AQA Mock Test Papers

Paper1 - Test2

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

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- mathematical instruments
- the Formulae Sheet (enclosed).

You must notuse 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 allquestions.
- 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	

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Answer all questions in the spaces provided.

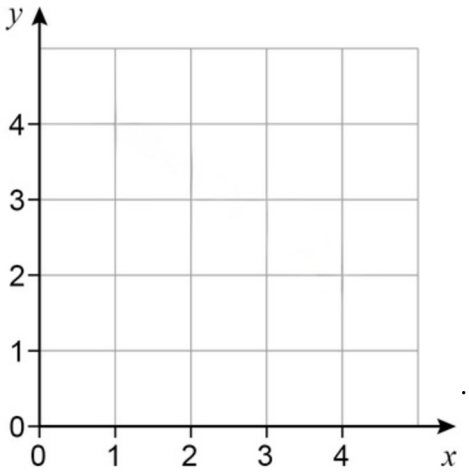
Do not write outside the box

1 Circle the fraction that is equivalent to 2.15

[1 mark]

$\frac{43}{20}$ $\frac{41}{20}$ $\frac{21}{5}$ $\frac{23}{5}$

2 Draw a diagram of the column vector $\begin{pmatrix} 2 \\ 4 \end{pmatrix}$



[1 mark]

3 Which one of these is a square number and a cube number?

Circle your answer.

[1 mark]

25 64 256 1250

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Do not write outside the box

4 Circle the reciprocal of $\frac{7}{8}$

[1 mark]

$\frac{8}{7}$ $\frac{1}{7}$ $-\frac{1}{8}$ $-\frac{7}{8}$

5 Work out the value of $\left(\frac{16}{100}\right)^{\frac{1}{2}}$

[2 marks]

Answer _____

6

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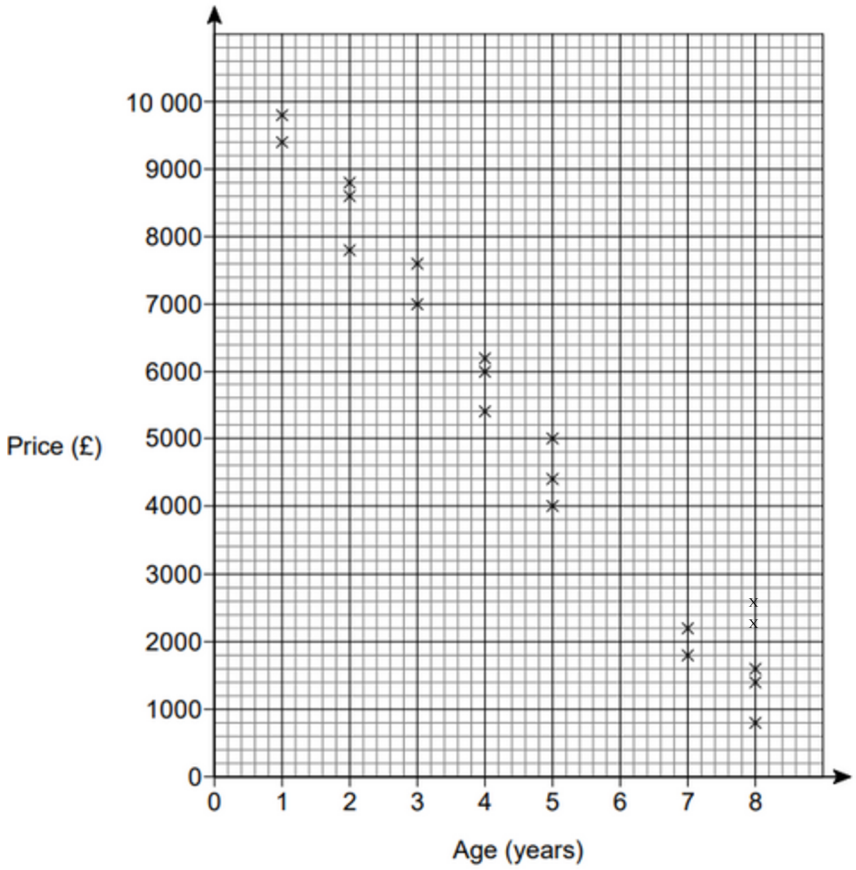
Do not write outside the box

6 The scatter graph shows the age and the price of 20 bikes.

The bikes are all the same make and model.



[2 marks]

Use a line of best fit to estimate the price of a 6-year old bike.

Answer £ _____

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Do not write outside the box

7 In a group of 80 musicians:

14 are singers but do not play guitar.

32% are neither singers nor guitar players.

$\frac{1}{3}$ of the guitar players are also singers.

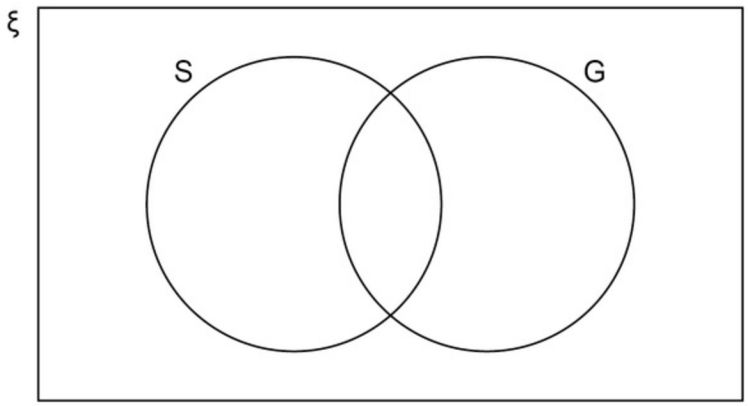
[4 marks]

ξ = 80 people who are musicians

S = singers

G = guitar players

Complete this Venn diagram to represent the information.



6

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Do not write outside the box

8 The shorter side of a parallelogram has length 7.2 cm

Not drawn accurately

The length of the shorter side is $\frac{1}{6}$ of the perimeter.

Work out the length of the longer side.

[3 marks]

Answer _____ cm

Prepare 4 GCSEs

Do not write outside the box

9 (a) All the terms of a geometric progression are positive.

The second and fourth terms are shown.

..... 5 20

Work out the first and third terms.

[2 marks]

First term _____

Third term _____

9 (b) The first two terms of an arithmetic progression are shown.

3x 7x .....

The sum of the first three terms is 60

Work out the value of x

[3 marks]

Answer _____

8

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Do not write outside the box

10 The cost of a car repair is £1800.

Sarah pays a deposit followed by monthly payments, in the ratio:

deposit : total of the monthly payments = 4 : 7

She makes 8 equal monthly payments.

Work out Sarah's monthly payment.

[4 marks]

Answer £ _____

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Do not write outside the box

11 As a decimal $\frac{35}{8} = 4.375$

Work out $\frac{27}{125}$ as a decimal.

[2 marks]

Answer _____

Turn over for the next question

6

Prepare 4 GCSEs

Do not write outside the box

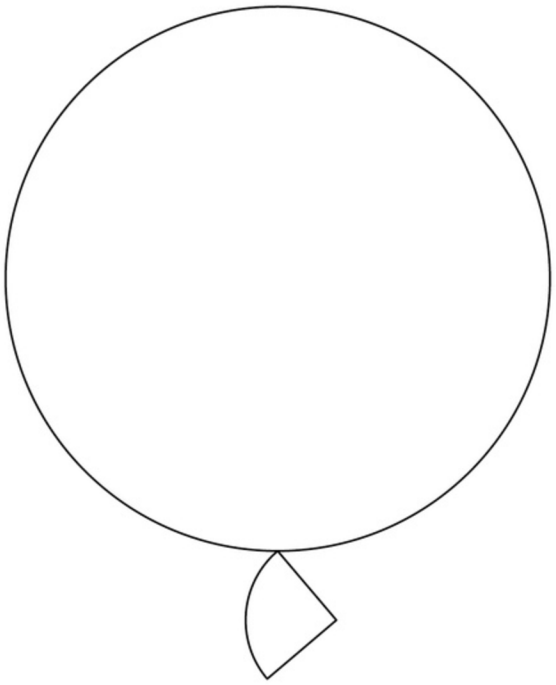
12 Two wire shapes make an earring.

The shapes are

a circle with radius 28 mm

and

a quarter circle.



Not drawn accurately

radius of circle : radius of quarter circle = 7 : 3

12 (a) Show that the radius of the quarter circle is 12 mm

[1 mark]

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Do not write outside the box

12 (b) Work out the total length of the wire in the earring.

Give your answer in the form $a\pi + b$ where a and b are integers.

[4 marks]

Answer _____ mm

Turn over for the next question

5

Prepare 4 GCSEs

Do not write outside the box

13 (a) Work out all the integer values of x for which $15 \leqslant 5x < 25$

[2 marks]

Answer _____

13 (b) Charlie tries to solve $(x + 5)(x - 3) = 0$

Here is his working.

	$(x + 5) = 0$	or	$(x - 3) = 0$
Answer	$x = -5$	or	$x = 3$

Give a reason why his answer is wrong.

[1 mark]

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Do not write outside the box

14 (a) Rationalize the denominator and simplify $\frac{7}{4\sqrt{3}}$

[2 marks]

Answer _____

14 (b) Anna is trying to work out the two values of x for which

$$2x^2 - 5x = 7$$

Her values are 2 and -3.

Are her values correct?

[2 marks]

You must show your working.

Answer _____

7

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Do not write outside the box

15 Circle the calculation that increases 500 by 12.5%

[1 mark]

500 × 1.125 500 × 1.12 500 × 1.25 500 × 0.125

16 Work out 60 000 000 ÷ 300

Give your answer in standard form.

[2 marks]

Answer _____

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Do not write outside the box

17 The nth term of a sequence is 4n-3

The nth term of a different sequence is 5n+1

Work out the two numbers that are in both sequences and between 10 and 30.

[3 marks]

Answer ..... , ... , ...

6

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Do not write outside the box

18 Red paint costs £4.20 per litre.

Yellow paint costs £3.00 per litre.

Red paint and yellow paint are mixed in the ratio 5 : 3.

Work out the cost of 24 litres of the mixture.

[4 marks]

Answer £ .....

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Do not write outside the box

19 Circle the expression that is equivalent to $\frac{x}{3} + \frac{x}{6}$

[1 mark]

$\frac{x}{2}$ $\frac{2x}{6}$ $\frac{x}{6}$ $\frac{x^2}{18}$

20 (a) Write down the value of 9^0

[1 mark]

Answer _____

20 (b) Work out the value of $64^{-\frac{2}{3}}$

[2 marks]

_____

_____

_____

_____

Answer _____

Turn over for the next question

8

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Do not write outside the box

21 Write these numbers in order of size.

$12.4 \qquad 4\sqrt{7} \qquad (3.2)^3 \qquad \frac{58}{5}$

Start with the smallest.

[2 marks]

Smallest _____

_____

_____

Largest _____

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Do not write outside the box

22 (a) y is directly proportional to x^2

when $x = 5$, $y = 45$

Work out an equation connecting y and x

[3 marks]

Answer _____

22 (b) P is inversely proportional to q.
The value of q is doubled.
What happens to the value of P ?" Tick one box.

[1 mark]

P doubles. ☐

P halved. ☐

P stays the same. ☐

P becomes one-quarter of its original value. ☐

Turn over for the next question

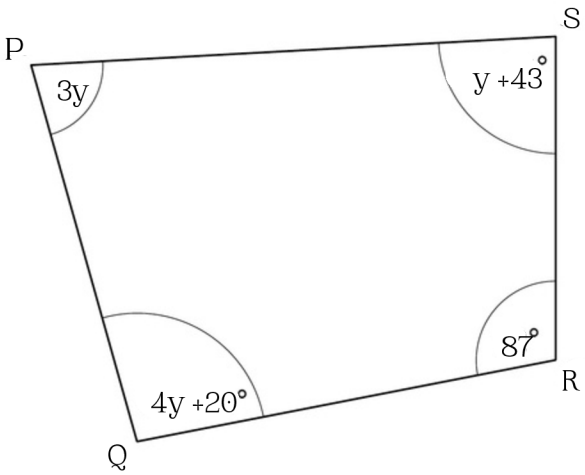
6

Prepare 4 GCSEs

Do not write outside the box

23 PQRS is a quadrilateral.

Not drawn accurately



Prove that PQRS is not a cyclic quadrilateral.

[4 marks]

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Do not write outside the box

24 a is 20% more than b.

Circle the ratio a : b

[1 mark]

6 : 5 5 : 6 12 : 11 11 : 12

Turn over for the next question

5

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Do not write outside the box

25 Work out the value of (cos 60° × sin 45° × tan 30°) 2

[4 marks]

Answer .....

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Do not write outside the box

26 (a) Show that $\frac{20}{\sqrt{5}}$ can be written in the form $a\sqrt{b}$ where a and b are integers.

[2 marks]

26 (b) Work out $3\sqrt{125} \times \sqrt{64} \times \sqrt{25}$

Give your answer as an integer.

[3 marks]

Answer _____

Turn over for the next question

9

Prepare 4 GCSEs

Do not write outside the box

27 Rationalise the denominator and simplify $\frac{50}{2\sqrt{5}}$

[2 marks]

Answer .....

28 Alex's age is 3 years and 6 months.

Mia's age is 2 years and 4 months.

Write Alex's age in months as a fraction of Mia's age in months.

Give your fraction in its simplest form. [2 marks]

Answer _____

Prepare 4 GCSEs

Do not write outside the box

29 The graph of $y = 2x^3 + 3$ is translated 5 units to the left.
The translated graph has equation $y = g(x)$.

Work out $g(x)$.

Give your answer in the form $2x^3 + ax^2 + bx + c$, where a, b, and c are integers.

[4 marks]

Answer _____

END OF QUESTIONS

8

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