

Please write clearly, in block capitals.

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

Surname

Forename(s)

Candidate signature

GCSE MATHEMATICS

F

Foundation Tier Paper 2 Calculator

Exam Date

Morning

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator
- mathematical instruments.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- 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.
- 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	
TOTAL	

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

1 What is 18 as a percentage of 72 ?

Circle your answer.

[1 mark]

18%

20%

25%

40%

2 Which of these are units of volume?

Circle your answers.

[1 mark]

cm^3

kg^3

cubic metre

m^2

3 (a) Which of these values could represent a probability?

Circle your answer.

[1 mark]

-0.2

1.1

0.8

$\frac{6}{5}$

- 3 (b)** A fair ordinary dice is rolled once.
Circle the probability of rolling a 3 or a 4

[1 mark]

$$\frac{1}{6}$$

$$\frac{2}{6}$$

$$\frac{3}{6}$$

$$\frac{4}{6}$$

- 4** Simplify $12x^2 - 8x^2 - 5x + 2x$

[2 marks]

Answer

Turn over for the next question

- 5** Bob stacks 20 bricks in one minute.
He assumes he can continue at the same rate.

He says,

“I will stack 8400 bricks in 7 hours.”

Tick **one** box to show whether he is likely to be accurate.

☐

No, he is likely to stack **fewer** bricks

☐

Yes, he is likely to be accurate

☐

No, he is likely to stack **more** bricks

Give working and a reason to support your answer.

[2 marks]

- 6** Factorise $18x - 42y + 30z$

[2 marks]

Answer _____

- 7 An experiment has four outcomes.

Outcome	A	B	C	D
Probability	0.1		0.2	0.3

Circle the probability of outcome B.

[1 mark]

0.15

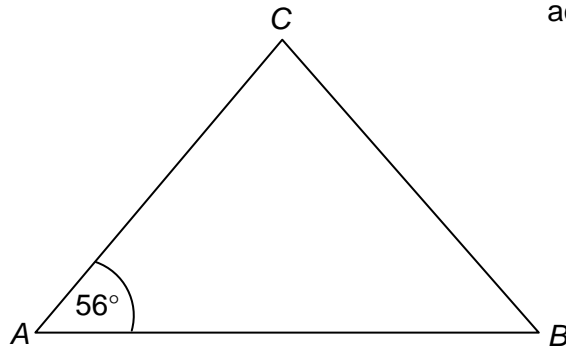
0.25

0.4

0.6

Turn over for the next question

8

Triangle ABC is isosceles.Not drawn
accuratelyWork out **three** possible values of angle B .**[5 marks]**

Answer 1 _____ degrees

Answer 2 _____ degrees

Answer 3 _____ degrees

9 Complete this pay statement.

[4 marks]

Number of hours worked	Pay per hour	Pay
35	£14.30	£ _____
7	£18.80	£ _____
4	£21.45	£ _____
		Total pay = £ _____
Deductions		
Tax		£64.80
National insurance		£85.60
Total deductions = £ _____		
Take home pay = Total pay – Total deductions		£ _____

Turn over for the next question

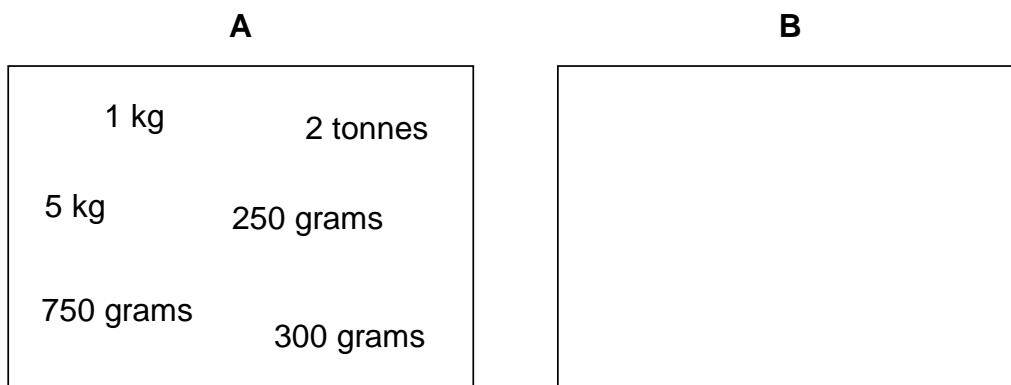
10Work out $5\frac{1}{4} + \frac{1}{2} \times \frac{2}{3}$

Give your answer as a mixed number.

[2 marks]

Answer _____

- 11 In rectangle A there are six masses.



- 11 (a) Show that the sum of the **six** masses is 2007.3 kilograms.

[3 marks]

- 11 (b) Three of the masses are moved from A to B.
The mean of the masses in B is now 2.1 kilograms.

Which **three** masses move?

You **must** show your working.

[3 marks]

Answer _____, _____ and _____

12

I am thinking of a number.

It has two digits.

It is 3 more than a number that is **both** a square and a cube number.

Is the number I am thinking of a prime number?

Tick a box.

☐

Prime

☐

Not prime

You **must** show working to support your answer.

[2 marks]

- 13** Before an election,
 23% said they would vote for A
 9% said they would vote for B
 20% said they would **not** vote

These all voted as they said.

The rest of the voters actually voted for A and B in the ratio 1 : 2

- 13 (a)** Who got the most votes?
 You **must** show your working.

[4 marks]

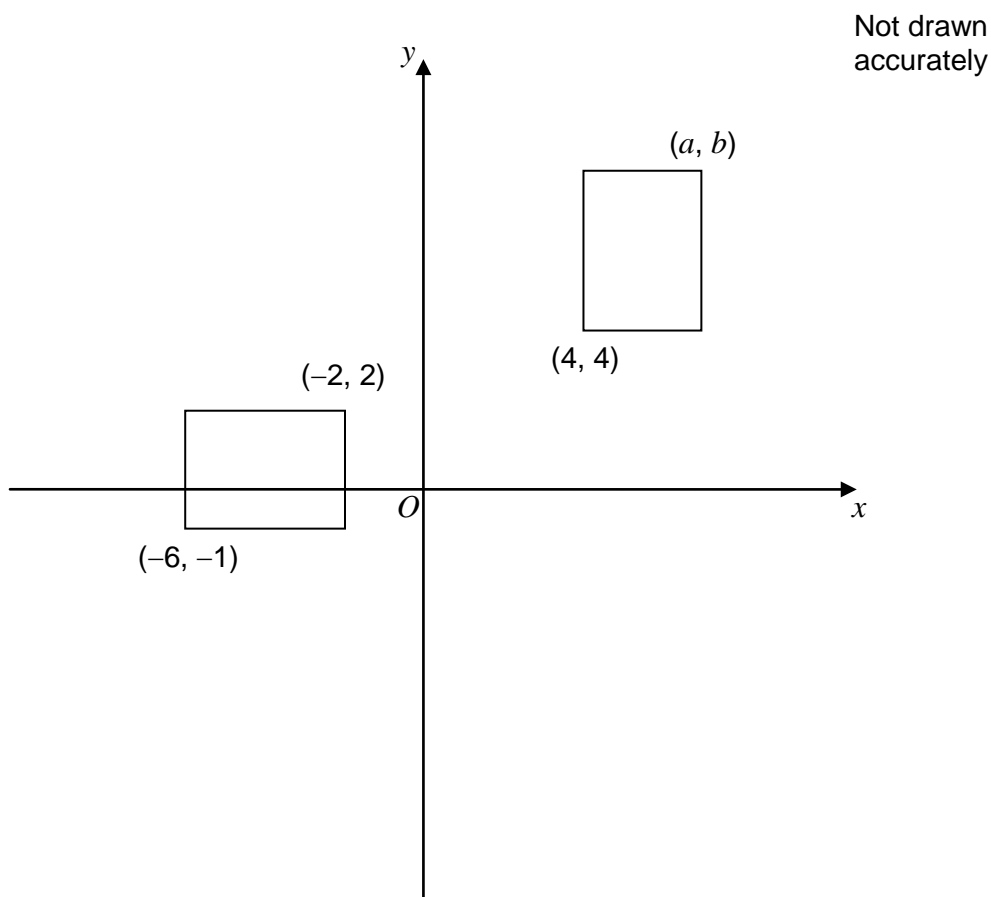
Answer _____

- 13 (b)** 612 people did **not** vote.
 How many did vote?

[2 marks]

Answer _____

- 14 Two rectangles are shown on the grid.



The rectangles are **congruent**.

Work out the values of a and b .

[4 marks]

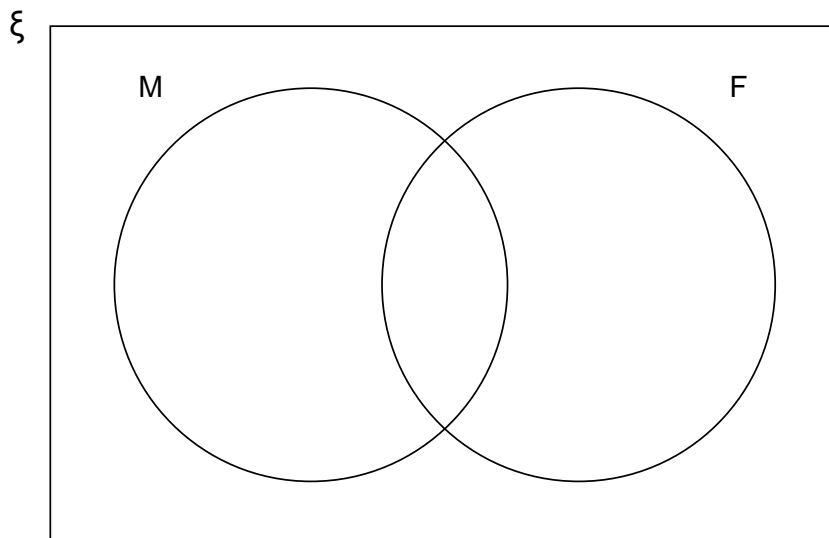
$a =$ _____ $b =$ _____

15 In the Venn diagram

ξ = Whole numbers from 1 to 12 inclusive

M = Multiples of 3

F = Factors of 24



15 (a) Put the numbers from 1 to 12 in the Venn diagram.

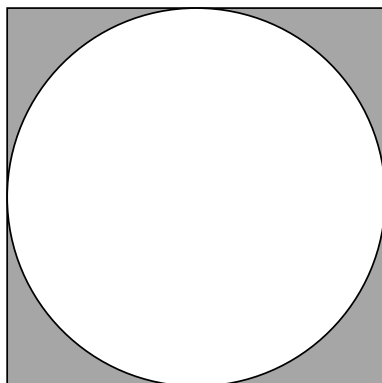
[3 marks]

15 (b) Complete the table to show **how many** numbers are in each part of the Venn diagram.

[3 marks]

	Multiples of 3	Not multiples of 3	Totals
Factors of 24			
Not factors of 24			
Totals			12

- 16** The diagram shows a circle of radius 7 cm inside a square.



Not drawn
accurately

Work out the shaded area.

[4 marks]

Answer _____ cm^2

17 The n th term of a sequence is $3n^2$

17 (a) Work out the value of the 15th term.

[2 marks]

Answer _____

17 (b) What is the position of the term in the sequence that is the first one with a value greater than 1000 ?

[3 marks]

Answer _____

18 $x : y : z = 2 : 3 : 5$

Circle the value of x as a fraction of $x + y + z$

[1 mark]

$$\frac{1}{5}$$

$$\frac{1}{4}$$

$$\frac{2}{3}$$

$$\frac{2}{5}$$

19 (a) Circle the number that is an integer power of 4

[1 mark]

2

8

16

32

19 (b) Work out $5^{12} \div 5^3 \times 5^2$ as a power of 5
Circle your answer.

[1 mark]

5^6

5^8

5^9

5^{11}

20 £4000 is invested at 1.5% compound interest.

20 (a) Show that the value of the investment after 2 years is £4120.90

[2 marks]

20 (b) In the third year the interest rate falls to 1.4%

In the fourth year the interest rate falls to 1.35%

Will the interest for year 4 be more or less than the interest for year 3 ?

Tick a box.

☐

More

☐

Less

You **must** show your working.

[4 marks]

Answer _____

Turn over for the next question

- 21** The table summarises the amounts spent, £ A , by customers in a shop in one hour.

Amount spent, £ A	Number of customers		
$0 < A \leq 10$	18		
$10 < A \leq 20$	15		
$20 < A \leq 30$	7		
More than 30	0		

- 21 (a)** Work out an estimate of the mean amount spent per customer in one hour.

[4 marks]

Answer £ _____

- 21 (b)** Using the till receipts, the manager works out the actual mean amount spent for each group.

Amount spent, £A	Number of customers	Actual mean amount spent
$0 < A \leq 10$	18	£4.50
$10 < A \leq 20$	15	£15.00
$20 < A \leq 30$	7	£23.40

Without further calculation, decide whether the actual mean of the 40 customers will be different from the estimated mean in part **(a)**.

Tick a box.

☐

Higher

☐

Lower

☐

The same

Give a reason for your answer.

[2 marks]

Turn over for the next question

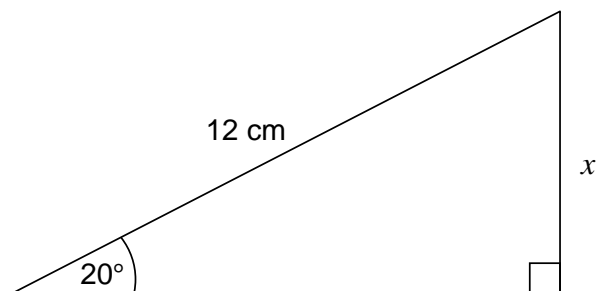
22 Work out the values of a and b in the identity

$$3ax + 6 - 4(x + b) \equiv 11x + 14$$

[5 marks]

$a =$ _____ $b =$ _____

23 Work out the length x .



Not drawn
accurately

[2 marks]

Answer _____ cm

24 Write 140 as a product of prime numbers in index form.

[3 marks]

Answer _____

END OF QUESTIONS

There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

Copyright Information

For confidentiality purposes, from the November 2015 examination series, acknowledgements of third party copyright material will be published in a separate booklet rather than including them on the examination paper or support materials. This booklet is published after each examination series and is available for free download from www.aqa.org.uk after the live examination series

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team, **AQA**, Stag Hill House, Guildford, GU2 7XJ.