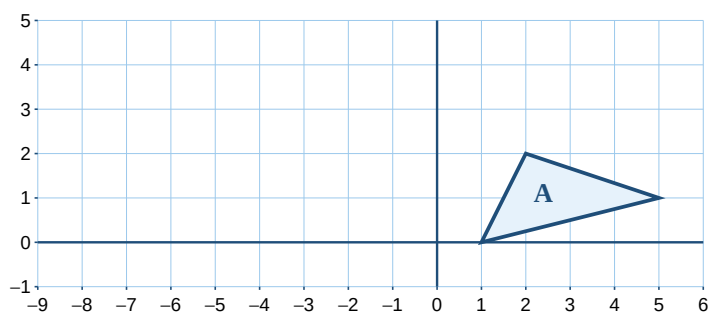
.....
 / 2

- 25 Describe fully the single transformation that maps shape A onto shape B.



.....
 / 2

- 26 Reflect shape A in the y-axis.
Then translate the image 3 squares to the left and 2 squares up.
Draw the final image.

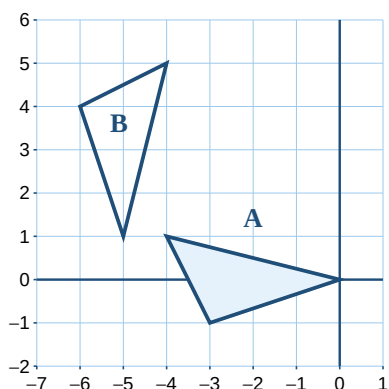


.....
 / 2

- 27 The point P has coordinates $(-3, 1)$.
P is rotated 90° anticlockwise about the origin O.
The image is then enlarged by scale factor 2, centre O.
Write down the coordinates of the final image.

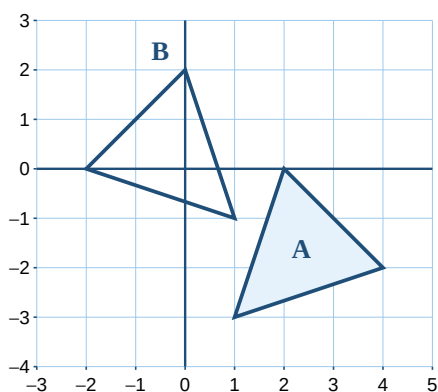
.....
 / 2

- 28 Describe fully the single transformation that maps shape A onto shape B.



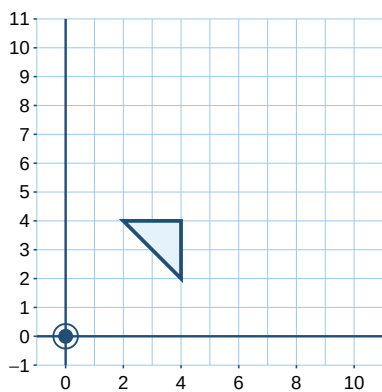
/ 2

- 29 Describe fully the single transformation that maps shape A onto shape B.



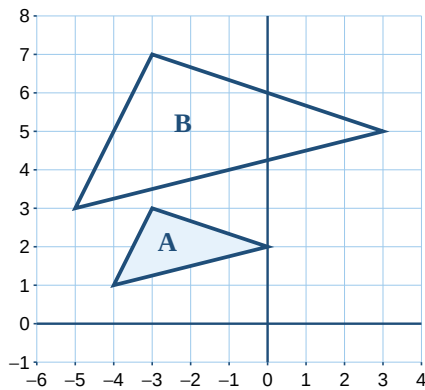
/ 2

- 30 Enlarge the shaded triangle by scale factor 2.5, centre O.



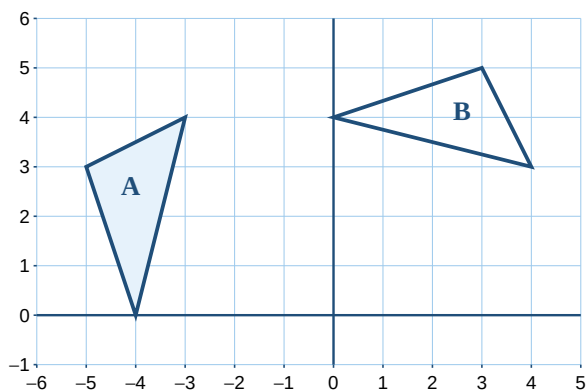
/ 2

- 31 Describe fully the single transformation that maps triangle A onto triangle B.



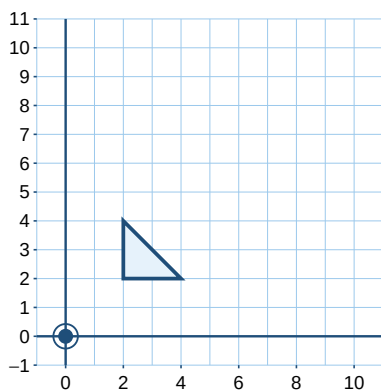
/ 2

- 32 Describe fully the single transformation that maps shape A onto shape B.



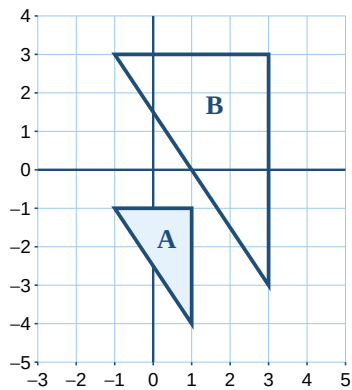
/ 2

- 33 Enlarge the shaded triangle by scale factor 2.5, centre O.



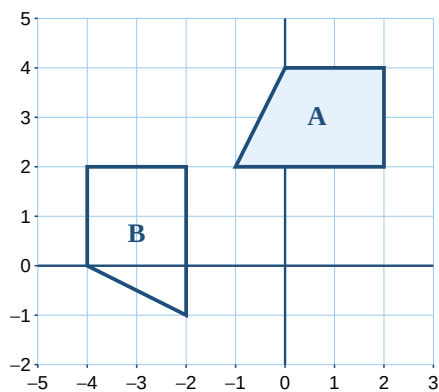
/ 2

- 34 Describe fully the single transformation that maps triangle A onto triangle B.



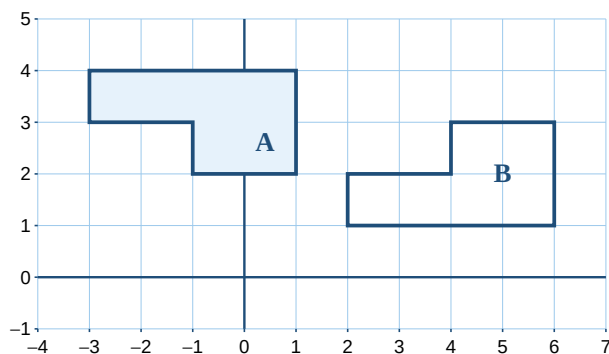
/ 2

- 35 Describe fully the single transformation that maps shape A onto shape B.



/ 2

- 36 A reflection in the x-axis followed by the translation shown maps shape A onto shape B. Find the values of p and q.



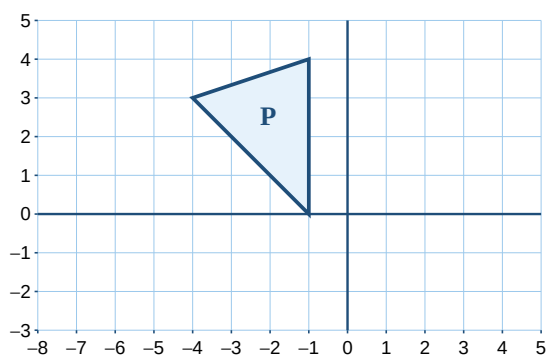
Translation $\begin{bmatrix} p \\ q \end{bmatrix}$

/ 2

- 37 Shape A is reflected in the line $x = -2$.
The image is then reflected in the line $x = 4$.
Describe fully the single transformation that is equivalent to these two reflections.

/ 2

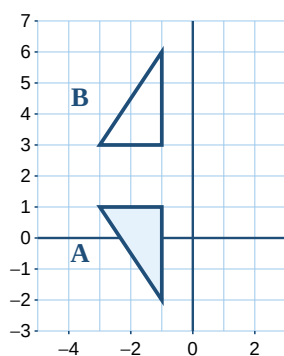
- 38 (a) Rotate shape P 90° clockwise about O. Label the image A.
(b) Translate shape P by the vector shown. Label the image B.



Vector $\begin{bmatrix} -3 \\ -2 \end{bmatrix}$

/ 2

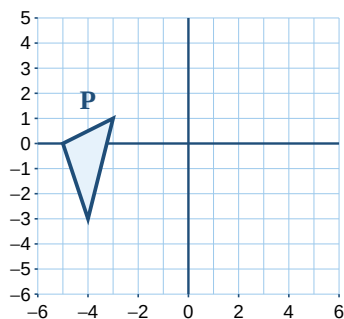
- 39 A reflection in the x-axis followed by the translation shown maps shape A onto shape B. Find the values of p and q.



Translation $\begin{bmatrix} p \\ q \end{bmatrix}$

/ 3

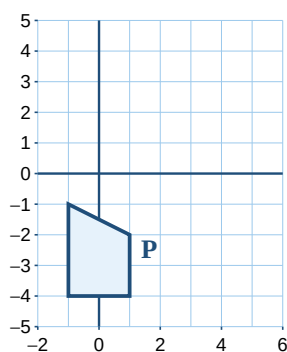
- 40 (a) Reflect shape P in the y-axis. Label the image A.
 (b) Rotate shape P 90° anticlockwise about O. Label the image B.
 (c) Translate shape P by the vector shown. Label the image C.



Vector $\begin{bmatrix} 4 \\ 3 \end{bmatrix}$

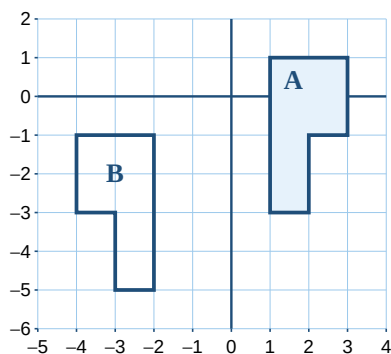
/ 3

- 41 (a) Rotate shape P 90° anticlockwise about O. Label the image A.
 (b) Reflect shape P in the x-axis. Label the image B.



/ 3

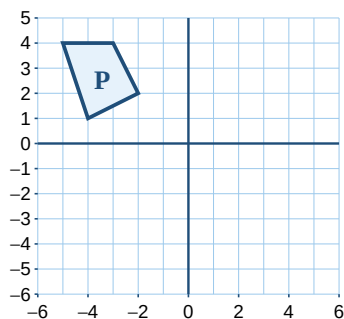
- 42 A reflection in the y-axis followed by the translation shown maps shape A onto shape B. Find the values of p and q.



Translation $\begin{bmatrix} p \\ q \end{bmatrix}$

/ 3

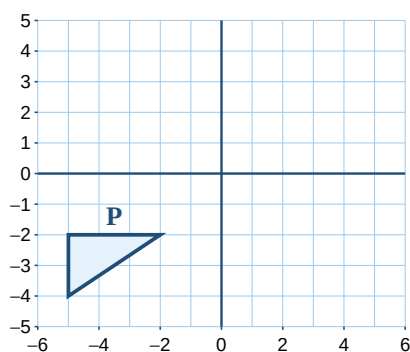
- 43 (a) Translate shape P by the vector shown. Label the image A.
 (b) Rotate shape P 90° anticlockwise about O. Label the image B.
 (c) Reflect shape P in the y-axis. Label the image C.



Vector $\begin{bmatrix} 5 \\ -5 \end{bmatrix}$

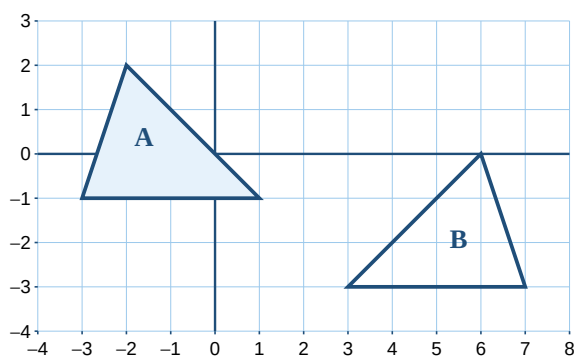
/ 3

- 44 (a) Reflect shape P in the y-axis. Label the image A.
 (b) Rotate shape P 180° about O. Label the image B.



/ 3

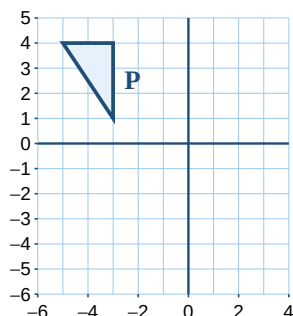
- 45 A reflection in the y-axis followed by the translation shown maps shape A onto shape B. Find the values of p and q.



Translation $\begin{bmatrix} p \\ q \end{bmatrix}$

/ 3

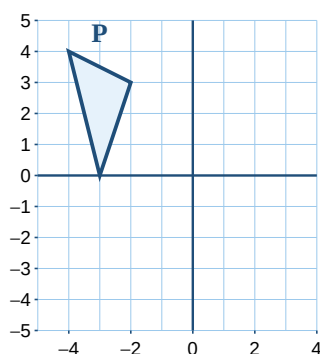
- 46 (a) Rotate shape P 90° anticlockwise about O. Label the image A.
 (b) Reflect shape P in $x = -2$. Label the image B.
 (c) Translate shape P by the vector shown. Label the image C.



Vector $\begin{bmatrix} 6 \\ -3 \end{bmatrix}$

/ 3

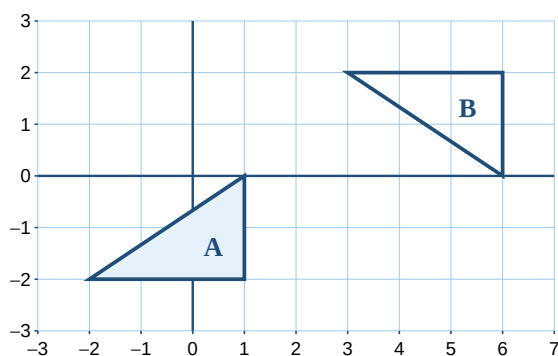
- 47 (a) Translate shape P by the vector shown. Label the image A.
 (b) Rotate shape P 90° anticlockwise about O. Label the image B.



Vector $\begin{bmatrix} 5 \\ -4 \end{bmatrix}$

/ 3

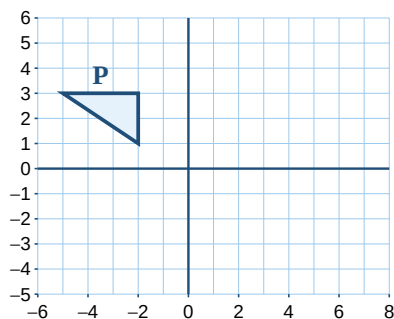
- 48 A reflection in the x-axis followed by the translation shown maps shape A onto shape B. Find the values of p and q.



Translation $\begin{bmatrix} p \\ q \end{bmatrix}$

/ 3

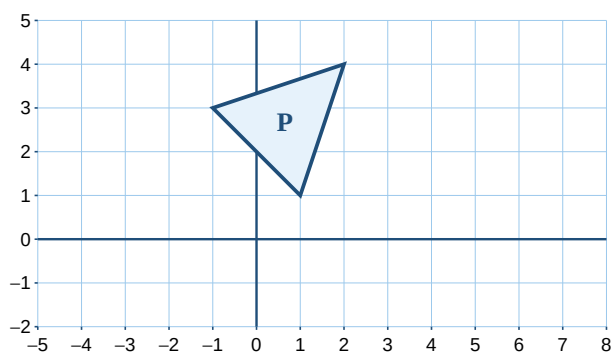
- 49 (a) Translate shape P by the vector shown. Label the image A.
 (b) Rotate shape P 90° clockwise about O. Label the image B.
 (c) Reflect shape P in $x = 1$. Label the image C.



Vector $\begin{bmatrix} 1 \\ -5 \end{bmatrix}$

/ 3

- 50 (a) Reflect shape P in $x = 3$. Label the image A.
 (b) Rotate shape P 90° anticlockwise about O. Label the image B.



/ 3