

Position and direction

sample

Summer Term Block 2

Name _____ Class _____

Published by White Rose Education, Trinity MAT, Shay Lane, Halifax, HX2 9TZ

First published in the United Kingdom in 2020
Revised and updated 2022

www.whiterosemaths.com

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[Year 6 Summer Term Block 2](#)

Written by White Rose Maths

Editorial, Design and Typesetting by Little Grey Cells Publishing Services Ltd

Printed and bound in the United Kingdom by Elanders

ISBN 978-1-914466-95-3

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library.

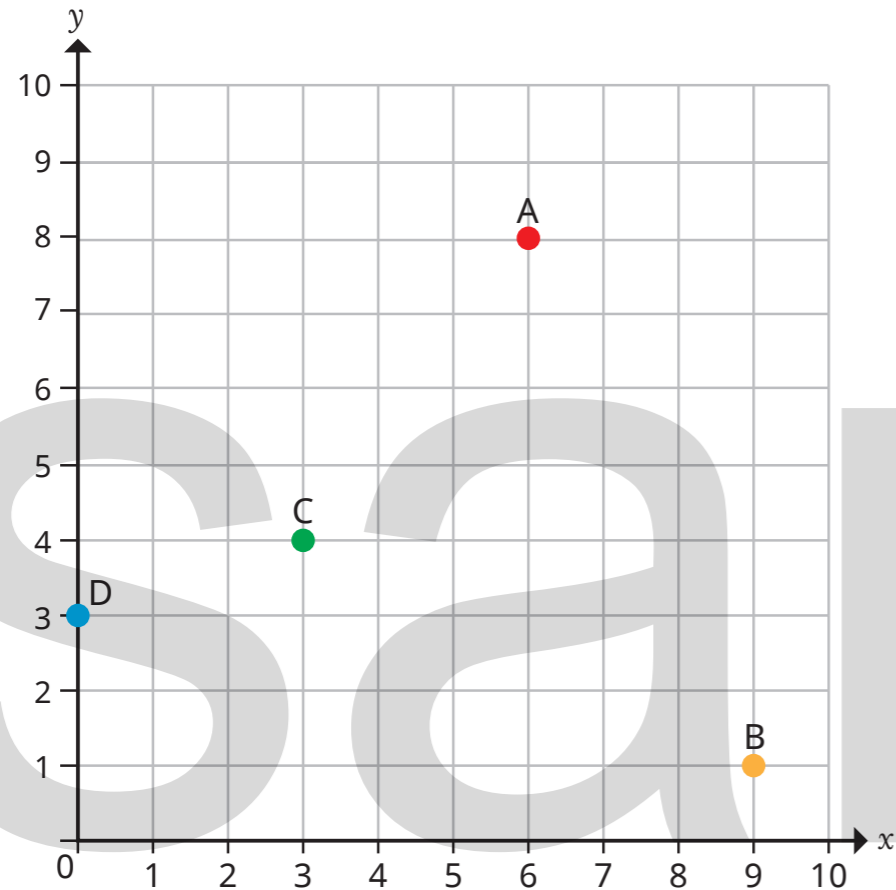
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The first quadrant

1 Four points are plotted on the coordinate grid.



a) Write the coordinates of each point.

A (,)

C (,)

B (,)

D (,)

Points E, F, G and H have these coordinates.

E (7, 6)

F (2, 9)

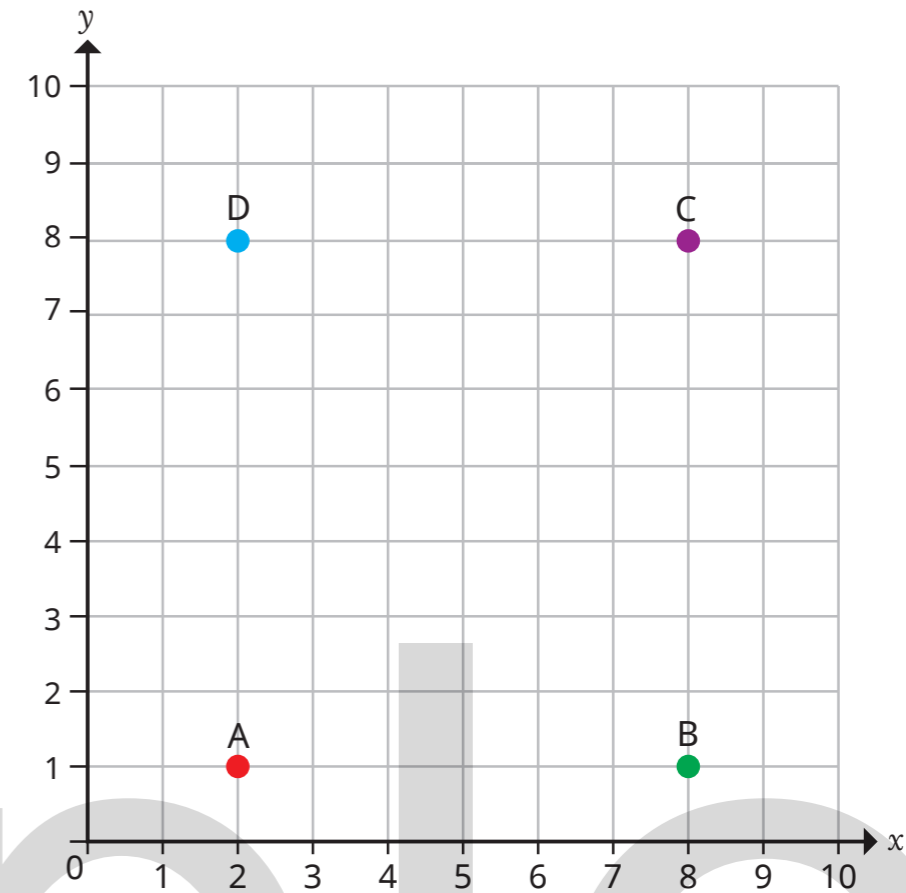
G (10, 10)

H (5, 0)

b) Plot and label points E, F, G and H on the coordinate grid.

Which did you find the hardest to plot?

2



a) Write the coordinates of the points A, B, C and D.

A (,)

C (,)

B (,)

D (,)

b) Draw lines to join the points A to D to form a rectangle.

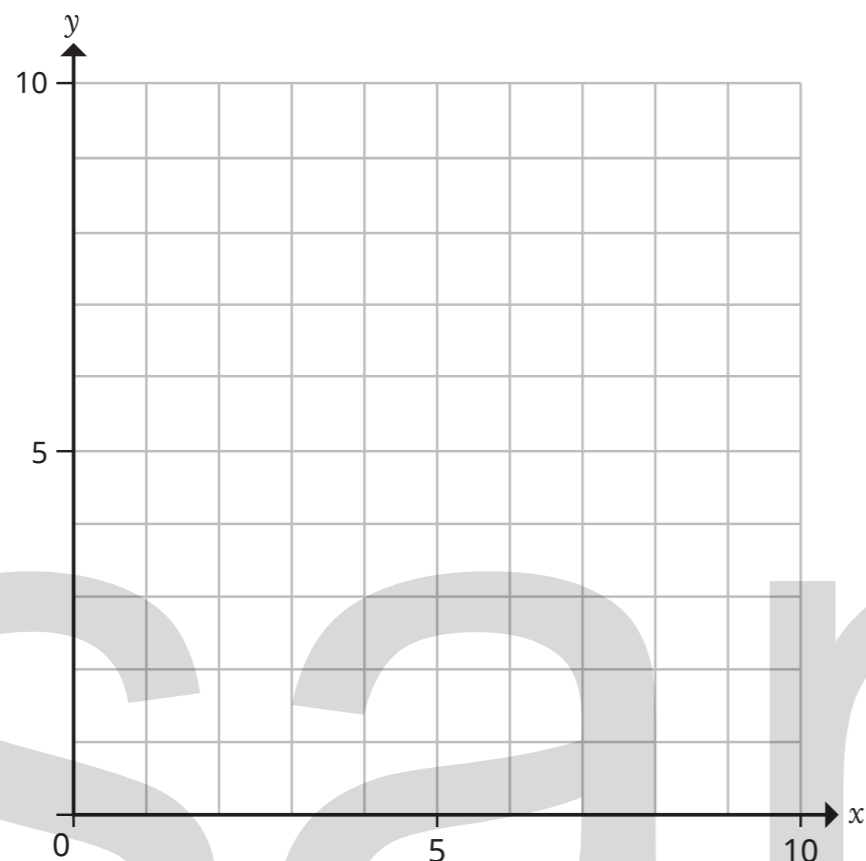
c) Write the coordinates of four different points in each column of the table.

Inside the rectangle	Outside the rectangle	On the perimeter of the rectangle
(5, 3)		

- 3 Here are coordinates for three vertices of a rectangle.

(3, 6) (7, 3) (7, 6)

- a) Plot the coordinates.



- b) Write the coordinates of the fourth vertex.

(,)

- 4 Here are coordinates for two vertices of a square.

(5, 2) (5, 6)

What could the coordinates of the other two vertices be?

Give two possible solutions.

(,) and (,)

(,) and (,)



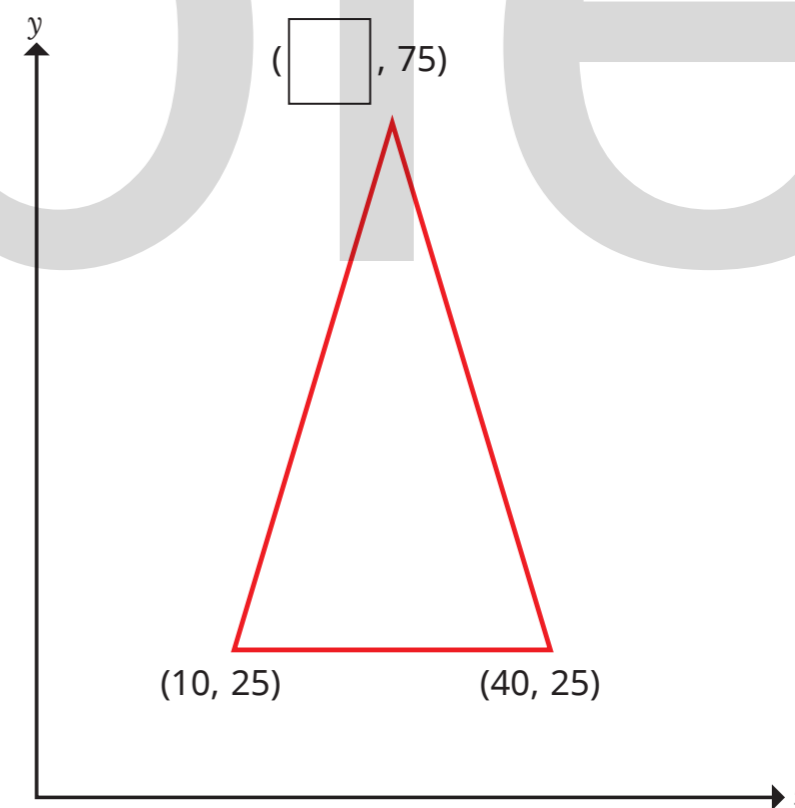
- 5 a) Write a set of coordinates that would join to make a right-angled triangle.

- b) Write a set of coordinates that would join to make a pentagon.

- c) Write a set of coordinates that would join to make a trapezium.

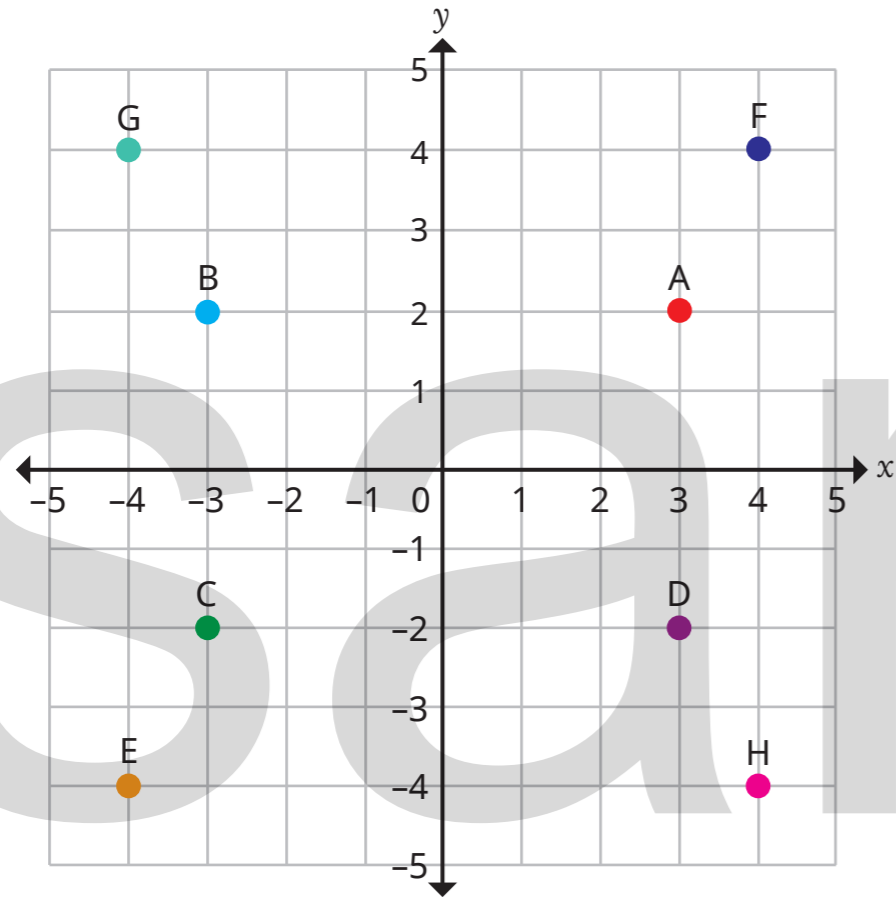
- d) Plot your points from parts a), b) and c) on a coordinate grid to check that you are correct.

- 6 Complete the coordinate for the isosceles triangle.



Read and plot points in four quadrants

1



Write the coordinates of points A to H.

A (,)

E (,)

B (,)

F (,)

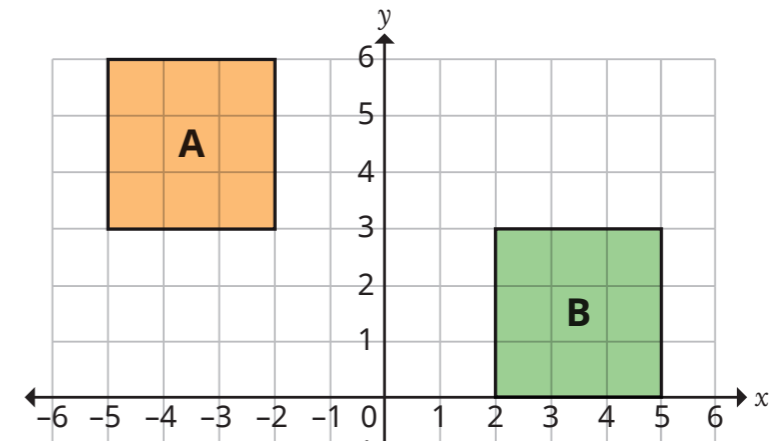
C (,)

G (,)

D (,)

H (,)

2

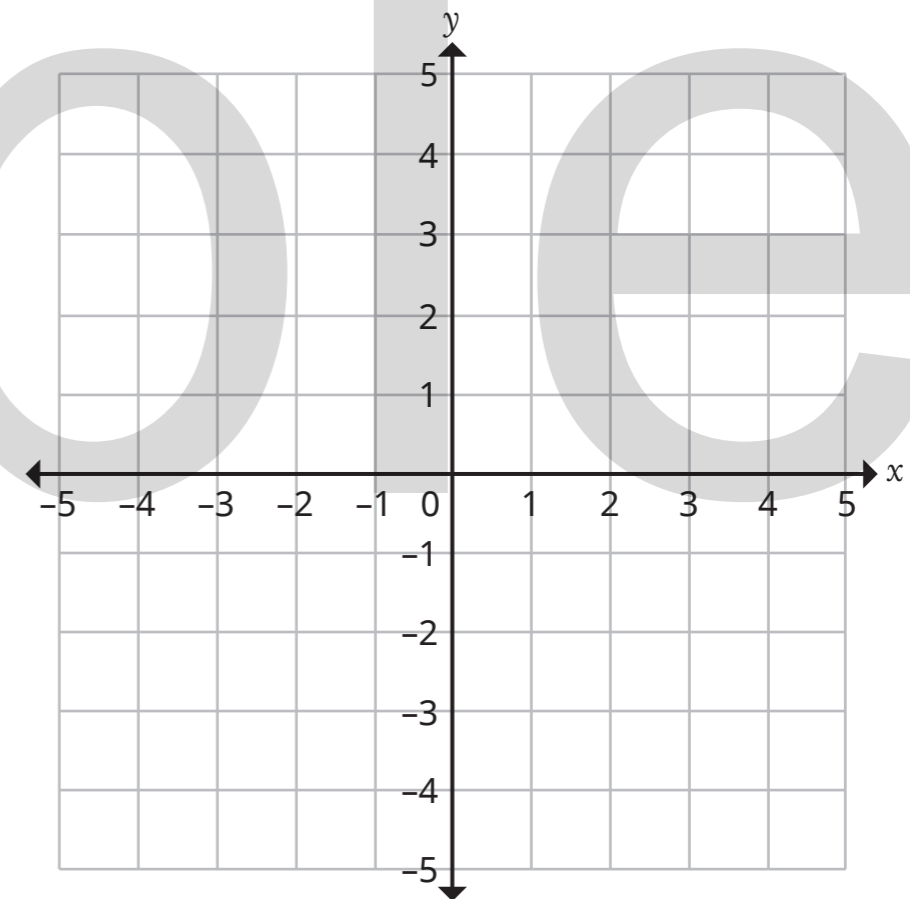


Write the coordinates for the vertices of each square.

square A _____

square B _____

3



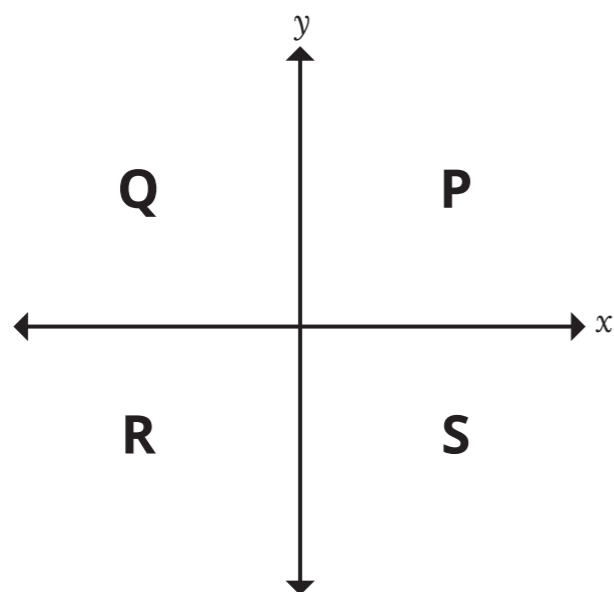
a) Plot the coordinates.

(-3, 0) (4, 0) (-1, 5) (-1, -5)

b) Join the points you have plotted to form a quadrilateral.

c) What shape have you drawn? _____

4



a) Write coordinates for four possible points in each quadrant.

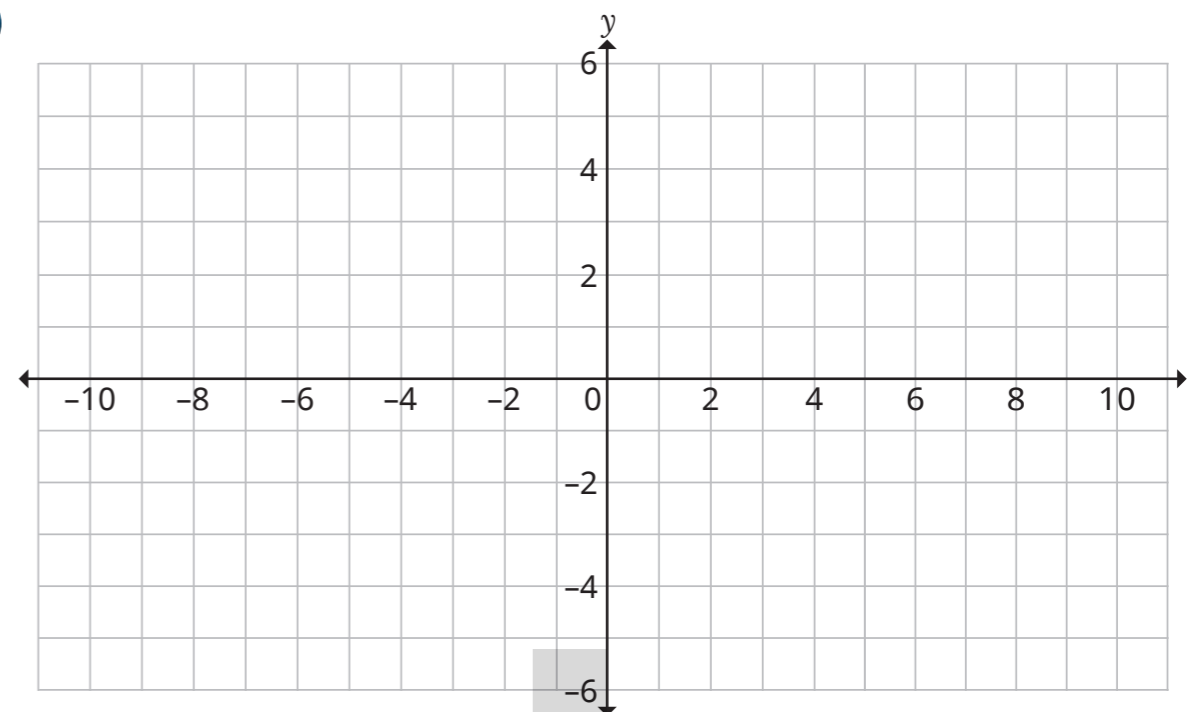
Quadrant P		Quadrant R	
(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)
(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)
Quadrant Q		Quadrant S	
(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)
(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)	(<input type="text"/> , <input type="text"/>)

b) Write four different coordinates that are not in any single quadrant.

(,) (,)
 (,) (,)

What do you notice?

5



a) Plot the coordinates.

(-8, 4) (4, -2) (10, -5) (-4, 2) (-6, 3)

b) Write three other coordinates that would be in the same line.

6

A quadrilateral has vertices at (-8, 0), (1, 0), (1, -5) and (-8, -5).

a) What is the mathematical name of the quadrilateral?

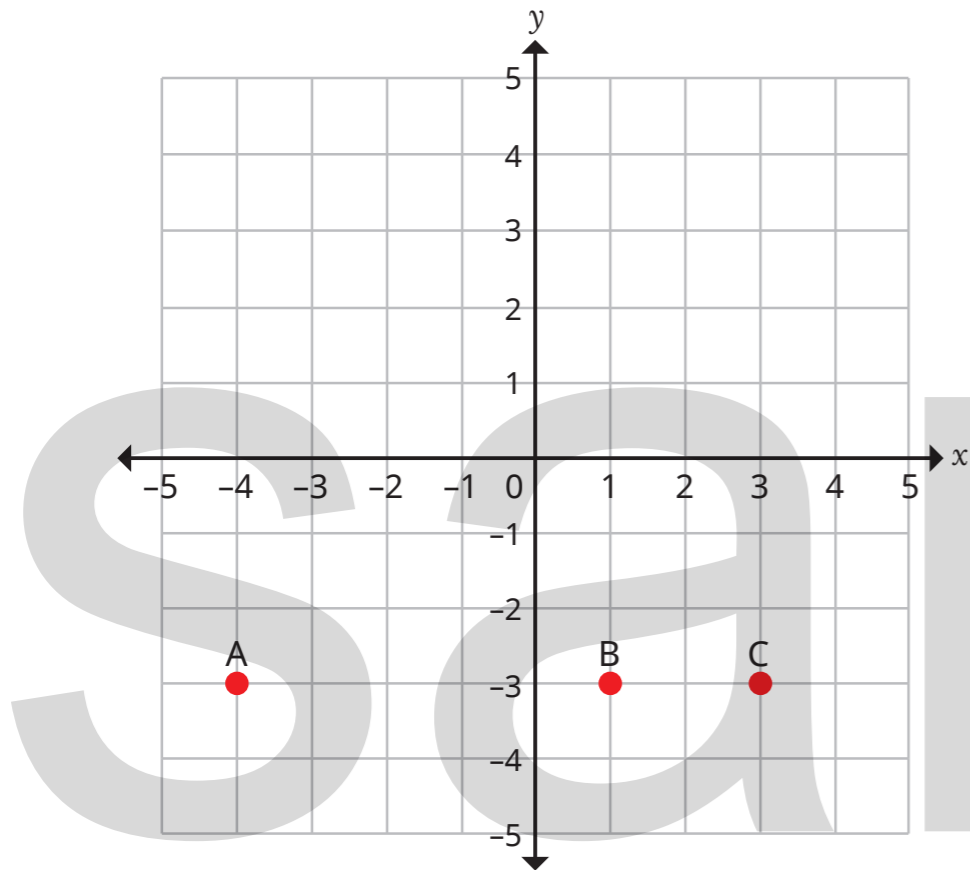
b) Circle the points that lie on the perimeter of the quadrilateral.

(0, 0) (-8, 4) (3, -5) (-4, -5)

Explain your reasoning.

Solve problems with coordinates

1



a) What are the coordinates of the three points?

A (,)

B (,)

C (,)

What do you notice?

b) Plot and label the points on the coordinate grid.

D (2, 5)

E (2, 0)

F (2, -2)

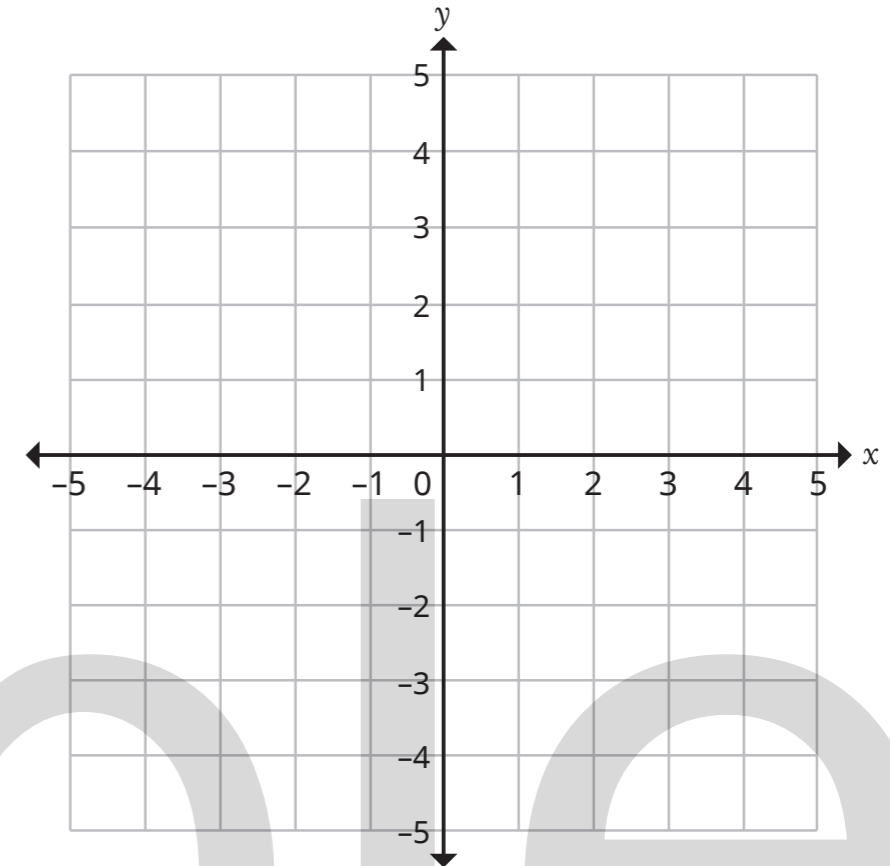
Join them with a straight line.

What do you notice?

2

Draw a vertical line that passes through the point $(-4, 1)$.

Draw a horizontal line that passes through the point $(2, -3)$.



Write the coordinates of the point where the two lines cross.

(,)

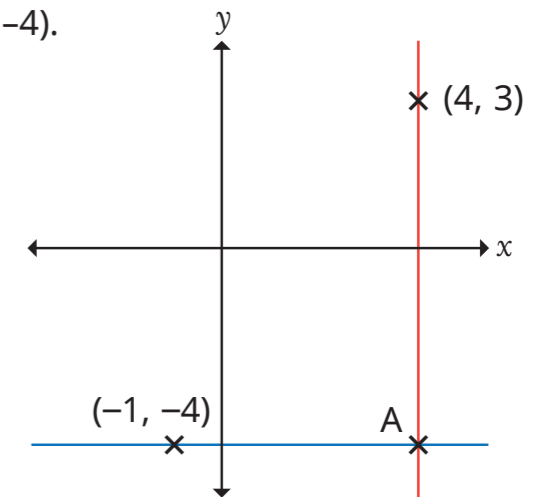
What do you notice?

3

A horizontal line goes through $(-1, -4)$.

A vertical line goes through $(4, 3)$.

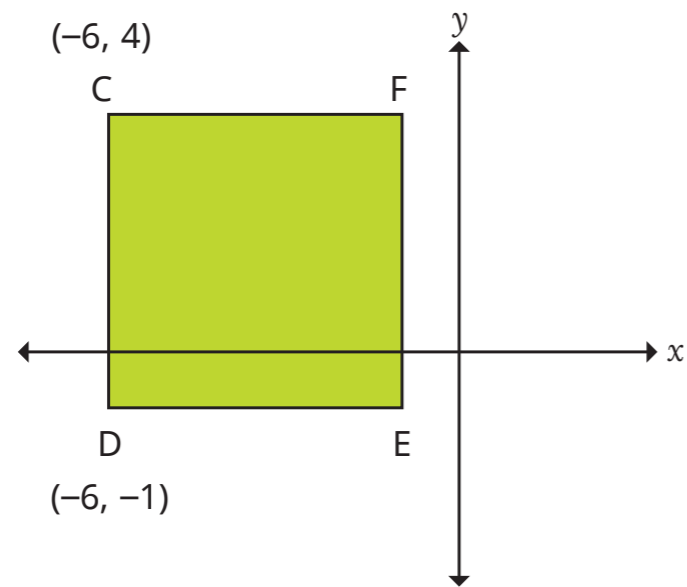
The two lines meet at point A.



What are the coordinates of point A?

(,)

- 4 CDEF is a square.

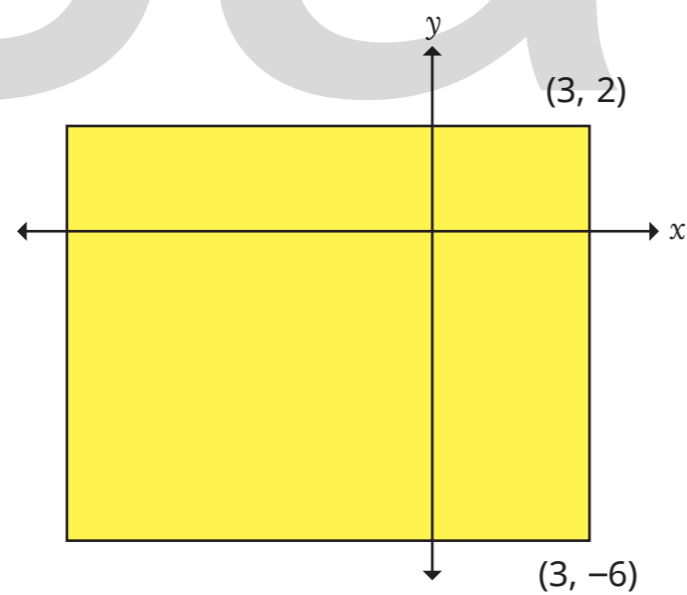


What are the coordinates of E and F?

E (,)

F (,)

- 5 The perimeter of the rectangle is 36 units.



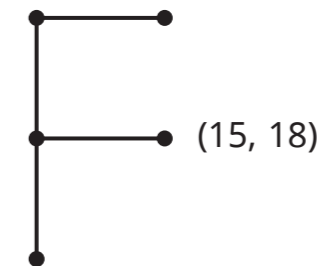
What are the coordinates of the other two vertices of the rectangle?

(,) and (,)

- 6 Eva has drawn an F on a coordinate grid.

One point is labelled.

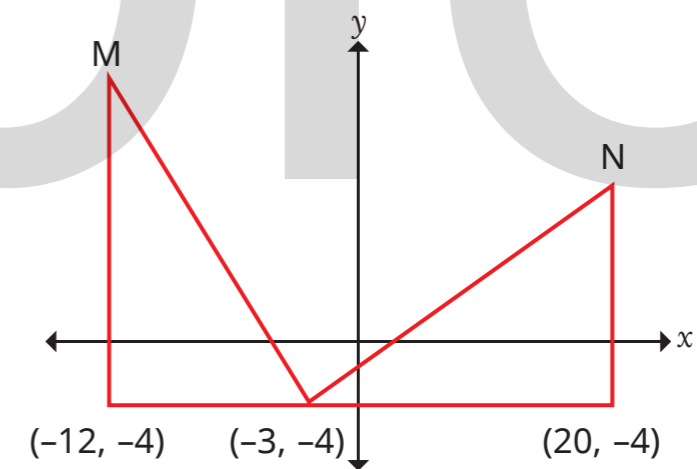
Suggest possible values for the other points and label them on the diagram.



Compare answers with a partner.

Is there more than one possible set of answers?

- 7 The diagram shows two identical triangles.



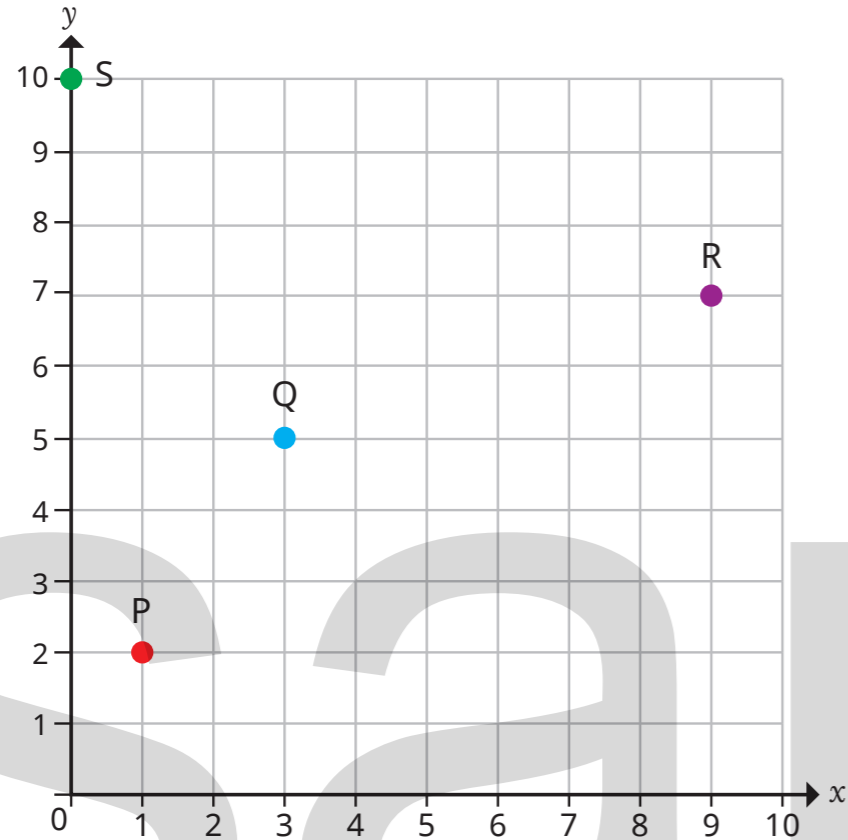
Write the coordinates of points M and N.

M (,)

N (,)

Translations

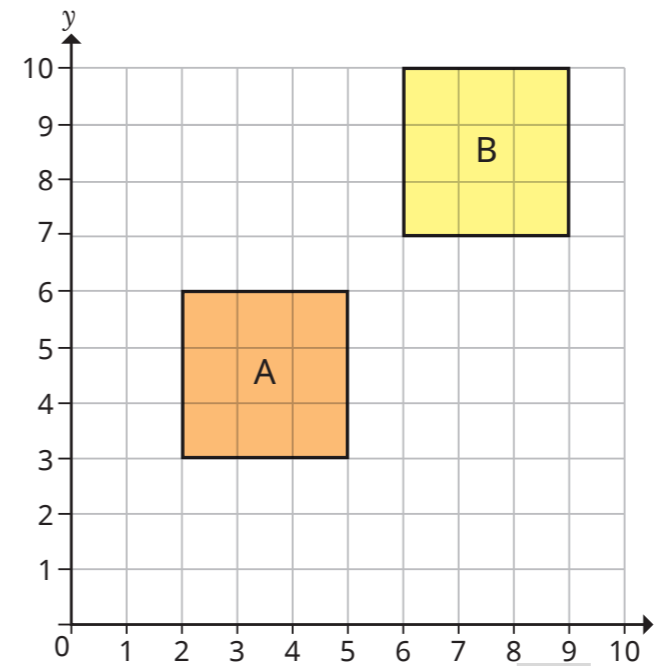
1



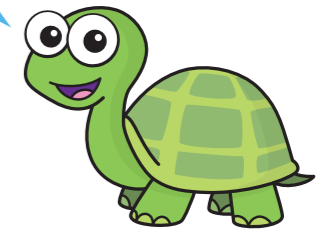
Describe the translations.

- a) From P to Q is squares right and squares up
- b) From Q to R is squares right and squares up
- c) From R to S is squares left and squares up
- d) From S to P is _____ and _____
- e) From Q to P is _____ and _____
- f) From R to Q is _____ and _____
- g) From S to R is _____ and _____
- h) From P to S is _____ and _____

2



The translation from A to B is 1 square right and 1 square up.

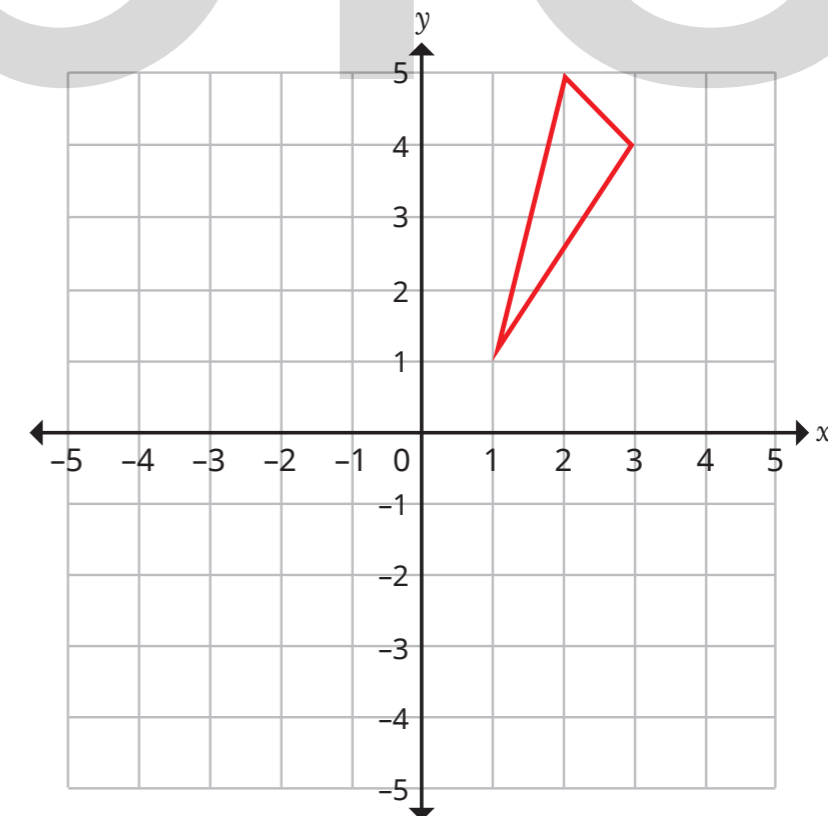


Do you agree with Tiny? _____

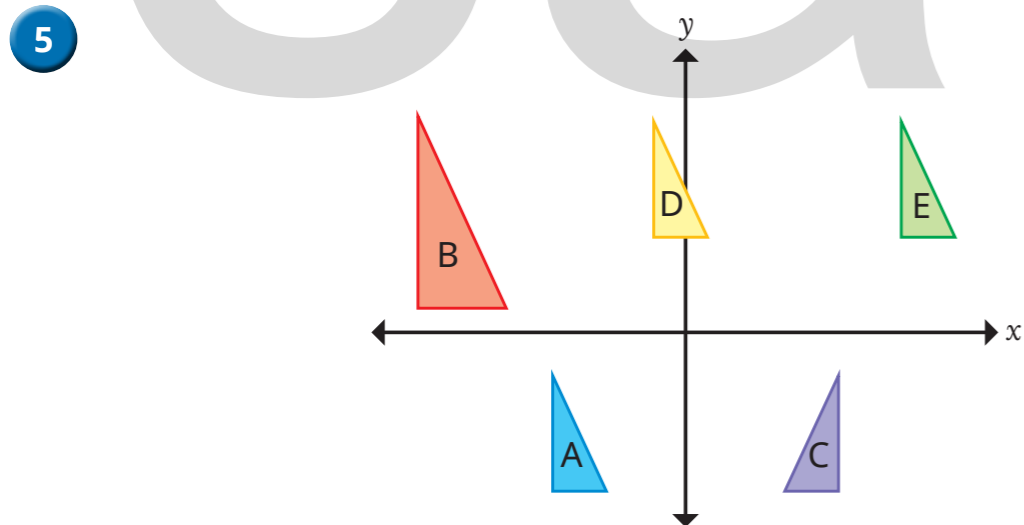
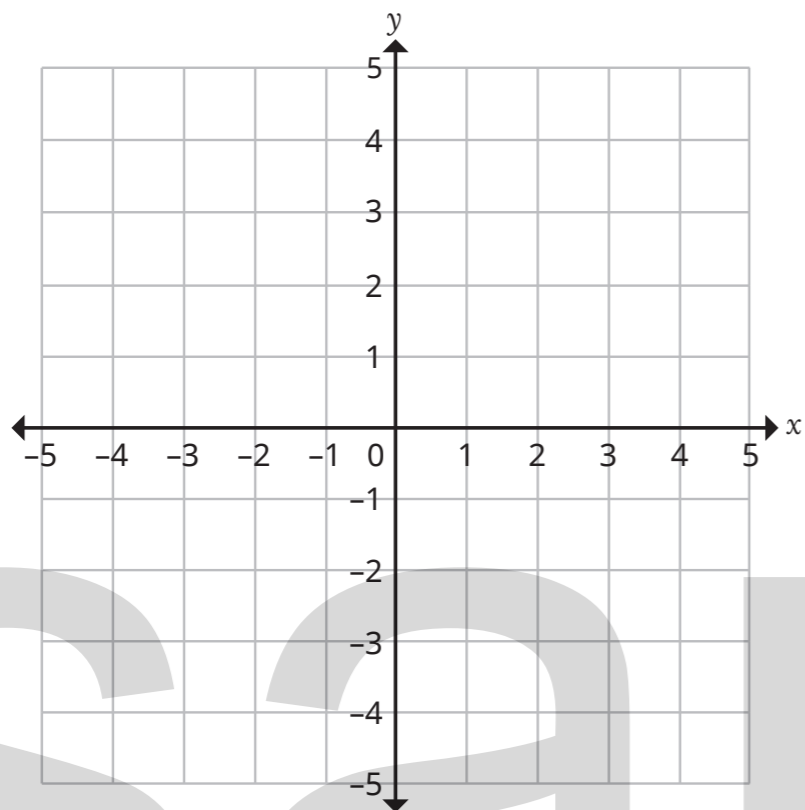
Explain your answer.

3

Translate the triangle 6 squares left.



- 4 These coordinates form a quadrilateral: $(-5, 5)$, $(-5, 1)$, $(-1, 2)$, $(-1, 4)$.
It is translated 3 squares right and 4 squares down.
Draw the quadrilateral on the grid in its **new** position.

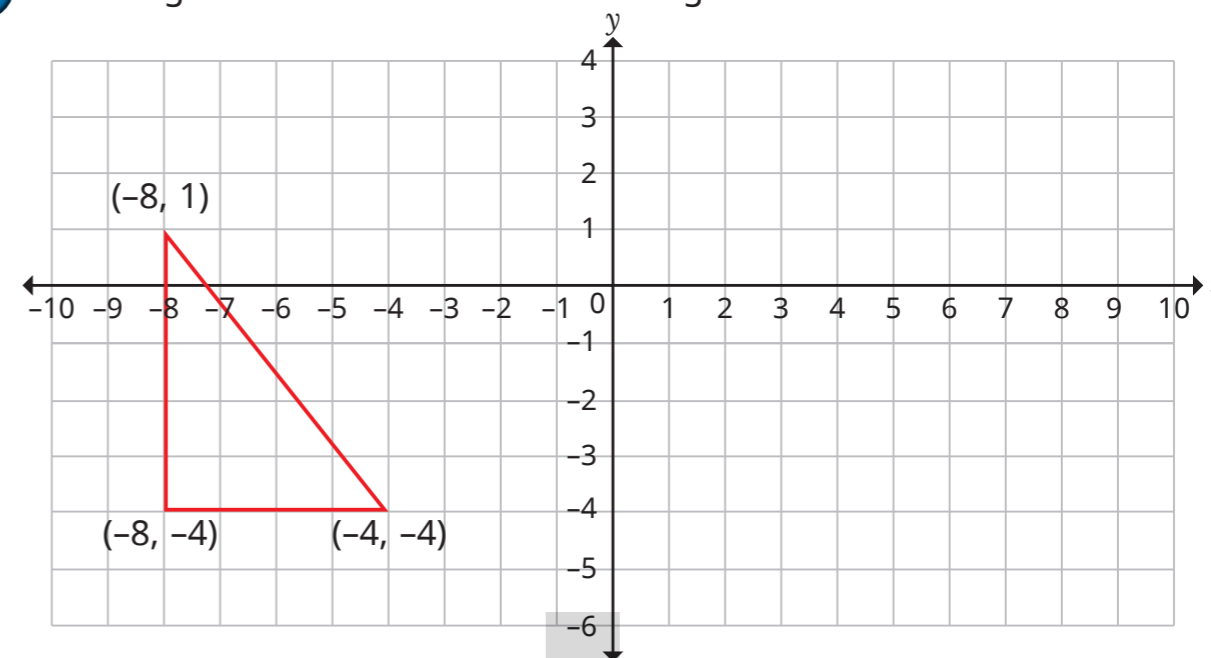


Which triangles are translations of each other?

Explain why the others are not translations.



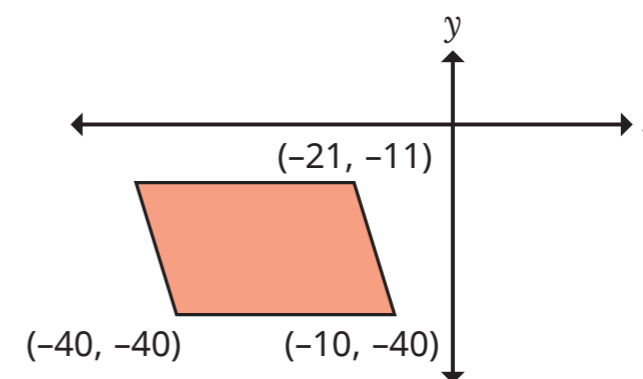
- 6 A triangle is drawn on the coordinate grid.



- a) Translate the triangle 9 squares right and 1 square down.
b) Tick the correct box for each point.

Point	Inside the new triangle	Outside the new triangle	On the perimeter of the new triangle
$(0, 0)$			
$(4, -5)$			
$(2, -1)$			
$(-6, -3)$			
$(3, -4)$			

- 7

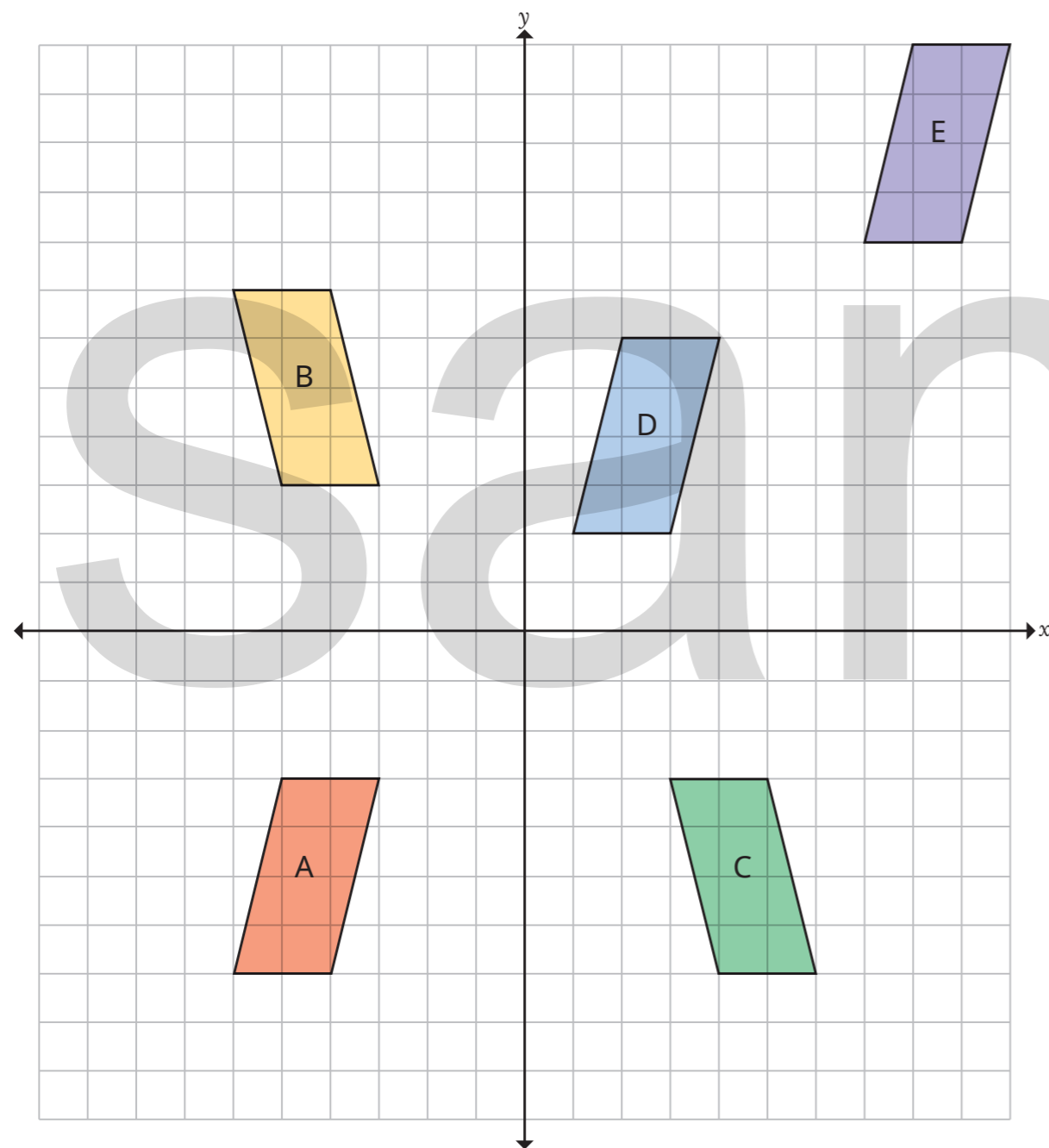


This parallelogram has been translated 50 squares left and 25 down.
What were the coordinates of **all four** vertices before it was translated?



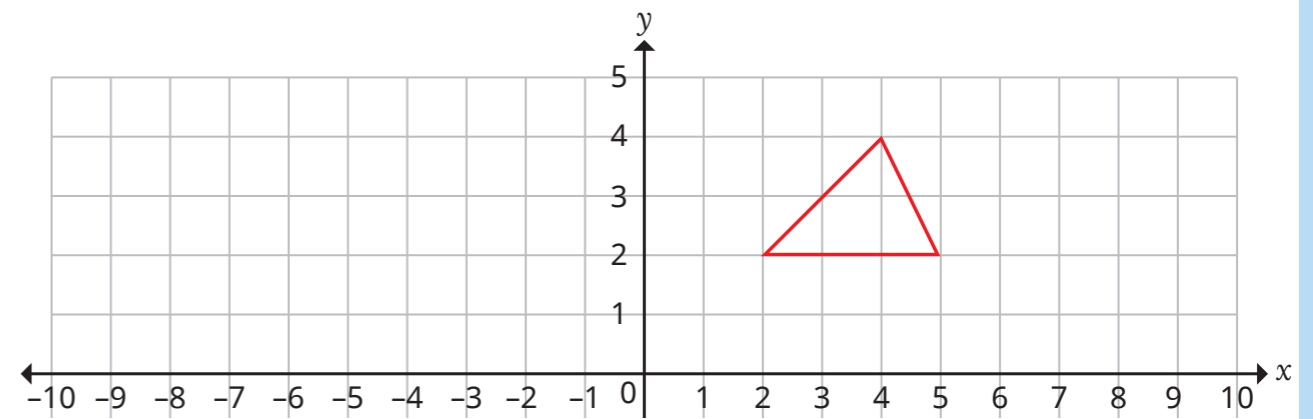
Reflections

1 Five parallelograms are shown on the coordinate grid.

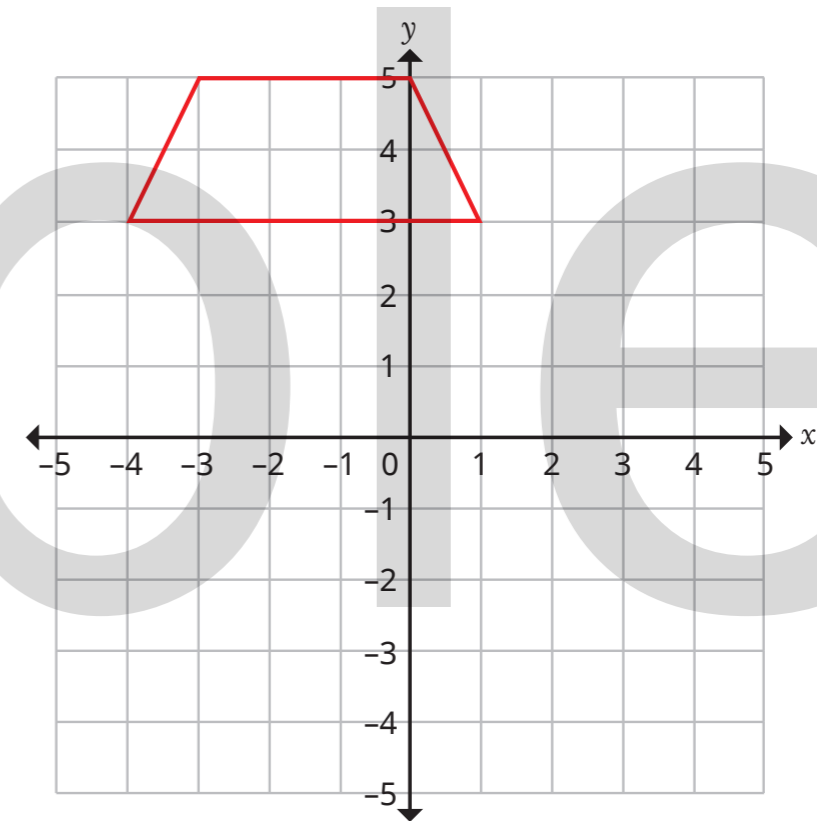


- Tick the shapes that are translations of shape A.
- Circle the shapes that are reflections of shape A.

2 Reflect the triangle in the y-axis.



3

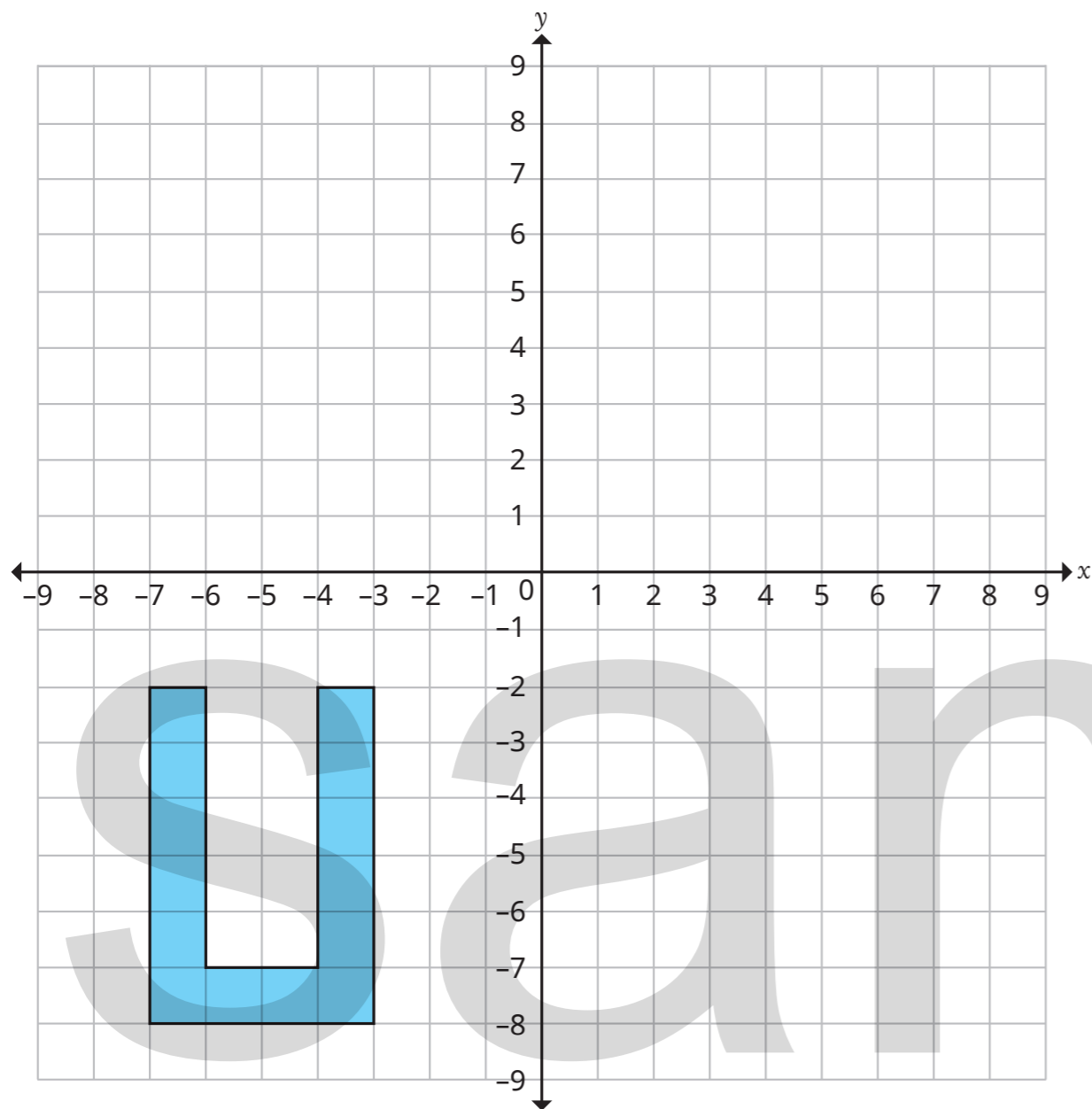


- What is the name of the shape plotted on the grid?

- Reflect the shape in the x -axis.
- What are the coordinates of the vertices of the reflected shape?



- 4 An octagon is shown on the coordinate grid.



- a) Reflect the octagon in the x -axis.

Label this shape B.

- b) Translate shape B 10 squares right and 10 squares down.

Label this shape C.

- c) Reflect shape C in the x -axis.

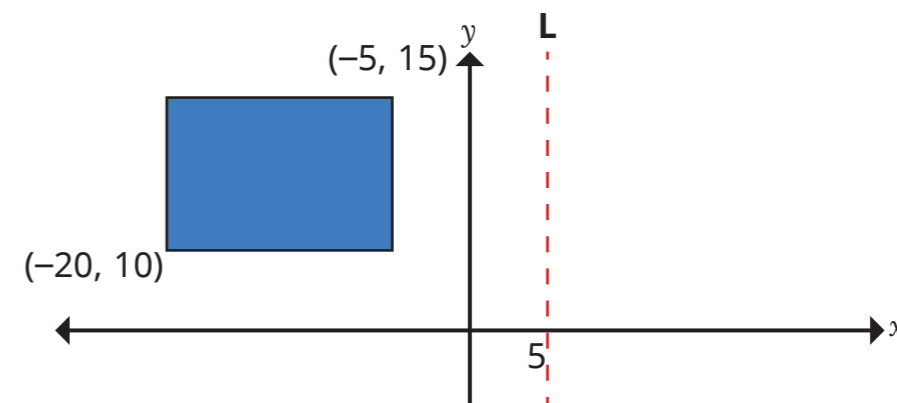
Label this shape D.

What do you notice?

Create a similar question for a partner.



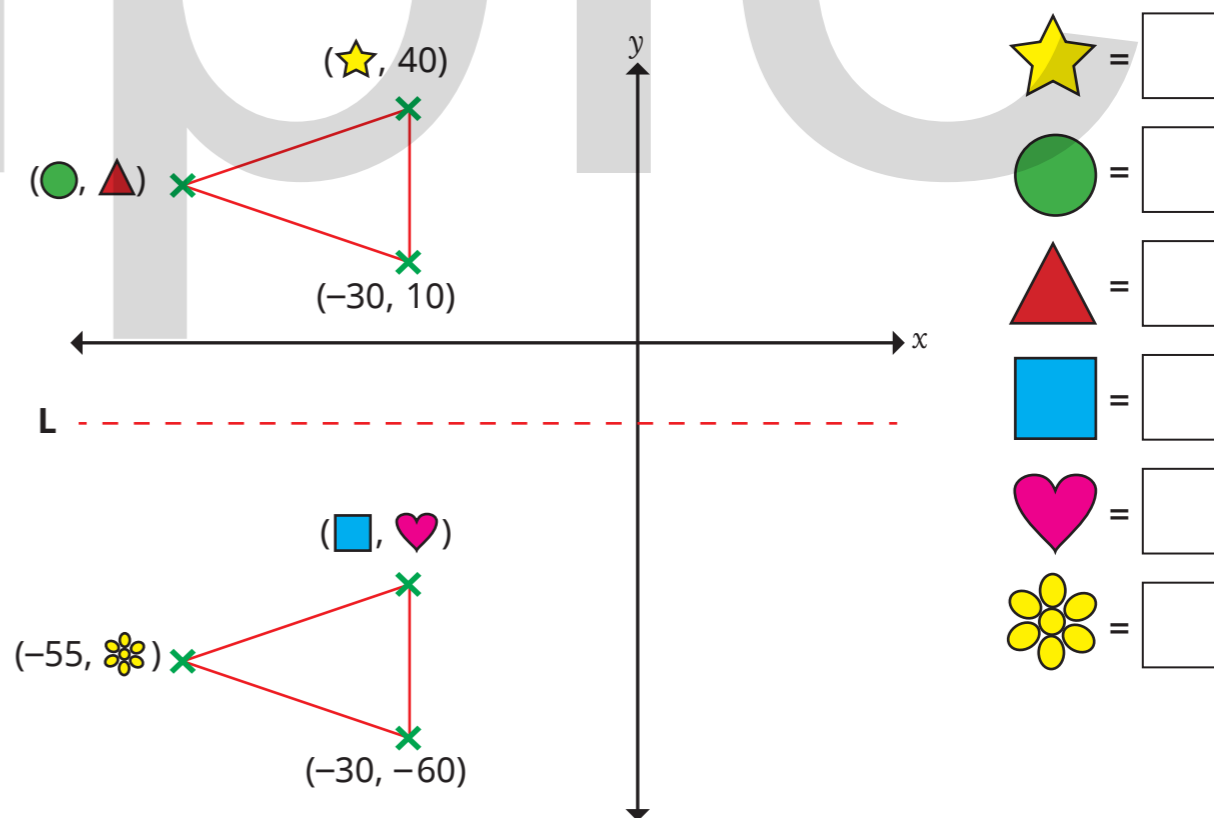
- 5 The shape is reflected in the line marked L.



Work out the coordinates of the new vertices.

(,) (,) (,) (,)

- 6 The isosceles triangle has been reflected in the line marked L. Work out the missing values.



sample

sample

sample

