AQA Mock Test Papers

Paper1 - 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 1 - Non -Calculator

H

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	
TOTAL	

Answer all questions in the spaces provided.

Do not write outside the box

1 (a) Work out 0.2×1.5

[1 mark]

Answer _____

1 (b) Work out $\frac{5}{8} \div 4$

[1 mark]

Answer _____

1 (c) Work out $125 \div 0.5$

[1 mark]

Answer _____

Do not write outside the box

2 Solve $5x < 50$

[1 mark]

Answer _____

3 Work out the value of $\left(\frac{7}{9}\right)^2$

Give your answer as a mixed number.

[1 mark]

Answer _____

Turn over for the next question

5

Do not write outside the box

4 20 workers can complete a job in 10 days.
How many more workers are needed to complete the job in 8 days?
Assume that all workers work at the same rate.

[3 marks]

Answer _____

Do not write outside the box

5 Write 360 as a product of prime factors in index form.

[3 marks]

6 The cost of a sofa is £960.
Jordan pays a deposit followed by equal monthly payments in the ratio

deposit : total of the monthly payments = 3 : 7

He makes 4 equal monthly payments.

Work out his monthly payment

[4 marks]

Answer _____

10

Do not write outside the box

7 $3d \times 4 \times 5^2 = 1500$

Calculate the value of d.
Show all steps.

[3 marks]

$d =$ _____

8 Expand and simplify fully $6(2x + 4) - 4(x - 3)$

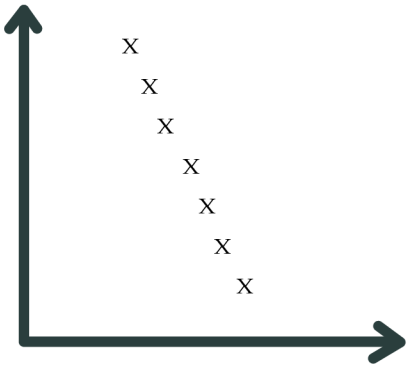
[2 marks]

Answer _____

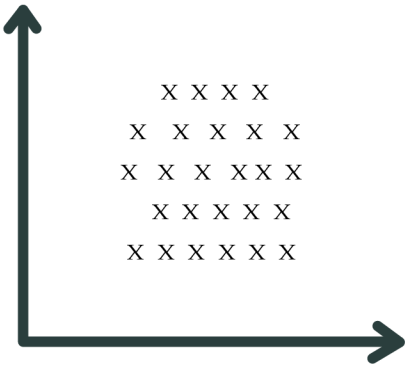
Do not write outside the box

9 A and B are scatter graphs.

Graph A



Graph B



What type of correlation is shown by each graph?

Choose from

Weak positive
Strong positive
Weak negative
Strong negative
No correlation

[2 marks]

Graph A _____

Graph B _____

7

Do not write outside the box

10 Ava is a years old.

Bella is half Ava's age.

Chloe is two years older than Ava.

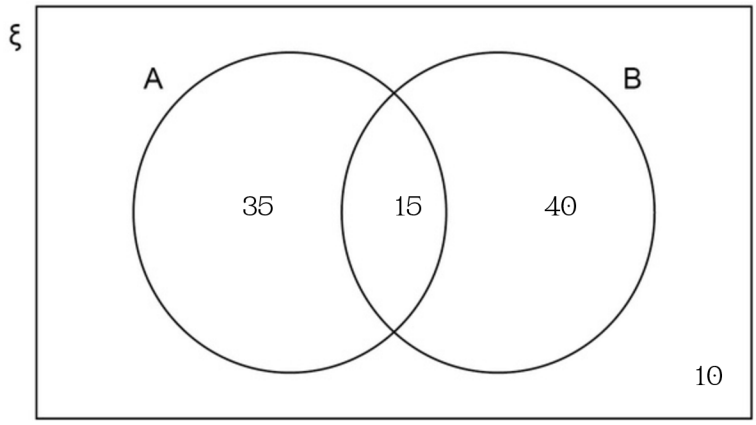
The mean of their ages is 7.

How old is Chloe? [5 marks]

Answer _____

Do not write outside the box

11 The Venn diagram represents 100 items.



11 (a) Write down P(A B)

[1 mark]

Answer _____

11 (b) Work out P(A')

[1 mark]

_____

_____

Answer _____

11 (c) Work out P(A ∪ B)

[1 mark]

_____

_____

Answer _____

8

Do not write outside the box

12 The only solution to $x^2 + bx + c = 0$ is $x = -17$

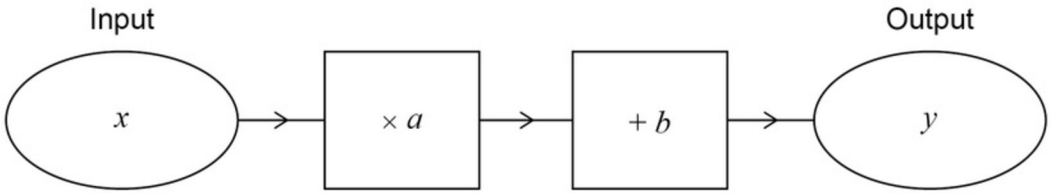
Work out the values of b and c.

[3 marks]

b = _____ c = _____

Do not write outside the box

13 (a) Here is a number machine.



Show that when the input increases by 3, the output increases by 3a.

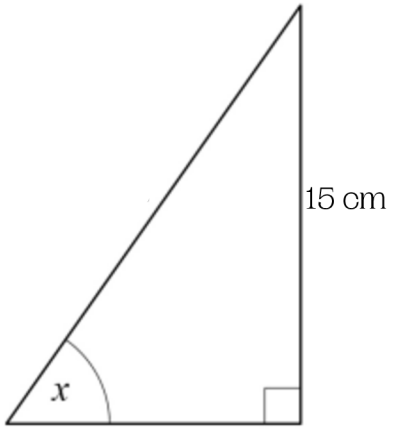
[2 marks]

13 (b) Solve $x^2 - 3x - 10 < 0$

[2 marks]

7

14 Use trigonometry to work out the size of angle x.



Not drawn accurately

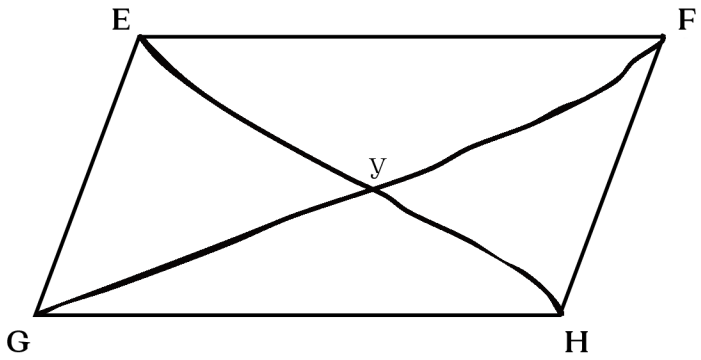
[2 marks]

Answer ..... degrees

Do not write outside the box

15 Given quadrilateral EFGH ,

EFGH is a parallelogram.
All angles of EFGH are right angles.
EF is parallel to GH.
The diagonals EG and FH intersect at Y.
The shape is not drawn accurately.



Not drawn accurately

For each statement, tick the correctbox.

[4 marks]

	True	May be true	Not true
EFGH is a parallelogram	☐	☐	☐
All angles of EFGH are right angles	☐	☐	☐
EF is parallel to GH	☐	☐	☐
The shape is not drawn accurately	☐	☐	☐

Turn over for the next question

6

Do not write outside the box

16 Solve the simultaneous equations

$$4x + 3y = 14$$

$$5x - 2y = 7$$

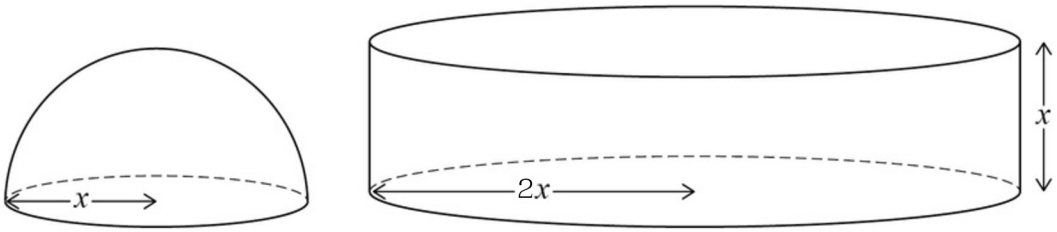
[4 marks]

$x =$ _____ $y =$ _____

Do not write outside the box

17 A solid hemisphere has radius x.

A solid cylinder has radius 2x and height x



Surface area of a sphere = $4\pi r^2$
where r is the radius

Work out the ratio

total surface area of the hemisphere : total surface area of the cylinder

Give your answer in its simplest form.

You must show your working.

[3 marks]

Answer _____ : _____

7

Do not write outside the box

18 The cross section of a prism has n sides.

ircle the expression for the number of faces of the prism.

[1 mark]

n 2n 3n n + 2

19 All the terms of a geometric progression are positive.
The second and fifth terms are shown:

..... 6 54

Work out the first, third, and fourth terms.

[2 marks]

First term .....

Third term .....

Fourth term .....

Do not write outside the box

20 Given $15x^3 + 9x^2 - 4x + 7 = 3(dx^3 + 2x^2 - x + 1) + x(ex + f)$,

Work out the values of d, e, and f.

[3 marks]

d = ... e = ... f = ...

Turn over for the next question

6

Do not write outside the box

21 Work out $\sqrt[3]{\frac{64 \times 12^3}{2}}$

[2 marks]

Give your answer as an integer.

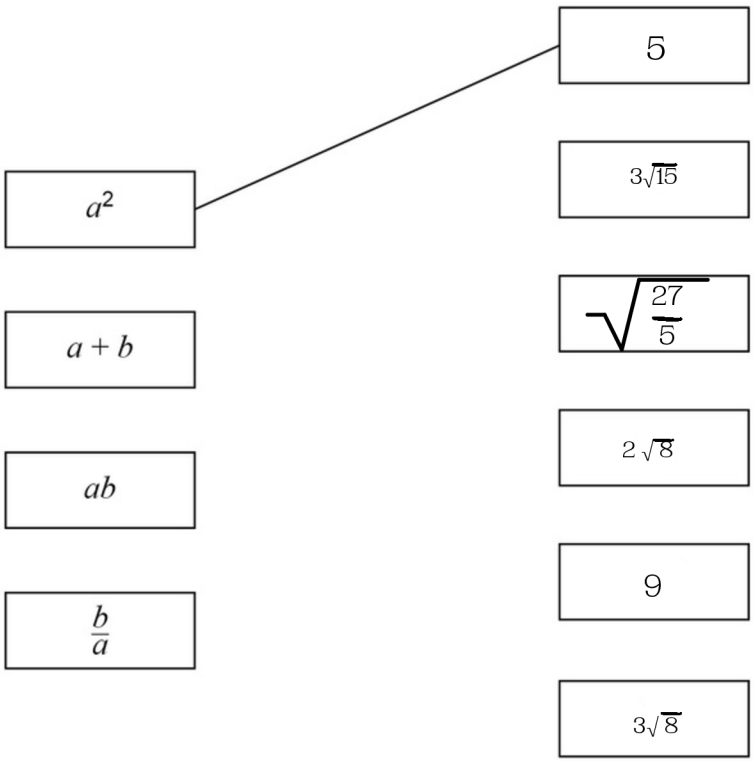
Answer _____

22 $a = \sqrt{5}$ and $b = \sqrt{27}$

Match each expression to its value.

One has been done for you.

[3 marks]



Do not write outside the box

23 Write $0.\dot{2}7$ as a fraction in its simplest form.

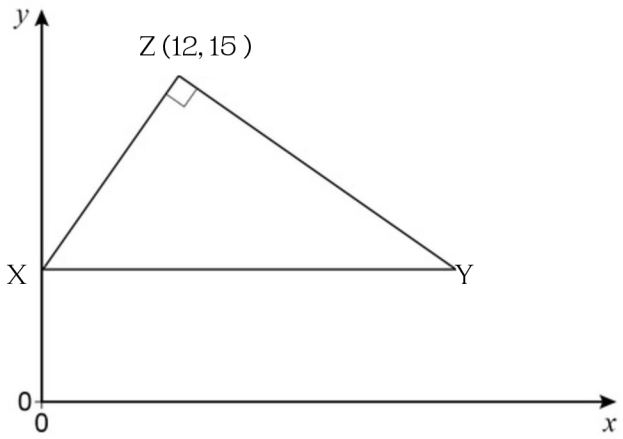
[3 marks]

Answer _____

8

Do not write outside the box

24 Points X, Y, and Z (12, 15) form a triangle.



Not drawn accurately

XY is a horizontal line, with X on the y-axis.

The gradient of XZ is 3 , and angle YXZ is a right angle.

Work out the coordinates of Y.

[5 marks]

Answer (_____ , _____)

Do not write outside the box

25 $5 \times \sin 60° \times \tan 30° \times \cos 45° = \sin w$

Work out one possible value of w.

You must show your working.

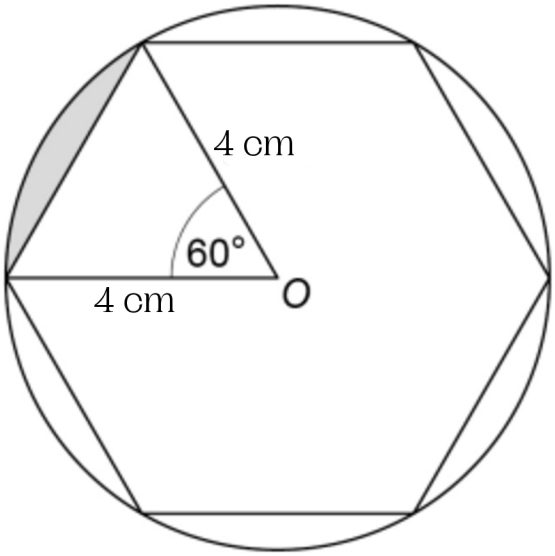
[4 marks]

Turn over for the next question

9

26 The vertices of a regular hexagon lie on a circle with centre O and radius 4 cm

Do not write outside the box



Not drawn accurately

Work out the shaded area

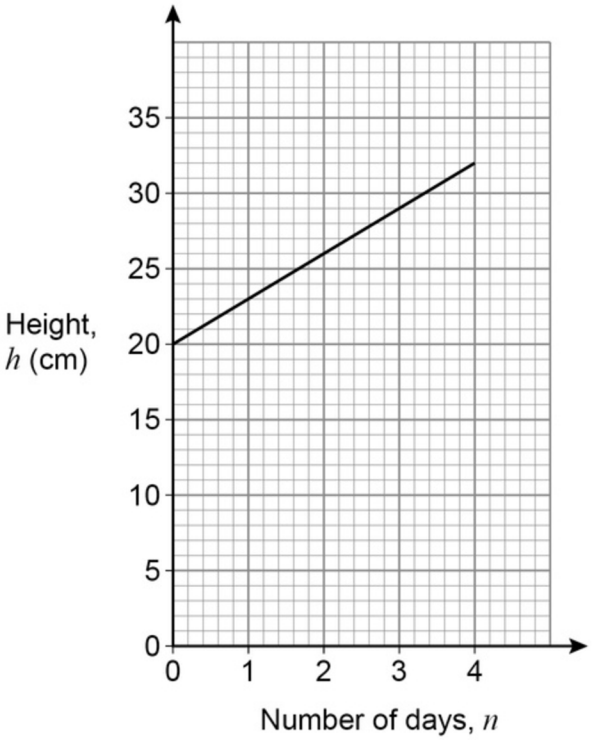
Give your answer in the form $\frac{a\pi - b\sqrt{c}}{3}$ where a, b and c are integers

[4 marks]

a = _____

Do not write outside the box

27 If the height of the plant after 4 days is 40 cm,
and the plant started at 20 cm,
how would you calculate the daily growth rate of the plant?



[3 marks]

Work out a formula for h in terms of n .

END OF QUESTIONS

7