

AQA • GCSE MATHEMATICS 8300

Foundation Tier — Paper 2

Calculator

November 2023 exam series

QUESTION PAPER

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Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

I declare this is my own work.

GCSE MATHEMATICS

F

Foundation Tier Paper 2 Calculator

Friday 10 November 2023

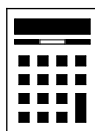
Morning

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator
- mathematical instruments
- the Formulae Sheet (enclosed).



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

In all calculations, show clearly how you work out your answer.

For Examiner's Use

Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
TOTAL	



N 0 V 2 3 8 3 0 0 2 F 0 1

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

Do not write
outside the
box

- 1** Convert 800 centimetres to metres.

[1 mark]

Answer _____ m

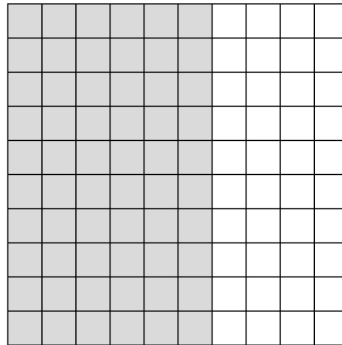
- 2** The temperature was -11°C and **increases** by 5°C
Work out the new temperature.

[1 mark]

Answer _____ $^{\circ}\text{C}$



3 (a) Here is a grid.

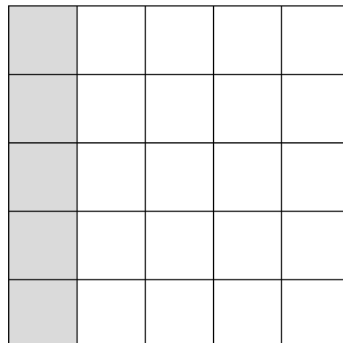


What percentage of the grid is shaded?

[1 mark]

Answer _____ %

3 (b) Here is a different grid.



What percentage of the grid is shaded?

[1 mark]

Answer _____ %



4 (a) Solve $\frac{x}{3} = 6$

[1 mark]

$x =$ _____

4 (b) Solve $2x + 3 = 27$

[2 marks]

$x =$ _____

5 Work out $\frac{9}{4}$ as a decimal.

[1 mark]

Answer _____



6 Complete the bank statement.

[3 marks]

Date	Description	Credit (£)	Debit (£)	Balance (£)
01/11/2021	Starting balance			736.28
05/11/2021	Rent		450.00	_____
14/11/2021	Refund	25.00		_____
27/11/2021	Wages	1830.29		_____

7 Put all the numbers 4, 5, 6, 10 and 20 into the grid so that the numbers in each row and each column **multiply** to 120

[3 marks]

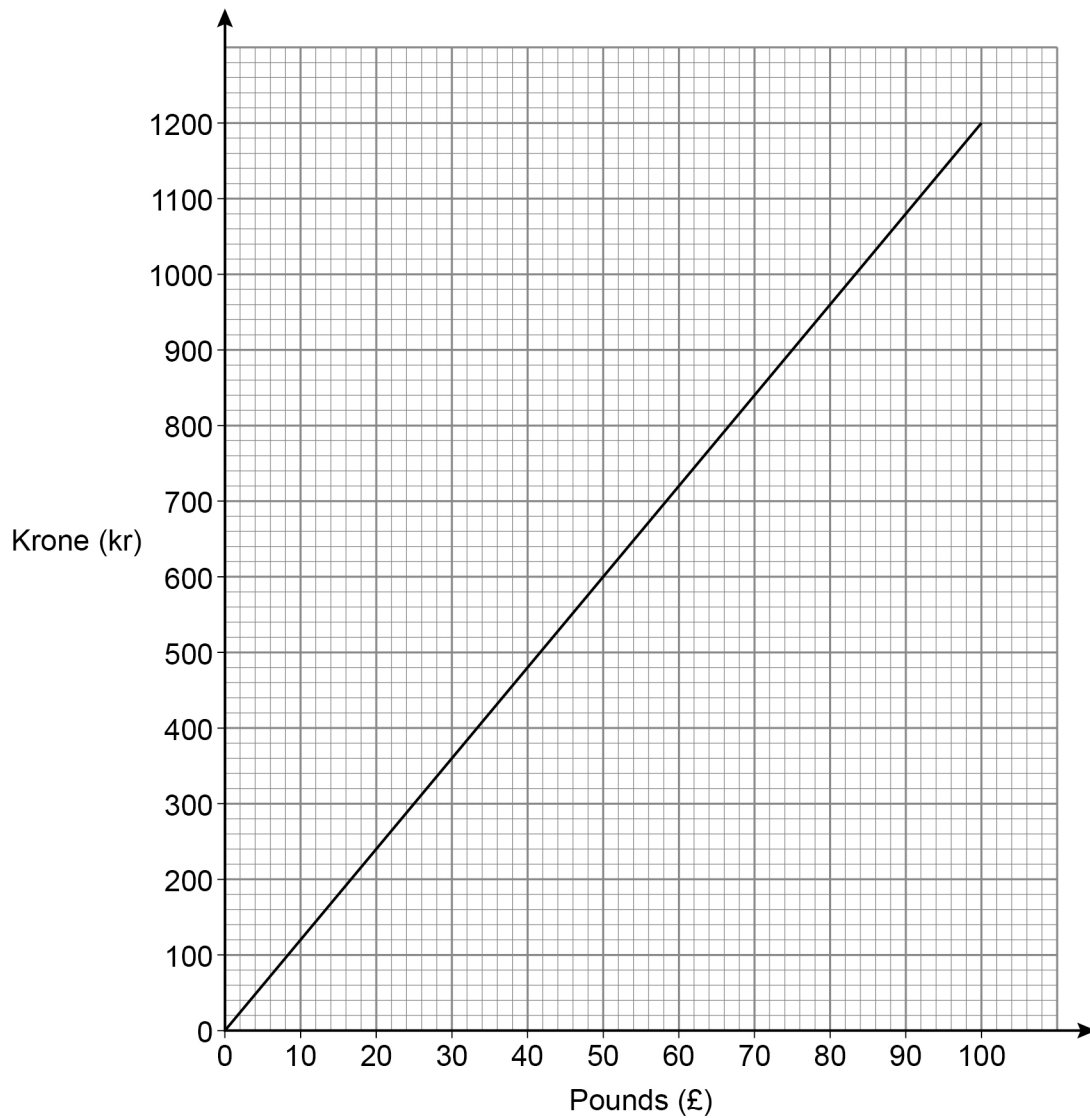
	3		120
	2	12	120
		1	120
120	120	120	

10

Turn over ►



- 8** The graph below is used to convert between pounds (£) and Norwegian krone (kr).



- 8 (a)** Convert 720 krone into pounds.

[1 mark]

Answer £ _____

- 8 (b)** Convert £500 into krone.

[2 marks]

Answer _____ kr



9 Connor is estimating the answer to $385 + 1479$

9 (a) He rounds each number to the nearest 10

Work out his estimate.

[2 marks]

Answer _____

9 (b) Connor says,

“My estimate will be more than the exact answer.”

How does he know this **without working out the exact answer**?

[1 mark]

Turn over for the next question

Turn over ►



10 Here are the salaries, in £, of the 6 workers in a company.

18 300 20 700 21 500 21 500 21 500 99 000

10 (a) Work out the mean salary.

[2 marks]

Answer £ _____

10 (b) Why is the mean **not** the best average to represent the salaries?

[1 mark]



11 Zoe's mass is 55 kilograms.

Work out her mass in stones and pounds.

Use 1 kilogram = 2.2 pounds

14 pounds = 1 stone

[3 marks]

Answer _____ stones _____ pounds

Turn over for the next question

Turn over ►



12 (a) A sauce is made from cream and stock in the ratio

$$\text{cream} : \text{stock} = 1 : 6$$

How much **sauce** can be made using 80 millilitres of cream?

[2 marks]

Answer _____ ml

12 (b) A different sauce is made from olive oil and tomato juice in the ratio

$$\text{olive oil} : \text{tomato juice} = 1 : 14$$

What fraction of this sauce is olive oil?

[1 mark]

Answer _____



13 Multiplying y by 6 gives the same result as adding 15 to y

13 (a) Write this as an equation.

[2 marks]

Answer _____

13 (b) Show that the value of y is **not** 4

[1 mark]

Turn over for the next question



A golf club is organising a trip for 42 people.
The costs are shown in the table.

Each minibus can hold 15 people.

Each person will play 2 games of golf.

The cost of the trip will be shared equally by the 42 people.

Work out the cost per person.

- 15** An ordinary fair dice is rolled ten times.
Here are the first nine results.

6 1 3 2 1 5 5 5 5

Write down the probability of getting a 5 on the tenth roll.

[1 mark]

Answer _____

- 16** $r : w = 1 : 4$

Write down the ratio $r^2 : w^2$

[1 mark]

Answer _____ : _____

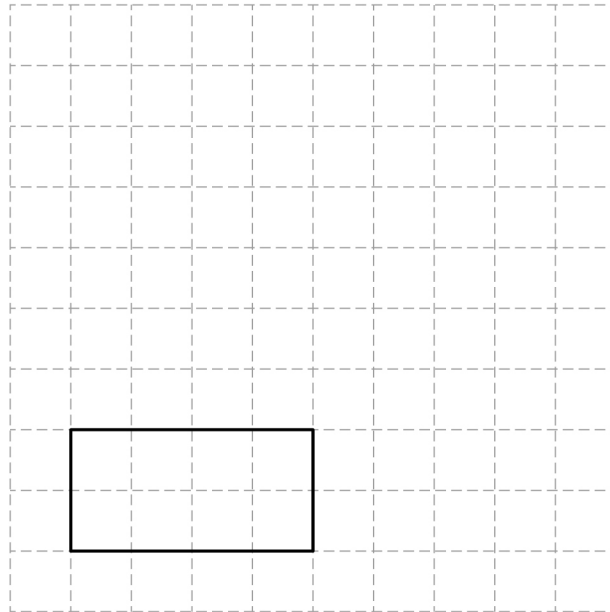
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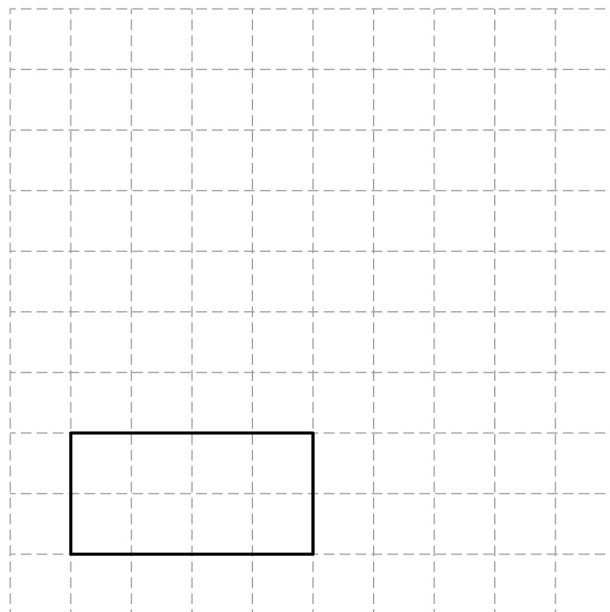
- 17 (a)** A rectangle is drawn on a square grid.
On the grid, draw a **congruent** rectangle.

[1 mark]



- 17 (b)** Here is the rectangle on a different square grid.
On this grid, draw a **similar** rectangle which is **not** congruent.

[1 mark]



- 18** A box contains 36 chocolates.
The chocolates are milk or dark and have hard or soft centres.
 $\frac{4}{9}$ of the chocolates have soft centres.
There are twice as many milk chocolates as dark.
5 of the dark chocolates have soft centres.

- 18 (a)** Complete the two-way table.

[4 marks]

	Hard centre	Soft centre
Milk		
Dark		5

One chocolate is chosen at random.

- 18 (b)** What is the probability that it is a dark chocolate with a soft centre?

[1 mark]

Answer _____

- 18 (c)** What is the probability that it has a hard centre?

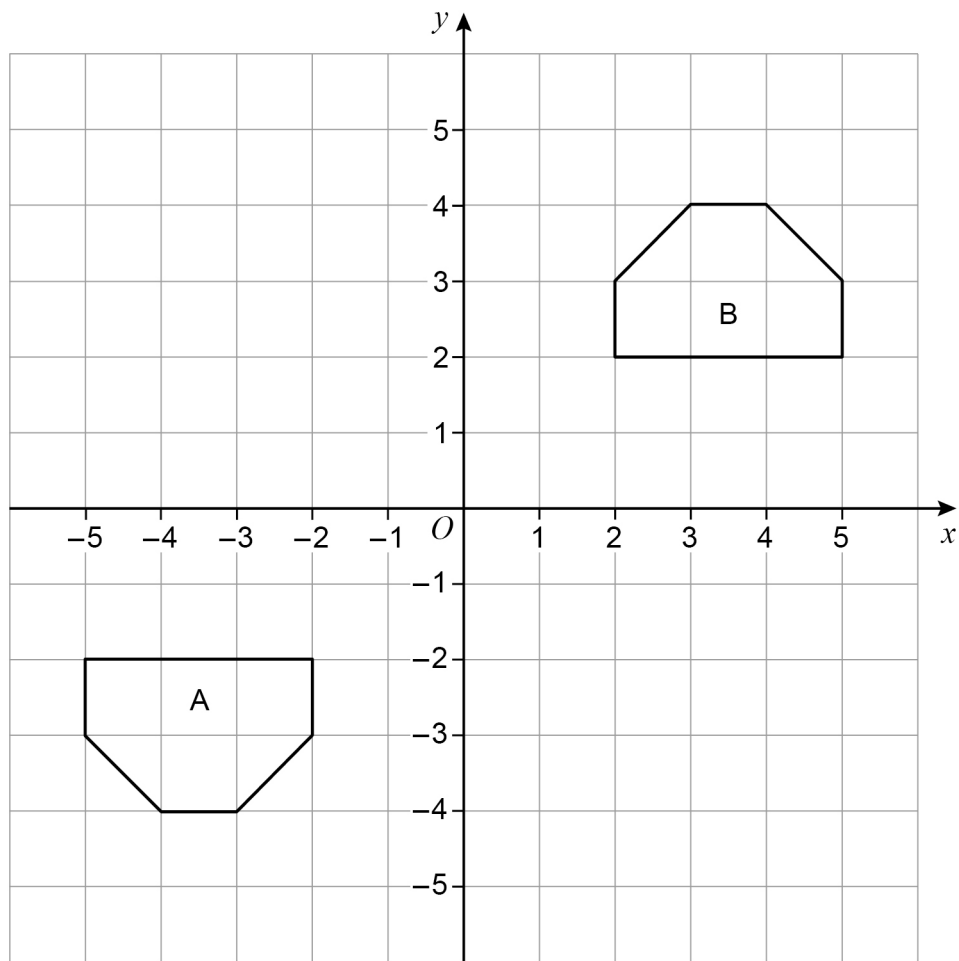
[1 mark]

Answer _____

Turn over ►

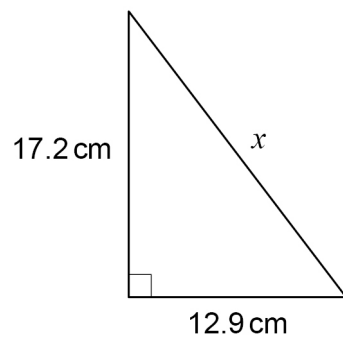


19

Describe fully the **single** transformation that maps shape A to shape B.**[3 marks]**

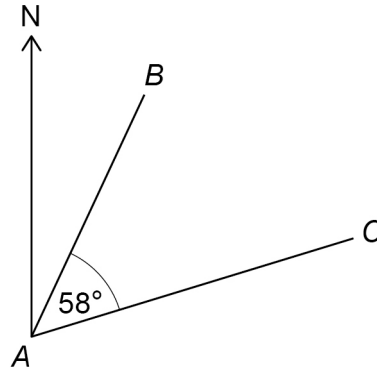


20

Use Pythagoras' theorem to work out the value of x .**[3 marks]**Not drawn
accurately

 $x =$ _____ cm**Turn over for the next question****Turn over ►**

21

Not drawn
accurately

The 3-figure bearing of B from A is 021°

Work out the 3-figure bearing of C from A .

[2 marks]

Answer _____ $^\circ$

22

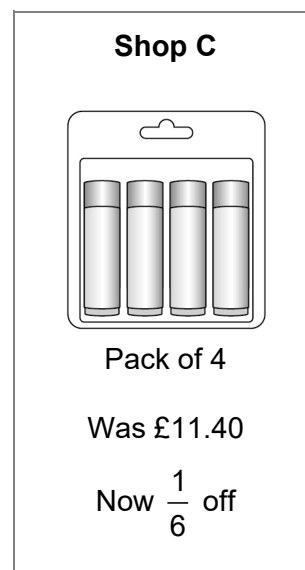
How many edges does a triangular prism have?

[1 mark]

Answer _____



Three shops sell the same type and size of lip balm stick.



Show working to support your answer.

[5 marks]

Shop	Total cost £
1	100
2	100
3	100
4	100
5	100
6	100
7	100
8	100
9	100
10	100
11	100
12	100
13	100
14	100
15	100
16	100
17	100
18	100
19	100
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82	100
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85	100
86	100
87	100
88	100
89	100
90	100
91	100
92	100
93	100
94	100
95	100
96	100
97	100
98	100
99	100
100	100

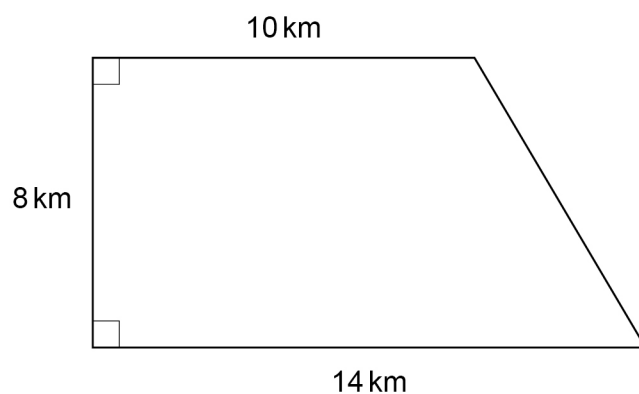
8

Turn over ►



24

The boundaries of a city form a trapezium.

Not drawn
accurately

$$\text{Population density} = \frac{\text{number of people}}{\text{area}}$$

The population density of the city is 9450 people per square kilometre.

Work out the number of people who live in the city.

[4 marks]

Answer _____



25 Round 1 of voting for Head Student is taking place in a school.

25 (a) To reach round 2, a student must receive **at least** $\frac{4}{15}$ of the votes.

What is the largest possible number of students that can reach round 2?

Circle your answer.

[1 mark]

15

11

3

4

25 (b) There are 900 votes in round 1

Sean receives 180 votes.

Amy draws a pie chart to represent the results.

Here is her method to work out the angle needed for Sean.

$$180 \div 900 \times 100 = 20$$

The angle should be 20°

Is Amy's method correct?

Tick a box.

Yes

☐

No

☐

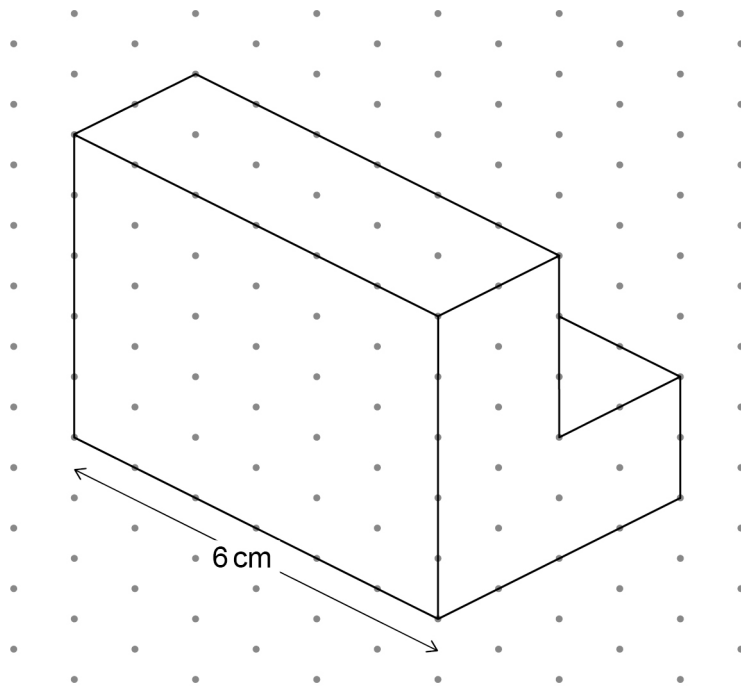
Give a reason for your answer.

[1 mark]



26

Here is a prism drawn on an isometric grid.



Work out the volume of the prism.

[3 marks]

Answer _____ cm^3 

Tasha drove 198 miles.

Her average speed for the first 3 hours was 45 miles per hour.

Her average speed for the rest of the journey was 31.5 miles per hour.

Work out her average speed for the whole journey.

[4 marks]

Answer miles per hour

Turn over for the next question

7

Turn over ►



28 Here is the term-to-term rule for a sequence.

Double the previous term and add 3

The first three terms of the sequence are $a + 1$ $2a + 5$ $4a + 13$

Show that the sum of the first **four** terms is a multiple of 3

[3 marks]



Work out the equation of the line.

[3 marks]

Answer

END OF QUESTIONS

E



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outside the
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ANSWER IN THE SPACES PROVIDED**



[illegible]

