

Functional Skills Level 1 MATHEMATICS 8361/2

Paper 2 Calculator

Mark scheme

June 2022

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.

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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.
В	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.

Q	Answer	Mark	Comments	
	c	B1		
1	Additional Guidance			
	Accept circling of letter on diagram if answer line blank			

Q	Answer	Mark	Comments	
	3	B1		
2	Additional Guidance			
	Ignore lines drawn on diagram			

Q	Answer	Mark	Comments	
	Ninety-one thousand and seventy-two	B1		
	Additional Guidance			
3	3 Condone incorrect spelling if word is clear			
	Condone omission of 'and'			
	Condone omission of hyphens			

Q	Answer	Mark	Comments		
	3 8	B1	oe fraction, decimal or percer	ıtage	
	Additional Guidance				
4	Ignore incorrect conversion of a correct answer				
	Ignore probaibility words if correct fraction is seen				
	3 out of 8				
	3 in 8				

Q	Answer	Mark	Comments		
	0.25, 0.219, 0.206, 0.2 B1 reverse order or one value position			e in incorrect	
	Additional Guidance				
5	Reverse order 0.2, 0.206, 0.219, 0.25				
	Example of one value in incorrect position 0.219, 0.206, 0.25, 0.2				
	0.2, 0.25, 0.206, 0.219				
	Ignore extra zeros eg 0.20(0), 0.250				

Q	Answer	Mark	Comments	
	9.36	B1		
6	Additional Guidance			
	Extra zeros eg 9.3600			В0

Q	Answer	Mark	Comments	
	0.15 × 126.8(0) or 12.68 + 6.34 or 19.02	M1	oe eg $\frac{951}{50}$	
	126.8(0) + their 19.02	M1dep	M2 for 126.8(0) × 1.15	
	145.82	A1	SC1 107.78	
	Ac	Iditional G	uidance	
	Any build-up method must be complete shown	with correc	ct values or correct method	
	eg 1			
7	126.80 ÷ 10 = 12.68			
	$12.68 \div 2 = 6.29$			
	12.68 + 6.29 = 18.97			
	126.80 + 18.97= 145.77			M1M1A0
	(complete method shown with just an ar	ithmetical	error)	
	eg 2			
	10% = 12.68			
	5% = 5.34			
	12.68 + 5.34 = 18.02			
	126.80 + 18.02 = 144.82			M0M0A0
	(no method shown for working out 5% a	nd answer	is incorrect)	

Q		Answer	Mark	Commer	nts
	Corre	ct table	B2	B1 for 1 correct letter place	ement
	Additional Guidance				
	Corre	ctly completed table			
		Description		Diagram letter	
8		Net of a cube-shaped box with a lid		В	
		Net of a cube-shaped box without a lid		С	
	Allow correct diagram in place of a letter				
	2 letters in one box is choice				

Q	Answer	Mark	Comments		
	Alternative method 1				
	1.2 ÷ 2 × 3 × 1000 or 1800	M2	oe M1 1.2 ÷ 2 × 3 or 1.8 or 1.2 × 1000 or 1200		
	their 1800 – 500 or 1300	M1	their 1800 > 500 and cannot be 750 1300 is M3		
	their 1300 ÷ 750 or 1.7(3) or 750 + 750 or 1500	M1			
	2 with 1800 seen or 2 with 1300 seen or 2 and he will have 200 (g) left	A1			
9(a)	Alternative method 2				
	1.2 ÷ 2 × 3 or 1.8	M1	oe		
	500 ÷ 1000 or 0.5 or 750 ÷ 1000 or 0.75	M1	may be implied		
	their 1.8 – their 0.5 or 1.3	M1	their 1.8 > their 0.5 and cannot be 0.75 1.3 is M3		
	their 1.3 ÷ their 0.75 or 1.7(3) or 0.75 + 0.75 or 1.5	M1			
	2 with 1.8 seen or 2 with 1.3 seen	A1			
	or 2 and he will have 0.2 (kg) left				

Mark scheme continues on the next page

	Alternative method 3				
	1.2 ÷ 2 × 3 × 1000 or 1800	M2	oe M1 1.2 ÷ 2 × 3 or 1.8 or 1.2 × 1000 or 1200		
	750 + 750 or 1500 or 750 + 500 or 1250	M1	ое		
	their 1500 + 500 or their 1250 + 750 or 2000	M1			
9(a) cont'd	2 with 1800 seen or 2 and he will have 200 (g) left	A1			
	Alternative method 4				
	1.2 ÷ 2 × 3 or 1.8	M1	oe		
	500 ÷ 1000 or 0.5 or 750 ÷ 1000 or 0.75	M1	may be implied		
	their 0.75 + their 0.75 or 1.5 or their 0.75 + their 0.5 or 1.25	M1	oe		
	their 1.5 + their 0.5 or their 1.25 + their 0.75 or	M1			
	2 kg		2 kg cannot be from 4 × 0.5		
	2 with 1.8 seen				

Q	Answer	Mark	Comments		
	Alternative method 1				
	23 × 15 × 11 or 3795	M1			
	their 3795 ÷ 1000 or 3.7(95) or 3.8	M1dep			
	3.7(95) and Yes				
	or	A1			
0/h)	3.8 and Yes				
9(b)	Alternative method 2				
	23 × 15 × 11 or 3795	M1			
	3 × 1000 or 3000	M1	implied by 795 left over		
	3795 and 3000 and Yes				
	or	A1			
	795 left over and Yes				

Q	Answer	Mark	Comments		
	Alternative method 1				
9(c)	$\frac{144}{36} \times 8 \times 3.49$	oe $M2 = \frac{144}{36} \times 8 \text{ or } 32 \text{ oe}$ or $\frac{8}{36} \times 3.49 \text{ or } 0.775() \text{ oe}$ $M3 = M1 = \frac{144}{36} \text{ or } 4$ or $36 \div 8 \text{ or } 4.5 \text{ (degrees per litre)}$ or $8 \div 36 \text{ or } 0.22(2) \text{ (litres per degree or } 8 \times 3.49 \text{ or } 27.92$			
	111.68	A1	condone answer 112 if 111.68 seen		
	Alternative method 2				
	$\frac{360}{36} \times 8$ or 10×8 or 80	M1	oe eg half the pie chart leading to 40		
	$\frac{144}{360}$ × their 80 or 32	M1dep	oe		
	their 32 × 3.49	M1dep			
	111.68	A1	condone answer 112 if 111.68 seen		

Q	Answer	Mark	Comments			
	Alternative method 1					
	3 × 16 × 0.2 or 9.6(0)	M2	M1 3 × 16 or 48 or 16 × 0.2 or 3.2			
	their 48 – their 9.6(0) or 38.4(0)	M1dep	dep on M2 M3 for 48 × 0.8 or 38.4(0)			
	15 ÷ 2 or 7.5(0)	M1	oe			
	15 + 15 + their 7.5(0) or 37.5(0)	M1dep	oe eg 3×15 – their 7.5(0) dep on previous M1 2.5×15 implies 4th and 5th M1			
40(1)	38.4(0) and 37.5(0) and EZ (hire company)	A1				
10(a)	Alternative method 2					
	16 × 0.2 or 3.2(0)	M1	oe			
	16 – their 3.2(0) or 12.8(0)	M1dep	M2 for 16 × 0.8 or 12.8(0)			
	their 12.8(0) × 3 or 38.4(0)	M1dep	38.4(0) is M3			
	15 ÷ 2 or 7.5(0)	M1	oe			
	15 + 15 + their 7.5(0) or 37.5(0)	M1dep	oe eg 3 \times 15 – their 7.5(0) dep on previous M1 2.5 \times 15 implies 4th and 5th M1			
	38.4(0) and 37.5(0) and EZ (hire company)	A1				
		Additional G	Guidance			
	Choice of company may be indicated by circling the advert or similar					

Q	Answer	Mark	Comments
	2.5 × 3.7 or 9.25		oe
	or		
	1.8 × (6.5 – 2.5) or 1.8 × 4 or 7.2		
	or		
	6.5 × 1.8 or 11.7		
	or	M1	
	$2.5 \times (3.7 - 1.8)$ or 2.5×1.9 or 4.75		
	or		
	6.5 × 3.7 or 24.05		
	or		
	$(6.5 - 2.5) \times (3.7 - 1.8)$ or 4×1.9 or 7.6		
	$2.5 \times 3.7 + 1.8 \times (6.5 - 2.5)$ or $9.25 + 7.2$		oe correct full method to work out floor area
10(b)	or		
	$6.5 \times 1.8 + 2.5 \times (3.7 - 1.8)$ or $11.7 + 4.75$	M1	
	or		
	$6.5 \times 3.7 - (6.5 - 2.5) \times (3.7 - 1.8)$ or $24.05 - 7.6$		
	16.45	A1	implied by answer of 8225 or 8.225 litres
	their 16.45 × 500		oe eg their separate 'areas' multiplied by 500 and then summed
		M1	allow rounding up or down of their 16.45 to nearest integer for this method mark but not for the accuracy mark
			their 16.45 cannot be a single length from the diagram
	8225 or 8.225 litres	A1ft	ft their 16.45

Additional Guidance is on the next page

	Additional Guidance	
	Accept working in litres for last 2 marks	
	Their 16.45 can be any value they think is the area, including part areas	
	eg 1	
	3.7 + 2.5 + 1.8 + 6.5 = 14.5	M0M0A0
	$14.5 \times 500 = 7250$	M1A1ft
10(b)	eg 2	
cont'd	$3.7 \times 500 + 2.5 \times 500 + 1.8 \times 500 + 6.5 \times 500 = 7250$	M0M0A0
	eg 3	M1A1ft
	3.7 + 2.5 + 4 + 1.8 + 1.9 + 6.5 = 20.4	
	$20.4 \times 500 = 10200$	M0M0A0
	eg 4	M1A1ft
	6.5 × 3.7 or 24.05	
	24.05 × 500 = 12025	M1M0A0M1 A1ft

Q	Answer	Mark	Comments			
	Alternative method 1					
	10.15 + 45 (mins) + 20 (mins) + 1.5 (hrs)		oe eg 10.15 + 45 + 20 + 90			
	or 12.50	M2	M1 for one or two times added to 10.15 or all three times for tasks added together			
			eg 10.15 + 45 (mins) or 11(.00)			
			eg 45 (mins) + 20 (mins) + 1.5 (hrs) or 2h 35 or 155			
	12.50 and Yes					
	or	A1				
	She will finish 10 mins early		oe			
	Alternative method 2					
	1(.00) – 45 (mins) – 20 (mins)		oe			
10(c)	- 1.5 (hrs) or 10.25	M2	M1 for one or two times subtracted from 1 pm or all three times for tasks added together			
			eg 1(.00) – 45 (mins) or 12.15			
			eg 45 (mins) + 20 (mins) + 1.5 (hrs) or 2h 35			
	10.25 and Yes					
	or	A1				
	10 mins spare		oe			
	Alternative method 3					
	45 (mins) + 20 (mins) + 1.5 (hrs) or 2h 35 or 155	M1				
	1 pm – 10.15 or 2h 45 or 165	M1				
	2h 35 and 2h 45 and Yes					
	or	A1				
	155 and 165 and Yes					

Additional Guidance is on the next page

	Additional Guidance				
	For M1 any single time or two times may be added to 10.15 eg 10.15 + 65 (mins) or 11.20	M1			
10(c) cont'd	10.15 + 45 = 10.55 10.55 + 20 (mins) = 11.15 11.15 + 1.5 (hrs) = 12.45 Yes correct method but inaccurate addition of 45 mins	M1M1A0			
	Addition may not be seen but can be implied eg 10.15, 11.00, 11.15, 12.45 implies 45 mins and 1h 30 added correctly but 20 mins incorrect	M1M0A0			
	Incorrect conversion of total mins to hours and mins can score M2A0 eg $45 + 20 + 90 = 155$ mins				
	10.15 + 1h 55 = 12.10 Yes	M1M1A0			

Q	Answer	Mark	Comments		
	Alternative method 1 – Bar chart or vertical line graph				
	Correct frequencies in table		ignore tallies		
	4-6 = 6 and 7-9 = 3		B1 4-6 = 6		
	or		or		
	correct heights on bar chart or vertical	B2	7-9 = 3		
	line graph for 4-6 and 7-9	D2	or one correct height for 4-6 or 7-9 on bar chart or vertical line graph		
			or		
			their two missing frequencies total 9 in table or on diagram		
	Chooses bar chart or vertical line graph	B1			
	Frequency axis has linear scale starting from zero up to at least 9	B1	for bar chart the frequency may be on the horizontal or vertical axis		
			condone zero not labelled		
44(a)			labelling/notches for values must be at the top of each square		
11(a)	All heights correct for their increasing	B1ft	ft values from table		
	scale		±½ square		
	or heights in correct proportion if no		for labelling in the middle of squares count the 'blocks'		
	scale is given		eg heights 9 cm, 6 cm, 3 cm and 2 cm		
	Fully correct labelling for their type of graph		oe eg number of customers for frequency		
	Frequency and number of visits labels on axes				
	and				
	Number of visits labelled 1-3, 4-6, 7-9 and 10-12	B1			
	or				
	Number of visits axis has linear scale from zero to at least 12		condone zero not labelled		
	and				
	equal width bars and equal gaps or no gaps between them		condone different gap between axis and first bar		

Mark scheme and Additional Guidance continue on the next page

	Alternative	e method 2 – Pictogram	1				
	Correct fre	quencies in table		condone lack of t	allies		
	4-6 = 6 and 7-9 = 3			B1 4-6 = 6	B1 4-6 = 6		
	or			or			
		mber of their icon on		7-9 = 3			
	pictogram	for 4-6 and 7-9	B2	or			
				correct number of 4-6 or 7-9	f their icon on	pictogram for	
				or their two missil table or on diagra		s total 9 in	
	Chooses p	ictogram	B1				
11(a)	Suitable key with icon and scale		B1	a suitable key is one that can be split for their values		e split for	
	Fully correct pictogram with all rows correct and equal spaces between rows and icons		B2ft	ft values from table and ft their key mark broad intention to align icons B1 at least one row drawn correctly			
	Additional Guidance						
	Correct table						
		Number of visits	Tally	Frequency			
		1 – 3	 -	9		B2	
		4 – 6	 	6		D2	
		7 – 9		3	_		
		10 – 12	II	2			
	If no table						
	For bar cha						
	suitable dia	s are plotted with crosses agram can be accessed. osses must be at the corr the cross for 1-3 must be	Gaps between ect point for	en the crosses must	be equal		

Q	Answer	Mark	Comments			
	Alternative method 1					
	19.95 + 10.5(0) + 4.3(0) + 48 or 82.75	M1				
	8.5(0) + 6.99 + 2.5(0) + 22.5(0) or 40.49	M1				
	their 82.75 ÷ 2 or 41.(3) or		their 82.75 or their 40.49 must be from addition of the four relevant prices			
	their 40.49 × 2 or 80.98	M1	allow rounding			
	or their 82.75 – their 40.49 or 42.26					
	82.75 and 80.98 and Yes or 40.49 and 41.(3) and Yes or	A1				
11(b)	40.49 and 42.26 and Yes					
	Alternative method 2					
	19.95 + 10.5(0) + 4.3(0) + 48 or 82.75	M1				
	8.5(0) + 6.99 + 2.5(0) + 22.5(0) or 40.49	M1				
	their 82.75 ÷ their 40.49 or 2.04() or their 40.49 ÷ their 82.75 or 0.48(9) or 0.49	M1	their 82.75 or their 40.49 must be from addition of the four relevant prices allow rounding			
	2.04() and Yes					
	or 0.48(9) and Yes	A1				
	or					
	0.49 and Yes					

Mark scheme continues on the next page

	Alternative method 3				
	19.95 ÷ 2 or 9.97(5) or 9.98				
	and				
	10.50 ÷ 2 or 5.25				
	and	M1			
	4.30 ÷ 2 or 2.15				
	and				
	48 ÷ 2 or 24				
	their 9.975 + their 5.25 + their 2.15 + their 24 or 41.(3)	M1dep			
	8.5(0) + 6.99 + 2.5(0) + 22.5(0) or 40.49	M1			
11(b)	40.49 and 41.(3) and Yes	A1			
cont'd	Alternative method 4				
	8.5(0) × 2 or 17				
	and				
	6.99 × 2 or 13.98				
	and	M1			
	2.5(0) × 2 or 5(.00)				
	and				
	22.5(0) × 2 or 45				
	their 17 + their 13.98 + their 5(.00) + their 45 or 80.98	M1dep			
	19.95 + 10.5(0) + 4.3(0) + 48 or 82.75	M1			
	80.98 and 82.75 and Yes	A1			

Mark scheme and Additional Guidance continue on the next page

	Alternative method 5				
	19.95 – 8.5(0) or 11.45				
	and				
	10.5(0) – 6.99 or 3.51				
	and	M1			
	4.3(0) – 2.5(0) or 1.8(0)				
	and				
	48 – 22.5(0) or 25.5(0)				
	their 11.45 + their 3.51 + their 1.8(0) + their 25.5(0) or 42.26	M1dep			
11(b) cont'd	8.5(0) + 6.99 + 2.5(0) + 22.5(0) or 40.49				
	or	M1			
	$(19.95 + 10.5(0) + 4.3(0) + 48) \div 2$ or $41.(3)$				
	40.49 and 42.26 and Yes				
	or	A1			
	41.(3) and 42.26 and Yes				
	Additional Guidance				
	Ignore attempt to calculate difference in final values eg 41.(3) and 40.49				
	Use the Alt that follows the student's method				
	eg If using differences use Alt 5				

Q	Answer	Mark	Comments		
	0.1 × 32 549 or 3254.9(0)	M1	oe		
	48 × 638 or 30 624	M1			
	their 30 624 + their 3254.9(0) or 33 878.9(0)	M1dep	dep on M2		
12(a)	their 33878.9(0) – 32549 or 1329.9	M1	their 33878.9(0) > 32549		
	1329.90	A1	correct money notation		
	Additional Guidance				
	Allow 63173 with no working to imply the 2nd M1 (comes from 30 624 + 32 549)				

Q	Answer	Mark	Comments	
12(b)	4 (hours) or 2 (hours) or 6 (hours)	M1	may be implied by 210 or 105 or	or 315
	52.5(0) × their (4 + 2) or 52.5(0) × their 6 or 315	M1	oe multiplication done before addi may be implied by their answer	•
	1109.85	A1	SC1 5084.1(0)	
	Additional Guidance			
	$794.85 + 52.50 \times 6$ evaluated in the incorrect order gives 5084.1(0)			M1M0A0
	The two days calculated separately with 794.85 added twice loses the accuracy mark			
	eg 794.85 + 210 and 794.85 + 105			
	Award first M1 even if not used			

Q	Answer	Mark	Comments		
	Alternative method 1				
	28 × 2 ÷ 3.2 or 17.5	M2	M1 28 × 2 or 56 or 28 ÷ 3.2 or 8.75		
	80 ÷ 4 or 20	M1	oe		
	17.5 and 20 and Yes or 17.5 and 2.5 (kWh) left/spare or 20 and 2.5 (kWh) left/spare	A1	oe		
12(c)	Alternative method 2				
	28 × 2 ÷ 3.2 × 4 or 70	M3	M2 28 × 2 ÷ 3.2 or 17.5 or 28 ÷ 3.2 × 4 or 35 M1 28 × 2 or 56 or 28 ÷ 3.2 or 8.75		
	70 and Yes	A1			

Mark scheme and Additional Guidance continue on the next page

	Alternative method 3				
12(c) cont'd	28 × 2 or 56	M1	oe		
	80 × 3.2 ÷ 4 or 64	M2	M1 80 × 3.2 or 256 or 80 ÷ 4 or 20 oe		
	56 and 64 and Yes or 56 and 8 miles left/spare or 64 and 8 miles left/spare	A1	oe oe		
	Alternative method 4				
	(80 ÷ 4) ÷ 2 × 3.2 or 32	M3	oe M2 $(80 \div 4) \div 2 \text{ or } 10$ or $(80 \div 4) \times 3.2 \text{ or } 64$		
			80 ÷ 4 or 20		
	32 and Yes	A1			
	Alternative method 5				
	28 ÷ 3.2 or 8.75	M1			
	(80 ÷ 4) ÷ 2 or 10	M2	M1 80 ÷ 4 or 20		
	8.75 and 10 and Yes	A1			
	Additional Guidance				
	For 8.75 allow 9 as an indication of embedded division using whole numbers. In Alt 1 this gives an answer of 18 compared with 20 for full marks so shows that using 9kWh per journey still has enough energy				
	In Alt 2 using 9, the final answer of 72 still shows there is enough energy				