

- 1) Starting at the origin  $(0,0)$ , Pascal needs to read along the x-axis to the number 11, and then up the y-axis to the number 8. At this point, he should plot the coordinate.
- 2) Vertex A =  $(5,2)$  Vertex B =  $(3,0)$



There are two possible answers to this question. The coordinates of the missing vertices could be  $(3,2)$  and  $(5,0)$  or they could be  $(3,4)$  and  $(1,2)$ .

- 1) Taylor is correct as the coordinate is written with the point on the x-axis followed by the point on the y-axis. Samira has started with the y coordinate.
- 2) a) The third vertex could be  $(0, 5)$ ,  $(2,5)$ ,  $(3,5)$ ,  $(4,5)$ ,  $(5,5)$ ,  $(6,5)$ ,  $(7,5)$  or  $(8,5)$  because this gives two sides of equal length.  
b) Accept any answer which shows a triangle which doesn't have two sides of equal length.



Multiple answers are possible. Check that children have drawn parallelograms and written the coordinates correctly.





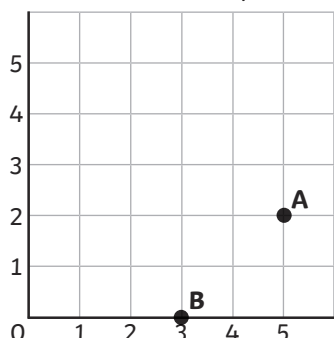
1) Pascal wants to plot the coordinate (11,8) but is unsure how to do it. Write an explanation for Pascal to help him learn how to plot and read coordinates. Remember to use mathematical vocabulary.

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2) Jenni has started to plot the vertices of a square. What are the coordinates of the vertices she has plotted?



Vertex A (     ,     )

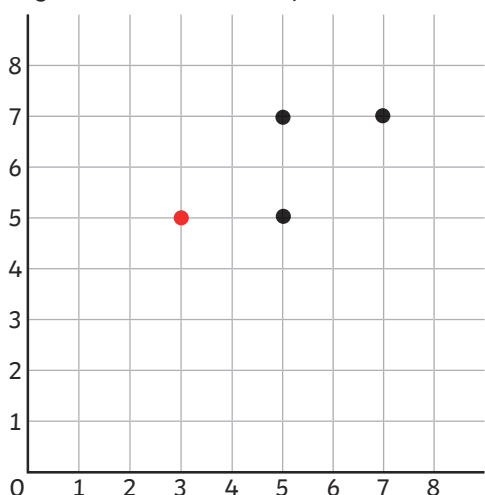
Vertex B (     ,     )

Now plot the other two vertices, label them C and D and record the coordinates.

Vertex C (     ,     )

Vertex D (     ,     )

1) Taylor and Samira have put a red dot on the grid to plot the final vertex of a parallelogram.



Taylor

The coordinates of the vertex we have plotted are (3,5).



Samira

The coordinates of the vertex we have plotted are (5,3).

Who do you agree with? Circle Taylor or Samira. Explain the mistake that the other person has made.

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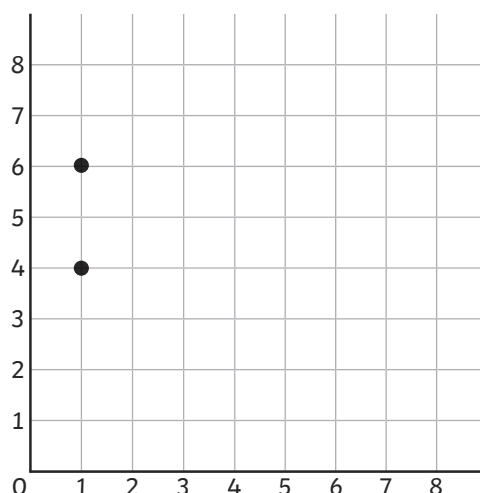
2) Philip has plotted two vertices of an isosceles triangle. Complete the following sentences about the coordinates of the third vertex.

a) The coordinates of the third vertex could be (     ,     ).

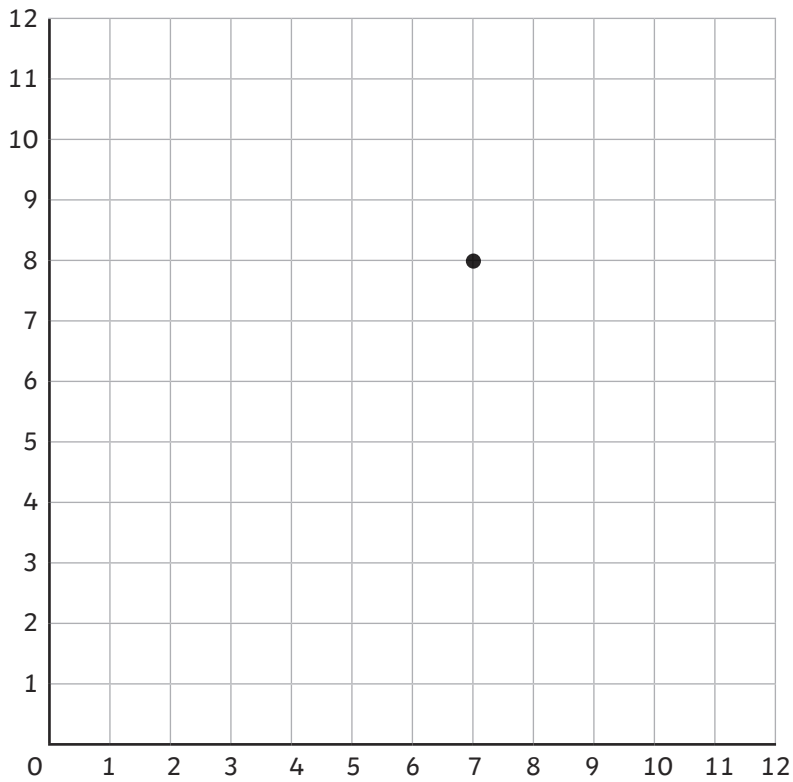
b) The coordinates of the third vertex can't be (     ,     )

because \_\_\_\_\_

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Here is one vertex of a parallelogram. Find five possible parallelograms that can be drawn using this vertex. Write the coordinates of the missing vertices of each parallelogram.



Parallelogram 1 \_\_\_\_\_

Parallelogram 2 \_\_\_\_\_

Parallelogram 3 \_\_\_\_\_

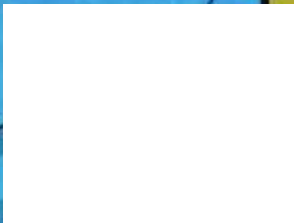
Parallelogram 4 \_\_\_\_\_

Parallelogram 5 \_\_\_\_\_

**Diving into Mastery**

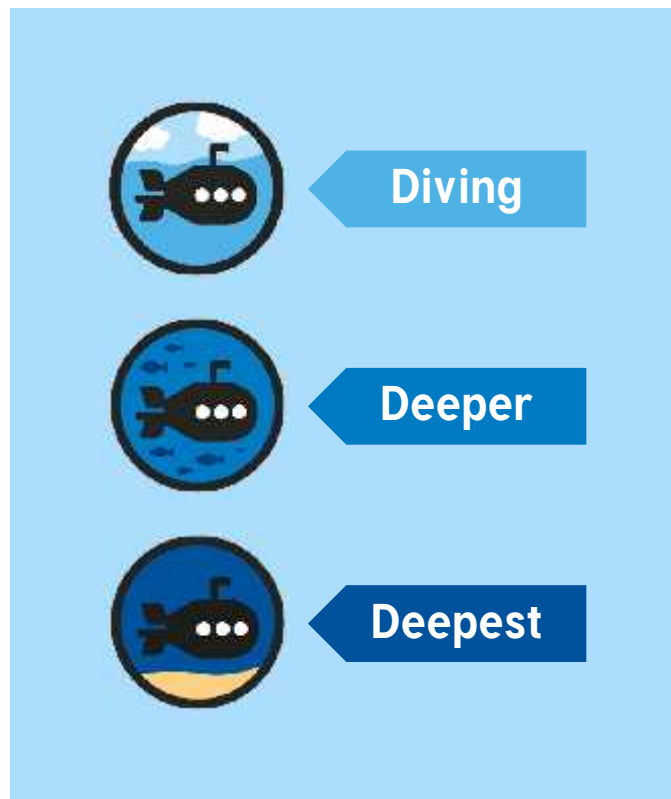


# The First Quadrant



# Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

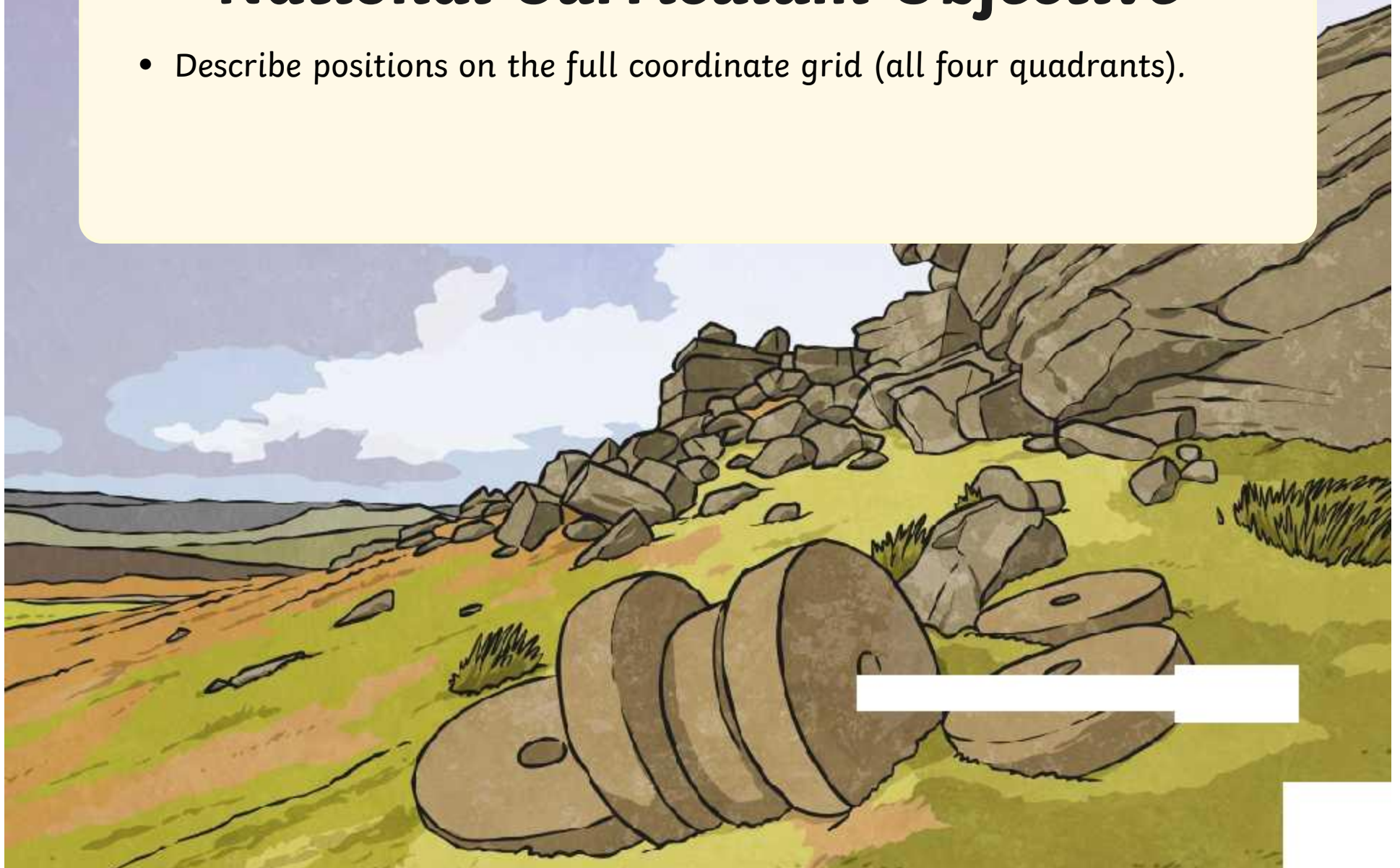


These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

# National Curriculum Objective

- Describe positions on the full coordinate grid (all four quadrants).

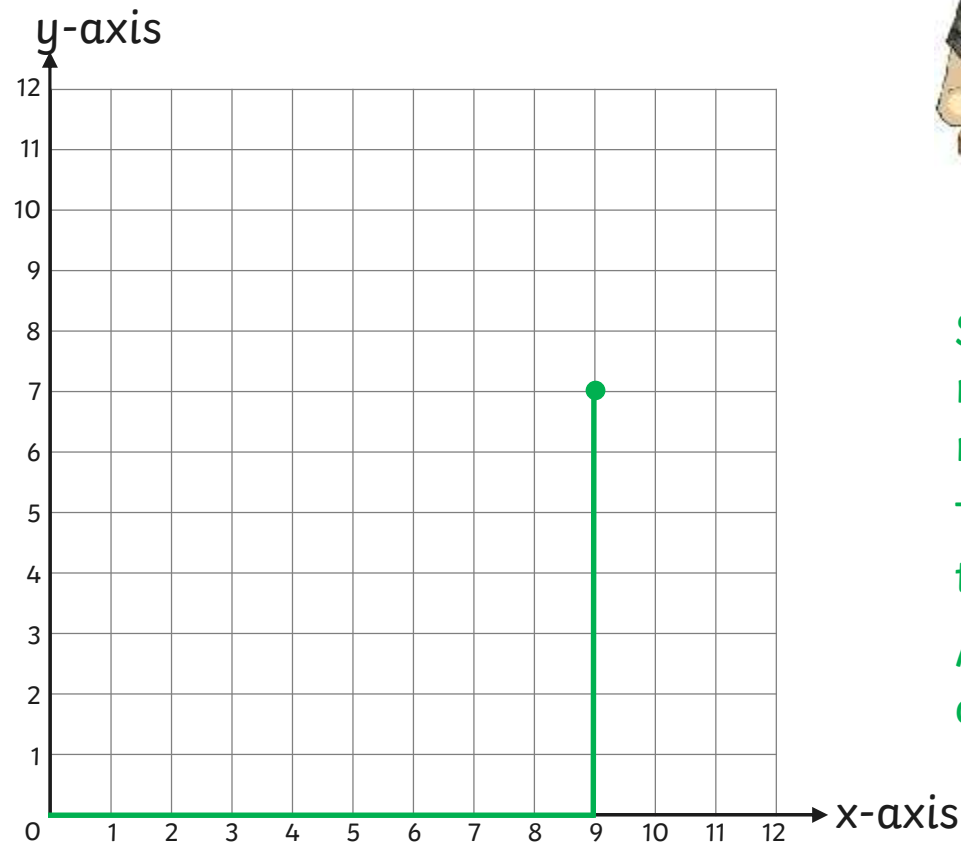


## The First Quadrant

## Diving



Working with your learning partner, write an explanation of how to plot the coordinate  $(9,7)$  on a coordinate grid.



Starting at the origin  $(0,0)$ , read along the x-axis to the number 9.

Then read up the y-axis to the number 7.

At this point, mark the coordinate.

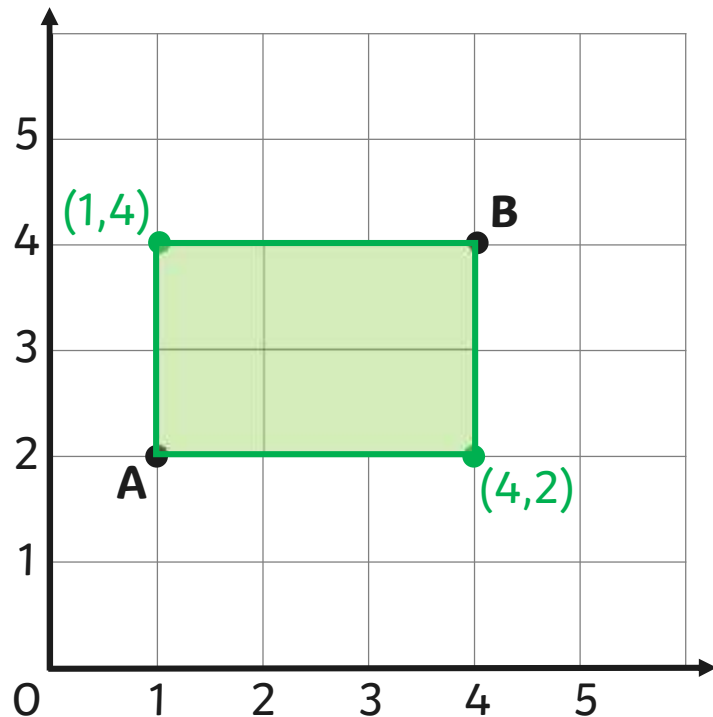
## The First Quadrant

## Diving



Jenni has plotted two vertices of a rectangle.  
What are the coordinates of vertices A and B?

Write down the coordinates of the missing two vertices.



Vertex A (1,2)  
Vertex B (4,4)





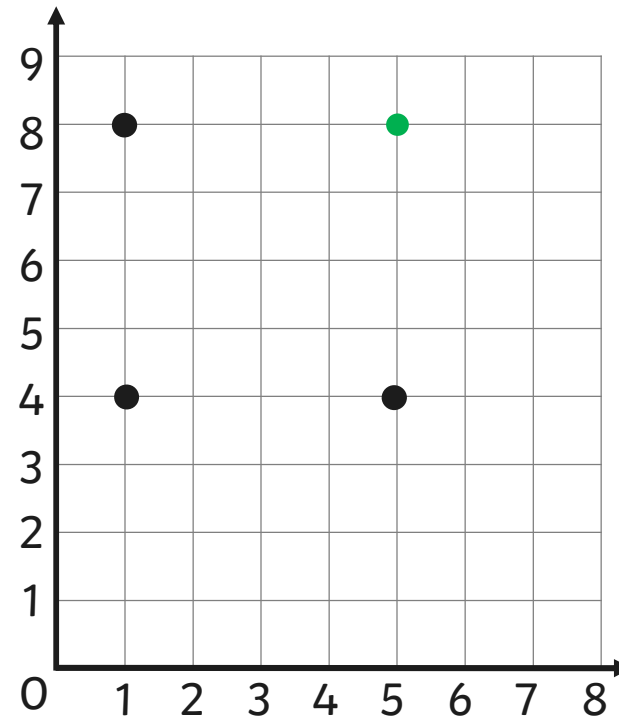
## The First Quadrant

## Deeper

Jenni and Paul are plotting the vertices of a square.

Who do you agree with and why?  
What mistakes have been made?

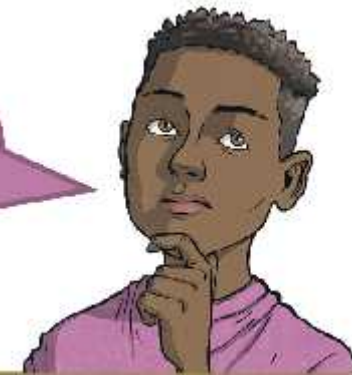
Paul is correct. Jenni has given the  $y$  coordinate first. She should have given the  $x$  coordinate and then the  $y$  coordinate.



The final vertex should be plotted at  $(8,5)$ .



The final vertex should be plotted at  $(5,8)$ .



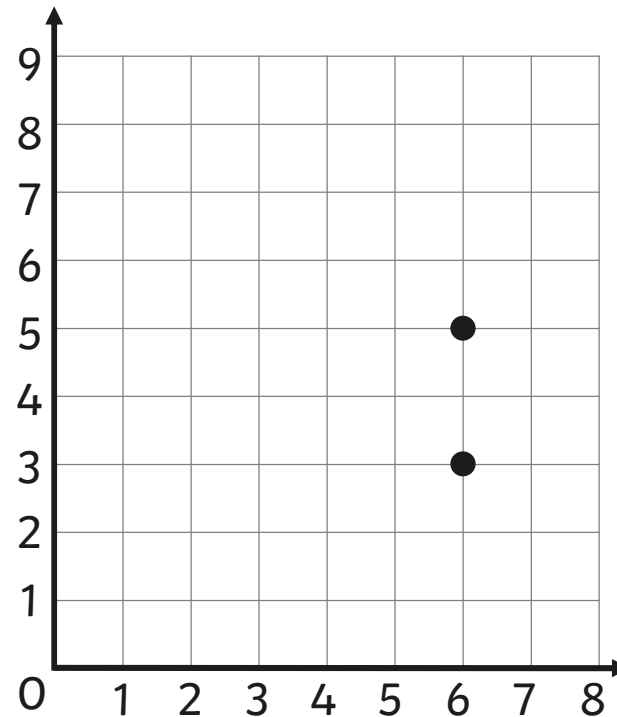
## The First Quadrant

## Deeper

Here are two vertices of a rectangle.

There are many possible answers. For example,  $(5,5)$  and  $(5,3)$  would make a rectangle. They could not be  $(5,6)$  and  $(5,2)$  as this would make a trapezium.

What could the coordinates of the other two vertices be?

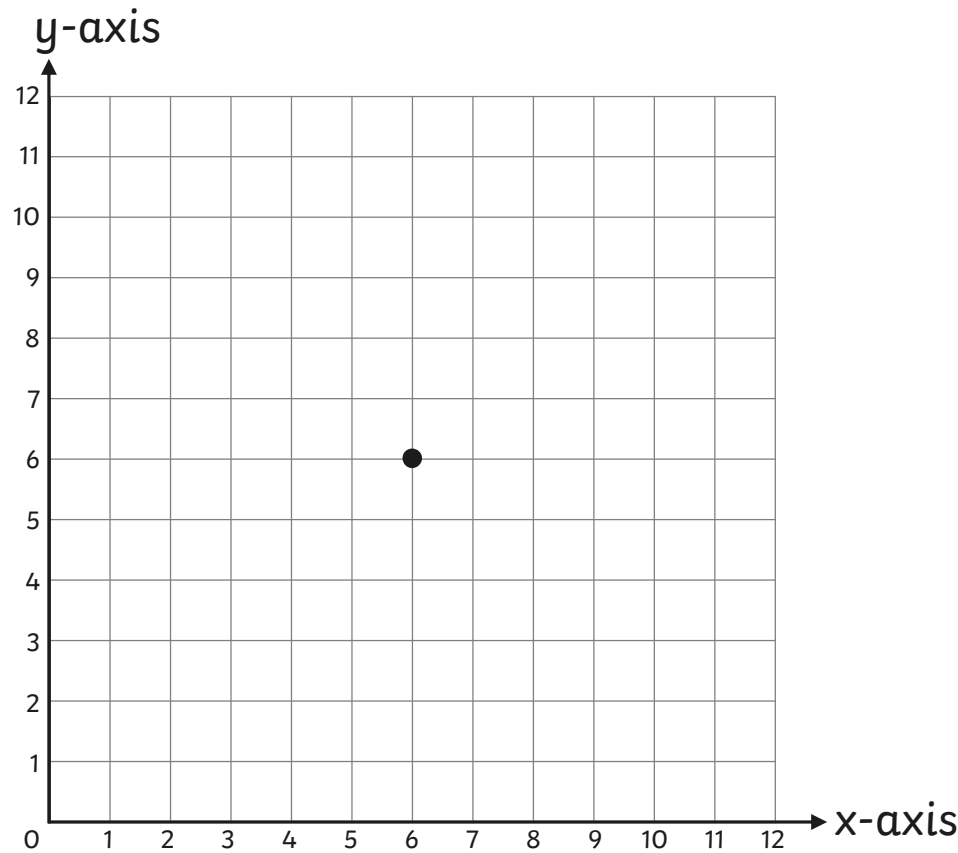


What coordinates could they not be?



## The First Quadrant

## Deepest



Here is one vertex of a rectangle.

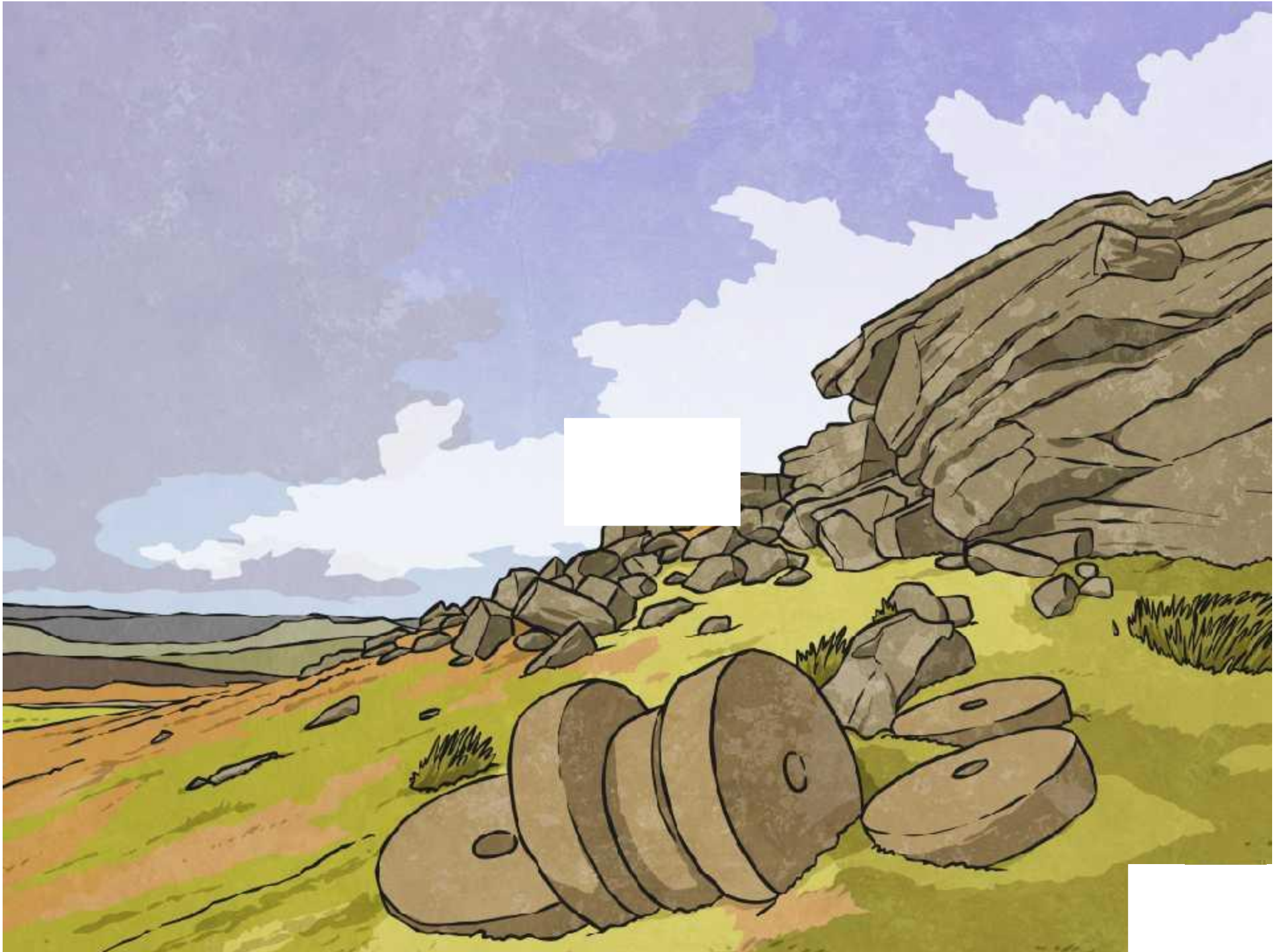
Find all the possible rectangles that can be drawn using this vertex.

Write the coordinates of the missing vertices of each rectangle.

There are lots of possible answers. Compare your findings with a friend.



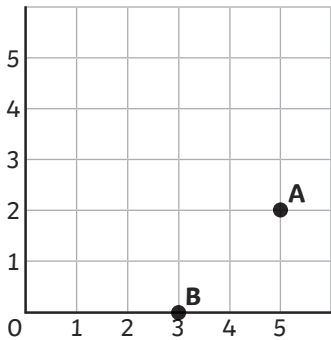




- 1) Pascal wants to plot the coordinate (11,8) but is unsure how to do it. Write an explanation for Pascal to help him learn how to plot and read coordinates. Remember to use mathematical vocabulary.



- 2) Jenni has started to plot the vertices of a square. What are the coordinates of the vertices she has plotted?

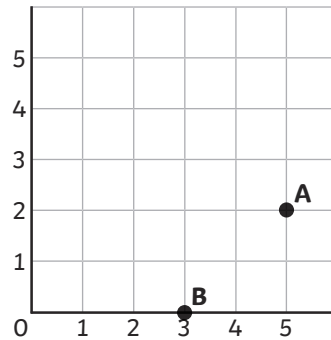


Vertex A (     ,     )  
 Vertex B (     ,     )  
 Now plot the other two vertices, label them C and D and record the coordinates.  
 Vertex C (     ,     )  
 Vertex D (     ,     )

- 1) Pascal wants to plot the coordinate (11,8) but is unsure how to do it. Write an explanation for Pascal to help him learn how to plot and read coordinates. Remember to use mathematical vocabulary.

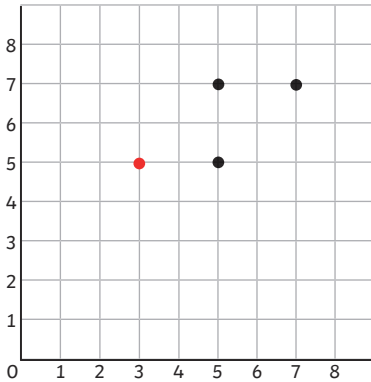


- 2) Jenni has started to plot the vertices of a square. What are the coordinates of the vertices she has plotted?



Vertex A (     ,     )  
 Vertex B (     ,     )  
 Now plot the other two vertices, label them C and D and record the coordinates.  
 Vertex C (     ,     )  
 Vertex D (     ,     )

- 1) Taylor and Samira have put a red dot on the grid to plot the final vertex of a rectangle.



Who do you agree with?  
 Explain the mistake that the other person has made.

The coordinates of the vertex we have plotted are (3,5).

The coordinates of the vertex we have plotted are (5,3).

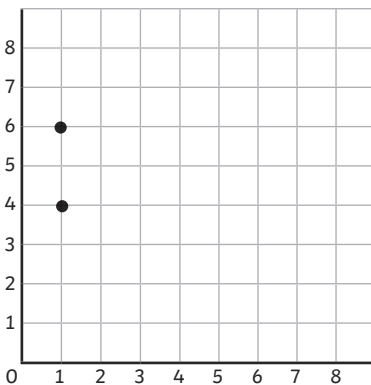


Taylor



Samira

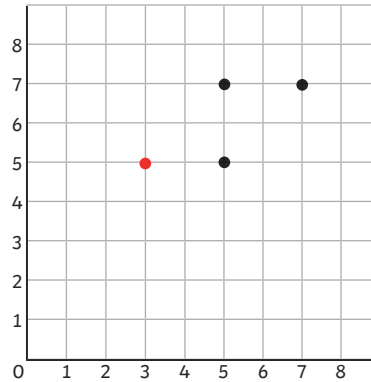
- 2) Philip has plotted two vertices of an isosceles triangle. Copy and complete the following sentences about the coordinates of the third vertex.



a) The coordinates of the third vertex could be (     ,     ).

b) The coordinates of the third vertex could be (     ,     ) because...

- 1) Taylor and Samira have put a red dot on the grid to plot the final vertex of a rectangle.



Who do you agree with?  
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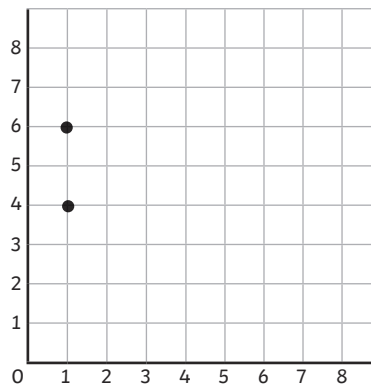


Taylor



Samira

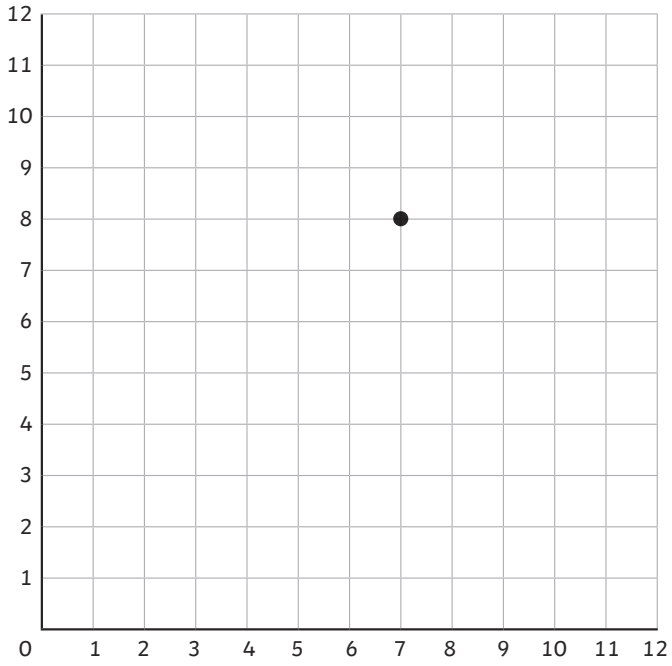
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Here is one vertex of a parallelogram. Find five possible parallelograms that can be drawn using this vertex. Write the coordinates of the missing vertices of each parallelogram.



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