



GCSE MATHEMATICS 8300/2F

Foundation Tier Paper 2 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
19(a)	$\frac{5}{8}$ on spinner 1 (green)	B1	oe fraction, decimal or percentage
	$\frac{4}{5}$ on spinner 2 (green) in both positions	B1	oe fractions, decimals or percentages
	Additional Guidance		
	Mark the diagram		
	A mix of fractions, decimals and percentages is acceptable		
	Percentages must have the % symbol		
	Accept 0.62 or 0.63 for 0.625 if decimals used		
	Accept 62% or 63% for 62.5% if percentages used		
	Spinner 1 Spinner 2	B2	

Q	Answer	Mark	Comments
19(b)	$\frac{3}{40}$ or 0.075 or 7.5%	B1	oe fraction, decimal or percentage
	Additional Guidance		
	Ignore attempt to simplify after a correct answer seen		

Q	Answer	Mark	Comments
20(a)	All six given points plotted correctly and joined with straight lines	B2	± half square B1 at least four of the given points plotted correctly
	Additional Guidance		
	Mark intention for straight lines		
	Lines can be dashed (do not regard as short lines if intention clear) or continuous		
	Ignore lines drawn to the left of day 1 and to the right of day 6		
	The top of the lines in a vertical line graph can imply points plotted correctly (other vertical lines can be ignored)		
	Ignore horizontal lines		
	Ignore extra points		
	Ignore a line of best fit and/or a histogram and/or a bar chart		

Q	Answer	Mark	Comments
20(b)	[20 000, 40 000]	B1	may be implied
	their [20 000, 40 000] $\times 0.018$ ($\div 100$) or [360, 720] ($\div 100$)	M1	oe eg their [20 000, 40 000] $\times 0.000\ 18$ $1000 < \text{their [20 000, 40 000]} < 48\ 000$ condone 0.02 for 0.018
	[3.60, 7.20]	A1ft	ft B0M1 answer must be an amount of money
	Additional Guidance		
	Accept an answer in pence only if £ has been crossed out and p(ence) is given		
	For A1 or A1ft accept answers rounded or truncated to the nearest penny eg $28\ 700 \times 0.018 \div 100$ Answer 5.17 (or 5.16)		B1M1A1
	Using 0.02 can score a maximum of B1M1A0 eg1 $30\ 000 \times 0.02 = 600$ Answer 6 eg2 $46\ 000 \times 0.02 = 920$ Answer 9.20		B1M1A0 B0M1A0
	Estimating their final answer can score a maximum of B1M1A0 unless correct answer also seen eg1 $32\ 000 \times 0.018 \div 100$ Answer 5.80 eg2 $32\ 000 \times 0.018 \div 100 = 5.76$ Answer 5.80		B1M1A0 B1M1A1
	$30\ 000 \times 0.018$ Answer 5.4		B1M1A0
	If part (b) is blank, B1 may be awarded for [20 000, 40 000] unambiguously stated for day 7 in part (a)		

Q	Answer	Mark	Comments
21	Correct method for 40% of 70%	M1	eg 0.4×70 or 28 or 0.4×0.7 or $40\% \times 70\%$ or 0.28
	Correct method for 50% of $(100 - 70)\%$	M1	eg 0.5×30 or 15 or 0.5×0.3 or $50\% \times 30\%$ or 0.15 0.43 or $1 - 0.42 - 0.15$ or $100 - 42 - 15$ implies M2
	43	A1	SC2 57 SC1 0.57
	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		
	Do not accept 'of' for '×' eg 40% of 70% with no further correct method		1st M0
	0.4×0.7 and $0.5 \times (1 - 0.7)$ may be seen embedded eg1 (200 discs) $0.4 \times 0.7 \times 200$ $0.5 \times 0.3 \times 200$ eg2 (d discs) $0.4 \times 0.7 \times d$ $0.5 \times 0.3 \times d$		M1 M1 M1 M1
	SC2 is for working out the percentage of discs that are not removed		

Q	Answer	Mark	Comments
22	48×16.25 or 780	M1	oe
	$(927 - \text{their } 780) \div 24.5(0)$ or $147 \div 24.5(0)$ or 6	M1dep	oe eg $6 \times 24.5(0) = 147$ or $780 + 24.5 + 24.5 + 24.5 + 24.5 + 24.5 + 24.5 = 927$
	$48 \div 5$ or 9(.6) or 9r3	M1	oe eg adds 5s to at least 45
	15	A1	SC3 63 SC2 54 or 57
	Additional Guidance		
	Up to M3 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	Note that the third mark is independent		
	Equivalent methods may be used following 780 and 9 in order to work out the number of paying adults eg $(780 + 9 \times 24.5 - 927) \div 24.5 + 3 = 6$		M1M1M1
	SC3 is the total number of people in the group SC2 is the total number of students plus either the free or paying adults		
	$45 \div 5 = 9$ implies 9 free adults		3rd M1

Q	Answer	Mark	Comments
23(a)	$155 \text{ cm} \leq \text{length} < 165 \text{ cm}$	B2	oe B1 155 or 165 in correct position SC1 $165 \text{ cm} \leq \text{length} < 155 \text{ cm}$
	Additional Guidance		
	Accept 164.9 for 165		
	Accept eg 155.0 for 155		

Q	Answer	Mark	Comments
23(b)	2.05 or $6.2 \div 3$ or $2.0\dot{6}$	M1	oe eg in cm
	2.05 $\times$ 3 and 6.15 or 205 $\times$ 3 and 6.15 or 205 $\times$ 3 and 615 and 620 or $2.0\dot{6}$ and 2.05 or $206.\dot{6}$ and 205	A1	accept eg $2.05 + 2.05 + 2.05$ for 2.05×3
	Additional Guidance		
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	Accept rounding or truncating of $2.0\dot{6}$ or $206.\dot{6}$ to at least 4 sf Accept rounding or truncating of $2.0\dot{6}$ to 3 sf only if $6.2 \div 3$ is seen Accept rounding or truncating of $206.\dot{6}$ to 3 sf only if $620 \div 3$ is seen		
	Accept $2.04\dot{9}$ for 2.05		
	Ignore any reference to lower bounds		
	Ignore reference to units		
	2.05 or 205 may be embedded eg $2.05 + 2.06 + 2.09 = 6.2$ with no further work or explanation		M1A0
	2.06 + 2.06 + 2.08 = 6.2 with no further work or explanation 2.06 + 2.06 + 2.06 = 6.18 with a clear reference to 2.05 and a full explanation		M0A0 M1A1

Q	Answer	Mark	Comments
24	$x + 5$	B1	

Q	Answer	Mark	Comments
25(a)	$20 \div \pi$ or [6.36, 6.37] or 6.4 or $20 \div 2\pi$ or [3.18, 3.185] or 3.2	M1	oe
	$\pi \times (20 \div 2\pi)^2 \times \frac{90}{360}$ or $\frac{100}{\pi} \times \frac{90}{360}$ or $\frac{25}{\pi}$	M1dep	oe full method
	[7.93, 7.97]	A1	
	Additional Guidance		
	Accept [3.14, 3.142] for π throughout		
	Ignore subsequent rounding after answer [7.93, 7.97] seen in working		

Q	Answer	Mark	Comments
25(b)	It is smaller than the answer to part (a)	B1	

Q	Answer	Mark	Comments
26	Alternative method 1: uses or states tan		
	tan stated or used	M1	implied by [0.726, 0.73] or [1.376, 1.4]
	$\tan 36 = \frac{x}{4}$ or $4 \times \tan 36$ or $\tan 54 = \frac{4}{x}$ or $\frac{4}{\tan 54}$	M1dep	oe accept [0.726, 0.73] for tan 36 accept [1.376, 1.4] for tan 54
	[2.9, 2.91] with M2 awarded	A1	accept 3 with M2 awarded
	Alternative method 2: works out hypotenuse first		
	(hypotenuse =) $\frac{4}{\sin 54}$ or $\frac{4}{\cos 36}$ or 4.9(...)	M1	oe accept [0.8, 0.81] for sin 54 or cos 36
	$\sqrt{(\text{their } 4.9(\dots))^2 - 4^2}$ or $\sqrt{[8, 8.45]}$ or their $4.9(\dots) \times \sin 36$ or their $4.9(\dots) \times \cos 54$	M1dep	oe
	[2.9, 2.91] with M2 awarded	A1	accept 3 with M2 awarded
	Additional Guidance		
	Alt 1 SOHCAHTOA with TOA selected (eg circled)	M1	
	[2.9, 2.91] with no working	M0M0A0	
	[2.9, 2.91] from accurate/scale drawing only	M0M0A0	