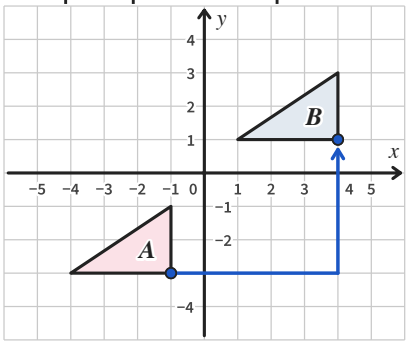
Describing translations

ANSWERS

1

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



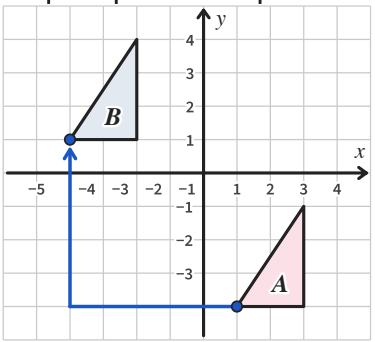
across first: 5 right

then up or down: 4 up

Translation by the vector $\begin{pmatrix} 5 \\ 4 \end{pmatrix}$

2

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



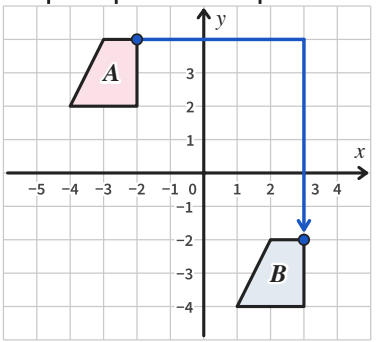
across first: 5 left, so −5

then up or down: 5 up

Translation by the vector $\begin{pmatrix} -5 \\ 5 \end{pmatrix}$

3

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



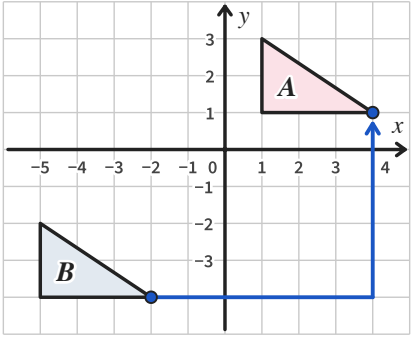
across first: 5 right

then up or down: 6 down, so −6

Translation by the vector $\begin{pmatrix} 5 \\ -6 \end{pmatrix}$

4 Notice the change!

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

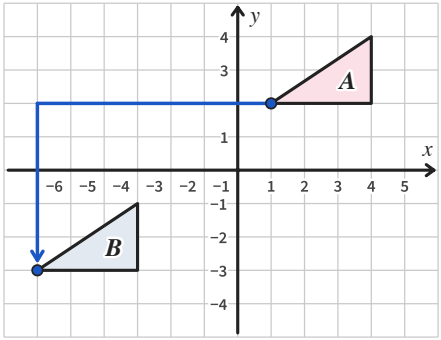


start at B: 6 right, 5 up

Translation by the vector $\begin{pmatrix} 6 \\ 5 \end{pmatrix}$

5

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

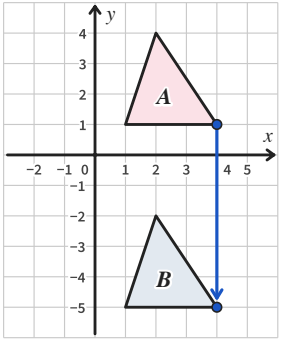


Translation

by the vector $\begin{pmatrix} -7 \\ -5 \end{pmatrix}$

6

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

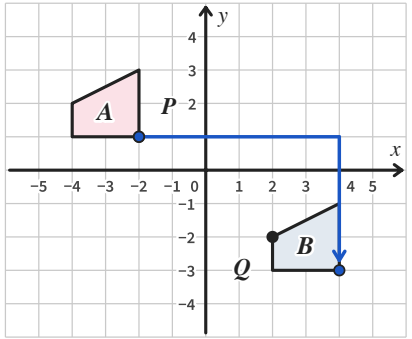


Translation

by the vector $\begin{pmatrix} 0 \\ -6 \end{pmatrix}$

7

Mo counted from P to Q and wrote Translation by $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$. Explain his mistake.

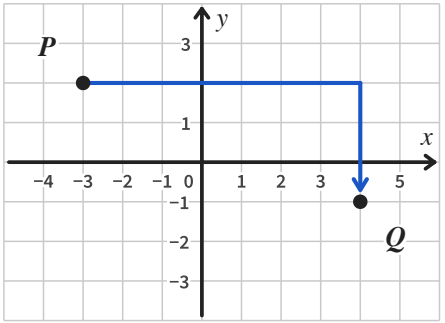


mistake: Q is not the match of P

it is: Translation by $\begin{pmatrix} 6 \\ -4 \end{pmatrix}$

8

Point P is translated to point Q. Write the column vector of the translation.



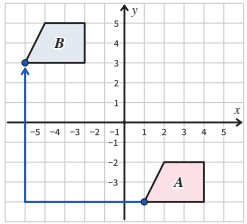
The vector $\begin{pmatrix} 7 \\ -3 \end{pmatrix}$

Describing translations *further practice*

ANSWERS

9

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



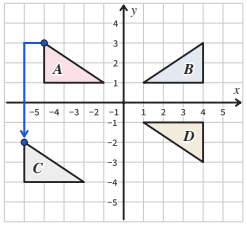
(1, −4) to (−5, 3)

6 left, 7 up

Answer Translation by $\begin{pmatrix} -6 \\ 7 \end{pmatrix}$

10

Which shape is a translation of shape A?
Describe that translation fully.



B is flipped, D is turned

C: 1 left, 5 down

Answer C, by $\begin{pmatrix} -1 \\ -5 \end{pmatrix}$

11

Shape A is translated onto shape B.
The corner (−2, 5) of A moves to the corner (6, 1) of B.
Describe fully the translation.

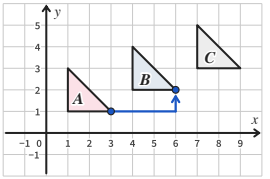
−2 to 6 is 8 right

5 to 1 is 4 down

Answer Translation by $\begin{pmatrix} 8 \\ -4 \end{pmatrix}$

12

Tile A moves to B, then B to C, by the same vector. Write the vector.
Then describe fully the translation from A to C.



A to B: 3 right, 1 up

A to C: 6 right, 2 up

Answer $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$, then $\begin{pmatrix} 6 \\ 2 \end{pmatrix}$

13

A counter moves by $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$, then by $\begin{pmatrix} -7 \\ 5 \end{pmatrix}$. Write the single column vector that takes it straight from start to finish.

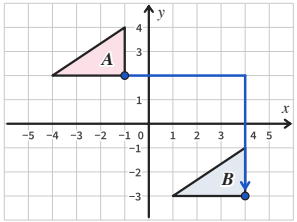
across: 3 + (−7) = −4

up or down: −2 + 5 = 3

Answer $\begin{pmatrix} -4 \\ 3 \end{pmatrix}$

14

Leo was asked for the translation that maps A onto B. He wrote $\begin{pmatrix} -5 \\ 5 \end{pmatrix}$.
Explain Leo's mistake.



he counted from B to A

A to B is 5 right, 5 down

Answer Translation by $\begin{pmatrix} 5 \\ -5 \end{pmatrix}$

15

A floor robot moves by the vector $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ four times. Describe fully the single translation from where it starts to where it stops.

across: 4 × 3 = 12

up: 4 × 2 = 8

Answer Translation by $\begin{pmatrix} 12 \\ 8 \end{pmatrix}$

16

Ella says that a translation by $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$ and a translation by $\begin{pmatrix} -3 \\ 4 \end{pmatrix}$ move a shape to the same place, because they use the same numbers. Is Ella right? Explain.

$\begin{pmatrix} 4 \\ -3 \end{pmatrix}$: 4 right, 3 down

$\begin{pmatrix} -3 \\ 4 \end{pmatrix}$: 3 left, 4 up

Answer No