



GCSE MATHEMATICS 8300/3F

Foundation Tier Paper 3 Calculator
Final Third

Mark scheme
June 2025

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
17(a)	0.75×80 or 60	M1	oe implied by 132
	0.66 or $\frac{132}{200}$ or $\frac{66}{100}$ or $\frac{33}{50}$	A1	oe fraction, decimal or percentage
	Additional Guidance		
	Ignore simplification or conversion attempts after correct answer		
	60 from $\frac{72}{120} = 0.60$		M0
	$\frac{80}{120} = 0.66$		M0

Q	Answer	Mark	Comments
17(b)	Ticks All 200 throws and valid reason	B1	eg ticks All 200 throws and more throws
	Additional Guidance		
	Valid reason with non-contradictory work		B1
	No box ticked but clear indication of correct box stated in working lines or implied within valid reason		B1
	Incorrect box ticked		B0
	Examples of valid reasons 200 is the most Bigger number of trials (gives a more accurate result) Both sets of results is more More data Shows us how much they both got (referring to both people) How many times it landed for both (referring to both people) Better result by adding (implies better is more) Examples of invalid reasons More possibility it will land on heads Amount of heads out of 200 More accurate		

Q	Answer	Mark	Comments
18	Alternative method 1: proportion using angles		
	$\frac{132}{180}$ or $[0.73, 0.7\dot{3}]$ or $\frac{132}{360}$ or $[0.36, 0.37]$ or $\frac{48}{180}$ or $[0.26, 0.27]$ or $\frac{48}{360}$ or $[0.13, 0.1\dot{3}]$ or $132 : 48$ or $11 : 4$	M1	oe fraction or percentage oe either order
	or $\frac{132}{180} \times 30$ or $\frac{48}{180} \times 30$ or 8 or $22 : 8$ or $8 : 22$ (not oe)	M1dep	oe eg $[0.73, 0.7\dot{3}] \times 30$ $\frac{132}{360} \times 30 \times 2$ or $\frac{48}{360} \times 30 \times 2$ is M2
	22	A1	SC1 11
	Alternative method 2: using the number of degrees per match		
	$(360 - 132 - 48) \div 30$ or $180 \div 30$ or $360 \div (30 \times 2)$ or 6	M1	oe
	132 ÷ their 6 or 48 ÷ their 6 or 8	M1dep	oe $\frac{132}{360 \div (30 \times 2)}$ or $\frac{48}{360 \div (30 \times 2)}$ is M2
	22	A1	SC1 11

The mark scheme for Question 18 continues on the next page

Q	Answer	Mark	Comments
18 cont	Alternative method 3: using the number of matches per degree		
	$\frac{30}{180}$ or $\frac{30 \times 2}{360}$ or [0.16, 0.17]	M1	oe fraction or percentage eg $\frac{1}{6}$
	or $\frac{30}{180} \times 132$ or $\frac{30}{180} \times 48$ or 8	M1dep	oe eg $[0.16, 0.17] \times 132$
	22	A1	SC1 11
	Additional Guidance		
	SC1 is for using 30 matches in total		
	$0.17 \times 132 = 22.44$ with answer 22		M1M1A0
	$30 \div 2 = 15$ and $15 \div 2 = 7.5$ and $15 + 7.5 = 22.5$ with answer 22		M1M1A1
	$30 \div 2 = 15$ and $15 \div 2 = 7.5$ and $15 + 7.5 = 22.5$		M0
	$30 \div 2 = 15$ and $15 \div 2 = 7.5$ and $7.5 \rightarrow 8$		M1M1
	$360 \div 30 = 12$		M0

Q	Answer	Mark	Comments
19(a)	[5.3, 5.7]	B1	oe eg 5 and a half may be seen on diagram
	$\frac{\text{their } [5.3, 5.7] \times 200\,000}{100 \times 1000}$	M2	oe M1 correct step using one operator eg1 their $[5.3, 5.7] \times 200\,000$ eg2 their $[5.3, 5.7] \div 100$ eg3 $200\,000 \div 1000$ eg4 100×1000 their $[5.3, 5.7] < 10$ [1 060 000, 1 140 000] implies B1M1
	[10.6, 11.4]	A1	implies B1
	Additional Guidance		
	Answer 10.8 without [5.3, 5.7]		B1M2A1

Q	Answer	Mark	Comments
19(b)	135(°)	B1	

Q	Answer	Mark	Comments
20	$(18 - 6) \div 3$ or 4	M1	oe implied by 10 and 14
	$4n - 2$	A2	oe A1 for $4n + c$ oe
	Additional Guidance		
	Condone use of N or other variables		
	Condone $n = 4n - 2$		M1A2
	$4n + -2$		M1A1
	$4n$ may be seen as $4 \times n$ or $n \times 4$ or $n4$ for M1A1 but not M1A2		
	$n + 4$		M1A0

Q	Answer	Mark	Comments
21	Alternative method 1: works with the amount first		
	$280 \div 2 \times 3$ or 420	M1	oe
	their $420 \div 12 \times 5$	M1dep	oe eg 35×5 their 420 cannot be 280
	175	A1	SC2 77.77 or 77.78
	Alternative method 2: works with the ratio first		
	$\frac{2}{3} \times 12$ or 8	M1	oe may be embedded in a ratio
	$280 \div \text{their } 8 \times 5$	M1dep	oe eg 35×5
	175	A1	SC2 77.77 or 77.78
	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		
	SC2 is for using $\frac{2}{3}$ of Cat's amount		
	5 : 12 : 8 in any order		M1

Q	Answer	Mark	Comments
22	$2 \times (30 + 20)$ or 100 or $20 + 30 - 6$ or $50 - 6$ or $x + 6 = 50$	M1	oe oe equation
	44	A1	may be seen in correct position on diagram
	Additional Guidance		
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts		

Q	Answer	Mark	Comments
23	12^2 or 13^2	M1	oe 144 or 169 implied by 313 or $\sqrt{313}$ or [17.6, 17.7]
	$13^2 - 12^2$ or $169 - 144$ or 25 or $\sqrt{13^2 - 12^2}$ or $\sqrt{169 - 144}$ or $\sqrt{25}$ or 5	M1dep	oe 5 may be in correct position on the diagram
	$9^2 + (\text{their } 5)^2$ or $81 + \text{their } 25$ or 106 or $\sqrt{9^2 + (\text{their } 5)^2}$ or $\sqrt{81 + \text{their } 25}$ or $\sqrt{106}$ or [10.2, 10.3]	M1dep	oe their 5 or their 25 must be from correct working
	$9^2 + 5^2 = 106$ and $\sqrt{106}$ and [10.2, 10.3] or $\sqrt{9^2 + 5^2}$ and [10.2, 10.3] or $\sqrt{81 + 25}$ and [10.2, 10.3] or $9^2 + 5^2 = 106$ and $10^2 = 100$ and $11^2 = 121$	A1	oe
	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		
	Condone eg 12 cm^2 for 12^2		
	$9^2 + 5^2 = 106$ $x^2 = 106$ $x = 10.3$		M3A1
	Ignore further working after correct answer eg $\sqrt{9^2 + 5^2}$ and 10.3 with $10 > 10.3 < 11$		M3A1
	$9^2 + 5^2 = \sqrt{106} = 10.3$ omission of $\sqrt{9^2 + 5^2}$ or $9^2 + 5^2 = 106$ is a missing step		M3A0
	Using trigonometry or accurate/scale drawing only		M0

Q	Answer	Mark	Comments
24(a)	$y = 2x + c$ or $y - 2x = c$	B1	oe $c \neq 9$
	Additional Guidance		
	Answer $y = 2x + c$ or $y - 2x = c$ (any letter for c)		B0
	$y - 2x + 1 = 9$		B1
	$y - 2x + 1 = 10$		B0

Q	Answer	Mark	Comments
24(b)	$y = 5x - 8$	B1	