GCSE

3300U20-1

TUESDAY, 14 JUNE 2022 – MORNING

MATHEMATICS

UNIT 2: CALCULATOR – ALLOWED

FOUNDATION TIER

1 hour 25 minutes plus your additional time allowance

A CALCULATOR WILL BE REQUIRED FOR THIS EXAMINATION

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	2	
2.	2	
3.	3	
4.	3	
5.	3	
6.	4	
7.	3	
8.	4	
9.	1	
10.	2	
11.	5	
12.	4	
13.	6	
14.	8	
15.	5	
16.	2	
17.	3	
Total	60	

ADDITIONAL MATERIALS

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

ITEMS INCLUDED WITH QUESTION PAPER

A separate Formula List.

A separate Diagram Booklet.

Model for Question 3 (b).

Cut out shape for Question 16.

The Diagram Booklet MUST be handed in to the invigilators and sent for marking.

INSTRUCTIONS TO CANDIDATES

Use black ink, black ball – point pen, black felt tip or your usual method.

Write your name, centre number and candidate number in the spaces on the front cover.

Answer ALL questions.

Write your answers in the spaces provided.

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

Take π as $3{\cdot}14$ or use the π button on your calculator.

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 11, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

1. (a) Write the number sixty – five thousand and eleven in figures.

_____

_____

[1 mark]

(b) Write the number **5 006 403** in words.

_____

_____

_____

[1 mark]

2. Use one of the symbols < , > or = to make each of the following statements correct. The first one has been completed for you.

75 + 7	>	68
45 × 23		1050
3552 ÷ 48		74
1018		2038 ÷ 2

SPACE FOR WORKING:

[2 marks]

3. (a) Look at the diagrams for Question 3 (a) in the separate Diagram Booklet. The diagrams show Shape (i) and Shape (ii).

Write down the special name of each of the two shapes.

Shape (i) = _____

[1 mark]

Shape (ii) = _____

[1 mark]

(b) Ask for the model for Question 3 (b). The model represents a 3D shape.

Write down the special name of the 3D shape.

_____

[1 mark]

4. (a) Write down the first 4 multiples of 48

_____

_____

_____ _____ _____ _____

[1 mark]

(b) Circle the prime number below.

3	**4**	**6**	**8**	**9**

_____

_____

[1 mark]

continued on the next page . . .

Question 4 continued

4. (c) A number has EXACTLY four factors.

Its factors are 1, 3, 13 and the number itself.

What is the number?

_____

_____

_____

_____

_____

[1 mark]

5. (a) Elaine writes down two square numbers.

She subtracts the smaller square number from the larger square number.

Her answer is 9

Which two square numbers did Elaine write down?

_____

_____

_____

_____

_____

Elaine's square numbers are

_____ and _____

[2 marks]

continued on the next page . . .

Question 5 continued

5. (b) Dylan adds two odd numbers together and gets an answer of 37

Could Dylan's answer be correct?

Yes ☐

No ☐

Can't tell ☐

Explain your reasoning.

Reasoning: _____

_____

_____

_____

_____

[1 mark]

6. (a) What is the special name given to the perimeter of a circle?

Circle the correct answer.

diameter
radius
chord
tangent
circumference

[1 mark]

(b) One of the following angles is a reflex angle.

Circle the correct answer.

70°	170°	270°	370°	470°

[1 mark]

continued on the next page . . .

Question 6 continued

6. (c) Look at the diagram for Question 6 (c) in the separate Diagram Booklet.

The diagram is NOT drawn to scale.

The diagram shows two angles on a straight line.

The larger angle is 30° greater than the smaller angle.

Find the size of each angle.

Smaller angle = _____ °

Larger angle = _____ °

[2 marks]

7. (a) Describe IN WORDS the rule for continuing the sequence below.

79, 65, 51, 37, ……..

Rule: _____

_____

_____

[1 mark]

(b) Write down the next term in the sequence below.

46, 92, 184, 368, _____

_____

_____

[1 mark]

continued on the next page . . .

Question 7 continued

7. (c) Adrian has n grapes.

He eats 4 of them.

Write down, in terms of n, the total number of grapes Adrian now has.

_____

_____

[1 mark]

8. Complete the table below so that each row will show equivalent fractions, decimals and percentages.

The first row has been completed for you.

Fraction	Decimal	Percentage
$\frac{1}{4}$	0•25	25%
$\frac{7}{10}$		%
$\frac{}{20}$		5%

[4 marks]

9. Find $\sqrt{11 \cdot 56} + 2 \cdot 5^2$

_____

_____

_____

[1 mark]

10. Use the formula $W = 7X + 2Y$ to find the value of W when $X = 35$ and $Y = 29$

[2 marks]

11. IN THIS QUESTION, YOU WILL BE ASSESSED ON THE QUALITY OF YOUR ORGANISATION, COMMUNICATION AND ACCURACY IN WRITING.

Geraint writes down three different EVEN numbers.

The smallest number is $\frac{3}{5}$ of 200

The range of his numbers is 4

Which three different EVEN numbers did Geraint write down?

You must show all your working.

[3 marks + 2 marks OCW]

12. **Look at the diagram for Question 12 in the separate Diagram Booklet.**

The diagram shows point *A* and point *B* on a coordinate grid.

(a) ***B*** **is the midpoint of the line** ***AC*****.**

Find the coordinates of ***C*****.**

_____

_____

_____

C **(_____ , _____)**

[2 marks]

continued on the next page . . .

Question 12 continued

12. (b) ***A*** **and** ***B*** **are two vertices of a right – angled triangle.**

Point ***D*** **is to be plotted on the grid so that the triangle** ***ABD*** **is a right – angled triangle.**

The ***x*** **– coordinate of** ***D*** **is negative.**

Give the coordinates of a possible position of the point ***D*** **that can be plotted on the grid.**

_____

_____

_____

D **(** _____ **,** _____ **)**

[2 marks]

13. By first expressing all the amounts below in litres, calculate the mean of the three amounts.

1·25 litres 2·73 pints 1615 ml

1·25 litres
2·73 pints ≈ _____ litres
1615 ml = _____ litres

Mean of the three amounts = _____ litres

[6 marks]

(Turn over)

14. Look at the diagrams for Question 14 in the separate Diagram Booklet.

The diagram shows two fair spinners, a triangular spinner and a square spinner.

In a game, the two spinners are spun.

The two numbers obtained are multiplied together to get a score.

For example, in the diagram, the score is 6 because $3 \times 2 = 6$

Look at the table for Question 14 in the separate Diagram Booklet.

Some of the scores are shown in the table.

(a) Complete the table to show all the possible scores.

[1 mark]

continued on the next page . . .

Question 14 continued

14. (b) Explain why all the scores are even numbers.

_____

_____

_____

_____

_____

[1 mark]

continued on the next page . . .

Question 14 continued

14. (c) What is the probability that a person gets a score of 10 or more when playing the game once?

[2 marks]

continued on the next page . . .

Question 14 continued

14. (d) Players are charged £2.50 to play the game once.

Each player who gets a score of 10 or more wins £3.50

How much profit would you expect to make when 228 people each play the game once?

You must show all your working.

[4 marks]

15. The length of a rectangle is double its width.

The area of the rectangle is

greater than $60\ cm^2$

The perimeter of the rectangle is

less than $40\ cm$.

Give a possible width and length of the rectangle.

Calculate the area and the perimeter of this rectangle.

You must show all your working.

Use the answer spaces to clearly identify which is the area and which is the perimeter.

_____

_____

Width = _____ **cm**

Length = _____ **cm**

Area = _____ **cm^2**

Perimeter = _____ **cm**

[5 marks]

16. Look at the diagram for Question 16 in the separate Diagram Booklet.

The diagram shows a shape on a coordinate grid.

Reflect the shape in the line $x = 1$

A cut out shape is provided for this question.

[2 marks]

17. A car travels **129•5** miles in

3 hours **30** minutes.

Calculate the average speed of the car.

Give your answer in miles per hour.

[3 marks]

END OF PAPER

TOTAL 60 MARKS

Question number	Additional pages, if required. Write the question number(s) in the left - hand margin.

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Diagram Booklet

Surname: _____

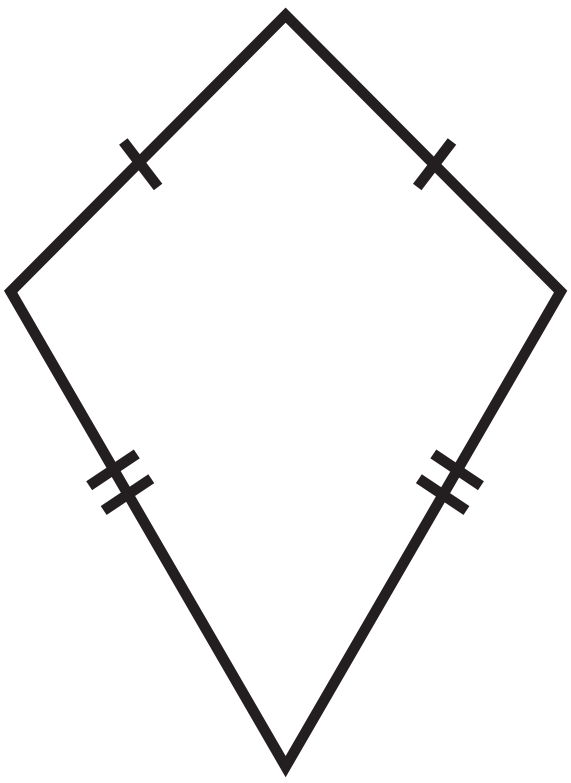
First name(s): _____

Centre Number: _____

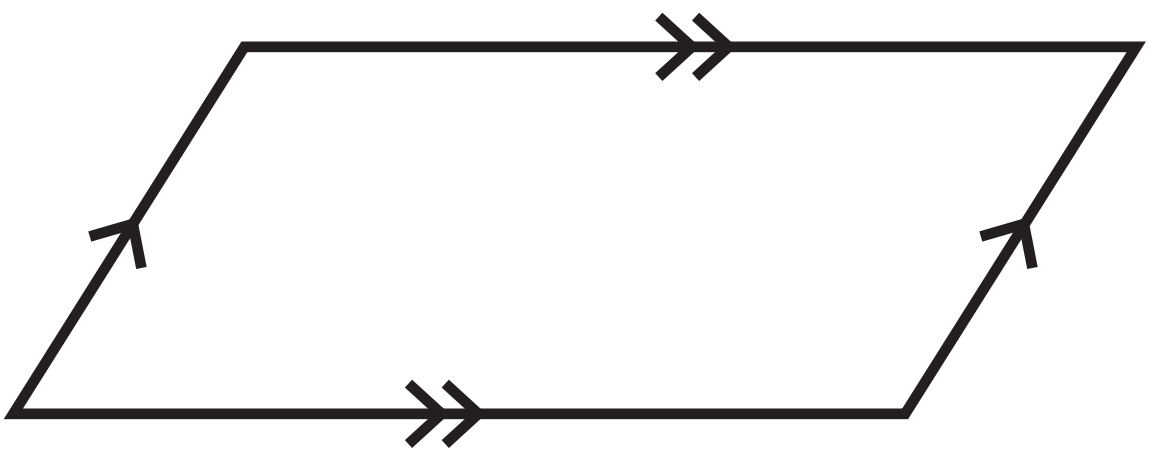
Candidate Number: 0 _____

Question 3 (a)

Shape (i)

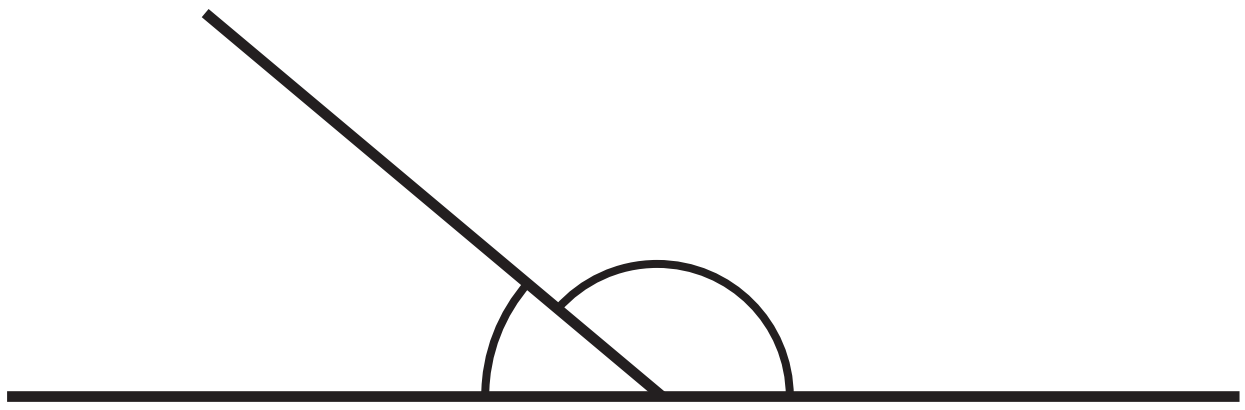


Shape (ii)

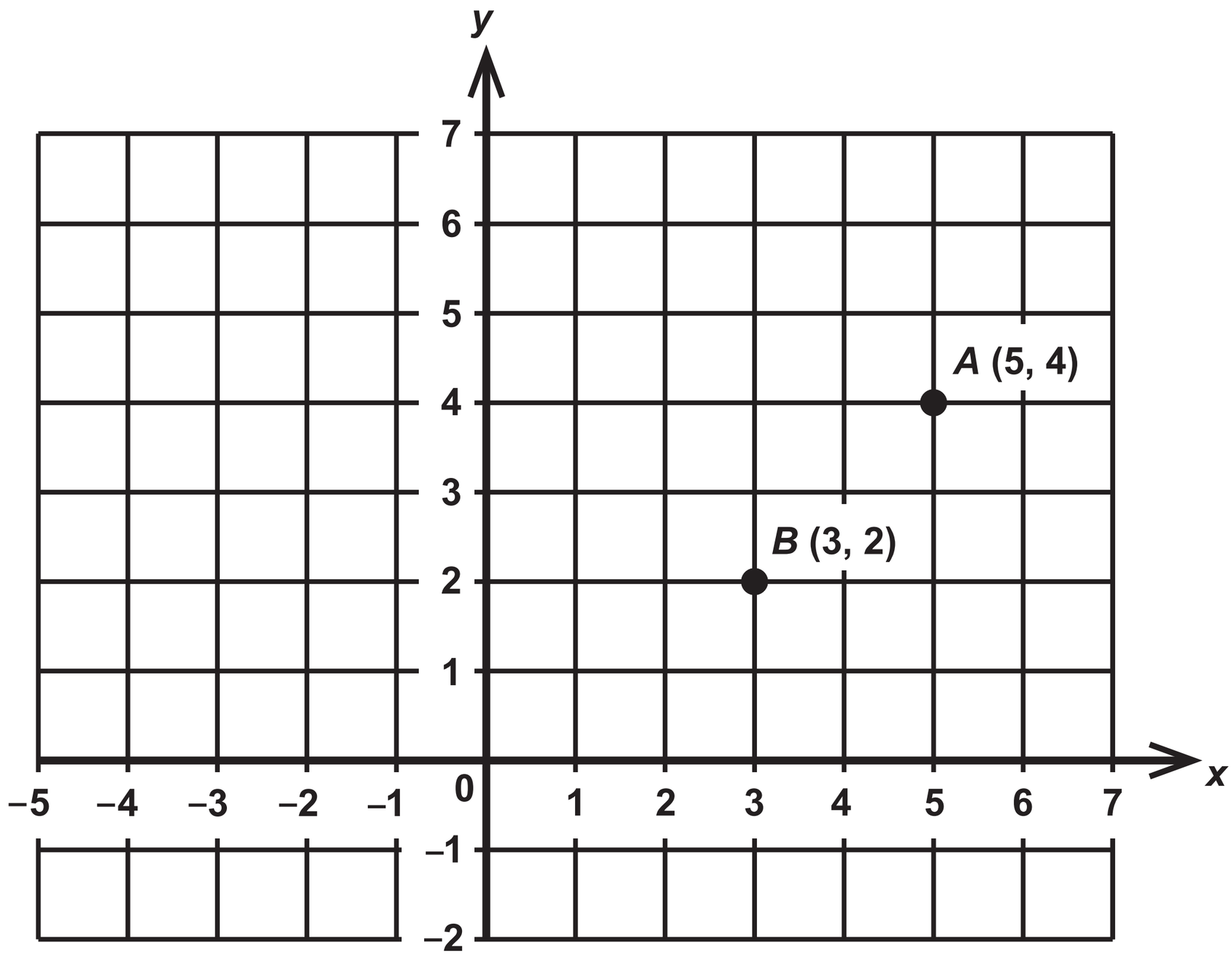


Question 6 (c)

Diagram NOT drawn to scale

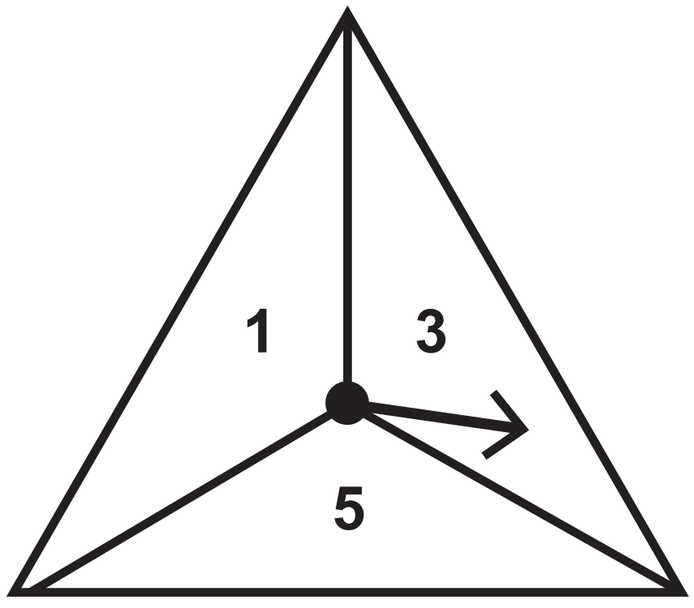


Question 12

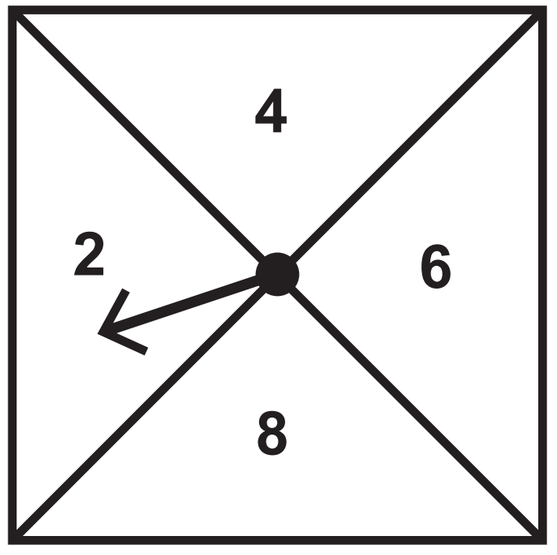


Question 14

Triangular spinner



Square spinner

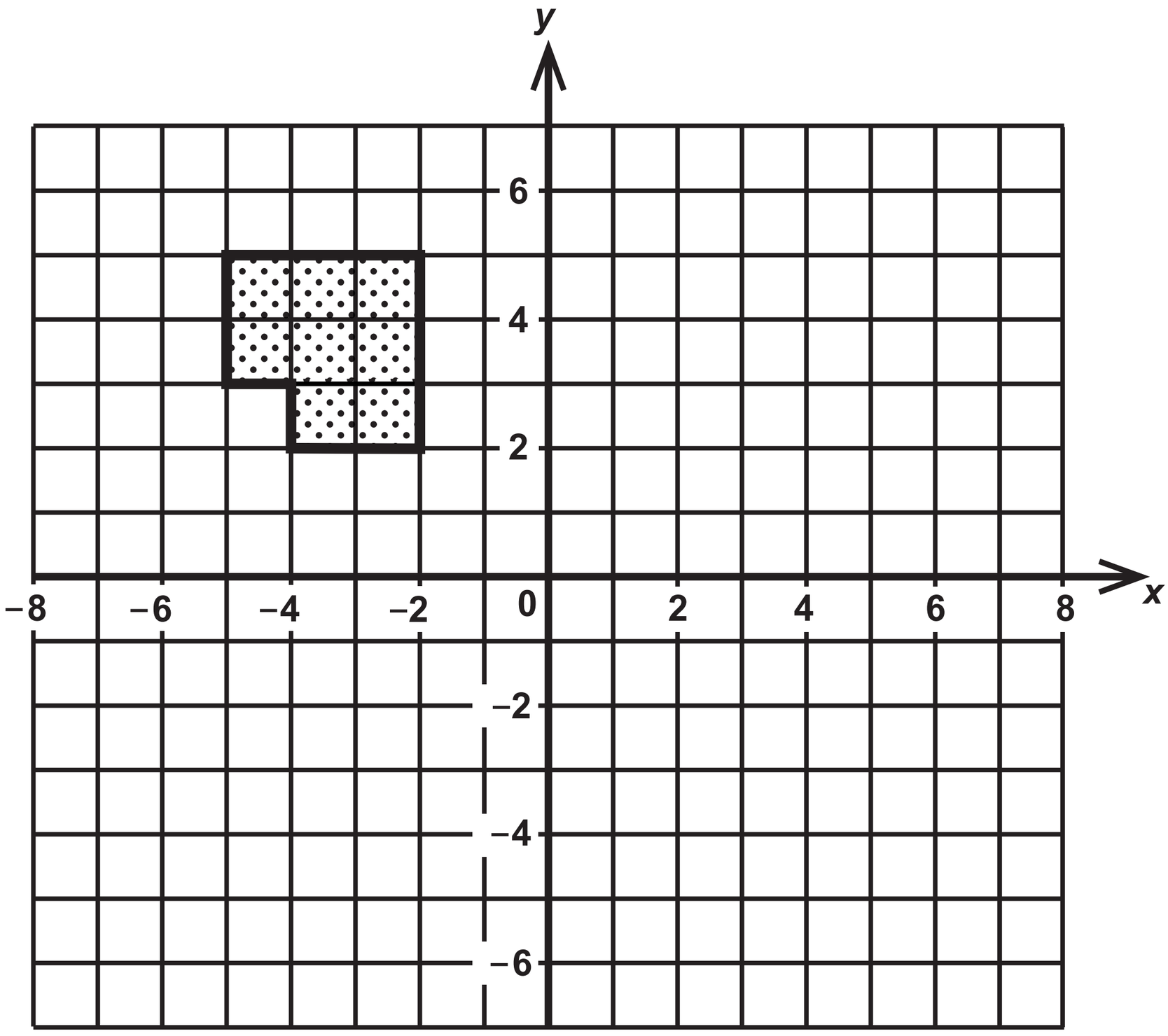


Question 14

Table

Triangular spinner	Square spinner: 2	4	6	8
1		4		8
3	6		18	24
5		20		

Question 16



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FORMULA LIST
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You must not write on these formula pages.

Anything you write on these formula pages will gain NO credit.

Formula List – Foundation Tier

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