

Please write clearly in block capitals.

Centre number

Candidate number

Surname \_\_\_\_\_

Forename(s) \_\_\_\_\_

Candidate signature \_\_\_\_\_

I declare this is my own work.

# GCSE MATHEMATICS

# H

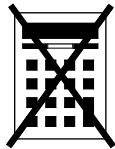
Higher Tier Paper 1 Non-Calculator

Wednesday 5 November 2025 Morning Time allowed: 1 hour 30 minutes

### Materials

For this paper you must have:

- mathematical instruments
- the Formulae Sheet (enclosed).



You must **not** use a calculator.

### 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.

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	
<b>TOTAL</b>	

### Advice

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



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

**1 (a)** Write 834 000 in standard form.

**[1 mark]**

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Answer \_\_\_\_\_

**1 (b)** Write  $7.9 \times 10^{-2}$  as an ordinary number.

**[1 mark]**

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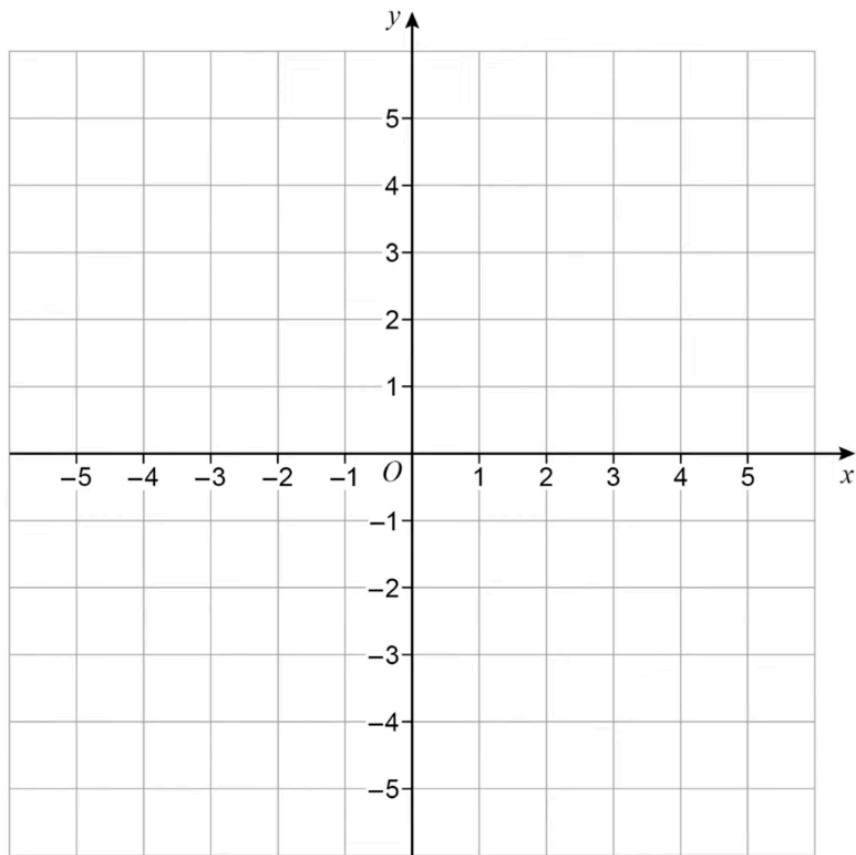
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Answer \_\_\_\_\_

2 A circle, centre  $O$ , has **diameter** 8 units.

Draw the circle on the grid.

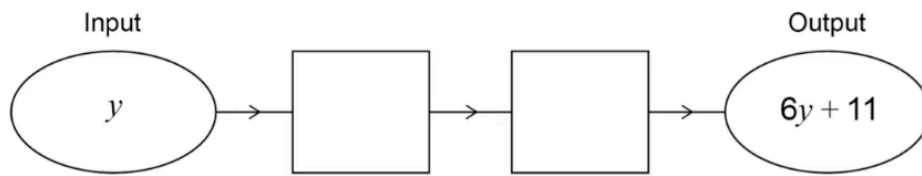
[1 mark]



Turn over for the next question

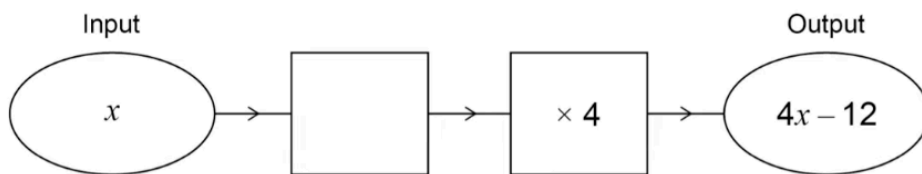
3 (a) Complete the number machine.

[1 mark]



3 (b) Complete the number machine.

[1 mark]



4 The **total surface area** of a cube is  $54 \text{ cm}^2$

Work out the side length of the cube.

[3 marks]

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Answer \_\_\_\_\_ cm

5 120 students study a language.

- 40% of the students are in Group A.
- Twice as many from Group A study German as study French.
- Three eighths of the Group B students study French.

	German	French	Total
Group A			
Group B			
Total			120

5 (a) Complete the two-way table.

[3 marks]

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5 (b) A student who studies French is chosen at random.

Work out the probability that they are from **Group B**.

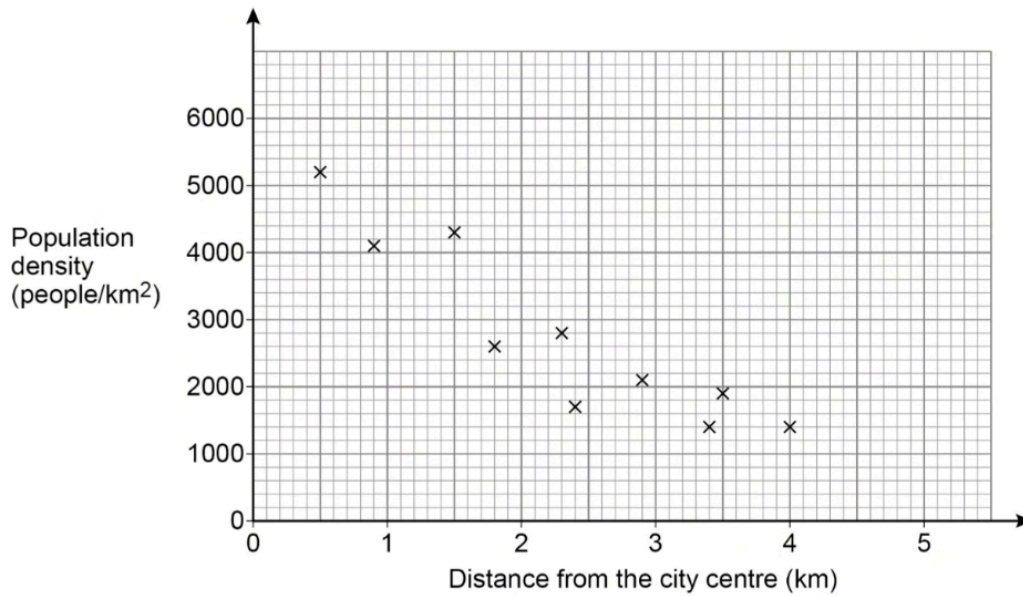
[2 marks]

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Answer \_\_\_\_\_

- 6 The scatter graph shows the population density of ten areas in a city and the distance of the area from the city centre.



- 6 (a) The scatter graph shows negative correlation.

Describe the relationship between the population density and the distance of the area from the city centre.

[1 mark]

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- 6 (b) Use a straight **line of best fit** to estimate the population density of an area 2 km from the city centre.

[2 marks]

Answer \_\_\_\_\_ people/km<sup>2</sup>

7 (a) Work out  $\frac{2}{5} + \frac{7}{20}$

Give your answer as a **decimal**.

[2 marks]

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Answer \_\_\_\_\_

7 (b)  $x$  is an integer and  $\frac{1}{x}$  converts to a **terminating** decimal.

Kelly says,

“There must be only **one** digit after the decimal point, because  $\frac{1}{2} = 0.5$ ”

Is she correct?

Tick a box.

Yes

No

Give a reason for your answer.

[1 mark]

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8 (a) Complete the table of values for  $x + 2y = 3$

[2 marks]

$x$	-2	-1	0	1	2
$y$	2.5			1	0.5

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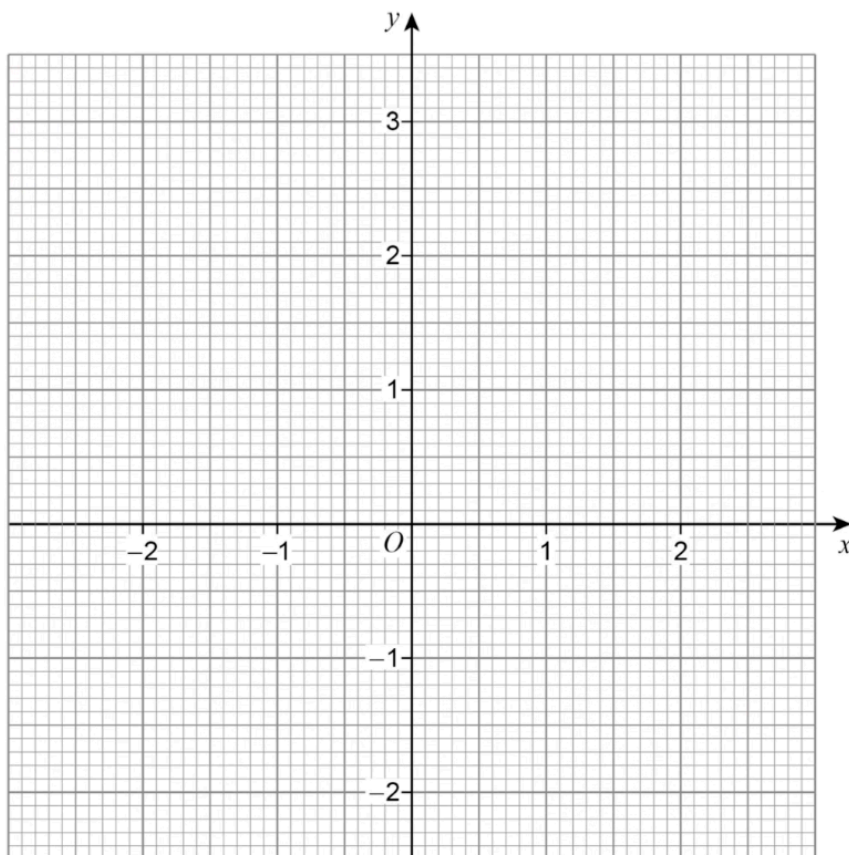
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8 (b) Draw the graph of  $x + 2y = 3$  for values of  $x$  from -2 to 2

[2 marks]

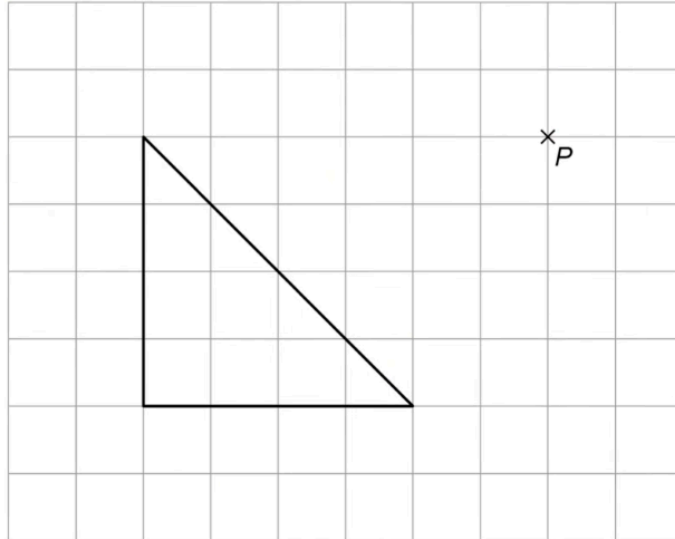


9

On the grid, draw an enlargement of the triangle with

- scale factor  $\frac{1}{2}$
- centre of enlargement  $P$

[3 marks]

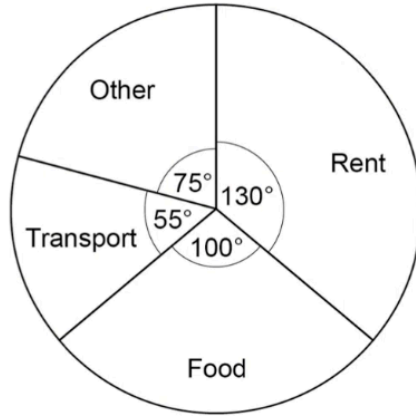


Turn over for the next question

10

The pie chart below shows what Jane spent her money on last month.

Not drawn accurately



10 (a)

Write the ratio Transport : Other : Food in its simplest form.

[2 marks]

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Answer \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_

10 (b)

Jane spent £390 on rent.

Work out how much she spent on transport.

[3 marks]

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Answer £ \_\_\_\_\_

11

A sector has perimeter  $6\pi + 24$  cm

Not drawn  
accurately



Work out the area of the sector.

Give your answer in terms of  $\pi$

[3 marks]

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Answer \_\_\_\_\_  $\text{cm}^2$

Turn over for the next question

12

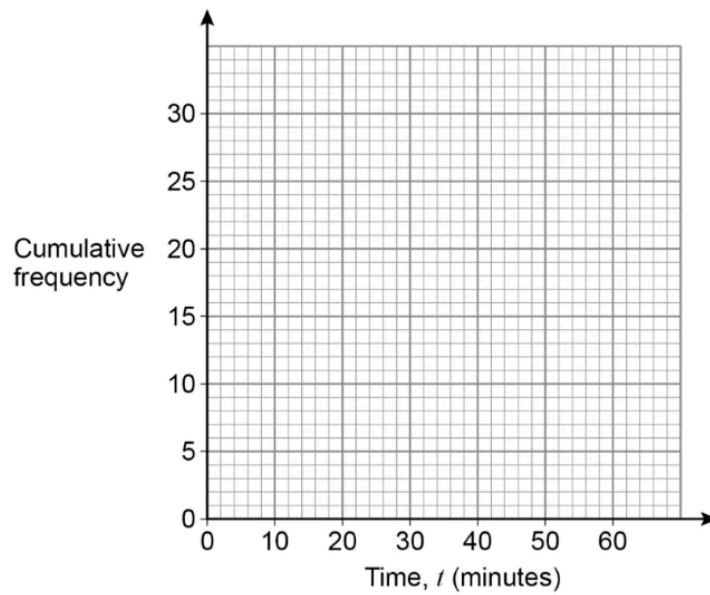
30 students each solved a puzzle.

The table shows information about the time,  $t$  minutes, that they took to solve the puzzle.

Time, $t$ (minutes)	Cumulative frequency
$t \leq 10$	3
$t \leq 20$	9
$t \leq 30$	16
$t \leq 40$	20
$t \leq 50$	27
$t \leq 60$	30

12 (a) Draw a cumulative frequency diagram to represent the data.

[2 marks]



**12 (b)** Use your graph to estimate the interquartile range.

**[2 marks]**

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Answer \_\_\_\_\_ minutes

**13** At a dance school, students study one of Jazz, Tap or Ballet.

- The ratio of Jazz students to Tap students is 5 : 7
- The ratio of Tap students to Ballet students is 3 : 2

Work out the percentage of students that study Tap.

**[3 marks]**

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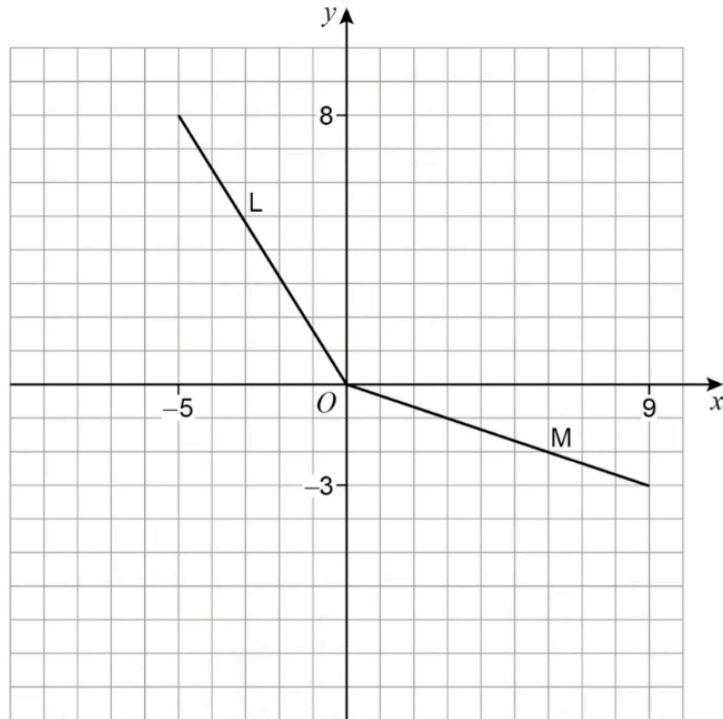
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Answer \_\_\_\_\_ %

14

Here are two lines, L and M.



Mark says that the lines L and M have the same length.

Is he correct?

Show **calculations** to support your answer.

[3 marks]

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**15**

A cafe sells small, medium and large coffees.

One weekend, the numbers of coffees sold are in the ratio

$$\text{small} : \text{medium} : \text{large} = 2 : 7 : 3$$

The cafe sold 300 **more** medium than small coffees.

Three fifths of **all** coffees sold were to take away.

**15 (a)**

Estimate the number of **large** coffees that were sold to take away.

**[3 marks]**

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Answer \_\_\_\_\_

**15 (b)**

Give a reason why your answer is only an estimate.

**[1 mark]**

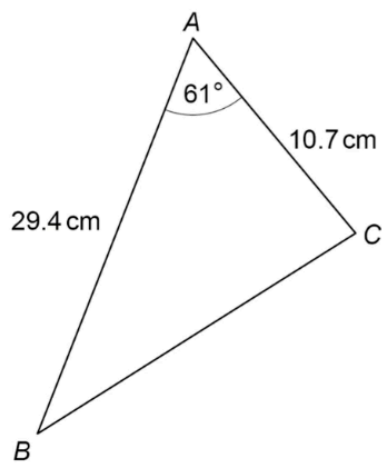
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17



Not drawn accurately

By rounding each value to 1 significant figure,  
use the cosine rule to estimate the length  $BC$ .

Give your answer in the form  $\sqrt{a}$ .

You **must** show your working.

[4 marks]

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Answer \_\_\_\_\_ cm







21 (a) Rationalise the denominator of  $\frac{4}{3\sqrt{6}}$

Simplify your answer fully.

[3 marks]

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Answer \_\_\_\_\_

21 (b) Write  $8 : (3\sqrt{2} + \sqrt{50})^2$  in the form  $1 : n$  where  $n$  is an integer.

[4 marks]

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Answer 1: \_\_\_\_\_

