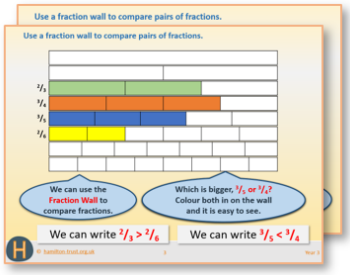
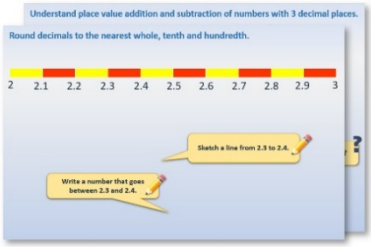
Week 9, Day 4
Translations

Each day covers one maths topic. It should take you about 1 hour or just a little more.

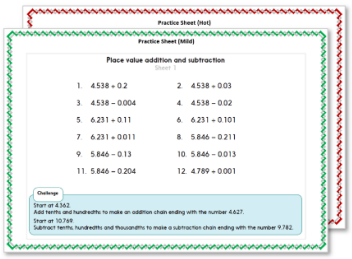
1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.



OR start by carefully reading through the **Learning Reminders**.



2. Tackle the questions on the **Practice Sheet**.
There might be a choice of either Mild (easier) or Hot (harder)!
Check the answers.



3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**

4. Think you've cracked it? Whizzed through the Practice Sheets?
Have a go at the **Investigation**…

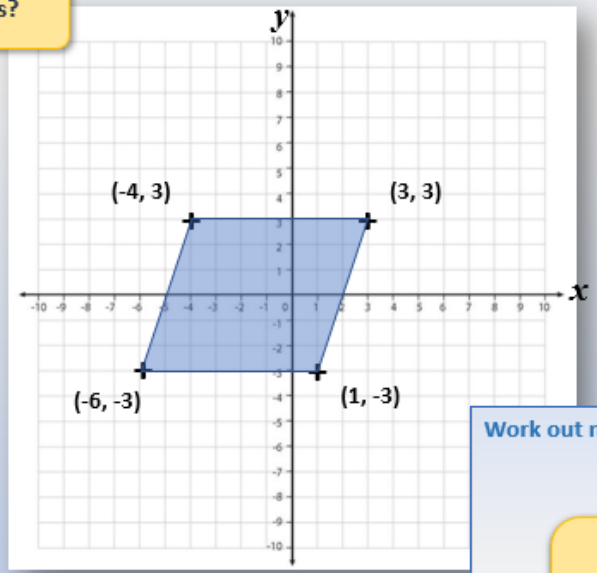
Learning Reminders

Work out new co-ordinates after a translation.

What shape is this?

This parallelogram moves 3 squares to the right. Work out the co-ordinates of its new position...

Sketch the shape (not the grid) and label the new co-ordinates...

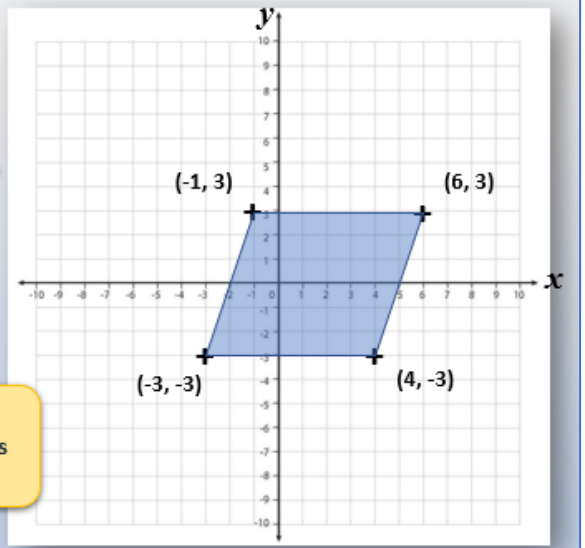


Work out new co-ordinates after a translation.

This shape has been translated; this means that it has moved but kept its original shape and orientation.

Look at the new co-ordinates. What is the same; what is different?

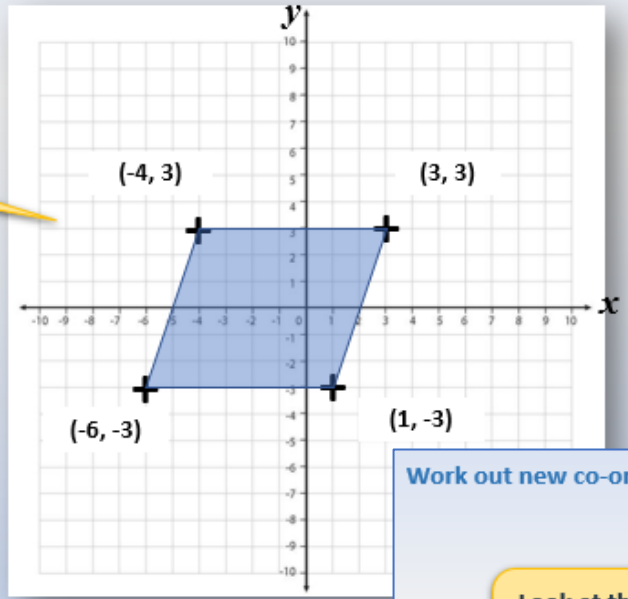
The *y* co-ordinates are the same, but the *x* co-ordinates have increased by 3.



Learning Reminders

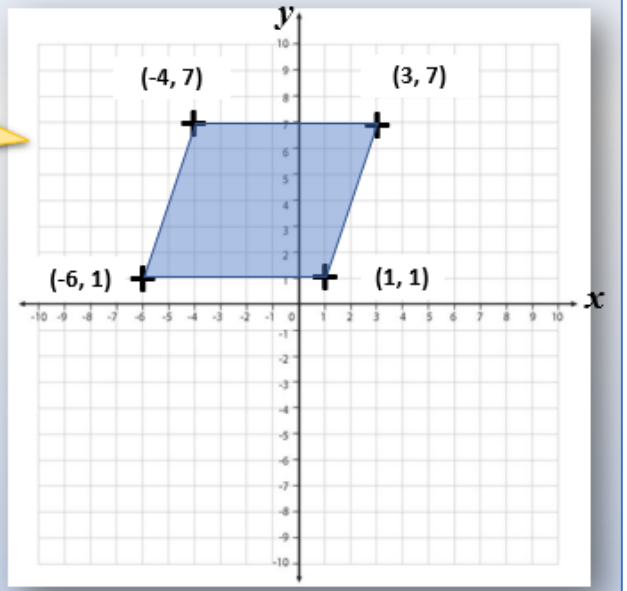
Work out new co-ordinates after a translation.

This time, move the parallelogram up four squares... Sketch the shape, labelling the new co-ordinates.



Work out new co-ordinates after a translation.

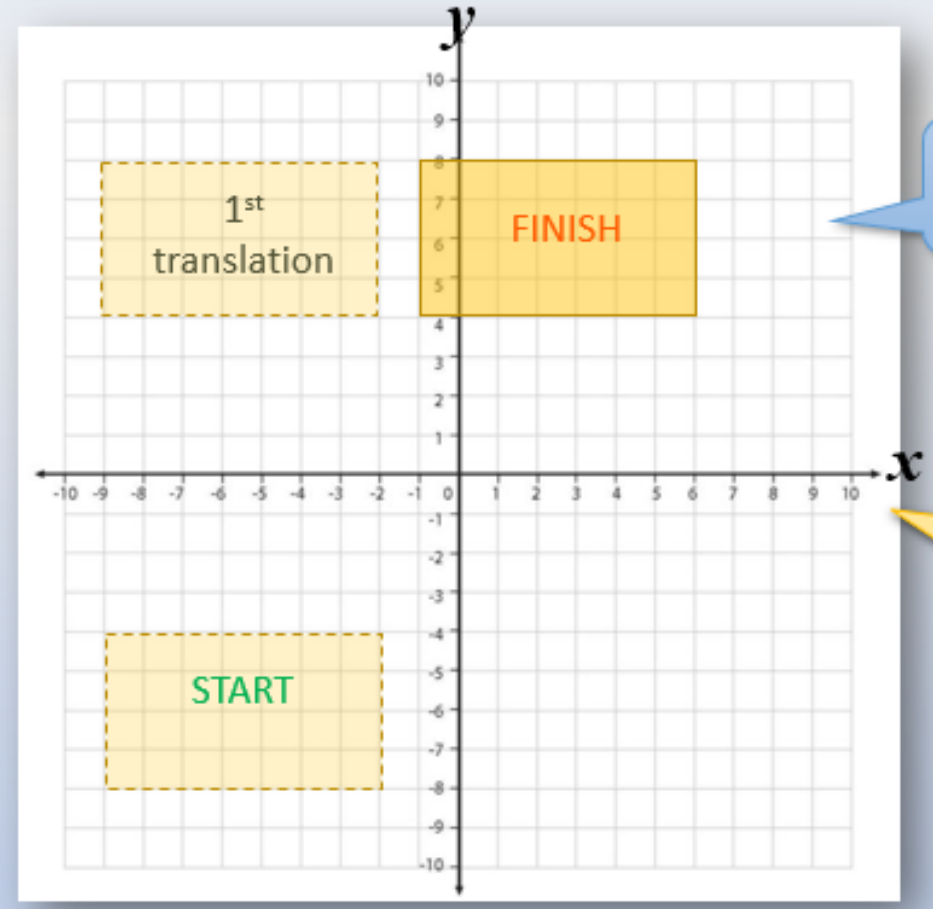
Look at the new co-ordinates. What is the same; what is different this time?



The *x* co-ordinates are the same, but the *y* co-ordinates have increased by 4.

Learning Reminders

Work out new co-ordinates after a translation.

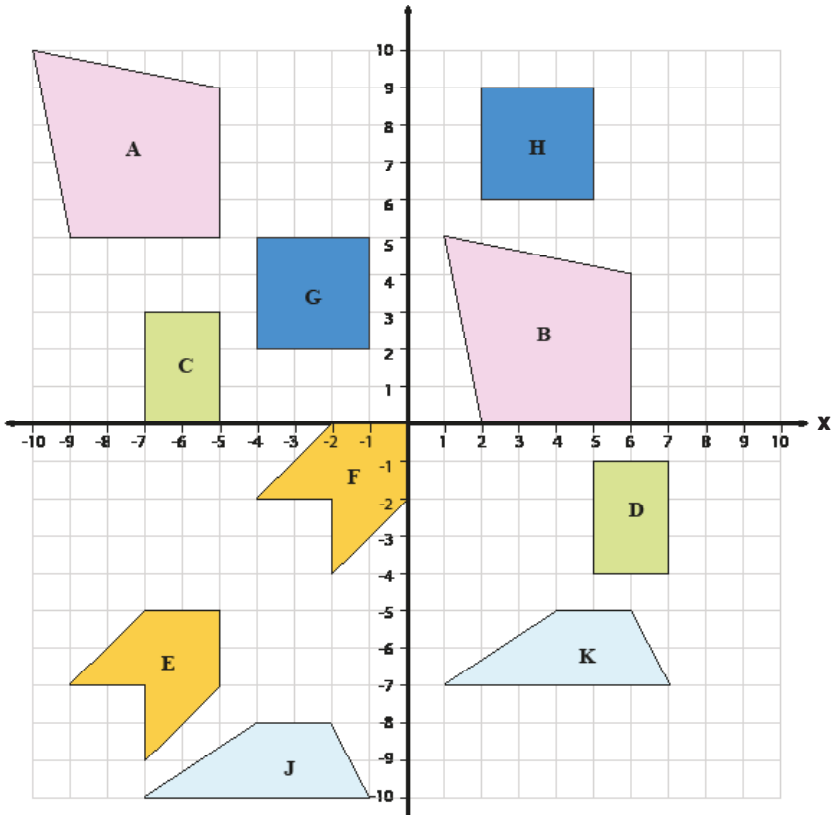


Describe this two step translation....

The rectangle has moved **12** squares up and **8** squares to the right.

Practice Sheet for All
Translated quadrilaterals

Write the translation for each of these shapes.
Write the number of squares it moves along (x) and the number of squares it moved up/down (y), e.g. a shape might move along 3 squares to the right and 4 squares down.



1. Shape A moves [____] squares along to the _____ and [___] squares _____.

2. Shape C moves [____] squares along to the _____ and [___] squares _____.

3. Shape E moves [____] squares along to the _____ and [___] squares _____.

4. Shape G moves [____] squares along to the _____ and [___] squares _____.

5. Shape J moves [____] squares along to the _____ and [___] squares _____.

Which pair of shapes have a translation of 11 horizontally?
Which pair of shapes have a translation of 3 vertically?
Which pair of shapes have the greatest translation horizontally?

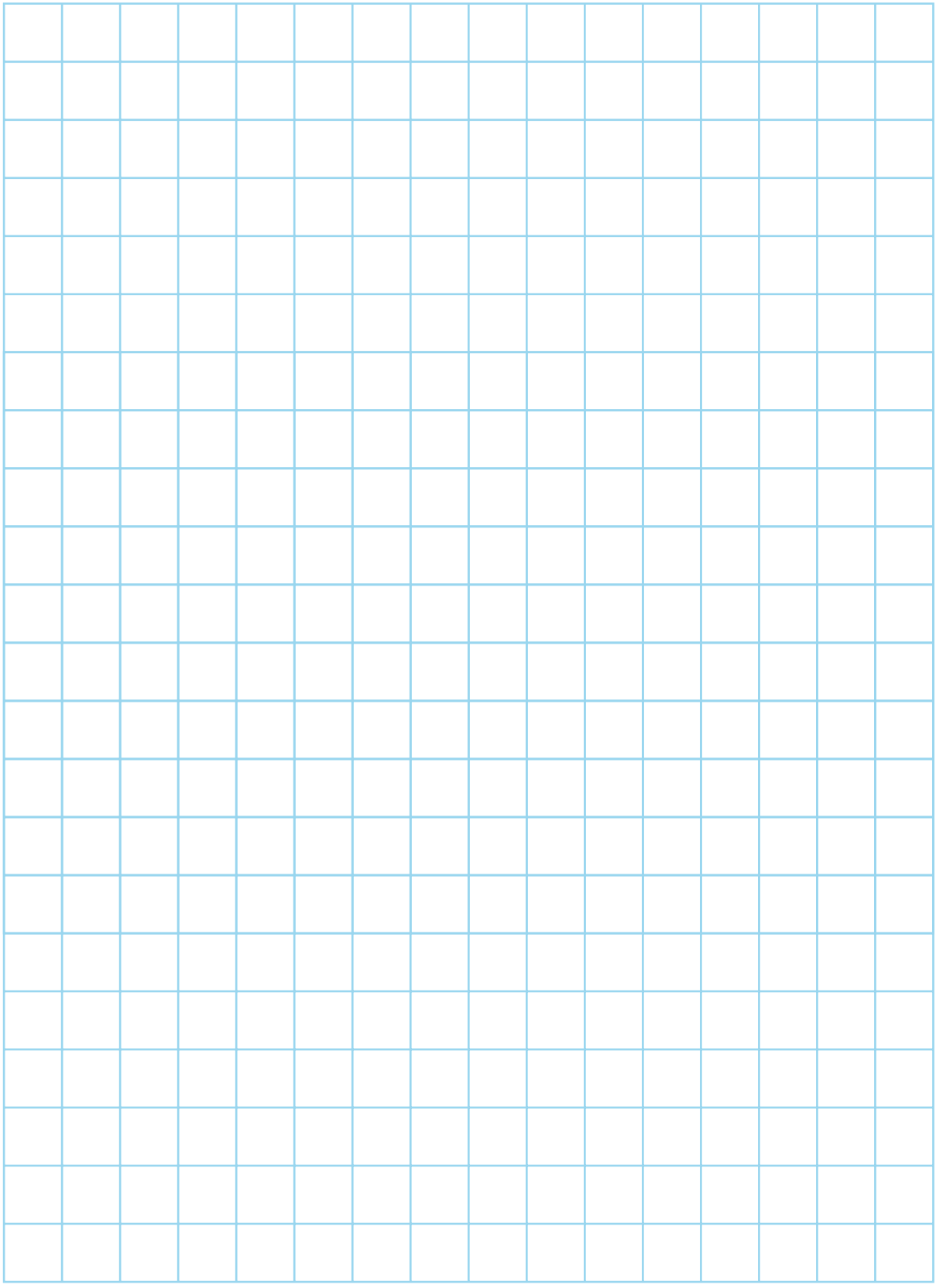
Hot: Have a go at this Challenge too!

Challenge

Draw a quadrilateral in the bottom left quadrant.
Translate it to the top right quadrant and re-draw it.
Write the translation.
Try the same thing with a pentagon on a new grid.

Practice Sheet for All

Translated quadrilaterals



Practice Sheet Answers

Translated quadrilaterals

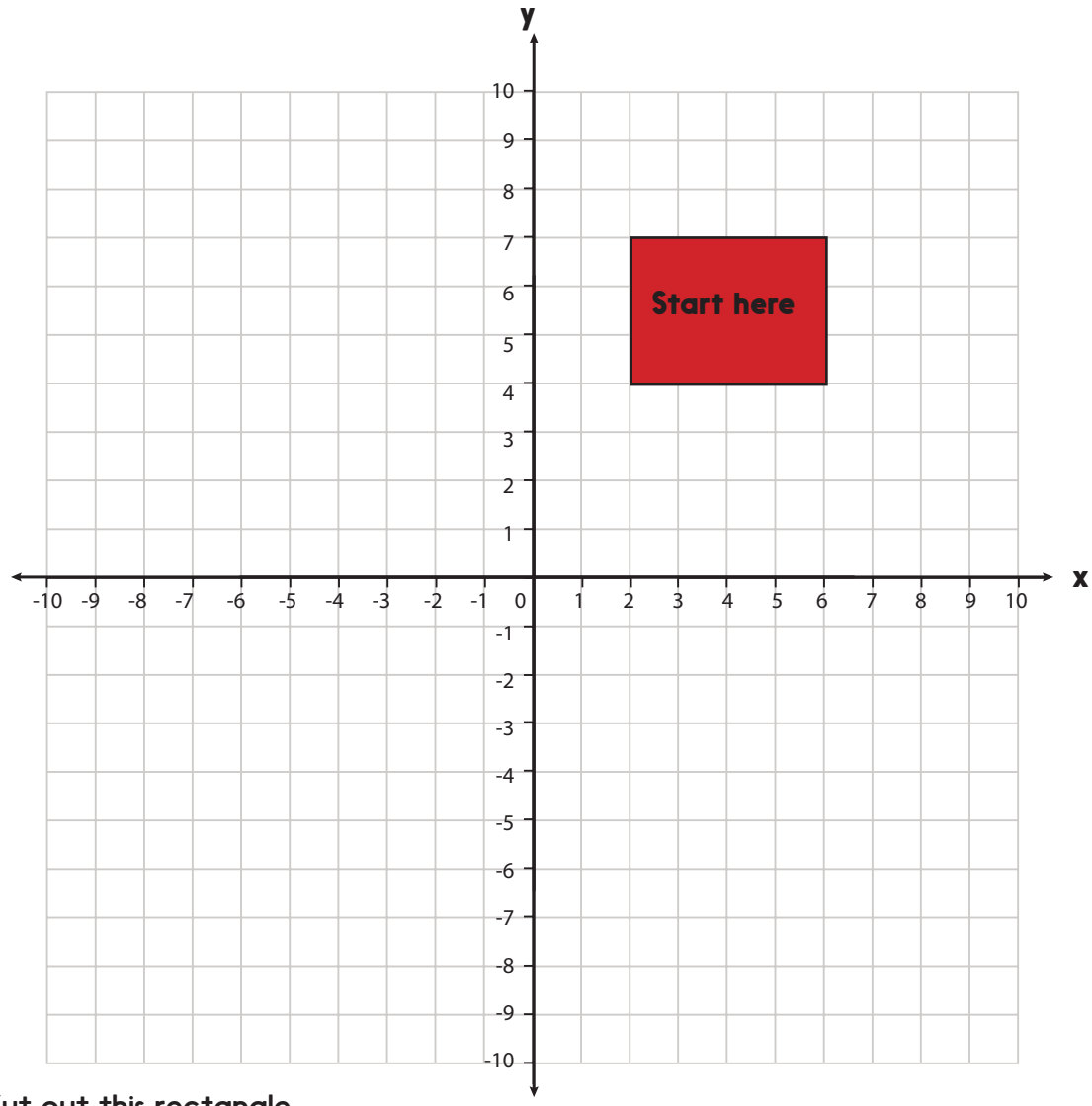
1. Shape A moves 11 squares along to the right and 5 squares down.
2. Shape C moves 12 squares along to the right and 4 squares down.
3. Shape E moves 5 squares along to the right and 5 squares up.
4. Shape G moves 6 squares along to the right and 4 squares up.
5. Shape J moves 8 squares along to the right and 3 squares up.

Which pair of shapes have a translation of 11 horizontally? A and B

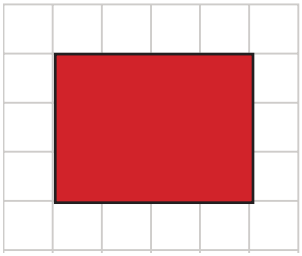
Which pair of shapes have a translation of 3 vertically? J and K

Which pair of shapes have the greatest translation horizontally? C and D

A Bit Stuck?
Time to move



- Cut out this rectangle.



- Place the rectangle in the starting position on the co-ordinate grid.
- Write the co-ordinates of the four vertices.
- Move the rectangle 3 squares to the right. Write the new co-ordinates.
  The x co-ordinates will have changed but not the y coordinates.
- Now move the rectangle back to the start.
- Move it down 3 squares. Write the new co-ordinates. How have they changed?
- Experiment moving the rectangle up, down, left or right, seeing what happens.

S-t-r-e-t-c-h:

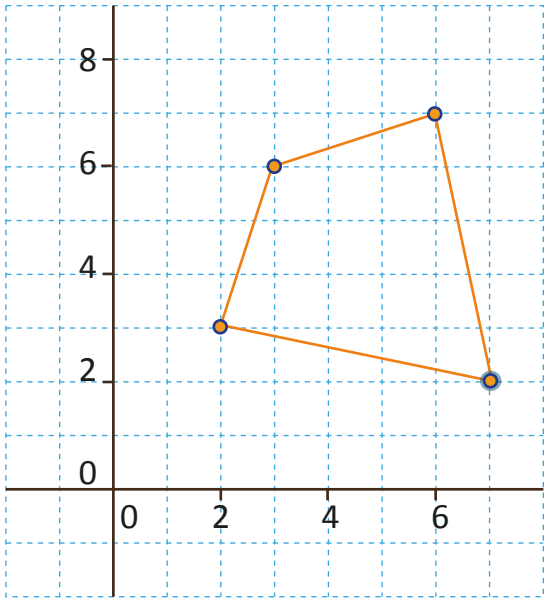
Try moving the rectangle across or down to other quadrants.

Investigation
Cycling co-ordinates

1. Write down four single-digit numbers, for example 2, 3, 6, 7.

2. Use these to produce four pairs of co-ordinates. Take the first two numbers to produce the first pair (2, 3), the second and third number to give the second pair of co-ordinates (3, 6), the third and fourth number to give the third pair of co-ordinates (6, 7) and then cycle round using the last and first numbers to give the last pair of co-ordinates (7, 2).

3. Plot the four points, then join them together. What shape have you drawn?



4. Now try 2, 6, 5, 1. What shape do they form this time?

5. Now try groups of your own four numbers. See what different types of quadrilateral you can produce?

   Can you write a rule for producing kites? Can you write a rule for producing squares?

Challenge

Do your rules work in all four quadrants?