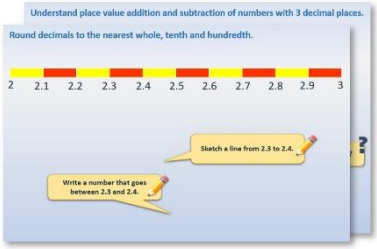
Year 4: Week 6, Day 4

Moving shapes on the co-ordinate grid

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

1. Start by reading through the **Learning Reminders**.
   They come from our *PowerPoint* slides.



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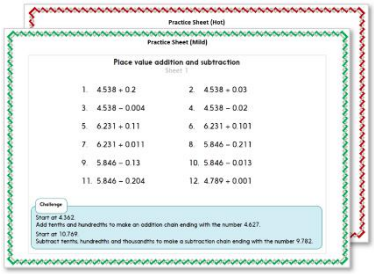
2. Tackle the questions on the **Practice Sheet**.
   There might be a choice of either Mild (easier) or Hot (harder)!
   Check the answers.



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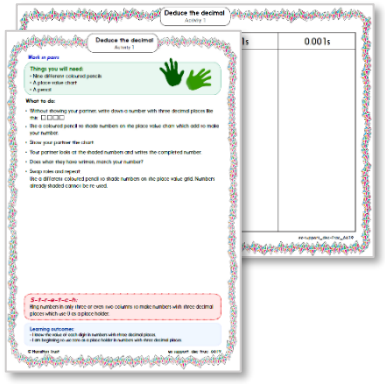
3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**



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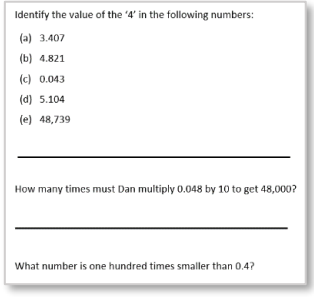
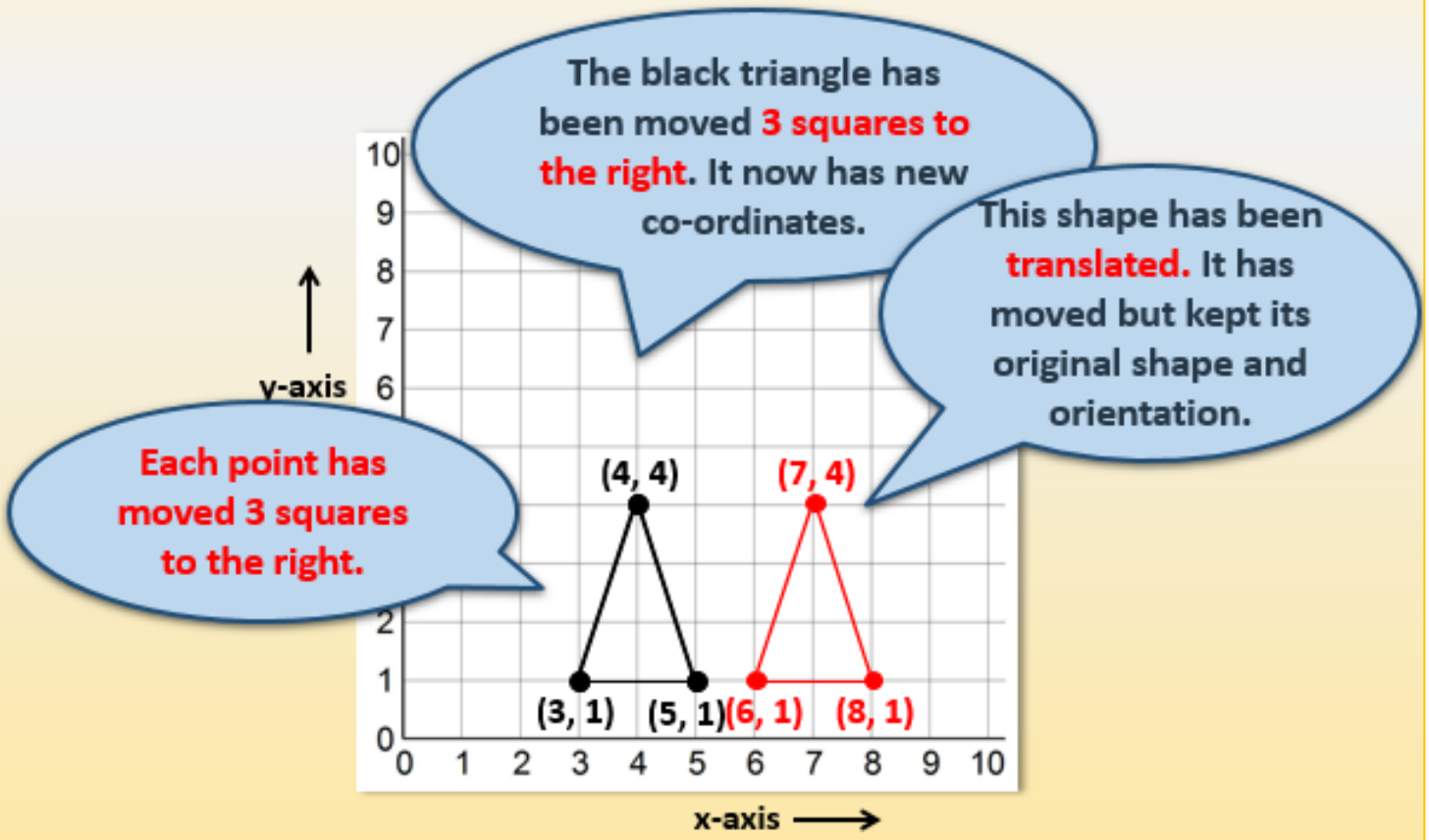
4. Have I mastered the topic? A few questions to **Check your understanding**.
   Fold the page to hide the answers!



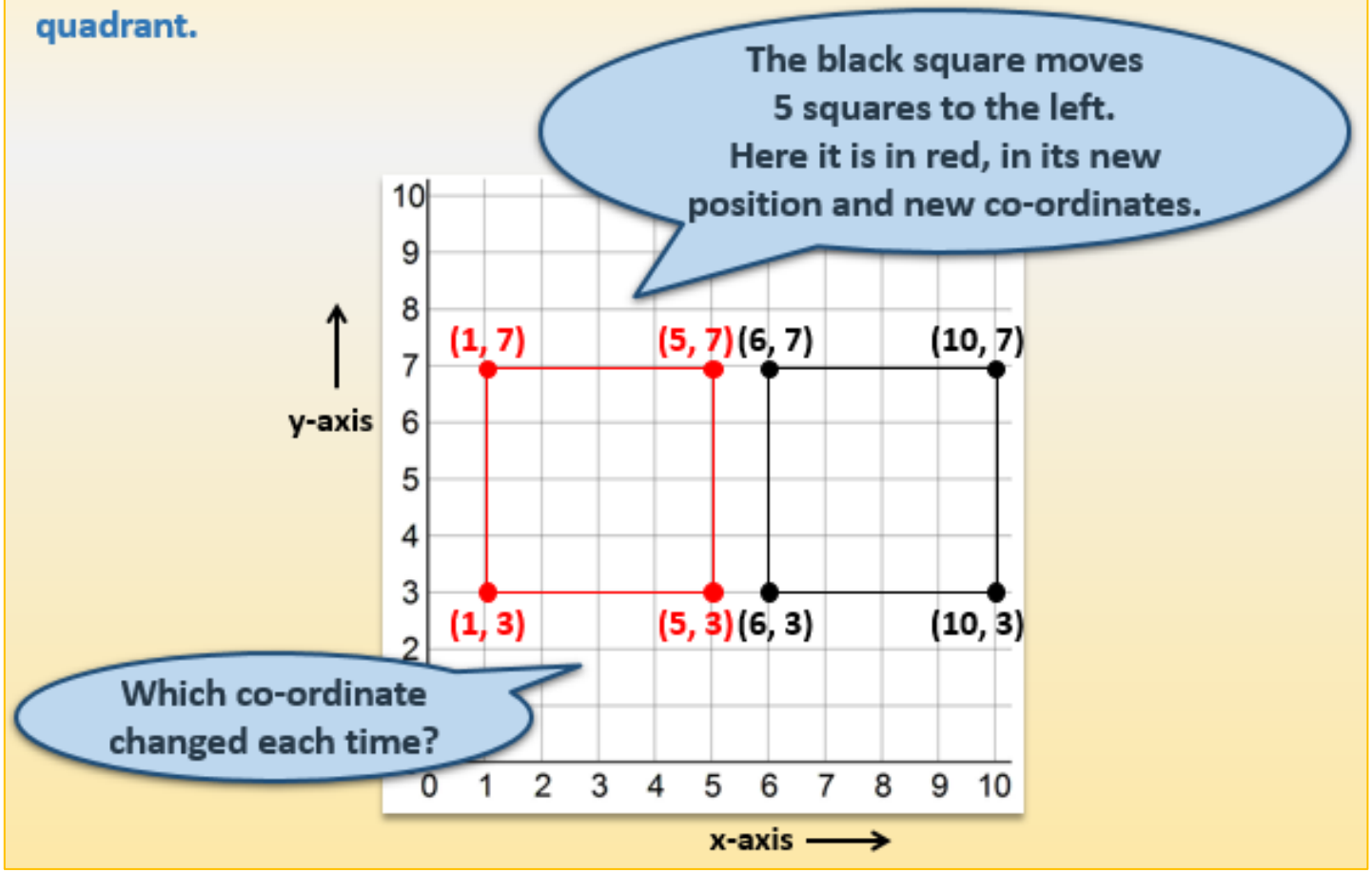
Learning Reminders

Read and plot co-ordinates in the first quadrant; Translate shapes in the first quadrant.



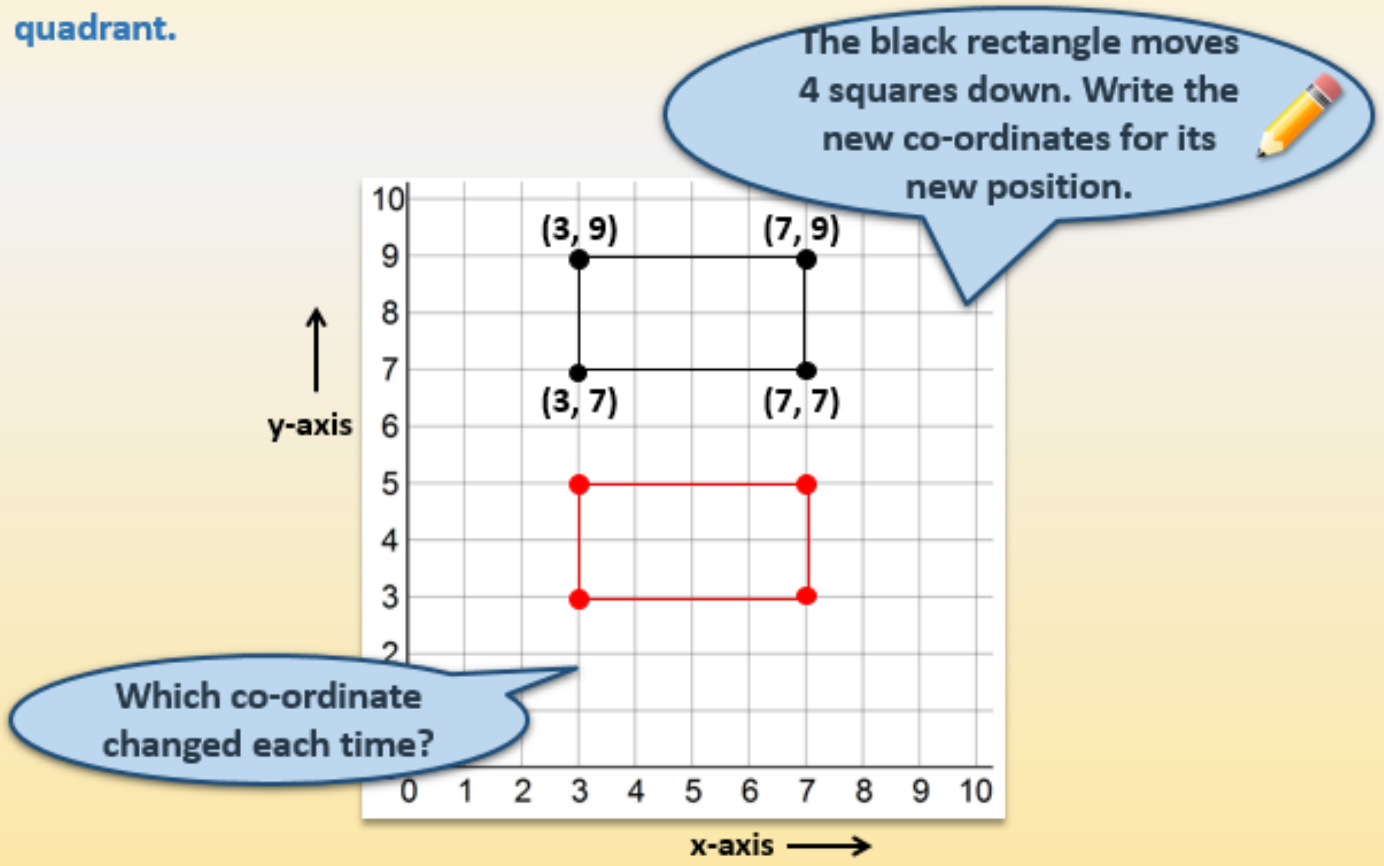
Learning Reminders

Read and plot co-ordinates in the first quadrant; Translate shapes in the first quadrant.



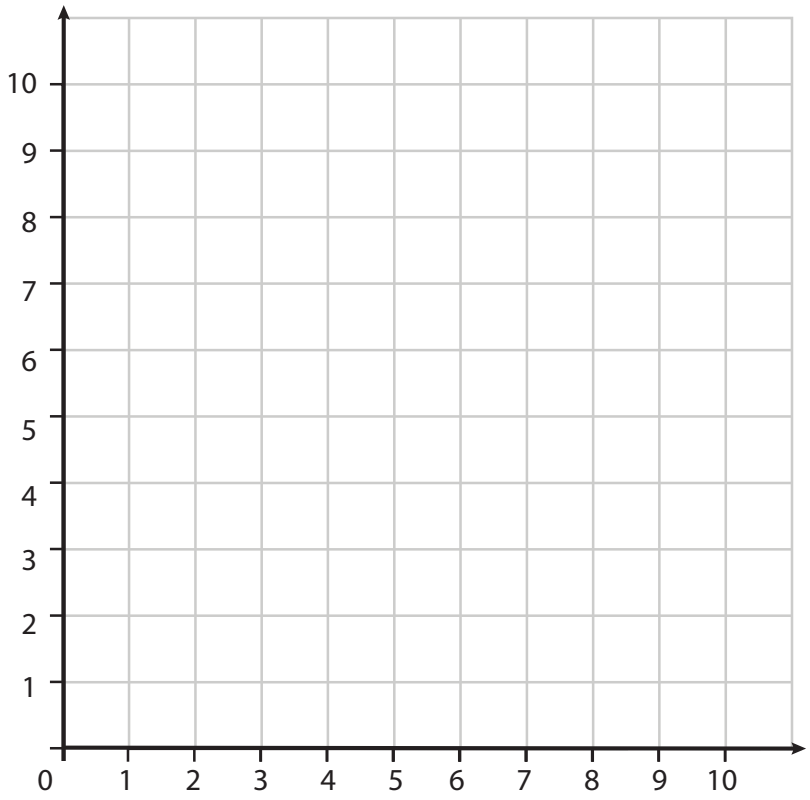
Learning Reminders

Read and plot co-ordinates in the first quadrant; Translate shapes in the first quadrant.



Practice Sheet Mild

Moving polygons on a grid



1) Plot these co-ordinates: (1,2), (4,3), (2,5)

2) Join them up, what shape have you made? _____

3) Imagine you slide this shape up three squares.
What are the new co-ordinates of its vertices?

_____, _____, _____

4) Draw the new shape on the grid.

5) Plot these co-ordinates: (5,8), (7,10), (5, 10)

6) They are three of the corners of a square.
What are the co-ordinates of the other corner? _____

7) Plot this point: then join them up to draw the square.

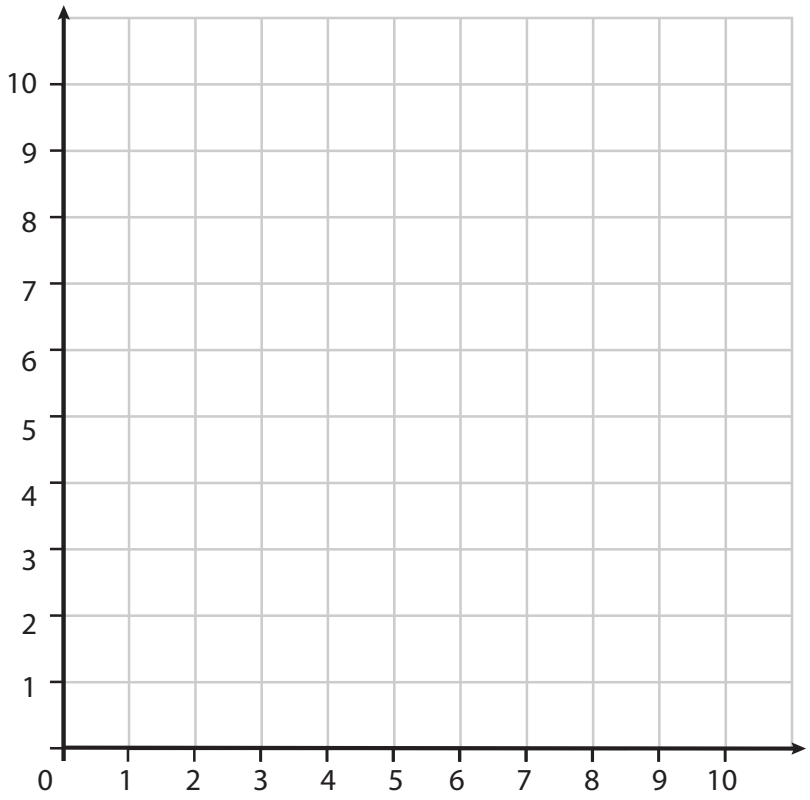
8) Imagine you slide this shape one square down and four squares left.
What are the new co-ordinates of its vertices?

_____, _____, _____, _____

9) Draw the new shape on the grid.

Practice Sheet Hot

Moving polygons on a grid



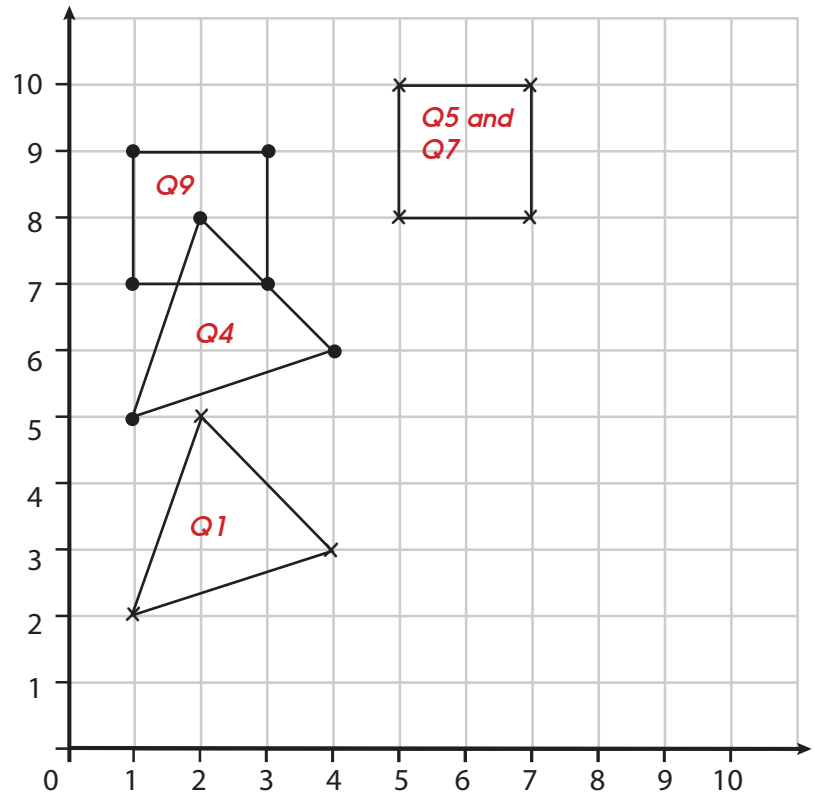
1) Plot these co-ordinates: (4,7), (7,10), (4,10)
2) They are three of the corners of a square.
   What are the co-ordinates of the other corner? _____
3) Plot these co-ordinates and join them up to draw the square.
4) Imagine you slide this shape one square 'down' and four squares left.
   What are the new co-ordinates? _____, _____, _____, _____
5) Draw the new shape on the grid.
6) Draw a shape with five straight sides on the grid.
7) What are the co-ordinates of the corners of your shape?
   _____, _____, _____, _____, _____
8) Imagine you slide your shape to a new place on the grid.
   What are the new co-ordinates? _____, _____, _____, _____, _____
9) How can you describe its movement?
10) Draw the new shape on the grid.

Challenge

A shape is translated three squares right and four squares 'up' the grid. It finishes with vertices at: (5,4), (3,9) and (3,4). Where did it start?

Practice Sheet Answers

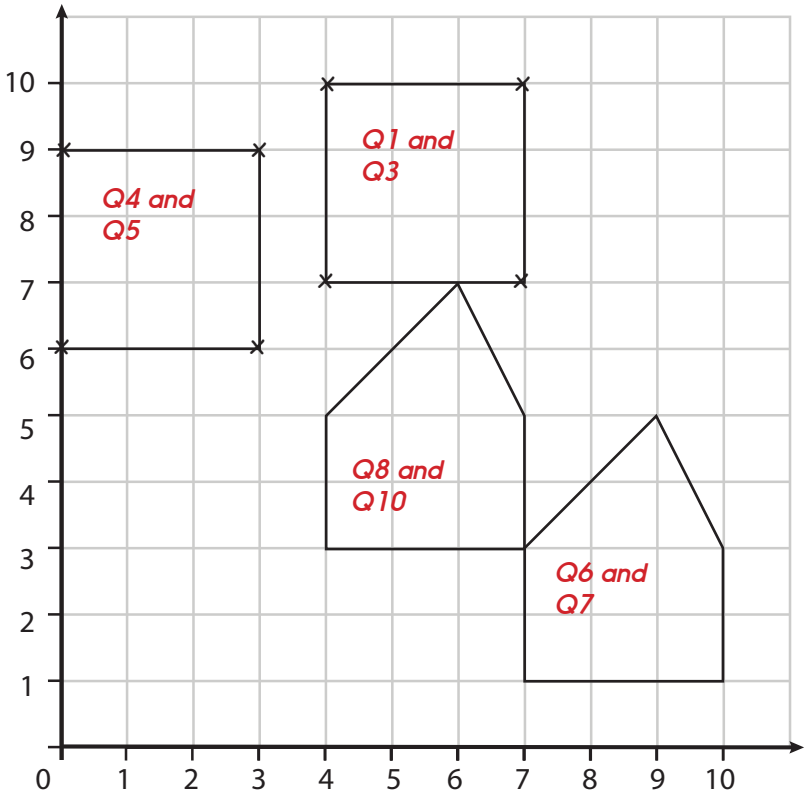
Moving polygons on a grid (mild)



1. See grid above
2. Triangle
3. (1, 5), (4, 6) and (2, 8)
4. See grid above
5. See grid above
6. (7, 8)
7. See grid above
8. (1, 7), (1, 9), (3,7) and (3, 9)
9. See grid above

Practice Sheet Answers

Moving polygons on a grid (hot)



1. See grid above
2. (7, 7)
3. See grid above
4. (0, 9), (0, 6), (3, 6) and (3, 9)
5. See grid above
6. See grid above for an example
7. (7, 1), (7, 3), (10, 1), (9, 5) and (10, 3) are co-ordinates for shape in Q6.
8. (4, 3), (7, 3), (4, 5), (7, 5) and (6, 7)
9. Up 2 squares and left 3 squares
10. See grid above

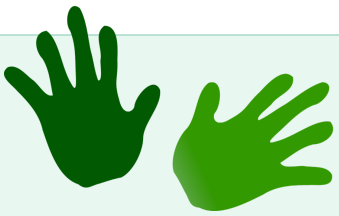
Challenge

A shape is translated three squares right and four squares 'up' the grid. It finishes with vertices at: (5,4), (3,9) and (3,4). Where did it start? (2, 0), (0, 5) and (0, 0)

Walk then fly!

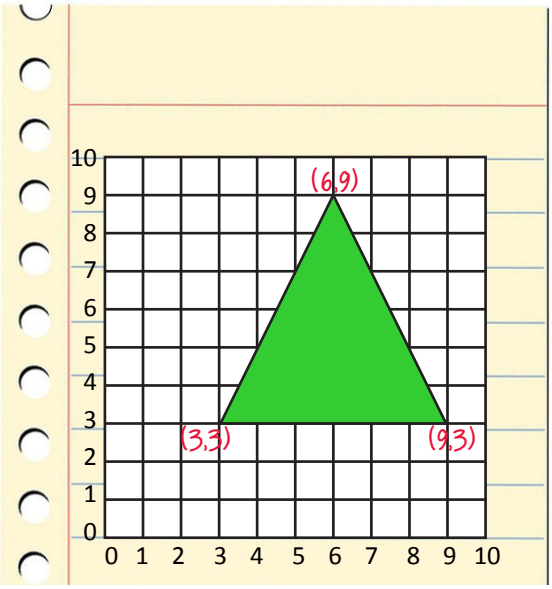
Work in pairs

Things you will need:
- A grid
- Coloured pencils



What to do:

- Sit back to back.
- Choose a coloured pencil.
  Use it to draw a triangle on your grid.
- Tell your partner the colour pencil you chose.
  Call out the co-ordinates of the corners of your triangle to your partner.
  They plot the co-ordinates, then join them to make a triangle using the same coloured pencil.
- Now compare your triangles.
  Are they the same?
  If so, you both score 3 points.
  If not, you score 1 point for each matching point.
- Swap roles and repeat using a different coloured pencil.

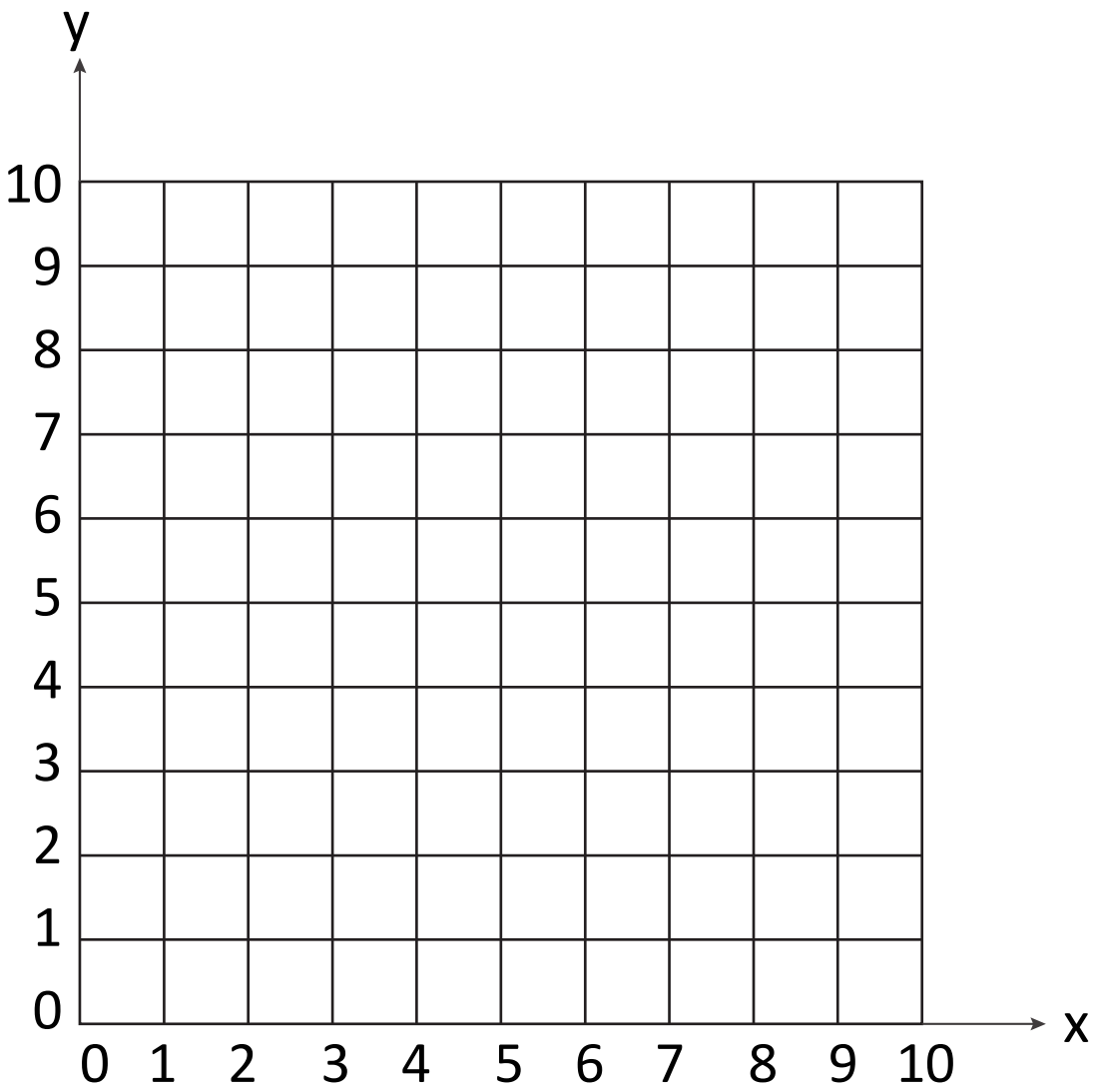


S-t-r-e-t-c-h:

Move one of your triangles up by two squares. Record the new co-ordinates.

Learning outcomes:
- I can use co-ordinates in the first quadrant.
- I am beginning to work out new co-ordinates after a translation.

Walk then fly!



Check your understanding

Questions

Bill draws a triangle on his grid.
He moves it two squares 'down' the grid.
The new co-ordinates of its vertices are:

(2, 1) (6, 1) (3, 5)

Write the co-ordinates of the triangle before its translation.

Esme draws a triangle on her grid.
She moves it two squares to the left.
The new co-ordinates of its vertices are:

(1, 3) (5, 3) (3, 6)

Write the co-ordinates of the triangle before its translation.

Fold here to hide answers

Check your understanding

Answers

Bill draws a triangle on his grid.
He moves it two squares 'down' the grid.
The new co-ordinates of its vertices are:

(2, 1) (6, 1) (3, 5)

Write the co-ordinates of the triangle before its translation.

(2, 3) (6, 3) (3, 7)
In each case the y co-ordinates of the triangle must be 2 greater in the original. Some children may mix up direction and subtract 2. Note that the x co-ordinate is unchanged.

Esme draws a triangle on her grid.
She moves it two squares to the left.
The new co-ordinates of its vertices are:

(1, 3) (5, 3) (3, 6)

Write the co-ordinates of the triangle before its translation.

(3, 3) (7, 3) (5, 6)

In each case, the x co-ordinate is 2 greater in the original. Note that the y co-ordinate is unchanged.