GCSE
MATHEMATICS
8300/1F

Foundation Tier Paper 1 Non-Calculator

Mark scheme

November 2025

Version: 1.0 Final

25BG8300/1F/MS

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

No student should be disadvantaged on the basis of their gender identity and/or how they refer to the gender identity of others in their exam responses.

A consistent use of 'they/them' as a singular and pronouns beyond 'she/her' or 'he/him' will be credited in exam responses in line with existing mark scheme criteria.

Further copies of this mark scheme are available from aqa.org.uk

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Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

If a student uses a method which is not explicitly covered by the mark scheme the same principles of marking should be applied. Credit should be given to any valid methods. Examiners should seek advice from their senior examiner if in any doubt.

M	Method marks are awarded for a correct method which could lead to a correct answer.
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
B	Marks awarded independent of method.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special case. Marks awarded for a common misinterpretation which has some mathematical worth.
M dep	A method mark dependent on a previous method mark being awarded.
B dep	A mark that can only be awarded if a previous independent mark has been awarded.
oe	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
[a, b]	Accept values between a and b inclusive.
[a, b)	Accept values $a \leqslant$ value $< b$
3.14…	Accept answers which begin 3.14 eg 3.14, 3.142, 3.1416
Use of brackets	It is not necessary to see the bracketed work to award the marks.

Examiners should consistently apply the following principles.

Diagrams

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

Responses which appear to come from incorrect methods

Whenever there is doubt as to whether a student has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the student. In cases where there is no doubt that the answer has come from incorrect working then the student should be penalised.

Questions which ask students to show working

Instructions on marking will be given but usually marks are not awarded to students who show no working.

Questions which do not ask students to show working

As a general principle, a correct response is awarded full marks.

Misread or miscopy

Students often copy values from a question incorrectly. If the examiner thinks that the student has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

Further work

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

Choice

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

Work not replaced

Erased or crossed out work that is still legible should be marked.

Work replaced

Erased or crossed out work that has been replaced is not awarded marks.

Premature approximation

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Continental notation

Accept a comma used instead of a decimal point (for example, in measurements or currency), provided that it is clear to the examiner that the student intended it to be a decimal point.

Q	Answer	Mark	Comments
1(a)	205	B1	

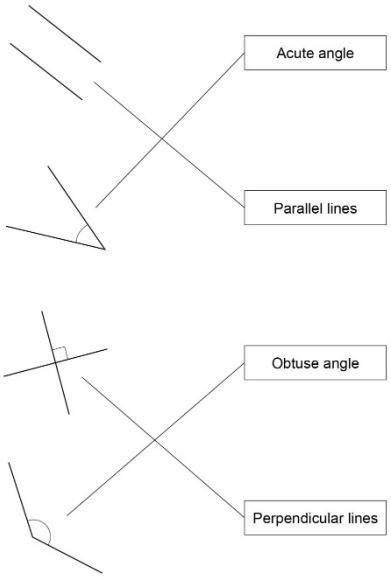
Q	Answer	Mark	Comments
1(b)	85	B1	

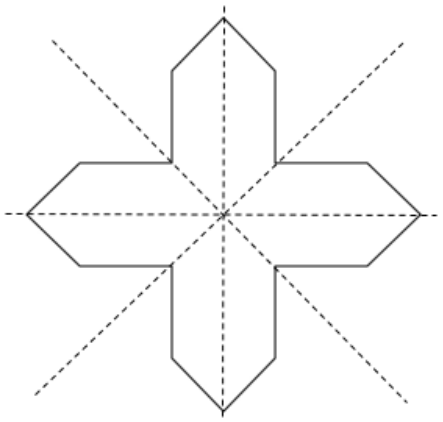
Q	Answer	Mark	Comments
1(c)	12	B1	

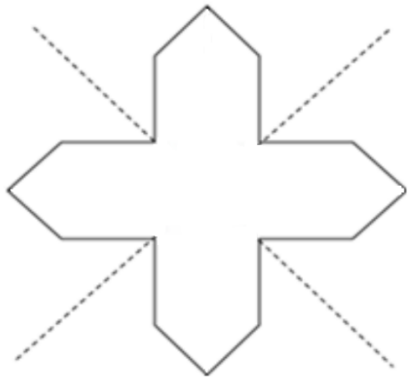
Q	Answer	Mark	Comments
2(a)	cd or dc	B1	

Q	Answer	Mark	Comments
2(b)	$2a$	B1	
	Additional Guidance		
	Do not accept $a2$		

Q	Answer	Mark	Comments
2(c)	$-m$	B1	
	Additional Guidance		
	Condone $-1m$		B1

<table>
<tr><th>Q</th><th>Answer</th><th>Mark</th><th>Comments</th></tr>
<tr><td rowspan="4">3</td><td>All three correct</td><td>B2</td><td>B1 1 or 2 correct</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">
</td><td>B2</td></tr>
<tr><td colspan="2">More than one line from a diagram on the left is incorrect for that diagram</td><td></td></tr>
</table>

Q	Answer	Mark	Comments
4(a)		B2	B1 2 or 3 correct lines of symmetry

Additional Guidance	
Lines can be dotted or solid but must be intended to be straight	
Do not ignore additional lines for B2	
Accept lines that do not extend beyond the diagram	
Accept lines that go behind the diagram eg 	B1

Q	Answer	Mark	Comments
4(b)	trapezium	B1	condone trapezoid

Q	Answer	Mark	Comments
5(a)	4	B1	

Q	Answer	Mark	Comments
5(b)	2.5 × 20	M1	oe
	50	A1	SC1 50.8
	Additional Guidance		
	SC1 for using 2.54		

Q	Answer	Mark	Comments
6	24	B2	B1 9 + 6 or 15 or 21 or 45

Q	Answer	Mark	Comments
7(a)	8 and 21	B2	either order B1 8 or 21
	Additional Guidance		
	18 – 10 = 8 and 11 + 10 = 21		B2
	18 – 10 = 8 only		B1
	11 + 10 = 21 only		B1
	Both embedded eg 8 + 10 = 18 and 21 – 10 = 11		B1
	One embedded and no other valid working		B0

Q	Answer	Mark	Comments
7(b)	No indicated and a valid reason	B1	eg the numbers haven't been put in order it should be 7 7 indicated from an ordered list 3 is the lowest (not in the middle)
	Additional Guidance		
	Ignore non-contradictory statements alongside a correct reason		
	If neither box is ticked then No can be implied eg it should be 7 (not 3)		B1
	No, he hasn't picked the middle one		B1
	No, 3 4 7 8 8		B1
	No, 4 3 7 8 8 (with or without 7 indicated)		B0
	No, need to rearrange the numbers		B0
	No, they should be in order, it should be 6		B0

Q	Answer	Mark	Comments
7(c)	Valid reason	B1	eg she didn't add first (before dividing) it should be (9 + 12 + 18) ÷ 3
	Additional Guidance		
	Ignore non-contradictory statements alongside a correct reason		
	Ignore evaluations, eg It should be 9 + 12 + 18 = 29 and 29 ÷ 3 She didn't add before she divided, it should be 37 ÷ 3		 B1 B1
	It should be 39 ÷ 3 (39 implies addition first) It should be 37 ÷ 3		B1 B0
	She missed out the brackets		B1
	She didn't divide it all (by 3) She divided first (before adding) She only divided the 18 by 3 She divided the 18 by 3		B1 B1 B1 B0
	She didn't add correctly, 39 ÷ 3 = 13 (untrue statement) She didn't divide properly, 39 ÷ 3 = 13 (untrue statement)		B0 B0
	The answer is too big		B0
	9 + 12 + 18 = 39, (the answer is) 13 The answer should be 13		B1 B0
	Reference to BIDMAS, eg She used BIDMAS but she should have done all the adding first She used BIDMAS and didn't add correctly She used BIDMAS She didn't use BIDMAS… (untrue statement)		 B1 B0 B0 B0

Q	Answer	Mark	Comments
8	3×7 or 21 or 2×15 or 30	M1	oe
	their 30 – their 21 or (their 30 ÷ 3) – 7	M1dep	oe their 30 > their 21
	9	A1	
	Additional Guidance		
	Build up or build down methods must be fully correct		

Q	Answer	Mark	Comments
9	33	B3	B2 49 – 16 or 16 – 49 or –33 B1 two numbers from the list shown in a subtraction or 16 and 49
	Additional Guidance		
	If 16 and 49 are indicated with others, allow recovery, eg 16 and 49 and 8 indicated, 49 – 16, answer 33 16 and 49 indicated with no other numbers 16 and 49 and 8 indicated		 B3 B1 B0

Q	Answer	Mark	Comments
10	$2 \times 20 - (5 + 2 + 2 + 0.5)$ or $5 + 2 + 2 + 0.5$	M1	oe condone one missing note or one missing coin
	30.5 or 9.5	A1	oe
	$17.29 + 13.49$ ($+$ their 9.5) or their $30.5 - 17.29 - 13.49$ or their $30.5 - 17.29$ or their $30.5 - 13.49$ or $2 \times 20 - 17.29 - 13.49$	M1	oe
	30.78 or 40.28 or (–)0.28 or 13.21 or 17.01 or 9.22	A1	implies M1A1M1A1 implies M1A1M1A1
	Sal **and** 30.5 and 30.78 or (–)0.28 or 13.21 or 17.01 or 9.22 and 9.5 or 40 and 40.28	A1ft	ft their values if M2 awarded

The Additional Guidance for Question 10 is on the next page

10 cont'd	**Additional Guidance**	
	Do not award full marks if any values used to make a decision are incorrectly evaluated, eg	
	9.50, 31.5, 9.22, Sal (31.5 not used to make a decision)	M1A1M1A1A1
	30.5, 30.78, Sal spent 18p more (18p not used to make a decision)	M1A1M1A1A1
	40 – 9.5 = 31.5, 30.78, Ethan (31.5 used to make a decision)	M1A1M1A1A0
	Allow working in £ or pence or a mix Correct money notation is not required	
	Accept "Ethan spends less" in place of "Sal"	
	Correct values but no indication of Sal	M1A1M1A1A0

Q	Answer	Mark	Comments
11	42 × 13	M1	Accept repeated addition of thirteen 42s
	Correct set of multiplications with at most one arithmetic error and no conceptual errors and correct set of additions/subtractions of their products	M1dep	eg traditional long multiplication grid method Gelosia ignore arithmetic errors in additions/subtractions of their products
	546	A1	
	Additional Guidance		
	In traditional long multiplication allow a space in place of the 0(s) when multiplying by 10, 100, etc, but the absence of a space or 0 counts as a conceptual error and is M0		
	In Gelosia, diagonals must be consistent and sloping up to the right		
	In Gelosia, condone missing diagonals if recovered		

Q	Answer	Mark	Comments
12	(A =) 20	B1	may be implied by correct answer
	(B =) 30	B1	may be implied by correct answer
	600	B1ft	ft their A × their B if at least B1 awarded
	Additional Guidance		
	Answer 600 with no incorrect values		B1B1B1

Q	Answer	Mark	Comments
13(a)	$\frac{7}{12}$	B1	oe

Q	Answer	Mark	Comments
13(b)	20	B1	

Q	Answer	Mark	Comments
13(c)	4 : 3 or $\frac{4}{3}$: 1 or 1 : $\frac{3}{4}$	B2	B1 72 : 54 oe not fully simplified ratio eg 12 : 9 or 3 : 4 or 1 : $\frac{4}{3}$ or $\frac{3}{4}$: 1 or their incorrect ratio fully simplified
	Additional Guidance		
	Accept decimals rounded/truncated to at least 2dp Accept mixed numbers		

Q	Answer	Mark	Comments
14	Shows that the angles in the triangle sum to 180° using the angles 35°, 55° and 90° and the angles at the point sum to 360° using the angles 325° and 35°	B2	eg $180 - 90 - 55 = 35$ and $360 - 325 = 35$ B1 $180 - 90 - 55$ oe or $360 - 325$ or 35
	Additional Guidance		
	Ignore labels		
	Ignore any reasons given		

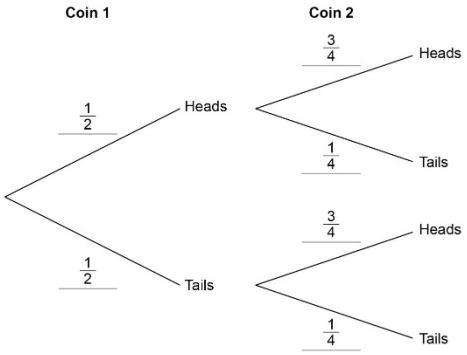
Q	Answer	Mark	Comments
15(a)	June and valid reason	B1	eg June visitor number does not fit in with the trend of the data or June visitor number is an anomaly or an outlier or June visitor number is the lowest
	Additional Guidance		
	Condone 362 for June		
	June is the quietest		B1
	June is 362, not roughly 2000		B0
	June only has 362		B0
	June has the biggest dip / rapid decrease		B0

Q	Answer	Mark	Comments
15(b)	2000×20	M1	accept 2300×20
	40 000	A1	accept 46000

Q	Answer	Mark	Comments
16	9 and 6	B2	B1 at least 3 multiples of 15 or 90 identified or 6 and 9
	Additional Guidance		
	Embedded answer 9×10 and 6×15		B1

Q	Answer	Mark	Comments
17(a)	4, 6, 10, 15 in any order	B2	B1 for 4, 6, 10, 15 and one additional value or three correct values and no or one incorrect values or all 4 correct values with some or all left as fractions
	Additional Guidance		
	Ignore repeated values for B2 and B1		

Q	Answer	Mark	Comments
17(b)	135	B2	B1 58 or 63 or 130 or 162 or correct substitution of a given value for each variable eg $4 \times 30 + 5 \times 2$

<table>
<tr><th>Q</th><th>Answer</th><th>Mark</th><th>Comments</th></tr>
<tr><td rowspan="4">18(a)</td><td>$\frac{1}{2}$ on Heads and $\frac{1}{2}$ on Tails for Coin 1
or
$\frac{3}{4}$ on Heads and $\frac{1}{4}$ on Tails on either pair for Coin 2</td><td>M1</td><td>oe fraction, decimal or percentage</td></tr>
<tr><td>Fully correct tree</td><td>A1</td><td></td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">
</td><td>M1A1</td></tr>
</table>

Q	Answer	Mark	Comments
18(b)	their $\frac{1}{2}$ × their $\frac{3}{4}$ or 1 – their $\left(\frac{1}{2}\times\frac{1}{4}+\frac{1}{2}\times\frac{3}{4}+\frac{1}{2}\times\frac{1}{4}\right)$	M1	oe ft their probabilities from (a) between 0 and 1 inclusive
	$\frac{3}{8}$	A1ft	oe fraction, decimal or percentage ft their probabilities from (a) between 0 and 1 inclusive

Q	Answer	Mark	Comments
19	$7x - 3x$ or $4x$ or $3x - 7x$ or $-4x$ or $(+)16 + 2$ or 18 or $-2 - 16$ or -18	M1	
	$4x = 18$ or $-18 = -4x$	A1	both sides must be fully simplified implied by correct answer or answer $\frac{-18}{-4}$
	4.5	A1ft	oe ft equation of the form $4x = a$ or $-4x = a$ or $bx = 18$ or $bx = -18$ where $a \neq 0$ and $b \neq 1$
	Additional Guidance		
	Ignore simplification or conversion attempt if correct answer seen		
	M1 may be seen in an equation which may be incorrect eg $4x = 2 - 16$		M1A0
	M1 may be seen in a calculation which may be incorrect eg $\frac{16+2}{-4}$		M1A0
	Embedded answer		M1A1A0
	$4x = -18$ $x = -4.5$		M1A0A1ft
	$7x - 3x = 16 + 2$ $5x = 18$ $x = 3.6$		M1A0A1ft
	$7x - 3x = 16 + 2$ $5x = 19$ $x = 3.8$ (no ft as equation not in allowed form)		M1A0A0ft
	ft answer must be exact or truncated or rounded to at least 2dp eg $7x = 18$ $x = 2.57$		M1A0A1ft

Q	Answer	Mark	Comments
20(a)	Valid description	B1	eg As one increases, the other decreases or Population (density) is lower the further from the centre
	Additional Guidance		
	Ignore incorrect or irrelevant statements alongside correct statements, unless contradictory Ignore reference to strength or negative correlation Ignore comments about individual points		
	It is usually lower the further away it is		B1
	It is negative correlation because the density is lower the further from the centre		B1
	As people/km^2 goes down, km goes up		B1
	It is negative correlation		B0
	They are inversely proportional		B0

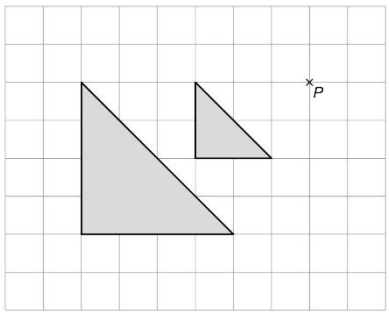
Q	Answer	Mark	Comments
20(b)	Line of best fit drawn through (1, [3600, 5000]) and (3, [1400, 2600])	B1	accept intention to draw a straight line ignore anything outside 1 to 3
	Correct reading of their line ± half a square	B1ft	ft their straight line with negative gradient ignore any working lines on their graph
	Additional Guidance		
	No line of best fit		B0B0

Q	Answer	Mark	Comments
21(a)	**Alternative method 1: converts to decimals and adds**		
	0.4 or 0.35	M1	
	0.75	A1	
	Alternative method 2: adds as fractions and then converts to a decimal		
	$\left(\frac{2}{5}=\right)\ \frac{8}{20}$ or $\left(\frac{7}{20}=\right)\ \frac{1.75}{5}$ or $\frac{40}{100}$ and $\frac{35}{100}$ or $\frac{75}{100}$ or 75%	M1	oe fractions with common denominator oe fraction or percentage
	0.75	A1	
	Additional Guidance		
	Alt 2, for M1 accept fractions which include decimals		M1

Q	Answer	Mark	Comments
21(b)	No and valid fraction and terminating decimal	B1	eg No and $\frac{1}{4}=0.25$ or No and ($x=$) 4 and 0.25 or No and $\frac{1}{8}=0.125$ or No and ($x=$) 8 and 0.125 or No and $\frac{1}{100}=0.01$ or No and ($x=$) 100 and 0.01
	Additional Guidance		
	No with one counter-example, even if amongst multiple examples		B1
	Reasons involving recurring decimals		B0

Q	Answer	Mark	Comments
22(a)	2 and 1.5	B2	oe B1 2 or 1.5 oe

Q	Answer	Mark	Comments
22(b)	At least three points from the table in part (a) plotted or At least three correct points	M1	implied by a graph passing through the three points
	Straight line from (–2, 2.5) to (2, 0.5)	A1	ignore any working beyond (–2, 2.5) and (2, 0.5)
	Additional Guidance		
	Half a square tolerance throughout		

Q	Answer	Mark	Comments
23	Fully correct triangle	B3	B2 correct size triangle in the correct orientation but not in the correct position or all vertices plotted in the correct positions but not joined B1 correct size triangle not in the correct orientation
	Additional Guidance		
			
	Mark intention		

Q	Answer	Mark	Comments
24(a)	11 : 15 : 20 or $\frac{11}{20} : \frac{3}{4} : 1$ or $\frac{11}{15} : 1 : \frac{4}{3}$ or $1 : \frac{15}{11} : \frac{20}{11}$	B2	B1 55 : 75 : 100 oe unsimplified ratio or two of the three correct values in the correct positions in a 3-value ratio eg 11 : 15 : 10 or $\frac{11}{20} : \frac{3}{5} : 1$ or three correct values in a 3-value ratio but not in the correct order or their incorrect 3-value ratio fully simplified
	Additional Guidance		
	Accept decimals to 2dp or better Accept mixed numbers		
	Ignore units for B1 only		

Q	Answer	Mark	Comments	
24(b)	**Alternative method 1: working with 1°**			
	$390 \times \frac{55}{130}$	M2	oe M1 for a correct first step using one operator eg $\frac{130}{55}$	
	165	A1	SC1 225 or 300 or 1080	
	Alternative method 2: build-up method			
	Correct amount of money for a multiple of 5°, up to 50°, or the correct method to work it out	M1	value must be assigned to an angle eg 5° (=) 15 390 ÷ 13 and 10°	
	Correct method to calculate the amount of money for 55°	M1dep	eg 5° = 15 and 15 × 11	
	165	A1	SC1 225 or 300 or 1080	
	Additional Guidance			
	Up to M2 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts			
	SC1 for amount spent on Other (225), Food (300) or total (1080)			
	Condone missing degrees symbols			
	165°			M2A0

Q	Answer	Mark	Comments
25	(radius =) $\frac{4 \times 6}{2}$ or $\frac{24}{2}$ or 12	M1	may be implied by 144
	$\pi \times$ (their 12)$^2 \div 4$	M1	oe their 12 can be any positive number [113.04, 113.112] implies M2
	36π	A1	
	Additional Guidance		
	For the award of M1M1 their 12 must not be from incorrect working		
	Condone eg $\pi 36$ for 36π		
	Accept [3.14, 3.142] or pi for π for up to M2		