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# Functional Skills Level 1 MATHEMATICS

## 8361/2

Paper 2 Calculator

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**Mark scheme**

June 2022

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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.

<b>M</b>	Method marks are awarded for a correct method which could lead to a correct answer.
<b>A</b>	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>B</b>	Marks awarded independent of method.
<b>ft</b>	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
<b>SC</b>	Special case. Marks awarded for a common misinterpretation which has some mathematical worth.
<b>M dep</b>	A method mark dependent on a previous method mark being awarded.
<b>B dep</b>	A mark that can only be awarded if a previous independent mark has been awarded.
<b>oe</b>	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
<b>[a, b]</b>	Accept values between a and b inclusive.
<b>[a, b)</b>	Accept values $a \leq \text{value} < b$
<b>3.14 ...</b>	Accept answers which begin 3.14 eg 3.14, 3.142, 3.1416
<b>Use of brackets</b>	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
1	<i>c</i>	B1	
	<b>Additional Guidance</b>		
	Accept circling of letter on diagram if answer line blank		

Q	Answer	Mark	Comments
2	3	B1	
	<b>Additional Guidance</b>		
	Ignore lines drawn on diagram		

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

Q	Answer	Mark	Comments
4	$\frac{3}{8}$	B1	oe fraction, decimal or percentage
	<b>Additional Guidance</b>		
	Ignore incorrect conversion of a correct answer		
	Ignore probaibility words if correct fraction is seen		
	3 out of 8		B0
	3 in 8		B0

Q	Answer	Mark	Comments
5	0.25, 0.219, 0.206, 0.2	B2	B1 reverse order or one value in incorrect position
	<b>Additional Guidance</b>		
	Reverse order 0.2, 0.206, 0.219, 0.25		B1
	Example of one value in incorrect position 0.219, 0.206, 0.25, 0.2		B1
	0.2, 0.25, 0.206, 0.219		B0
	Ignore extra zeros eg 0.20(0), 0.250		

Q	Answer	Mark	Comments
6	9.36	B1	
	<b>Additional Guidance</b>		
	Extra zeros eg 9.3600		B0





Q	Answer	Mark	Comments						
<b>8</b>	Correct table	B2	B1 for 1 correct letter placement						
	<b>Additional Guidance</b>								
	Correctly completed table								
	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th data-bbox="325 495 858 573">Description</th> <th data-bbox="858 495 1220 573">Diagram letter</th> </tr> </thead> <tbody> <tr> <td data-bbox="325 573 858 707">Net of a cube-shaped box with a lid</td> <td data-bbox="858 573 1220 707"><b>B</b></td> </tr> <tr> <td data-bbox="325 707 858 846">Net of a cube-shaped box without a lid</td> <td data-bbox="858 707 1220 846"><b>C</b></td> </tr> </tbody> </table>			Description	Diagram letter	Net of a cube-shaped box with a lid	<b>B</b>	Net of a cube-shaped box without a lid	<b>C</b>
	Description	Diagram letter							
Net of a cube-shaped box with a lid	<b>B</b>								
Net of a cube-shaped box without a lid	<b>C</b>								
Allow correct diagram in place of a letter									
2 letters in one box is choice									

Q	Answer	Mark	Comments
9(a)	<b>Alternative method 1</b>		
	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	
	<b>Alternative method 2</b>		
	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 or 2 and he will have 0.2 (kg) left	A1	

Mark scheme continues on the next page

<b>9(a) cont'd</b>	<b>Alternative method 3</b>		
	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	oe
	their 1500 + 500 or their 1250 + 750 or 2000	M1	
	2 with 1800 seen or 2 and he will have 200 (g) left	A1	
	<b>Alternative method 4</b>		
	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 2 kg	M1	2 kg cannot be from 4 × 0.5
	2 with 1.8 seen		

Q	Answer	Mark	Comments
9(b)	<b>Alternative method 1</b>		
	$23 \times 15 \times 11$ or 3795	M1	
	their $3795 \div 1000$ or 3.7(95) or 3.8	M1dep	
	3.7(95) and Yes or 3.8 and Yes	A1	
	<b>Alternative method 2</b>		
	$23 \times 15 \times 11$ or 3795	M1	
	$3 \times 1000$ or 3000	M1	implied by 795 left over
	3795 and 3000 and Yes or 795 left over and Yes	A1	

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

Q	Answer	Mark	Comments
10(a)	<b>Alternative method 1</b>		
	$3 \times 16 \times 0.2$ or 9.6(0)	M2	M1 $3 \times 16$ or 48 or $16 \times 0.2$ or 3.2
	their 48 – their 9.6(0) or 38.4(0)	M1dep	dep on M2 M3 for $48 \times 0.8$ or 38.4(0)
	$15 \div 2$ 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	
	<b>Alternative method 2</b>		
	$16 \times 0.2$ or 3.2(0)	M1	oe
	$16 -$ their 3.2(0) or 12.8(0)	M1dep	M2 for $16 \times 0.8$ or 12.8(0)
	their 12.8(0) $\times 3$ or 38.4(0)	M1dep	38.4(0) is M3
	$15 \div 2$ 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	
	<b>Additional Guidance</b>		
	Choice of company may be indicated by circling the advert or similar		

Q	Answer	Mark	Comments
<b>10(b)</b>	$2.5 \times 3.7$ or 9.25 or $1.8 \times (6.5 - 2.5)$ or $1.8 \times 4$ or 7.2 or $6.5 \times 1.8$ or 11.7 or $2.5 \times (3.7 - 1.8)$ or $2.5 \times 1.9$ or 4.75 or $6.5 \times 3.7$ or 24.05 or $(6.5 - 2.5) \times (3.7 - 1.8)$ or $4 \times 1.9$ or 7.6	M1	oe
	$2.5 \times 3.7 + 1.8 \times (6.5 - 2.5)$ or $9.25 + 7.2$ or $6.5 \times 1.8 + 2.5 \times (3.7 - 1.8)$ or $11.7 + 4.75$ or $6.5 \times 3.7 - (6.5 - 2.5) \times (3.7 - 1.8)$ or $24.05 - 7.6$	M1	oe correct full method to work out floor area
	16.45	A1	implied by answer of 8225 or 8.225 litres
	their $16.45 \times 500$	M1	oe eg their separate 'areas' multiplied by 500 and then summed 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**

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



Q	Answer	Mark	Comments
10(c)	<b>Alternative method 1</b>		
	10.15 + 45 (mins) + 20 (mins) + 1.5 (hrs) or 12.50	M2	oe eg 10.15 + 45 + 20 + 90  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 She will finish 10 mins early	A1	oe
	<b>Alternative method 2</b>		
	1(.00) – 45 (mins) – 20 (mins) – 1.5 (hrs) or 10.25	M2	oe  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 10 mins spare	A1	oe
	<b>Alternative method 3</b>		
	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 155 and 165 and Yes	A1	

**Additional Guidance is on the next page**

<b>Additional Guidance</b>		
<b>10(c) cont'd</b>	For M1 any single time or two times may be added to 10.15 eg $10.15 + 65$ (mins) or 11.20	M1
	$10.15 + 45 = 10.55$ $10.55 + 20$ (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 $10.15 + 1\text{h } 55 = 12.10$ Yes	M1M1A0



<b>11(a)</b>	<b>Alternative method 2 – Pictogram</b>																	
	Correct frequencies in table 4-6 = 6 and 7-9 = 3 or correct number of their icon on pictogram for 4-6 and 7-9	B2	condone lack of tallies B1 4-6 = 6 or 7-9 = 3 or correct number of their icon on pictogram for 4-6 or 7-9  or their two missing frequencies total 9 in table or on diagram															
	Chooses pictogram	B1																
	Suitable key with icon and scale	B1	a suitable key is one that can be split for their values															
	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															
	<b>Additional Guidance</b>																	
	Correct table		B2															
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Number of visits</th> <th style="text-align: center;">Tally</th> <th style="text-align: center;">Frequency</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 – 3</td> <td style="text-align: center;">### IIII</td> <td style="text-align: center;">9</td> </tr> <tr> <td style="text-align: center;">4 – 6</td> <td style="text-align: center;">### I</td> <td style="text-align: center;">6</td> </tr> <tr> <td style="text-align: center;">7 – 9</td> <td style="text-align: center;">III</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">10 – 12</td> <td style="text-align: center;">II</td> <td style="text-align: center;">2</td> </tr> </tbody> </table>			Number of visits	Tally	Frequency	1 – 3	### IIII	9	4 – 6	### I	6	7 – 9	III	3	10 – 12	II	2
	Number of visits	Tally		Frequency														
	1 – 3	### IIII		9														
4 – 6	### I	6																
7 – 9	III	3																
10 – 12	II	2																
If no table completed, values in diagram must be correct																		
For bar charts allow bars labelled 1-3 or drawn from 1 to 3																		
If the points are plotted with crosses and joined then all marks except the B1 for suitable diagram can be accessed. Gaps between the crosses must be equal and the crosses must be at the correct point for their labelling eg if using a linear scale then the cross for 1-3 must be at 2																		

Q	Answer	Mark	Comments
<b>11(b)</b>	<b>Alternative method 1</b>		
	$19.95 + 10.5(0) + 4.3(0) + 48$ 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 40.49 × 2 or 80.98 or their 82.75 – their 40.49 or 42.26	M1	their 82.75 or their 40.49 must be from addition of the four relevant prices allow rounding
	82.75 and 80.98 and Yes or 40.49 and 41.(3...) and Yes or 40.49 and 42.26 and Yes	A1	
	<b>Alternative method 2</b>		
	$19.95 + 10.5(0) + 4.3(0) + 48$ 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 or 0.49 and Yes	A1	

Mark scheme continues on the next page

<b>11(b) cont'd</b>	<b>Alternative method 3</b>		
	19.95 ÷ 2 or 9.97(5) or 9.98 and 10.50 ÷ 2 or 5.25 and 4.30 ÷ 2 or 2.15 and 48 ÷ 2 or 24	M1	
	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	
	40.49 and 41.(3...) and Yes	A1	
	<b>Alternative method 4</b>		
	8.5(0) × 2 or 17 and 6.99 × 2 or 13.98 and 2.5(0) × 2 or 5(.00) and 22.5(0) × 2 or 45	M1	
	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**

<b>11(b) cont'd</b>	<b>Alternative method 5</b>		
	19.95 – 8.5(0) or 11.45 and 10.5(0) – 6.99 or 3.51 and 4.3(0) – 2.5(0) or 1.8(0) and 48 – 22.5(0) or 25.5(0)	M1	
	their 11.45 + their 3.51 + their 1.8(0) + their 25.5(0) or 42.26	M1dep	
	8.5(0) + 6.99 + 2.5(0) + 22.5(0) or 40.49 or (19.95 + 10.5(0) + 4.3(0) + 48) ÷ 2 or 41.(3...)	M1	
	40.49 and 42.26 and Yes or 41.(3...) and 42.26 and Yes	A1	
	<b>Additional Guidance</b>		
	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
12(a)	$0.1 \times 32\,549$ or $3254.9(0)$	M1	oe
	$48 \times 638$ or $30\,624$	M1	
	their $30\,624 +$ their $3254.9(0)$ or $33\,878.9(0)$	M1dep	dep on M2
	their $33\,878.9(0) - 32\,549$ or $1329.9$	M1	their $33\,878.9(0) > 32\,549$
	$1329.90$	A1	correct money notation
	<b>Additional Guidance</b>		
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 315	
	$52.5(0) \times$ their $(4 + 2)$ or $52.5(0) \times$ their 6 or 315	M1	oe multiplication done before adding 794.85 may be implied by their answer	
	$1109.85$	A1	SC1 $5084.1(0)$	
	<b>Additional Guidance</b>			
	$794.85 + 52.50 \times 6$ 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 $794.85 + 105$			M1M1A0
Award first M1 even if not used				



Q	Answer	Mark	Comments
12(c)	<b>Alternative method 1</b>		
	$28 \times 2 \div 3.2$ or 17.5	M2	M1 $28 \times 2$ or 56 or $28 \div 3.2$ or 8.75
	$80 \div 4$ 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
	<b>Alternative method 2</b>		
	$28 \times 2 \div 3.2 \times 4$ or 70	M3	M2 $28 \times 2 \div 3.2$ or 17.5 or $28 \div 3.2 \times 4$ or 35  M1 $28 \times 2$ or 56 or $28 \div 3.2$ or 8.75
	70 and Yes	A1	

**Mark scheme and Additional Guidance continue on the next page**

<b>12(c) cont'd</b>	<b>Alternative method 3</b>		
	$28 \times 2$ or 56	M1	oe
	$80 \times 3.2 \div 4$ or 64	M2	M1 $80 \times 3.2$ or 256 or $80 \div 4$ or 20 oe
	56 and 64 and Yes or 56 and 8 miles left/spare or 64 and 8 miles left/spare	A1	oe
	<b>Alternative method 4</b>		
	$(80 \div 4) \div 2 \times 3.2$ or 32	M3	oe M2 $(80 \div 4) \div 2$ or 10 or $(80 \div 4) \times 3.2$ or 64  M1 $80 \div 4$ or 20
	32 and Yes	A1	
	<b>Alternative method 5</b>		
	$28 \div 3.2$ or 8.75	M1	
	$(80 \div 4) \div 2$ or 10	M2	M1 $80 \div 4$ or 20
	8.75 and 10 and Yes	A1	
	<b>Additional Guidance</b>		
	<p>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</p>		