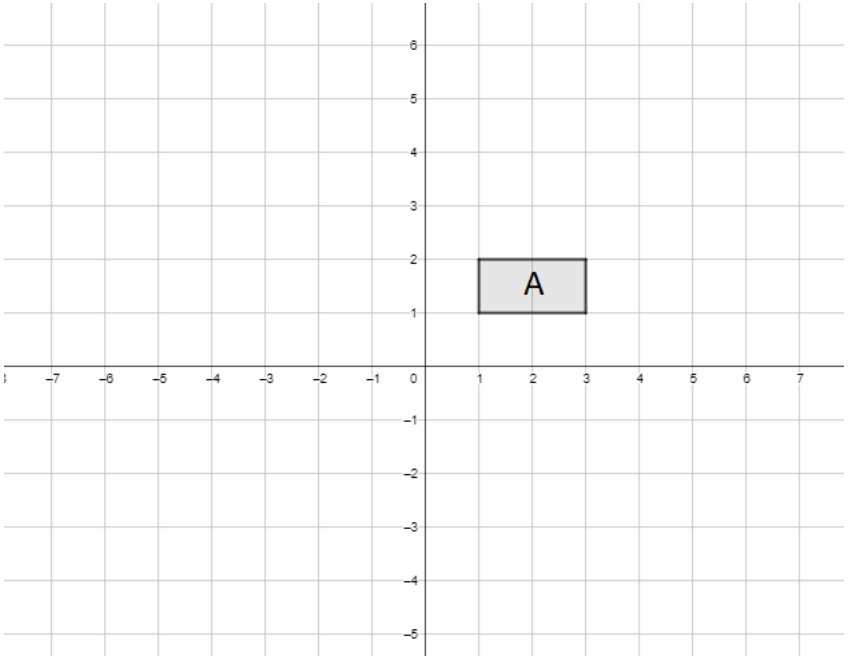
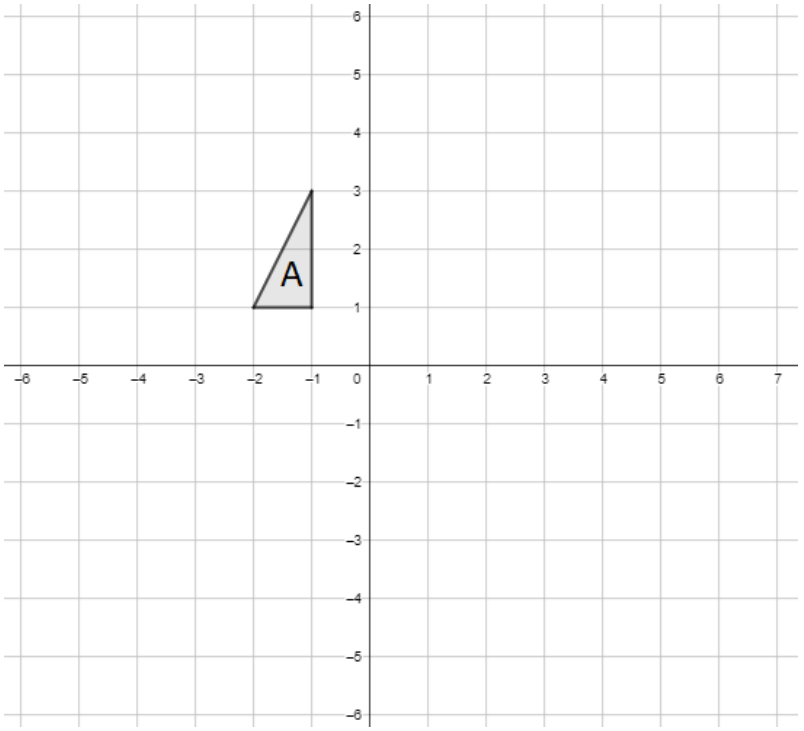
Translations – If they don't fit, draw as much as you can! www.m4ths.com

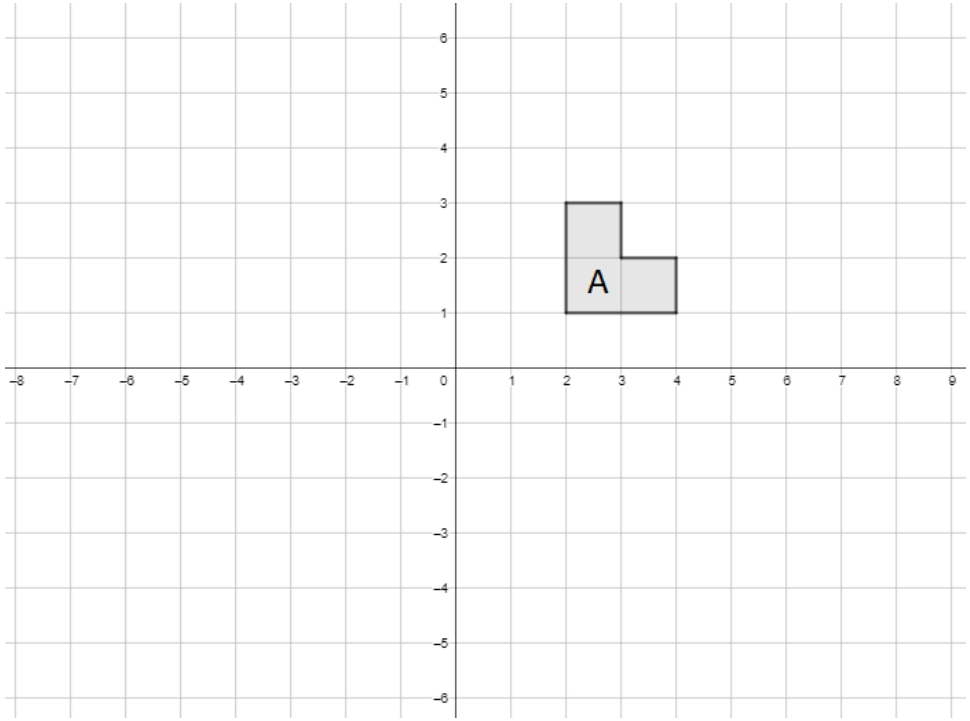


1. Translate Shape A by the vector $\begin{pmatrix}3\\1\end{pmatrix}$ and label it B
2. Translate Shape A by the vector $\begin{pmatrix}2\\-1\end{pmatrix}$ and label it C
3. Translate Shape A by the vector $\begin{pmatrix}0\\5\end{pmatrix}$ and label it D
4. Translate Shape A by the vector $\begin{pmatrix}-3\\-2\end{pmatrix}$ and label it E
5. Translate Shape A by the vector $\begin{pmatrix}-4\\0\end{pmatrix}$ and label it F
6. Translate Shape A by the vector $\begin{pmatrix}5\\-3\end{pmatrix}$ and label it G
7. Translate Shape A by the vector $\begin{pmatrix}-3\\1\end{pmatrix}$ and label it H
8. State fully the single transformation that maps Shape B to Shape D
9. State fully the single transformation that maps Shape E to Shape A
10. State fully the single transformation that maps Shape C to Shape G
11. State fully the single transformation that maps Shape H to Shape A
12. Shape A is reflected in the x axis. State the translation that would produce the same result.
13. Can a translation change which way round the shape is?

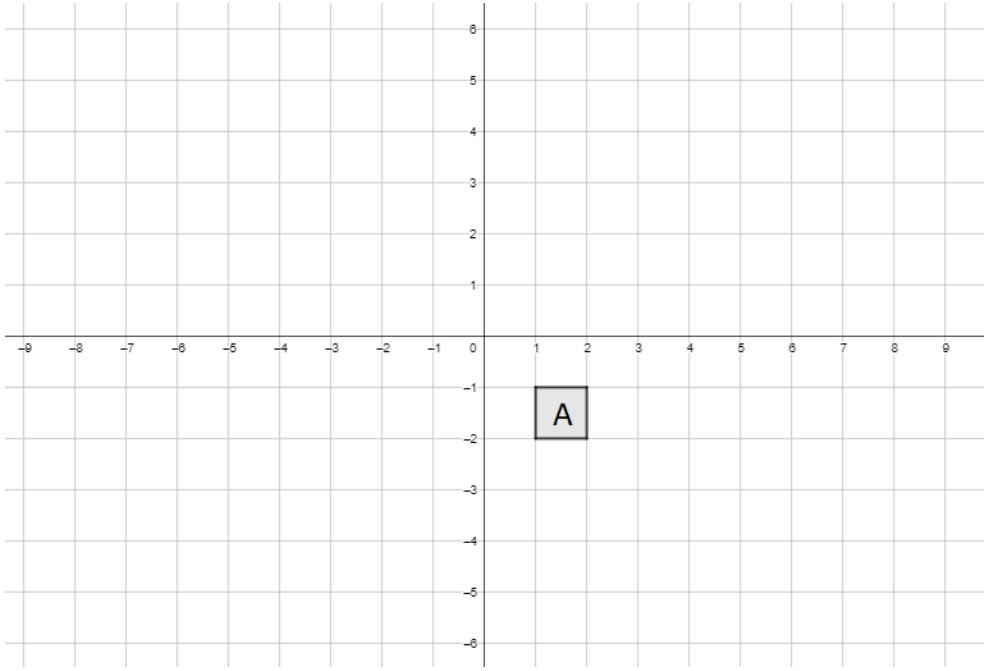


1. Translate Shape A by the vector $\begin{pmatrix}6\\2\end{pmatrix}$ and label it B
2. Translate Shape A by the vector $\begin{pmatrix}-1\\-3\end{pmatrix}$ and label it C
3. Translate Shape A by the vector $\begin{pmatrix}0\\-4\end{pmatrix}$ and label it D
4. Translate Shape A by the vector $\begin{pmatrix}5\\-5\end{pmatrix}$ and label it E
5. Translate Shape A by the vector $\begin{pmatrix}-4\\1\end{pmatrix}$ and label it F
6. Translate Shape A by the vector $\begin{pmatrix}8\\0\end{pmatrix}$ and label it G
7. Translate Shape A by the vector $\begin{pmatrix}-3\\2\end{pmatrix}$ and label it H
8. State fully the single transformation that maps Shape F to Shape A
9. State fully the single transformation that maps Shape C to Shape B
10. State fully the single transformation that maps Shape H to Shape D
11. State fully the single transformation that maps Shape G to Shape A
12. Shape A is reflected in the y axis. Explain why the new shape can't be a translation of A
13. What translation vector would be used if the shape didn't move at all?

Reflections – If they don't fit, draw as much as you can! www.m4ths.com



1. Reflect Shape A in the x axis. Label it Shape B
2. Reflect Shape A in the y axis. Label it Shape C
3. Reflect Shape A in the line $y = 3$ and label it Shape D
4. Reflect Shape A in the line $x = 2$ and label it Shape E
5. Reflect Shape A in the line $y = -2$ and label it Shape F
6. Reflect Shape A in the line $x = 5$ and label it Shape G
7. Reflect Shape A in the line $x = -1$ and label it Shape H
8. Reflect Shape A in the line $x = 0$ and label it Shape I
9. Explain the relationship between I and C.
10. Shape A is reflected such that it's corners now have coordinates (2,-2), (4, -2), (2, -4), (3, -4), (3, -3) and (x, y). Find the equation of the reflection line **and** find the values of x and y.



1. Reflect Shape A in the x axis. Label it Shape B
2. Reflect Shape A in the y axis. Label it Shape C
3. Reflect Shape A in the line $y = -3$ and label it Shape D
4. Reflect Shape A in the line $x = -2$ and label it Shape E
5. Reflect Shape A in the line $y = 1$ and label it Shape F
6. Reflect Shape A in the line $x = -4$ and label it Shape G
7. Reflect Shape A in the line $y = 2$ and label it Shape H
8. Reflect Shape A in the line $y = 0$ and label it Shape I
9. Explain the relationship between I and B.
10. Shape A is reflected in the line $y = 3$. State fully another y transformation that will give the same result as a reflection in the line $y = 3$.
11. Reflect Shape A in the line $y = x$ and label it Shape J
12. Reflect Shape A in the line $y = -x$ and label it Shape K
13. Find a translation which also maps A to J
14. Find a translation which also maps A to J