

Mark Scheme (Results)

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Pearson Edexcel Functional Skills
Mathematics Level 2 (FSM02)

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Guidance for Marking Functional Mathematics Papers

General

- All candidates must receive the same treatment. You must mark the first candidate in exactly the same way as you mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- All the marks on the mark scheme are designed to be awarded. You should always award full marks if deserved, i.e. if the answer matches the mark scheme. You should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

Applying the Mark Scheme

- The mark scheme has a column for **Process** and a column for **Evidence**. In most questions the majority of marks are awarded for the process the candidate uses to reach an answer. The evidence column shows the most likely examples you will see: if the candidate gives different evidence for the process, you should award the mark(s).
- **Finding 'the answer'**: in written papers, the demand (question) box should always be checked as candidates often write their 'final' answer or decision there. Some questions require the candidate to give a clear statement of the answer or make a decision, in addition to working. These are always clear in the mark scheme.
- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.
- If there is a **choice of methods** shown, then mark the working leading to the answer given in the answer box or working box. If there is no definitive answer then marks should be awarded for the 'lowest' scoring method shown.
- A suspected **misread** may still gain process marks.
- It may be appropriate to **ignore subsequent work** (isw) when the candidate's additional work does not change the meaning of their answer. You are less likely to see instances of this in functional mathematics.
- You will often see correct working followed by an incorrect decision, showing that the candidate can calculate but does not understand the demand of the functional question. The mark scheme will make clear how to mark these questions.
- **Transcription** errors occur when the candidate presents a correct answer in working, and writes it incorrectly on the answer line; mark the better answer.
- **Follow through marks** must only be awarded when explicitly allowed in the mark scheme. Where the process uses the candidate's answer from a previous step, this is clearly shown. Speech marks are used to show that previously incorrect numerical work is being followed through, for example '**240**' means **their** 240.
- Marks can usually be awarded where **units** are not shown. Where units, including money, are required this will be stated explicitly. For example, 5(m) or (£)256.4 indicates that the units do not have to be stated for the mark to be awarded.
- **Correct money notation** indicates that the answer, in money, must have correct notation to gain the mark. This means that money should be shown as £ or p, with the decimal point correct and 2 decimal places if appropriate.

e.g. if the question working led to £12÷5,

Mark as correct: £2.40 240p £2.40p 2.40E

Mark as incorrect: £2.4 2.40p £240p 2.4 2.40 240

- Candidates may present their answers or working in many **equivalent** ways. This is denoted **o.e.** in the mark scheme. Repeated addition for multiplication and repeated subtraction for division are common alternative approaches. The mark scheme will specify the minimum required to award these marks.
- A **range** of answers is often allowed :
 - [12.5,105] is the inclusive closed interval
 - (12.5,105) is the exclusive open interval
- **Parts of questions:** because most FS questions are unstructured and open, you should be prepared to award marks for answers seen in later parts of a question, even if not explicit in the expected part.
- Discuss any queries with your Team Leader.

- **Graphs**

The mark schemes for most graph questions have this structure:

Process		Evidence
Appropriate graph or chart – (e.g. bar, stick, line graph)	1 or	1 of: linear scale(s), labels, plotting (2mm tolerance)
	2 or	2 of: linear scale(s), labels, plotting (2mm tolerance)
	3	all of: linear scale(s), labels, plotting (2mm tolerance)

The mark scheme will explain what is appropriate for the data being plotted.

A **linear scale** must be linear **in the range where data is plotted**, whether or not it is broken, whether or not 0 is shown, whether or not the scale is shown as broken. Thus a graph that is 'fit for purpose' in that the **data is displayed clearly and values can be**

read, will gain credit.

The minimum requirements for **labels** will be given, but you should give credit if a title is given which makes the label obvious.

Plotting must be correct for the candidate's scale. Award the mark for plotting if you can read the values clearly, even if the

scale itself is not linear.

The mark schemes for **Data Collection Sheets** refer to **input opportunities** and to **efficient input opportunities**. When a candidate gives an input opportunity, it is likely to be an empty cell in a table, it may be an instruction to 'circle your choice', or it may require writing in the data in words. These become efficient, for example, if there is a well-structured 2-way table, or the input is a tick or a tally rather than a written list.

Section A: Catering business

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R1	Process to begin to work with percentage	1 or	A	$14.7(0) \times 0.65 (= 9.555)$ oe OR $100 - 65 (=35)$ oe Allow 15 for 14.7
	A4	Full process to find new price	2 or	AB	$14.7(0) - '9.5(55)' (=5.145)$ OR $14.7(0) \times '0.35' (=5.145)$ oe Allow 9.6 for '9.555'
	I6	Correct answer with correct money notation	3	ABC	£5.14 or £5.15 (with correct money notation)
	A5	Valid check	1	D	Reverse process or alternative method or estimation
Q1(b)	R2	Starts to work with proportion	1 or	E	e.g. $200 \div 8 (=25 \text{ g per person})$ OR $8 \div 200 (=0.04 \text{ people per g})$ OR $200 \div 150 (=1.33... \text{ bars per 8 people})$ OR $50 \div 8 (=6.25)$
	R3	Develops process to work with proportion	2 or	EF	e.g. $'25' \times 50 (=1250 \text{ g})$ OR $50 \div '0.04' (=1250 \text{ g})$ OR $'6.25' \times 200 (=1250 \text{ g})$ OR $200 \div 150 (=1.33... \text{ bars per 8 people})$ AND $50 \div 8 (=6.25)$ Allow build up method leading to 50 people
	A4	Full process to find number of bars	3	EFG	$'1250' \div 150 (=8.33... \text{ bars})$ OR $'1.3(3...)' \times '6.25' (= [8.125, 8.34])$
	I7	Correct answer from correct process only	1	H	9 (bars)
Total marks for question			8		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	A5	Starts to evaluate order form	1 or	J	1 of: Does not show <ul style="list-style-type: none"> • total number of each item to prepare • total cost for each customer • total cost for the day Accept any other relevant improvement to the form
	I7	Continues to evaluate order form	2	JK	2 of: Does not show <ul style="list-style-type: none"> • total number of each item to prepare • total cost for each customer • total cost for the day Accept any 2 relevant and functional improvements to the form (do not accept formatting improvements)
Total marks for question			2		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R2	Process to convert kg to pounds or to find cooking time per kg	1 or	L	$3.5 \times 2.2 (=7.7)$ OR $25 \times 2.2(=55)$
	A4	Full process to find total cooking time	2 or	LM	'7.7' $\times 25 + 20(= 212.5)$ OR '55' $\times 3.5 + 20(=212.5)$ Allow 8 for '7.7'
	I6	Accurate answer with correct units	3	LMN	[212, 213] min(utes) NB isw OR 3 h(ours) and 32 min(utes) OR 3 h(ours) and 33 min(utes) OR 3 h(ours) and 30 min(utes) oe supported by calculations
Q3(b)	R1	Works with dimensions or volumes	1	P	$33 \div 6.5 (=5.07\dots)$ oe OR $36 \div 18 (=2)$ oe OR $70 \div 22 (=3.18\dots)$ oe OR $36 \div 22 (=1.63\dots)$ oe OR $70 \div 18 (=3.8\dots)$ oe OR 2 of: 5, 2 or 3 indicated on diagram OR 5, 1 and 3 indicated on diagram OR $33 \times 36 \times 70 (=83160)$ OR $6.5 \times 18 \times 22 (=2574)$ OR Finds 3 factors of 24 e.g. 4 and 2 and 3 or 2 and 2 and 6
	A4	Full process to find the total number of boxes that can be placed correctly into the crate.	2	PQ	'5' \times '2' \times '3' (=30) OR '5' \times '1' \times '3' (=15) OR Tests factors of 24 against all dimensions (may be seen on the diagram)
	I7	Correct conclusion with accurate figures	3	PQR	No and 30 (boxes) or No and $5 \times 2 \times 3 \neq 24$ oe
Total marks for question			6		

Section B: Cruise holiday

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R2	Process to work with fraction	1	A	$4 \div 5 \times 1615 (=1292)$ oe OR $4 \div 5 \times 2 \times 1615 (=2584)$ oe Condone process to find 4/5 of cabin(s) May be seen in subsequent working
	R3	Process to find total cost of one deluxe and one inside cabin or begins to work with percentages	1 or	B	e.g. $2 \times '1292' + 2 \times 1029 (=4642)$ oe OR $0.12 \times '1292' (=155.04)$ oe OR $0.12 \times 1029 (=123.48)$ oe OR $0.12 \times 1615 (=193.8)$ oe
	A4	Process to find total of Omar's option	2	BC	e.g. $1.12 \times '4642' (=5199.04)$ oe OR $('155.04' + '123.48') \times 2 + 2 \times ('1292' + 1029) (=5199.04)$ OR $1.12 \times 2 \times '1292' + 1.12 \times 2 \times 1029 (=5199.04)$ oe Condone process to find 112% of their total cabin cost
	I6	Process to find figures to compare	1 or	D	$'5199.04' - 3000 (=2199.04)$ $'5199.04' - 2000 (=3199.04)$
	I7	Correct conclusion with accurate figures	2	DE	Yes and (£)2199.04 OR Yes and (£)3199.04 OR Yes and (£)199.04 (more)
Q4(b)	R1	Begins to interpret one constraint	1 or	F	J(uly) and 18(%) OR O(ctober) and 23(°C) OR S(eptember) AND 26(°C) or 39(%)
	I6	Correct answer with accurate figures	2	FG	S(eptember) AND 26(°C) and 39(%)
Total marks for question			7		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	A4	Changes to consistent currencies	1 or	H	$66 \times 1.29 (=85.14)$ OR $75 \div 1.29 (=58.13..)$
	I7	Correct decision with accurate figure	2	HJ	C(ruise ship)/S(hip) and (£)58(.13) OR C(ruise ship)/S(hip) and (€)85(.14)
Total marks for question			2		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(a)	R2	Process to calculate distance	1 or	K	$6.5 \div 60 (=0.1083..)$ OR $6.5 \times 40(=260)$ OR $40 \div 60(=2/3)$ oe
	A4	Full process to calculate distance	2 or	KL	$6.5 \times 40 \div 60 (=4.33...)$ oe
	I6	Correct answer with accurate figures	3	KLM	4.3(3...) (miles)
	A5	Valid check	1	N	Reverse process or alternative method
Q6(b)	R2	Uses consistent units of time	1	P	e.g. $3 \times 60 + 14(=194)$ OR $14 + 42 + 59 + 5 + 35 (=155)$ and $'155' \div 60 (=2 \text{ min } 35 \text{ sec})$ OR $'2.4' \times 60 (=144)$ May be seen in subsequent working
	A4	Full process to find mean time	1 or	Q	e.g. $(3 + 2 + 2 + 3 + 2) \div 5(=2.4)$ oe AND $(14 + 42 + 59 + 5 + 35) \div 5(=31)$ OR $'2.4' \times 60 + '31'(=175)$ OR $194 + 162 + 179 + 185 + 155(=875)$ (secs) AND $'875' \div 5 (=175)$ (secs) oe OR $3 + 2 + 2 + 3 + 2 (=12)$ (mins) AND $14 + 42 + 59 + 5 + 35 (=155)$ (secs) and $'12' + '2.583..'$ $(=14.583..)$ and $'14.583..' \div 5 (=2.916..)$ (mins) Allow full process with time shown as decimals
	I7	Correct answer with accurate figures	2	QR	2 m(ins) 55 s(ece) oe OR 175 (secs) OR [2.9, 2.92] (mins)
Total marks for question			7		

Section C: Gardening

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	A4	Uses consistent units	1	A	e.g. '46208' \div 1000 (=46.208) OR 20 \times 1000 (=20000) May be seen in subsequent working
	R1	Begins to use formula or reverse calculation	1 or	B	e.g. 38 \times 38 (=1444) OR 0.8 \times 38 (=30.4) OR 0.8 \times 40 (=32) OR 38 \times 40 (=1520) OR '20000' \times 2 \div 0.8 (=50000) OR '20000' \times 2 \div 38 (=1052.63...) OR '20000' \times 2 \div 40 (=1000)
	R3	Completes process to use formula or reverse calculation	2 or	BC	e.g. 0.8 \times 38 \times 38 \times 40 (=46208) oe OR '20000' \times 2 \div 0.8 \div 38 \div 38 (=34.62...) OR '20000' \times 2 \div 0.8 \div 40 (=1250) AND $\sqrt{1250}$ (=35.35...) OR '20000' \times 2 \div 38 \div 38 \div 40 (=0.69...)
	I7	Correct decision with accurate figures	3	BCD	No and 40 (litres) and 46.(208) (litres) or 40000 (cm ³) and 46208 (cm ³) OR No and need 6.2 (litres) more OR No and (2 bags fill to) height of [34.6, 35] (cm) OR No and (2 bags fill to) diameter [35, 35.4] (cm) OR No and (2 bags correct with) multiplier [0.69, 0.7] oe
	A5	Valid check	1	E	Reverse process or alternative method

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(b)	A4	Process to find probability	1 or	F	$\frac{5}{1000}$ OR 0.005 OR 0.5%
	I6	Correct answer with accurate figures	2	FG	$\frac{1}{200}$
Total marks for question			7		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	I6	Starts to engage with scale drawing	1 or	H	Line of length 12.5 cm drawn (± 2 mm) OR Line of length 4.5 cm drawn (± 2 mm) OR Correct scale diagram drawn using different scale to the one given OR 12.5 and 4.5 given as side lengths
	R3	Complete process to draw scale diagram	2	HJ	Fully correct diagram
	A4	Measures slope length	1 or	K	Ft. correct measurement from their diagram (± 3 mm)
	I6	Correct answer	2	KL	[130,136] cm oe
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	R2	Finds missing measurement	1	M	$3 - 1.7 (=1.3)$ OR $4.5 - 2 (=2.5)$
	A4	Process to find a relevant area	1 or	N	$4.5 \times 3 (=13.5)$ OR $3 \times 2 (=6)$ OR $1.7 \times 4.5 (=7.65)$ OR $'2.5' \times 1.7 (=4.25)$ OR $'1.3' \times 2 (=2.6)$ or $3 \times 2 (=6)$ OR $'1.3' \times '2.5' (=3.25)$
	A4	Complete process to find area or amount of gravel for one relevant area	2 or	NP	e.g. $4.5 \times 3 - '2.5' \times '1.3' (=10.25)$ OR $1.7 \times '2.5' + 2 \times 3 (=10.25)$ OR $1.7 \times 4.5 + '1.3' \times 2 (=10.25)$ OR e.g. $'4.25' \times 34 (=144.5)$
	R3	Process to find total amount of gravel required	3 or	NPQ	e.g. $'10.25' \times 34 (=348.5)$ oe
	I6	Accurate figure	4	NPQR	348.5 (kg)
Total marks for question			5		

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Welsh Assembly Government

