

Reasoning and Problem Solving

Step 1: The First Quadrant

National Curriculum Objectives:

Mathematics Year 6: (6P2) [Draw and translate simple shapes on the coordinate plane, and reflect them in the axes](#)

Mathematics Year 6: (6P3) [Describe positions on the full coordinate grid \(all four quadrants\)](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Plot coordinates provided to create a triangle or square on a 5 x 5 grid. Identify the coordinate which is the odd one out.

Expected Plot coordinates provided to create a pentagon or hexagon on an 8 x 8 grid. Identify the coordinate which is the odd one out.

Greater Depth Plot coordinates provided to create a heptagon or octagon on an 8 x 8 grid. Identify the two coordinates which are the odd ones out.

Questions 2, 5 and 8 (Problem Solving)

Developing Identify the missing coordinates that will create a triangle or square on a 5 x 5 grid.

Expected Identify the missing coordinates that will create a pentagon or hexagon on an 8 x 8 grid.

Greater Depth Identify the missing coordinates that will create a heptagon or an octagon on an 8 x 8 grid.

Questions 3, 6 and 9 (Problem Solving)

Developing Identify the coordinates that make a triangle or square plotted on a 5 x 5 grid.

Expected Identify the coordinates that make a pentagon or hexagon plotted on an 8 x 8 grid.

Greater Depth Identify the coordinates that make a heptagon or octagon plotted on an 8 x 8 grid.

More [Year 5 and Year 6 Position and Direction](#) resources.

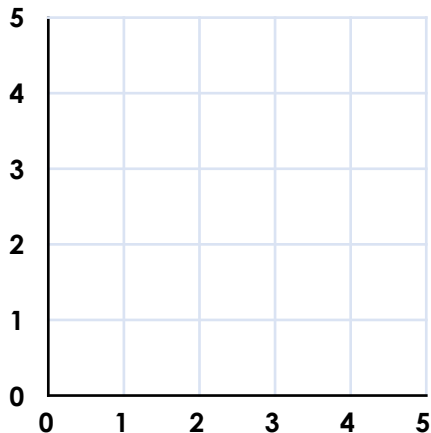
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The First Quadrant

1a. Plot the following coordinates:

(2, 1) (4, 1) (1, 5) (3, 2)

Which is the odd one out? Prove it.



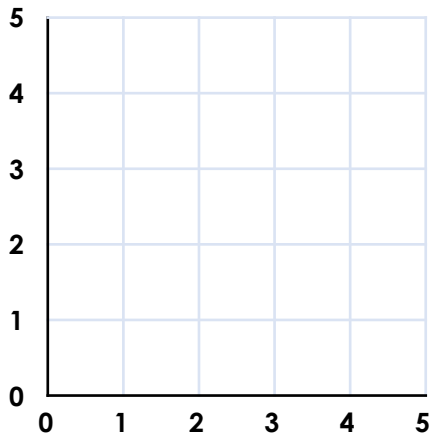
6 R

The First Quadrant

1b. Plot the following coordinates:

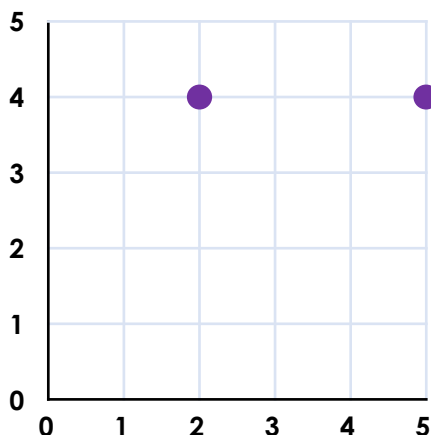
(1, 1) (1, 4) (5, 5) (4, 1) (4, 4)

Which is the odd one out? Prove it.



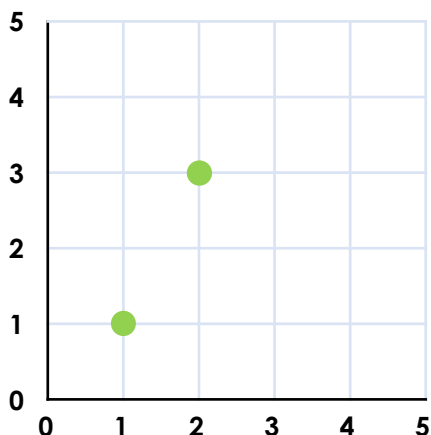
6 R

2a. Mia is drawing a square. She has plotted the first two points. What coordinates complete the shape?



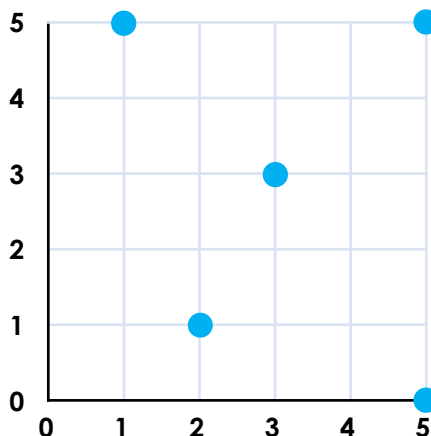
6 PS

2b. Ali is drawing a triangle. He has plotted the first two points. What coordinates complete the shape?



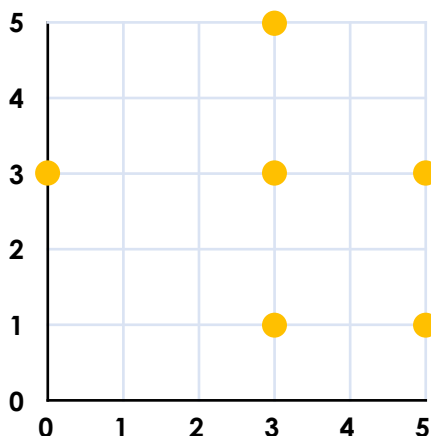
6 PS

3a. Which coordinates could be joined to create a triangle?



6 PS

3b. Which coordinates could be joined to create a square?



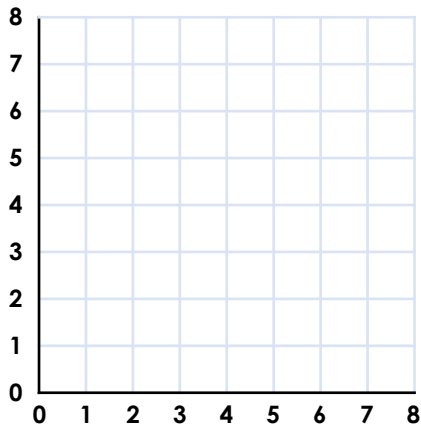
6 PS

The First Quadrant

4a. Plot the following coordinates:

(1, 2) (5, 2) (1, 5) (5, 5) (7, 1) (3, 7)

Which is the odd one out? Prove it.



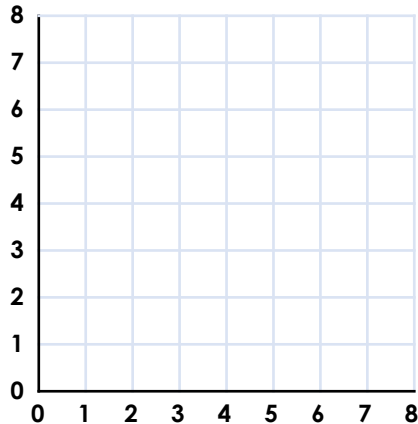
6 R

The First Quadrant

4b. Plot the following coordinates:

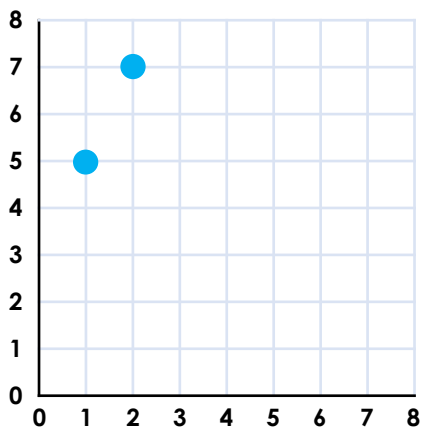
(3, 8) (1, 7) (5, 7) (7, 2) (1, 4) (5, 4) (3, 3)

Which is the odd one out? Prove it.



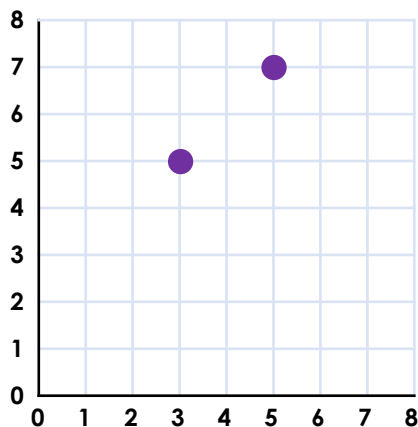
6 R

5a. Ava is drawing a hexagon. She has plotted the first two points. What coordinates complete the shape?



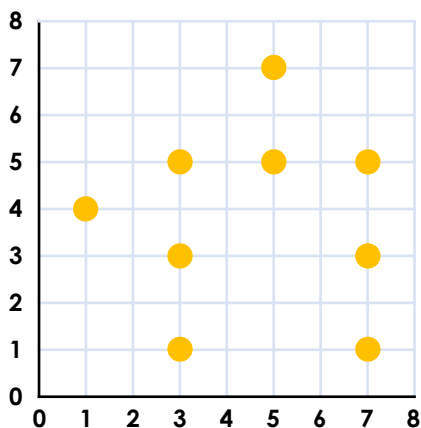
6 PS

5b. Dan is drawing a pentagon. He has plotted the first two points. What coordinates complete the shape?



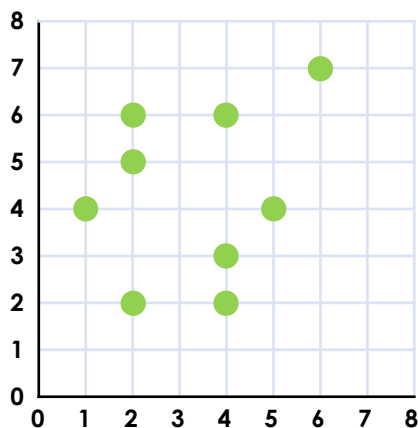
6 PS

6a. Which coordinates could be joined to create a pentagon?



6 PS

6b. Which coordinates could be joined to create a hexagon?



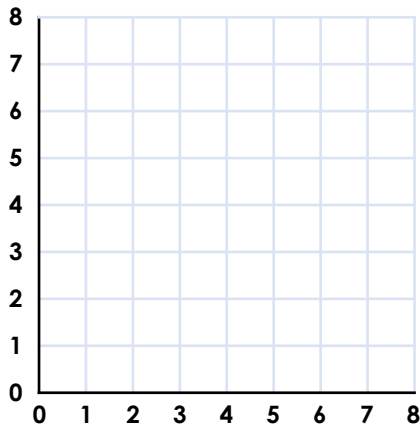
6 PS

The First Quadrant

7a. Plot the following coordinates:

(1, 2) (0, 4) (1, 6) (8, 2) (3, 7)
(5, 6) (0, 1) (6, 4) (5, 2)

Which two are the odd ones out? Prove it.



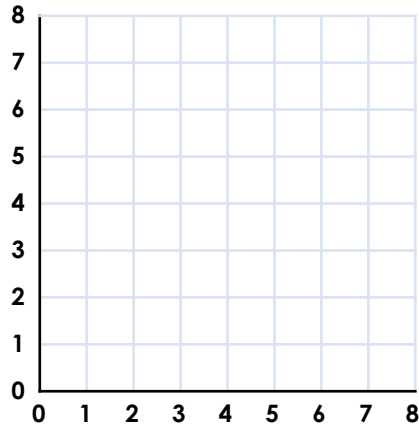
6 R

The First Quadrant

7b. Plot the following coordinates:

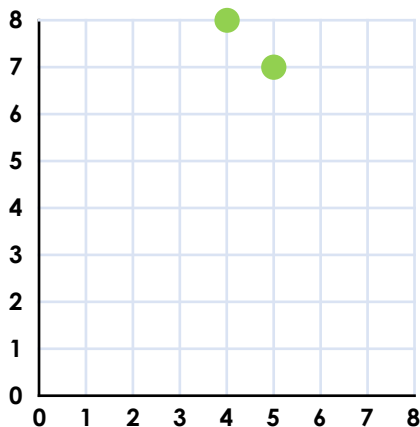
(3, 6) (4, 6) (5, 5) (5, 4) (4, 3)
(3, 0) (2, 4) (3, 3) (5, 2) (2, 5)

Which two are the odd ones out? Prove it.



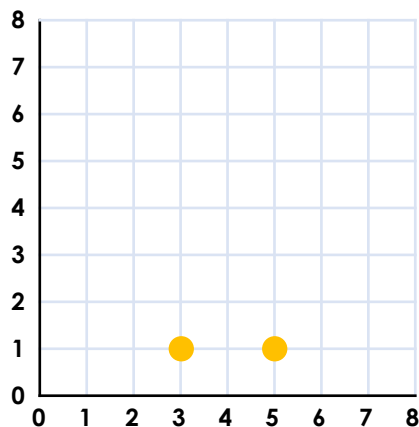
6 R

8a. Sadia is drawing an octagon. She has plotted the first two points. What coordinates complete the shape?



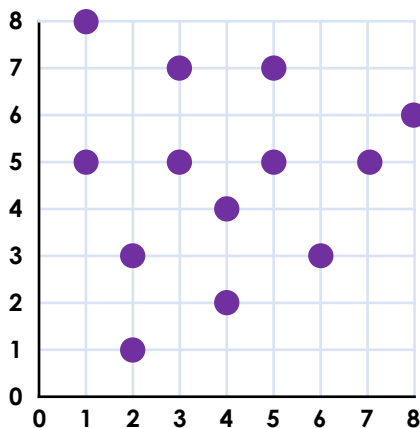
6 PS

8b. Logan is drawing a heptagon. He has plotted the first two points. What coordinates complete the shape?



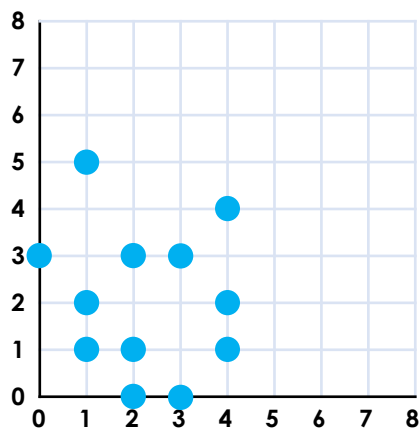
6 PS

9a. Which coordinates could be joined to create a heptagon?



6 PS

9b. Which coordinates could be joined to create an octagon?



6 PS

Reasoning and Problem Solving The First Quadrant

Developing

1a. (1, 5) is the odd one out because the other coordinates make a triangle.

2a. (2, 1), (5, 1)

3a. Various answers, for example: (1, 5), (3, 3), (5, 5)

Expected

4a. (7, 1) is the odd one out because the other coordinates make a pentagon.

5a. Various answers, for example: (4, 7), (5, 5), (4, 3), (2, 3)

6a. Various answers, for example: (3, 3), (3, 5), (5, 7), (7, 5), (7, 3)

Greater Depth

7a. (8, 2) and (0, 1) are the odd ones out because the other coordinates make a heptagon.

8a. Various answers, for example: (5, 6), (4, 5), (3, 5), (2, 6), (2, 7), (3, 8)

9a. (1, 5), (3, 7), (5, 7), (7, 5), (6, 3), (4, 2), (2, 3)

Reasoning and Problem Solving The First Quadrant

Developing

1b. (5, 5) is the odd one out because the other coordinates make a square.

2b. Various answers, for example: (3, 1), (0, 3), (2, 1), (1, 3)

3b. (3, 1), (3, 3), (5, 3), (5, 1)

Expected

4b. (7, 2) is the odd one out because the other coordinates make a hexagon.

5b. Various answers, for example: (7, 5), (7, 2), (3, 2)

6b. Various answers, for example: (2, 2), (1, 4), (2, 6), (4, 6), (5, 4), (4, 2)

Greater Depth

7b. (3, 0) and (5, 2) are the odd ones out because the other coordinates make an octagon.

8b. Various answers, for example: (1, 3), (2, 5), (4, 6), (6, 5), (7, 3)

9b. (2, 3), (3, 3), (4, 2), (4, 1), (3, 0), (2, 0), (1, 1), (1, 2)