

Mark Scheme (Results)

May 2016

Pearson Edexcel Functional Skills
Mathematics Level 1 (FSM01)

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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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 $£12 \div 5$,
Mark as correct: £2.40 240p £2.40p, 2.40£
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 (2 mm tolerance)
	2 or	2 of: linear scale(s), labels, plotting (2 mm tolerance)
	3	all of: linear scale(s), labels, plotting (2 mm 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: Charity fun day

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R1	Starts to work with mean or median	1 or	A	$762 + 864 + 1012 + 968 (=3606)$ or 762, 864, 968, 1012
	A4	Process to find mean or median	2 or	AB	'3606' $\div 4 (=901.5)$ or '3606' and $900 \times 4 (=3600)$ or $(968 - 864) \div 2 (=52)$ added to 864 or subtracted from 968 or $(864 + 968) \div 2 (=916)$
	I6	Correct decision with accurate figures	3	ABC	No and (£)901.5(0) OR No and (£)916 OR No and (£)3606 and (£)3600
Q1(b)	R2	Starts to work with costs	1 or	D	$2 \times 2.5 (=5)$ or $2 \times 1.3 (=2.6)$ or $2.5 + 1.3 (=3.8)$ or $6 - 2.5 - 2.5 (=1)$ or $6 - 1.3 - 1.3 (=3.4)$ or $6 - 2.5 - 1.3 (=2.2)$
	A4	Full process to find figures to compare	2 or	DE	'5' + $2 \times 1.3 (=7.6)$ or $2 \times 2.5 + '2.6' (=7.6)$ or '3.8' $\times 2 (=7.6)$ OR $6 - 2.5 - 2.5 (=1)$ and $2 \times 1.3 (=2.6)$ OR $6 - 1.3 - 1.3 (=3.4)$ and $2 \times 2.5 (=5)$ OR $2.5 + 1.3 (=3.8)$ and $6 - 2.5 - 1.3 (=2.2)$
	I6	Correct conclusion with accurate figures	3	DEF	No and (£)1.6(0) No and a sentence comparing (£)7.6(0) to (£)6(.00)
	A5	Valid check	1	G	Reverse check of working or alternative method
Total marks for question			7		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R3	Process to work with perimeter or length of fencing required or available	1 or	H	40 + 30 + 40 + 30(=140) OR 40 + 30 + 40 + (30 - 2) (=138) OR 25 × 6(=150)
	A4	Process to find figures to compare	2 or	HJ	40 + 30 + 40 + 30(=140) and 25 × 6(=150) OR 40 + 30 + 40 + (30 - 2) (=138) and 25 × 6(=150) OR '138' ÷ 25(=5.52) OR '140' ÷ 25(=5.6) OR 150 - 40 - 40 - 30 - '28'(=12)
	I6	Correct conclusion, accurate figures	3	HJK	Yes and 138(m) and 150(m) OR Yes and 5.52 (rolls) OR Yes and 12 (m) (left)
Q2(b)	I6	Ticks correct box	1	L	Indicates even chance
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R1	Process to begin to find quantity of mince	1 or	M	$20 \div 4(=5)$ or $500 \div 4(=125)$ or $500 \times 20(=10000)$ or $0.5 \div 4(=0.125)$ or $0.5 \div 20(=10)$ or Uses a build up method e.g. 8(burgers) with 1000(g)
	A4	Full process to find weight of mince	2 or	MN	'5' \times 500(=2500) or '125' \times 20(=2500) or '10000' \div 4(=2500) or '0.125' \times 20(=2.5) or '10' \div 4(=2.5) or '5' \times 0.5(=2.5) or Full build up method
	I6	Correct answer with units needed	3	MNP	2500 g or 2.5 kg (units needed)
Q3(b)	R2	Works with ratio	1 or	Q	$30 \div 5(=6)$ OR Complete build up method OR $6 \times 5(=30)$
	I6	Correct answer	2	QR	6 (adults)
Total marks for question			5		

Section B: The Plumber

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R3	Starts to consider durations	1 or	A	Shows correct duration for any 2 jobs (finish time may be implied by next start time)
	A4	Considers all time durations	2	AB	Shows correct duration for all jobs (finish time may be implied by next start time)
	I6	Uses correct time slots for all jobs	1	C	All jobs shown at correct time of day (Indicated by start or finish time)
	A5	Considers travelling time or lunch time	1	D	Allows at least 20 minutes travelling time between at least 2 jobs OR Shows 1 hour for lunch
	I6	Fully correct, sequential, accurate time plan	1	E	Fully correct sequential time plan, starting at 8, ending by 5:30, all start times included with travel time and lunch included. Must include final finish time. Accept: Lunch travel time either before or after lunch, or before and after
Q4(b)	R2	Calculates using percentage	1 or	F	Correctly finds 10% and then doubles it OR $0.2 \times 110 (=22)$ oe OR (£)132 given as answer
	I6	Correct answer in correct money notation	2	FG	£22(.00) (correct money notation)
Total marks for question			7		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	R1	Process to find figures to compare	1 or	H	$7.45 \times 6(=44.7)$ OR $45.72 \div 6(=7.62)$
	I6	Correct decision with correct answer	2	HJ	Eg Offer 1 and (£)44.7(0) OR Offer 1 and (£)7.62
Q5(b)	R3	Uses consistent units	1	K	1(m) and 0.35(m) OR 100(cm) OR 350(mm) May be seen in calculations
	A4	Process to find length of pipe needed or number of pieces of pipe	1 or	L	$35 \times 3(=105)$ or $'350' \times 3(=1050)$ or $'0.35' \times 3(=1.05)$ OR $'100' \div 35(=2.85..)$ or $1000 \div '350'(=2.85..)$ or $'1' \div '0.35'(=2.85..)$ OR $'100' \div 3(=33...)$ or $1000 \div 3(=333...)$ or $'1' \div 3(=0.33...)$ OR $'100' - 35 - 35(=30)$
	I6	Correct conclusion with accurate figures	2	LM	No and 105 (cm) and 100 (cm) OR No and 1050 (mm) OR No and 1.05 (m) and 1 (m) OR No and 2.85..(pieces) OR No and 33(.3..) (cm) oe OR No and 30 (cm) (5cm short for last piece)
Total marks for question			5		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R2	Process to find weekly pay or hours	1 or	N	$10.65 \times 35(=372.75)$ or $72 \times 5(=360)$ or $35 \div 5(=7)$
	A4	Process to find figures to compare	2 or	NP	'372.75' and '360' or '7' $\times 10.65(=74.55)$
	I6	Correct decision, accurate figures	3	NPQ	Pete's job and (£)372.75 and (£)360 OR Pete's job and (£)74.55 OR Pete's job and (£)12.75 (more)
	A5	Valid check	1	R	Reverse calculation or alternative method
Total marks for question			4		

Section C: A new flat

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R1	Process to find area of a wall	1	A	$4 \times 3 (=12)$ OR $5 \times 3 (=15)$ OR $(5 + 5 + 4) \times 3 (=42)$ Accept counting squares (may be seen on diagram)
	R2	Process to find total area or total coverage of paint or coverage per wall	1 or	B	$'15' \times 2 + 4 \times 3 (=42)$ OR $3 \times 13 (=39)$ OR $'12' \div 13 (=0.92..)$ OR $'15' \div 13 (=1.15..)$ OR Candidates may consider individual walls with 1 tin of paint e.g. $13 - 12 (=1)(m^2)$
	A4	Process to find figures to compare	2	BC	$'15' \times 2 + 4 \times 3 (=42)$ and $3 \times 13 (=39)$ OR $'42' \div 13 (=3.2...)$ OR $('1.15..' + '1.15..') + '0.92..' (=3.2...)$ OR Candidates may show a full process combining individual walls
	I6	Valid decision from their correct figures	1	D	E.g. No and $42(m^2)$ and $39(m^2)$ OR No and 3.2...(tins) Ft. decision from their correct figures from an area only method
Q7(b)	R2	Starts to substitute in formula	1 or	E	$1800 \div 50 (=36)$ OR $11 \times 3 (=33)$
	A4	Completes substitution	2 or	EF	$'36' \div 3 (=12)$ OR $'33' \times 50 (=1650)$
	I6	Correct decision with accurate figures	3	EFG	No and 12 (rolls) OR No and 1650 (cm) OR No and 1 roll short
Total marks for question			7		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(a)	R1	Works with fraction	1 or	H	$348.99 \div 3 (=116.33)$ Allow $348.99 \times 0.33 (=115.16 \text{ to } 115.17)$
	A4	Correct answer	2	HJ	(£)116.33
Q8(b)	R1	Process to calculate total of monthly payment	1 or	K	$12 \times 25 (=300)$
	A4	Complete process	2 or	KL	'300' + 47(=347)
	I6	Accurate figures	3	KLM	(£)347
	A5	Valid check	1	N	Reverse calculation or estimation
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	R2	Starts to work with scale	1	P	Rectangle 4 squares by 2 squares OR Rectangle 4 squares by 1 square
	A4	Places bed and wardrobe correctly	1	Q	Bed in a corner of the room AND Wardrobe with the longest side against a wall
	I6	Correct functional solution	1	R	All of: Rectangle 4 squares by 2 squares Rectangle 4 squares by 1 square Bed in a corner of the room Wardrobe with the longest side against a wall Bed and wardrobe clear of door
Total marks for question			3		

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