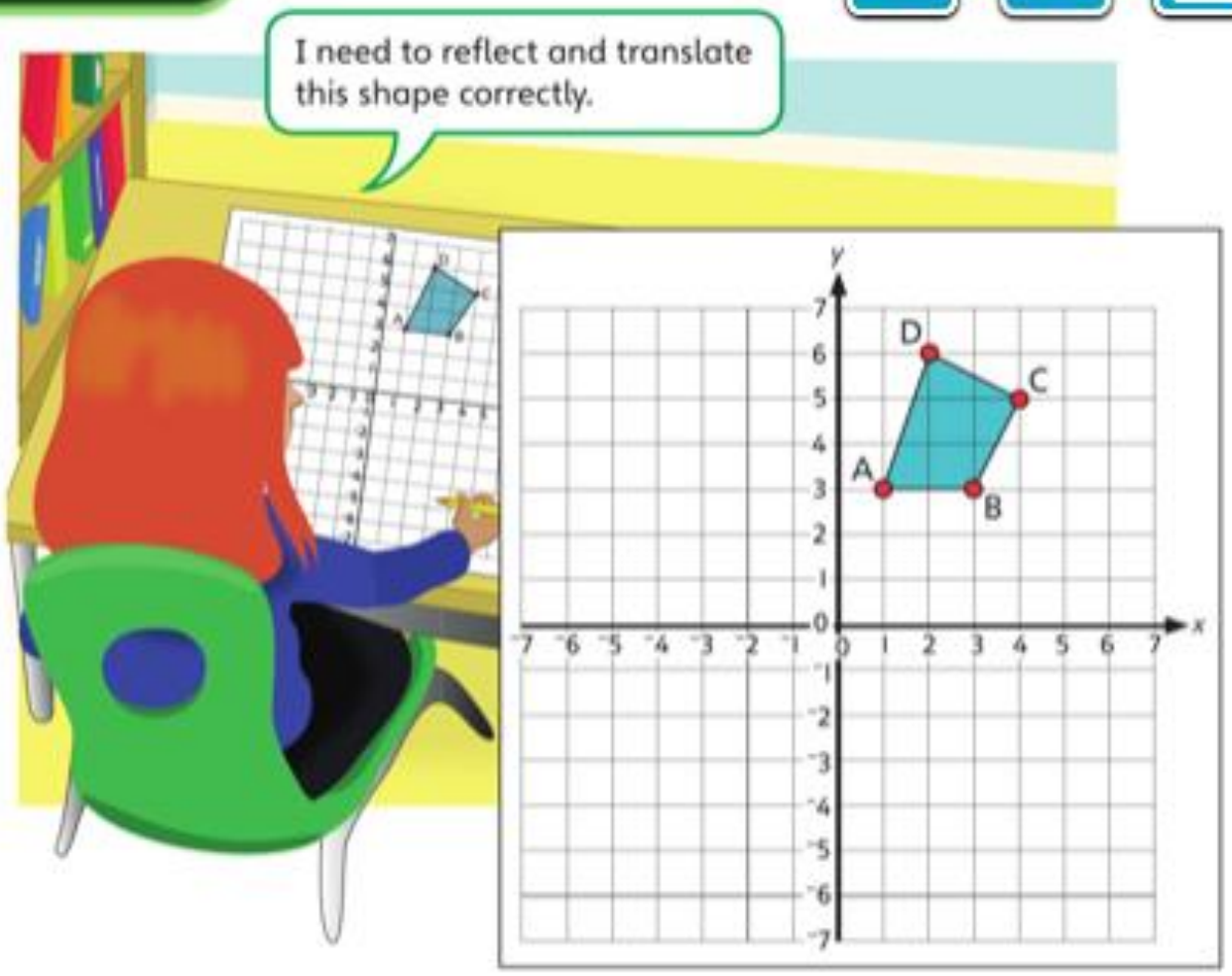
Plotting translations and reflections

Discover



1 a) Where would Olivia draw the shape if it was reflected in the x-axis?

b) Where would Olivia draw the shape if her original shape was translated 4 left and 5 down?

First, let's look at the reflection

Share

You might find it useful to use tracing paper for reflections and translations.

I think when we **reflect** a shape, the new points will be the same distance away from the axis as the original points, just on the other side.

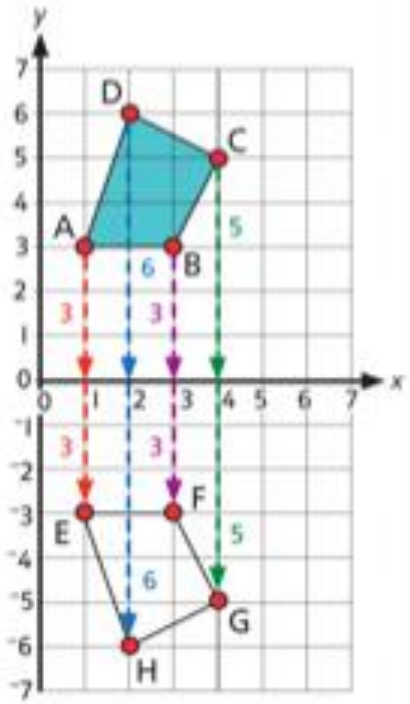
a) Reflect each point one at a time.

Points A and B are both 3 units away from the *x*-axis. Point C is 5 units away from the *x*-axis. Point D is 6 units away from the *x*-axis.

The reflected points will be the same distance away from the *x*-axis.

Join up the points in order to make the shape after it has been reflected.

The new coordinates are:
E is at (1, ⁻3)
F is at (3, ⁻3)
G is at (4, ⁻5)
H is at (2, ⁻6)

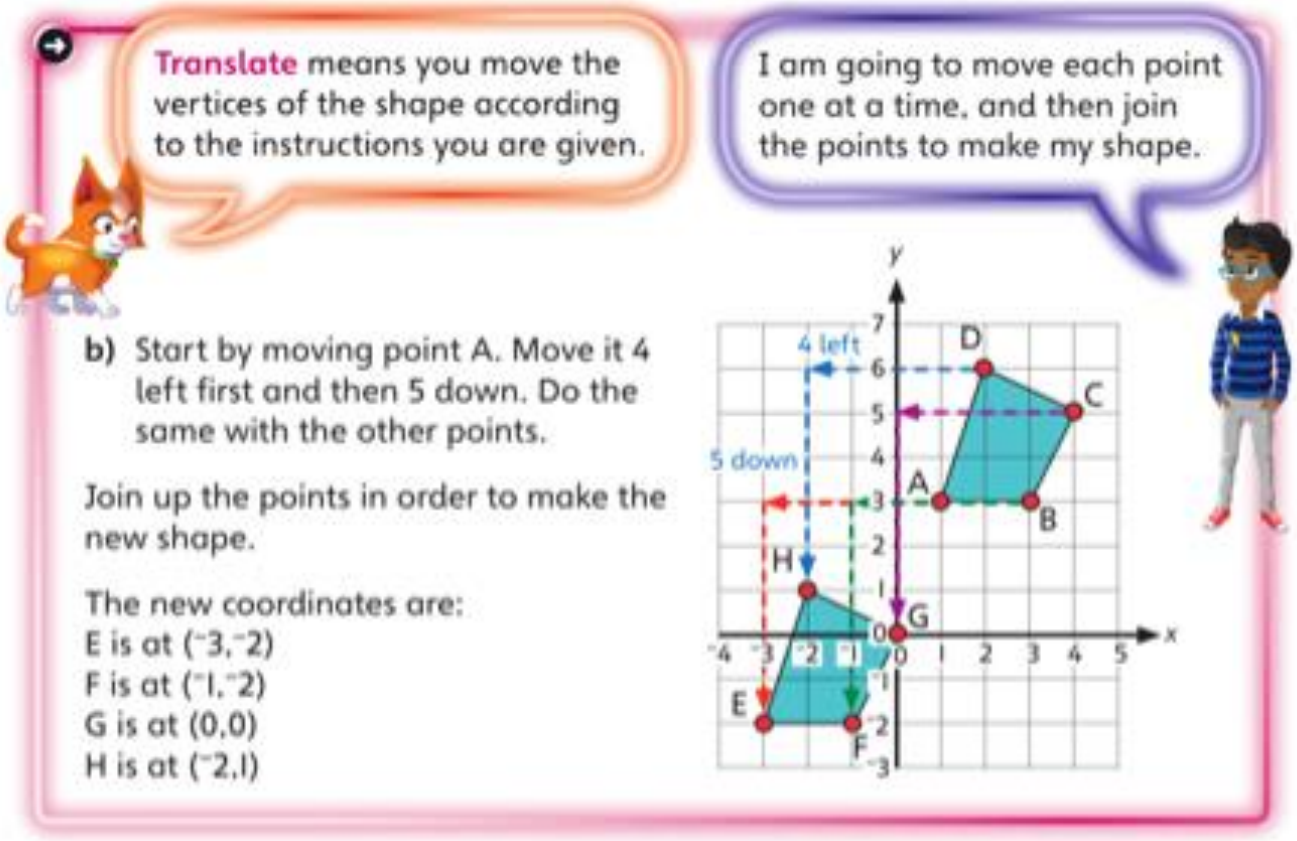


This is just like yesterday's work, reflecting shapes.

It's important to do every point one at a time and then join them up, rather than trying to look at the shape and draw it in the new place.

This will help you to be accurate every time.

Now let's look at the translation



Translating is *sliding* the shape across the grid but not changing it in any other way. Again, it's important to do EVERY point, one at a time, so that you are accurate.

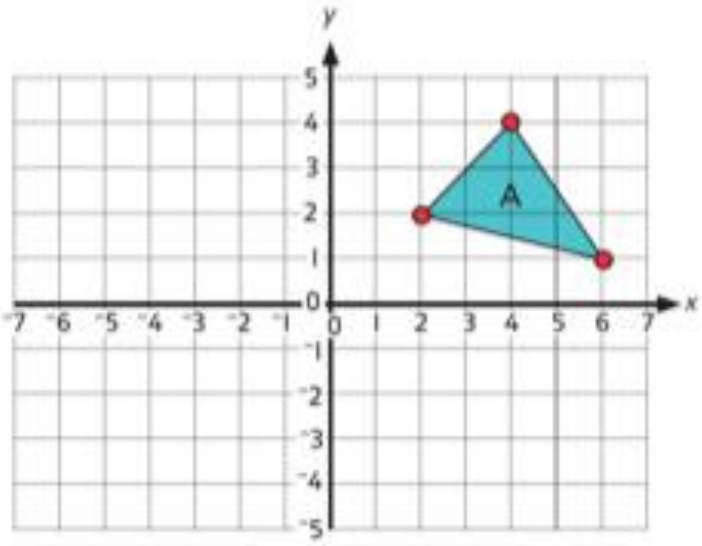
Then join up your points.

Let's look at another one:

Think together

1 a) Reflect shape A in the *x*-axis. Label your new shape B.

b) Reflect shape A in the *y*-axis. Label your new shape C.



To reflect in the *y*-axis, I think I need to work out the distance from the *y*-axis.

222

Remember to count each point in turn. How far from the x axis is each point? The reflected points will be the **same** distance from the axis.

Draw each of the three points (or look at where they would be on your computer screen). Once you have all three points, you can join them up. This is shape B.

Now look at reflecting in the y axis. Do the same again: draw each of the three points (or look at where they would be on your computer screen). Once you have all three points, you can join them up. This is shape C.

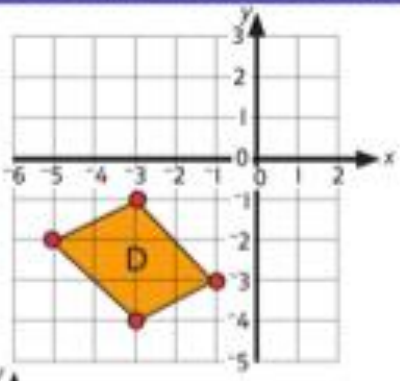
ANSWERS

Question 1 a): The reflected image of shape A has coordinates (2,⁻2), (4,⁻4) and (6,⁻1).

Question 1 b): The reflected image of shape A has coordinates (⁻2,2), (⁻4,4) and (⁻6,1).

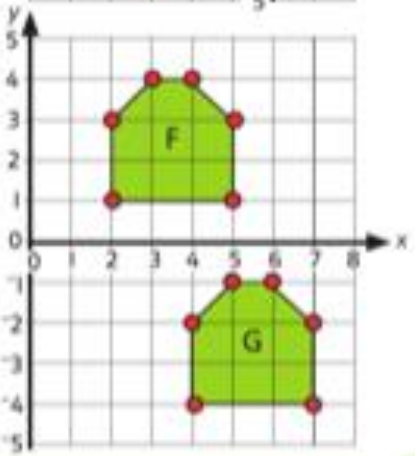
Here's another couple of practice questions:

2 **a)** Translate shape D 2 units right and 3 units up. Label your new shape E.

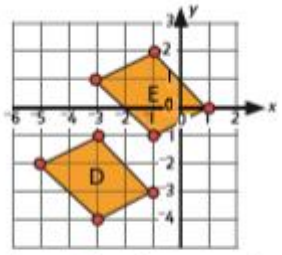


b) Look at this diagram. Complete the sentence:

Shape F has been translated ☐ ____ and ☐ ____ to become shape G.



Question 2 a):



Question 2 b): Shape F has been translated 2 right and 5 down to become shape G.

NOW, have a go at pages 160 – 163 in your Power Maths book A.

I'll put the answers in a separate file, so you can check once you're finished (don't cheat!)