AQA

Surname	
Forename(s)	
Candidate signature	

I declare this is my own work.

GCSE MATHEMATICS

F

Foundation Tier

Paper 3 Calculator
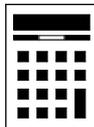
Shadow paper based on June 2024 question paper

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.
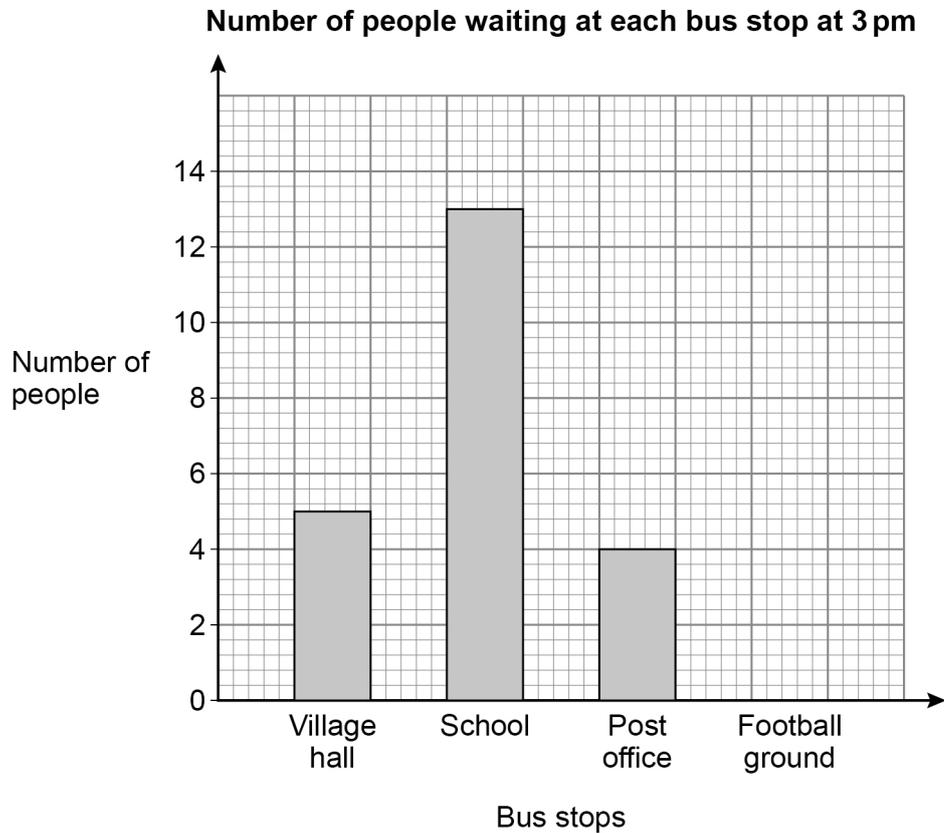
Advice

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

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

1   A village has four bus stops.

The bar chart shows information about the people at the bus stops at **3 pm** one day.

Number of people waiting at each bus stop at 3 pm

1 (a)   Six people were at the Football ground bus stop.

Show this information on the bar chart.

[1 mark]

1 (b)   How many **less** people were at the Post office bus stop than at the Village hall bus stop?

[1 mark]

Answer _____

Do not write outside the box

2 Here are four temperatures in degrees C

| −8 | −5 | 2 | −10 |

Write the temperatures in order, starting with the **coldest**.

[2 marks]

Answer _____ _____ _____ _____

3 Here are the first three terms of a linear sequence.

2   10   18

3 (a) Write down the next term.

[1 mark]

Next term _____

3 (b) Describe the term-to-term rule.

[1 mark]

Term-to-term rule _____

6

Turn over ▶

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4 Dean spends 87p

He pays the exact amount with 5 coins.

List the coins he uses.

[2 marks]

_____

_____

_____

_____

Answer _____   _____   _____   _____

5 Complete each statement using **one** of these symbols.

$$<\qquad=\qquad>$$

[3 marks]

3.24 _____ 3.204

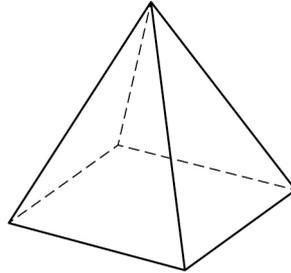0.2 _____ $\frac{1}{2}$

0.75 _____ $\frac{3}{4}$

6 Here are three solids.
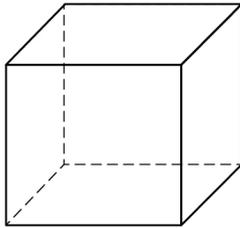
Cube **Square-based pyramid** **Cone**
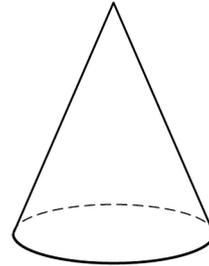
6 (a) How many **vertices** does the cube have?

[1 mark]

Answer _____

6 (b) How many **faces** does the square-based pyramid have?

[1 mark]

Answer _____

6 (c) How many **edges** does the cone have?

[1 mark]

Answer _____

8

Turn over ▶

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7 (a)   Here is a number machine.

Input   Output

14 → -6 → x 7 → _____
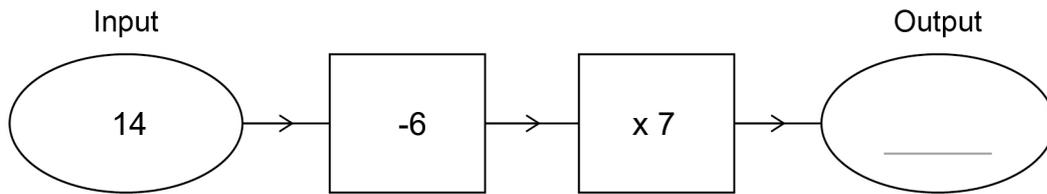
Complete the number machine.

[1 mark]

_____

_____

7 (b)   Here is a different number machine.

Input   Output

9 → _____ → ÷ 4 → 3

Complete the number machine.

[1 mark]

_____

_____

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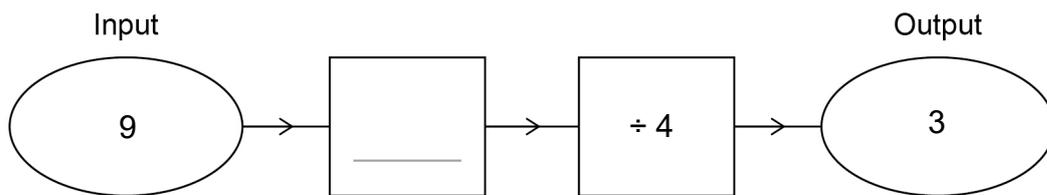
7 (c) Here is a different number machine.

Input   Output

x → $\times$ ____ → $-$ ____ → y
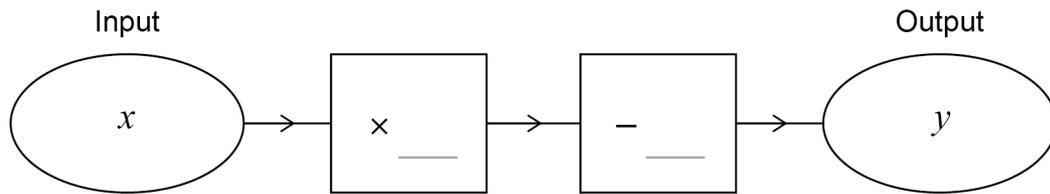
When $x = 5$ $y = 31$

and

when $x = 10$ $y = 66$

Complete the number machine.

[2 marks]

Turn over for the next question

4

Turn over ▶

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8
- A pack of pegs costs 60p

- A bar of soap costs £2.50

- A basket costs £7.80

Dan buys **three** packs of pegs, **two** bars of soap and **one** basket.

What fraction of the total cost is the cost of the basket?

[3 marks]

Answer _____

9 Calculate $\sqrt{729} + 6^3$

[2 marks]

Answer _____

10 9500 fans go to a football match.

7600 of the fans support the **Home** team.

The remaining fans support the **Away** team.

60% of the **Home** fans wear a team shirt.

5804 of all the fans wear a team shirt.

Complete the frequency tree.

[5 marks]

Fans   **Shirt**
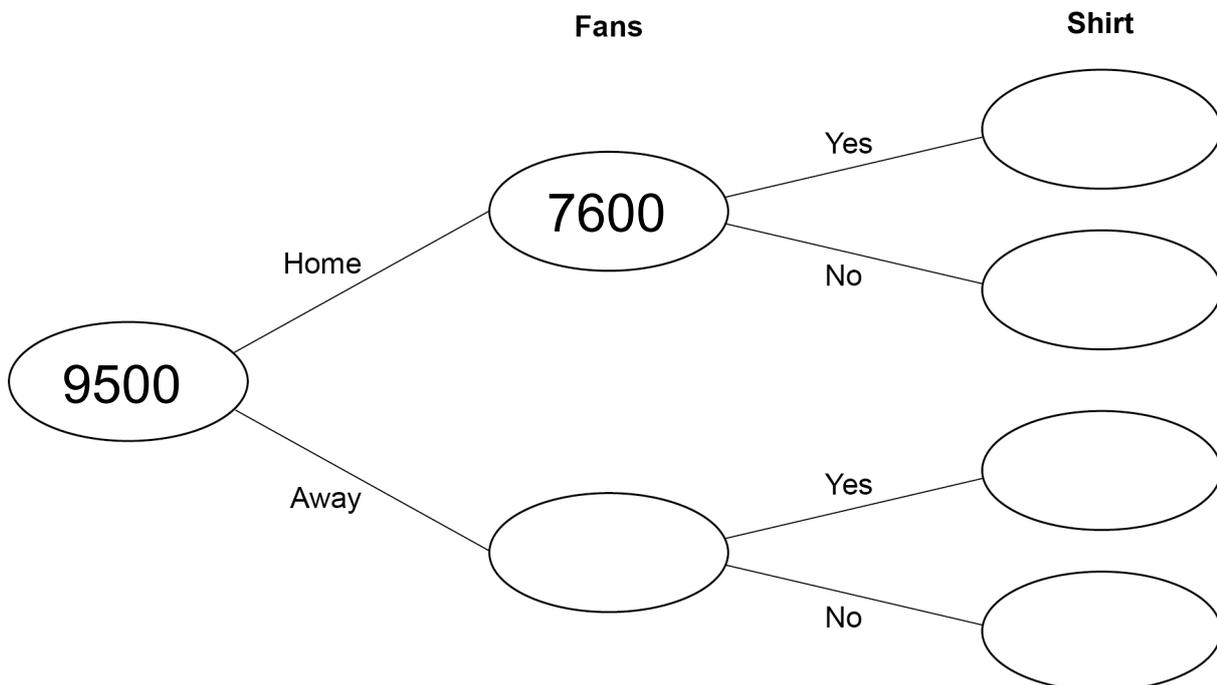
Turn over for the next question

10

Turn over ▶

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11
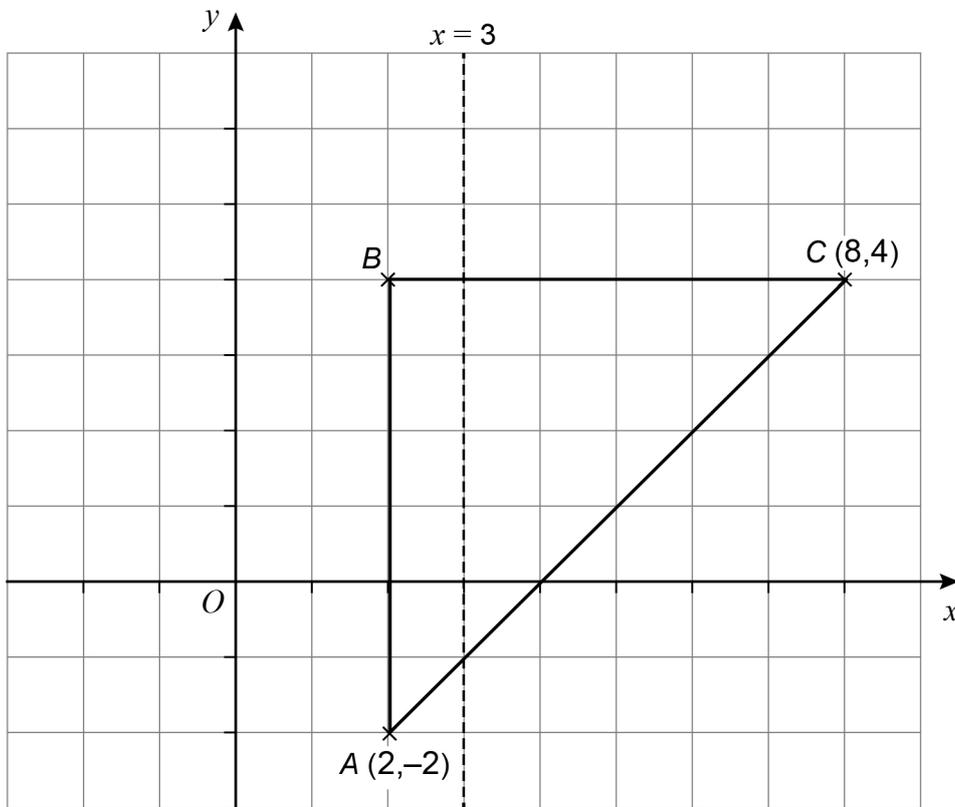
11 (a) Work out the coordinates of *B*.

[1 mark]

Answer (_____ , _____)

11 (b) Point *C* is reflected in the line $x = 3$ to point *D*.

Work out the coordinates of *D*.

[1 mark]

Answer (_____ , _____)

12 Sarah works at a clay pigeon shooting venue.

She records the distance the clay shooter and the number of shots on target.

Distance (m)	10	15	20	25	30	40	50	60
Shots on Target	30	28	25	26	24	20	16	15

The scatter graph shows **some** of the information from the table.

Distance and Shots on Target

Distance (m)
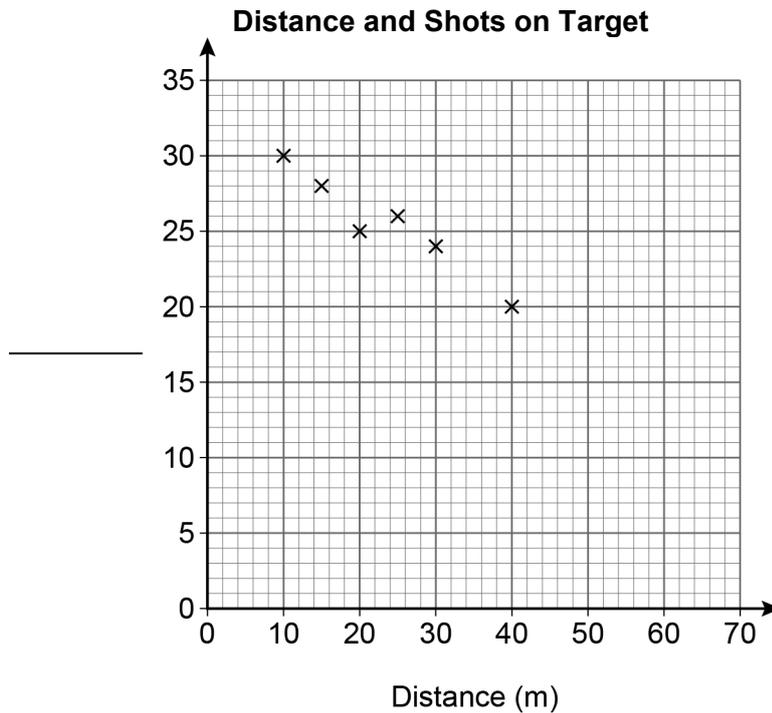
12 (a) Complete the graph by adding the missing **label** and plotting the **two** missing points.

[2 marks]

12 (b) Describe the correlation shown in the scatter graph.

[2 marks]

Type of correlation _____

Strength of correlation _____

6

Turn over ▶

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13   *AB* is a straight line.
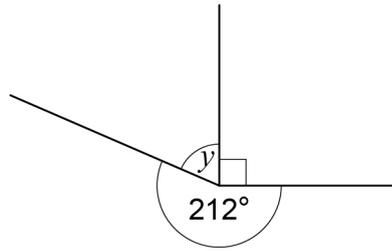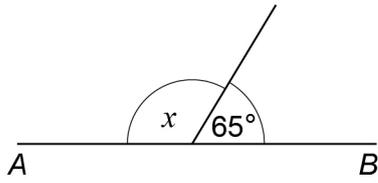
Not drawn accurately

Is y more than half of x ?

Tick a box.

Yes ☐   No ☐

Show working to support your answer.

[3 marks]

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14 Multiply out $5(3x + 2)$

[2 marks]

Answer _____

15 Complete these statements.

[3 marks]

$$\underline{\hspace{2cm}} + 7x = 10x$$

$$y^4 \times \underline{\hspace{2cm}} = y^6$$

$$\underline{\hspace{2cm}} - 8t = 5t$$

Turn over for the next question

8

Turn over ▶

16 Tubes of toothpaste are sold in shop A and shop B.

Shop A	**Shop B**
1 tube 83p	1 tube 75p
Buy 5 tubes for the price of 4 tubes	Pack of 3 tubes £2.30
	10% reduction in price on all **packs**

At which shop is it cheaper to buy 20 tubes?

State how much cheaper.

[5 marks]

Shop _____ Cheaper by _____

17 (a) There are 28 students in a class.

16 of the students like maths.

Work out the ratio

students who like Maths : students who do not like Maths.

Give your answer in its simplest form.

[2 marks]

Answer _____ : _____

17 (b) In a different class

students who like English : students who do not like English = 5 : 7

What fraction of students in this class do not like English?

[1 mark]

Answer _____

17 (c) The ratio 5 : 13 is written in the form 1 : n

Work out the value of n.

[1 mark]

$n =$ _____

9

Turn over ▶

18 Here are the first three Patterns in a sequence made up of small squares.
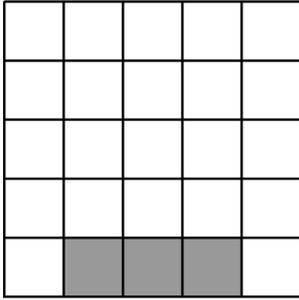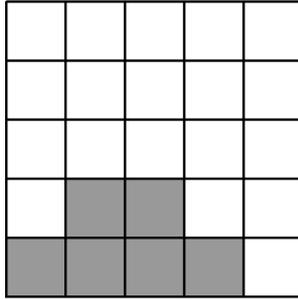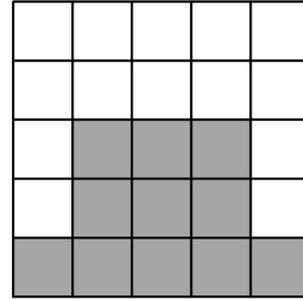
Pattern 1   Pattern 2   Pattern 3

18 (a) On the grid, draw Pattern 4

[1 mark]

18 (b) The expression for the number of small squares in Pattern n is $n^2 + 2$

Work out the least value of n for which the number of small squares is greater than 600

[1 mark]

$n =$ _____

19

Not drawn accurately

13 cm

x

25 cm
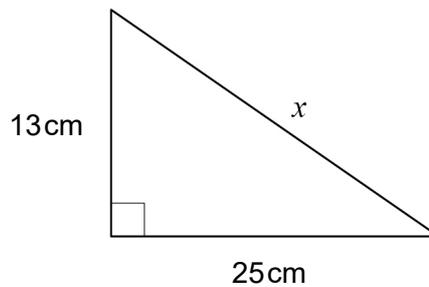
Use Pythagoras' theorem to work out the value of x.

Give your answer as a decimal.

[3 marks]

Answer _____ cm

5

Turn over ▶

20 Bruce claims most of the people in his gym enjoy using the treadmill.

He samples 50 people on a Monday morning and 50 people on a Tuesday afternoon.

Give a reason why this sample may **not** be useful in testing Bruce's claim.

[1 mark]

21 $3(x - 1) = 15$ is an equation.

Tick **one** box.

[1 mark]

☐ It is true for **all** values of x

☐ It is true for **one** value of x

☐ It is true for **no** values of x

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22 Jess hires a skip.

The cost per day is

- £36.70 for the first 4 days
- reduced by 30% for day 5
- the same as day 5 for day 6 onwards.

The **total** cost is £429.39

For how many days did Jess hire the skip?

You **must** show your working.

[5 marks]

Answer _____

Turn over for the next question

7

Turn over ▶

23 The front elevation of a cuboid is shown on this centimetre grid.

Front elevation
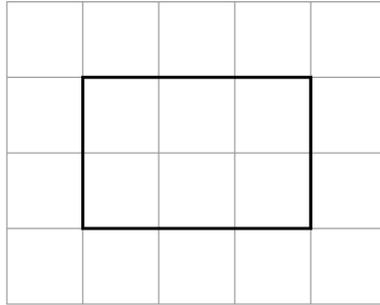
The volume of the cuboid is 24 cm^3

Draw the **side elevation** on this centimetre grid.

[2 marks]

Side elevation

24 (a) On Monday, Francis cycles 200 metres in 50 **seconds** at a constant speed.

On Tuesday, Francis cycles 5.25 kilometres.

Assume he cycles at the same constant speed as on Monday.

How many **minutes** does he cycle for on Tuesday?

[5 marks]

Answer _____ minutes

24 (b) In fact, on Tuesday Francis cycles at a faster constant speed than on Monday.

What does this mean about the number of minutes he swims for on Tuesday?

Tick the correct box.

[1 mark]

☐ It is less than the answer to part (a)

☐ It is the same as the answer to part (a)

☐ It is greater than the answer to part (a)

☐ It is not possible to say

8

Turn over ▶

25   Four people are taking part in a television talent show.

Here are Karl's marks from the 6 judges.

7	5	7	6	6	8

The pie chart represents the phone vote.
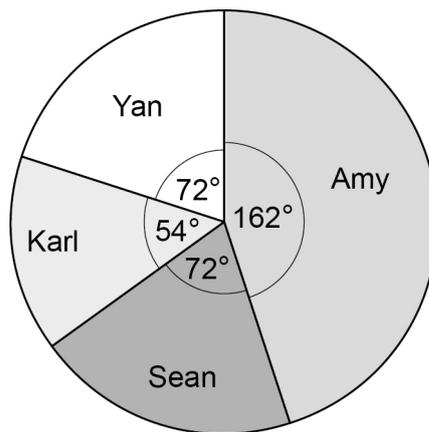
Karl's total score is found by

4 × the **mean** of his marks
+
his **percentage** of the phone vote

Work out Karl's total score.

[4 marks]

Answer _____

Turn over for the next question

8300/3F

4

26 House prices on a street increase by 6.2% each year.

Show that after 20 years the house prices on the street will be at least triple.

[2 marks]

27 Town A has

a population of 95000

an area of 9 **square miles**.

Town B has a population density of 4750 people per **square kilometre**.

$$\text{Population density} = \frac{\text{population}}{\text{area}}$$

Which town has the greater population density?

Use   1 square mile = 2.6 square kilometres

Tick a box.

Town A [ ]   Town B [ ]

Show working to support your answer.

[3 marks]

END OF QUESTIONS

5

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There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

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Question number	Additional page, if required. Write the question numbers in the left-hand margin.

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Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**
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Shadow paper based on June 2024 question paper

8300/3F

Question number	Additional page, if required. Write the question numbers in the left-hand margin.

Do not write outside the box

Shadow paper based on June 2024 question paper