OXFORD AQA

INTERNATIONAL QUALIFICATIONS

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

INTERNATIONAL GCSE

MATHEMATICS

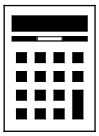
E

Extension Tier Paper 1E

Wednesday 14 May 2025 07:00 GMT Time allowed: 2 hours

Materials

For this paper you must have:



- a calculator
- mathematical instruments.

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 100.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- If your calculator does not have a π button, take the value of π to be 3.142

Advice

Show all necessary working; otherwise marks for method may be lost.

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	
26–27	
TOTAL	

Do not write outside the box

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

1 Draw a line to match each description to its calculation.

One has been done for you.

[3 marks]

Increases 500 by 7	500 + 7
Increases 500 by 7%	500 × 1.07
Works out 7% of 500	500 × 0.93
Decreases 500 by 7%	500 × 1.93
	500 × 0.07

2 A box has a mass of 25 g, correct to the nearest gram.

Write down the **minimum** possible mass of the box.

[1 mark]

Answer _____ g

Do not write outside the box

3 Calculate $9.62 \times 10^6 + 864\,000$

Give your answer in standard form.

[2 marks]

Answer _____

4 The probability of spinning a head on a biased coin is 0.35

The coin is spun 200 times.

How many **more tails** than heads do you expect?

[3 marks]

Answer _____

9

Do not write outside the box

5 A bag has 31 counters.

Each counter is black or white.

Colour	Number of counters
Black	$6y$
White	$8y - 4$

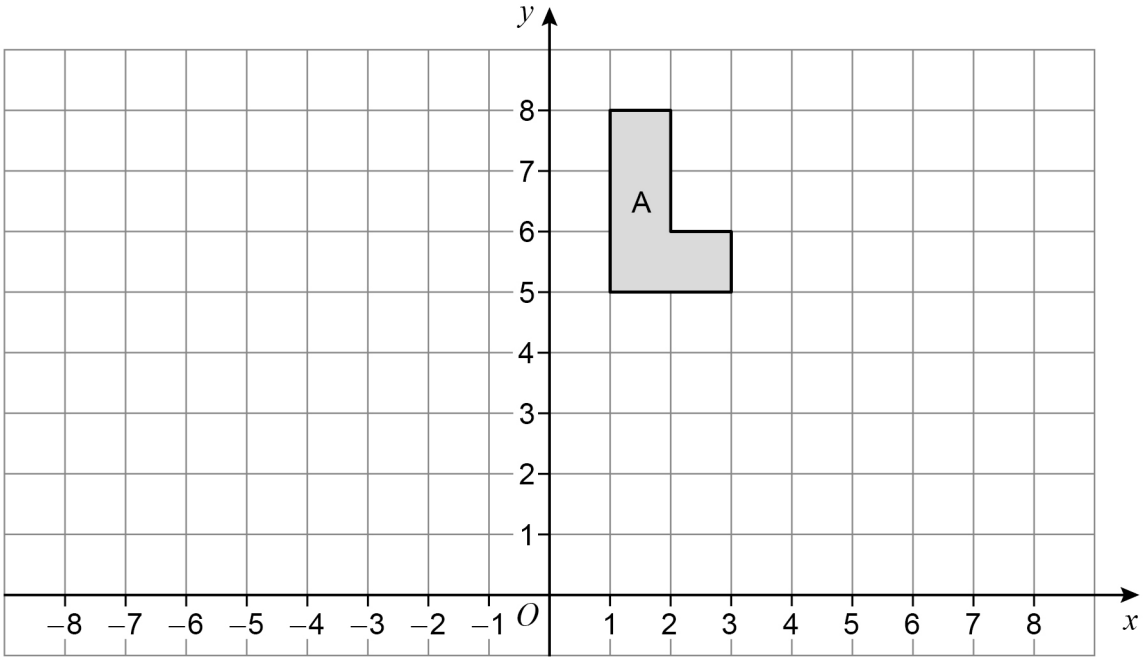
Is the number of black counters **greater than** the number of white counters?

Show working to support your answer.

[4 marks]

Do not write outside the box

6



6 (a) On the grid above, reflect shape A in the line $y = x$

[2 marks]

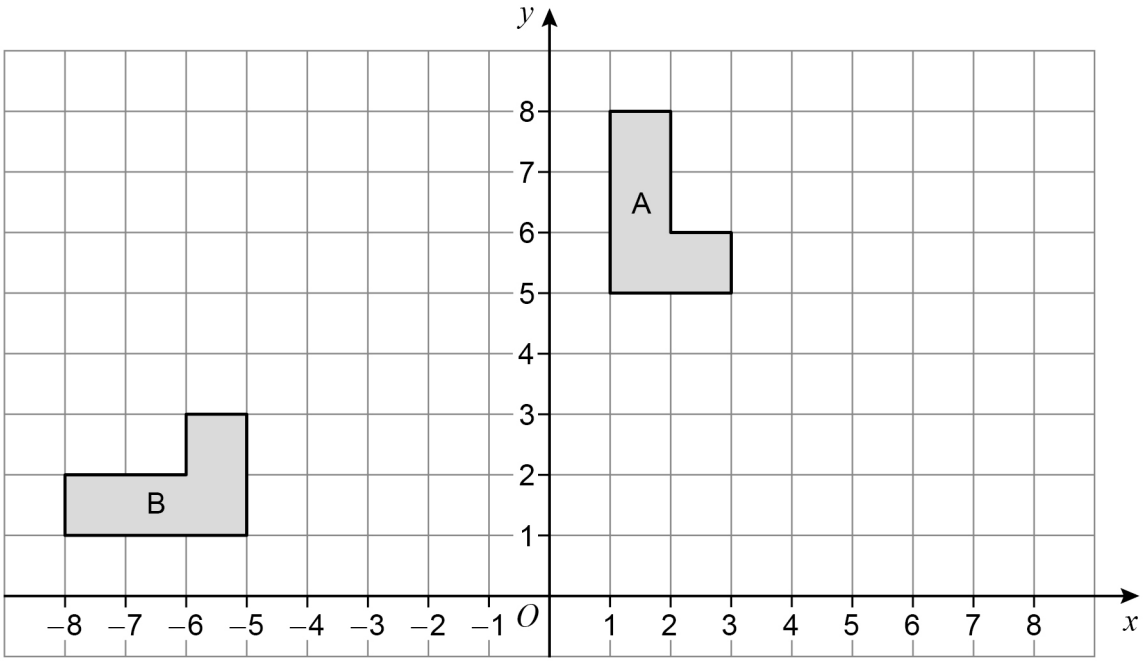
Question 6 continues on the next page

6

Turn over ►

Do not write outside the box

6 (b)



Describe fully the **single** transformation that maps shape A to shape B.

[3 marks]

Do not write outside the box

7 Simplify $10(x + 3) - 2(3 - x)$

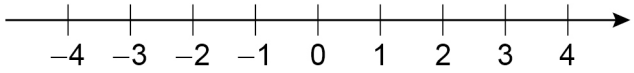
Give your answer in the form $a(x + b)$ where a and b are integers.

[3 marks]

Answer _____

8 (a) Represent $x \geqslant -1$ on the number line.

[1 mark]



8 (b) Solve $6x - 9 < 15$

[2 marks]

Answer _____

9

Turn over ►

Do not write outside the box

9 (a) Write 280 as a product of prime factors.

Give your answer in index form.

[2 marks]

Answer _____

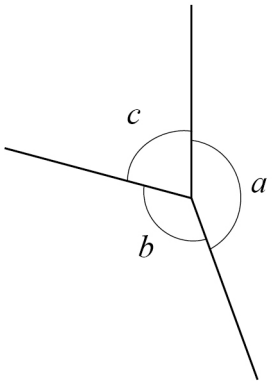
9 (b) Work out the lowest common multiple (LCM) of 90 and 280

[2 marks]

Answer _____

Do not write outside the box

10 Three lines meet at a point.



Not drawn accurately

$a : b : c = 7 : 5 : 3$

Work out the difference in size between the largest angle and the smallest angle.

[3 marks]

Answer _____ °

Turn over for the next question

7

Do not write outside the box

11 Without using decimals, show that $4\frac{1}{8} - 2\frac{5}{24} = 1\frac{11}{12}$

[3 marks]

12 Points $(a, -2)$ and $(4, 13)$ lie on a straight line with gradient 6

Work out the value of a.

[2 marks]

$a =$ _____

Do not write outside the box

13 Work out $\begin{pmatrix} 3 & 2 \\ -1 & 5 \end{pmatrix}\begin{pmatrix} 4 & 7 \\ 4 & -1 \end{pmatrix}$

[2 marks]

Answer $\begin{pmatrix} ____ & ____ \\ ____ & ____ \end{pmatrix}$

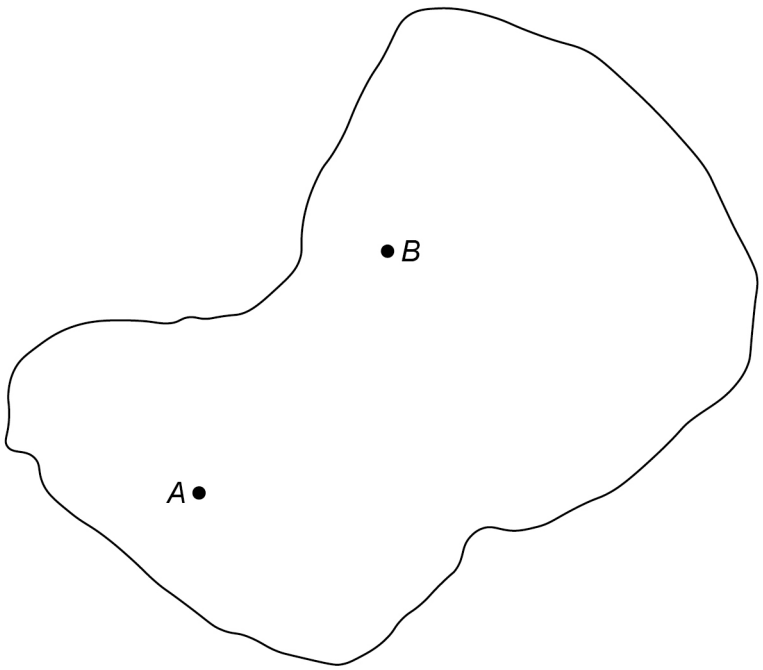
14 Here is a map of an island showing two points, *A* and *B*.

A box is buried on the island nearer to *A* than to *B*.

Using a ruler and compasses, construct the region where the box could be.

Label the region R.

[3 marks]



10

Turn over ►

Do not write outside the box

15 (a) Expand $\left(\frac{3}{5}ab^4\right)^2$

[2 marks]

Answer _____

15 (b) Simplify fully $\frac{6x^2 - 24}{5x + 10}$

You **must** show your working.

[3 marks]

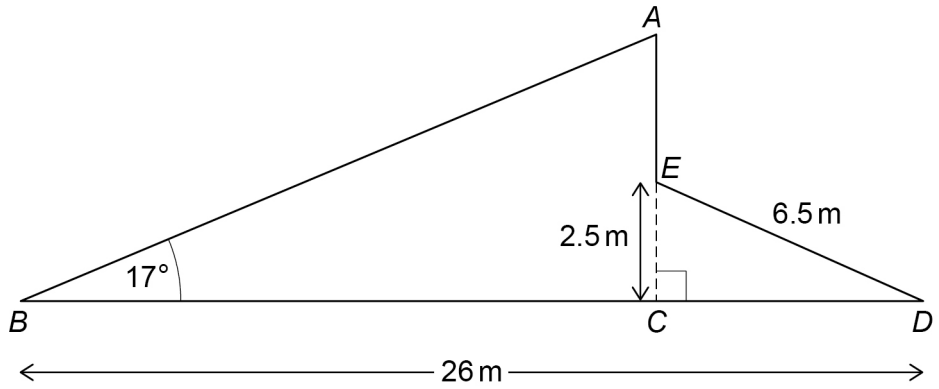
Answer _____

Do not write outside the box

16 The diagram shows the cross section of a roof.

BCD and *AEC* are straight lines.

BD = 26 m *DE* = 6.5 m *EC* = 2.5 m



Not drawn accurately

Work out the length *AB*.

[5 marks]

Answer _____ m

10

Turn over ►

Do not write outside the box

17 The nth term of a sequence is $6n + 15$

Prove algebraically that

the sum of two consecutive terms of the sequence is always a multiple of 12

[3 marks]

18 A company gives a choice of two pay offers to its workers.

Offer 1	**Offer 2**
Increase your pay by 8%	Keep your pay the same
Keep your hours worked the same	Reduce your hours worked by 8%

Which offer gives the greater **rate** of pay per hour?

You **must** show your working.

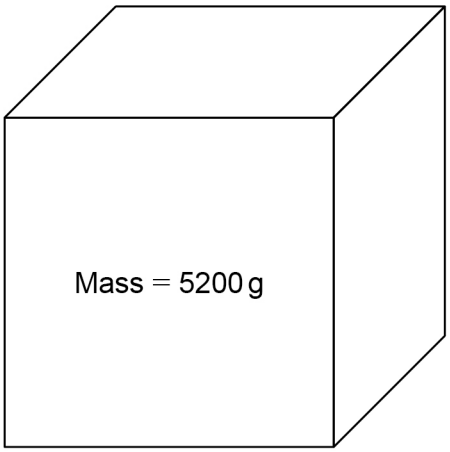
[3 marks]

Answer _____

Do not write outside the box

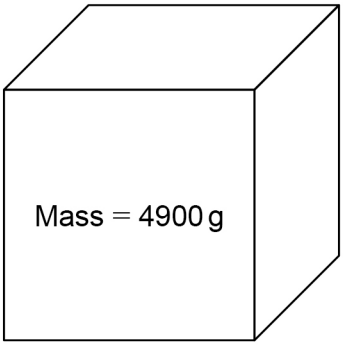
19 A and B are two solid cubes.

A



Side length = 20 cm

B



Side length = x cm

The density of B is twice the density of A.

Work out the value of x.

[4 marks]

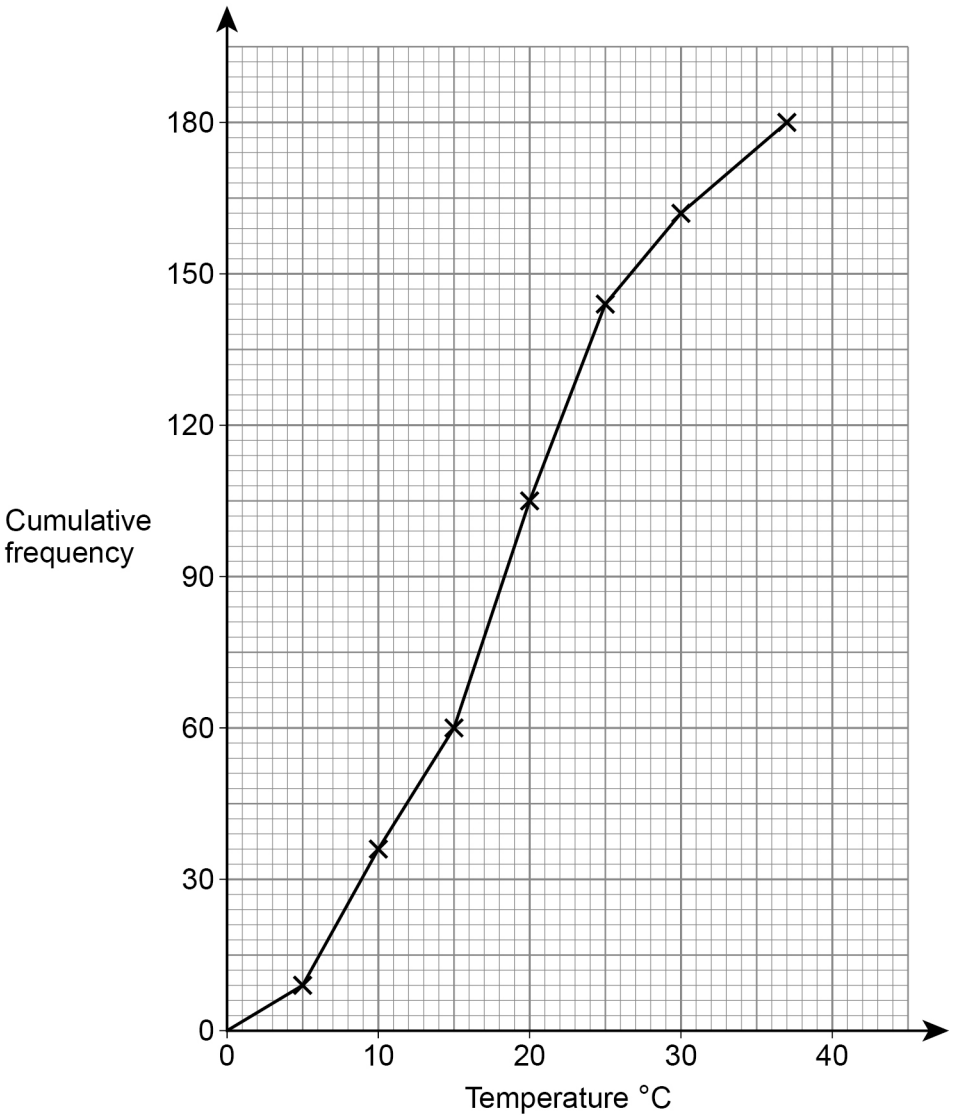
$x =$ _____

10

Turn over ►

Do not write outside the box

20 The cumulative frequency graph shows information about the temperature in a town at noon on 180 days.



20 (a) Estimate the median temperature.

[1 mark]

Answer _____ °C

Do not write outside the box

20 (b) Estimate the number of days that the temperature was between 15°C and 27°C

[2 marks]

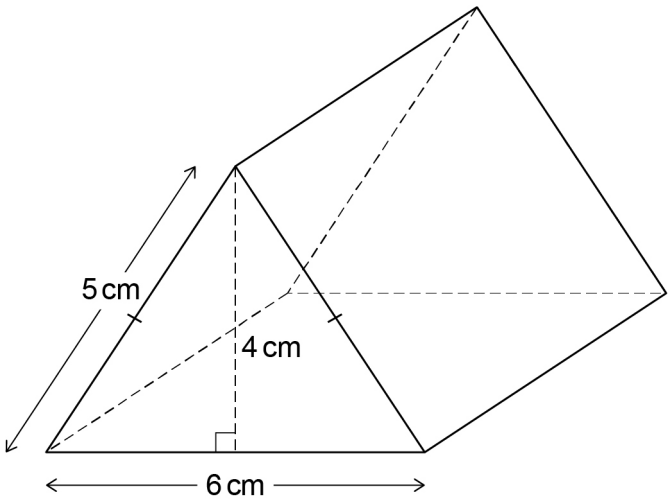
Answer _____

Turn over for the next question

3

Do not write outside the box

21 The cross section of a prism is an isosceles triangle.



The volume of the prism is 84 cm^3

Work out the total surface area.

[4 marks]

Answer _____ cm^2

Do not write outside the box

22 Solve the simultaneous equations

$$y = x + 1$$

$$y = x^2 - 7x + 10$$

You **must** show your working.

Give your answers to 1 decimal place.

[5 marks]

$x =$ _____ $y =$ _____

$x =$ _____ $y =$ _____

Turn over for the next question

9

Do not write outside the box

23 The 2 × 2 matrix **M** represents

an enlargement, centre O, scale factor 2

followed by

an enlargement, centre O, scale factor 3

Work out **M**.

[2 marks]

Answer $\begin{pmatrix} ____ & ____ \\ ____ & ____ \end{pmatrix}$

Do not write outside the box

24 A set of **integers** is arranged in numerical order.

11 a b 19 20 22 23 25 $2a$ $2b$ 35

Work out the **least** possible value of the interquartile range.

State the values of lower quartile and upper quartile that you used.

[3 marks]

Lower quartile = _____

Upper quartile = _____

Least possible interquartile range = _____

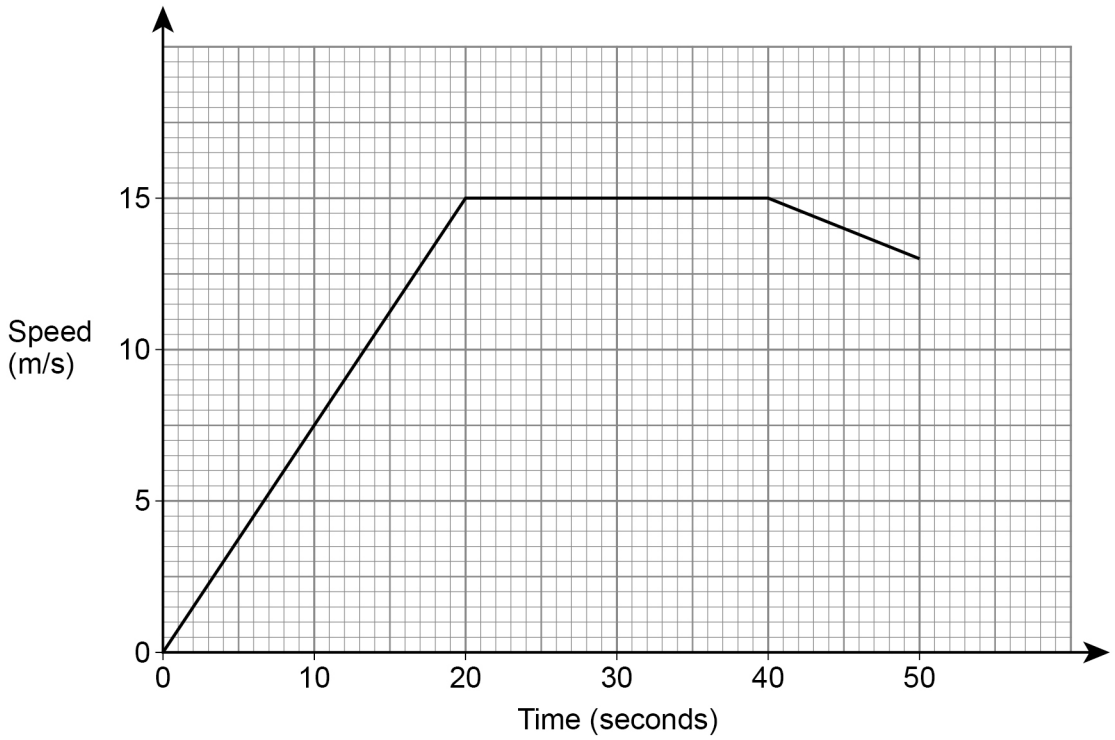
Turn over for the next question

5

Do not write outside the box

25 Veda cycles in a race.

The graph shows Veda's speed throughout the race.



25 (a) Work out Veda's acceleration during the first 20 seconds.

State the units of your answer.

[2 marks]

Answer _____

Do not write outside the box

25 (b) Work out the total distance of the race.

[3 marks]

Answer _____ m

26 Rationalise the denominator of $\dfrac{3\sqrt{2}-6}{10-7\sqrt{2}}$

Give your answer in the form $a+b\sqrt{2}$ where a and b are integers.

You **must** show your working.

[4 marks]

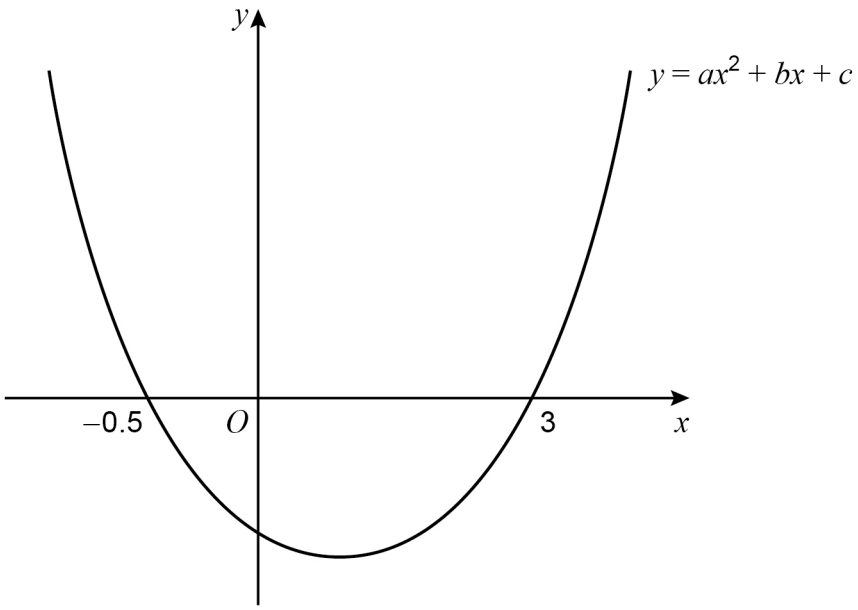
Answer _____

9

Do not write outside the box

27 Here is a sketch of a curve with equation $y = ax^2 + bx + c$ where a, b and c are integers.

The curve intersects the x-axis at $(-0.5, 0)$ and $(3, 0)$



Work out one possible set of integer values for a, b and c.

[3 marks]

$a =$ _____ $b =$ _____ $c =$ _____

Do not write outside the box

28 $4^x \times 6^5 = 2^{19} \times 3^y$ where x and y are integers.

Work out x and y.

[3 marks]

$x =$ _____ $y =$ _____

Turn over for the next question

6

Do not write outside the box

29 Harry has a box of 15 chocolates.

6 of the chocolates have a fudge centre.

Harry chooses two chocolates from the box at random, without replacement.

Work out the probability that **at least one** of the two chocolates has a fudge centre.

[3 marks]

Answer _____

Do not write outside the box

30 $f(x) = 2x^3 + 5x^2 + 4$

Work out the range of values of x for which $f(x)$ is an increasing function.

[4 marks]

Answer _____

END OF QUESTIONS

7

Do not write outside the box

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Do not write outside the box

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

Do not write outside the box

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

Do not write outside the box

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

Do not write outside the box

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Copyright information

For confidentiality purposes, all acknowledgements of third-party copyright material are published in a separate booklet. This booklet is published after each live examination series and is available for free download from www.oxfordaqa.com

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and OxfordAQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team.

Copyright © 2025 OxfordAQA International Examinations and its licensors. All rights reserved.