



GCSE MATHEMATICS 8300/3F

Foundation Tier Paper 3 Calculator
Middle Third

Mark scheme
November 2024

Version: 1.0

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 $a \leq \text{value} < b$
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.

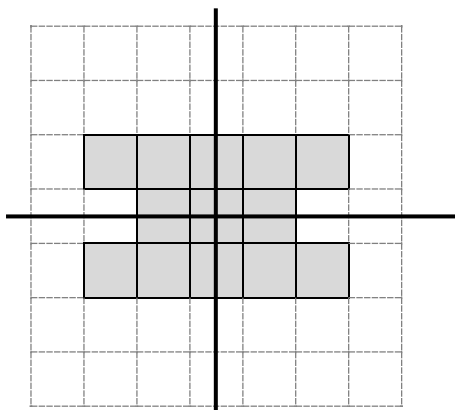
Continental notation

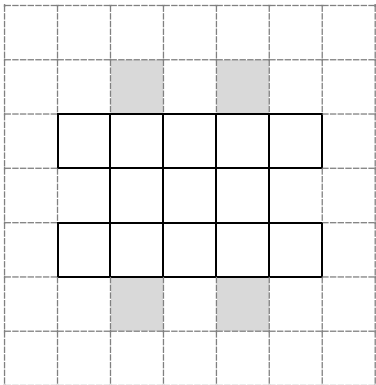
Accept a comma used instead of a decimal point (for example, in measurements or currency), provided that it is clear to the examiner that the student intended it to be a decimal point.

Q	Answer	Mark	Comments
11(b)	14 in circle	B1	
	+ 9 in box	B1ft	ft their 14
	Additional Guidance		
	Accept other operators eg 14 in circle with $\times \frac{14}{5}$ (oe)		B1B1
	36 in circle + 31 in box		B0B1ft
	36 in circle + 9 in box		B0B1

Q	Answer	Mark	Comments
11(c)	$a + 3a = 28$ or $4a = 28$ or $28 + 2a = b$ or $6a = b$ or $28 \div 4$	M1	oe
	7	A1	may be seen on diagram
	42	B1ft	ft $28 + 2 \times$ their 7 or $6 \times$ their 7
	Additional Guidance		
	Answer 42		M1A1B1
	$4a = 28$ followed by $a = 24$ and $b = 76$ or $b = 144$		M1A0B1ft
	$a = 24$ (no working) and $b = 76$ or $b = 144$		M0A0B1ft
	Do not accept $a + 3a = 28 + 2a = b$ for $a + 3a = 28$ or $28 + 2a = b$		M0

Q	Answer	Mark	Comments
12	2 6 7 7 8 10 11 12 18 or 18 12 11 10 8 7 7 6 2 or 2 6 7 7 8 or 18 12 11 10 8	M1	allow one miscopy, extra or omission in a full ordered list
	8	A1	
	Additional Guidance		
	8 from an incorrect list eg 2 6 7 7 8 10 11 12 16 Answer 8		M1A0
	List correctly ordered but clearly used for mode or mean or range eg1 2 6 7 7 8 10 11 12 18 Answer 7 (mode) eg2 $2 + 6 + 7 + 7 + 8 + 10 + 11 + 12 + 18 = 81$ Answer 9 (mean) eg3 $2 \times 6 + 7 + 7 + 8 + 10 + 11 + 12 + 18 = 81$ Answer 9 (mean) eg4 2 6 7 7 8 10 11 12 18 Answer 16 (range)		M1A0 M1A0 M1A0 M1A0

Q	Answer	Mark	Comments
13(a)	2 correct lines of symmetry and no incorrect lines 	B2	B1 for 2 correct lines of symmetry with 1 or 2 incorrect lines or for 1 correct line of symmetry with no more than 1 incorrect line
	Additional Guidance		
	Mark intention		

Q	Answer	Mark	Comments	
13(b)		B1		
	Additional Guidance			
	Accept any indication			
	Ignore any lines of symmetry drawn			

Q	Answer	Mark	Comments
14(a)	3	B1	

Q	Answer	Mark	Comments
14(b)	12	B1	

Q	Answer	Mark	Comments
14(c)	17 + 3 or 20 or 17 + 3 + 12 + 5 or 37	M1	oe
	$\frac{20}{37}$	A1	oe fraction
	Additional Guidance		
	Check diagram for working		
	Ignore simplification attempts after a correct fraction is seen		
	Do not ignore any attempts to convert to a decimal or percentage eg answer $\frac{20}{37} = 0.54$		M1A0

Q	Answer	Mark	Comments
15	$\frac{3}{8} \times 120$ or 45	M1	oe may be implied or embedded eg $\left(1 - \frac{3}{8}\right) \times 120$ or $\frac{5}{8} \times 120$ or 75
	$(120 - \text{their } 45) \div (2 + 1)$ or $75 \div 3$ or 25	M1dep	oe may be implied or embedded eg $75 \times \frac{2}{3}$ or $\frac{5}{8} \times 120 \times \frac{2}{3}$
	50	A1	
	Additional Guidance		
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	25 : 50 on answer line		M1M1A0

Q	Answer	Mark	Comments
16	8600×0.15 or 1290 or 8600×0.85 or 7310 or 0.85×0.9 or 0.765 or 8600×0.1 or 860 or 8600×0.9 or 7740	M1	oe
	$(8600 - \text{their } 1290) \times 0.9$ or $\text{their } 7310 \times 0.9$ or $0.85 \times 0.9 \times 8600$ or $(8600 - \text{their } 860) \times 0.85$ or $\text{their } 7740 \times 0.85$	M1dep	oe
	6579	A1	SC1 10879
	Additional Guidance		
	SC1 10879 is for correctly calculating a repeated increase		
	Accept 6600 with M2 awarded eg $8600 \times 0.85 \times 0.9 = 6600$		M2A1

Q	Answer	Mark	Comments
17	All correct	B3	B2 for 2 or 3 correct B1 for 1 correct
	Additional Guidance		
	Two or more lines from one box on the left is choice so incorrect for that box		
	Accept any unambiguous indication		

Q	Answer	Mark	Comments
18	Alternative method 1: Starts with the cost of five games		
	$5 \times 3.4(0)$ or 17	M1	oe implied by 8 or 0.32
	$\frac{\text{their } 17}{25}$ or 0.68	M1dep	oe implied by 32(%) $\frac{5 \times 3.4(0)}{25}$ scores M2
	68	A1	
	Alternative method 2: Starts with a calculation for the percentage for one game		
	$\frac{3.4(0)}{25}$ or 0.136	M1	oe
	their 0.136×5 or 0.68 or $\frac{3.4(0)}{25} \times 100$ or 13.6(%)	M1dep	oe $\frac{3.4(0)}{25} \times 5$ scores M2
	68	A1	
	Additional Guidance		
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	Build up methods must be fully correct		
	$\frac{17}{0.25}$ or 17×4		M1M1