Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

3300U10-1

S23-3300U10-1

TUESDAY, 23 MAY 2023 – MORNING

MATHEMATICS
UNIT 1: NON-CALCULATOR
FOUNDATION TIER

1 hour 30 minutes

ADDITIONAL MATERIALS

The use of a calculator is not permitted in this examination.

A ruler, protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

If you run out of space, use the additional page at the back of the booklet. Question numbers must be given for all work written on the additional page.

Take π as 3·14.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

In question **6**, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**5**	
2.	**2**	
3.	**2**	
4.	**4**	
5.	**2**	
6.	**6**	
7.	**2**	
8.	**2**	
9.	**2**	
10.	**5**	
11.	**3**	
12.	**2**	
13.	**4**	
14.	**2**	
15.	**3**	
16.	**3**	
17.	**3**	
18.	**5**	
19.	**6**	
20.	**2**	
Total	**65**	

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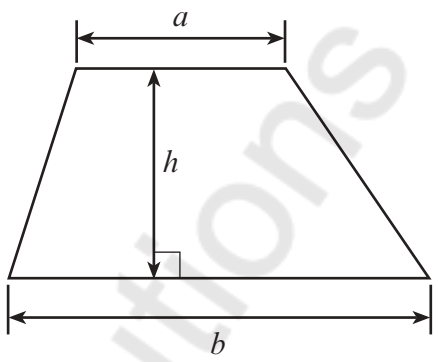
Formula List – Foundation Tier

Area of trapezium $= \frac{1}{2}(a + b)h$



Examiner only

1. (a) Write the number sixty thousand and forty-three in figures. [1]

60043

(b) Write down the value of the 7 in the number 137 520. [1]

7 Thousand

(c) Divide 504 by 8. [1]

$\frac{504}{8} = 63$

(d) Subtract 394 from 800. [1]

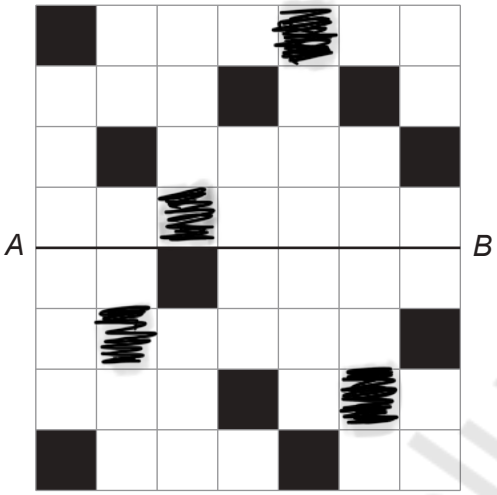
$800 - 394 = 406$

(e) Multiply 93 by 7. [1]

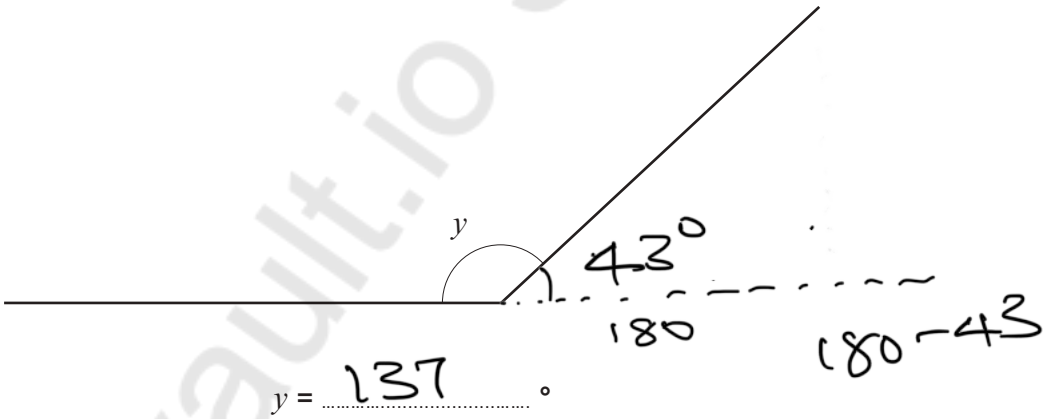
$93 \times 7 = 651$

Examiner only

2. Shade the smallest number of squares needed to make *AB* a line of symmetry. [2]

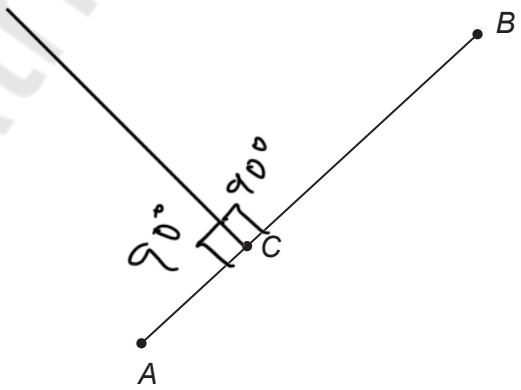


3. (a) Measure and write down the size of angle y. [1]



y = 137 °

(b) Draw a line through the point *C* that is perpendicular to *AB*. [1]



Examiner only

4. (a) Billy thinks of a number.
Billy halves his number.
His answer is 58.

What number did Billy think of? [1]

$no = x \quad \therefore \quad \frac{x}{2} = 58 \; ; \; x = 58 \times 2$

$x = 116$

(b) Siân thinks of a different number.
Siân squares her number.
Her answer is 9.

What number did Siân think of? [1]

$y^2 = 9 \; ; \; \sqrt{y^2} = \sqrt{9} \; ; \; y = 3$

(c) Calculate 40% of 120. [2]

$\frac{40}{100} \times 120$

$= 48$

5. (a) Which of the following is equal to 0·5 kg?
Circle the correct answer. [1]

50 mg | 500 g | 500 mg | 5 mg | 50 g

(b) Which of the following is equal to 700 cm?
Circle the correct answer. [1]

7 m | 7 km | 0·7 m | 0·07 km | 70 m

Examiner only

6. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Rod A and Rod B are drawn accurately below.

Rod A 

Rod B 

Three of Rod A and four of Rod B are placed end to end in one straight line.
What is the total length of these rods?
You must show all your working. [4 + 2 OCW]

Rod A = 5cm
Rod B = 2cm
(3 × 5) + (4 × 2)
15 + 8
= 28cm or 230mm

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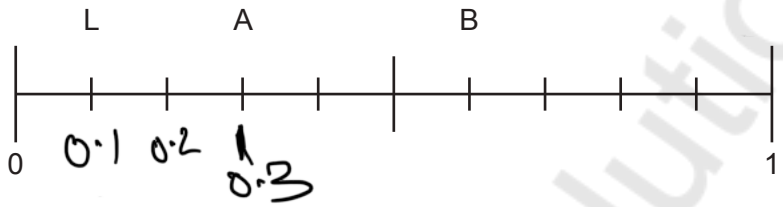
7. Catrin has a bag containing only apples, bananas and lemons.
She has 20 pieces of fruit altogether in her bag.
Catrin chooses one piece of fruit at random from her bag.

The probability that she chooses each type of fruit is shown on the probability scale below, where

- A represents apple
- B represents banana
- L represents lemon.



How many apples does Catrin have in her bag? [2]

0.3×20

$= 6$

8. (a) The cost of one book is £m.
What is the cost of 15 books in pounds (£)? [1]

$15 \times £m = £15m$

(b) Ieuan has 20 oranges.
He gives away k oranges.
How many oranges does Ieuan have now? [1]

Ans $= 20 - k$ oranges

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9.

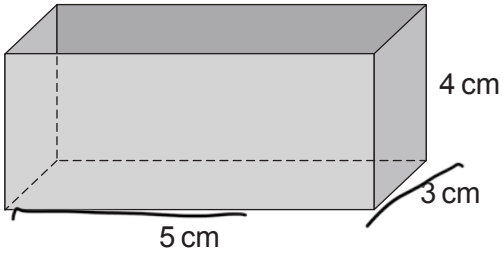
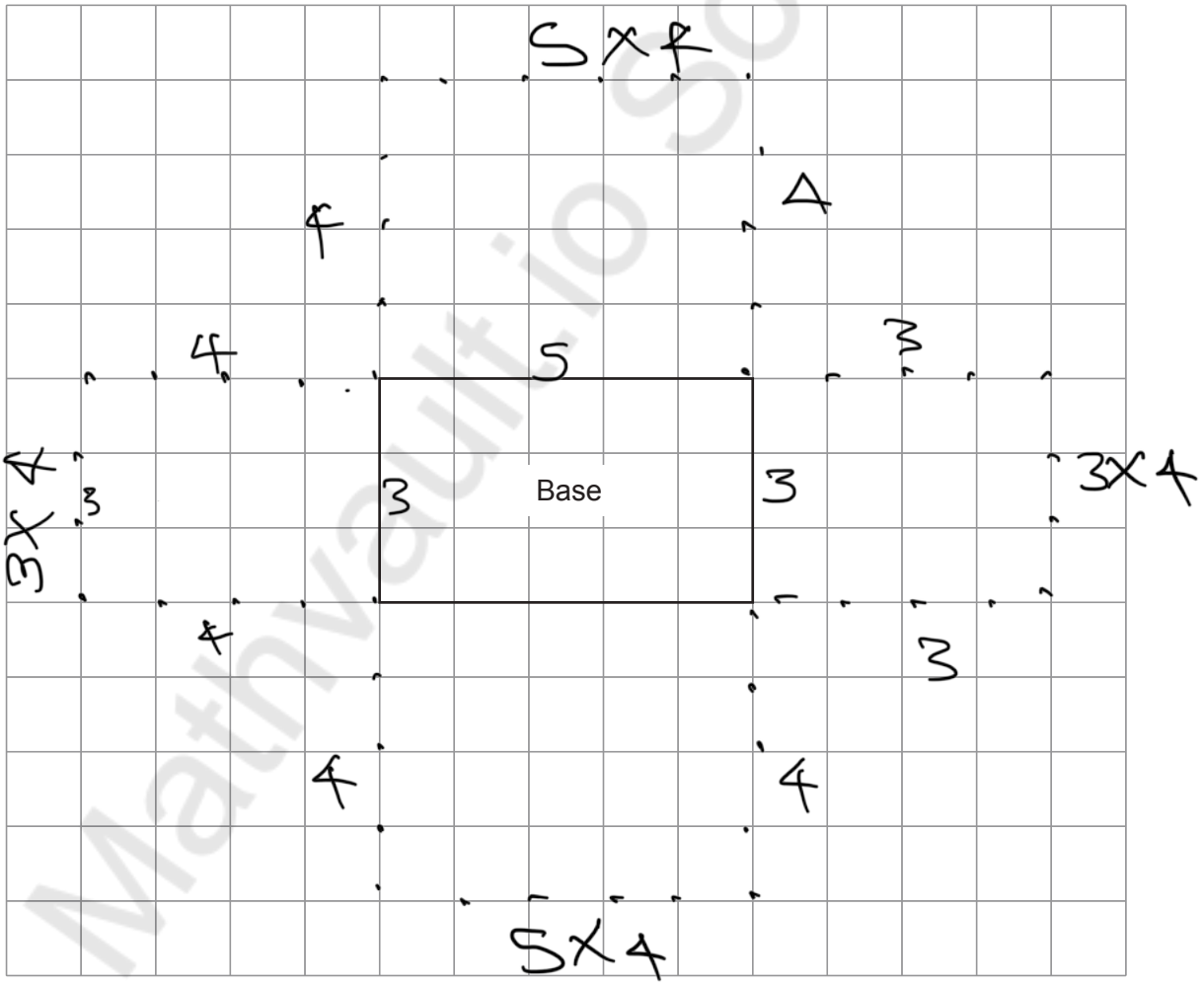


Diagram not drawn to scale

This box is 5 cm long, 3 cm wide and 4 cm high.
The box does **not** have a lid.
Complete an accurate net of the box on the centimetre-squared grid below.
The base has been drawn for you. [2]

= 2 ; 5cm by 4cm height
2 ; 3cm by 4cm base



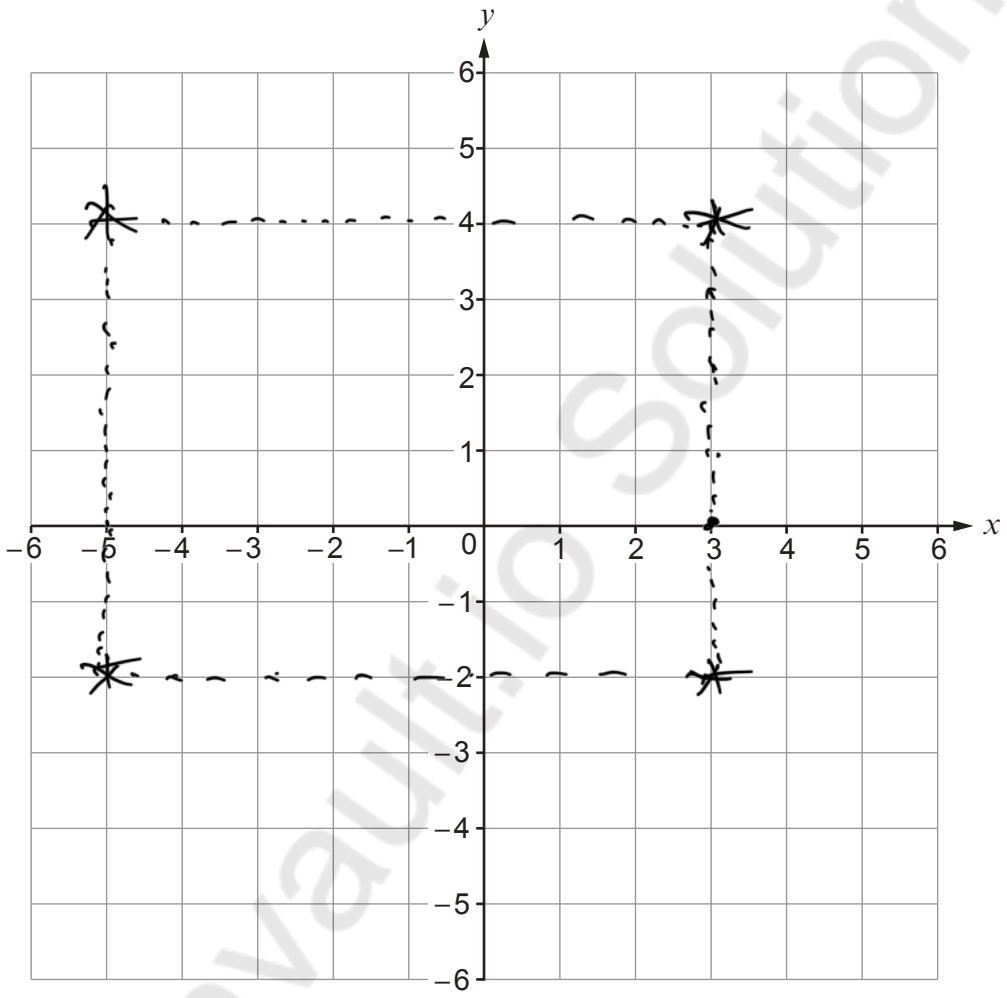
Examiner only

10. *ABCD* is a rectangle.

A is the point (3, 4), *B* is the point (–5, 4), *C* is the point (–5, –2) and *D* is the point (3, –2).

What is the perimeter of *ABCD*?

You may use the centimetre-squared grid below to help you. [5]



L = 8 ; W = 6

P = 2 × (L + B)

P = 2 × (8 + 6)

= 2 × 14

= 28

Perimeter of *ABCD* = 28 cm

Examiner only

11. Write $\frac{2}{5}$, 9% and 0·3 in ascending order.

You must show all your working. [3]

$\frac{2}{5} = 0.4$, $9\% = 0.09 \left(\frac{9}{100}\right)$, 0.3

0·09 0·3 0·4

Smallest value ⟶ Greatest value

12. The area of a rectangle is 80 cm^2.

Area = 80 cm^2

Diagram not drawn to scale

The length of the rectangle is 5 times its width.

Calculate the length and width of the rectangle. [2]

Area = $L \times W$; $L = 5W$

Area = $5W \times W$

$80 = 5W^2$

$W^2 = \frac{80}{5}$; $W^2 = 16$

$\sqrt{W^2} = \sqrt{16}$

$W = 4$; $L = 5 \times 4 = 20$

Length = 20 cm Width = 4 cm

Examiner only

13. (a) Solve the equation $3x - 10 = 17$. [2]

$3x - 10 = 17 \; ; \; 3x = 17 + 10$

$3x = 27$

$x = \frac{27}{3} = 9$

(b) Simplify $6f - 4g + 2f - 9g$. [2]

$6f + 2f - 4g - 9g$

$8f - 13g$

14. (a) Which of the following is nearest in mass to 5 kg?
Circle the correct answer. [1]

7 lb 11 lb 15 lb 19 lb 23 lb

(b) Which of the following is nearest in volume to 100 litres?
Circle the correct answer. [1]

100 pints 125 pints 150 pints 175 pints 200 pints

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15. Rhian is n years old.
Samir is 7 years younger than Rhian.
Nigel is twice as old as Samir.

Write down an expression, in terms of n, for Nigel's age. [3]

Rhian = n; Samir is $n-7$;
Nigel = $2(n-7)$
Nigel = $2n-14$

Nigel's age $2(n-7)$ or $2n-14$

16. The mean of four numbers is 7.

(a) What is the total of the four numbers? [1]

$\frac{x}{4} = 7$; $x = 7 \times 4$; $= 28$

(b) Find a set of four numbers such that:

- their mean is 7
- their range is 6.

Write your four numbers in the boxes below. [2]

3	7	9	9

Examiner only

17.

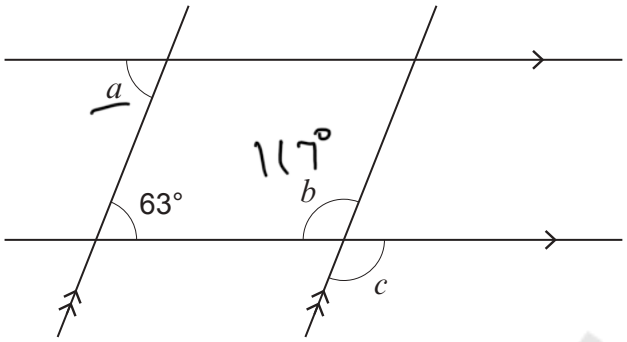

Diagram not drawn to scale

180 − 63 = 117°

Find the size of each of the angles a, b and c. [3]

a = 63° b = 117° c = 117°

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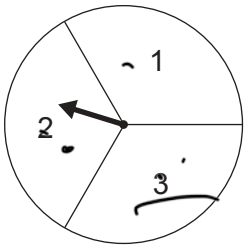
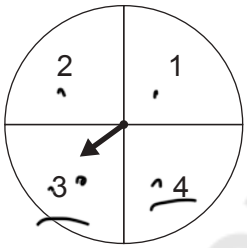
18. Two **fair** spinners are shown below.



Spinner A



Spinner B

In a game, the numbers shown by the two pointers are added together.
In the diagram, the score gained would be 2 + 3 = 5.

A winning score is 6 or more.

How many winning scores would you expect when the game is played 60 times?
You must show all your working. [5]

win ; 3+3 (1st) ; 3+4 (2nd)
2+4 (3rd)

$\frac{3}{12} = \frac{1}{4} = 0.25$

60×0.25
$= 15$

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19. (a) Express 48 as a percentage of 400. [2]

$\frac{48}{400} \times 100 = 12\%$

(b) Share £45 in the ratio 8 : 1. [2]

total $= 8 + 1 = 9$

$\frac{8}{9} \times 45^5 = £40$

$\frac{1}{9} \times 45 = £5$

£ 40 and £ 5

(c) Express $1 - \frac{1}{2^3}$ as a single fraction in the form $\frac{a}{b}$, where a and b are integers. [2]

$2^3 = 8$

$\frac{1}{1} - \frac{1}{8}$

$\frac{8-1}{8} = 7 \; ; \; \frac{7}{8}$

Answer = $\frac{7}{8}$

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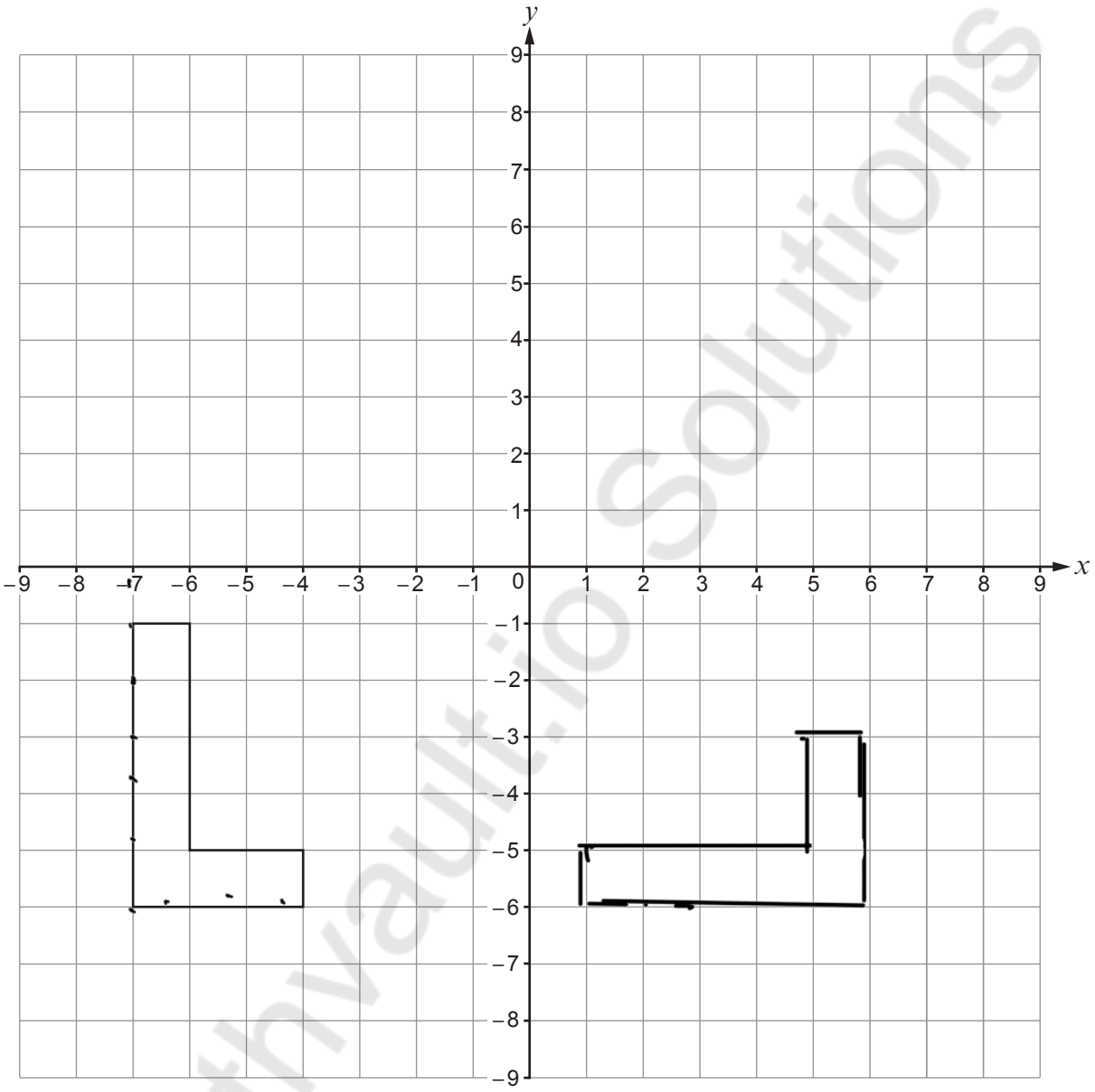
20. Rotate the shape shown below by 90° anticlockwise about the origin. [2]



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