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Functional Skills Level 2
MATHEMATICS
8362/2

Paper 2 Calculator

Mark scheme

January 2022

Version: 1.0 Final

2 2 1 A 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 ≤ 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	3.5	B1	

Q	Answer	Mark	Comments
2	$7.2 \div 2 \times 5$ or 18	M1	oe eg 7.2×2.5
	18 metres or 18 m	A1	
	Additional Guidance		
	If a build-up method is used it needs to be complete		

Q	Answer	Mark	Comments
3	3.6^2 or 3.6×3.6 or 12.96 or 4×1.7 or 6.8	M1	oe eg $3.6 \times 3.6 - 4(1.7)$
	6.16	A1	SC1 15.232 SC1 –28.74
	Additional Guidance		
	15.232 comes from $(12.96 - 4) \times 1.7$ –28.74 comes from $12.96 - 41.7$		

Q	Answer	Mark	Comments
4	**Alternative method 1**		
	$\frac{26}{40}$ or $\frac{24}{40}$	M1	oe at least two correct equivalent fractions with common denominator
	$\frac{3}{5}$ $\frac{13}{20}$ $\frac{27}{40}$ with no incorrect working	A1	any indication eg 0.6, 0.65, 0.675 or $\frac{24}{40}$, $\frac{26}{40}$, $\frac{27}{40}$ SC1 for reverse order with no incorrect working
	Alternative method 2		
	At least two of 0.65, 0.675, 0.6	M1	oe percentages
	$\frac{3}{5}$ $\frac{13}{20}$ $\frac{27}{40}$ with no incorrect working	A1	any indication eg 0.6, 0.65, 0.675 or $\frac{24}{40}$, $\frac{26}{40}$, $\frac{27}{40}$ SC1 for reverse order with no incorrect working
	Additional Guidance		
	Correct order with no working		M1A1
	Condone decimals in numerators		

Q	Answer	Mark	Comments
5	400 000 or 6(.0)	M1	implied by 2 440 000 or 2 280 000 or 2 256 180 or 2 256 150 or 2 256 000
	2 400 000	A1	
	Additional Guidance		
	Ignore punctuation		

<table>
<tr><th>Q</th><th>Answer</th><th>Mark</th><th>Comments</th></tr>
<tr><td rowspan="6">6</td><td>4(%)</td><td>B1</td><td></td></tr>
<tr><td>$\frac{23}{100}$</td><td>B1</td><td>oe fraction</td></tr>
<tr><td>0.007</td><td>B1</td><td></td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="3">
<table>
<tr><th>Fraction</th><th>Decimal</th><th>Percentage</th></tr>
<tr><td>$\frac{1}{25}$</td><td>0.04</td><td>4(%)</td></tr>
<tr><td>$\frac{23}{100}$</td><td>0.23</td><td>23%</td></tr>
<tr><td>$\frac{7}{1000}$</td><td>0.007</td><td>0.7%</td></tr>
</table>
</td></tr>
<tr><td colspan="2">Mark table, if blank mark the working space</td><td></td></tr>
<tr><td colspan="2">Do not allow 7×10^{-3} for 0.007</td><td></td></tr>
</table>

Section B

Q	Answer	Mark	Comments
7 (a)	(4.5 × 1000 ÷ 150) × 1.79 or 30 × 1.79 or 53.7(0)	M1	oe
	2.08 × 5 or 10.4(0)	M1	oe
	(0).17 × 4 or (0).68 or 17 × 4 or 68(p)	M1	
	(24 ÷ 6) × 3.9(0) or 15.6(0)	M1	oe
	their 53.7(0) + their 10.4(0) + their (0).68 + their 15.6(0)	M1	must be consistent units
	(£) 80.38	A1	SC4 (£)147.7(0)
	Additional Guidance		
	Accept answer (£) 3.35 per jar with (£) 80.38 seen in working for full marks		
	Accept working in pounds or pence for all method marks		

Q	Answer	Mark	Comments
7 (b)	$\pi \times 3.4^2 \times 7.5$	M1	oe
	[272, 272.5]	A1	implied by correct answer
	their [272, 272.5] × 1.29	M1	their [272, 272.5] must be from a calculation involving at least two of π, 3.4 and 7.5
	[350, 352]	A1ft	ft their [272, 272.5]
	Additional Guidance		
	[350, 352] without working		M1A1M1A1
	Allow their value to be rounded or truncated for final A1ft eg $2 \times \pi \times 3.4 \times 7.5 = 160.22$ $160.22 \times 1.29 = 207$		M0A0M1A1ft
	eg $3.4 + 7.5 = 10.9$ $10.9 \times 1.29 = 14.061$		M0A0M1A1ft
	eg $3.4 \times 7.5 = 25.5$ $25.5 \times 1.29 = 32.90$		M0A0M1A1ft

Q	Answer	Mark	Comments
7 (c)	**Alternative method 1**		
	42 × 4.5(0) or 189	M1	
	245.7(0) – their 189 or 56.7(0)	M1dep	
	their 56.7(0) ÷ (60 – 42)	M1dep	
	3.15	A1	
	$\frac{4.5(0) - \text{their } 3.15}{4.5(0)}$ (× 100) or 0.3 (× 100) or $\frac{\text{their } 3.15}{4.5(0)}$ (× 100) or 0.7 (× 100) or 4.5(0) ÷ 10 × 7 (= 3.15) or 70 (%)	M1	oe
	30 (%) with 3.15 seen	A1ft	ft correct reduction for their 3.15

Mark scheme and Additional guidance continue on the next page

Q	Answer	Mark	Comments	
7(c) cont.	**Alternative method 2**			
	60 × 4.5(0) or 270	M1		
	their 270 – 245.7(0) or 24.3(0)	M1dep		
	their 24.3(0) ÷ (60 – 42)	M1dep		
	1.35	A1		
	their 1.35 ÷ 4.5(0) (× 100) or 0.3 (× 100)	M1	oe	
	30 (%) with 1.35 seen	A1ft	ft correct reduction for their 1.35	
	Additional Guidance			
	30 (%) without working			M0M0M0A0M0A0
	Note that there are other ways to get 30% which do not score full marks eg 1 – 42 ÷ 60 = 1 – 0.7 = 0.3 so 30% eg (60 – 42) ÷ 60 (× 100) = 0.3 or 30 eg their 56.7(0) ÷ their 189 (× 100) = 0.3 or 30 eg 1 – their 189 ÷ their 270 = 0.3 so 30%			M0M0M0A0M0A0 M0M0M0A0M0A0 M1M1M0A0M0A0 M1M0M0A0M0A0

Q	Answer	Mark	Comments	
8 (a)	**Alternative method 1**			
	1 – 0.4 or 0.6	M1	oe eg £525 = 60%	
	525 ÷ their 0.6 or (525 ÷ 60 × 40) + 525 or 350 + 525	M1dep	oe eg 525 × 100 ÷ 60	
	875	A1	SC1 1312.5(0)	
	Alternative method 2			
	525 ÷ 6 or 87.5	M1	oe division by 3, 12, 15, 30 or 60	
	their 87.5 × 10 or their 87.5 × 4 + 525 or 350 + 525	M1dep	oe multiplication up to get 100%	
	875	A1	SC1 1312.5(0)	
	Additional Guidance			
	735 or 315 or 840			M0M0A0
	525 ÷ 3 = 175, 175 × 5 = 875			M1M1A1
	The SC1 is for taking £525 to be 40% of the full cost			

Q	Answer	Mark	Comments
8 (b)	Plots (60, 21) and (84, 32) correctly	B1	$\pm \frac{1}{2}$ a small square ignore any additional points plotted
	Appropriate line of best fit passing through (40, [15, 21]) and (90, [27, 34])	B1	for the 10 or 12 points intended single straight line
	Draws a vertical line from 80 to their line of best fit	M1	implied by mark at the correct place on their line of best fit or on the vertical axis or the correct reading from their line of best fit their line of best fit must be increasing throughout allow a curve or dotted line but not zig-zags
	Correct reading from their line of best fit	A1ft	$\pm \frac{1}{2}$ a small square ft their line of best fit which must be increasing throughout allow a curve or dotted line but not zig-zags
	their reading for 80 miles × 15 or their reading for 80 miles × (0).15	M1	their reading must come from their line of best fit condone a zig-zag
	Correct answer from their reading using correct money notation	A1ft	
	Additional Guidance		
	If no line of best fit of any sort is drawn then the only mark available is the B1 for plotting the 2 extra points. If a zig-zag line is drawn the maximum marks available are the first B1 and final M1A1ft.		
	No points are plotted, but a line of best fit drawn can score all but the first mark		
	For the accuracy mark $\pm \frac{1}{2}$ a small square is taken to be from the correct reading on the vertical axis for their line of best fit using 80 on the horizontal axis		

Q	Answer	Mark	Comments
9 (a)	21×5 or 105 or 26×7 or 182	M1	oe
	$26 \times 7 - 21 \times 5$ or 77 or $26 \times 7 - 32$ or 150 or $32 + 21 \times 5$ or 137	M1dep	oe
	45	A1	
	Additional Guidance		
	Award first mark even if not used		
	Second M mark could be embedded		

Q	Answer	Mark	Comments
9 (b)	$\frac{53}{67}$	B3	oe decimal, percentage B2 correct probability in words eg 53 out of 67 or $\frac{36+17}{36+17+14}$ incorrectly evaluated B1 53 or 36 + 17 incorrectly evaluated or 67 or 36 + 17 + 14 incorrectly evaluated
	Additional Guidance		
	Ignore subsequent cancelling or conversion to decimal or percentage once $\frac{53}{67}$ has been seen		
	As a decimal accept 0.79(1…) and as a percentage accept 79(.1…)%		
	Ignore additional probability words such as likely, etc		

Q	Answer	Mark	Comments
9 (c)	**Alternative method 1**		
	36 × 7.24 ÷ 60 or 4.344	M2	oe M1 36 × 7.24 or 260.64 or 36 ÷ 60 or 0.6 or 7.24 ÷ 60 or 0.12…
	their 4.344 – 4.125	M1dep	dep on M2
	0.219	A1	
	Alternative method 2		
	Works out the distance for a chosen number of minutes eg 7.24 ÷ 2 or 3.62 (30 minutes) or 7.24 ÷ 6 or 1.20… or 1.21 (10 minutes) or 7.24 ÷ 12 or 0.603… (5 minutes) or 7.24 ÷ 60 or 0.12… (1 minute)	M1	oe
	Correct combination for 36 minutes eg 7.24 ÷ 2 + 7.24 ÷ 12 + 7.24 ÷ 60 or [4.32, 4.36]	M1dep	
	their [4.32, 4.36] – 4.125	M1dep	
	0.219	A1	
	Additional Guidance		
	Use the alt that favours the student		

Q	Answer	Mark	Comments
10 (a)	**Alternative method 1**		
	0.17 × 395 or 67.15 or 1 – 0.17 or 0.83 or 100 – 17 or 83	M1	oe
	395 – 0.17 × 395 or (1 – 0.17) × 395 or (100 – 17) × 395 ÷ 100 or 327.85	M1dep	oe
	350 – their 327.85	M1dep	
	22.15	A1	
	Alternative method 2		
	0.17 × 395 or 67.15	M1	oe
	395 – 350 or 45	M1dep	oe
	their 67.15 – their 45	M1dep	
	22.15	A1	
	Additional Guidance		
	If a build-up method is used for 17% it must be complete		

Q	Answer	Mark	Comments
10 (b)	**Alternative method 1**		
	$\pi \times 16$ or 16π or [50, 50.3]	M1	oe
	their [50, 50.3] ÷ 2 or [25, 25.2]	M1	oe eg 8π their [50, 50.3] cannot be 16
	their [25, 25.2] $- 16 \times \frac{1}{4}$ or [21, 21.2]	M1	oe eg $8\pi - 4$
	their [21, 21.2] × 2.5	M1	oe
	[52.5, 53]	A1	
	Alternative method 2		
	16 × 2.5 or 40	M1	oe
	their 40 × π or [125.6, 126]	M1	oe
	their [125.6, 126] ÷ 2 or [62.8, 63]	M1	oe eg 20π their [125.6, 126] cannot be 40
	their [62.8, 63] $- \frac{1}{4}$ × their 40	M1	oe
	[52.5, 53]	A1	
	Additional Guidance		
	16, 16 ÷ 2 = 8, 8 – 4 = 4, 4 × 2.5 = 10		M0M0M1M1A0

Q	Answer	Mark	Comments
10 (c)	**Alternative method 1**		
	560 ÷ 2 or 280 or 560 × 3 or 1680	M1	
	560 ÷ 2 × 3 or 560 × 3 ÷ 2 or 840	M1dep	oe eg 560 + 280 560 × 1.5 implies M2
	10 × 1000 ÷ their 840 or 11.9…	M1	oe
	11	A1	
	Alternative method 2		
	(560 ÷ 1000) ÷ 2 or 0.28 or (560 ÷ 1000) × 3 or 1.68	M1	
	(560 ÷ 1000) ÷ 2 × 3 or (560 ÷ 1000) × 3 ÷ 2 or 0.84	M1dep	oe 0.56 × 1.5 implies M2
	10 ÷ their 0.84 or 11.9…	M1	oe
	11	A1	

Mark scheme and Additional guidance continue on the next page

Q	Answer	Mark	Comments	
10(c) cont.	**Alternative method 3**			
	10 ÷ 0.56 or 10 000 ÷ 560 or 17.8…	M1	oe	
	their 17.8… × 2 or 35.7… or their 17.8… ÷ 3 or 5.9…	M1		
	their 17.8… × 2 ÷ 3 or their 17.8… ÷ 3 × 2 or 11.9…	M1dep	oe dep on previous M1 their 17.8… × 1.5 implies M2	
	11	A1		
	Additional Guidance			
	Note that there is another way to get the answer of 11 that doesn't score any marks 560 × 2 = 1120 = 1.12kg 1.12 × 10 = 11.2kg			M0M0M0A0

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