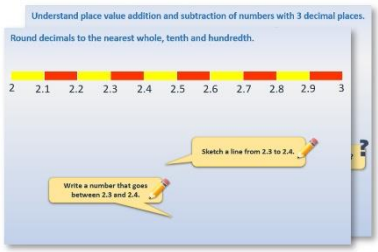
Year 4: Week 6, Day 5

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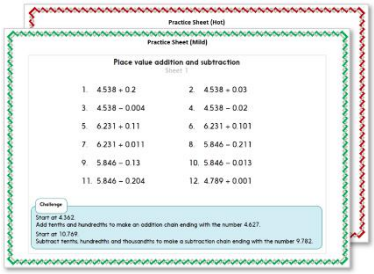
2. Tackle the questions on the **Practice Sheet**. There might be a choice of either Mild (easier) or Hot (harder)! Check the answers.



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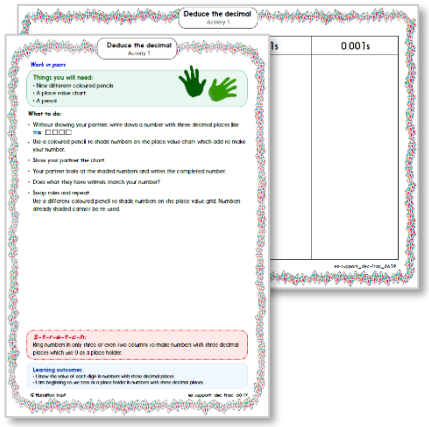
3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**



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

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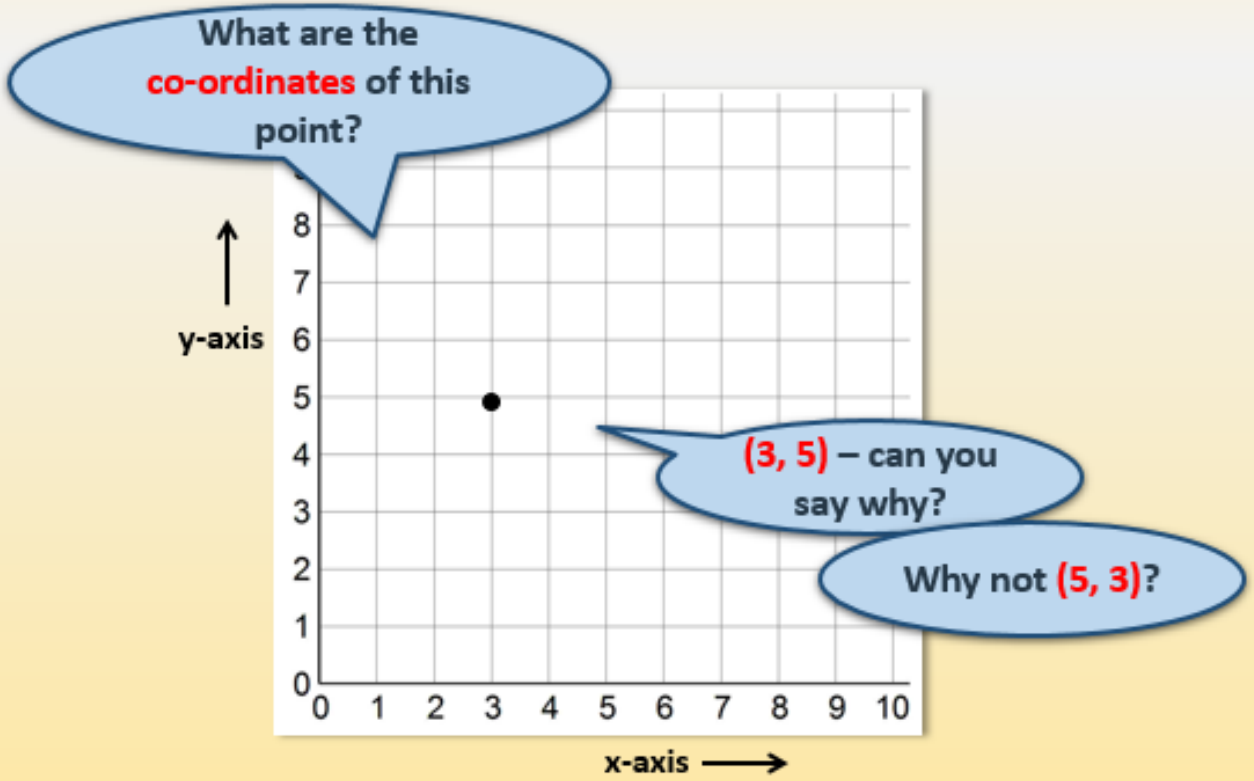
Learning Reminders

Use co-ordinates in the first quadrant and join points to draw polygons.



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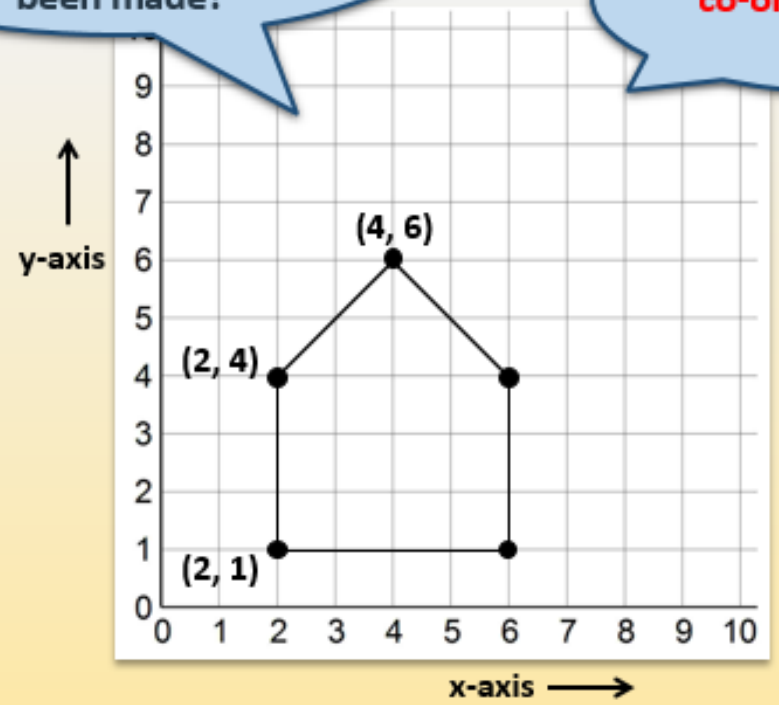
Learning Reminders

Use co-ordinates in the first quadrant and join points to draw polygons.

These points are joined up, what shape has been made?

Write the missing co-ordinates of the shape.



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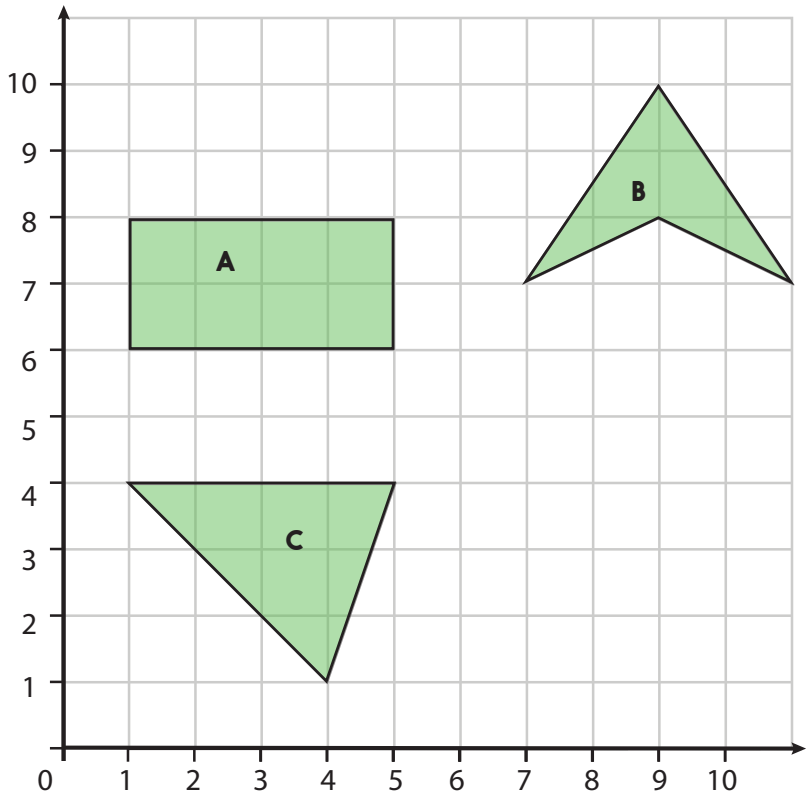
Practice Sheet Mild
Shape co-ordinates



1) What are the co-ordinates of the corners of shape **A**?

_____

2) Imagine it moved down two squares and right one square...
What would the new co-ordinates be?

_____

3) What are the co-ordinates of the corners of shape **B**?

_____

4) Imagine it moved down four squares and left three squares...
What would the new co-ordinates be?

_____

5) What are the co-ordinates of the corners of shape **C**?

_____

6) Imagine it moved up three squares and left one square...
What would the new co-ordinates be?

_____

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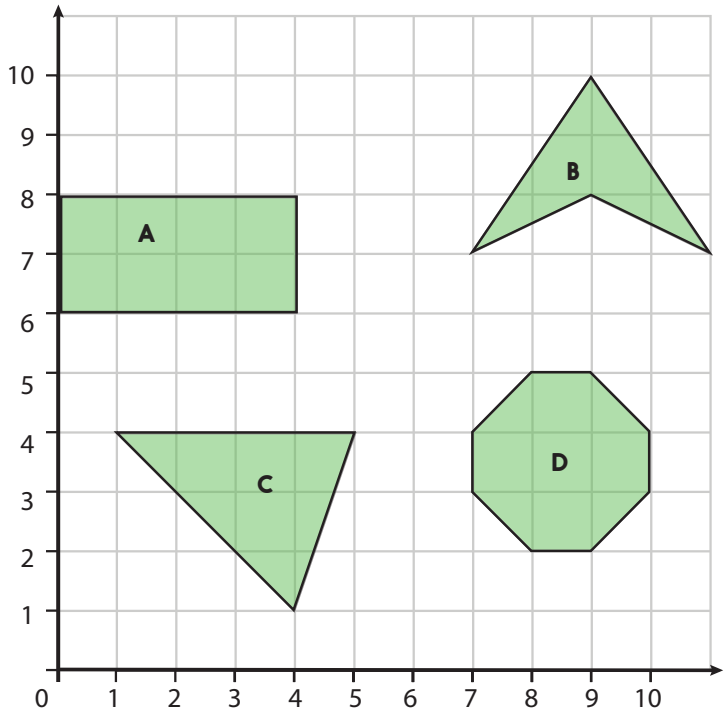
Practice Sheet Hot

Shape co-ordinates



1) What are the co-ordinates of the corners of shape **A**?

_____

2) Imagine it moved down two squares and right one square...
What would the new co-ordinates be?

_____

3) What are the co-ordinates of the corners of shape **B**?

_____

4) Imagine it moved down four squares and left three squares...
What would the new co-ordinates be?

_____

5) What are the co-ordinates of the corners of shape **C**?

_____

6) Imagine it moved up three squares and left one square...
What would the new co-ordinates be?

_____

7) What are the co-ordinates of the corners of shape **D**?

_____

8) Imagine it moved down two squares and right three squares...
What would the new co-ordinates be?

_____

Challenge

Choose one of the shapes on the sheet, move it up or down and left or right and write down the new co-ordinates. Give the new co-ordinates to your partner. Can they work out what the movement was from the original position?

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Practice Sheet Answers

Shape co-ordinates (mild)

1. Shape A co-ordinates are (1, 6), (1, 8), (5, 6) and (5, 8)
2. (2, 4), (2, 6), (6, 4) and (6, 6)
3. Shape B co-ordinates are (7, 7), (9, 8), (9, 10) and (11, 7)
4. (4, 3), (6, 4), (6, 6) and (8, 3)
5. Shape C co-ordinates are (1, 4), (4, 1) and (5, 4)
6. (0, 7), (3, 4) and (4, 7)

Shape co-ordinates (hot)

1. Shape A co-ordinates are (0, 6), (0, 8), (4, 6) and (4, 8)
2. (1, 4), (1, 6), (5, 4) and (5, 6)
3. Shape B co-ordinates are (7, 7), (9, 8), (9, 10) and (11, 7)
4. (4, 3), (6, 4), (6, 6) and (8, 3)
5. Shape C co-ordinates are (1, 4), (4, 1) and (5, 4)
6. (0, 7), (3, 4) and (4, 7)
7. Shape D co-ordinates are (7, 3), (7, 4), (8, 2), (8, 5), (9, 2), (9, 5), (10, 3) and (10, 4)
8. (10, 1), (10, 2), (11, 0), (11, 3), (12, 0), (12, 3), (13, 1) and (13, 2)

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A Bit Stuck?

If you'd like some extra practice using co-ordinates, play **Cali and the Co-ordinate System**:

https://www.math10.com/en/math-games/games/geometry/games-cali-coordinate-system.html

How quickly can you move Cali to the new co-ordinates 10 times?
Play again. Were you quicker this time?

All Square

- Draw a square on your grid, using the lines of the grid as the sides of the shape.
- Now label each vertex with its co-ordinates.
- Take a close look at the co-ordinates... What do you notice?
- Draw a different square; label its co-ordinates ... Do you see a pattern?
- Repeat with another square to test your theory.

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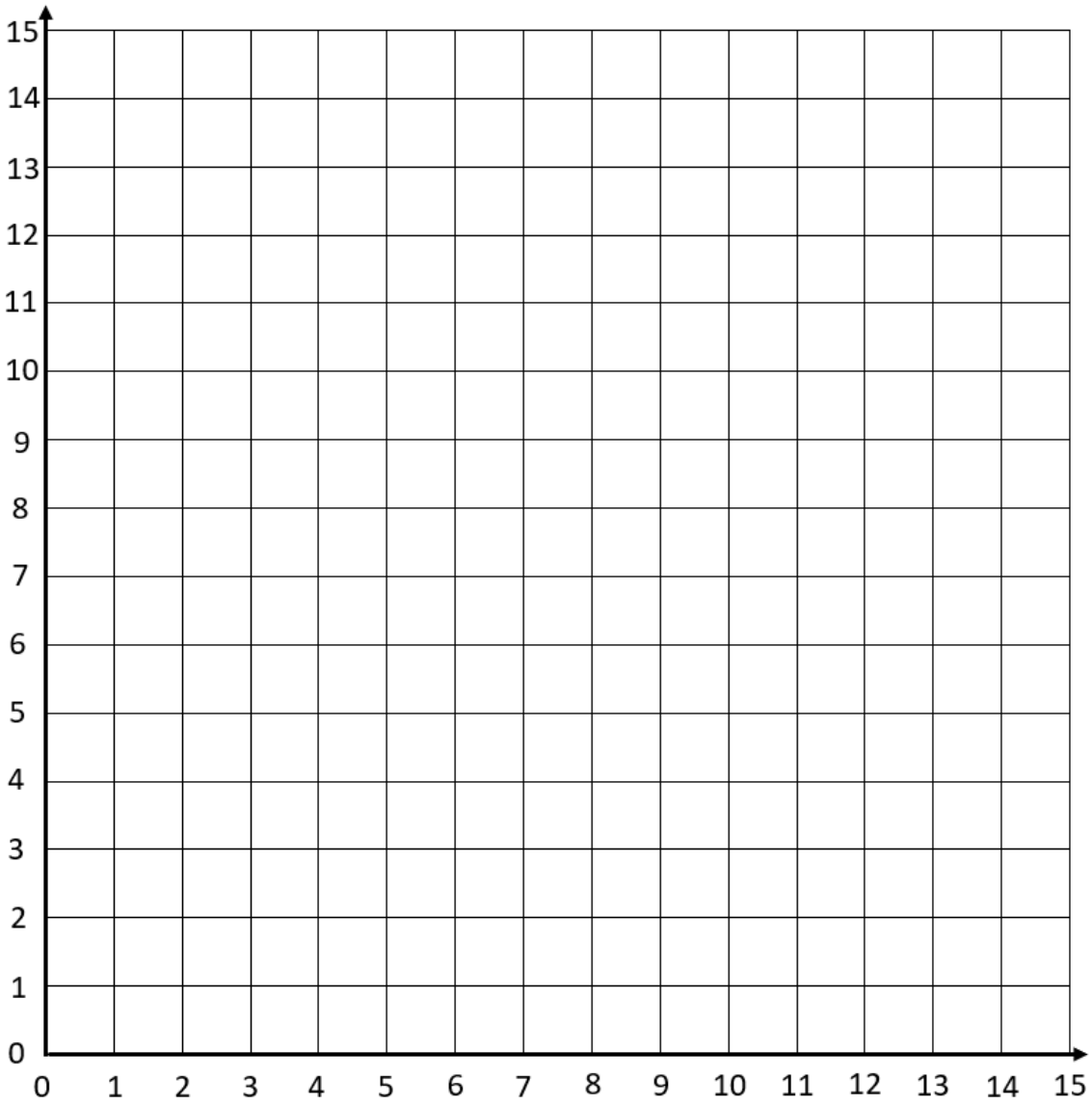
A Bit Stuck?



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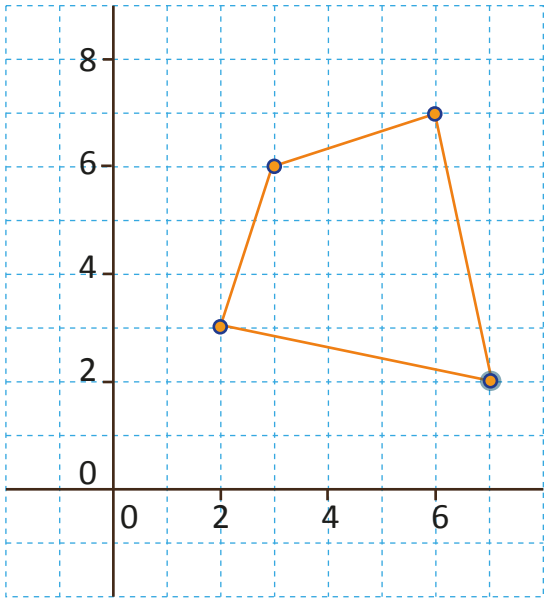
Investigation
Cycling co-ordinates

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?

Challenge

Can you write a rule for producing squares?

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