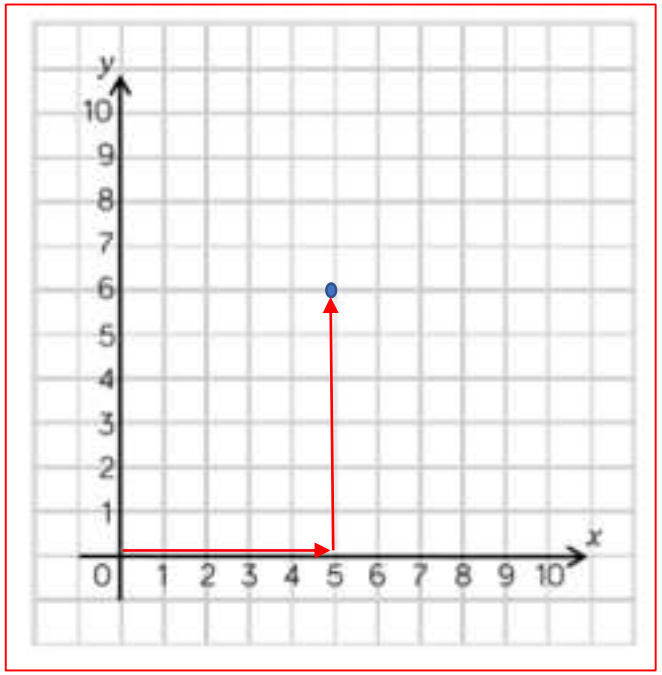
Monday
22.6.20

Watch the clips
https://watchkin.com/7eb787968f
(only need to watch to 3min20)

Position in the 1st Quadrant

How To Read And Write Coordinates

To **read coordinates** we need to understand how to **write** them. A point on a grid contains two numbers to let us know a position. These numbers are the **coordinates**. They are provided by first giving the number of steps across (**x-axis**) followed by the steps up or down (**y-axis**).



X=5
Y=6
So the coordinates are (5,6)

To remember how to read coordinates there is a well known saying 'Along the corridor and up the stairs'. The corridor represents the x-axis and the stairs represent the y-axis.

Varied Fluency

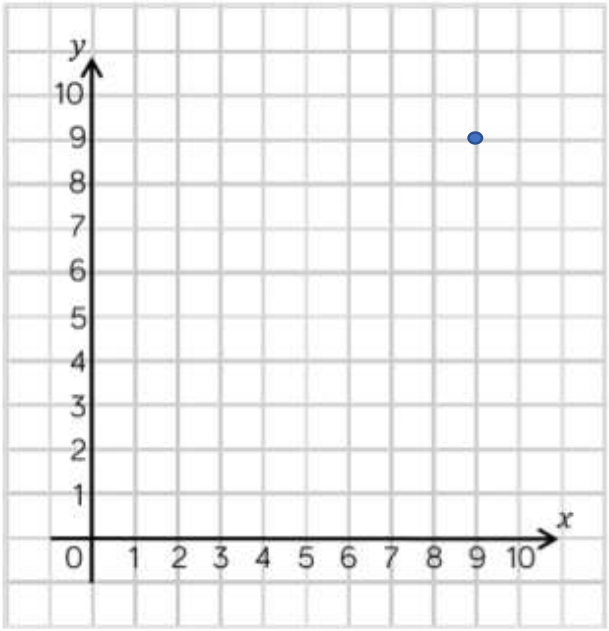
Plot the following points on the grid.

(3, 5)

(4, 4)

(0, 2)

(4, 0)



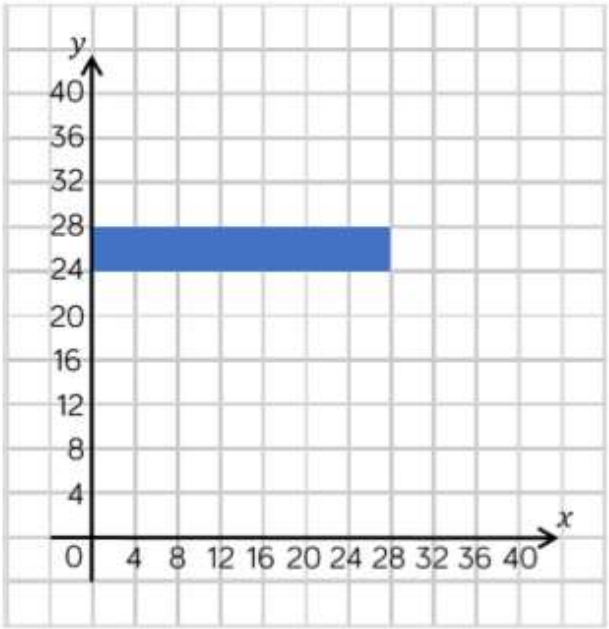
What are the coordinates of the vertices of the rectangle?

(,)

(,)

(,)

(,)



Which of the numbers represents the movement in the direction of the x-axis (from the origin)?

Which of the numbers represents the movement on the y-axis (from the origin)?

Does it matter which way around coordinates are written?

Look at the point I have marked, what are the coordinates of this point?

If I moved the point one place to the left, what would be different about the coordinates?

If I moved the point down one, what would be different about the coordinates?

Emoji Coordinates

Draw the lines made by these coordinates. Use a different colour for each line.

(6,0) (8,1) (9,2) (10,4) (10,6) (9,8) (8,9) (6,10) (4,10)

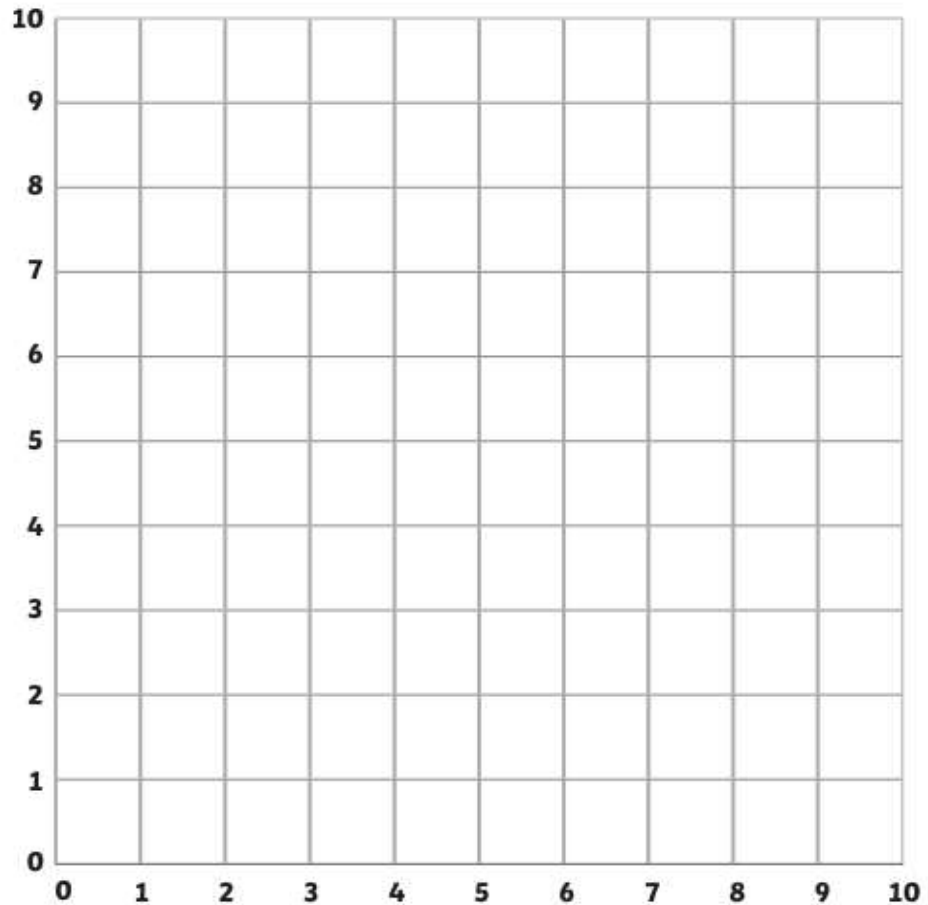
(6,0) (4,0) (2,1) (1,2) (0,4) (0,6) (1,8) (2,9) (4,10)

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

(7,5) (5,7) (6,8) (7,7) (8,8) (9,7) (7,5)

(3,4) (4,3) (6,3) (7,4) (6,2) (4,2) (3,4)

What shape do they make together?



Choose one of the following Emoji Coordinates to complete.

Emoji Coordinates

Draw the lines made by these coordinates. Use a different colour for each line.

(6,0) (8,1) (9,2) (10,4) (10,6) (9,8) (8,9) (6,10) (4,10)

(6,0) (4,0) (2,1) (1,2) (0,4) (0,6) (1,8) (2,9) (4,10)

(3,6) (4,7) (3,8) (2,7) (3,6)

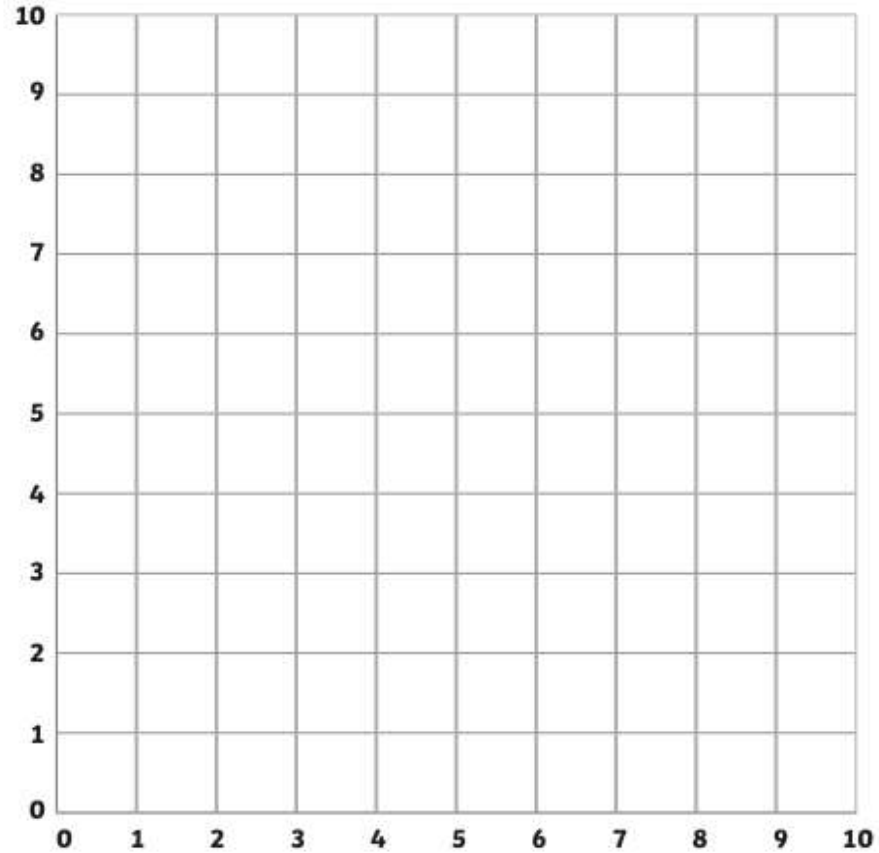
(1,7) (2,8) (4,9)

(6,9) (8,8) (9,7)

(6,7) (7,7) (8,6)

(3,4) (4,3) (6,3) (7,4) (6,2) (4,2) (3,4)

What shape do they make together?



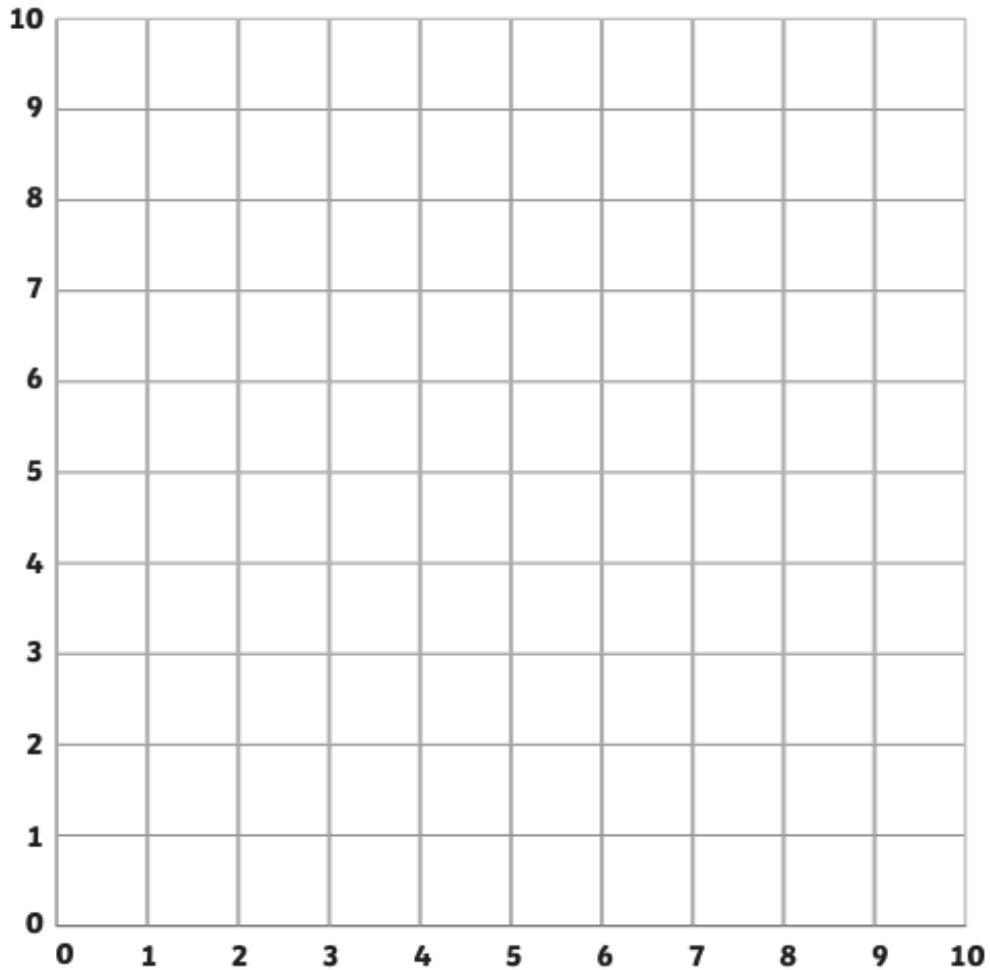
Emoji Coordinates

Draw the lines made by these coordinates. Use a different colour for each line.

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

(5,5) (2,8) (2,9) (3,10) (4,10) (5,9) (6,10) (7,10) (8,9) (8,8) (5,5)

What shape do they make together?



Emoji Coordinates

Draw the lines made by these coordinates. Use a different colour for each line.

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

(3,7) (2,9) (4,8)

(7,4) (6,3) (6,2) (7,1) (9,1) (10,2) (9,2) (10,4) (10,5) (9,6) (9,4) (8,3) (7,4)

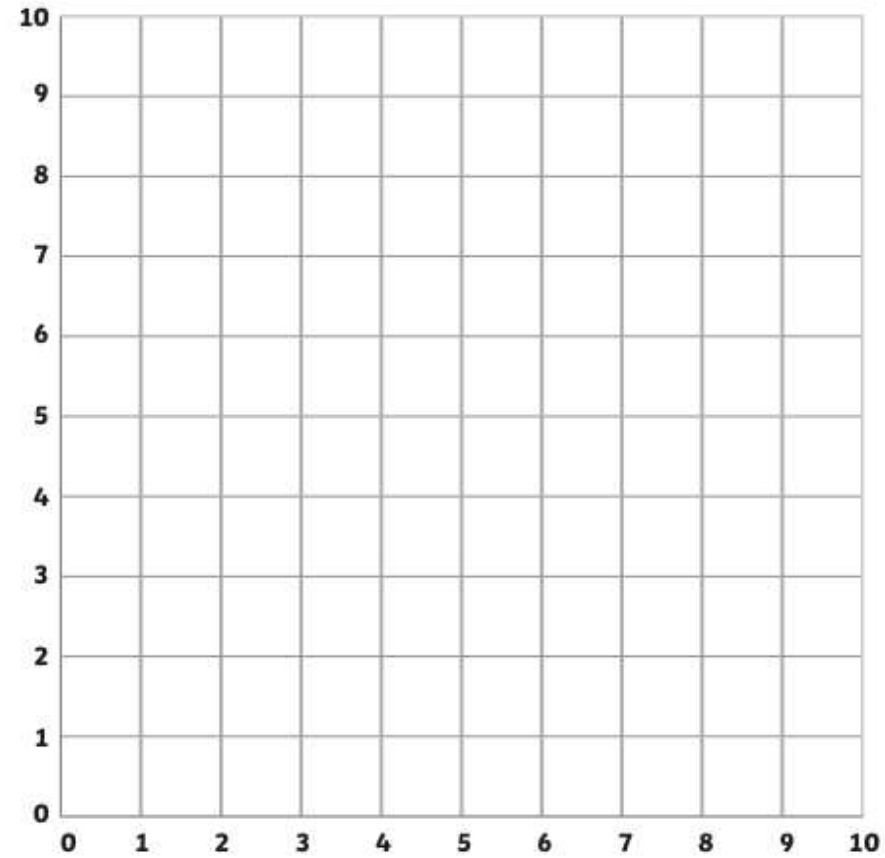
(9,6) (10,6) (9,7) (8,7) (7,8) (6,8) (6,9) (5,8) (5,9) (4,8)

(5,8) (6,7) (7,7) (6,6) (6,4) (7,5) (7,6) (8,7)

(7,5) (8,5) (7,4)

(4,6)

What shape do they make together?



Emoji Coordinates **Answers**

Draw the lines made by these coordinates. Use a different colour for each line.

(6,0) (8,1) (9,2) (10,4) (10,6) (9,8) (8,9) (6,10) (4,10)

(6,0) (4,0) (2,1) (1,2) (0,4) (0,6) (1,8) (2,9) (4,10)

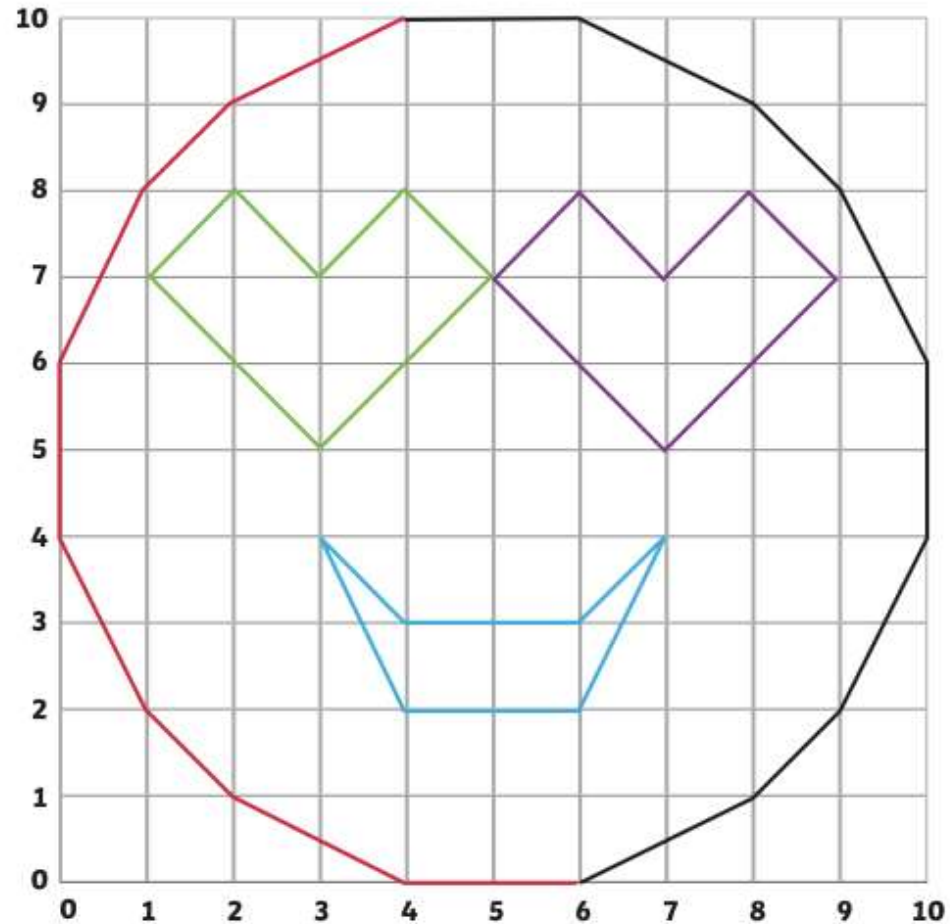
(3,5) (1,7) (2,8) (3,7) (4,8) (5,7) (3,5)

(7,5) (5,7) (6,8) (7,7) (8,8) (9,7) (7,5)

(3,4) (4,3) (6,3) (7,4) (6,2) (4,2) (3,4)

What shape do they make together?

Hearts face emoji



Emoji Coordinates **Answers**

Draw the lines made by these coordinates. Use a different colour for each line.

(6,0) (8,1) (9,2) (10,4) (10,6) (9,8) (8,9) (6,10) (4,10)

(6,0) (4,0) (2,1) (1,2) (0,4) (0,6) (1,8) (2,9) (4,10)

(3,6) (4,7) (3,8) (2,7) (3,6)

(1,7) (2,8) (4,9)

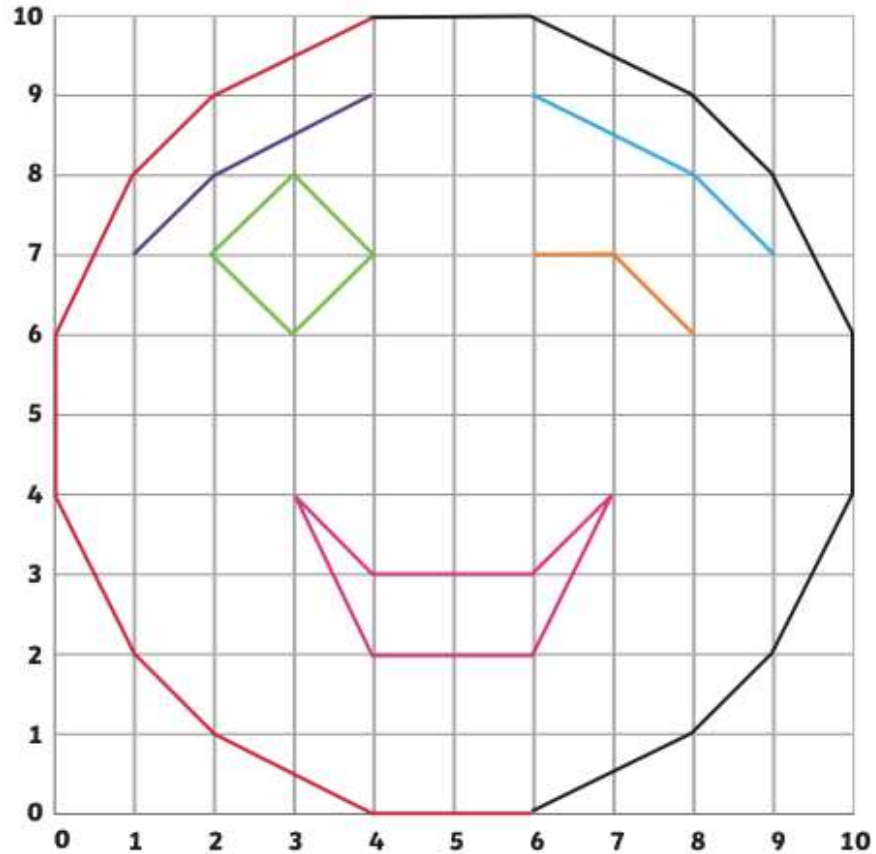
(6,9) (8,8) (9,7)

(6,7) (7,7) (8,6)

(3,4) (4,3) (6,3) (7,4) (6,2) (4,2) (3,4)

What shape do they make together?

Winking face emoji



Emoji Coordinates **Answers**

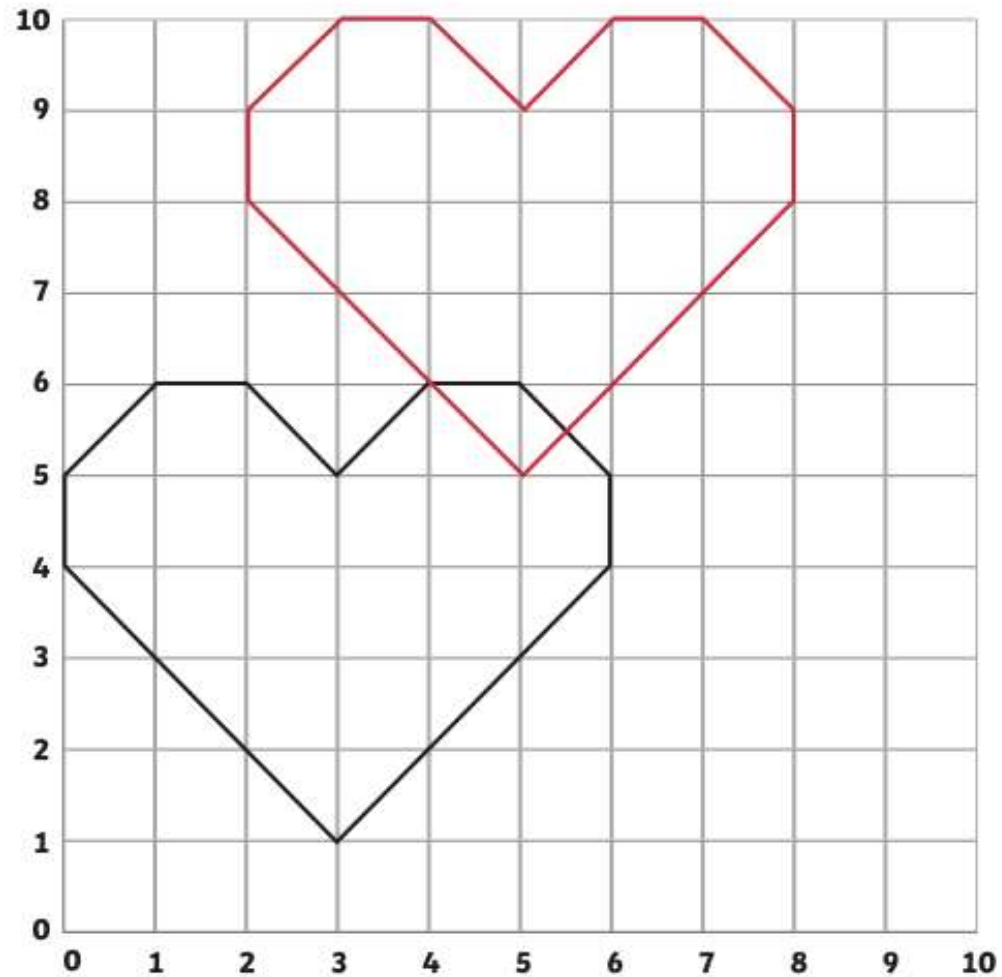
Draw the lines made by these coordinates. Use a different colour for each line.

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

(5,5) (2,8) (2,9) (3,10) (4,10) (5,9) (6,10) (7,10) (8,9) (8,8) (5,5)

What shape do they make together?

Hearts emoji



Emoji Coordinates **Answers**

Draw the lines made by these coordinates. Use a different colour for each line.

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

(3,7) (2,9) (4,8)

(7,4) (6,3) (6,2) (7,1) (9,1) (10,2) (9,2) (10,4) (10,5) (9,6) (9,4) (8,3) (7,4)

(9,6) (10,6) (9,7) (8,7) (7,8) (6,8) (6,9) (5,8) (5,9) (4,8)

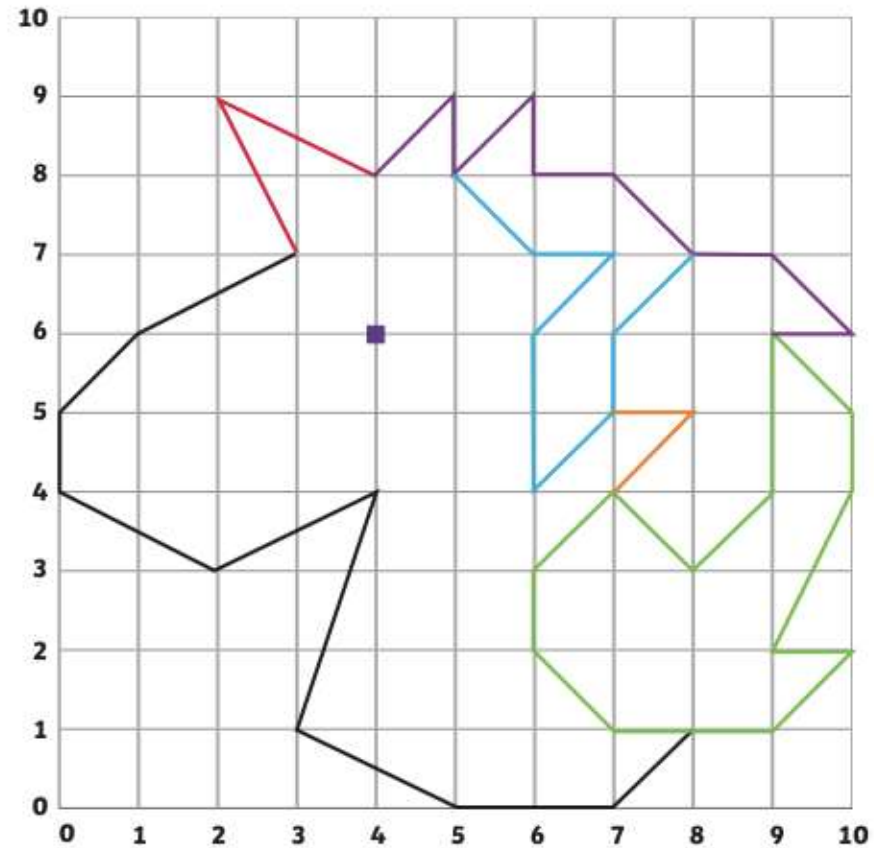
(5,8) (6,7) (7,7) (6,6) (6,4) (7,5) (7,6) (8,7)

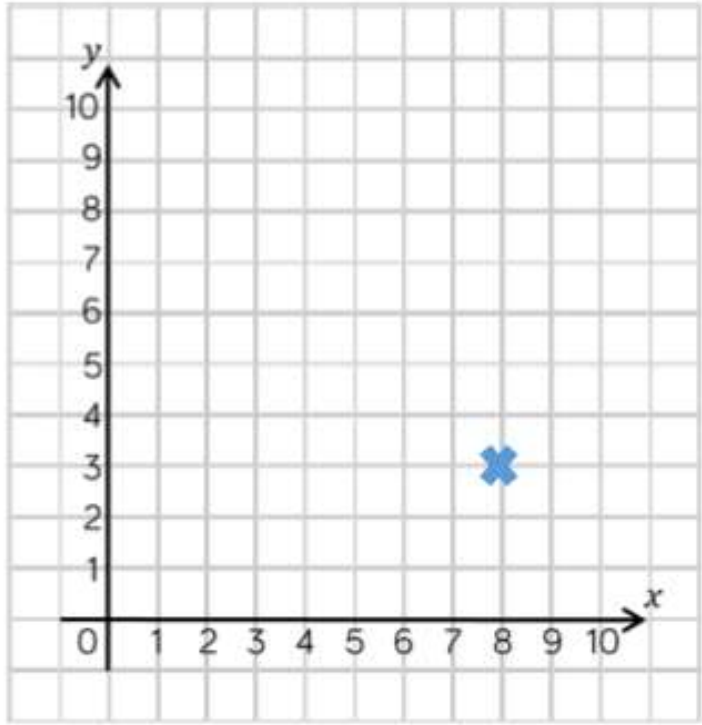
(7,5) (8,5) (7,4)

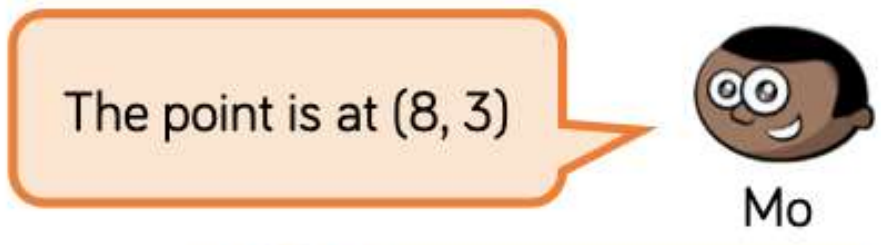
(4,6)

What shape do they make together?

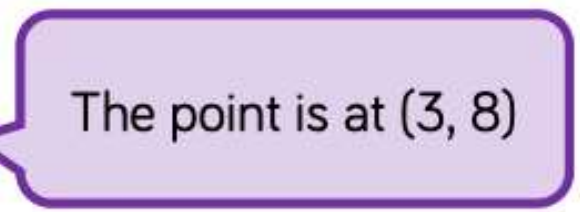
Unicorn emoji





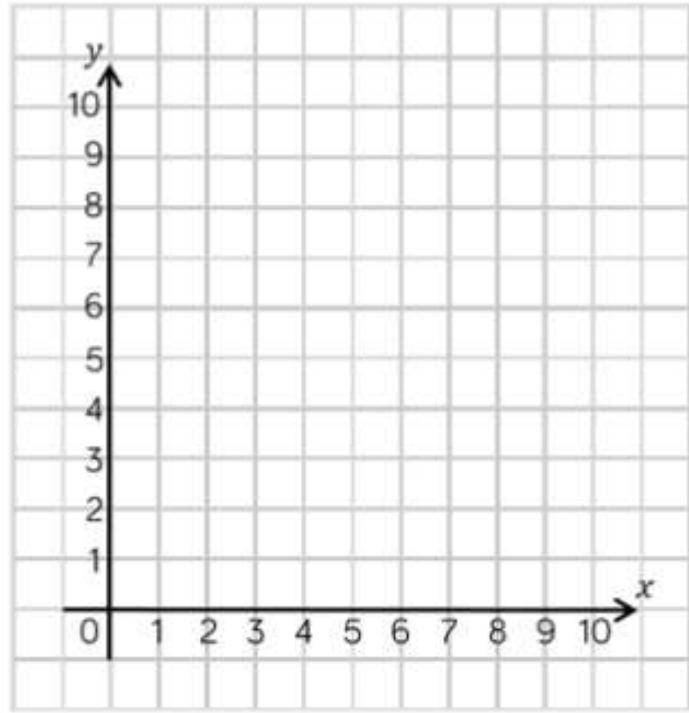


Mo



Alex

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



Annie is finding co-ordinates where the x-coordinate and the y-coordinate add up to 8.

For example: (3, 5) $3 + 5 = 8$

Find all of Annie's coordinates and plot them on the grid. What do you notice?

Now do the same for a different total.

Varied Fluency

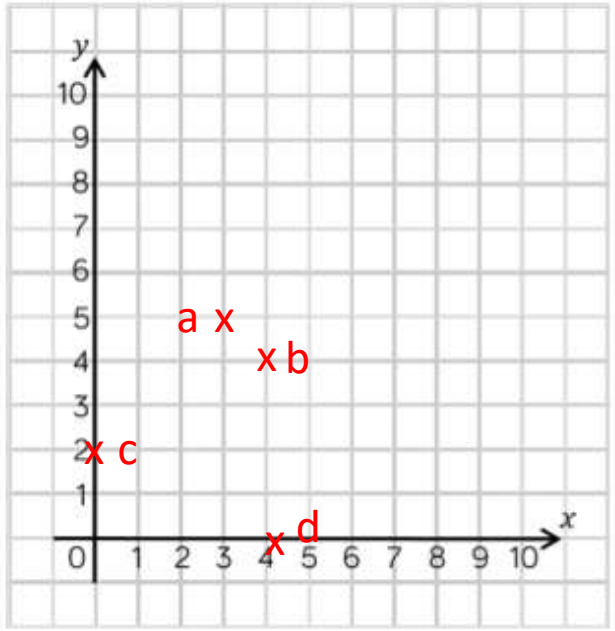
Plot the following points on the grid.

a (3, 5)

b (4, 4)

c (0, 2)

d (4, 0)



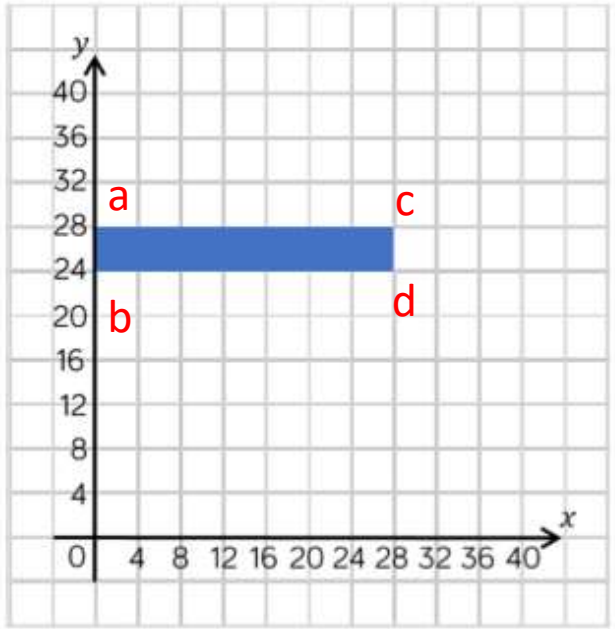
What are the coordinates of the vertices of the rectangle?

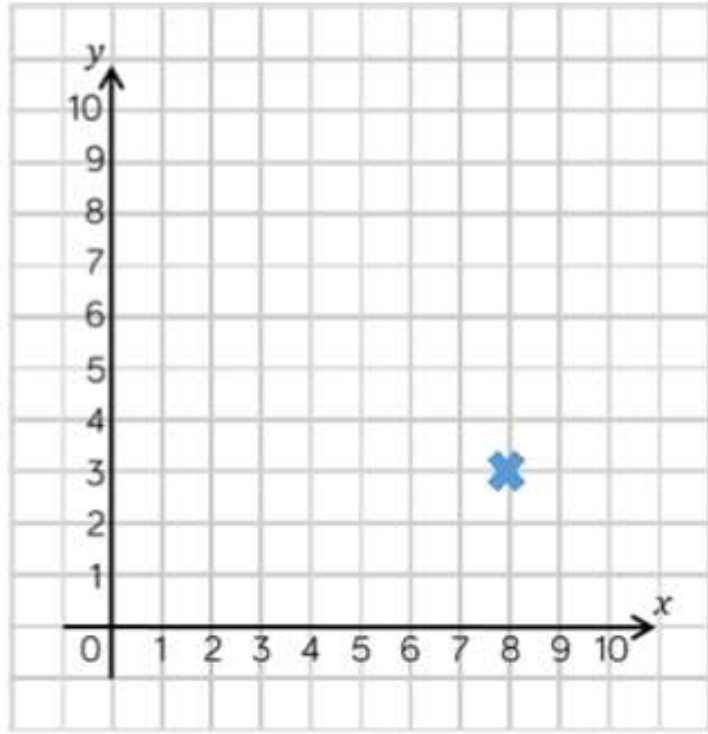
a (0,28)

b(0,24)

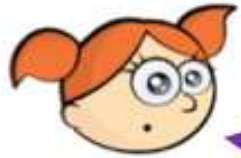
c (28,28)

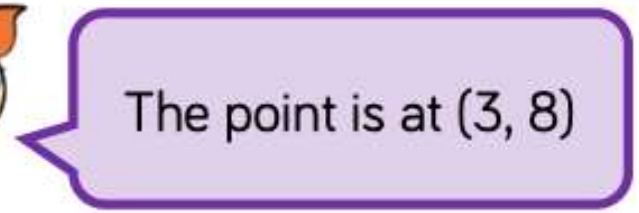
d (28,24)





Mo

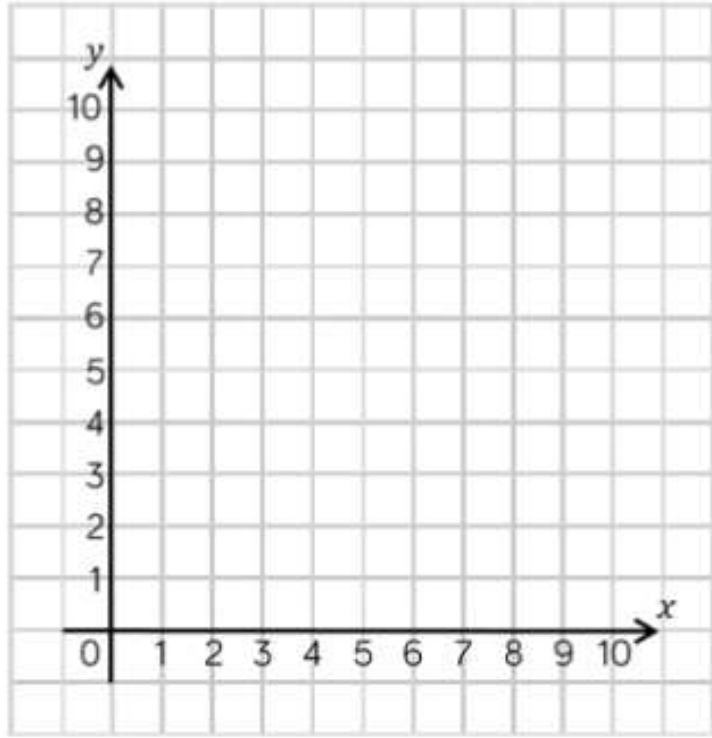




Alex

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

Mo is correct. Alex has made a mistake by thinking the first number is the y-coordinate.



Annie is finding co-ordinates where the x-coordinate and the y-coordinate add up to 8.

For example: (3, 5) $3 + 5 = 8$

Find all of Annie's coordinates and plot them on the grid. What do you notice?

Now do the same for a different total.

Annie's coordinates form a diagonal line (8, 0) to (0, 8)

Tuesday

Watch the clips

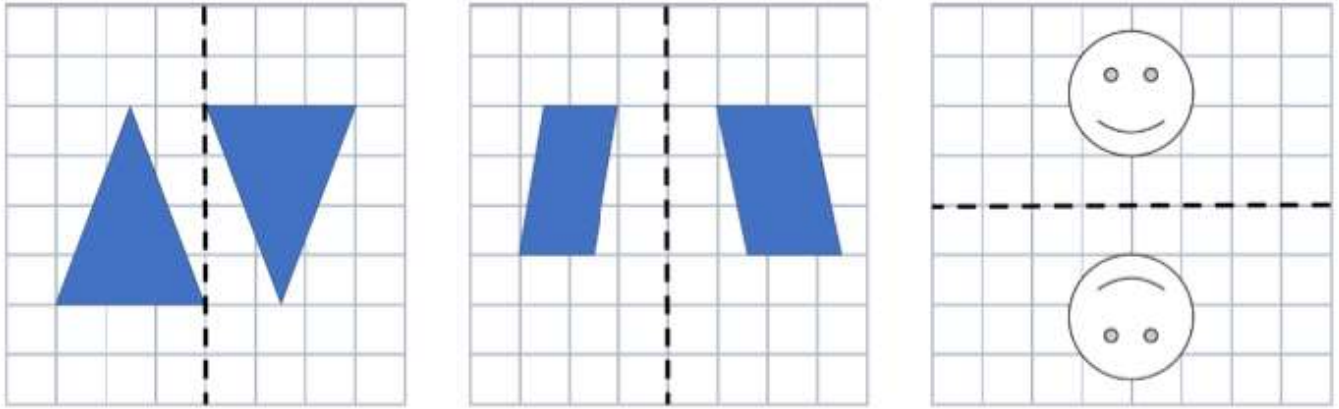
https://watchkin.com/288ecf8906
https://watchkin.com/a5535bec98

Reflection

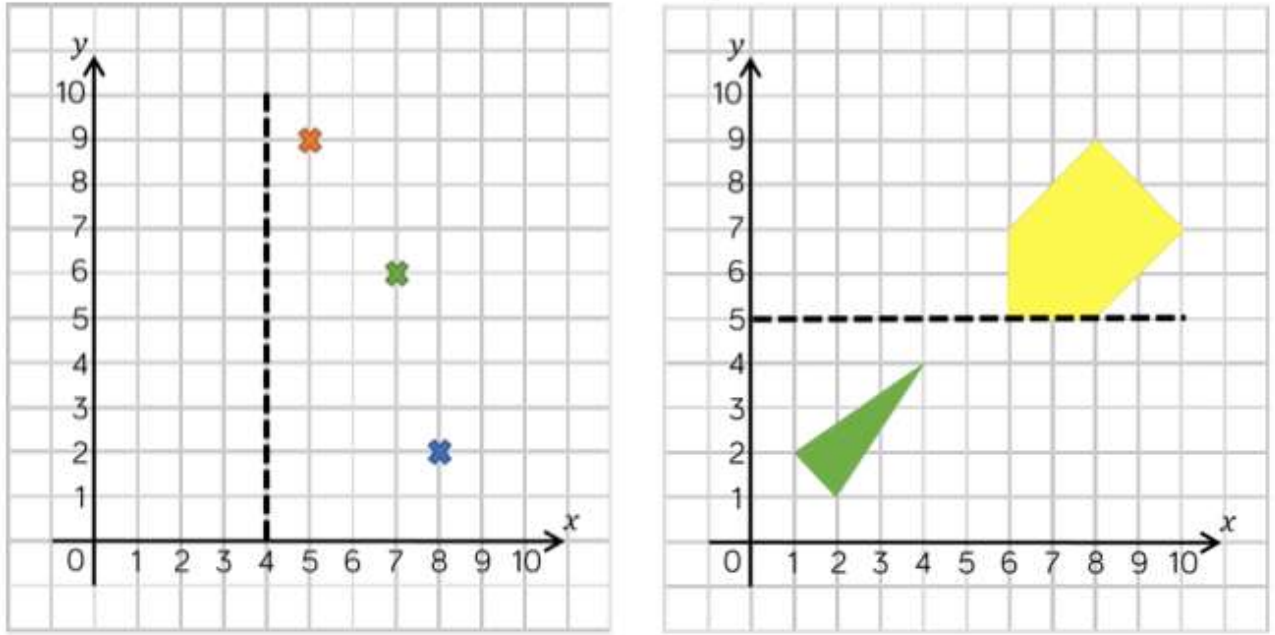
Complete the fluency questions on the next slide and then choose one of the activities from slides 17-19 to complete depending on how confident you feel.
Can you answer the reasoning and problem-solving questions on slide 23?

Varied Fluency

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



Reflect the coordinates and the shapes in the mirror line.

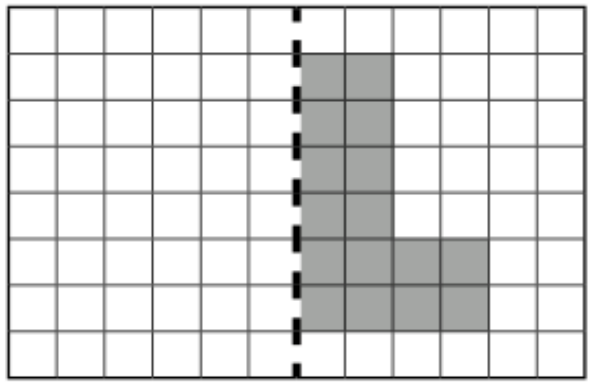


- When I reflect something, what changes about the object? Is it exactly the same?
- What are the coordinates of this point? If I reflect it in the mirror line, what are the new coordinates?
- If I reflect this point/shape in a vertical/horizontal mirror line, what will happen to the x-coordinate/y-coordinate?

Drawing Reflected Shapes

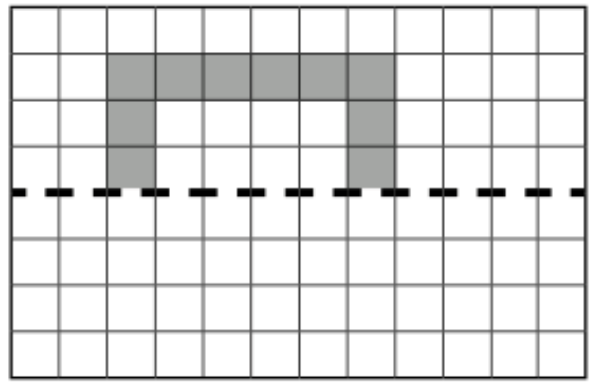
Draw the shapes in their new positions after being reflected over the mirror line.

1.

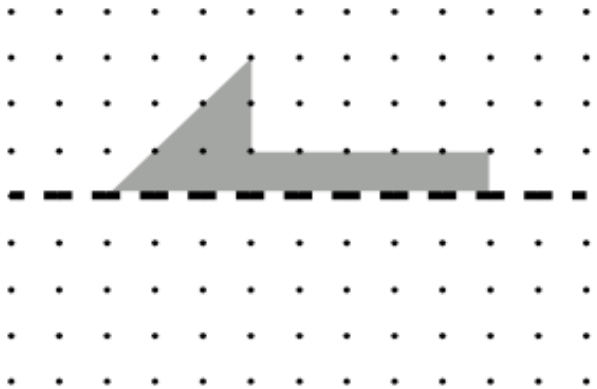


2.

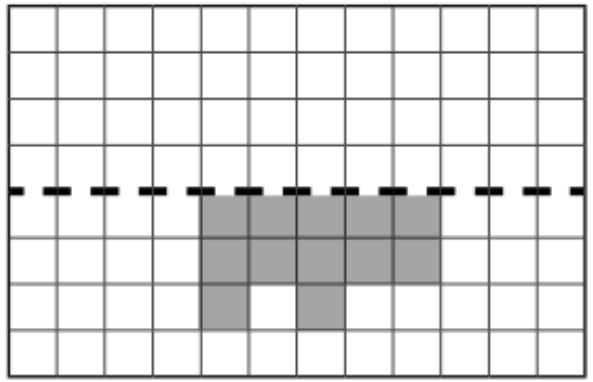
3.



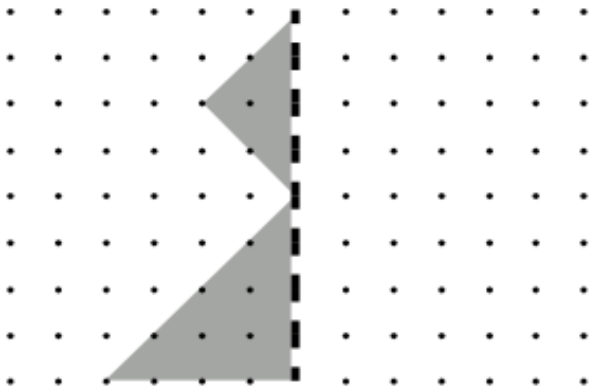
4.



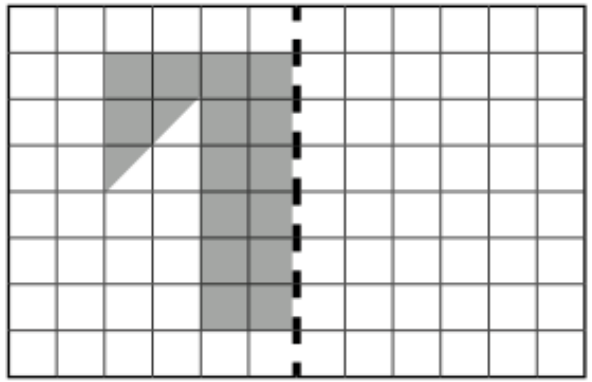
5.



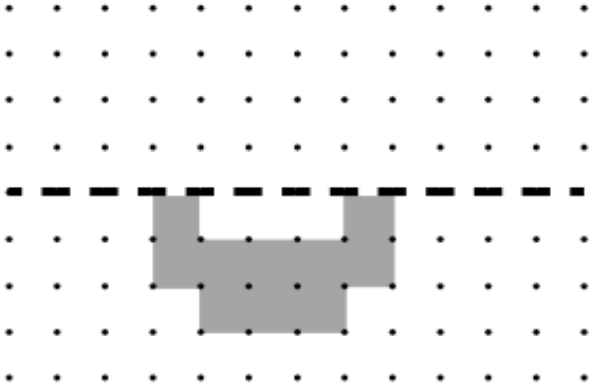
6.



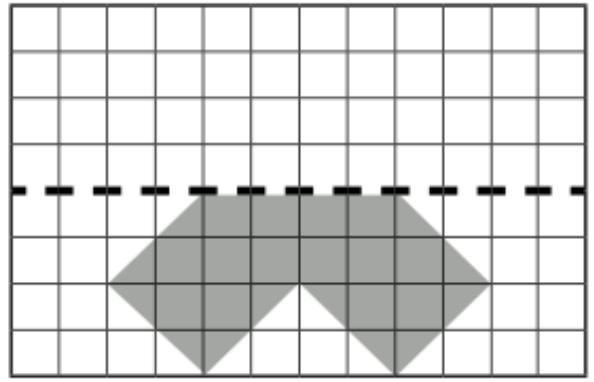
7.



8.



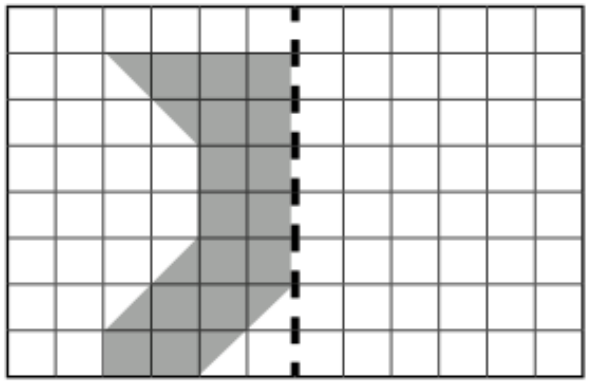
9.



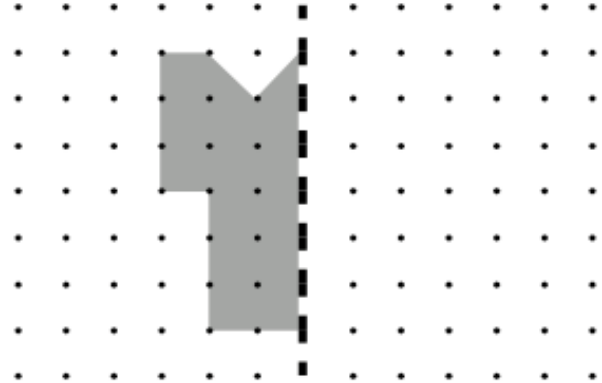
Drawing Reflected Shapes

Draw the shapes in their new positions after being reflected over the mirror line.

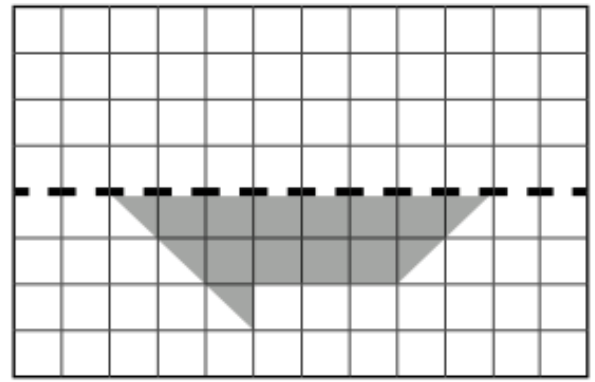
1.



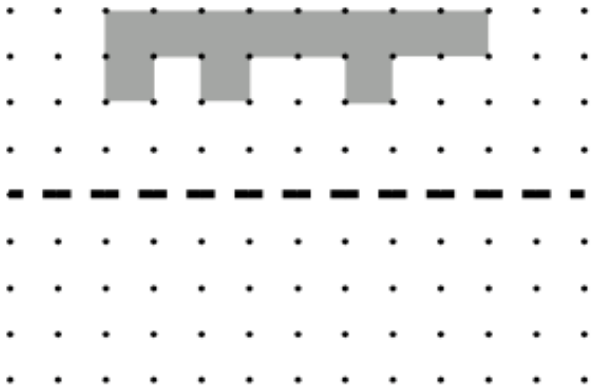
2.



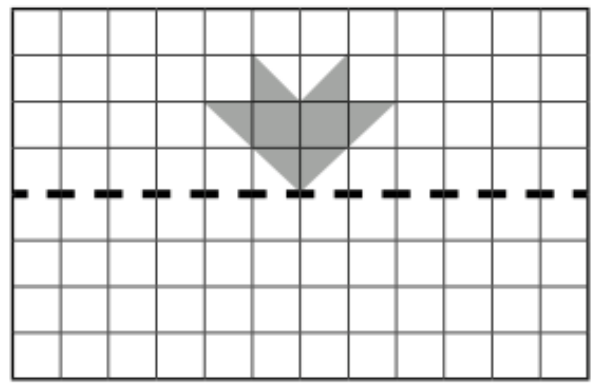
3.



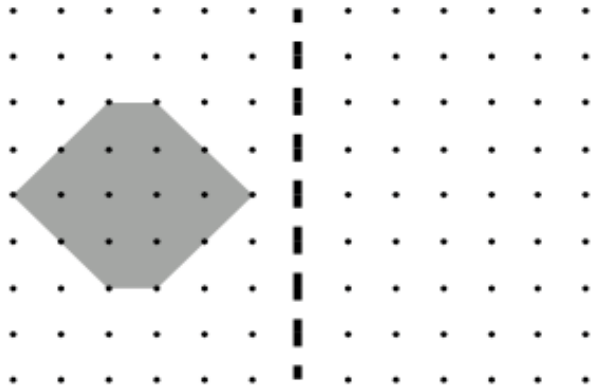
4.



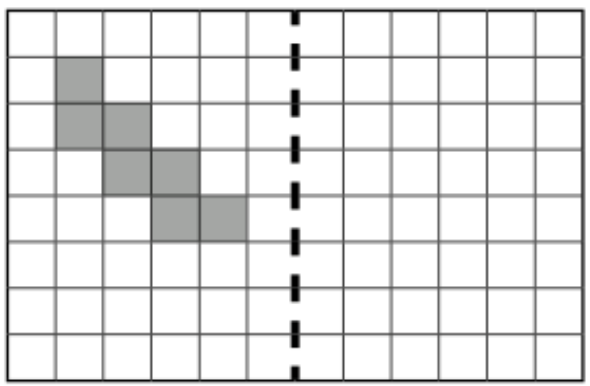
5.



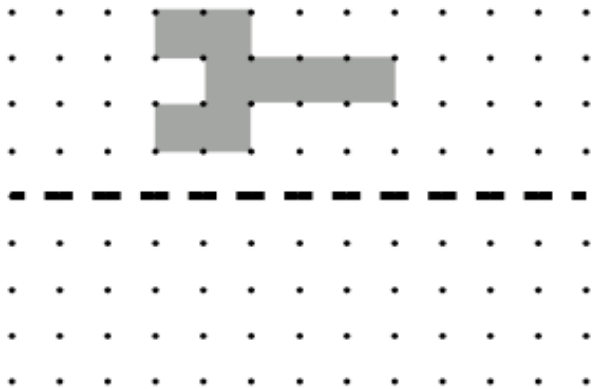
6.



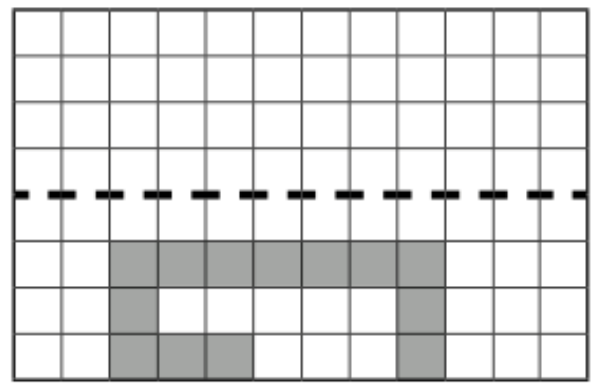
7.



8.



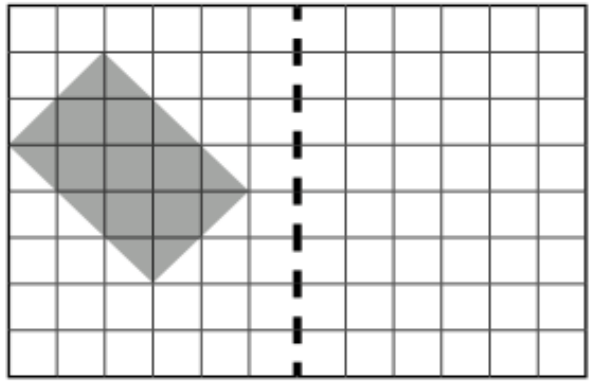
9.



Drawing Reflected Shapes

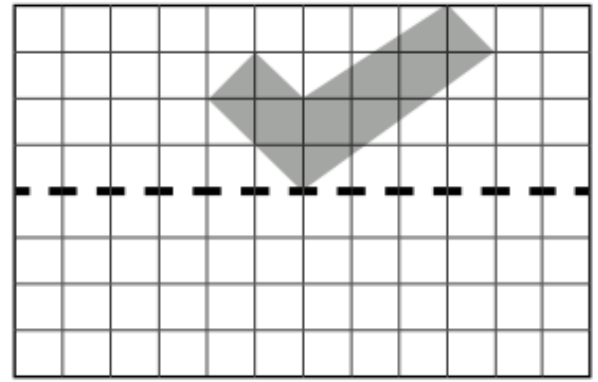
Draw the shapes in their new positions after being reflected over the mirror line.

1.

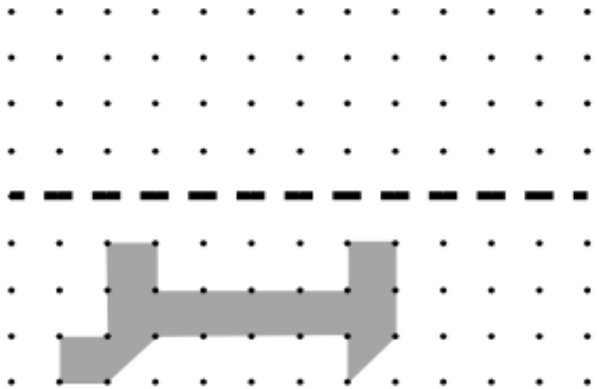


2.

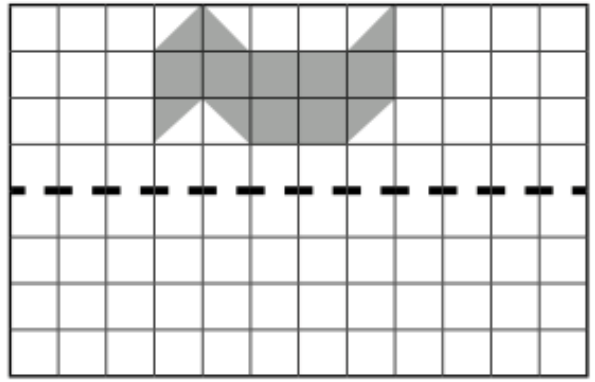
3.



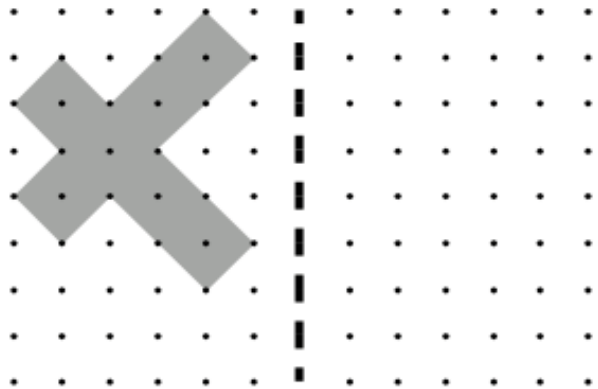
4.



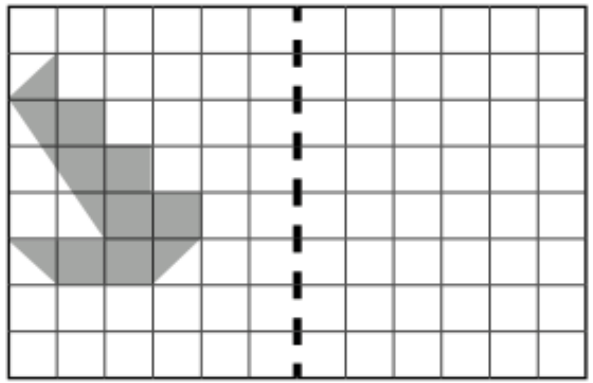
5.



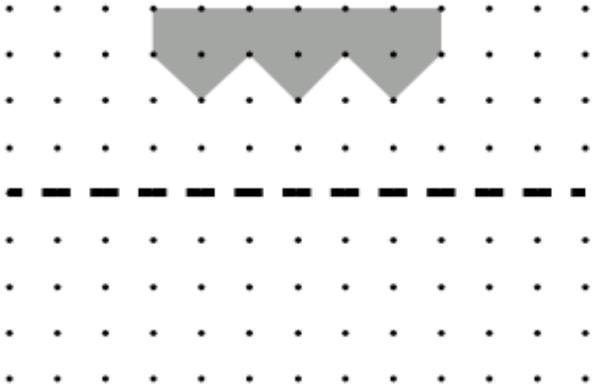
6.



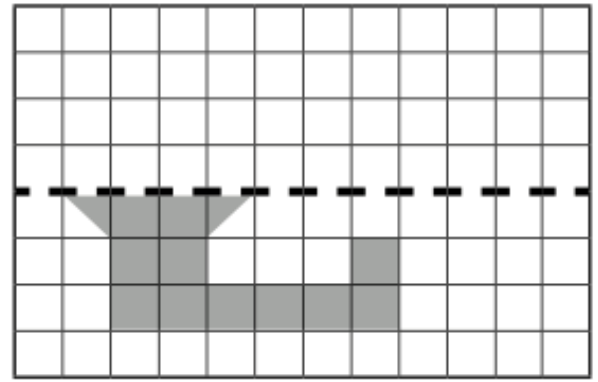
7.



8.



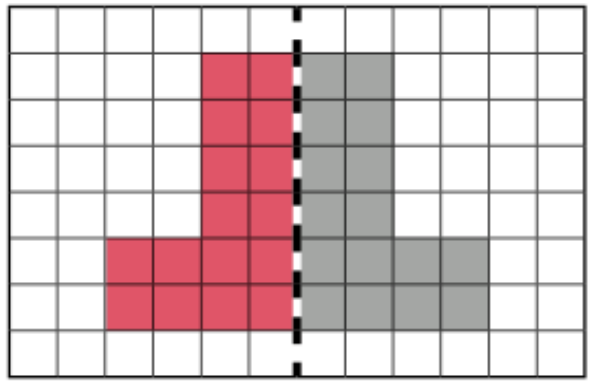
9.



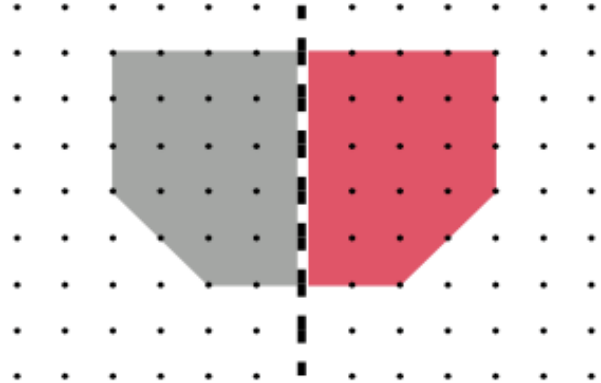
Drawing Reflected Shapes Answers

Draw the shapes in their new positions after being reflected over the mirror line.

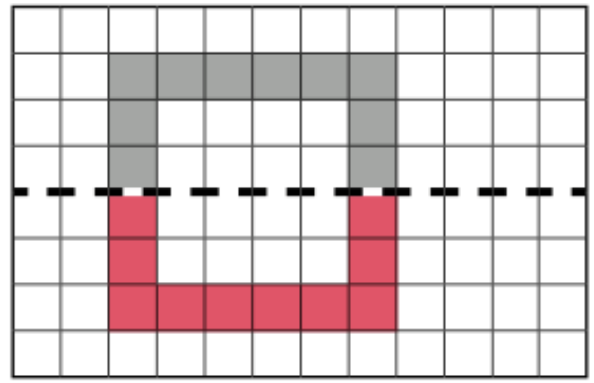
1.



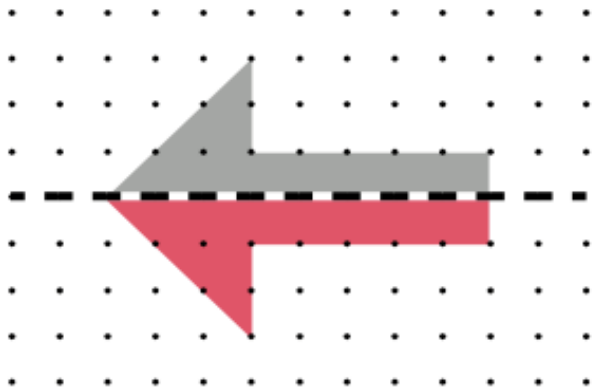
2.



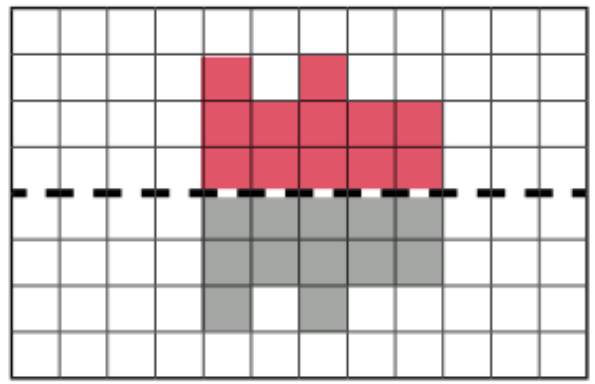
3.



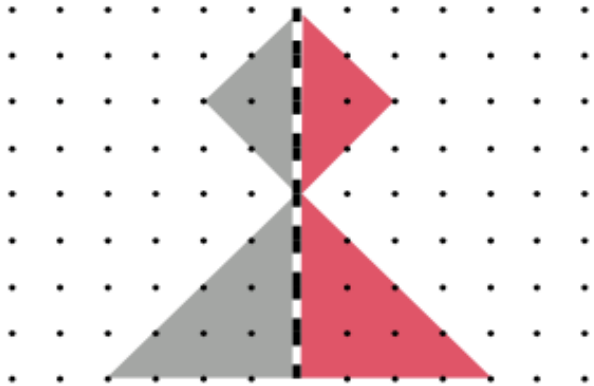
4.



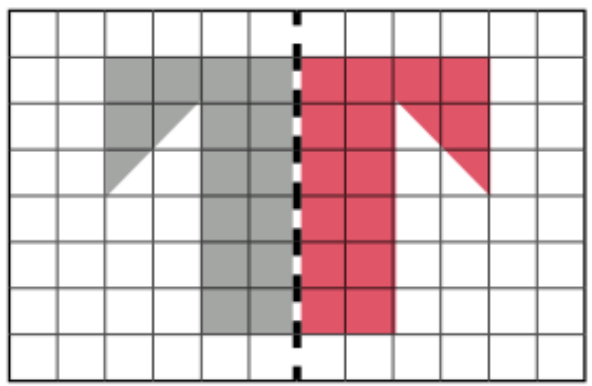
5.



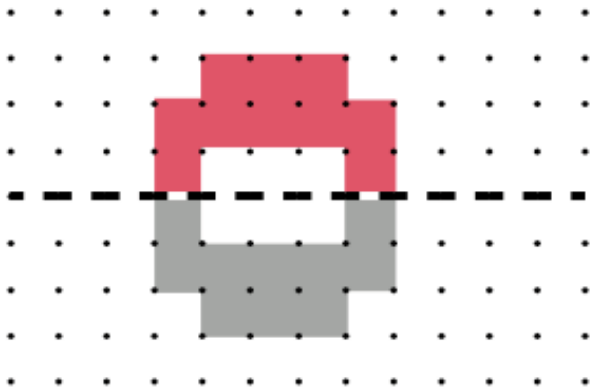
6.



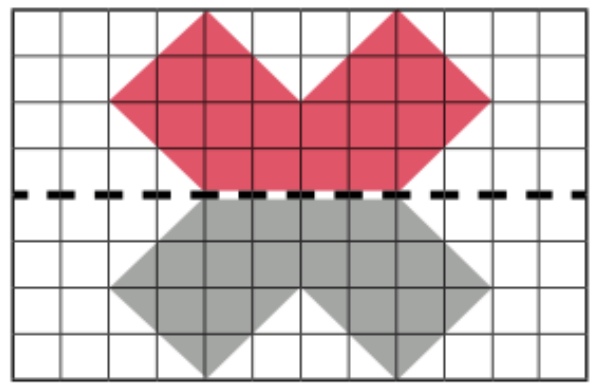
7.



8.



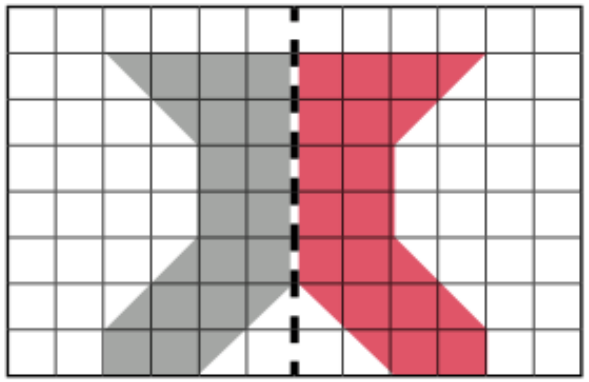
9.



Drawing Reflected Shapes Answers

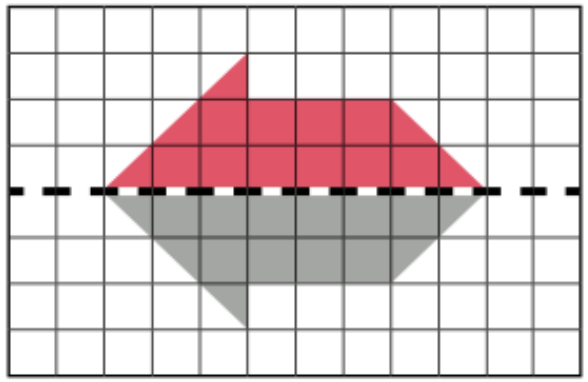
Draw the shapes in their new positions after being reflected over the mirror line.

1.

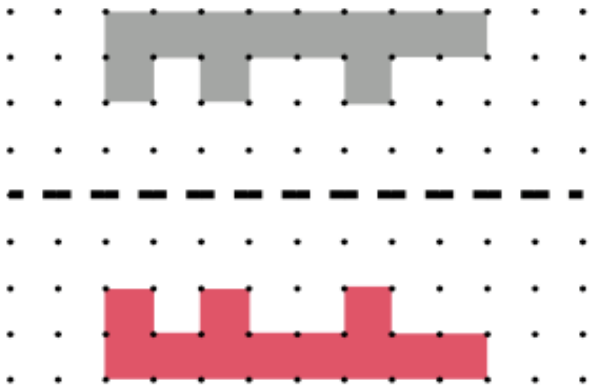


2.

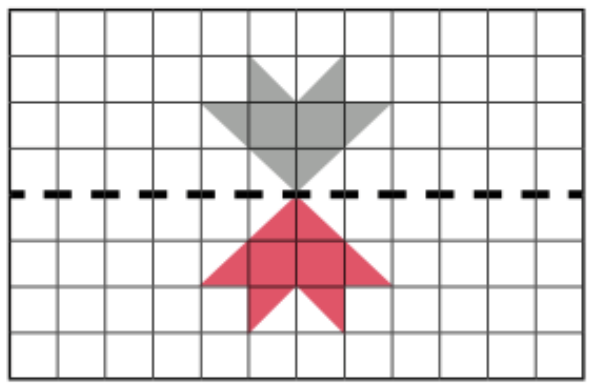
3.



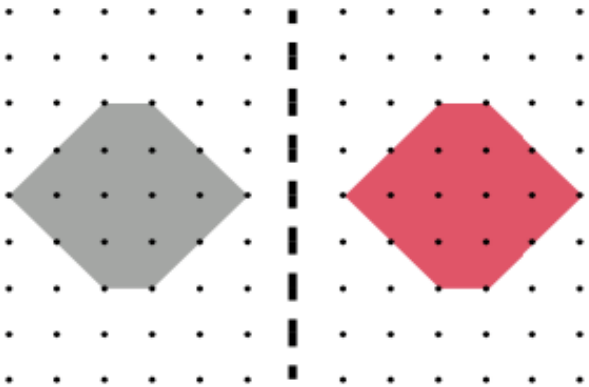
4.



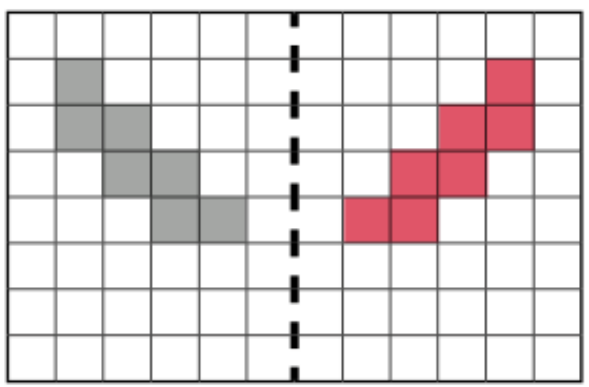
5.



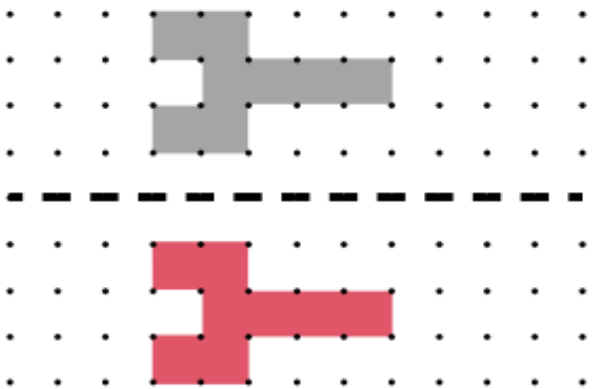
6.



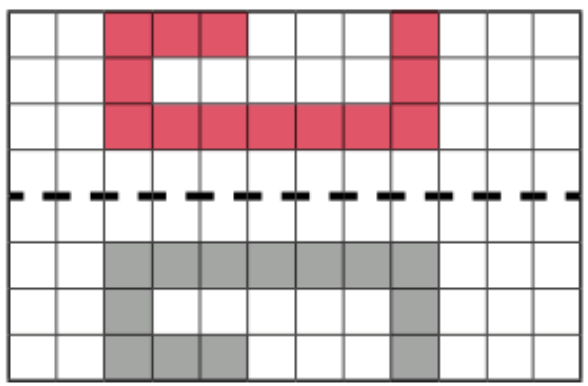
7.



8.



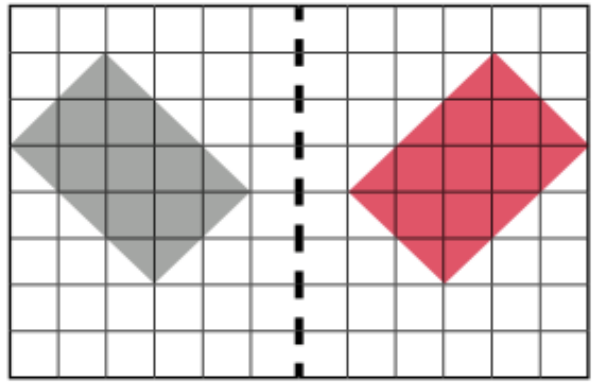
9.



Drawing Reflected Shapes Answers

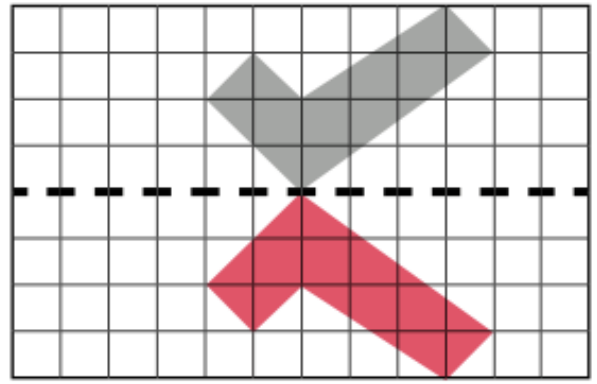
Draw the shapes in their new positions after being reflected over the mirror line.

1.

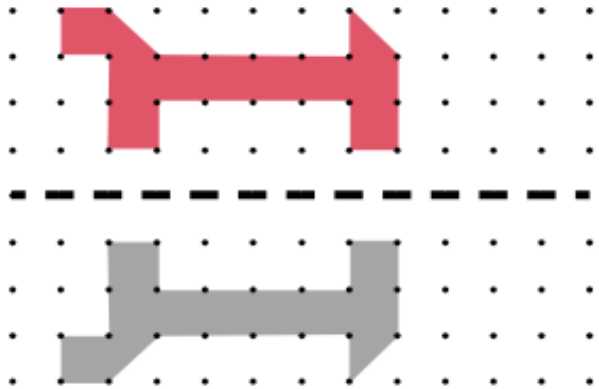


2.

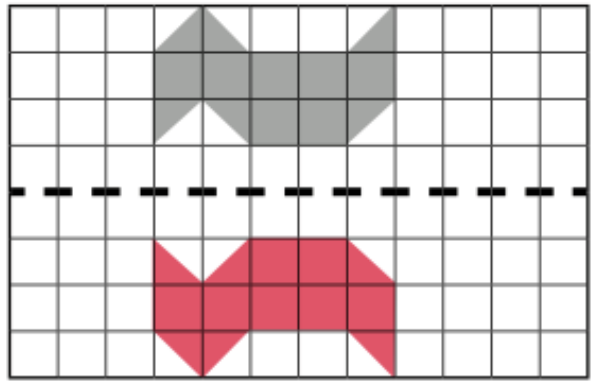
3.



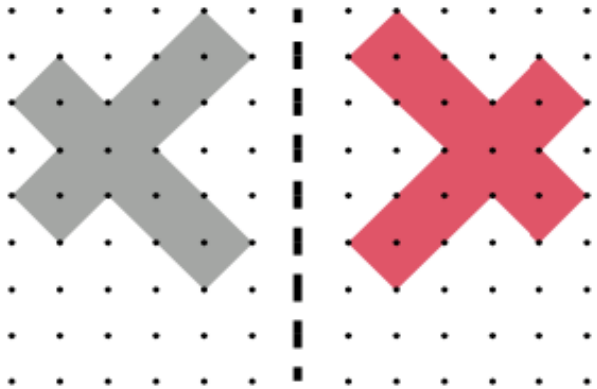
4.



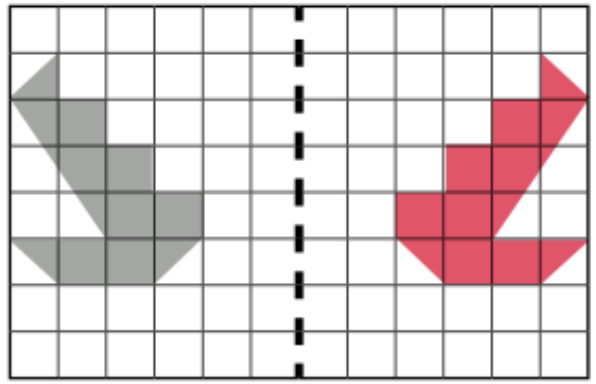
5.



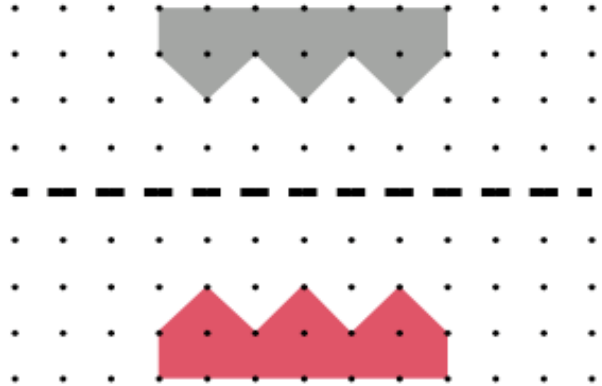
6.



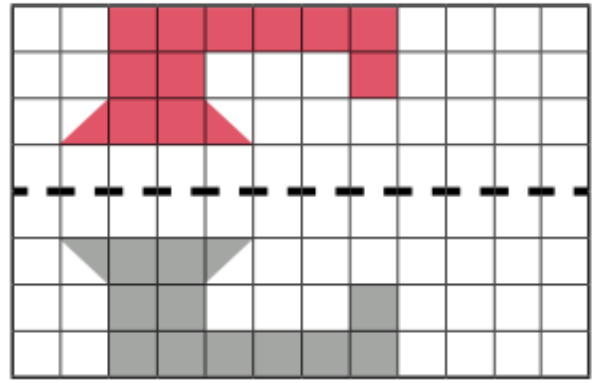
7.



8.



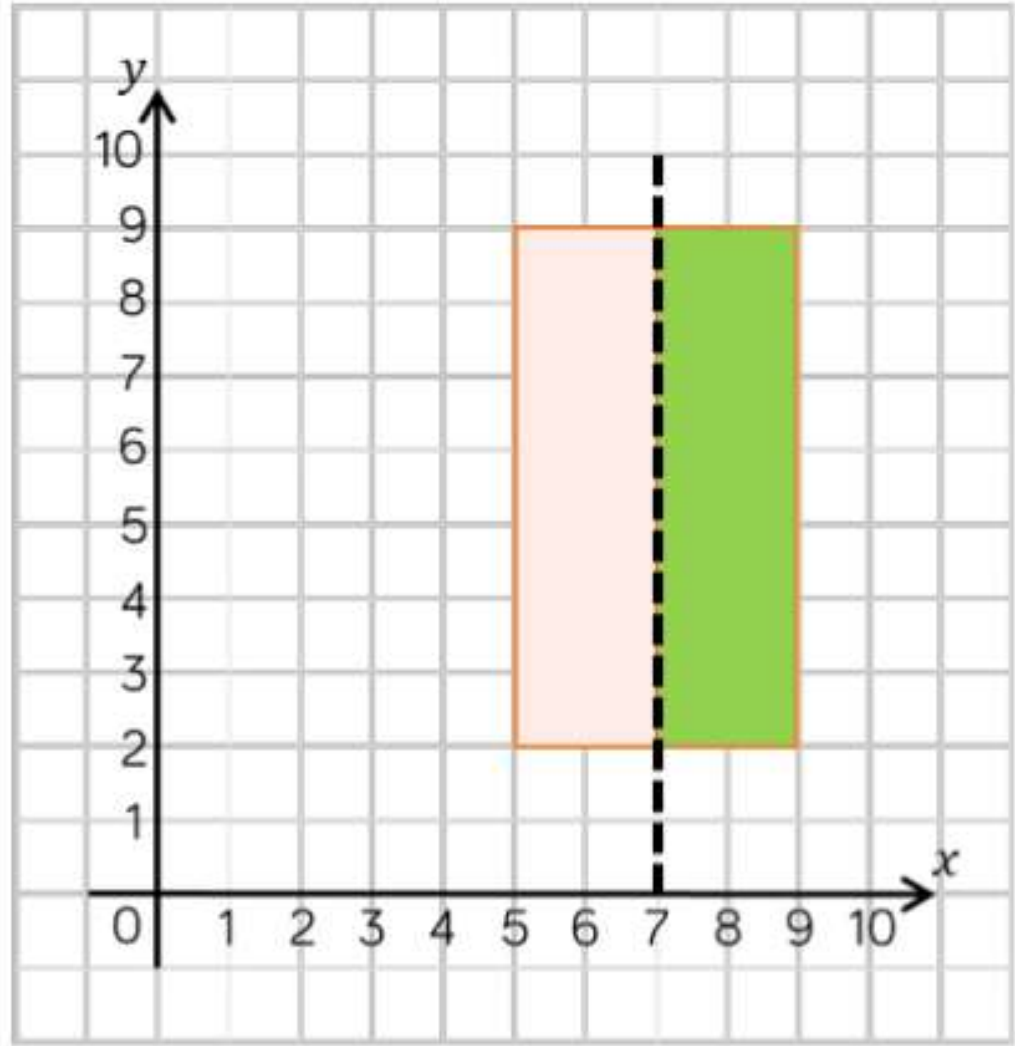
9.



When you reflect a shape, its dimensions change.

Dora

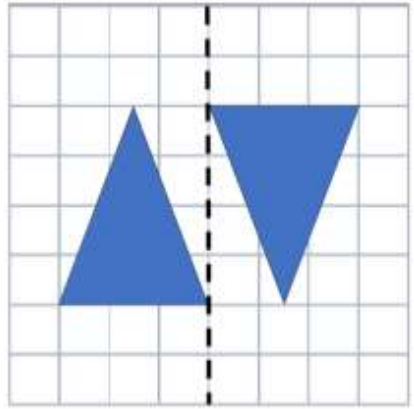
Do you agree with Dora?
Explain your thinking.

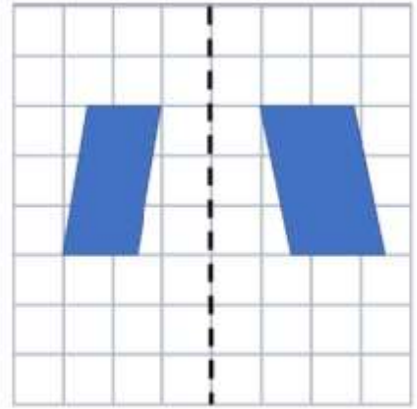


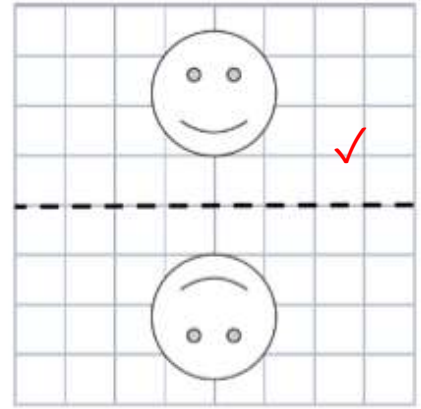
The rectangle is pink and green.
The rectangle is reflected in the mirror line.
What would its reflection look like?

Varied Fluency

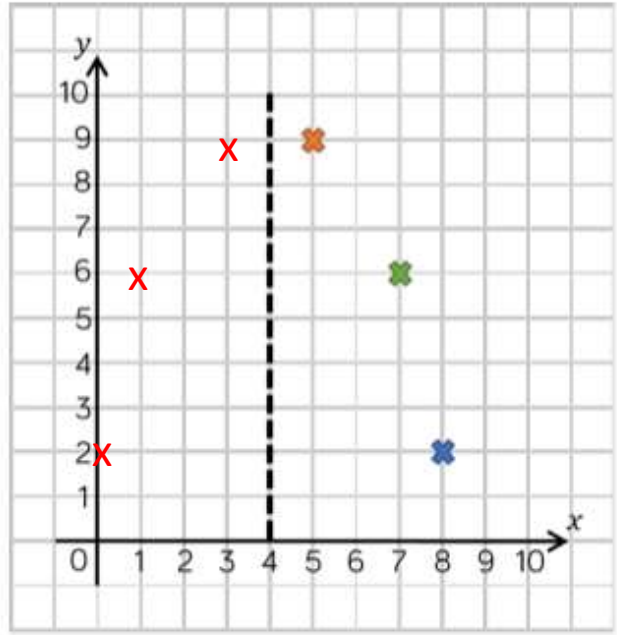
Which of the diagrams show reflections in the given mirror line?

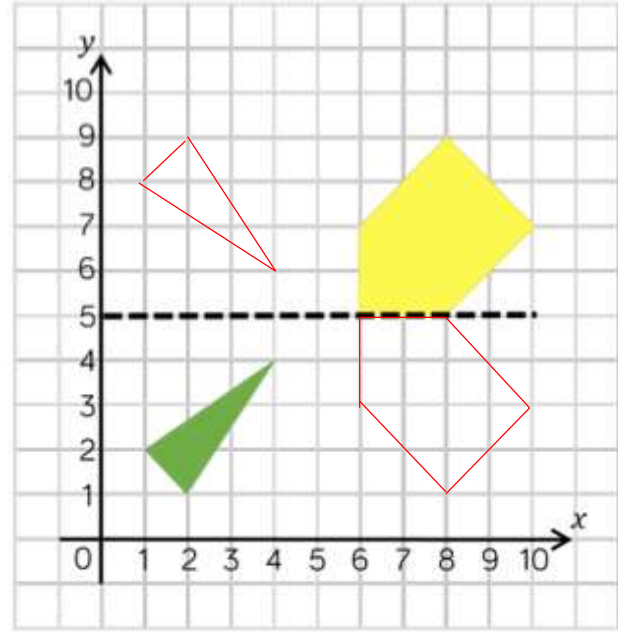






Reflect the coordinates and the shapes in the mirror line.



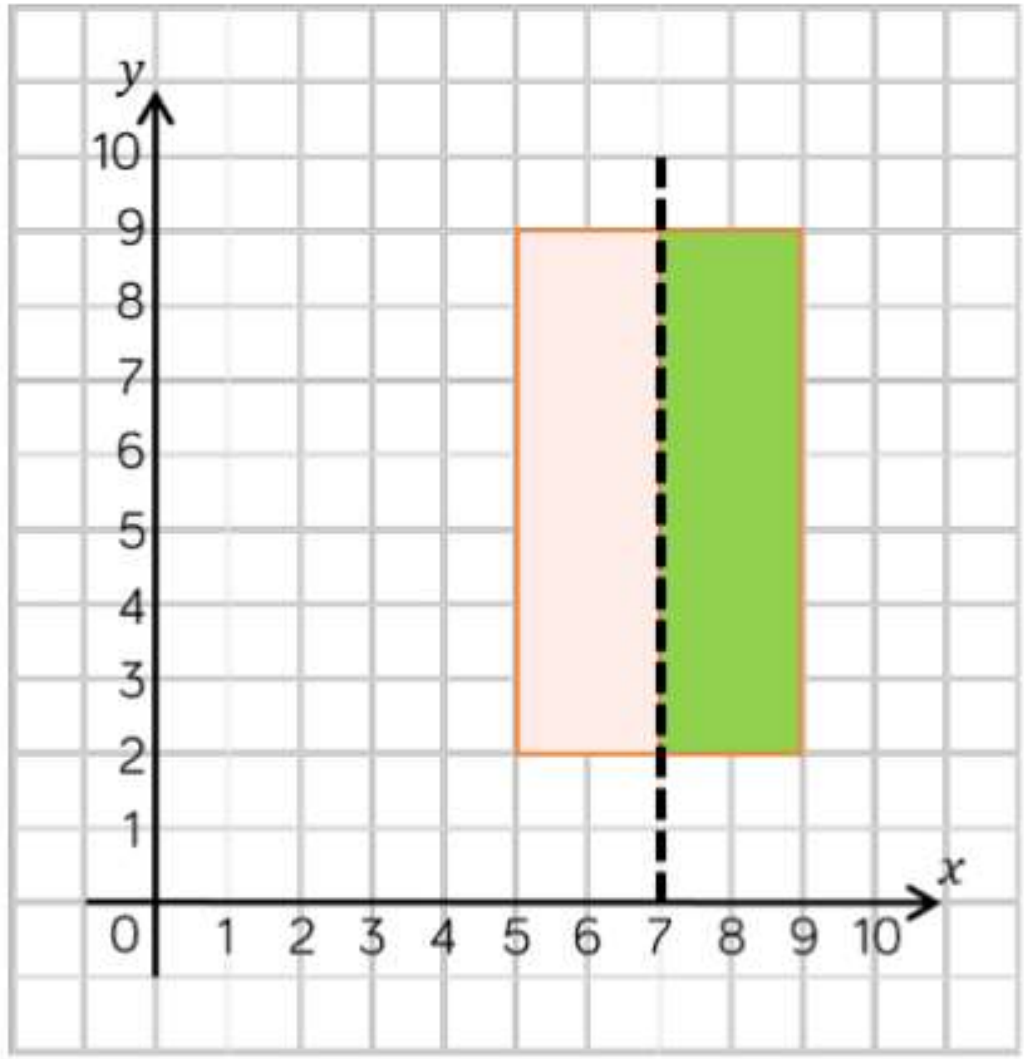


When you reflect a shape, its dimensions change.

Dora

Do you agree with Dora?
Explain your thinking.

Dora is incorrect, the shape's dimensions do not change, only its position is changed.



The rectangle is pink and green.

The rectangle is reflected in the mirror line.

What would its reflection look like?

The shape would remain in the same position, although the colours would be swapped – green on the left and pink on the right.

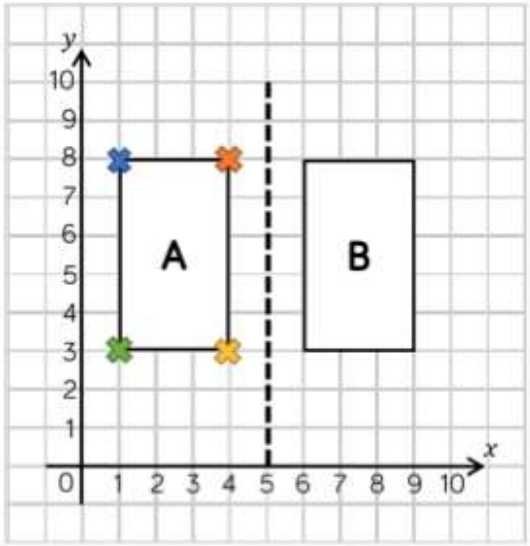
Wednesday

Reflection with Coordinates

Watch the clip
https://watchkin.com/2b3ab49602

Varied Fluency

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



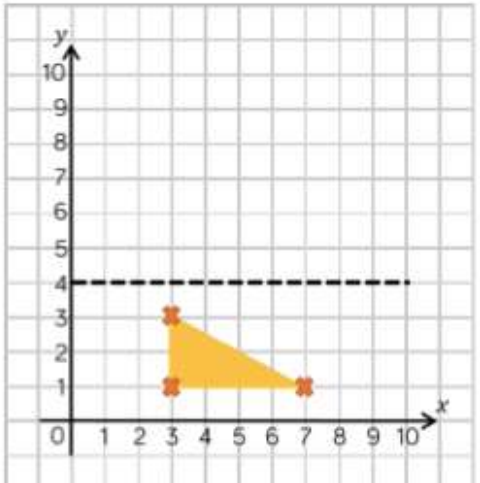
	Original Coordinate	Reflected Coordinate
✖		
✖		
✖		
✖		

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

(,)

(,)

(,)

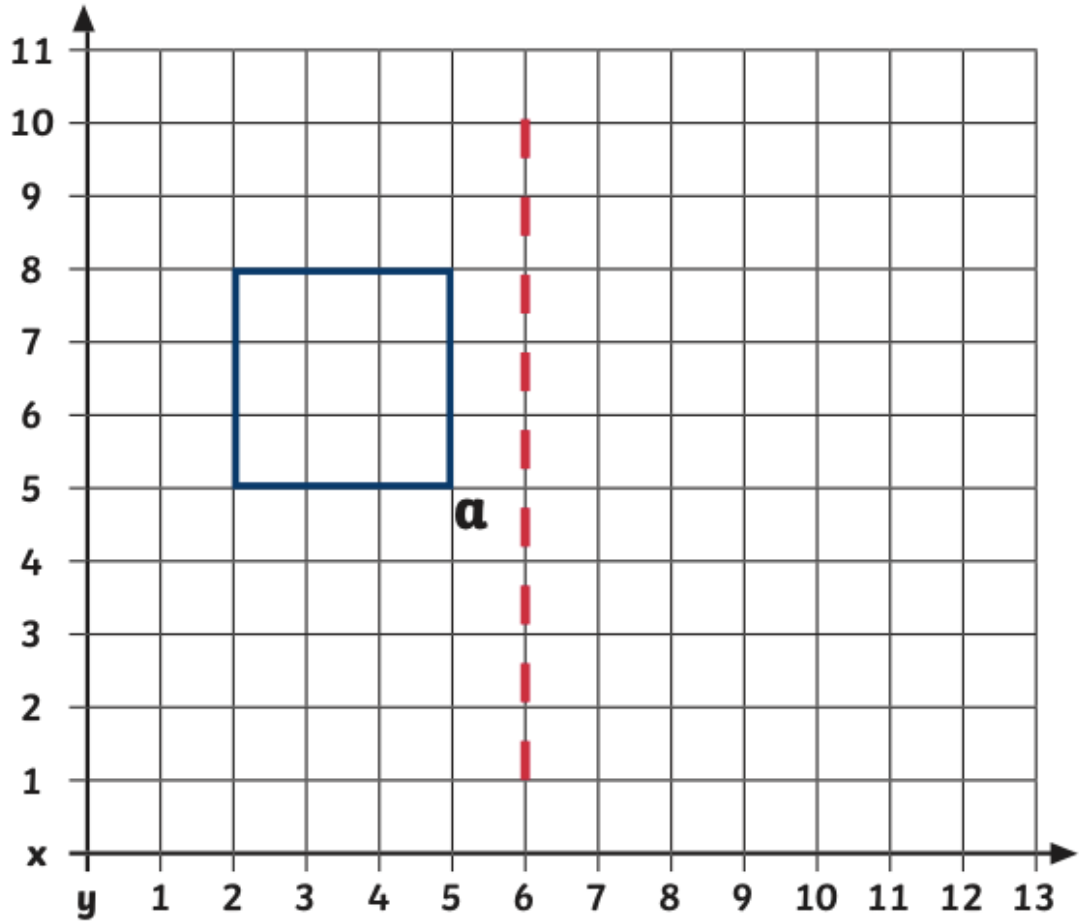


- What is the x-coordinate for this vertex? What is the y-coordinate for this vertex?
- If we look at this point, where will its new position be on the image, when it is reflected? What's different about the coordinates of the object compared to the coordinates of the image?
- Do you always need to use a mirror? How else could you work out the coordinates of each vertex?

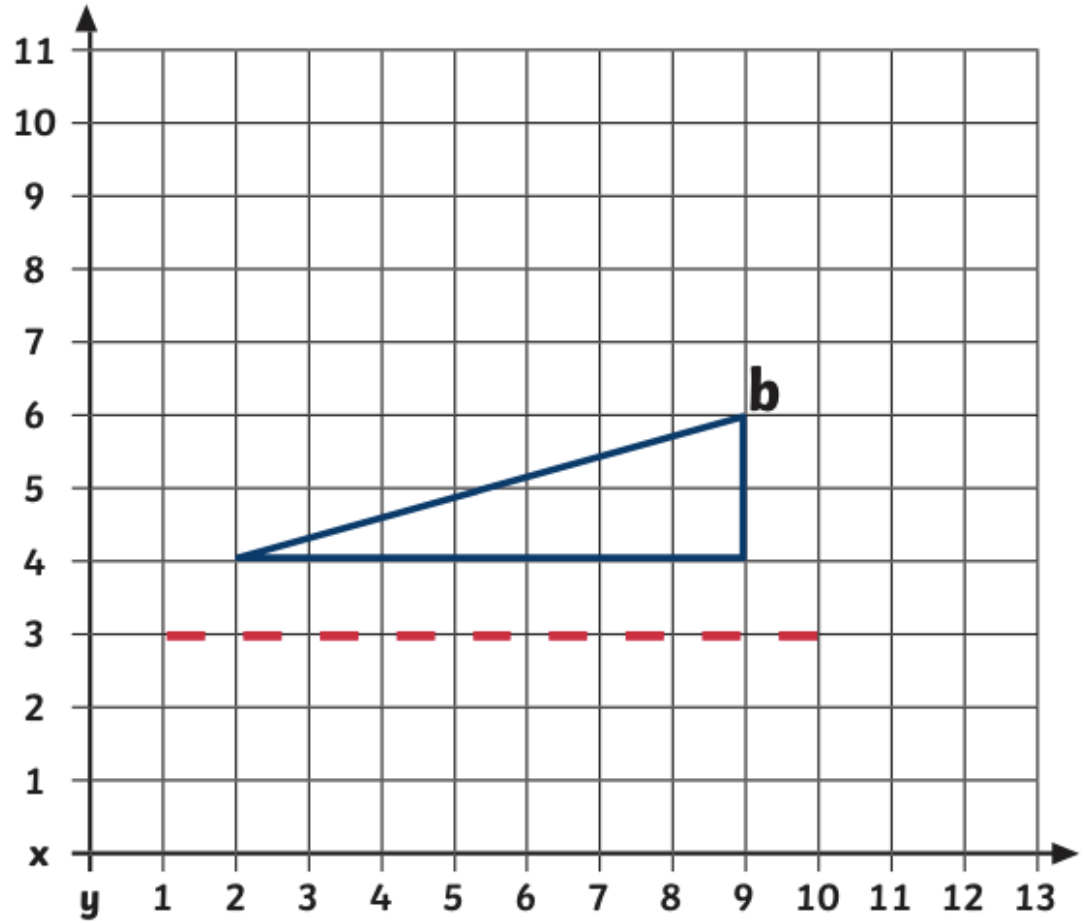
Coordinates: Reflecting Shapes in the First Quadrant

Draw the new shapes once it has been reflected over the mirror line on each grid below. Write the new coordinates of the highlighted corner on each shape.

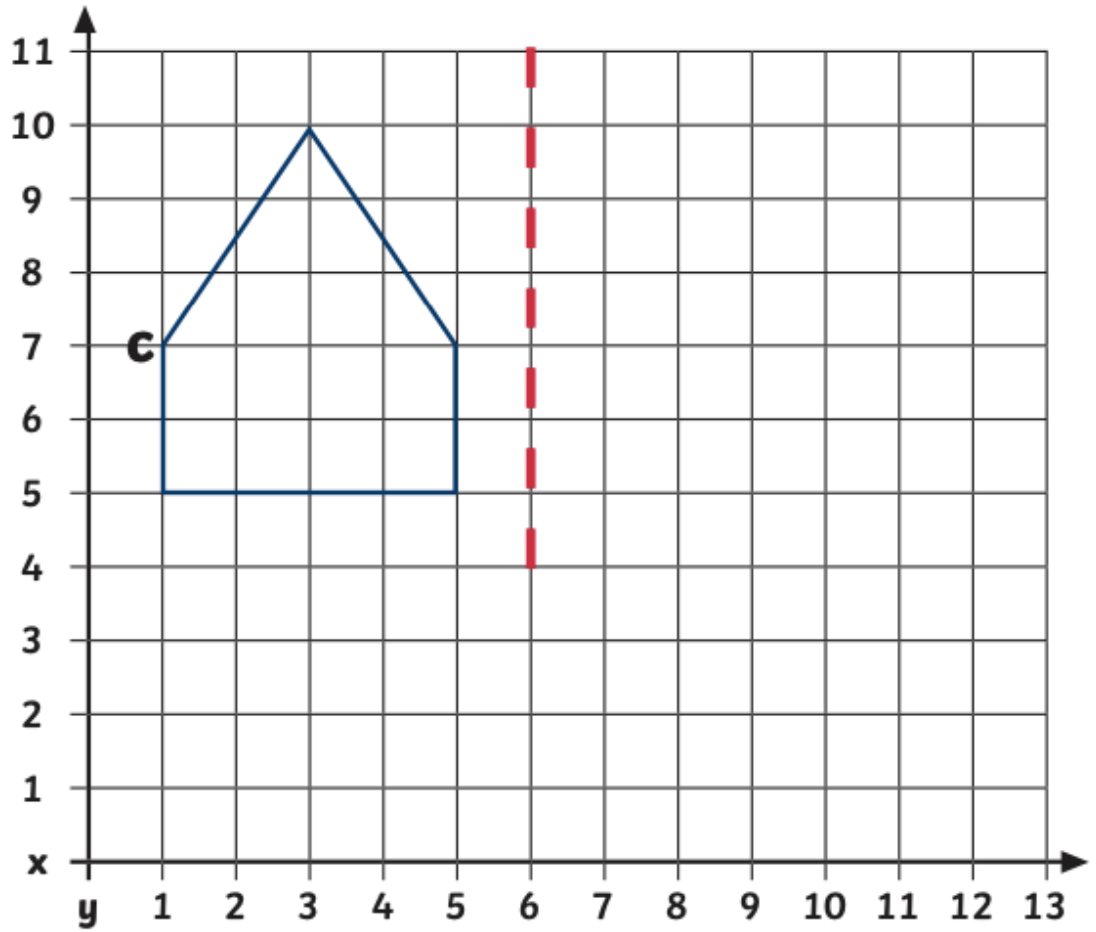
1) New coordinates of corner a = _____



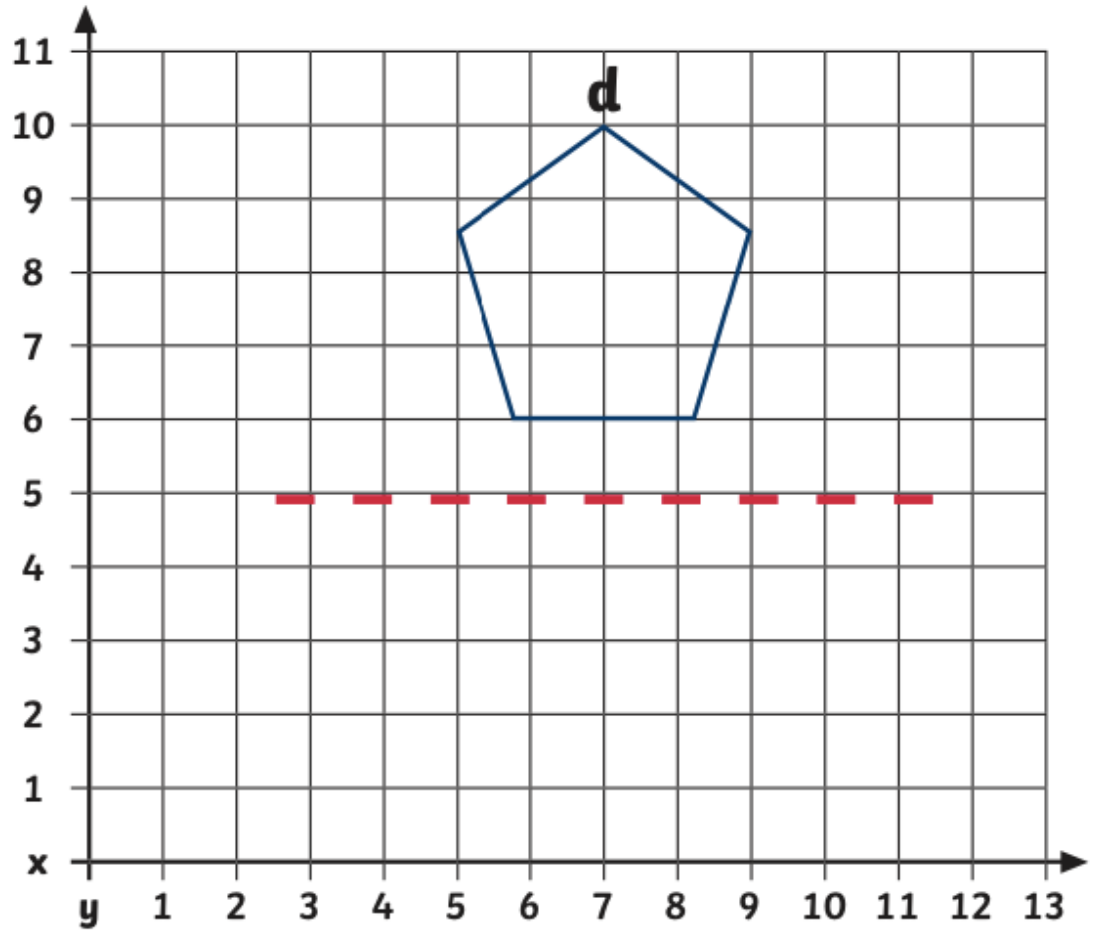
2) New coordinates of corner b = _____



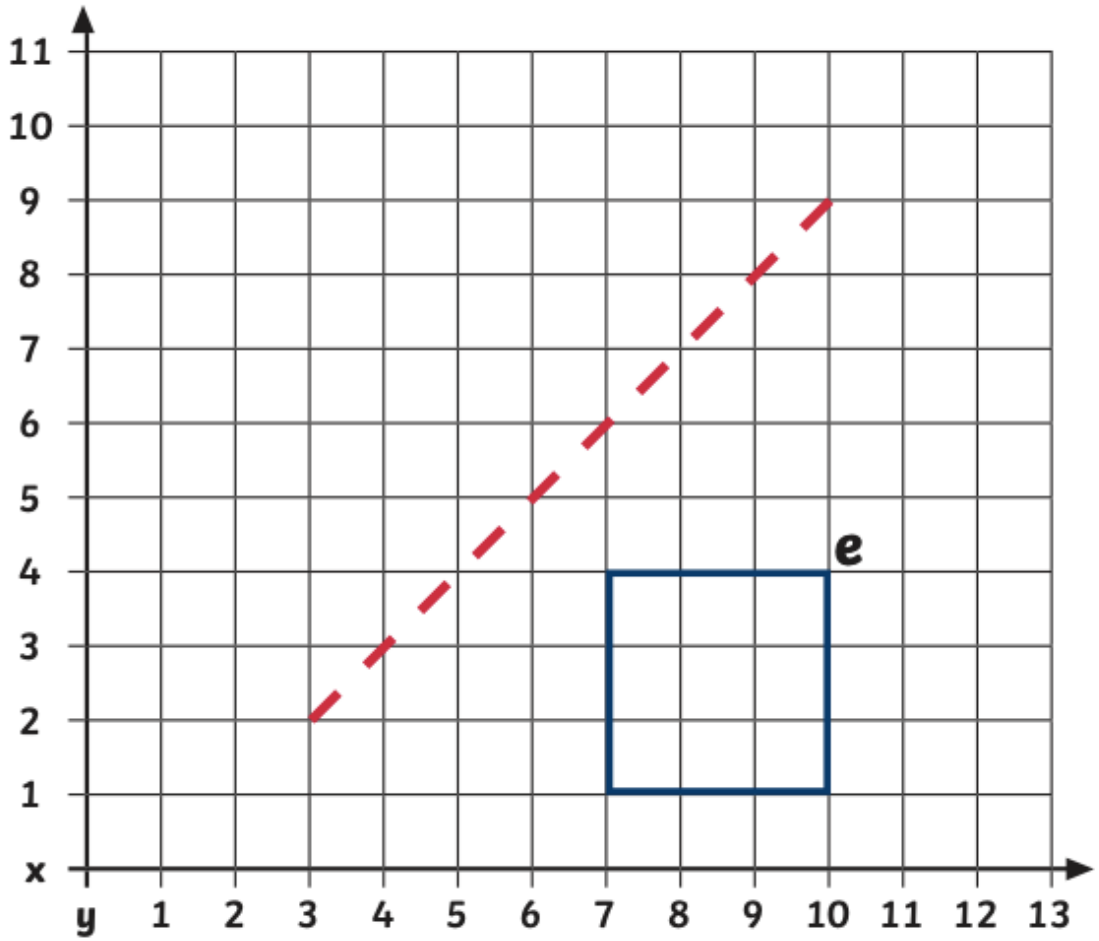
3) New coordinates of corner c = _____



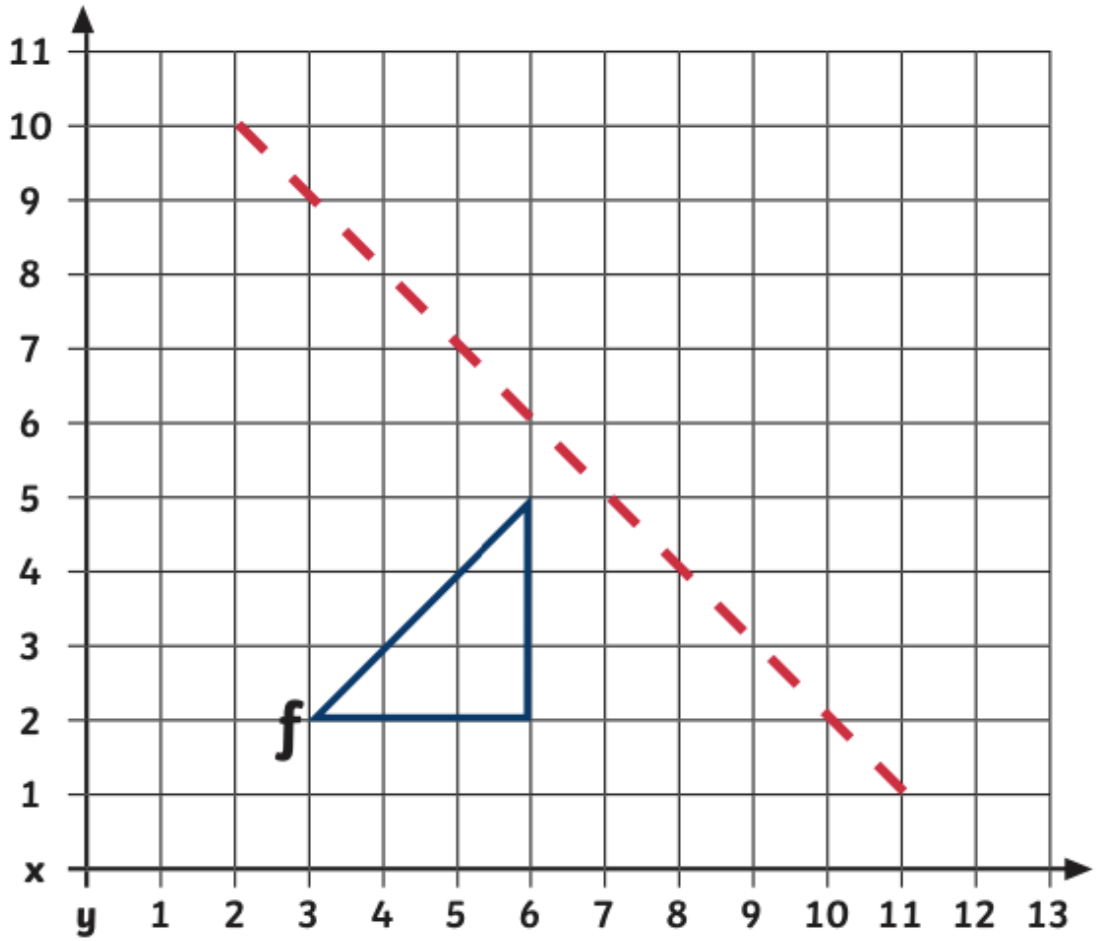
4) New coordinates of corner d = _____



5) New coordinates of corner *e* = _____

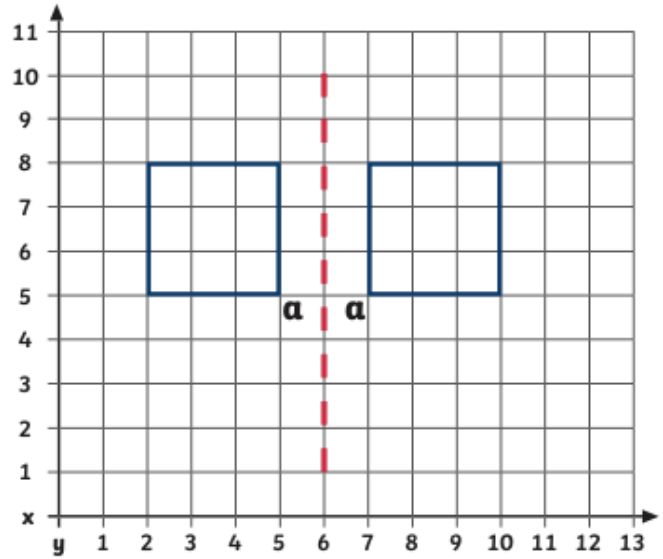


6) New coordinates of corner *f* = _____

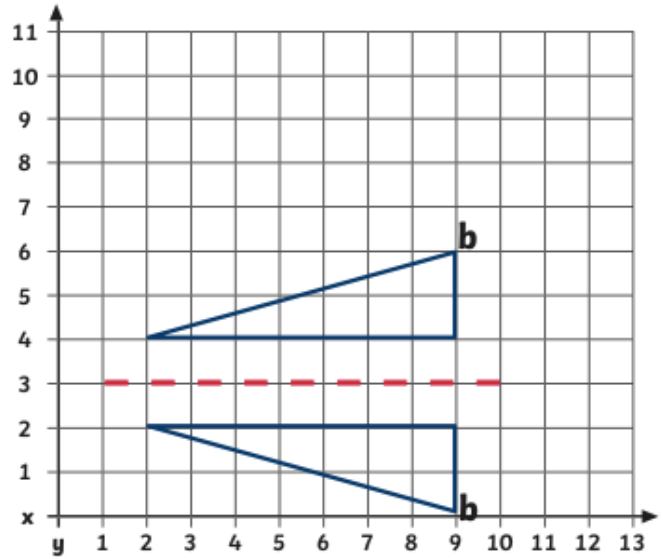


Coordinates: Reflecting Shapes in the First Quadrant - Answers

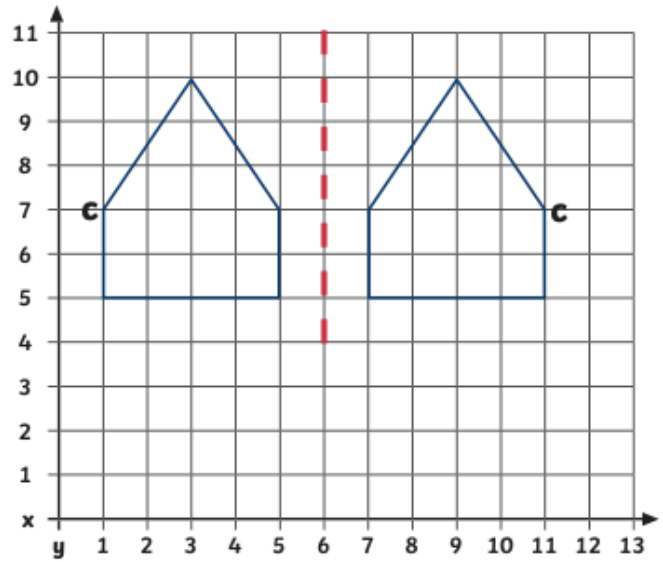
1) New coordinates of corner a = (7,5)



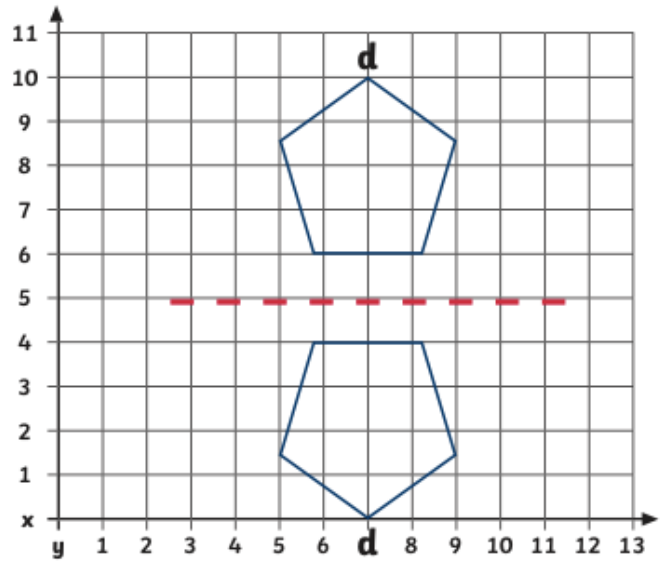
2) New coordinates of corner b = (9,0)



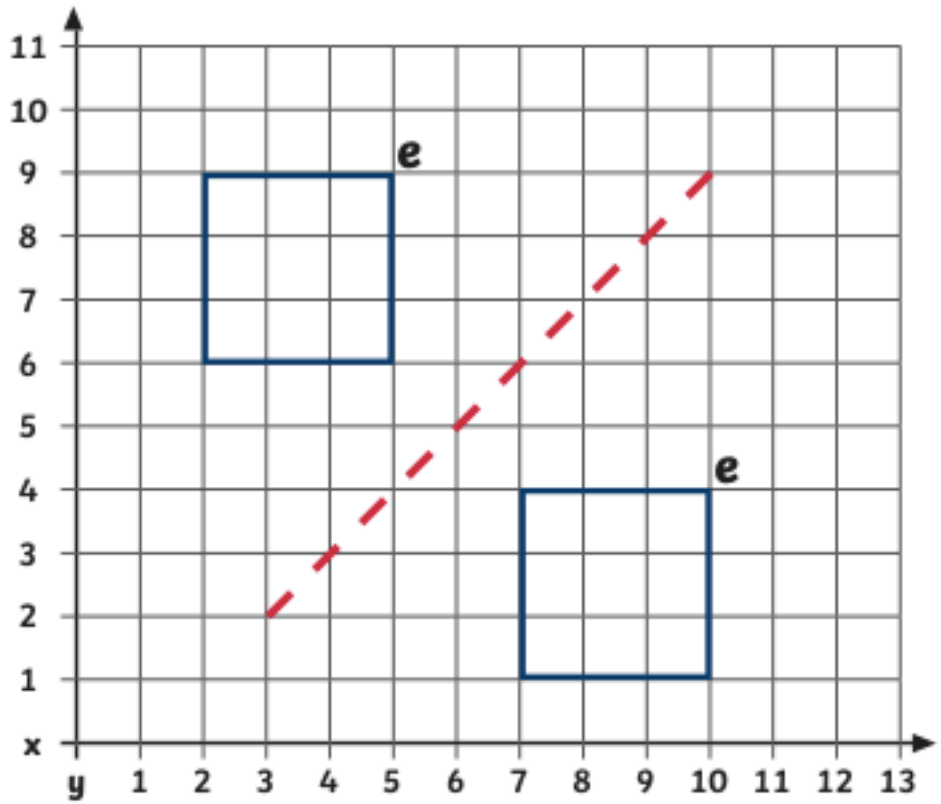
3) New coordinates of corner c = (11,7)



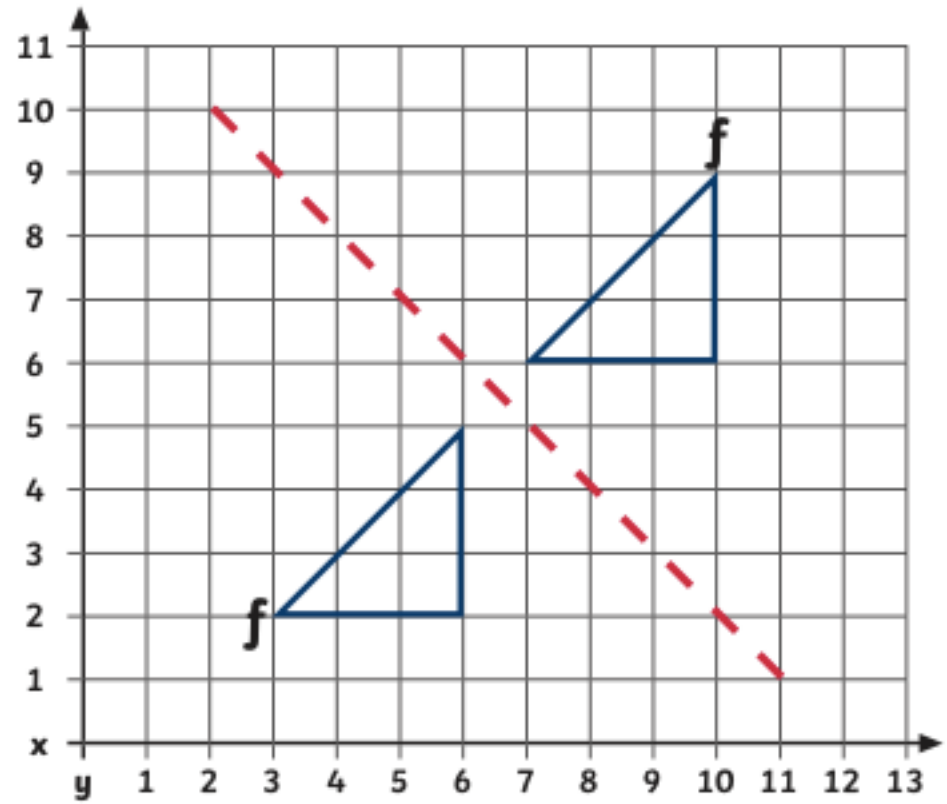
4) New coordinates of corner d = (7,0)

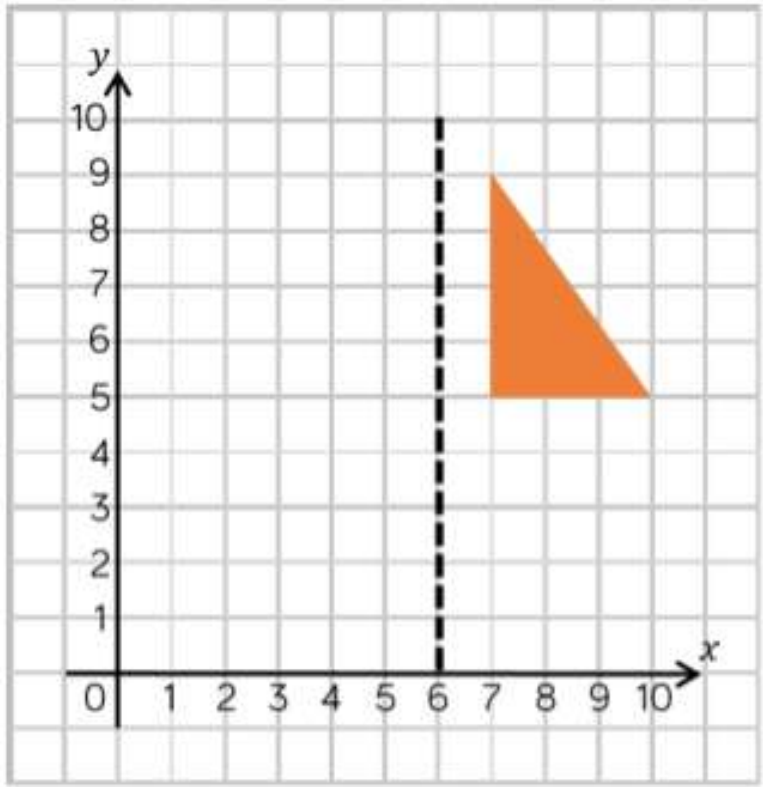


5) New coordinates of corner *e* = (5,9)



6) New coordinates of corner *f* = (10,9)

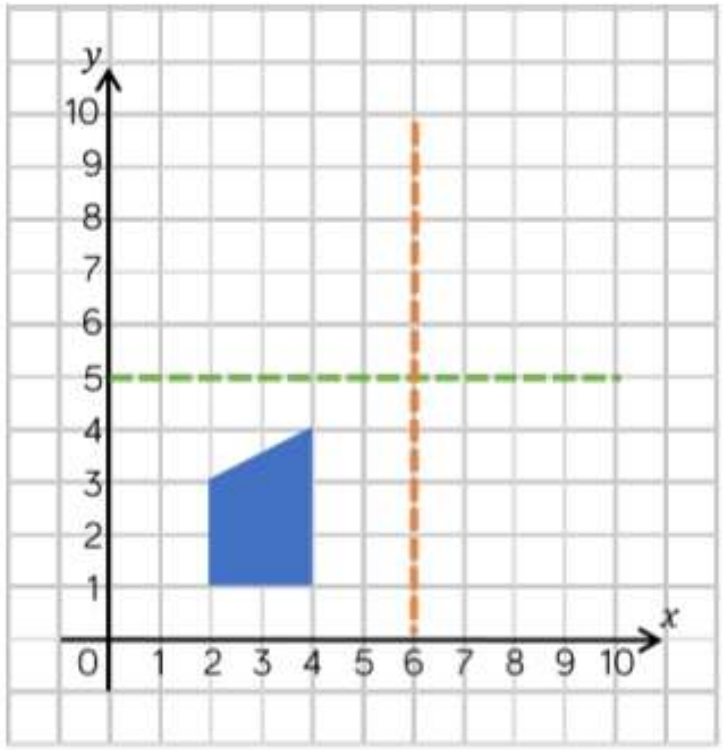




Eva reflects the shape in the mirror line.
She thinks that the coordinates of the vertices for the reflected shape are:

(5, 5) (2, 5) (2, 9)

Is Eva is correct?
Explain why.



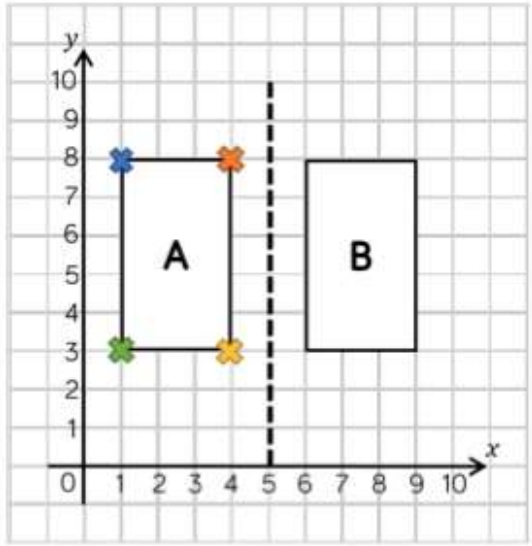
This is a shape after it has been reflected.
This is called the image.

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

Is there more than one possibility?

Varied Fluency

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



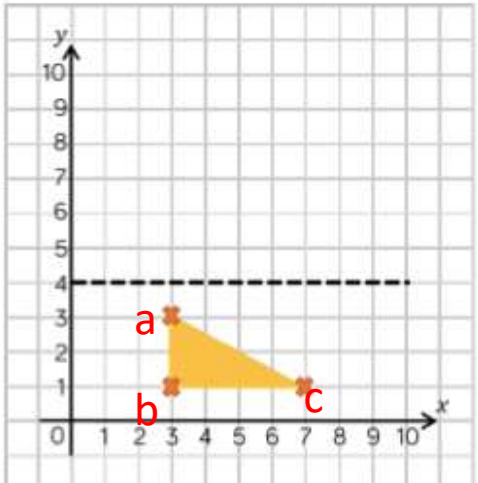
	Original Coordinate	Reflected Coordinate
✖	(1,8)	(9,8)
✖	(4,8)	(6,8)
✖	(1,3)	(9,3)
✖	(4,3)	(6,3)

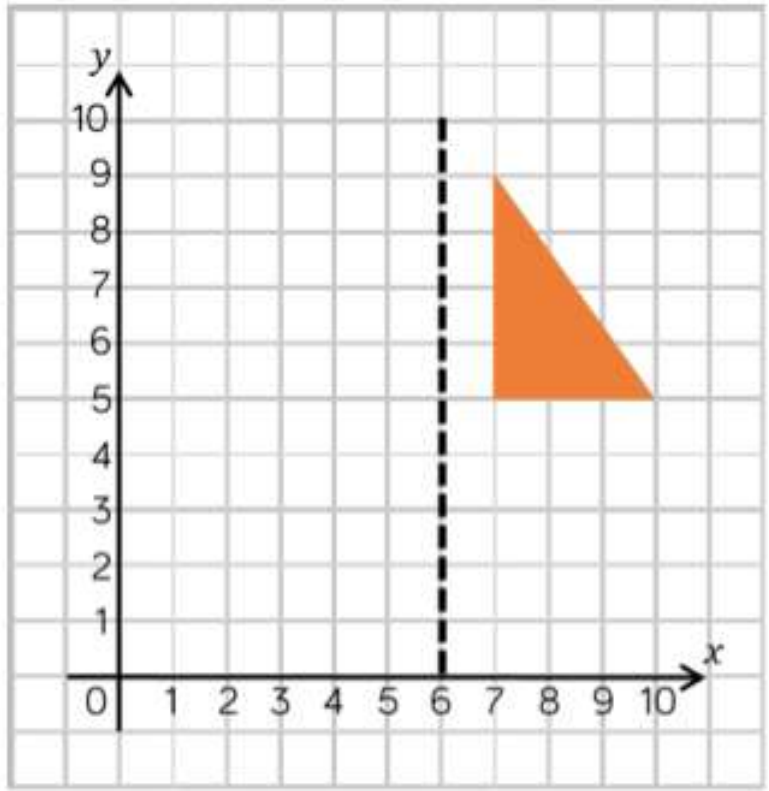
Write the coordinates of the image after the object (triangle) has been reflected in the mirror line.

a(3,5)

b(3,7)

c(7,7)



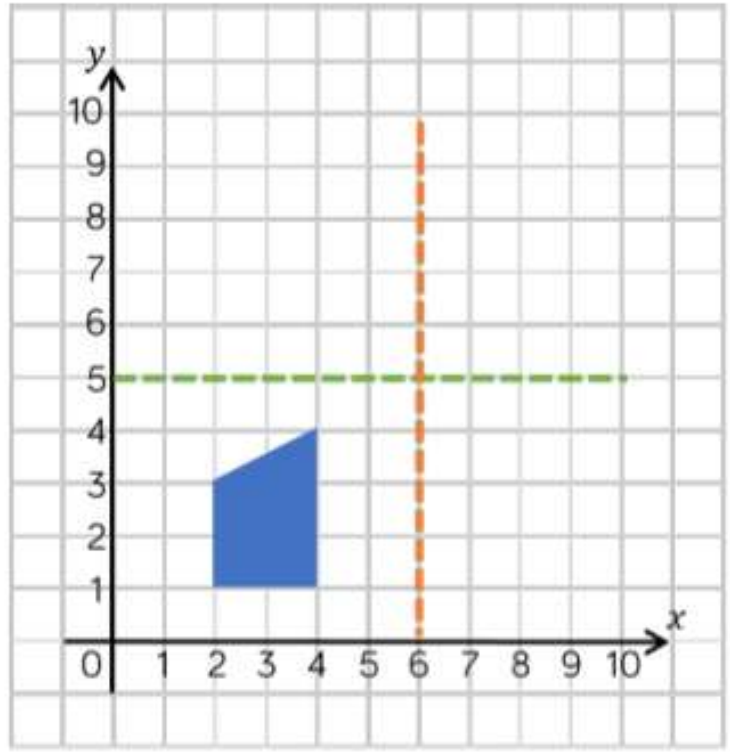


Eva reflects the shape in the mirror line.
She thinks that the coordinates of the vertices for the reflected shape are:

(5, 5) (2, 5) (2, 9)

Is Eva is correct?
Explain why.

The (2, 9) coordinate is incorrect, it should be (5, 9).



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?

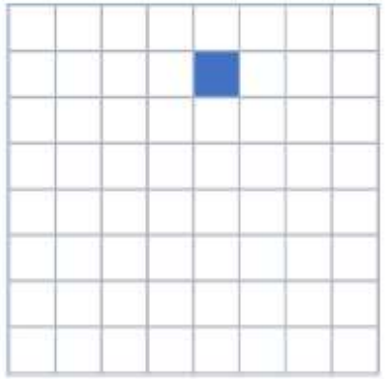
There are two possibilities for the object.

Thursday

Watch the clip
https://watchkin.com/b1595d0e87

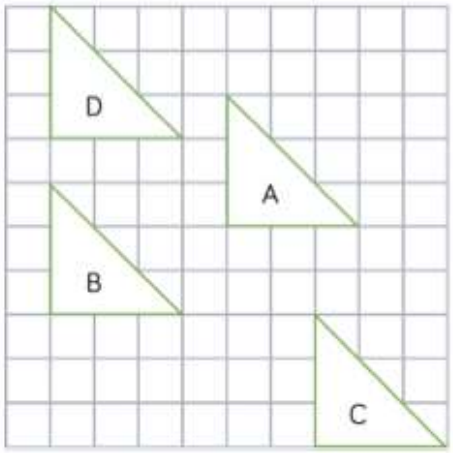
Complete the fluency questions on the next slide and then choose one of the activities from slides 40-42 to complete depending on how confident you feel.
Can you answer the reasoning and problem-solving questions on slides 46 & 47?

Varied Fluency

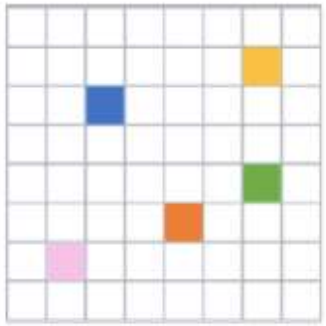


A square is translated two squares to the right and three down.
Draw the new position of this square.

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.

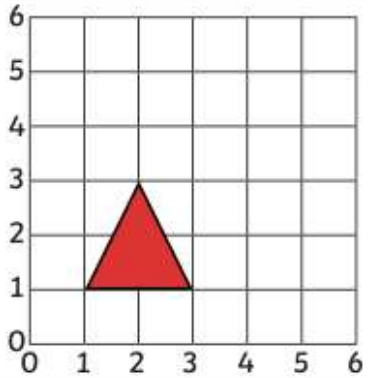


to		4 right, 2 down
to		2 left, 3 up
to		5 left, 5 down

- What does translate mean?
- Look what happens when I translate this shape. What has happened to the shape? Have the dimensions of the shape changed? Does it still face the same way?
- Are there any other ways I can get the shape to this position?

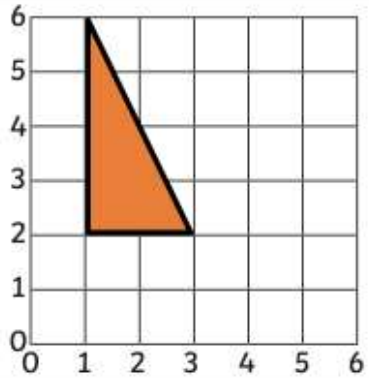
Drawing Translated Shapes

Draw the 2D shapes in their new positions after a translation along one axis.



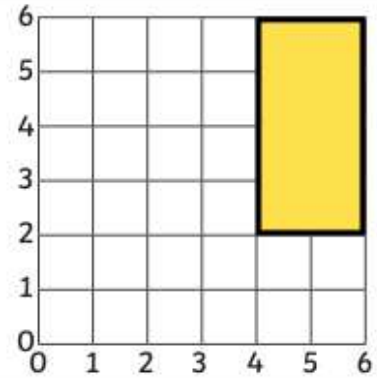
This equilateral triangle is translated **up 3**.

Draw the triangle in its new position.



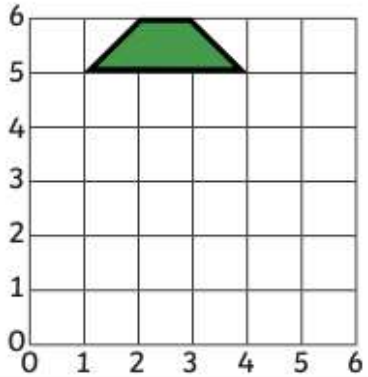
This right-angled triangle is translated **right 3**.

Draw the triangle in its new position.



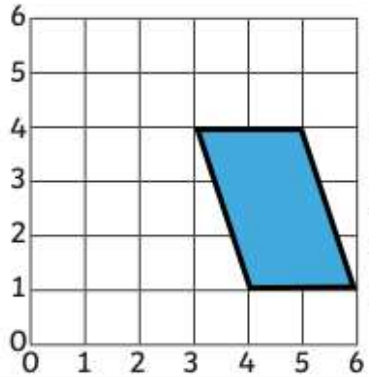
This rectangle is translated **left 4**.

Draw the rectangle in its new position.



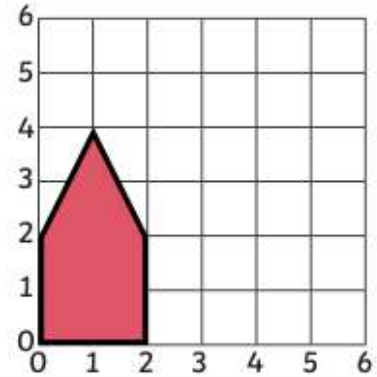
This trapezium is translated **down 2**.

Draw the trapezium in its new position.



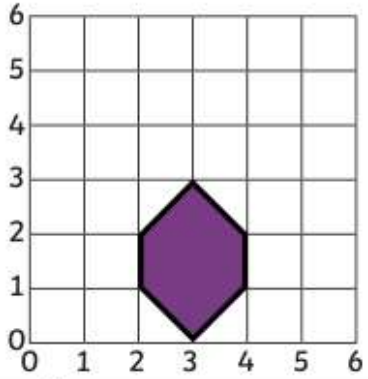
This parallelogram is translated **left 3**.

Draw the paraellelogram in its new position.



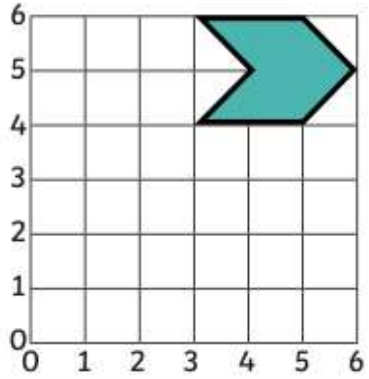
This pentagon is translated **right 3**.

Draw the pentagon in its new position.



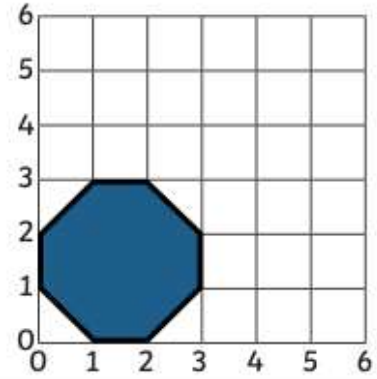
This hexagon is translated **up 3**.

Draw the hexagon in its new position.



This hexagon is translated **down 4**.

Draw the hexagon in its new position.

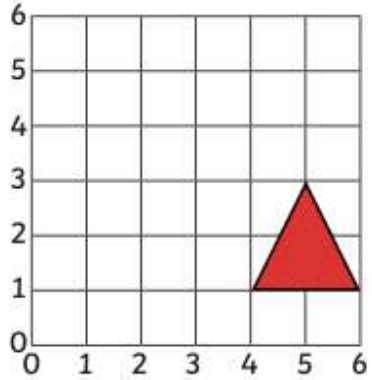


This octagon is translated **right 3**.

Draw the octagon in its new position.

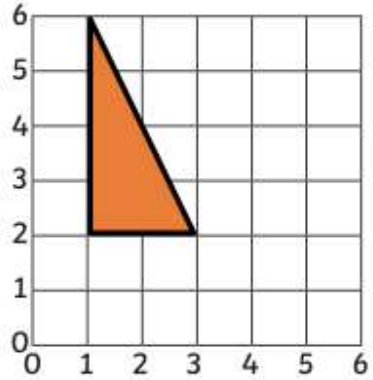
Drawing Translated Shapes

Draw the 2D shapes in their new positions after a translation along both axes.



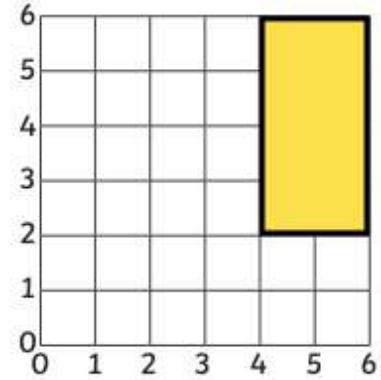
This equilateral triangle is translated **left 3, up 3**.

Draw the triangle in its new position.



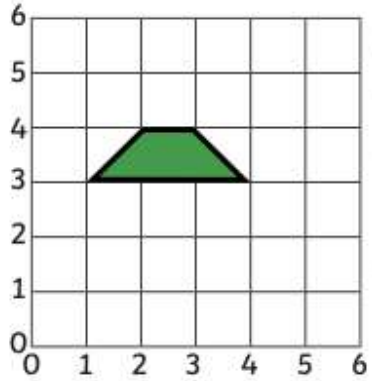
This right-angled triangle is translated **right 3, down 2**.

Draw the triangle in its new position.



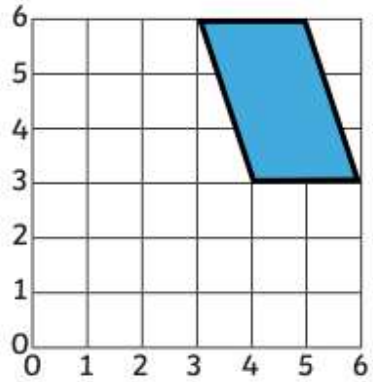
This rectangle is translated **left 4, down 1**.

Draw the rectangle in its new position.



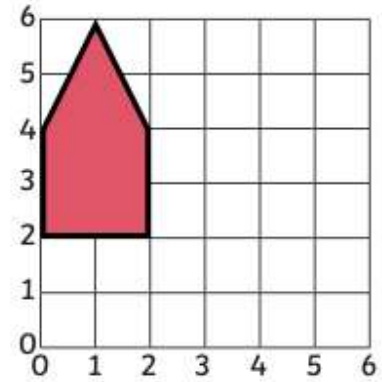
This trapezium is translated **right 2, up 2**.

Draw the trapezium in its new position.



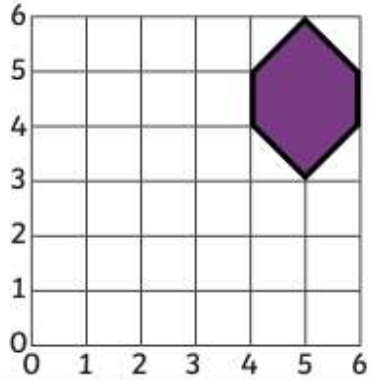
This parallelogram is translated **left 3, down 2**.

Draw the paraellelogram in its new position.



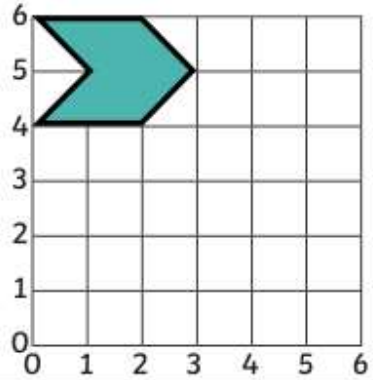
This pentagon is translated **right 4, down 2**.

Draw the pentagon in its new position.



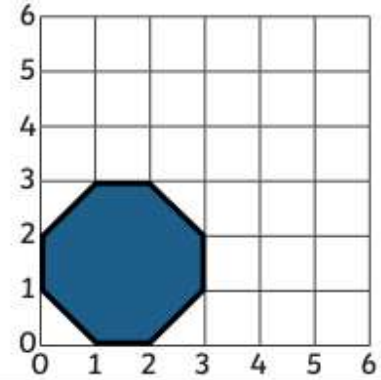
This hexagon is translated **left 4, down 3**.

Draw the hexagon in its new position.



This hexagon is translated **right 3, down 4**.

Draw the hexagon in its new position.

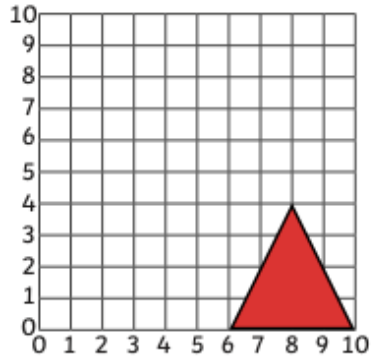


This octagon is translated **right 3, up 2**.

Draw the octagon in its new position.

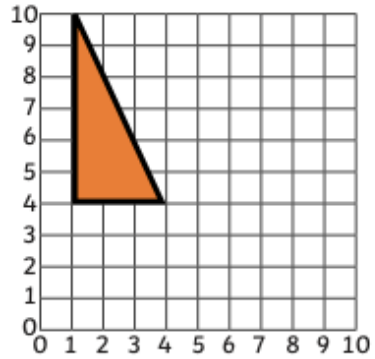
Drawing Translated Shapes

Draw the 2D shapes in their new positions after a translation along both axes.



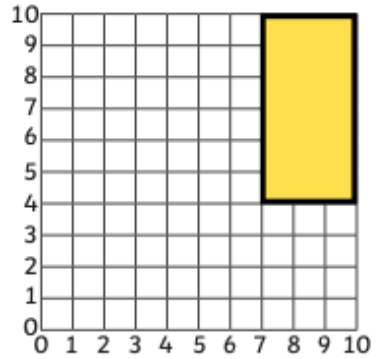
This equilateral triangle is translated **left 5, up 5**.

Draw the triangle in its new position.



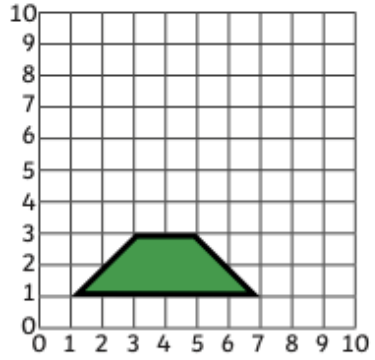
This right-angled triangle is translated **right 6, down 3.**

Draw the triangle in its new position.



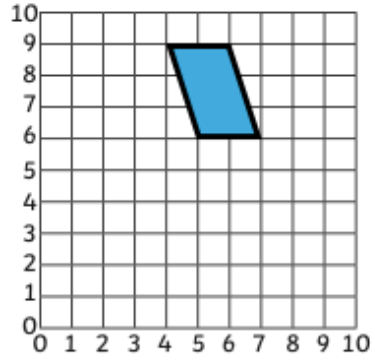
This rectangle is translated **left 5, down 2.**

Draw the rectangle in its new position.



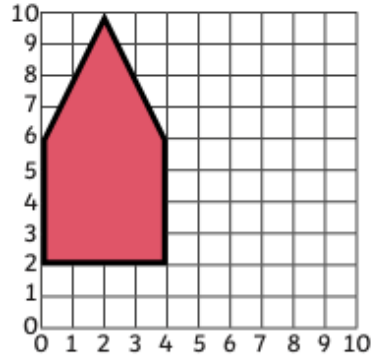
This trapezium is translated **right 2, up 7.**

Draw the trapezium in its new position.



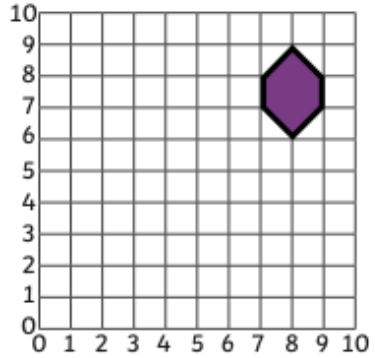
This parallelogram is translated **left 3, down 5.**

Draw the parallelogram in its new position.



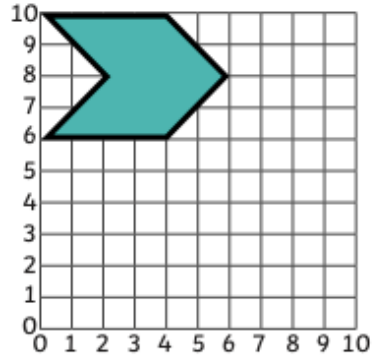
This pentagon is translated **right 6, down 2.**

Draw the pentagon in its new position.



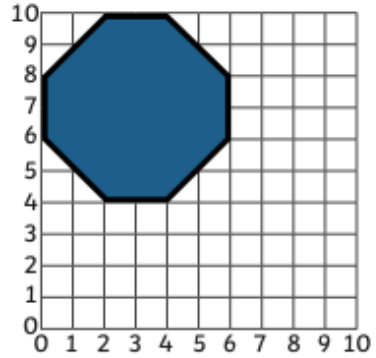
This hexagon is translated **left 5, down 3.**

Draw the pentagon in its new position.



This hexagon is translated **right 3, down 6.**

Draw the hexagon in its new position.

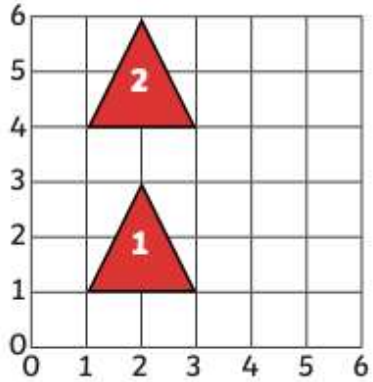


This octagon is translated **right 4, down 4.**

Draw the octagon in its new position.

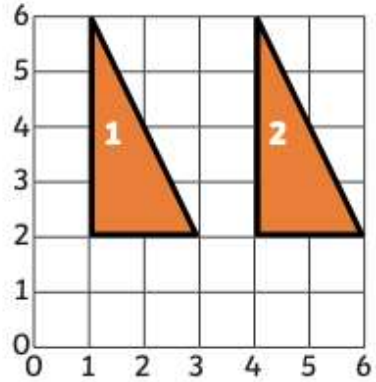
Drawing Translated Shapes Answers

Draw the 2D shapes in their new positions after a translation along one axis.



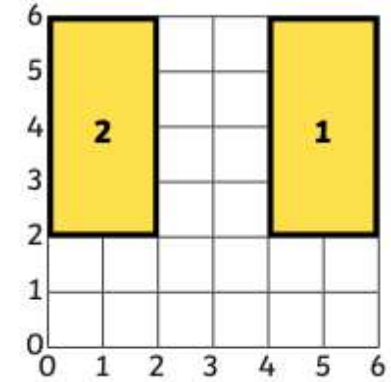
This equilateral triangle is translated **up 3**.

Draw the triangle in its new position.



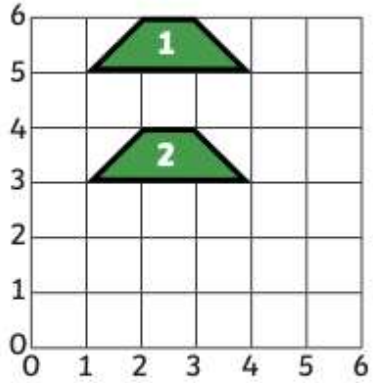
This right-angled triangle is translated **right 3**.

Draw the triangle in its new position.



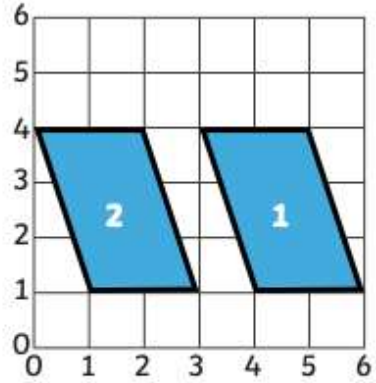
This rectangle is translated **left 4**.

Draw the rectangle in its new position.



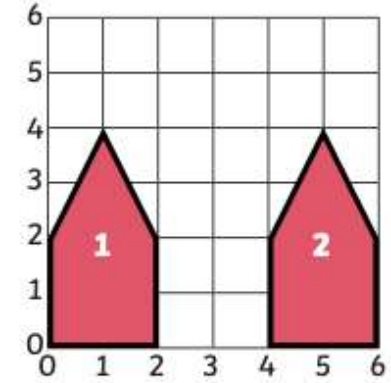
This trapezium is translated **down 2**.

Draw the trapezium in its new position.



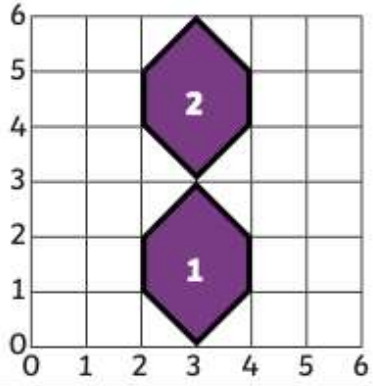
This parallelogram is translated **left 3**.

Draw the paraellelogram in its new position.



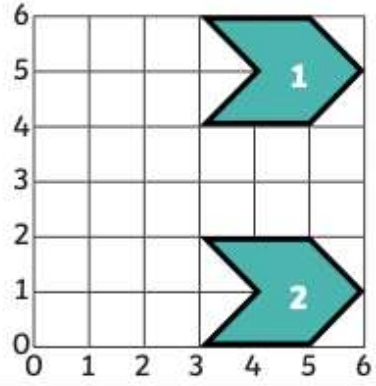
This pentagon is translated **right 3**.

Draw the pentagon in its new position.



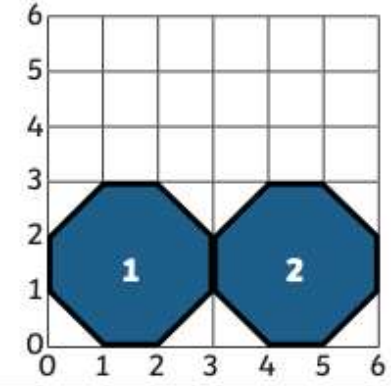
This hexagon is translated **up 3**.

Draw the hexagon in its new position.



This hexagon is translated **down 4**.

Draw the hexagon in its new position.

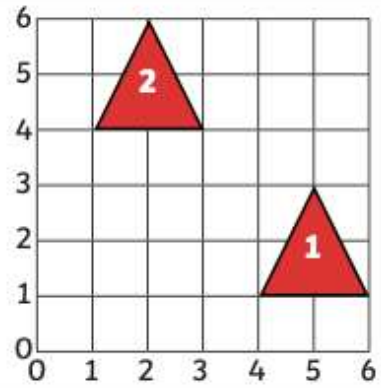


This octagon is translated **right 3**.

Draw the octagon in its new position.

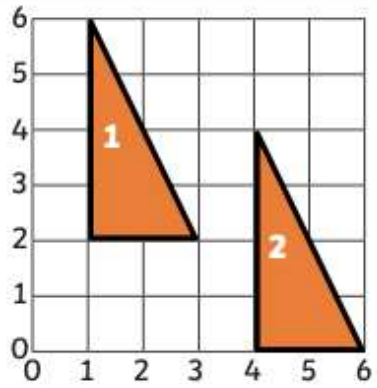
Drawing Translated Shapes Answers

Draw the 2D shapes in their new positions after a translation along both axes.



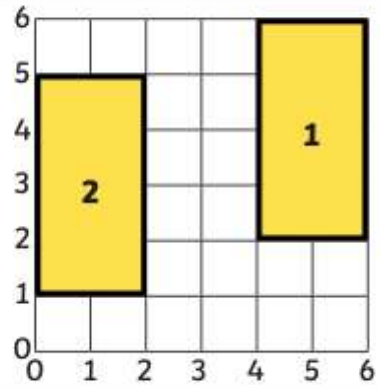
This equilateral triangle is translated **left 3, up 3**.

Draw the triangle in its new position.



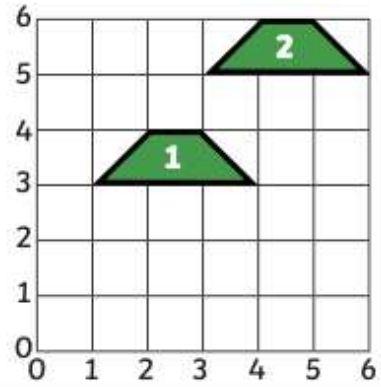
This right-angled triangle is translated **right 3, down 2**.

Draw the triangle in its new position.



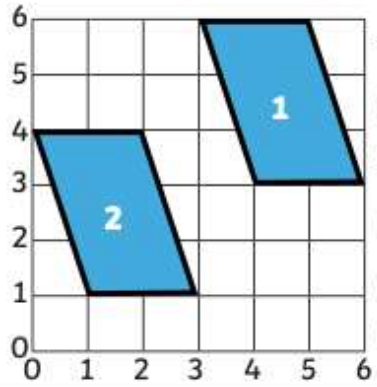
This rectangle is translated **left 4, down 1**.

Draw the rectangle in its new position.



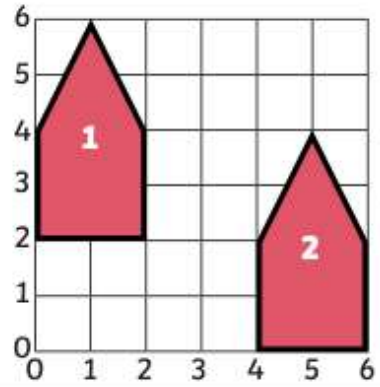
This trapezium is translated **right 2, up 2**.

Draw the trapezium in its new position.



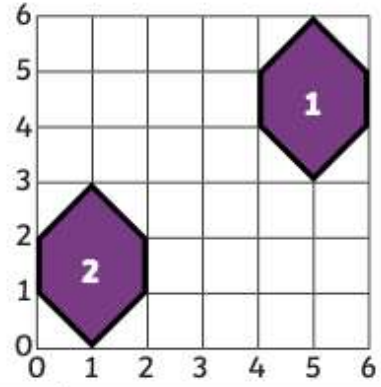
This parallelogram is translated **left 3, down 2**.

Draw the paraellelogram in its new position.



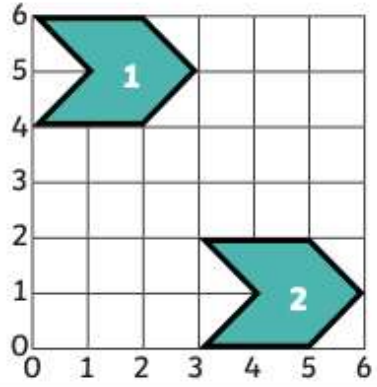
This pentagon is translated **right 4, down 2**.

Draw the pentagon in its new position.



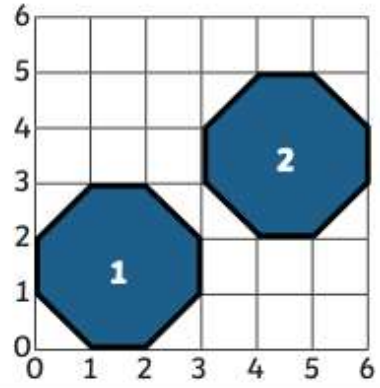
This hexagon is translated **left 4, down 3**.

Draw the hexagon in its new position.



This hexagon is translated **right 3, down 4**.

Draw the hexagon in its new position.

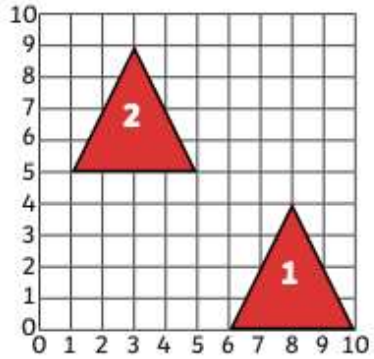


This octagon is translated **right 3, up 2**.

Draw the octagon in its new position.

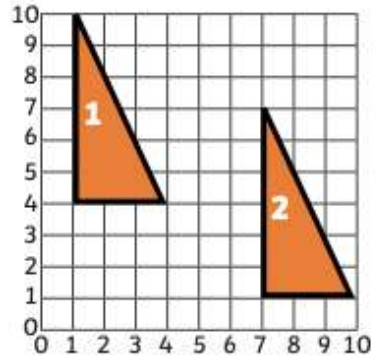
Drawing Translated Shapes Answers

Draw the 2D shapes in their new positions after a translation along both axes.



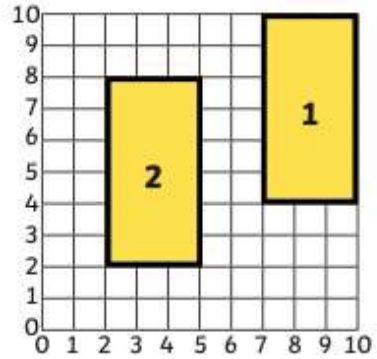
This equilateral triangle is translated **left 5, up 5**.

Draw the triangle in its new position.



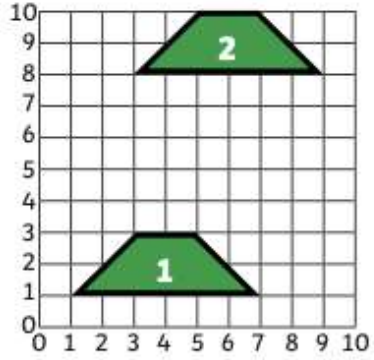
This right-angled triangle is translated **right 6, down 3.**

Draw the triangle in its new position.



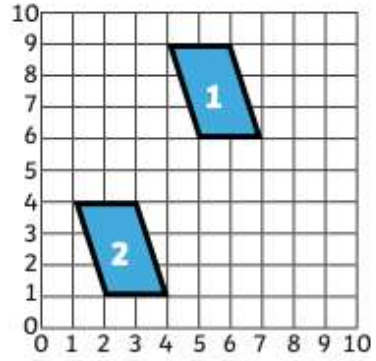
This rectangle is translated **left 5, down 2.**

Draw the rectangle in its new position.



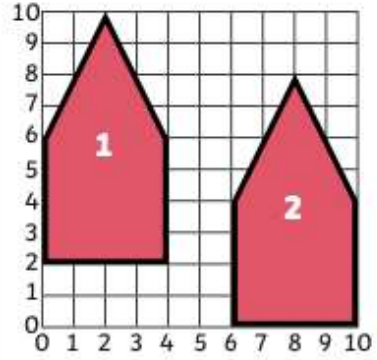
This trapezium is translated **right 2, up 7.**

Draw the trapezium in its new position.



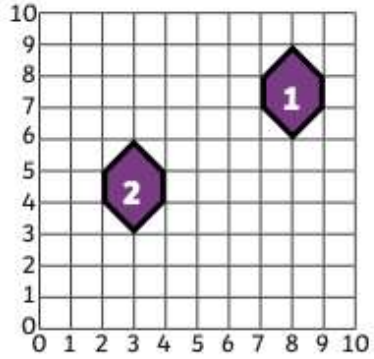
This parallelogram is translated **left 3, down 5.**

Draw the parallelogram in its new position.



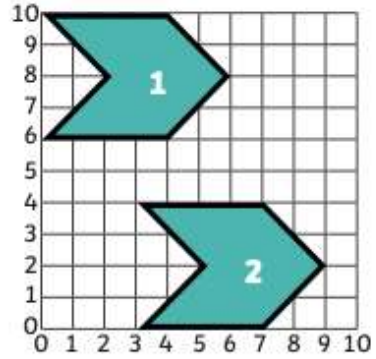
This pentagon is translated **right 6, down 2.**

Draw the pentagon in its new position.



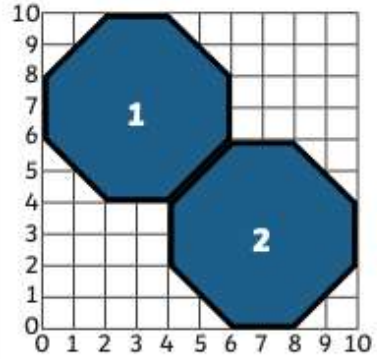
This hexagon is translated **left 5, down 3.**

Draw the pentagon in its new position.



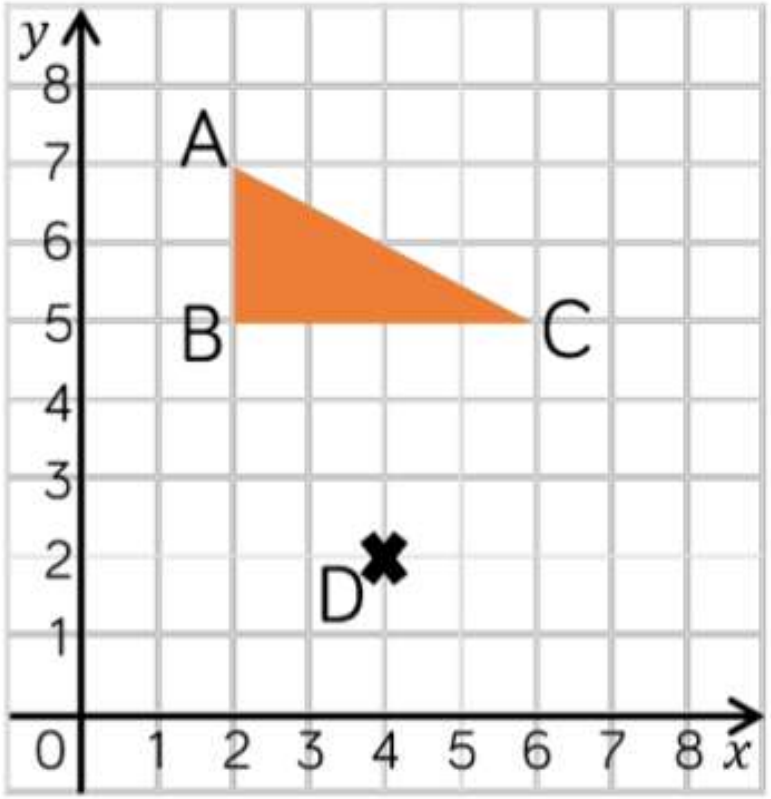
This hexagon is translated **right 3, down 6.**

Draw the hexagon in its new position.

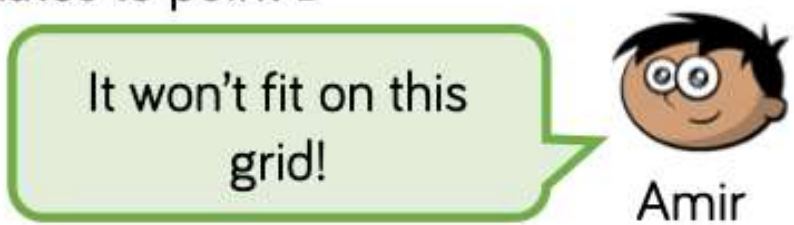


This octagon is translated **right 4, down 4.**

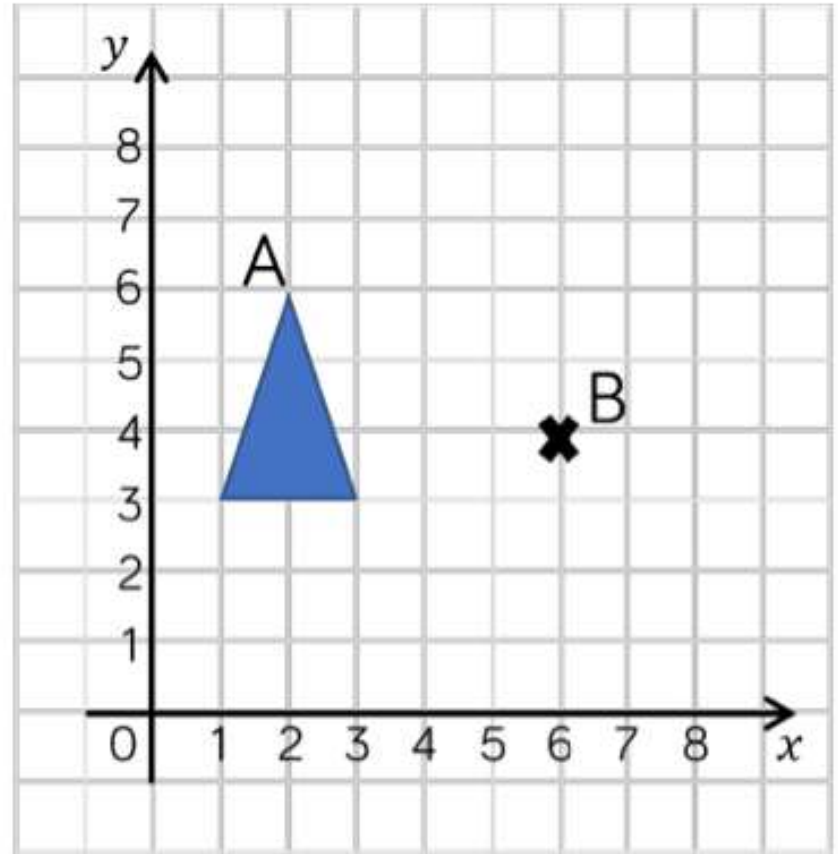
Draw the octagon in its new position.



Triangle ABC is translated so that point B translates to point D



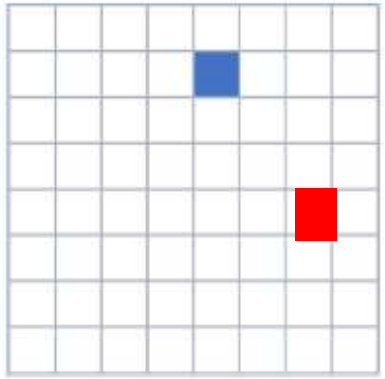
Do you agree with Amir?
Explain your thinking.



A triangle is drawn on the grid.
It is translated so that point A translates to point B.

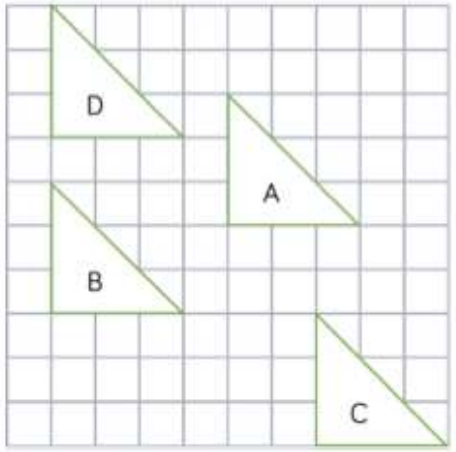
What would be the coordinates of the other vertices of the translated triangle?

Varied Fluency



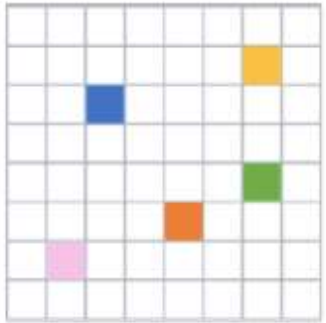
A square is translated two squares to the right and three down.
Draw the new position of this square.

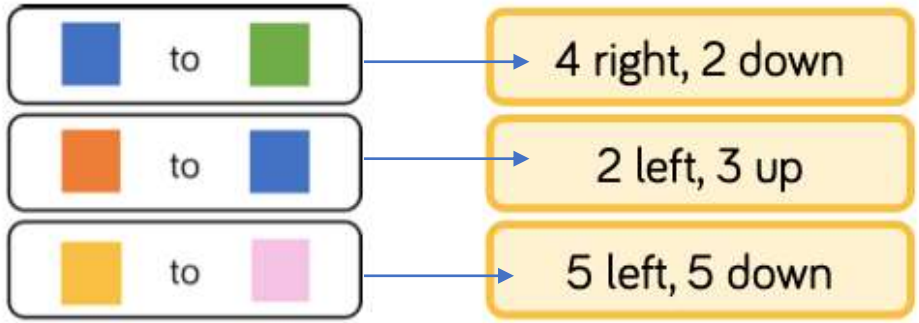
Describe the translation of shape A to shape B, C and then D. Use the stem sentence to help you.
Shape A has been translated ___4___ left/
and ___2___ up/

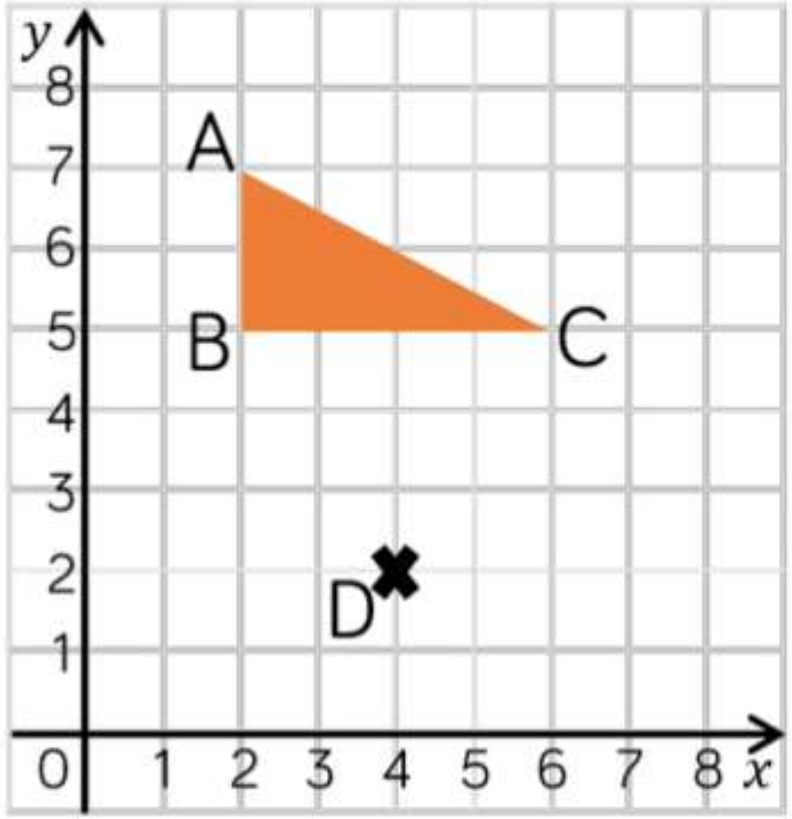


Shape C has been translated 6 left and 7 up.

Match the translations.







Triangle ABC is translated so that point B translates to point D

It won't fit on this grid!

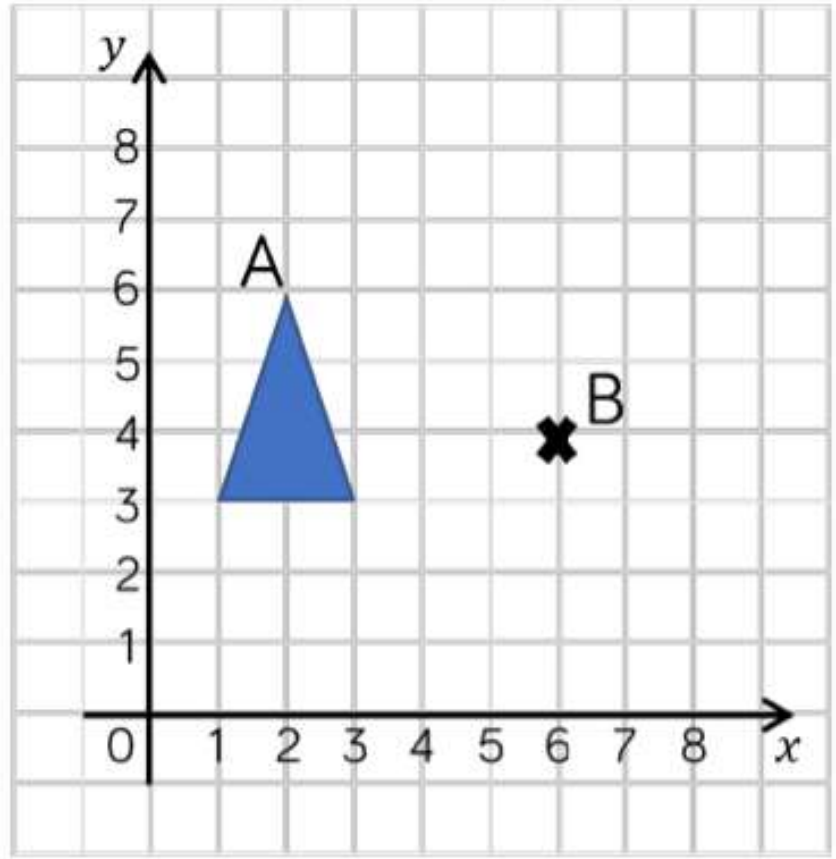
Amir

Do you agree with Amir?
Explain your thinking.

Amir is incorrect, the shape is translated two to the right and three down. It will fit on this grid.

(7, 1)

(5, 1)



A triangle is drawn on the grid.
It is translated so that point A translates to point B.

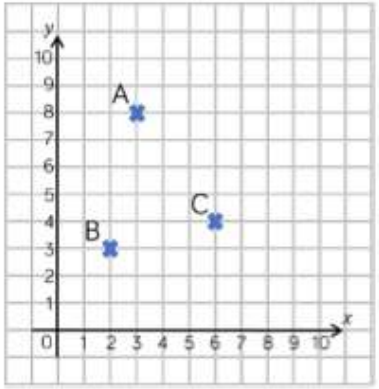
What would be the coordinates of the other vertices of the translated triangle?

Friday

Translation with Coordinates

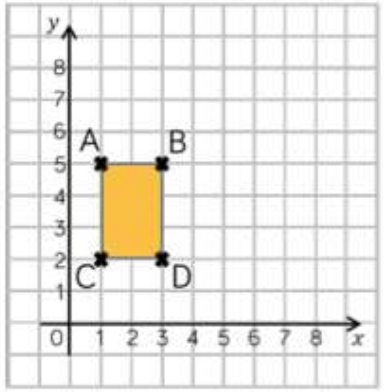
Varied Fluency

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

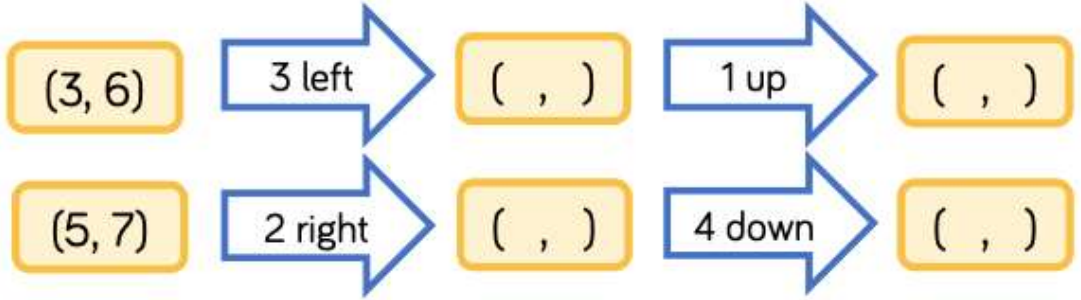


	Before translation	After translation
A	(3, 8)	
B		
C		

- 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?

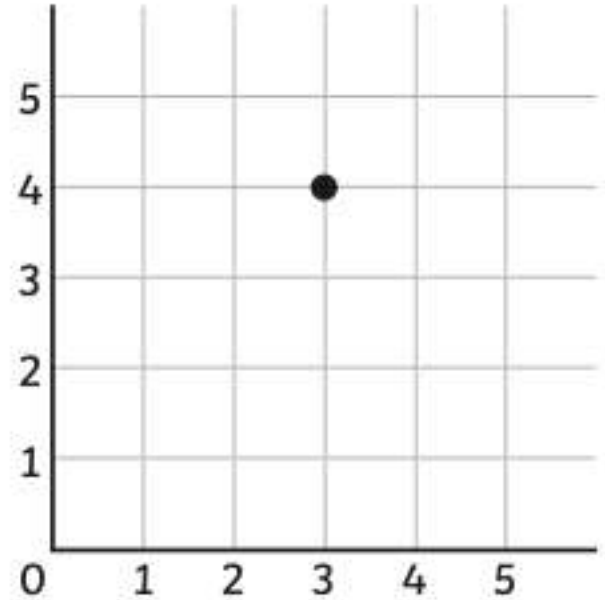


- Translate the coordinates below.



- If we move this point down, what will happen to its coordinates? What if it moves up?
- If I move the point two right, what will happen to the coordinates?
- If these are the translated coordinates, what were the original coordinates?

1) Ramesh has plotted a coordinate in the first quadrant.



a) If the coordinate was moved one place to the left, which digit would change?

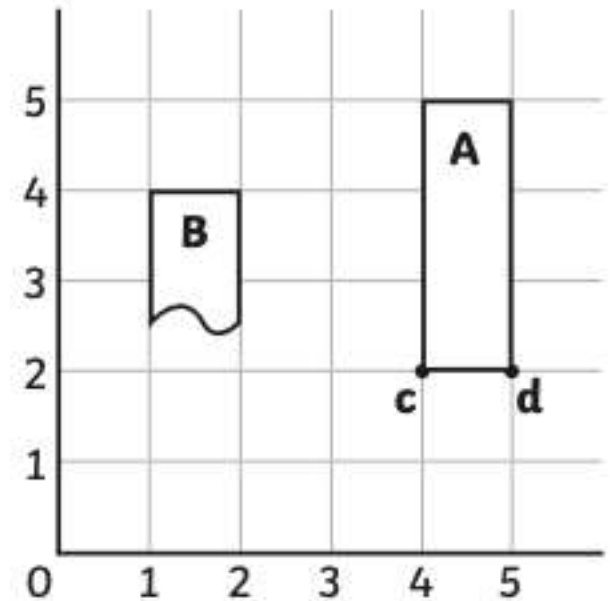
_____

b) If the coordinate was moved three places down, which digit would change?

_____

c) What would the new coordinates be? (,)

2) James has translated rectangle A to its new position, B.



a) What is the translation? _____

b) What are the coordinates of the two missing vertices? Plot and label c and d.

c (,)

d (,)

1) Swarvek has plotted the vertices of a square.

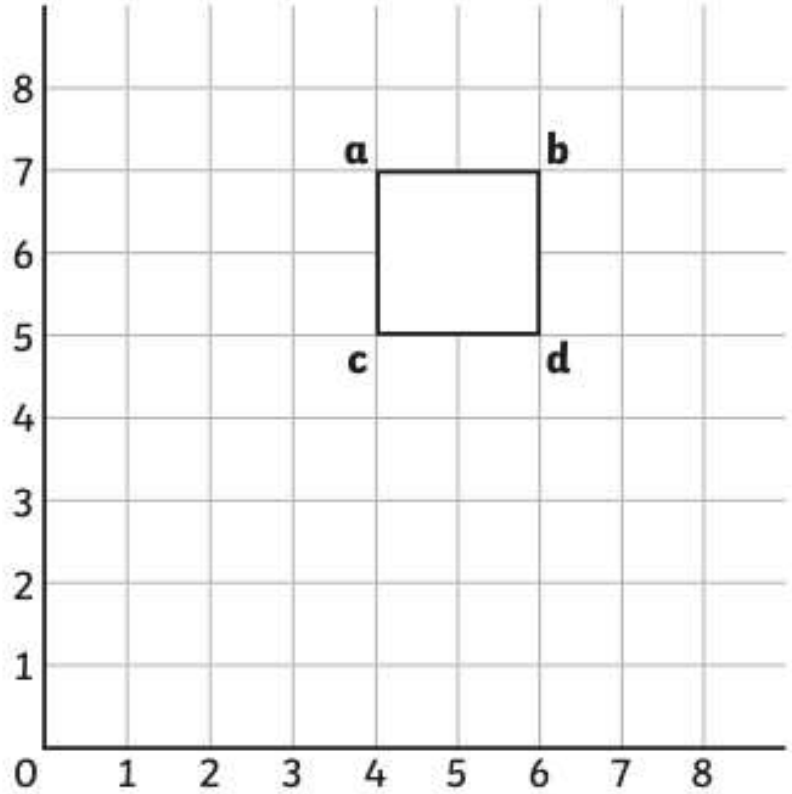
True or False?

a) If the square was translated to the left, the y coordinate would change. _____

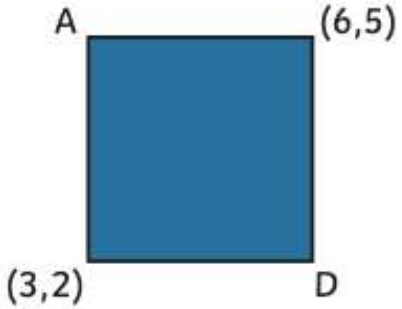
b) The square has been translated and vertex A is now at (3,3). The translation is (4 down, 1 left). _____

c) The square is being translated up and down. The only coordinate to change is the second digit. _____

d) The coordinates of the translated square could be (5,6), 6,6), (5,7) and (7,7). _____

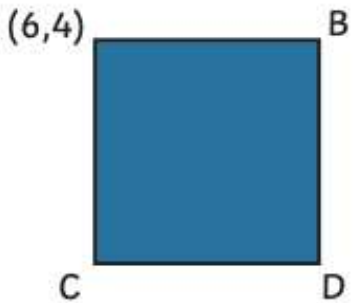


1) Shauna has translated a square in the first quadrant (2 left, 4 down). Here is the translated square. What were the original coordinates of vertex D?



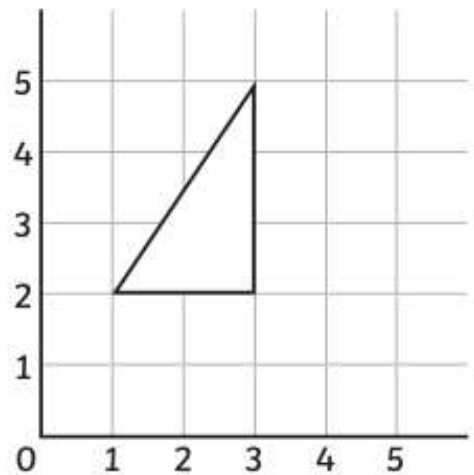
Original coordinates of vertex D (,)

2) The same square has now been moved to a different place on the first quadrant. Celia has given one set of coordinates for one of the vertices. Describe the translation.



The translation is (,)

3) Look at the triangle on the 5 × 5 grid. How many different ways can you find of translating it so that it moves but stays entirely on the grid? Try to work systematically to find all the possbilities.



1) a) The first digit; the x coordinate changes when a point is translated left or right.

b) The second digit; the y coordinate changes when a point is translated up or down.

c) (2,1)

2) a) (3 left, 1 down)

b) c = (1,1) and d = (2,1)

1) a) False, the first digit, which is the x coordinate, would change.

b) False. The translation is (1 left, 4 down). The instructions are written the wrong way round.

c) True

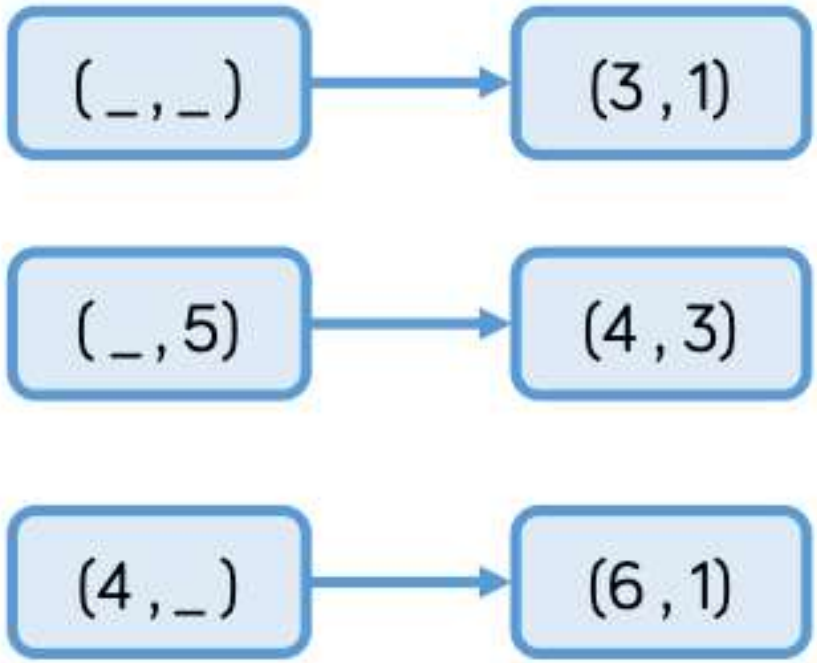
d) False, those coordinates would make a trapezium.

1) Original coordinates of D were (8,6).

2) The translation is (3 right, 1 down).

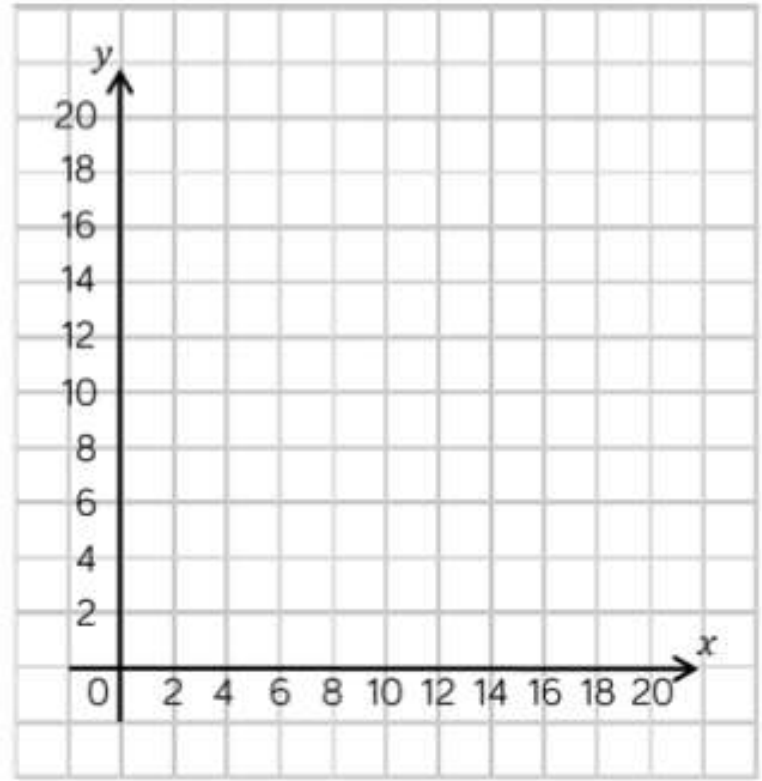
3) Children could find eleven different possible translations: (left 1), (left 1, down 1), (left 1, down 2), (down 1), (down 2), (right 1), (right 1, down 1), (right 1, down 2), (right 2), (right 2, down 1), (right 2, down 2).

These three coordinates have all been translated in the same way.



Can you work out the missing coordinates?

Describe the translation.



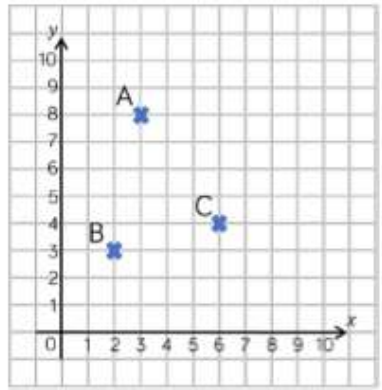
A rectangle is translated two to the left and 4 up.

Three of the coordinates of the translated rectangle are: (6, 8) (10, 14) and (10, 8).

What are the coordinates of the original rectangle?

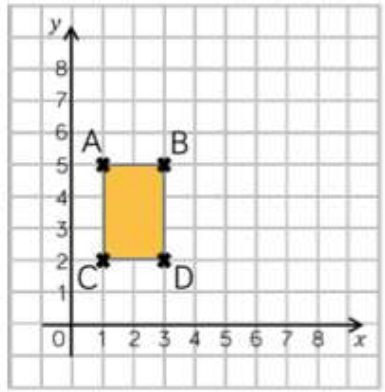
Varied Fluency

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



	Before translation	After translation
A	(3, 8)	(4,6)
B	(2,3)	(3,1)
C	(6,4)	(7,2)

- 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?



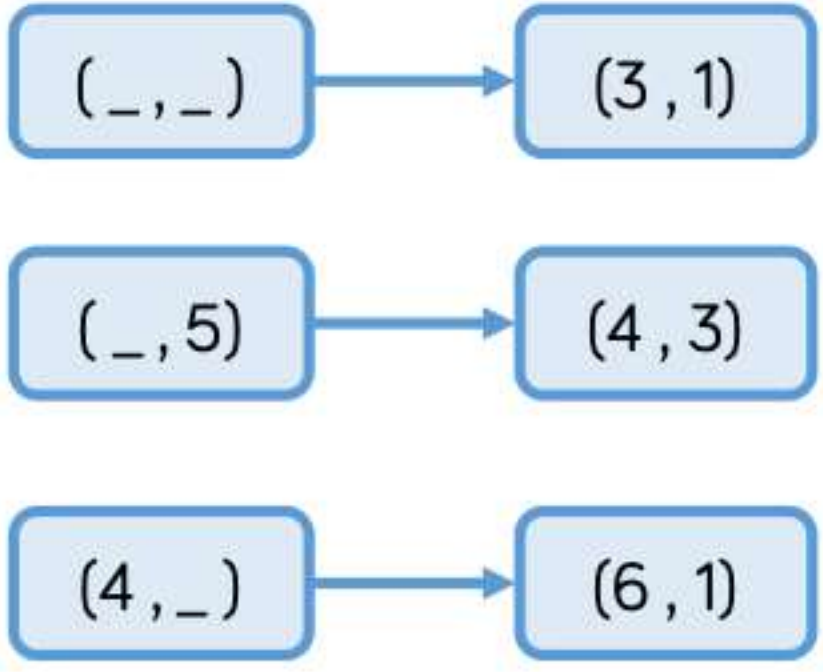
Vertex c has been translated 2 right and 3 up.
A = (3,8)
B = (5,8)
C = (3,5)
D = (5,5)

- Translate the coordinates below.

(3, 6) → 3 left → (6, 6) → 1 up → (6 , 7)

(5, 7) → 2 right → (7 , 7) → 4 down → (7 , 3)

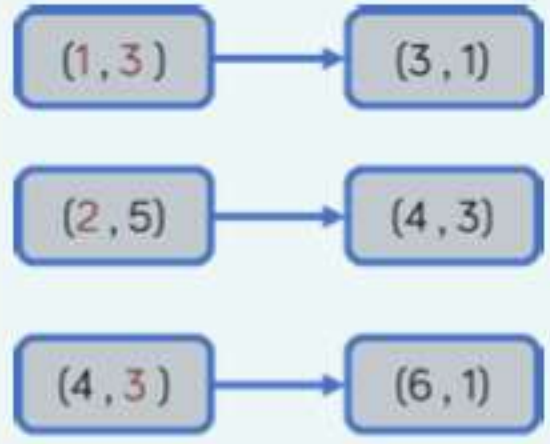
These three coordinates have all been translated in the same way.

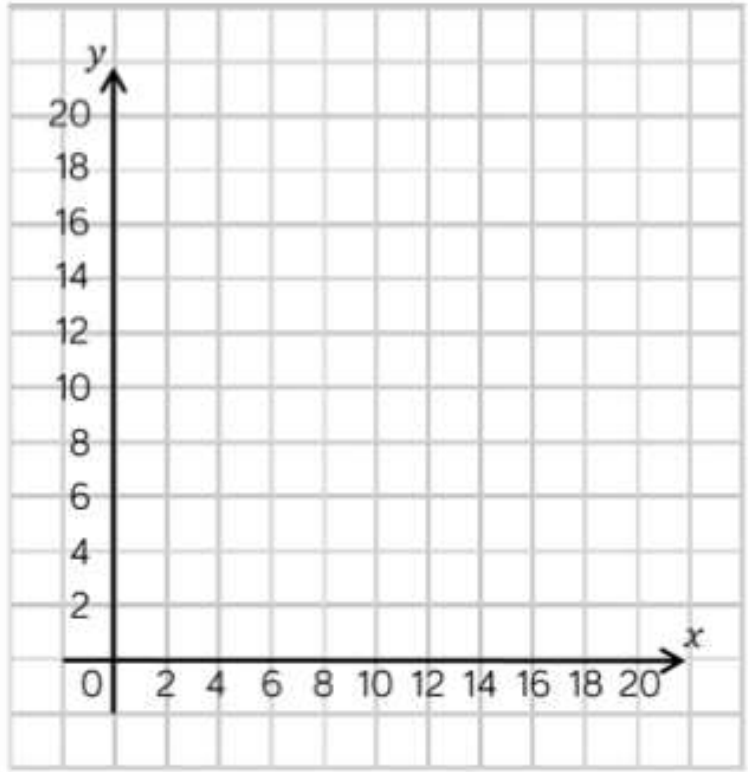


Can you work out the missing coordinates?

Describe the translation.

Translation 2 right 2 down.





A rectangle is translated two to the left and 4 up.

Three of the coordinates of the translated rectangle are: (6, 8) (10, 14) and (10, 8).

What are the coordinates of the original rectangle?

(8, 10) (12, 10)

(8, 4) (12, 4)