Combined transformations

Exit ticket ANSWERS Name _____

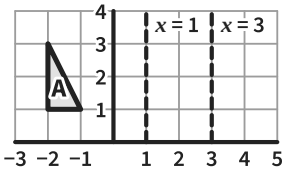
1. P (3, 2) is reflected in the y axis, then translated by $\begin{pmatrix}1\\-4\end{pmatrix}$.
Where does it end up?

(−2, −2)

2. A shape is translated by $\begin{pmatrix}2\\5\end{pmatrix}$, then by $\begin{pmatrix}-4\\1\end{pmatrix}$.
Describe fully the single transformation.

Translation by $\begin{pmatrix}-2\\6\end{pmatrix}$

3. Reflect shape A in $x = 1$, then in $x = 3$. Describe fully the single transformation.



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The Maths Habit

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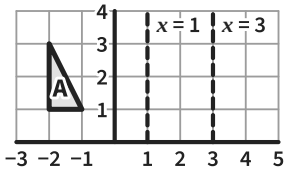

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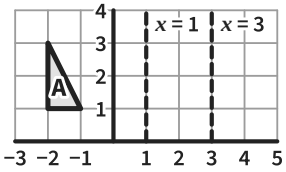

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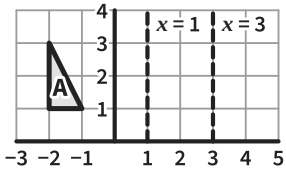

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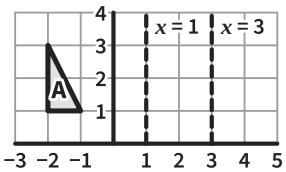

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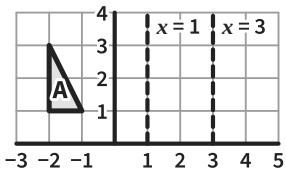

Translation by $\begin{pmatrix}4\\0\end{pmatrix}$
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Exit ticket Combined transformations

1 **P (3, 2) is reflected in the y axis, then translated by $\begin{pmatrix}1\\-4\end{pmatrix}$. Where does it end up?**

(−2, −2)

TESTS One transformation after another, in the order given

LOOK FOR *(−4, −2)* translated first: the order matters, reflect first

(4, −6) reflected in the x axis: the y axis changes the sign of the x coordinate

FIX IT

P (1, 4) is reflected in the x axis, then translated by $\begin{pmatrix}-2\\3\end{pmatrix}$. Where does it end up?

(−1, −1)

2 **A shape is translated by $\begin{pmatrix}2\\5\end{pmatrix}$, then by $\begin{pmatrix}-4\\1\end{pmatrix}$. Describe fully the single transformation.**

Translation by $\begin{pmatrix}-2\\6\end{pmatrix}$

TESTS Two translations as one: add the vectors

LOOK FOR *Translation by* $\begin{pmatrix}6\\4\end{pmatrix}$ subtracted the vectors: add them

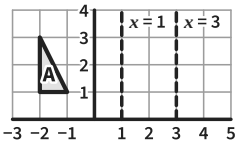
Translation not described fully: give the vector

FIX IT

A shape is translated by $\begin{pmatrix}-3\\2\end{pmatrix}$, then by $\begin{pmatrix}5\\-6\end{pmatrix}$. Describe fully the single transformation.

Translation by $\begin{pmatrix}2\\-4\end{pmatrix}$

3 **Reflect shape A in $x = 1$, then in $x = 3$. Describe fully the single transformation.**



Translation by $\begin{pmatrix}4\\0\end{pmatrix}$

TESTS The whole method once: two reflections in parallel lines, then the single transformation

LOOK FOR *Translation by* $\begin{pmatrix}2\\0\end{pmatrix}$ the gap between the lines: the shape moves twice the gap

a reflection flipped twice is the right way round again: it is a translation

FIX IT

A shape is reflected in $y = 0$, then in $y = 3$. Describe fully the single transformation.

Translation by $\begin{pmatrix}0\\6\end{pmatrix}$