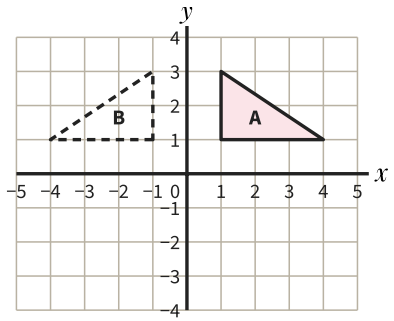
Combined transformations

1

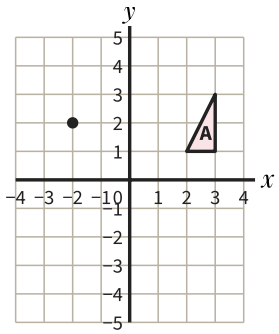
Reflect shape A in the y axis to give B.
Reflect B in the x axis to give C.



C _____

2

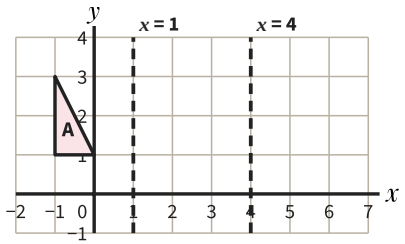
Translate shape A by $\begin{pmatrix} -4 \\ 1 \end{pmatrix}$ to give B.
Reflect B in the x axis to give C.



C _____

3

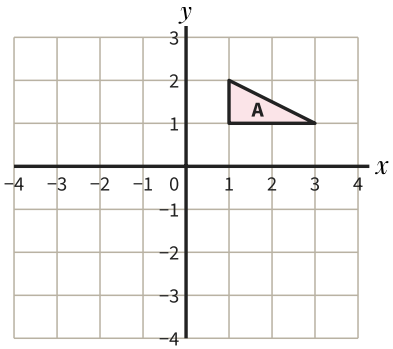
Reflect shape A in the line $x = 1$ to give B.
Reflect B in the line $x = 4$ to give C.



C _____

4

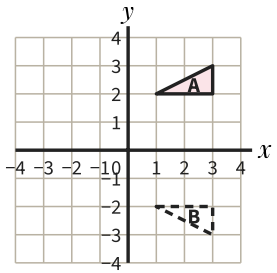
Rotate shape A 90° clockwise about (0, 0) to give B. Rotate B 90° clockwise about (0, 0) to give C.



C _____

5 *Notice the change!*

Reflect A in the x axis to give B, then B in the y axis to give C. Describe fully the single transformation from A to C.

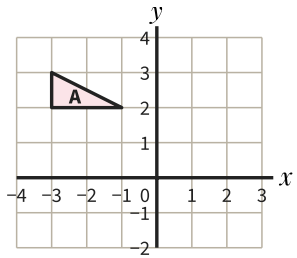


Rotation

_____

6

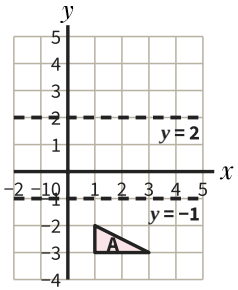
Translate A by $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ to give B, then B by $\begin{pmatrix} 1 \\ -4 \end{pmatrix}$ to give C. Describe fully the single transformation from A to C.



_____

7

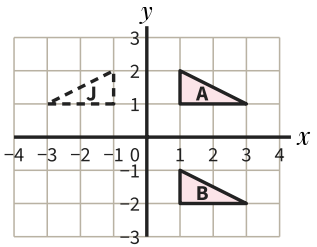
Reflect A in the line $y = -1$ to give B, then B in the line $y = 2$ to give C. Describe fully the single transformation from A to C.



_____

8

Jo should translate A by $\begin{pmatrix} 0 \\ -3 \end{pmatrix}$ to give B, then reflect B in the y axis. She draws B and J. Explain her mistake.



_____

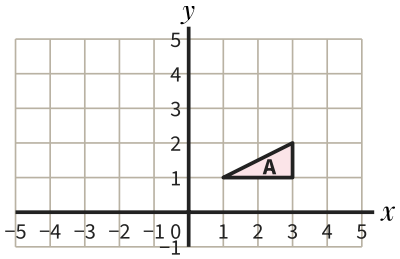
C _____

Combined transformations *further practice*

9

Translate A by $\begin{pmatrix} -5 \\ 2 \end{pmatrix}$ to give B.

Reflect B in the y axis to give C.



C _____

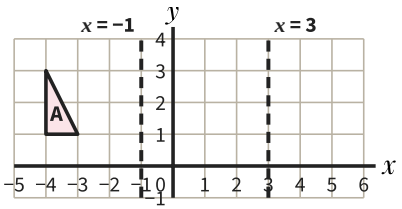
10

P (2, 5) is reflected in the x axis, then translated by $\begin{pmatrix} -3 \\ 1 \end{pmatrix}$. Where does P end up?

Answer _____

11

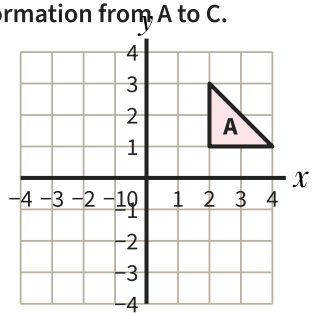
Reflect A in $x = -1$ to give B, then B in $x = 3$ to give C. Describe fully the single transformation from A to C.



Answer _____

12

Rotate A 90° anticlockwise about (0, 0) to give B, then B the same way to give C. Describe fully the single transformation from A to C.



Answer _____

13

P (3, 1): reflect in the y axis, then translate by $\begin{pmatrix} 2 \\ 0 \end{pmatrix}$. Now translate first, then reflect. Does the order matter?

Answer _____

14

A shape is rotated 90° clockwise about (0, 0) three times. Describe fully the single rotation that does the same.

Answer _____

15

A shape is translated by a vector, then by $\begin{pmatrix} 2 \\ -1 \end{pmatrix}$. The single transformation is a translation by $\begin{pmatrix} 5 \\ 3 \end{pmatrix}$.

Find the first vector.

Answer _____

16

Ravi reflects a shape in the x axis, then rotates it 180° about (0, 0). He says the single transformation is a rotation. Explain why he is wrong and describe it fully.

Answer _____