Functional Skills Level 1
MATHEMATICS
8361/2

Paper 2 Calculator

Mark scheme

June 2023

Version: 1.0 Final

236A8361/2/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.

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

Glossary for Mark Schemes

Functional Skills examinations are marked in such a way as to award positive achievement wherever possible. Thus, for Functional Skills 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 $a \leq$ 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.

Section A

Q	Answer	Mark	Comments
1	reflex	B1	

Q	Answer	Mark	Comments
2	0.2	B1	
	Additional Guidance		
	Allow extra zeros after 2 eg 0.20		
	Condone .2 if decimal point clearly seen		

Q	Answer	Mark	Comments
3	South	B1	accept S
	Additional Guidance		
	Ignore any angles stated		
	Ignore incorrect spelling of South		
	SW		B0

Q	Answer	Mark	Comments
4	74	B2	B1 only 92 and 18 selected
	Additional Guidance		
	Answer 18 to 92 or 92 – 18		B1
	18 – 92 or –74		B1

Q	Answer	Mark	Comments
5	340 × 0.05 or 340 ÷ 20	M1	oe eg complete build up
	17	A1	SC1 323
	Additional Guidance		
	17.0		M1A1
	Ignore units eg £, %		
	Build up methods must be complete eg 340 ÷ 10 = 34 and 34 ÷ 2		M1
	Further work eg subtracting 17 from 323		M1A0

<table>
<tr><th>Q</th><th>Answer</th><th>Mark</th><th>Comments</th></tr>
<tr><td rowspan="6">6</td><td>Tallies correct including 5-bar gate
<table><tr><td>1–10</td><td>|||</td></tr><tr><td>11–20</td><td>||||</td></tr><tr><td>21–30</td><td>𝍸 ||</td></tr><tr><td>31–40</td><td>||</td></tr></table></td><td>B1</td><td></td></tr>
<tr><td>Frequencies correct
3, 4, 7, 2</td><td>B1ft</td><td>ft their tallies or correct
frequencies must be integers (no fractions)
ft if tallies for each group are <10

SC1 correct tallies and frequencies with interchanged columns</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">For ft allow one tally column to have zero tallies</td><td></td></tr>
<tr><td colspan="2">Frequencies must be integers eg not relative frequencies</td><td></td></tr>
<tr><td colspan="2">Actual values written in the tally column scores B0 but may ft for frequencies</td><td></td></tr>
<tr><td colspan="2">Allow frequencies seen in tally if frequency column blank</td><td></td></tr>
</table>

Q	Answer	Mark	Comments
7	7.3×2.9 or 21.17 or 2.5×4.1 or 10.25 or 3.2×2.9 or 9.28 or 5.4×4.1 or 22.14 or 2.9×4.1 or 11.89 or 7.3×5.4 or 39.42 or 3.2×2.5 or 8	M1	area of any rectangle in the diagram cannot be part of a string of multiplications
	$7.3 \times 2.9 + 2.5 \times 4.1$ or $21.17 + 10.25$ or $3.2 \times 2.9 + 5.4 \times 4.1$ or $9.28 + 22.14$ or $3.2 \times 2.9 + 2.5 \times 4.1 + 2.9 \times 4.1$ or $9.28 + 10.25 + 11.89$ or $7.3 \times 5.4 - 3.2 \times 2.5$ or $39.42 - 8$	M1	oe correct combination of areas for full shape
	31.42	A1	
	Additional Guidance		
	25.4 (perimeter)		M0M0A0

Section B

Q	Answer	Mark	Comments
8(a)	**Alternative method 1**		
	10.75 × 3 or 32.25 or 34.99 × 2 or 69.98 or 24.99 × 2 or 49.98	M1	
	10.75 × 3 or 32.25 and 34.99 × 2 or 69.98 and 24.99 × 2 or 49.98	M1	may be embedded eg in addition of all bikes
	their 32.25 + their 69.98 + their 49.98 or 152.21 or 160 – their 32.25 – their 69.98 – their 49.98 or 7.79	M1	oe adds their combination of costs must be at least two different hire costs used values they add cannot be for single hire costs for any type of bike
	152.21 and Yes or 7.79 left	A1	oe

Mark scheme and Additional Guidance continue on the following pages

8(a) cont	**Alternative method 2**		
	10.75 × 3 or 32.25 or 34.99 × 2 or 69.98 or 24.99 × 2 or 49.98	M1	
	10.75 × 3 or 32.25 and 34.99 × 2 or 69.98 and 24.99 × 2 or 49.98	M1	
	160 – their 32.25 – their 69.98 or 57.77 or 160 – their 32.25 – their 49.98 or 77.77 or 160 – their 69.98 – their 49.98 or 40.04	M1	oe
	57.77 and 49.98 and Yes or 69.98 and 77.77 and Yes or 32.25 and 40.04 and Yes	A1	

Additional Guidance is on the next page

	Additional Guidance	
8(a) cont	34.99 + 24.99 + 10.75 (= 70.73)	M0M0M0A0
	Additions and subtractions may be done in parts Eg in Alt 1 3rd mark 160 – their 32.25 or 127.75 their 127.75 – their 69.98 or 57.77 their 57.77 – their 49.98	
	For the third method mark in Alt 1 they must add all their cycle costs so if they have the 3 types they must add all three but if they only have two types eg used 4 adult electric and 3 child electric then they have only two types to add eg Doing 2 adult electric bikes twice instead of 2 electric and 2 standard is 4 adult electric bikes 2nd M0 but may be awarded the first M1 for the correct child bikes The third M1 can be awarded for their addition	
	Ignore incorrect amount left after 152.21 seen	
	Rounded values are not allowed for the first 2 marks but may access the 3rd mark	
	152.21 and Yes with no working	M1M1M1A1
	'Yes' may be implied eg 160 is enough	
	Do not allow misreads	
	Use the scheme that favours the student	

Q	Answer	Mark	Comments
8(b)	36 ÷ 12 or 3	M1	may be embedded eg 12 × 3 = 36 may be implied
	1.15 (pm) + their 3 hours + 55 minutes	M2	M1 1.15 (pm) + their 3 hours or 4.15 (pm) or 1.15 (pm) + 55 mins or 2.10 (pm) or their 3 hours + 55 minutes or 3 hours 55 minutes or 235 mins or correct addition of 55 min to their finish time after cycling addition of 55 mins may be implied
	5.10 (pm) or 17.10	A1	oe eg ten past 5
	Additional Guidance		
	Addition may be implied eg 3.15 → 4.10 implies addition of 55 mins		

Q	Answer	Mark	Comments
8(c)	1.5(0) × 16 or 24	M1	
	12.75 + their 24 or 36.75 or 38 – 12.75 – their 24	M1dep	36.75 is M2
	1.25	A1	condone £1.25p
	Additional Guidance		
	(12.75 + 1.5) × 16 (= 228)		M0M0A0
	12.75 + 1.50 × 16 without 24 or 36.75 seen		M0
	Further work such as two journeys can be ignored for the method marks		

Q	Answer	Mark	Comments
9(a)	3 by 2 rectangle	M1	stated or drawn allow dots in squares to indicate a 3 by 2 rectangle for this mark only
	At least six 3 by 2 rectangles drawn	M1	may have gaps between them but must not overlap
	Fits ten 3 by 2 rectangles in grid	A1	must not overlap mark intention
	Additional Guidance		
	Mark the second grid unless blank		
	Borders of rectangles must be clear for the 2nd and 3rd marks		

Q	Answer	Mark	Comments
9(b)	**Alternative method 1**		
	7 × 33.25 or 232.75	M1	
	3 × 7 × 25.79 or 541.59	M2	M1 3 × 7 or 21 or 3 × 25.79 or 77.37
	their 232.75 + their 541.59	M1	their 232.75 must be from an attempt at a multiple (>1) of 33.25 their 541.59 must be from an attempt at a multiple (>1) of 25.79
	774.34	A1	
	Alternative method 2		
	3 × 25.79 or 77.37	M1	
	33.25 + their 77.37	M1dep	
	110.62	A1	
	their 110.62 × 7	M1	
	774.34	A1ft	ft their 110.62 with all method marks scored
	Additional Guidance		
	21 may be seen in a ratio eg 7 : 21		M1
	Example of incorrect ratio values 7 cherry trees and 3 apple trees 7 × 33.25 = 232.75 3 × 25.79 = 77.37 232.75 + 77.37 = 310.12		 M0 M1 M1 M1A0

Q	Answer	Mark	Comments
9(c)	**Alternative method 1**		
	3.82 + 3.62 + 3.87 + 3.68 + 3.95 + 3.74 or 22.68	M1	oe in grams
	their 22.68 ÷ 6 or 3.78	M1dep	oe in grams
	3.78 and Yes or 0.06 more or 3780 and 3720 and Yes	A1	SC1 19.56….
	Alternative method 2		
	3.82 + 3.62 + 3.87 + 3.68 + 3.95 + 3.74 or 22.68	M1	oe in grams
	3.72 × 6 or 22.32	M1	oe in grams
	22.32 and 22.68 and Yes	A1	oe in grams SC1 19.56….
	Alternative method 3		
	3.62, 3.68, 3.74, 3.82, (3.87, 3.95) or 3.95, 3.87, 3.82, 3.74, (3.68, 3.62)	M1	oe in grams
	3.74 and 3.82 selected or $\frac{(3.74 + 3.82)}{2}$ or 3.78	M1dep	oe in grams
	3.78 and Yes or 0.06 more	A1	SC1 19.56….

Mark scheme and Additional Guidance continue on the next page

<table>
<tr><td rowspan="8">9(c) cont</td><td colspan="3">Alternative method 4</td></tr>
<tr><td>3.62 – 3.72 and 3.82 – 3.72 and 3.87 – 3.72 and 3.68 – 3.72 and 3.95 – 3.72 and 3.74 – 3.72
or
–0.1 and 0.1 and 0.15 and –0.04 and 0.23 and 0.02</td><td>M1</td><td>signs may all be reversed</td></tr>
<tr><td>0.1 + 0.15 + 0.23 + 0.02 or 0.5
and –0.1 –0.04 or –0.14
or 0.36</td><td>M1dep</td><td>0.36 is from 0.5 – 0.14</td></tr>
<tr><td>0.5 and –0.14 and Yes
or
0.36 and Yes</td><td>A1</td><td>SC1 19.56….</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">3.62 + 3.82 + 3.87 + 3.68 + 3.95 + 3.74 ÷ 6</td><td>M1M0 unless recovered</td></tr>
<tr><td colspan="2">For all Alts allow omission of all the integer 3’s for the first 2 marks
eg Alt 1
0.62 + 0.82 + 0.87 + 0.68 + 0.95 + 0.74 or 4.68
4.68 ÷ 6 or 0.78
3.78 and Yes
or 0.78 and 0.72 and Yes</td><td></td></tr>
<tr><td colspan="2">Ignore further work for calculating difference between means or totals</td><td></td></tr>
<tr><td colspan="2">Allow working in grams</td><td></td></tr>
</table>

Q	Answer	Mark	Comments
10(a)	Bar height 17 drawn (jelly snakes)	B1	±½ square condone no label accept J, JS etc for label
	47 – 17 or 30	M1	implied by their two heights for cola and apples drawn totalling 30 or two integer values totalling 30 (allow ±½ square)
	their 30 ÷ 3 or 10 or 20	M1dep	implied by bar drawn to 10 or 20 for cola or apples or crosses plotted at heights 10 or 20
	Two bars of the correct heights drawn and all bars correctly labelled cola bottles 20 sour apples 10	A1	±½ square bars can be in either order accept C or CB and A or SA and J or JS for labels
	Equal gaps or no gaps between bars and equal width bars	B1ft	ft their 3 bars for width mark intention ignore gaps at start and end
	Additional Guidance		
	A chart with sour apples 20 and cola bottles 10 but otherwise correct		B1M1M1A0B1
	Condone labels on bars		
	Bars clearly shaded to the correct height and width do not need external borders		
	A vertical line graph can score maximum the 2 method marks and the final B1ft		
	Accept a key for labelling		
	A bar of height 17 labelled cola or apples does not get the first mark		
	Condone bar for total included but widths and gaps for all 4 bars must be correct for the final B1		

Q	Answer	Mark	Comments
10(b)	**Alternative method 1**		
	1.8 × 1000 × 5 or 9000	M2	oe M1 1.8 × 1000 or 1800 or 1.8 × 5 or 9
	their 9000 ÷ 160 or 56.25	M1	oe eg build up method their 9000 can be 1800 must use consistent units (not kg ÷ g)
	56	A1	
	Alternative method 2		
	1.8 × 1000 or 1800	M1	
	their 1800 ÷ 160 or 11.25	M1	oe eg build up method must use consistent units (not kg ÷ g)
	their 11.25 × 5 or 56.25	M1	oe
	56	A1	
	Alternative method 3		
	160 ÷ 1000 or 0.16	M1	
	1.8 × 5 or 9	M1	
	their 9 ÷ their 0.16 or 56.25	M1	oe eg build up method their 9 can be 1.8 must use consistent units (not kg ÷ g)
	56	A1	

Additional Guidance is on the next page

	Additional Guidance	
10(b) cont	Allow rounding of 11.25 for method marks but not for accuracy Eg 1800 ÷ 160 = 11.25 so 11 bags from 1 jar 11 × 5 = 55	 M1M1 M1A0
	Use of 100g in a kg can score maximum M2 1.8 × 5 = 9 9 × 100 = 900 900 ÷ 160 = 5.625 Answer 5	 M1 M0 M1 A0
	1.8 × 1000 = 1800 11 × 160 = 1760 11 × 5 = 55	M1 M1 M1A0

Q	Answer	Mark	Comments
10(c)	**Alternative method 1**		
	0.3 × 120 ÷ 15 or 2.4	M2	oe M1 0.3 × 120 or 36 or 120 ÷ 15 or 8
	120 ÷ 15 + their 2.4 or 10.4	M1dep	dep on M2 8 × 1.3 is M3
	10.40	A1	correct money notation
	Alternative method 2		
	0.3 × 120 or 36	M1	oe eg complete build up
	120 + their 36 or 156	M1dep	120 × 1.3 is M2 156 implies M2
	their 156 ÷ 15 or 10.4	M1dep	
	10.40	A1	correct money notation
	Alternative method 3		
	120 ÷ 15 or 8	M1	oe
	0.3 × 120 or 36	M1	oe
	their 8 + (their 36 ÷ 15) or 10.4	M1dep	dep on M2
	10.40	A1	correct money notation

Additional Guidance is on the next page

	Additional Guidance	
10(c) cont	Use the scheme that favours the student	
	For build up either the correct method or the correct answer for each part of the build up must be shown eg 1 10% = 0.8 0.8 × 3 = 2.4	M1
	eg 2 10% = 0.8 20% = 1.4 30% = 2.2 (no method shown for 10% × 2)	M0
	eg 3 10% = 0.8 20% = 0.8 × 2 = 0.16 30% = 0.8 + 0.16 = 0.96 (full correct method shown)	M1
	eg 4 10% = 8 ÷ 10 = 0.08 30 % = 3 × 0.08 = 0.24	M1

Q	Answer	Mark	Comments
11(a)	**Alternative method 1**		
	60 × 36 × 45 or 97 200	M1	
	their 97 200 ÷ 1000 or 90 × 1000 or 90 000	M1	
	97.(2) or 97 200 and 90 000	A1	
	Large	B1ft	correct size chosen for their volume must have a value stated for their volume
	Alternative method 2		
	55 × 1000 or 55 000 or 90 × 1000 or 90 000	M1	
	60 × 36 × 45 or 97 200	M1	
	90 000 and 97 200	A1	
	Large	B1ft	correct size chosen for their volume must have a value stated for their volume
	Additional Guidance		
	Their chosen size may be indicated in the table eg Large circled		

Q	Answer	Mark	Comments
11(b)	5 × 14.98 or 74.9(0) or 6 × 14.98 or 89.88	M1	
	14.98 ÷ 2 or 7.49	M1	oe
	5 × 14.98 + their 7.49 or 6 × 14.98 – their 7.49 or 82.39	M1dep	dep on previous M1 14.98 × 5.5 is M3
	(6 ÷ 2) × 26 or 78 or their 82.39 ÷ 6 **and** 26 ÷ 2	M1	oe
	82.39 and 78 and Shop Z or 13.73…and 13 and Shop Z	A2	A1 82.39 and 78 or 13.73… and 13 or A1 ft correct decision for their prices with one price correct
	Additional Guidance		
	Minimum required for full marks is 82.39, 78 and Z chosen		
	Shop Z may be indicated by eg circling advert		
	82.39 and 78 seen and 78 on answer line. Not stated the shop		M1M1M1M1A1
	Ignore attempt to calculate difference in price		

Q	Answer	Mark	Comments
11(c)	**Alternative method 1**		
	0.4 × 7 × 6 or 16.8	M2	oe M1 0.4 × 7 or 2.8 or 7 × 6 or 42
	16.8 and No or 1.8 short	A1	SC2 12 and Yes
	Alternative method 2		
	15 ÷ 0.4 or 37.5 or 37 or 38	M1	oe
	(15 ÷ 0.4) ÷ 7 or 5.3(…) or 5.4	M1	oe
	5.3(…) and No or 5.4 and No	A1	SC2 7.5 and Yes
	Alternative method 3		
	15 ÷ 0.4 or 37.5 or 37 or 38	M1	oe
	7 × 6 or 42	M1	
	37.5 and 42 and No or 37 and 42 and No	A1	SC2 37.5 and 30 and Yes or 37 and 30 and Yes
	Alternative method 4		
	15 ÷ 6 or 2.5	M1	oe
	0.4 × 7 or 2.8	M1	oe
	2.5 and 2.8 and No	A1	SC2 2.5 and 2.(0) and Yes

Mark scheme and Additional Guidance continue on the next page

11(c)	**Alternative method 5**		
	7 × 6 or 42 or 15 ÷ 6 or 2.5	M1	
	15 ÷ 42 or 2.5 ÷ 7 or [0.35, 0.36]	M1	oe
	[0.35, 0.36] and No	A1	SC2 0.5 and Yes
	Additional Guidance		
	SC2 is for 5 days in a week		
	Ignore further work to find out how much short in days/weeks or grams if the correct answer is seen		