Functional Skills Level 1
MATHEMATICS
8361/2

Paper 2 Calculator

Mark scheme

March 2020

Version: 1.0 Final

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 (FS) examinations are marked in such a way as to award positive achievement wherever possible. Thus, for F S 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

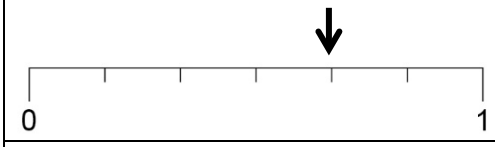
Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Continental notation

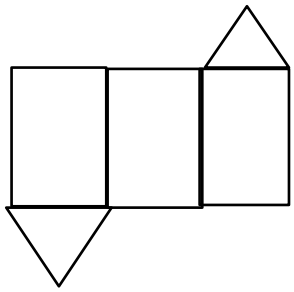
Accept a comma used instead of a decimal point (for example, in measurements or currency), provided that it is clear to the examiner that the student intended it to be a decimal point.

Section A

Q	Answer	Mark	Comments
1	reflex	B1	
	Additional Guidance		

Q	Answer	Mark	Comments
2		B1	any indication of correct position
	Additional Guidance		
	Mark intention		

Q	Answer	Mark	Comments
3	124 650	B1	
	Additional Guidance		
	Allow commas but not full stops		

Q	Answer	Mark	Comments
4	correct sketch with dimensions labelled – at least one height one width and one length triangles must be at the opposite ends of the same rectangle	B2	B1 correct sketch without labels or with some/all the three dimensions in the wrong places or B1 three correctly joined rectangles with two triangles at opposite ends of different rectangles (with or without labels) or B1 three correctly joined rectangles with at least one length (8) and one width(4) labelled or two correctly drawn triangles either end of a single rectangle with the 3 dimensions labelled (ignore any other shapes attached)
	Additional Guidance		
	Sketch required so side lengths do not have to be accurate Mark intention to be triangles or rectangles correct means three rectangles with the two triangles positioned at opposite ends of the same rectangle so that it would form the triangular prism when folded Example for B1 with triangles in wrong position. 		
	Ignore any dimension labelled for length of hypotenuse of triangle		
	Ignore flaps (for joining)		

Q	Answer	Mark	Comments
5	7.87	B1	do not allow extra zeros
	Additional Guidance		

Q	Answer	Mark	Comments
6	1200 ÷ 1000	M1	
	1.2	A1	condone 1.200
	Additional Guidance		

Q	Answer	Mark	Comments
7	31	B1	
	Additional Guidance		

Q	Answer	Mark	Comments
8	**Alternative method 1**		
	1.3 seen	M1	oe
	250 × 1.3	M1dep	oe
	325	A1	
	Alternative method 2		
	250 ÷ 10 or 25 or 250 × 0.3 or 75	M1	oe
	250 + (3 × their 25) or 250 + their 75	M1dep	
	325	A1	ignore units
	Additional Guidance		

Section B

Q	Answer	Mark	Comments
9(a)	**Alternative method 1**		
	adds any two of the times together eg 45 + 45 45 + 10 25 +12	M1	may be implied by a total eg 90
	adds all seven times 45 + 10 + 45 + 10 + 30 + 25 + 12 or 177 or 2h 57	M1	total time for classes, break, tidy up and time to walk to restaurant no extras
	5.30 (pm) + their 177 (mins) or 8.27 or 8.30 (pm) – their 177 (mins) or 5.33 or 8.30 (pm) – 5.30 (pm) or 3 (hours)	M1	their 177 must include at least **four** of the seven times allow extra incorrect values eg an extra 10 min break
	8.27 (pm) and Yes or 5.33 (pm) and Yes or 2 h 57 and 3 hours and Yes or 177 (mins) and 180 (mins) and Yes	A1	SC2 8.37 (pm) and No answer 8.27 am (and Yes) is M3A0
	Alternative method 2		
	Adds two of the times onto 5.30(pm) eg 5.30 + 45 + 10 or 6.25 or 5.30 → 6.15 → 6.25 or 5.30 + 45 + 45 or 7 or 5.30 → 6.15 → 7	M1	any two of the seven times
	Adds on another two of the remaining five times	M1	5.30 + four of the correct times added is M2 allow extra incorrect values eg an extra

9(a) cont'd	eg their 6.25 + 45 +10 or 7.20 or their 6.25 → 7.10 → 7.20 or their 7 + 25 + 12 or 7.37 or their 7 → 7.25 → 7.37		10 min break
	Adds on the remaining three times eg their 7.20 + 30 + 25 + 12 or their 7.37 →8.07 →8.17→8.27	M1	no extras allowed 5.30 + the correct seven times added is M3
	8.27 (pm) and Yes	A1	SC2 8.37 (pm) and No
	Additional Guidance		
	For multiple attempts mark the method that gives the most credit. Do not apply choice rules.		
	Adding on an extra 10-minute break can gain max 2 marks Example-Alt 1 120 + 3 × 10 + 25 + 12 or 187 mins or 3 h 7 mins 5.30 + 3 h 7 mins = 8.37 No Example -Alt 2 5.30 + 45 + 10 = 6.25 6.25 + 45 + 10 + 30 + 10 = 8.00 8.00 + 25 + 12 = 8.37 No		M1M0 M1A0 M1 M1 M0A0
	Just seeing a list of times may imply addition Example 5.30,6.15, 6.45, 6.55,		M1
	Only adding on one of each value -Alt 2 5.30 + 45 + 10 + 30 + 25 + 12 =7.32		M1M1M0A0

Q	Answer	Mark	Comments
9(b)	13.8 × 7.1 or 97.98	M1	
	their 97.98 ÷ 4	M1dep	
	24.495 or 24.5	A1	implied by answer 24
	24	B1ft	ft ans to their calculation rounded down to the nearest integer
	Additional Guidance		
	97.98 ÷ 16 with answer 6		M1M0A0B1ft

Q	Answer	Mark	Comments
9(c)	129 ÷ 3 or $\frac{1}{3} \times 129$ or (£) 43	M1	
	129 – their 43 or their 43 × 2 or (£) 86	M1 dep	$\frac{2}{3} \times 129$ oe implies M2
	0.25 × 112 or $\frac{1}{4} \times 112$ or 112 ÷ 4 or (£) 28	M1	
	112 – their 28 or their 28 × 3 or (£) 84	M1 dep	0.75 × 112 oe implies 3rd and 4th method marks dep on 3rd M1
	(£) 86 and (£) 84 and Oma's Music Store	A1	allow (£)112 or 'the 25% one' if clearly indicated as their choice of store
	Additional Guidance		
	Allow 'the £112 one' for choice of store but not just 84 indicated		
	Build up methods must get to 25%		

Q	Answer	Mark	Comments
10(a)	7×6 or 42	M1	
	their $42 - 23$	M1dep	oe calculation leading to answer 19
	19	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
10(b)	Number of climbers axis has linear scale from zero max 1cm = 5	B1	condone zero not labelled
	All 10 heights correct for their increasing scale	B2	±½ square For composite bar charts both combined height and adult/child split must be correct correct combined heights are 41, 36, 34, 44, 38 For separate diagrams heights are adults 18, 15, 12, 21, 18 children 23, 21, 22, 23, 20 B1 8 or 9 correct heights for their increasing scale
	Correct format for their chosen suitable diagram, with both axes labelled	B1	label can be climbers, number of people oe allow M,T,W,T,F for days Allow separate diagrams for adults and children if the scales are the same **Formats** **Dual or composite bar chart** can be horizontal or vertical must have equal width bars with either equal gaps or no gaps between days and consistent spacing (or none) between adult and child bars each day. a composite chart must have a single bar per day for total heights of adults and children. Condone no line to split adults and children as the height marks will not be awarded **Vertical line chart** must have equal width gaps between days and consistent spacing between adult and child line each day **Time series line graph**

			points plotted consistent distances apart and joined with straight lines (allow dotted or solid), not extended either end and not joined as a polygon
	Suitable key	B1	Allow adult, child written on all bars
	Additional Guidance		

Q	Answer	Mark	Comments
10(c)	**Alternative method 1**		
	9.22 + 8.58 + 7.79 + 7.23 + 8.66 + 8.14 or 49.62	M1	
	their 49.62 ÷ 6	M1dep	
	8.27	A1	
	No	B1ft	ft correct decision for their average time
	Alternative method 2		
	9.22 + 8.58 + 7.79 + 7.23 + 8.66 + 8.14 or 49.62	M1	
	8 × 6 or 48	M1	
	49.62 and 48	A1	
	No	B1ft	ft correct decision for their total times
	Additional Guidance		
	In Alt 1 for the B1 ft allow a correct decision following an attempt at mean or median (median is 8.36)		
	A conclusion just based on some being over 8 secs is B0		

Q	Answer	Mark	Comments
11(a)	(Fred) 2 × 17.5(0) or 35 or 3 × 10.75 or 32.25 or (Beth) 2 × 11.99 or 23.98 or 2 × 9.5(0) or 19	M1	
	Fred their 35 + their 32.25 + 14 + 12.95 + 45 or 139.2(0)	M1dep	must include 5 different items
	Beth their 23.98 + their 19 + 14.5(0) + 9 + 22.95 + 38 or 127.43	M1dep	dep on 1st M1 must include 6 different items
	(£)139.2(0) and (£)127.43 and No	A2	A1 (£)139.2(0) and (£)127.43 with no decision or an incorrect decision or A1 one correct total and correct ft decision SC1 100.2(0) and 105.94 and Yes
	Additional Guidance		
	Omitting some multiple items can score as follows Example Fred 2 × 17.50 = 35 35 + 10.75 + 14 + 12.95 + 45 = 117.70 Beth 23.98 + 19 + 14.50 + 9 + 22.95 + 38 = 127.43 Yes	M1 M1dep M1depA0A1ft	
	Condone 'Beth's costs less' to imply 'No'		
	Ignore further work after correct values seen eg finding the difference in cost		

Q	Answer	Mark	Comments
11(b)	**Alternative method 1**		
	5 × 2.5 + 5 or 17.5(0) or 9 × 2.5 + 5 or 27.5(0) or 10 × 2.5 + 5 or 30	M1	
	5 × 2.5 + 5 or 17.5(0) and 9 × 2.5 + 5 or 27.5(0) and 10 × 2.5 + 5 or 30	M1	
	their 17.5(0) + their 27.5(0) + their 30 or 75	M1dep	dep on 1st M1 and must be 3 weeks values added
	(£) 75 and Yes or (£)75 and she has £5 left	A1	
	Alternative method 2		
	5 + 9 + 10 or 24	M1	
	their 24 × 2.5 or 60	M1dep	oe 5 × 2.5 + 9 × 2.5 + 10 × 2.5 is M2
	their 60 + 3 × 5 or 75	M1dep	
	(£) 75 and Yes or (£) 75 and she has £5 left	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
12(a)	**Alternative method 1**		
	Draws one rectangle of correct size	M1	3.5 cm by 2 cm
	Draws at least nine rectangles of correct size	M1	
	Has exactly 15 rectangles of correct size	A1	Allow 13 drawn if compared with 50 ÷ 4 = 12.5 so 13 per sheet or with 4 × 13 = 52
	4 × their 15 or 60 or 50 ÷ 4 or 12.5 or 13 or 50 ÷ their 15 or 3.3…	M1	oe eg multiplies up their number of rectangles to get more than 50 bags or shows that 3 sheets is only 45 (for 15 per sheet)
	60 and Yes or He can make 10 extra or 12.5 and at least 13 drawn rectangles and Yes or 3.3… and Yes	A1ft	ft their number of rectangles stating that 3 sheets is only 45 bags so 4 sheets are needed gains the final M1A1ft
	Alternative method 2		
	120 ÷ 35 or 3.4(..) or 3 and 100 ÷ 20 or 5 or 120 ÷ 20 or 6 and 100 ÷ 35 or 2.8(..) or 2.9 or 2	M1	
	their 3 × their 5	M1dep	must be rounded down to integers
	15	A1	
	4 × their 15 or 60 or 50 ÷ 4 or 12.5 or 13 or 50 ÷ their 15 or 3.3..	M1	

12(a) cont'd	60 and Yes or He can make 10 extra or 12.5 and 15 and Yes or 3.3… and Yes	A1ft	ft their number of rectangles
	Additional Guidance		
	Working in the working lines takes precedence unless their answer clearly comes from their diagram		
	Working out area divided by area (120 × 100) ÷ (35 × 20) = 17.1 This cannot gain any of the first 3 marks but can access the last 2 for 50 ÷ 17= 2.9 or 3 and No		
	Just stating he can make 60 bags is not sufficient for the conclusion but he can make 10 more/extra is sufficient		

Q	Answer	Mark	Comments
12(b)	**Alternative method 1**		
	6 × 100 or 600 or 75 ÷ 100 or 0.75	M1	
	their 600 ÷ 75 or 6 ÷ their 0.75 or 8	M1	their 600 cannot be 6 or 60
	their 8 × 5 or 40 or 50 ÷ their 8 or 6.25	M1dep	dep on previous M1 600 ÷ 75 × 5 or 600 × 5 ÷ 75 is M3
	(50 – their 40) × 75 or 10 × 75 or 750 cm or 7.5 m or their 6.25 – 5 or 1.25	M1	
	2 with correct method	A1	
	Alternative method 2		
	6 × 100 or 600 or 75 ÷ 100 or 0.75	M1	
	their 600 × 5 or 3000 or 6 × 5 or 30	M1	3000 implies M2
	50 × 75 or 3750 or 50 × their 0.75 or 37.5(0)	M1	chain needed for 50 handles
	their 3750 – their 3000 or 750 cm	M1dep	dep on previous M2

12(b) cont'd	or their 37.5(0) – their 30 or 7.5 m		implied by answer 2 if first 3 method marks awarded
	2 with correct method	A1	
	Alternative method 3		
	6 × 100 or 600 or 75 ÷ 100 or 0.75	M1	
	50 × 75 or 3750 or 50 × their 0.75 or 37.5(0)	M1	chain needed for 50 handles
	their 3750 ÷ their 600 or their 37.5(0) ÷ 6 or 6.25 or 7	M1dep	dep on previous M1
	their 6.25 – 5 or 1.25 or their 7 – 5	M1dep	dep on previous M2 implied by answer 2 if first 3 method marks awarded
	2 with correct method	A1	
	Additional Guidance		
	Students can work in cm or metres but must be consistent eg 6 × 100 = 600 followed by 6 × 5 = 30		M1M0
	steps may be seen in a different order eg 50 × 75 = 3750 then 6 × 100 = 600		
	2 with no working		zero

Q	Answer	Mark	Comments
12(c)	**Alternative method 1**		
	252.5(0) + 33.5(0) + 119.5(0) + 87 or 492.5(0)	M1	
	their 492.5(0) ÷ 50 or 9.85	M1dep	costs for 1 bag
	their 9.85 + 3.5(0)	M1dep	
	13.35	A1	
	Alternative method 2		
	252.5(0) + 33.5(0) + 119.5(0) + 87 or 492.5(0)	M1	
	3.5(0) × 50 or 175	M1	
	(their 492.5(0) + their 175) ÷ 50	M1dep	dep on M2
	13.35	A1	
	Alternative method 3		
	252.5(0) ÷ 50 or 5.05 and 33.5(0) ÷ 50 or 0.67 and 119.5(0) ÷ 50 or 2.39 and 87 ÷ 50 or 1.74	M1	
	their 5.05 + their 0.67 + their 2.39 + their 1.74 or 9.85	M1dep	
	their 9.85 + 3.5(0)	M1dep	
	13.35	A1	
	Additional Guidance		