

# Reasoning and Problem Solving

## Step 2: Draw on a Grid

### National Curriculum Objectives:

Mathematics Year 4: (4P3b) [Plot specified points and draw sides to complete a given polygon](#)

### Differentiation:

Questions 1, 4 and 7 (Reasoning)

**Developing** Recognise x axis used before y axis when plotting two coordinates.

**Expected** Recognise x axis used before y axis for one of the three coordinates.

**Greater Depth** Recognise x axis used before y axis for one of the four coordinates.

Questions 2, 5 and 8 (Problem Solving)

**Developing** Find all possibilities of a pair of coordinates where the digits equal less than 5.

**Expected** Find all possibilities of a pair of coordinates where the digits equal less than 10.

**Greater Depth** Find all possibilities of a pair of coordinates where the digits equal more than 10.

Questions 3, 6 and 9 (Problem Solving)

**Developing** Plot one missing coordinate to make a simple letter made up of two straight lines.

**Expected** Plot two missing coordinates to make letters made up of straight lines.

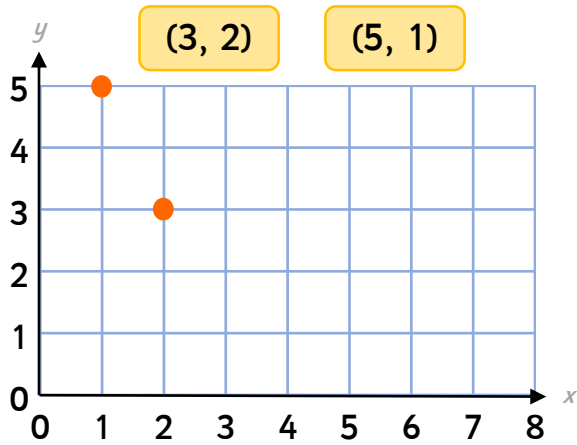
**Greater Depth** Plot two or three missing coordinates to make squared versions of curved letters.

[More resources](#) which follow the same small steps as White Rose.

Did you like this resource? Don't forget to [review](#) it on our website.

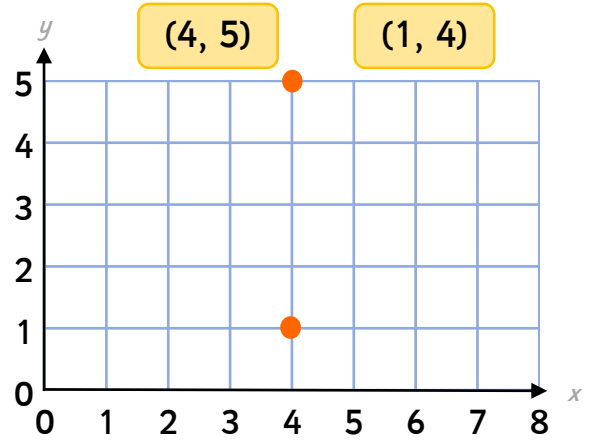
# Reasoning and Problem Solving – Draw on a Grid

1a. Zac is plotting coordinates. What mistake has he made? Explain.



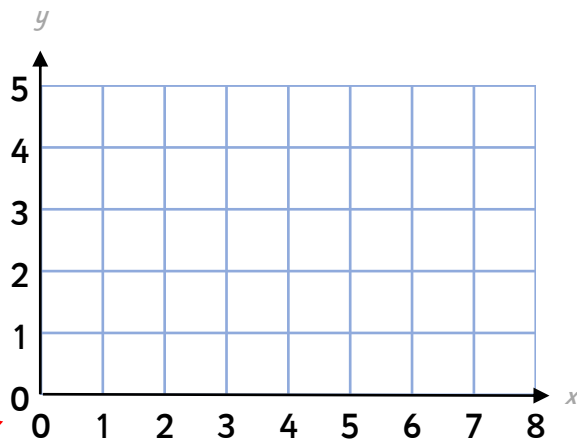
R

1b. Beth is plotting coordinates. What mistake has she made? Explain.



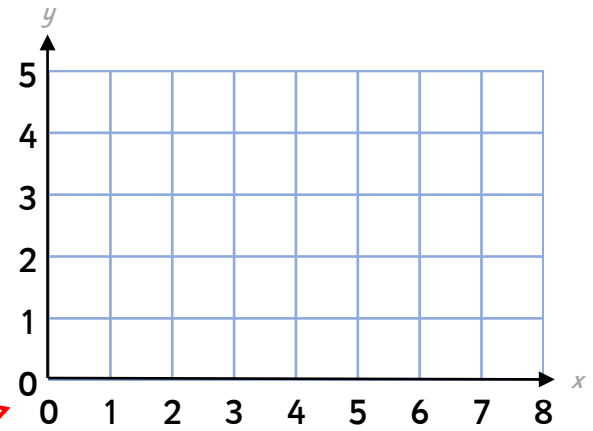
R

2a. How many pairs of coordinates can you find that equal less than 5?



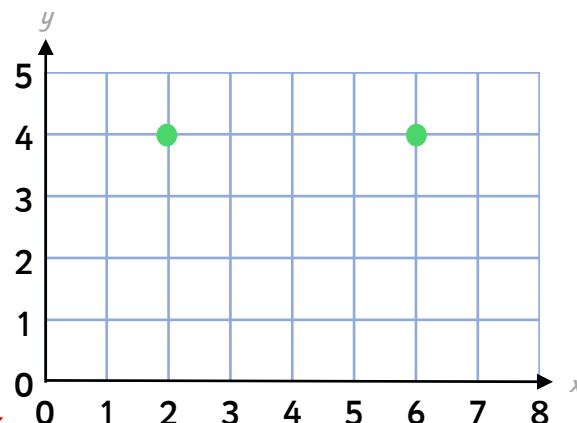
PS

2b. How many pairs of coordinates can you find that equal less than 5 and are an even number?



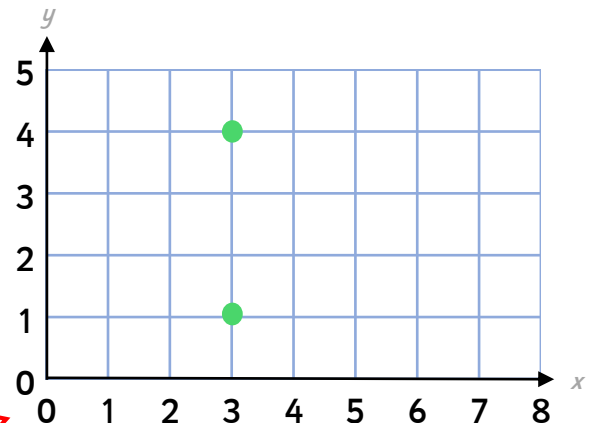
PS

3a. Plot one missing coordinate to make a letter.



PS

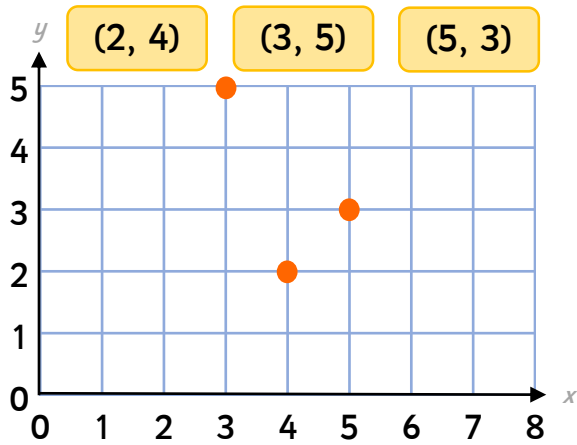
3b. Plot one missing coordinate to make a letter.



PS

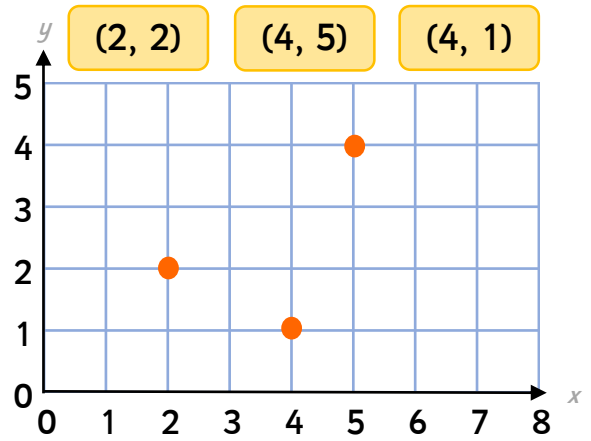
# Reasoning and Problem Solving – Draw on a Grid

4a. Isobel is plotting coordinates. What mistake has she made? Explain.



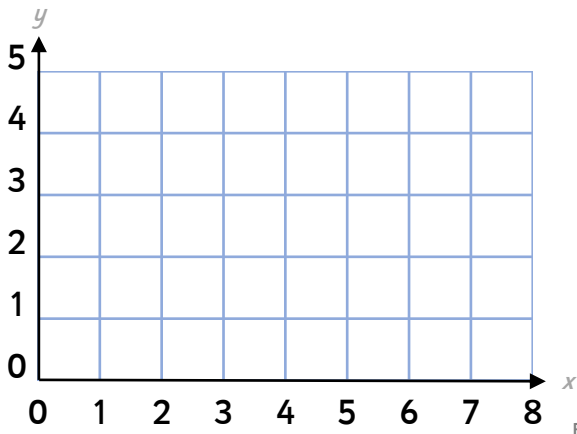
R

4b. Jack is plotting coordinates. What mistake has he made? Explain.



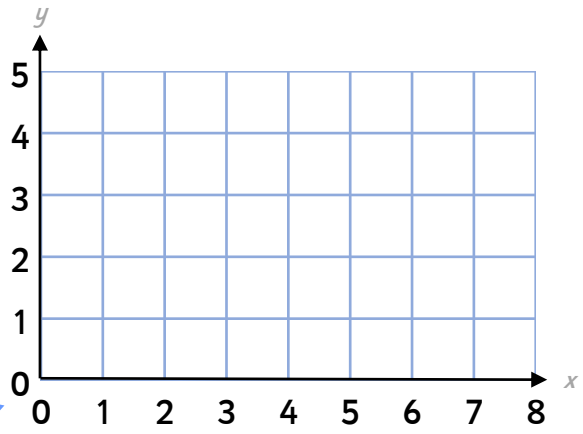
R

5a. How many pairs of coordinates can you find that equal less than 10?



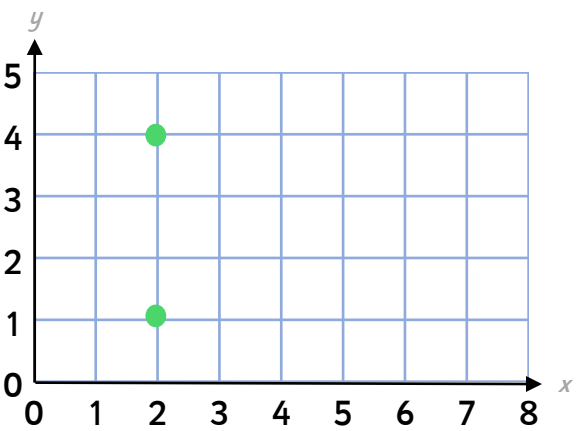
PS

5b. How many pairs of coordinates can you find that are odd and equal less than 10?



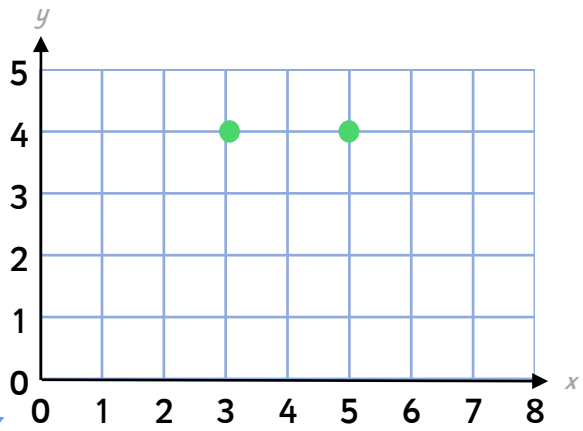
PS

6a. Plot two missing coordinates to make a letter made up of straight lines.



PS

6b. Plot two missing coordinates to make a letter made up of straight lines.

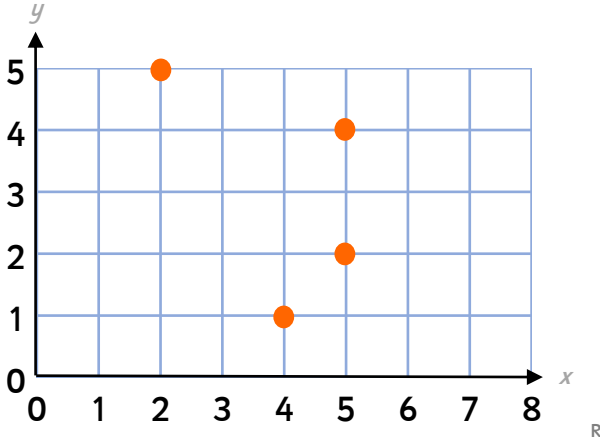


PS

# Reasoning and Problem Solving – Draw on a Grid

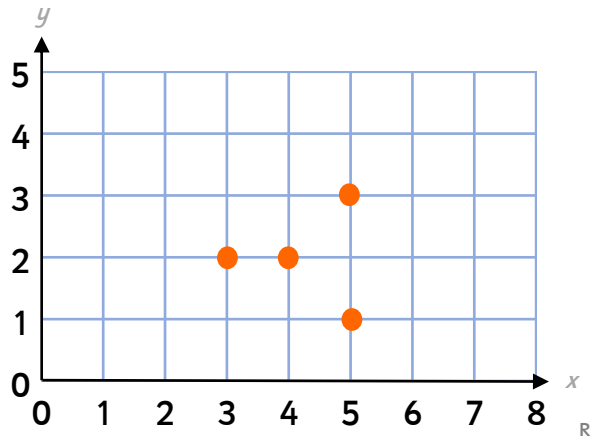
7a. Ahmed is plotting coordinates. What mistake has he made? Explain.

(2, 5)    (5, 2)    (1, 4)    (5, 4)

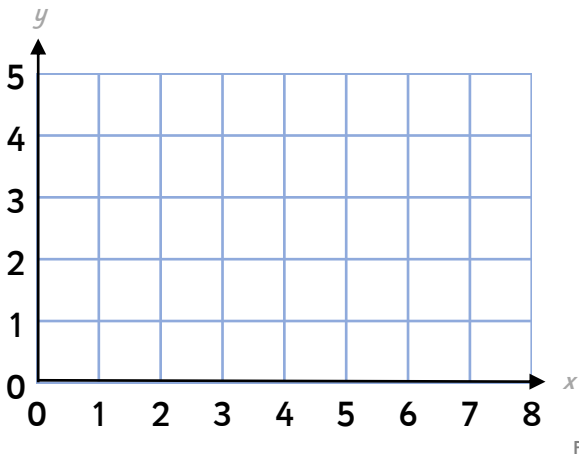


7b. Sinead is plotting coordinates. What mistake has she made? Explain.

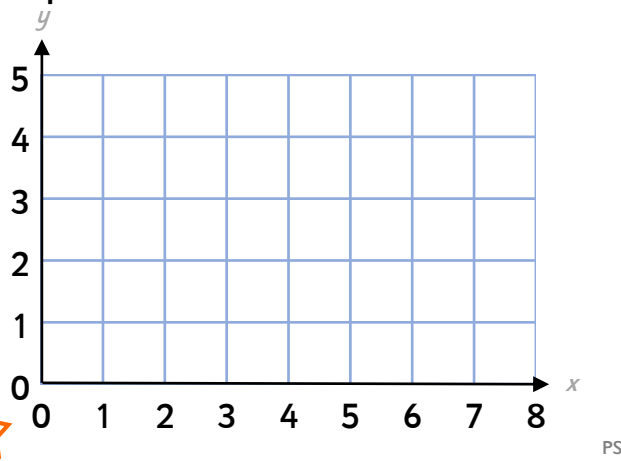
(4, 2)    (3, 2)    (3, 5)    (5, 1)



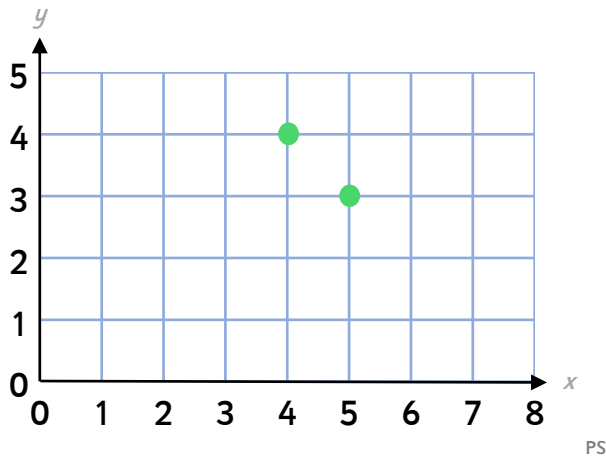
8a. How many pairs of coordinates can you find that equal more than 10?



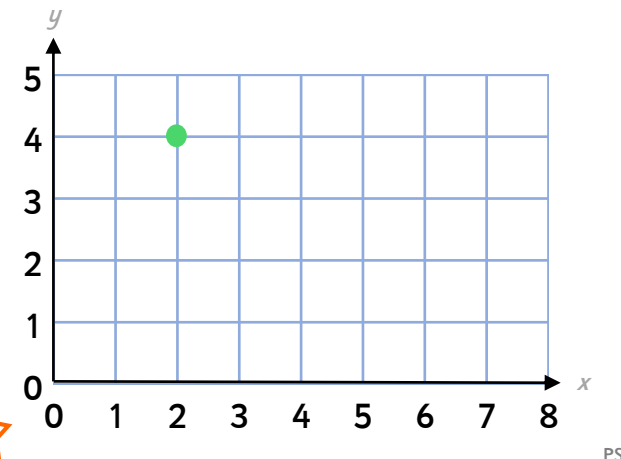
8b. How many pairs of coordinates can you find that equal more than 10 and a multiple of four?



9a. Plot two or three missing coordinates to make a square version of a curved letter.



9b. Plot two or three missing coordinates to make a square version of a curved letter.



# Reasoning and Problem Solving – Draw on a Grid

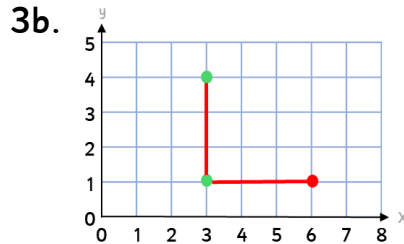
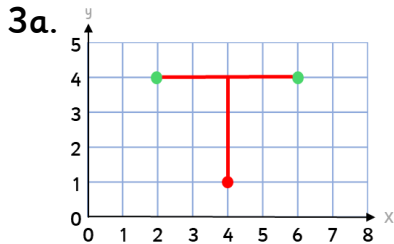
## Developing

1a. Zac is using the y axis first to plot coordinates when he should be using the x axis first.

1b. Beth is using the y axis first to plot the coordinate (1, 4) when she should use the x axis first.

2a. Possible answers: (1, 1), (1, 2), (1, 3), (2, 1), (2, 2), (3, 1), (0, 4), (4, 0).

2b. (1, 1), (1, 3), (2, 2), (3, 1), (0, 4), (4, 0).



## Expected

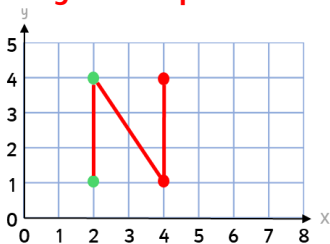
4a. Isobel is using the y axis first to plot the coordinate (2, 4) when she should use the x axis first.

4b. Jack is using the y axis first to plot the coordinate (4, 5) when he should use the x axis first.

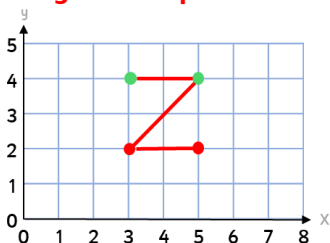
5a. Coordinates can include any of the following (1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (1, 7), (1, 8), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (2, 7), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (5, 1), (5, 2), (5, 3), (5, 4), (6, 1), (6, 2), (6, 3), (7, 1), (7, 2), (8, 1).

5b. Coordinates can include any of the following (1, 2), (1, 4), (1, 6), (1, 8), (2, 1), (2, 3), (2, 5), (2, 7), (3, 2), (3, 4), (3, 6), (4, 1), (4, 3), (4, 5), (5, 2), (5, 4), (6, 1), (6, 3), (7, 2), (8, 1).

6a. Any letter plotted correctly, for example:



6b. Any letter plotted correctly, for example:



# Reasoning and Problem Solving – Draw on a Grid

## Greater Depth

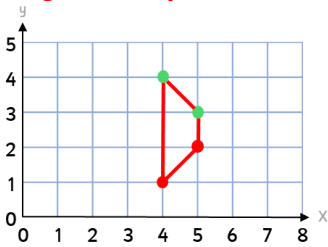
7a. 7a. Ahmed is using the y axis first to plot the coordinate (1, 4) when he should use the x axis first.

7b. Sinead is using the y axis first to plot the coordinate (3, 5) when she should use the x axis first.

8a. Coordinates can include any of the following (6, 5), (7, 4), (7, 5), (8, 3), (8, 4), (8, 5).

8b. Coordinates can include any of the following (7, 5), (8, 4).

9a Any letter plotted correctly, for example:



9b. Any letter plotted correctly, for example:

