Functional Skills Level 2
MATHEMATICS
8362/2

Paper 2 Calculator

Mark scheme

March 2022

Version: 1.0 Final

2 2 3 G 8 3 6 2 / 2 / M S

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	–5	B1	

<table>
<tr><th>Q</th><th>Answer</th><th>Mark</th><th>Comments</th></tr>
<tr><td rowspan="6">2</td><td>85(%)</td><td>B1</td><td></td></tr>
<tr><td>(0).04</td><td>B1</td><td></td></tr>
<tr><td>$\frac{59}{100}$</td><td>B1</td><td>oe fraction</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">
<table>
<tr><th>Fraction</th><th>Decimal</th><th>Percentage</th></tr>
<tr><td>$\frac{17}{20}$</td><td>0.85</td><td>85(%)</td></tr>
<tr><td>$\frac{1}{25}$</td><td>(0).04</td><td>4%</td></tr>
<tr><td>$\frac{59}{100}$</td><td>0.59</td><td>59%</td></tr>
</table>
</td><td></td></tr>
<tr><td colspan="2">Ignore incorrect simplification after correct fraction seen</td><td></td></tr>
<tr><td colspan="2">If table is blank, mark the working space</td><td></td></tr>
</table>

Q	Answer	Mark	Comments
3	(5, 3)	B1	

Q	Answer	Mark	Comments
4	7, 7, 8, 10, (13, 15) or 15, 13, 10, 8, (7, 7) or 8 and 10 indicated	M1	
	9	A1	

Q	Answer	Mark	Comments
5	38	B1	

Q	Answer	Mark	Comments
6	126 ÷ (3 + 11) or 126 ÷ 14 or 9	M1	implied by 27 or 99
	27 and 99	A1	
	Additional Guidance		
	27 : 99 in working and answer line blank		M1A1
	Trial and improvement with correct answer		M1A1
	Trial and improvement without correct answer		M0A0

Q	Answer	Mark	Comments
7	**Alternative method 1**		
	9.916 with 0.427 and 0.416 seen or 9.916 with 0.427 and 9.927 seen or 9.916 with 0.416 and 9.084 seen	B2	oe comparison B1 0.427 and 0.416 with no or incorrect decision or 0.427 and 9.927 with no or incorrect decision or 0.416 and 9.084 with no or incorrect decision or one correct subtraction and one incorrect subtraction with correct ft decision or one correct subtraction and one incorrect addition with correct ft decision
	Alternative method 2		
	$\frac{9.073 + 9.916}{2}$ or $\frac{18.989}{2}$ or 9.4945	M1	
	9.916 with 9.4945 seen	A1	
	Additional Guidance		
	Allow negative values for the difference		
	9.916 with no working		B0

Section B

Q	Answer	Mark	Comments
8(a)	**Alternative method 1**		
	0.17 × 195 or 33.15	M1	oe
	195 – their 33.15 or 161.85	M1dep	0.83 × 195 M2
	161.85 and No	A1	oe eg 6.1(0) too much
	Alternative method 2		
	1 – 0.17 or 0.83	M1	oe eg (167.95 =) 83%
	167.95 ÷ their 0.83 or 202.35 or 202.349… or 167.95 ÷ 195 or 0.86…	M1dep	oe
	202.35 or 202.349… and No or 0.83 and 0.86… and No	A1	oe percentages
	Alternative method 3		
	0.17 × 195 or 33.15	M1	oe
	195 – 167.95 or 27.05	M1	
	33.15 and 27.05 and No	A1	
	Alternative method 4		
	195 – 167.95 or 27.05	M1	
	$\frac{\text{their } 27.05}{195}$ × 100 or 13(.87…) or 13.9 or 14	M1dep	
	13(.87…) or 13.9 or 14 and No	A1	
	Additional Guidance		
	Build up method for 17% needs to be complete		
	Alt 1 ignore further work to calculate difference eg 167.95 – 161.85		

Q	Answer	Mark	Comments
8(b)	**Alternative method 1**		
	1.5 × 2.2 or 3.3	M1	oe eg 2.2 + 1.1 number of pounds he has
	their 3.3 ÷ 2 × 12 or 19.8	M1dep	oe eg 6 × 3.3 number of portions he can get
	19 or 19.8 or 20 and No	A1	
	Alternative method 2		
	1.5 × 2.2 or 3.3	M1	oe eg 2.2 + 1.1 number of pounds he has
	2 × 21 ÷ 12 or [3.36, 3.57]	M1	oe number of pounds he needs
	3.3 and [3.36, 3.57] and No	A1	
	Alternative method 3		
	1 ÷ 2.2 × 2 or [0.9, 0.91]	M1	oe kg per pound
	their [0.9, 0.91] × 21 ÷ 12 or [1.57, 1.6]	M1dep	oe kg needed
	[1.57, 1.6] and No	A1	
	Alternative method 4		
	1 ÷ 2.2 × 2 or [0.9, 0.91]	M1	oe kg per pound
	12 ÷ their [0.9, 0.91] × 1.5 or [19.7, 20]	M1dep	oe number of portions he can get
	[19.7, 20] and No	A1	

Mark scheme and Additional guidance continue on the next page

8(b) cont.	**Alternative method 5**		
	21 ÷ 1.5 or 14	M1	oe portions per kg needed
	12 ÷ 2 × 2.2 or 13.2	M1	oe portions you get per kg
	14 and 13.2 and No	A1	
	Alternative method 6		
	1.5 × 2.2 or 3.3	M1	oe eg 2.2 + 1.1 implied by 1.3 number of pounds he has
	their 3.3 – 2 or 1.3 and 2 ÷ 12 × 9 or [1.44, 1.53]	M1	oe pounds left after the 12 portions pounds needed for the extra 9 portions
	1.3 and [1.44, 1.53] and No	A1	
	Additional Guidance		
	Build up method for 3.3 needs to be complete		
	Allow rounding or truncating to 2 dp or better at any point		
	Use the alt that favours the student		

Q	Answer	Mark	Comments
8(c)	$2 \times 1.1^2 (1 + \sqrt{2})$ or $(2 \times 1.1^2 =) 2.4(2)$ or $((1 + \sqrt{2}) =) 2.4(1\ldots)$	M1	oe
	[5.76, 5.8424]	A1	implied by correct final answer
	[1.3, 1.3824]	A1	
	Additional Guidance		
	$21.1^2(1 + \sqrt{2})$		M0
	$21.1^2(1 + \sqrt{2})$ = [1068, 1075]		M1

Q	Answer	Mark	Comments
9(a)	84×2.25 or 189	M1	oe
	$5964 + 84 \times 2.25$ or 6153 or $5964 \times \frac{2}{7}$ or 1704 or $84 \times 2.25 \times \frac{2}{7}$ or 54	M1	
	their 6153 $\times \frac{2}{7}$ or their 1704 + their 54	M1dep	oe dep on M2
	1758	A1	
	(their 6153 – their 1758) ÷ 12 or $\frac{5}{7}$ × their 6153 ÷ 12 or 4395 ÷ 12	M1	their 1758 is their deposit their 6153 can be 5964
	366.25	A1ft	ft their total cost and their deposit correct money notation
	Additional Guidance		
	$5964 \times \frac{2}{7} = 1704$, $(5964 - 1704) \div 12 = 355$		M0M1M0A0M1A1ft
	$5964 \times \frac{2}{7} = 1704$, $1704 + 189 = 1893$ $(5964 - 1893) \div 12 = 339.25$		M1M1M0A0M1A1ft
	If answer lines are blank withhold the first A mark awarded unless the deposit or monthly payment is clearly indicated in the working. If answers are the wrong way round, withhold the first A mark awarded eg Deposit 366.25, Monthly payment 1758		M1M1M1depA0M1A1ft
	Condone 28.6% or better for $\frac{2}{7}$		
	Award first mark even if not used		

Q	Answer	Mark	Comments
9(b)	**Alternative method 1: shows one possible position of the summerhouse**		
	Rectangle 3 cm by 4.5 cm	B1	
	Rectangle at least 4 cm from wall	B1	any size
	Rectangle at least 5 cm from the flower bed	B1	any size
	Alternative method 2: shows the region the summerhouse could be in		
	A horizontal line 4 cm from wall	B1	must extend from the right hand side at least 6 cm
	A vertical line 5 cm from flower bed	B1	must extend from the top at least 6 cm
	Correct region identified	B1	
	Additional Guidance		
	Use the alt that favours the student		
	A rectangle of any size within the correct region		at least B2
	Mark intention		

Q	Answer	Mark	Comments
9(c)	3×1.9 or 5.7 or $\frac{1}{2} \times 3 \times 0.6$ or 0.9 or $3 \times (1.9 + 0.6)$ or 3×2.5 or 7.5	M1	oe could be embedded
	$3 \times 1.9 + \frac{1}{2} \times 3 \times 0.6$ or $3 \times 2.5 - 2 \times (0.6 \times 1.5 \div 2)$ or 6.6	M1	oe
	their $6.6 \times 4.5 \times 0.058$	M1	
	1.7(2..)	A1	
	2 (kW)	B1ft	ft correct heater for their 1.7(2..)
	Additional Guidance		
	An answer greater than 2 for A mark cannot access the B mark		
	Award first mark even if not used		

Q	Answer	Mark	Comments	
10(a)	9.5(0) × 38 or 361	M1		
	9.5(0) × 1.5 (× 6) or 14.25 or 85.5(0)	M1		
	(9.5(0) × 38) + (9.5(0) × 1.5 × 6) or (38 + 1.5 × 6) × 9.5(0) or 361 + 85.5(0) or 446.5(0)	M1	oe 9.5(0) × 47 or 446.5(0) implies M3	
	their 446.5(0) – 242 or 204.5(0) or their 446.5(0) – 184 or 262.5(0)	M1	their 446.5(0) must be more than 242 their 446.5(0) must be more than 184	
	0.2 × their 204.5(0) or 40.9(0) or 0.12 × their 262.5(0) or 31.5(0)	M1	oe	
	their 446.5(0) – their 40.9(0) – their 31.5(0) or 374.1(0)	M1dep	dep on first M1	
	374.10	A1	correct money notation	
	Additional Guidance			
	446.5(0) × 0.2 = 89.3(0), 446.5(0) × 0.12 = 53.58 446.5(0) – 89.30 – 53.58 = 303.62			M1M1M1M0M1M1depA0
	446.5(0), 242 × 0.2 = 48.4(0), 184 × 0.12 = 22.08, 48.4(0) + 22.08 = 70.48, 446.5(0) – 70.48 = 376.02			M1M1M1M0M1M1depA0

Q	Answer	Mark	Comments
10(b)	1.014 seen or implied	M1	implied by 2535 or 2570.49
	2500×1.014^3 or 2606.47 or 2606.48	M1	oe eg 2500×1.014 or 2535 and their 2535×1.014 or 2570.49 and their 2570.49×1.014 or 2606.47 or 2606.48
	49.15 + 56.3(0) or 105.45	M1	implied by 2605.45
	2500 + their 105.45 or 2605.45 or their 2606.47 – 2500 or 106.47 or their 2606.48 – 2500 or 106.48	M1	their 2606.47 or 2606.48 must be from compound interest
	2605.45 and 2606.47 and A or 2605.45 and 2606.48 and A or 105.45 and 106.47 and A or 105.45 and 106.48 and A	A1	
	Additional Guidance		
	2500 + (35 × 3) or 2500 + 105 implies first mark		
	105 on its own		M0

Q	Answer	Mark	Comments
11(a)	17 ÷ 2 or 8.5 or 6 ÷ 2 or 3	M1	oe eg 3 × 2 = 6
	their 8.5 × 6 or their 3 × 17 or 51	M1dep	
	their 51 – 35	M1dep	
	16	A1	

Q	Answer	Mark	Comments
11(b)	$\pi \times 120^2 \times 15$ or [678 000, 680 000]	M1	oe
	their [678 000, 680 000] ÷ 1000 ÷ 50 or [13.5, 13.6]	M2	oe for M2 their [678 000, 680 000] must be greater than 50 000 M1 their [678 000, 680 000] ÷ 1000 or [678, 680] where their [678 000, 680 000] is greater than 1000 or their [678 000, 680 000] ÷ 50 or [13 560, 13 600] where their [678 000, 680 000] is greater than 50
	14	A1	
	their 14 × 9.97	M1	oe their 14 must be an integer greater than 1
	£139.58	A1	
	Additional Guidance		
	£139.58 on its own		M1M2A1M1A1
	$120^2 \times 15 = 216\,000$, $216\,000 \div 1000 = 216$, $216 \div 50 = 4.32$ or 5, $5 \times 9.97 = £49.85$		M0M2A0M1A0
	π can be 3.14 or better		

Q	Answer	Mark	Comments
11(c)	**Alternative method 1**		
	8 + 15 + 13 + 4 or 40	M1	may be seen under table or as a denominator
	$\frac{13}{\text{their } 40}$ or $\left(\frac{3}{10}=\right)\frac{12}{40}$	M1	oe
	$\frac{13}{40}$ and $\frac{12}{40}$ and Yes	A1	oe fractions with common denominators allow decimals in numerator
	Alternative method 2		
	8 + 15 + 13 + 4 or 40	M1	may be seen under table or as a denominator
	13 ÷ their 40 (× 100) or 0.325 or 32.5	M1	
	0.325 and Yes or 32.5 and Yes	A1	
	Alternative method 3		
	8 + 15 + 13 + 4 or 40	M1	may be seen under table or as a denominator
	$\frac{3}{10}$ × (8 + 15 + 13 + 4) or 12	M1	oe eg 0.3 × 40
	12 and Yes	A1	
	Additional Guidance		
	Use the alt that favours the student		