AQA Mock Test Papers

Paper3 - Test1

Please write clearly in block capitals.

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

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

GCSE Mathematics

Higher tier - Paper 3 - Calculator

H

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 allrough 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 betagged 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	
26–27	
28–29	
TOTAL	

Answer all questions in the spaces provided.

Do not write outside the box

1 $4^{x} = 64$

Circle the value of x

[1 mark]

3 5 9 6

2 Circle the equation of the line that is parallel to the x-axis.

[1 mark]

$y = 5$ $x - y = 0$ $x = 3$ $x + y = 0$

Do not write outside the box

3 Work out the lowest common multiple (LCM) of 20, 40 and 50 .

Circle your answer.

[1 mark]

100 200 400 40000

4 What is the size of an exterior angle of a regular pentagon?

Circle your answer:

[1 mark]

60^0 72^0 90^0 108^0

Turn over for the next question

4

Do not write outside the box

5 Match the numbers to the correct description.

Square	25
Prime	15
Cube	19
Triangular	120
	200
	512

[3 marks]

Do not write outside the box

6 Anna , Ivy and Eeshu share £66.

The amount Anna and Ivy get is in the ratio 9:3

The amount Ivy and Eeshu get is in the ratio 1:2

How much does Anna get?

[3 marks]

Turn over for the next question

6

Do not write outside the box

7 (a) The nth term of a sequence is $n^2 + 3$

Find the first three terms of this sequence and the

10th term in this sequence.

[3 marks]

Answer = _____

7 (b) Here are the first four terms of a number sequence

2 3 5 9

The rule to continue the sequence is multiply the previous term by 2 and then subtract 1

Work out the 5th term of this sequence

[1 mark]

Answer .....

Do not write outside the box

8 Expand and simplify fully $5(4c + 5) - (9c - 8)$

[2 marks]

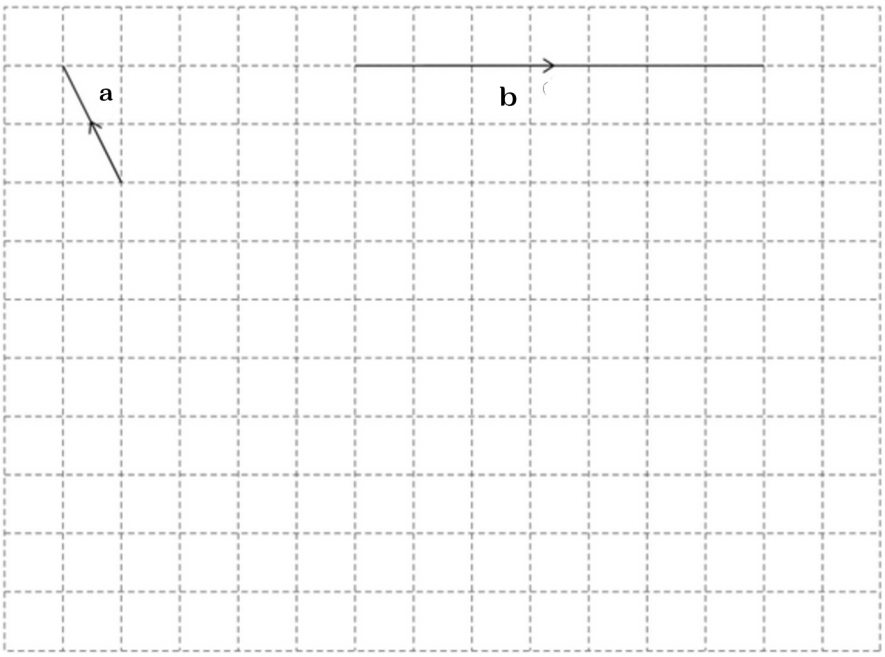
Answer _____

Turn over for the next question

6

Do not write outside the box

9 Vectors a and b are drawn on a grid.



[2 marks]

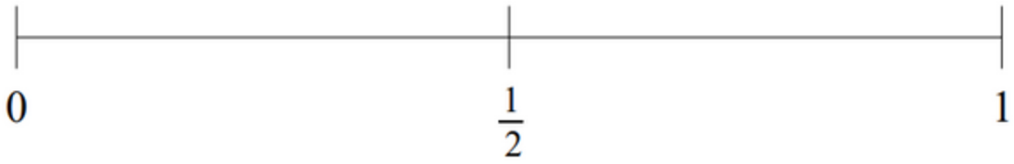
On the grid above, draw a vector representing a– b

Do not write outside the box

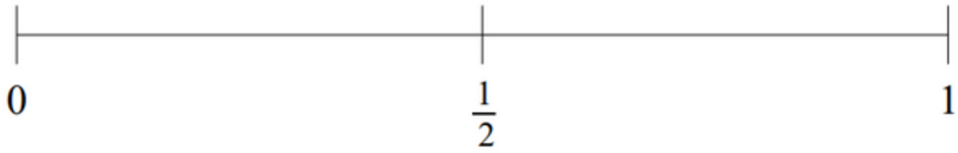
10 There are 8 marbles in a bag.
4 marbles are red.
3 marbles are green.
1 marble is blue.

One marble is selected at random from the bag. [3 marks]

(a) On the probability scale mark with a cross (X) the probability that the marble is red.



(b) On the probability scale mark with a cross (X) the probability that the marble is pink. .



(c) Write down the probability that marble is green.

Answer = ...

5

11 Eeshu drives 400 miles from London to Edinburgh.
She drives the first 200 miles at an average speed of 50 mph.
From this point, it takes Eeshu 4 hours to complete her journey.

What was Eeshu's average speed for the whole journey?

[4 marks]

Answer _____ mph

Do not write outside the box

12 (a) Write $64^{\frac{1}{2}}$ as a single power of 2.

[2 marks]

12 (b) Solve $x(3x - 9) = 4$
Give your answers to 2 decimal places.

[2 marks]

Answer .....

8

Do not write outside the box

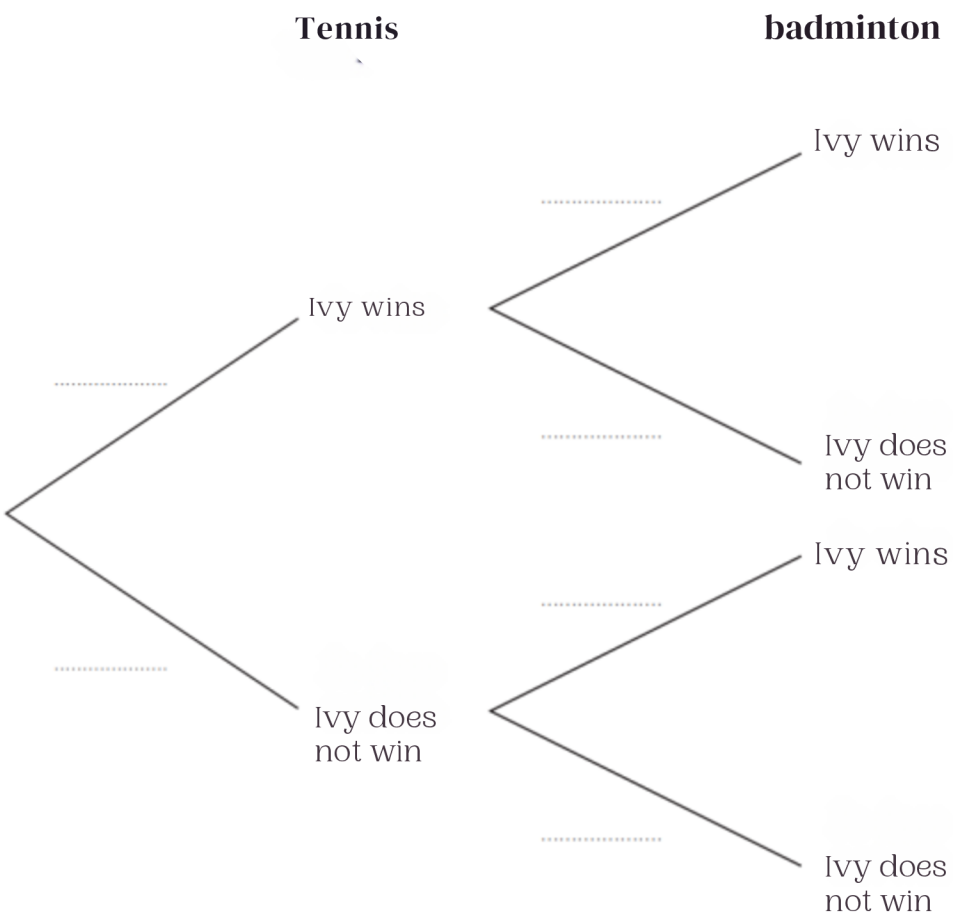
13 Ivy is going to play one tennis match and one badminton match.

The probability she will win the tennis match is $\frac{3}{5}$

The probability she will win the badminton match is $\frac{8}{10}$

(a) Complete the probability tree diagram

[2 marks]



Do not write outside the box

13 (b) Work out the probability that Ivy will win both matches.

[2 marks]

Answer .....

Turn over for the next question

4

Do not write outside the box

14 (a) 150 ml of liquid X and 250 ml of liquid Y are mixed together to form liquid Z.

Liquid X has a density of 0.6 g/ml .

Liquid Y has a density of 1.3 g/ml

Work out the density of liquid Z.

[4 marks]

Answer _____ g/ml

Do not write outside the box

14(b) A metal block has a mass of 80 grams and a density of 4 grams/cm3.

Work out the volume of the metal block.

[1 mark]

Answer .....

Turn over for the next question

5

15 Here is part of a train timetable.

Station	0550	0625	0700	0735
London St Pancras	0550	0625	0700	0735
Ashford	0615	0650	0725	0800
Paris	0920	0955	1030	1105

(a) A train leaves London St Pancras at 0700.
How many minutes should it take to reach Paris?

[1 mark]

Answer .....

Do not write outside the box

15 (b) What is the difference, in minutes, between the time it takes for the 0550 train and the 0700 train from London St Pancras to reach Paris?

[2 marks]

Answer _____

15 (c) Bethany lives in Ashford.
She has to get to a meeting in Paris for 1045.
What is the time of the latest train she can get from Ashford?

[1 mark]

Answer _____

4

Do not write outside the box

16 Given that $g(x) = 2x^2 - 10$

(a) Find: g(2)

[1 mark]

Answer _____

16 (b) Find: g(-2)

[1 mark]

Answer _____

16 (c) Solve: g(x) = 8

[3 marks]

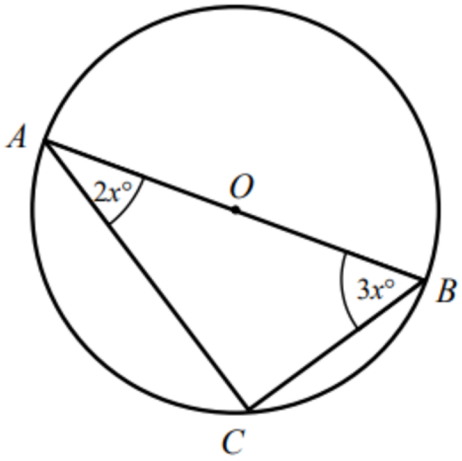
Answer _____

Do not write outside the box

17 A, B and C are points on the circumference of a circle, centre O.

Angle CAB = 2x°

Angle ABC = 3x°



Not drawn accurately

Find the value of x.

You must show all your working.

[3 marks]

x= _____ degrees

8

Do not write outside the box

18 Rearrange $6x + 3(5x - 2) = q^2 + 2qx$ to make x the subject.

[4 marks]

Answer _____

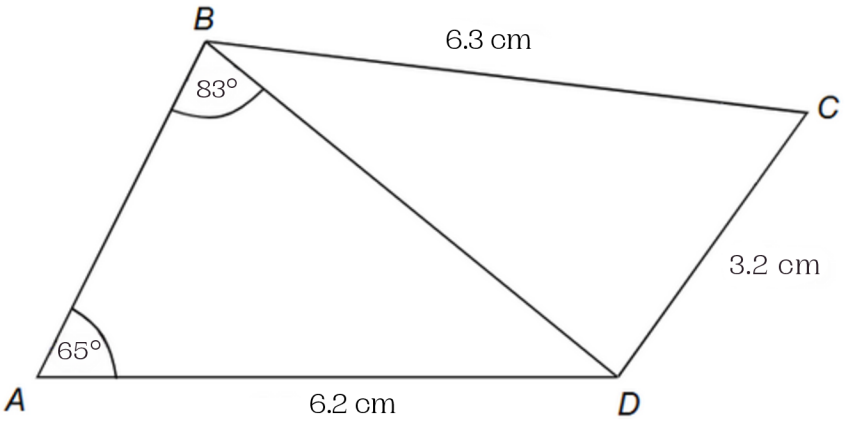
19 Write 920×10^5 in standard form.

[1 mark]

Answer _____

Do not write outside the box

20 ABCD is a quadrilateral.



Work out the size of angle BCD.

Give your answer correct to 2 significant figures.

[4 marks]

Answer _____ °

9

21 A number was increased by 8% followed by a decrease of 5%.

Work out the overall percentage change of the number.

[2 marks]

Answer ..... %

Do not write outside the box

22 Solve $\frac{7}{x+1} - \frac{4}{3x-2} = 1$

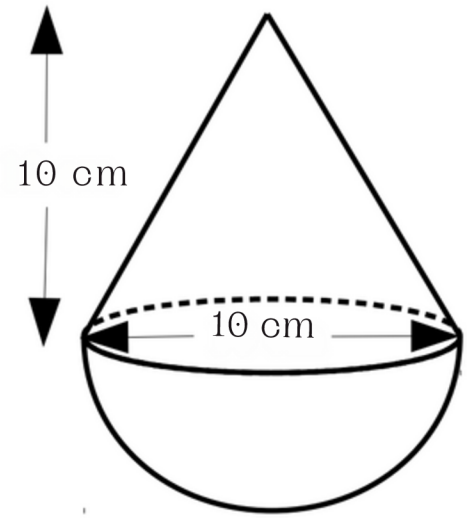
[4 marks]

Answer _____

6

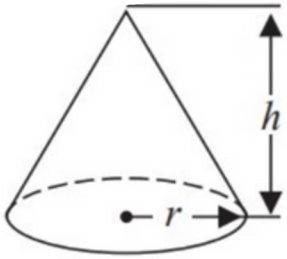
Do not write outside the box

23 The diagram shows a solid shape.
The shape is a cone on top of a hemisphere



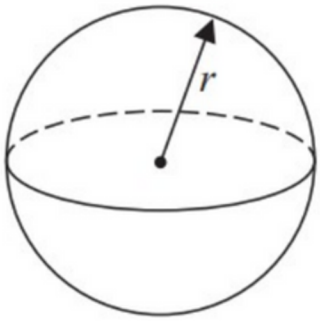
Not drawn accurately

Volume of a cone = $\frac{1}{3}\pi r^2 h$



Not drawn accurately

Volume of a sphere = $\frac{4}{3}\pi r^3$



Do not write outside the box

The height of the cone is 10 cm.
The base of the cone has a diameter of 10 cm.
The diameter of the hemisphere is 10 cm.
Work out the total volume of the solid shape.
Give your answer in terms of π.

[4 marks]

Answer _____

4

Do not write outside the box

24 On the same day, James buys

A motorbike for £10,000,

And a sculpture for £3,000.

[5 marks]

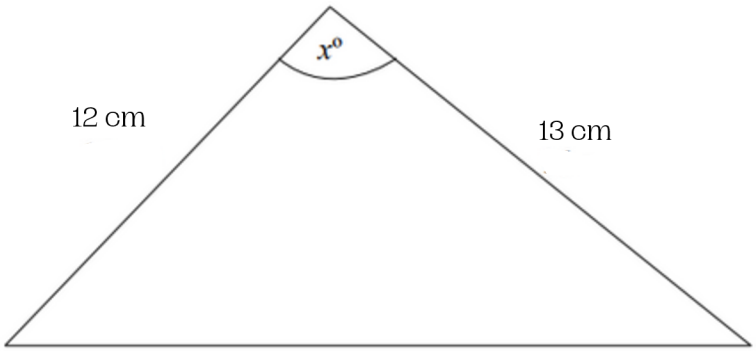
The value of the motorbike decreases by 20% in the first year and then by 15% each year.

The value of the sculpture increases by 6% each year.

Show that the sculpture becomes worth more than the motorbike during the sixth year.

Do not write outside the box

25



Not drawn accurately

The area of the triangle is 100 cm2

Work out the value of x.

Give your answer to 1 decimal place.

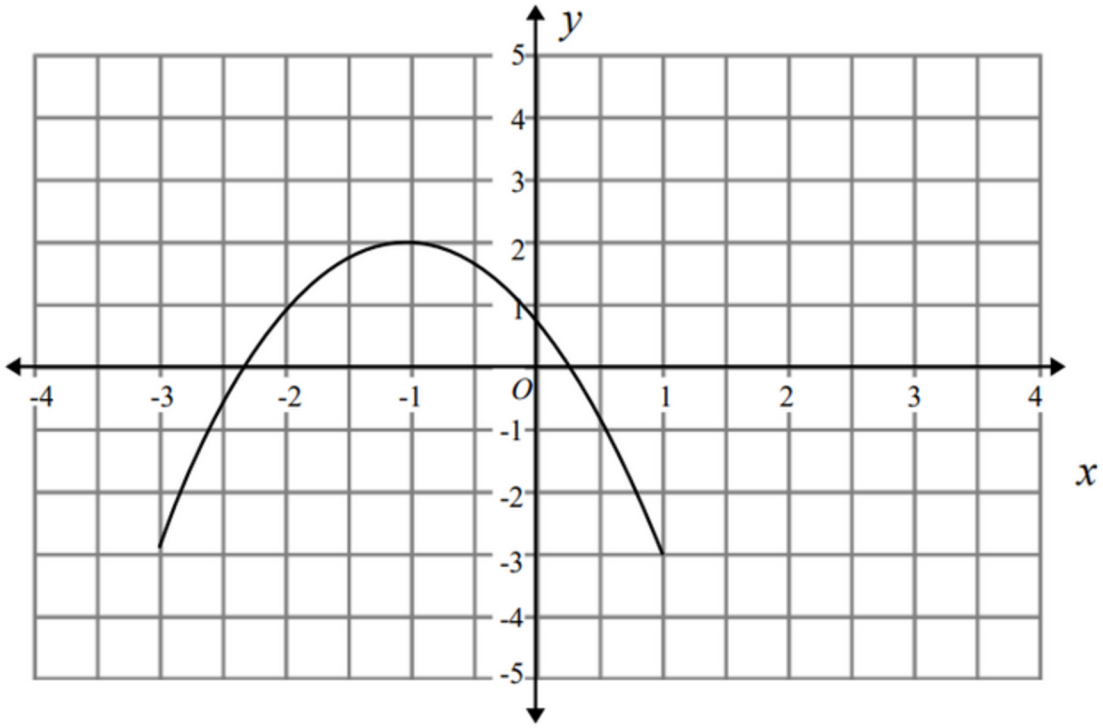
[4 marks]

Answer _____ cm2

Turn over for the next question

9

26 The graph of $y = f(x)$ is shown on the grid



26 (a) On the grid above, sketch the graph of $y = f(x - 1)$. [1 mark]

Do not write outside the box

26 (b) The graph of $y = f(x)$ has a turning point at $(-1, 2)$.

Write down the co-ordinates of the turning point of $y = f(-x) + 2$

[1 mark]

END OF QUESTIONS

2