Drake Class
Year 5 and 6 Maths Home Learning Activities
Week beginning Monday 18/05/20

Geometry – Position and Direction

In this topic you will have to have a grid to show some of your answers. You can draw your own grid on paper, draw straight onto this sheet or print the quadrants below. The other way – if you don't have access to a printer – is to image capture a picture of a grid and then edit the photo to draw on the points.

Also, the **Oak Academy online lessons** have 5 sessions – including video, explanations and independent tasks **on this topic.**

Y5: https://www.thenational.academy/online-classroom/year-5/maths#subjects

Y6: https://www.thenational.academy/online-classroom/year-6/maths#subjects

Step 1: Reading and plotting point is the first quadrant. (extra step for Y6 below if required)

Plot – mark it on the grid

Quadrant –One of four sections (including into the negative)

Vertices – corners

Coordinates – 'Along the corridor and up the stairs' You mark the horizontal (x) point first, followed by the vertical (y) point.

For further information, check out this video: https://www.bbc.co.uk/bitesize/clips/z7qmpv4

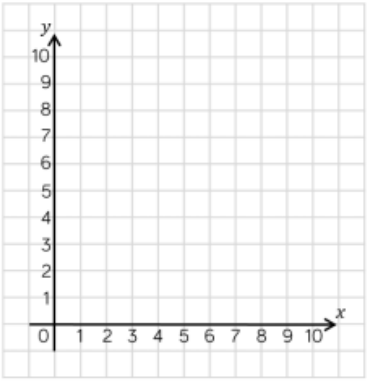
Plot the following points on the grid.

(3, 5)

(4, 4)

(0, 2)

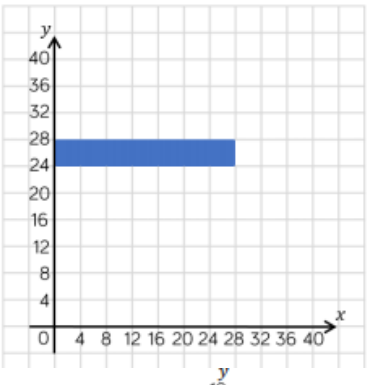
(4, 0)



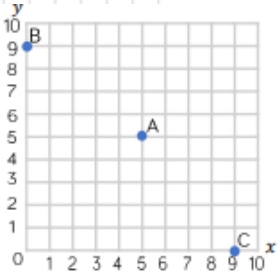
What are the coordinates of the vertices of the rectangle?

(,) (,)

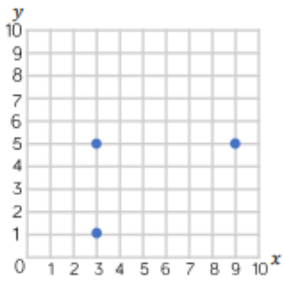
(,) (,)



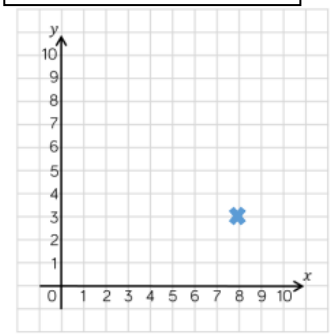
Whitney plots three coordinates. Write down the coordinates of points A, B and C.

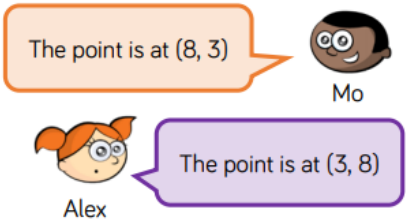


Tommy is drawing a rectangle on a grid. Plot the final vertex of the rectangle. Write the coordinate of the final vertex.



Reasoning Problem:





Who do you agree with? Can you spot the mistake the other child has made?

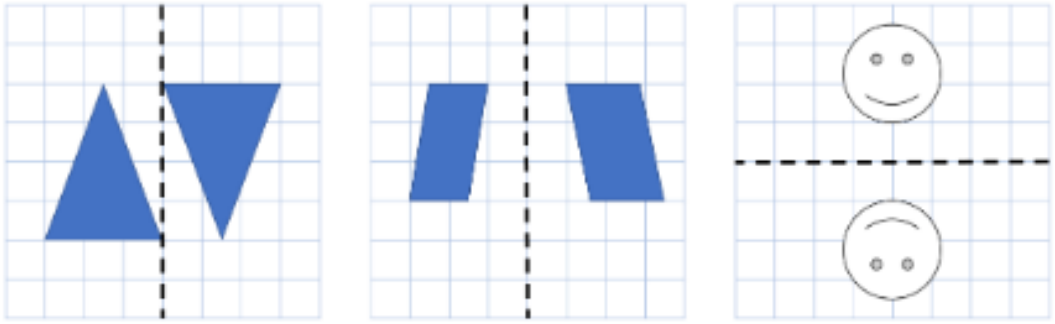
Reasoning Problem:

Eva is drawing a trapezium.
She wants her final shape to look like this:

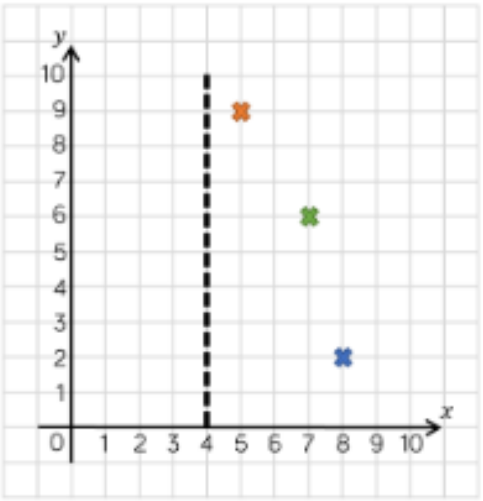
Eva uses the coordinates (2, 4), (4, 5), (1, 6) and (5, 6).
Will she draw the shape that she wants to?
If not, can you correct her coordinates?

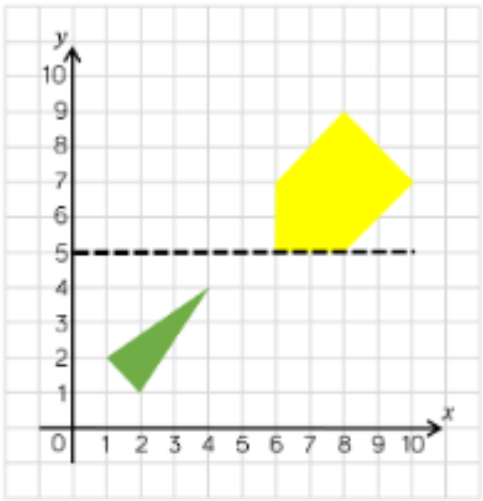
Step 2: Reflecting (extra step for Y6 below if required)

Which of the diagrams show reflections in the given mirror line?



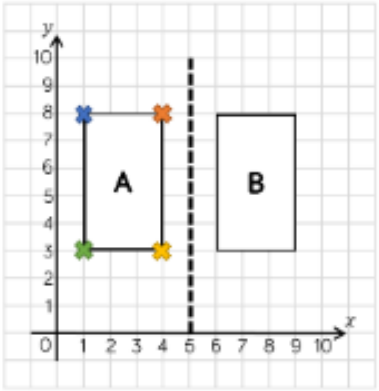
Reflect the coordinates and the shapes in the mirror line.





Step 3: Reflected coordinates

Object A is reflected in the mirror line to give image B.
Write the coordinates of the vertices for each shape.



	Original Coordinate	Reflected Coordinate
✖		
✖		
✖		
✖		

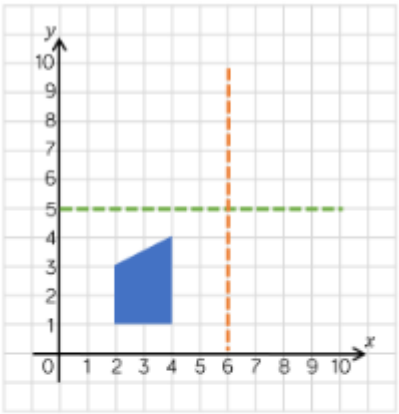
Write the coordinates of the image after the object (triangle) has been reflected in the mirror line.

(,)

(,)

(,)

Reasoning Problem:

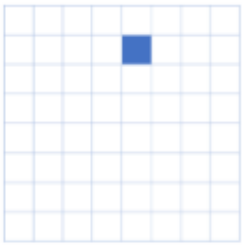


This is a shape after it has been reflected. This is called the image.

Use the grid and the marked mirror lines to show where the original object was positioned.

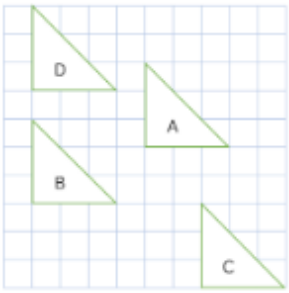
Is there more than one possibility?

Step 4: Translation (extra step for Y6 below if required)



A square is translated two squares to the right and three down.
Draw the new position of this square.

Describe the translation of shape A to shape B, C and then D. Use the stem sentence to help you.
Shape A has been translated _____ left/right and _____ up/down.



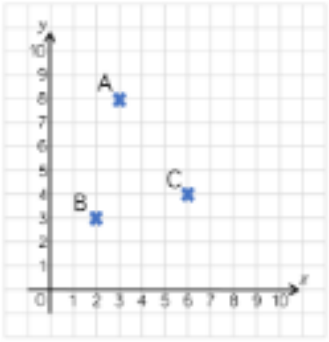
Match the translations.

to
to
to

4 right, 2 down
2 left, 3 up
5 left, 5 down

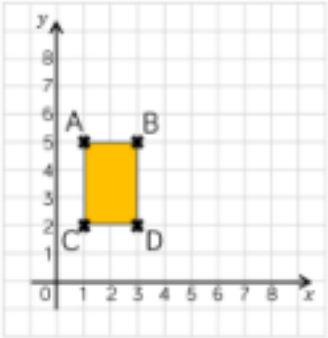
Step 5: Translating with coordinates.

Translate each coordinate 2 down, 1 right. Record the coordinates of its new position.



	Before translation	After translation
A	(3, 8)	
B		
C		

Rectangle ABCD is translated so vertex C is translated to (3, 5). Describe the translation. What are the coordinates of the other vertices of the translated rectangle?



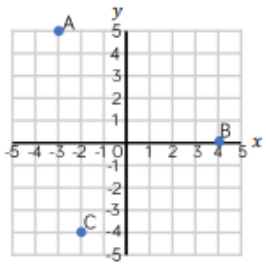
Translate the coordinates below.

(3, 6) → 3 left → (,) → 1 up → (,)

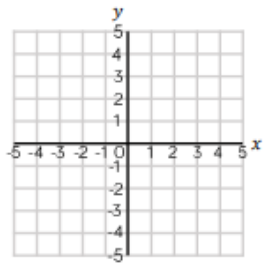
(5, 7) → 2 right → (,) → 4 down → (,)

Year 6 Step 1 Extension: Reading points in all four quadrants.

Dora plotted three coordinates.
Write down the coordinates of points A, B and C.

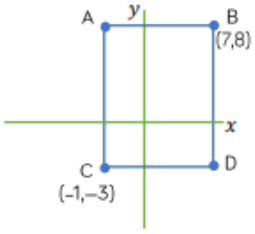


Draw a shape using the coordinates (-2, 2), (-4, 2), (-2, -3) and (-4, -2).
What is the name of shape?



Work out the missing coordinates of the rectangle.

What is the length of side AB?

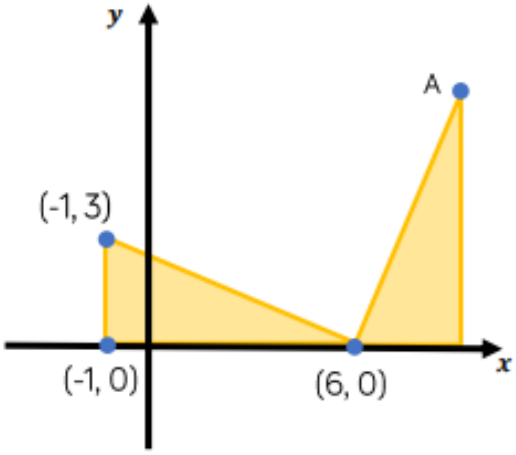


Reasoning Problem:

The diagram shows two identical triangles.

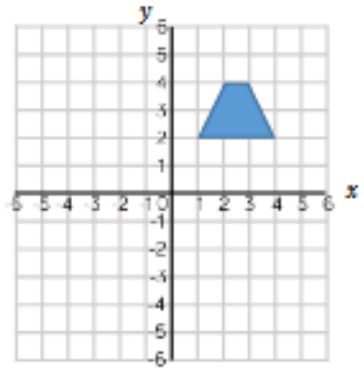
The coordinates of three points are shown.

Find the coordinates of point A.



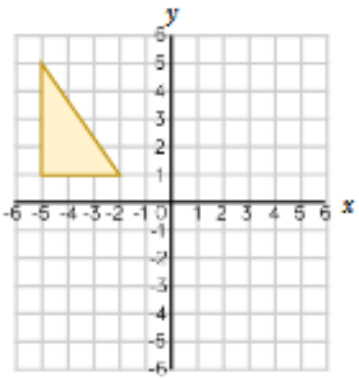
Year 6 Step 2/3 Extension: Reflecting points in all four quadrants.

Reflect the trapezium in the x-axis and then the y –axis.
Complete the table with the new coordinates of the shape.



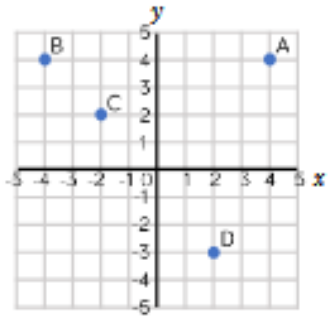
	Reflected in the x-axis	Reflected in the y-axis
(1, 2)		
(4, 2)		
(2, 4)		
(3, 4)		

Translate the shape 4 units to the right.
Then reflect the translated shape in the y-axis.



Year 6 Step 4 Extension: Translating points in all four quadrants.

Use the graph to describe the translations.
One has been done for you.



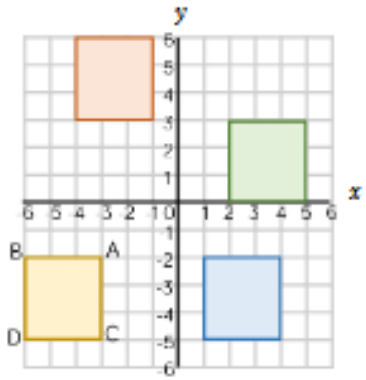
From **A** to **B** translate **8** units to the **left**.

From **C** to **D** translate __ units to the **right** and __ units **down**.

From **D** to **B** translate **6** units to the _____ and **7** units _____.

From **A** to **C** translate __ units to the ____ and __ units ____.

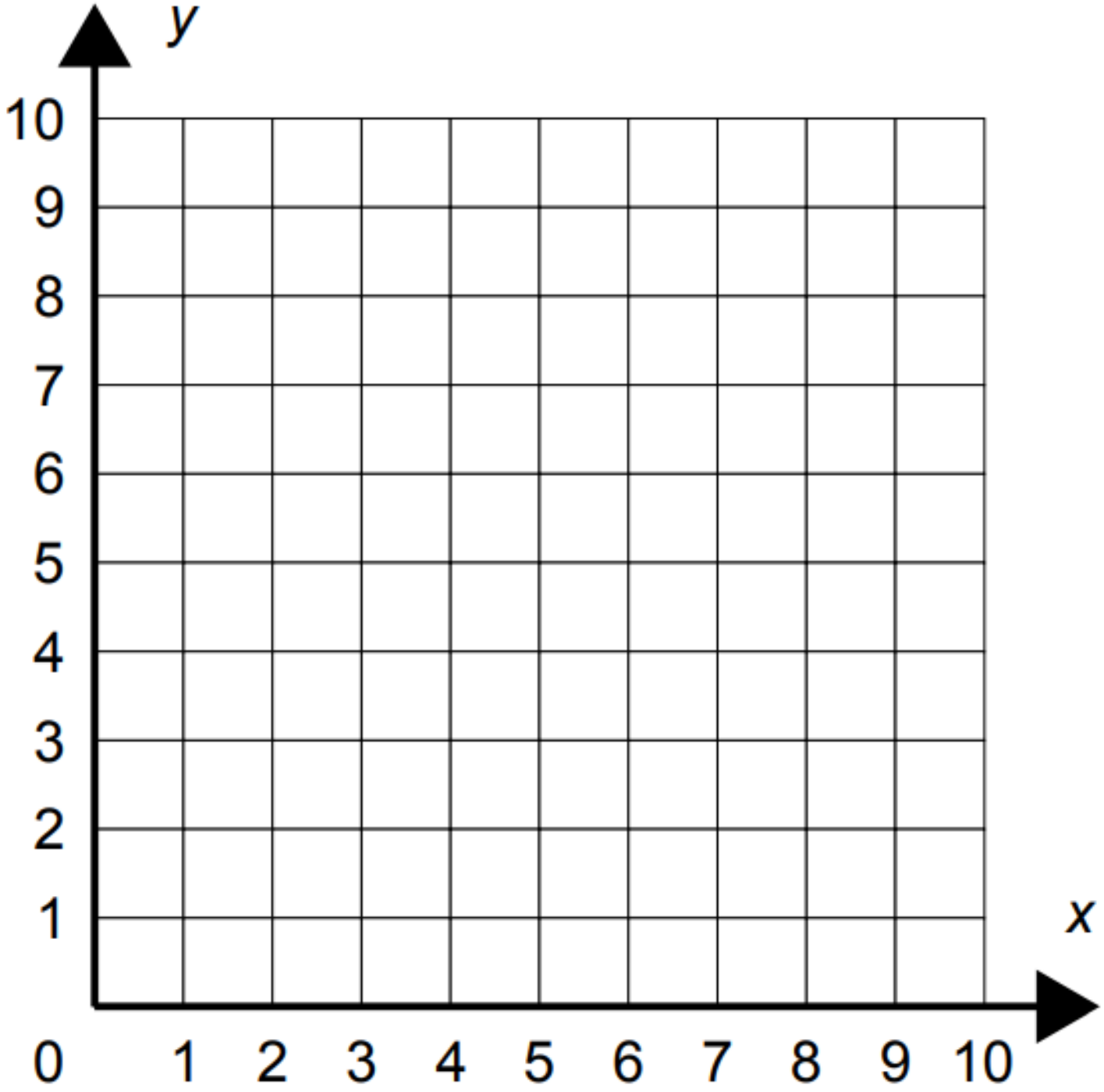
Write the coordinates for vertices A, B, C and D.
Describe the translation of ABCD to the blue square.



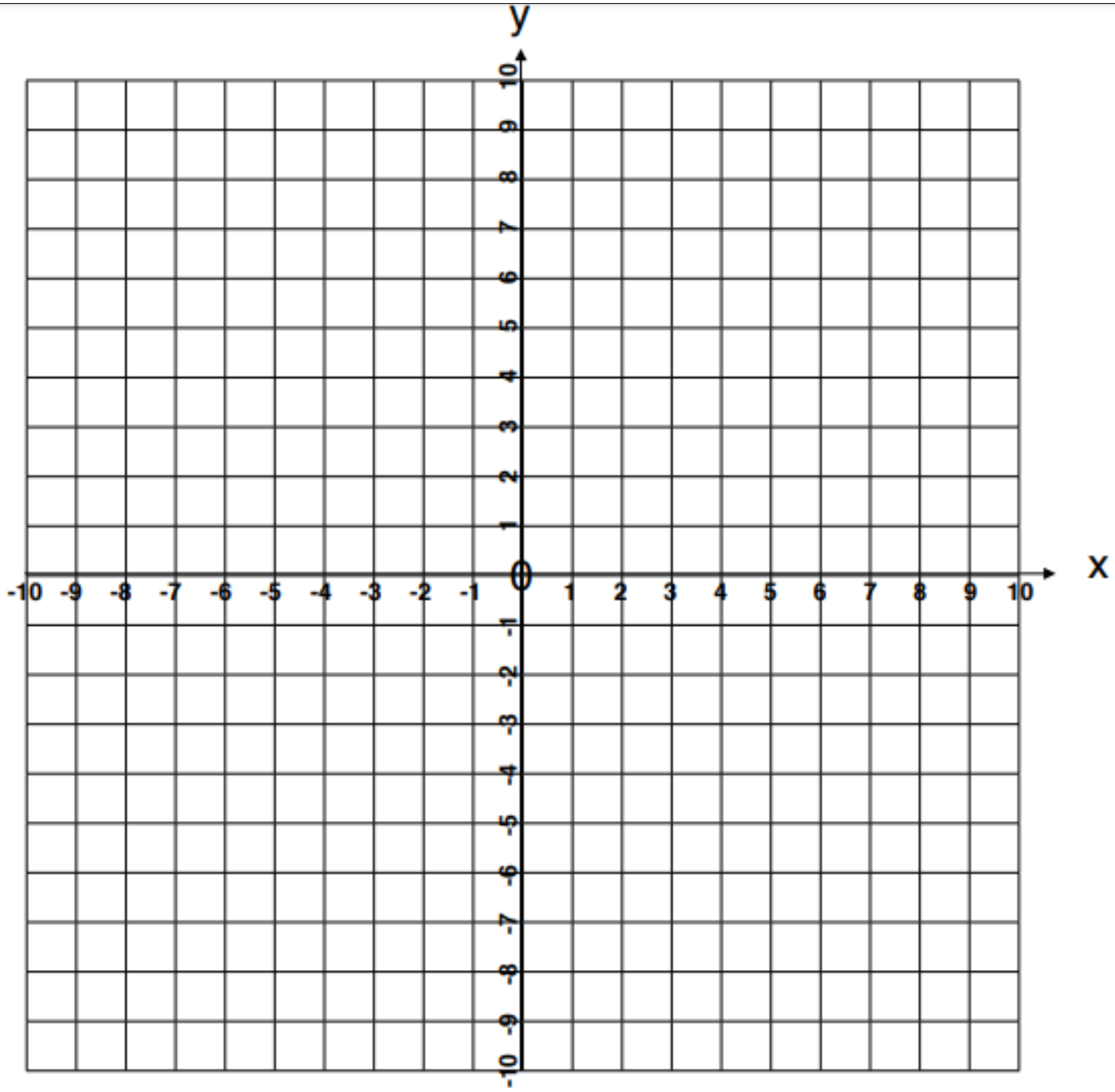
ABCD is moved 2 units to the right and 8 units up. Which colour square is it translated to?
Write the coordinates of the vertices of the translated shape.

Resources:

Single Quadrant:



All Four Quadrants:



Additional areas to work on:

Play on Hit the Button - focus multiplication tables.

Work through the areas of an arithmetic paper (which can be found on the KS2 Maths Organiser on the school website) Look at the Calculation Policy on the school website under 'Curriculum' and then 'Maths' for help in how to support + - x and ÷

https://www.sampford-peverell-primary.devon.sch.uk/website/maths/459621

Also in the maths section of the website is a link to a fantastic maths revision interactive resource which gives the children extra questions in whichever area of maths they would like to work on a little more – with YouTube links to explain the process!