

Mark Scheme (Results)

November 2013

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 marks should be awarded for the 'best' answer.
- 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 indicate 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
 - 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: Fencing

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1a	A4	Plots point on graph	1	A	Correctly plotted point (11,0.1)
Q1b	R1	Selects correct week	1	B	3
Q1c	I6	Correct explanation	1	C	E.g. Times are getting shorter Graph is going down
Total marks for question			3		
Q2	I6	Selects at least 2 teams of three different people	1 or	D	At least two of: NCA, NCB, CAB, NAB (ignore repeats)
	A5	Selects all possible combinations	2	DE	All of: NCA, NCB, CAB, NAB (no repeats)
Total marks for question			2		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3a	R2	Begins to work with time	1	F	1 correct time calculation e.g. 9 to 10:15
	I6	Begins to produce sequential time plan.	1	G	Sequential plan with at least 3 stages.
	A4	Calculates with time	1 or	H	Time plan with at least 1 round, semi-finals, finals and medals scheduled.
	A5	Complete checked sequential time plan.	2	HJ	All of: Round 1 at 9am finish 10:15 Round 2 at 10:30 finish 11:45 Semi-final at 12:00 finish 12:30 Finals 12:45 finish 13:30 Medals 13:45 finish 14:05 OR Round 1 at 9am finish 10:15 Round 2 at 10:15 finish 11:30 Semi-final at 11:45 finish 12:15 Finals 12:30 finish 13:15 Medals 13:30 finish 13:50
Total marks for question			3		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3b	R1	Constructs geometric diagram or uses ratio	1 or	K	Rectangle 7×1 squares OR 14×2 at least 1 square from any wall
	I6	Constructs rectangle correct size and position	2	KL	Correct rectangle 7×1 at least 1 square from any wall.
Total marks for question			6		
Q4	R1	Process to calculate entry fees or cost of equipment	1 or	M	$54 \times 12 (= 648)$ OR $5 \times 81 (= 405)$
	R3	Complete process for total costs or income	2 or	MN	$75 + '648' (= 723)$ OR $270 + '405' + 23 (= 698)$
	A4	Complete process for total costs and income	3 or	MNP	$75 + '648' (= 723)$ and $270 + '405' + 23 (= 698)$ OR '723' - 270 - '405' - '23'
	A4	Accurate figures to compare	4	MNPQ	(£)723 and (£)698 OR (£)25
	I6	Decision based on P awarded	1	R	e.g. Yes AND (£)723 and (£)698 OR Yes AND (£)25
Total marks for question			5		

Section B: The supermarket

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5a	A4	Calculates range	1	A	393
Q5b	R1	Begins to find the average	1 or	B	$683 + 588 + 602 + 794 + 935 + 981 + 754 (=5337)$ OR $750 \times 7 (=5250)$ OR 588, 602, 683, 754, 794, 981, 935
	A4	Complete process to find figures to compare.	2	BC	'5337' $\div 7 (=762.4\dots)$ OR $683+588+602+794+935+981+754 (=5337)$ and $750 \times 7 (=5250)$ OR 588, 602, 683, 754, 794, 981, 935 and 754 indicated
	I6	Correctly explained decision from correct figures.	1	D	Yes and 762 OR Yes and 5250 and 5337 OR Yes and 754
Q5c	R1	Begins data collection sheet	1 or	E	2 of: input opportunities, headings for type of people, headings for time.
	I6	Improves data collection sheet	2 or	EF	Input opportunities, headings men, women, morning, afternoon and evening. (may be a questionnaire)
	I6	Complete efficient data collection sheet	3	EFG	Efficient data collection sheet including input opportunities, headings men, women, morning, afternoon and evening.
Total marks for question			7		

Q6a	R3	Process to calculate percentage	1 or	H	$\frac{5}{100} \times 40(=2)$ oe OR Complete build up method (from £3 or 10% etc.) OR $\frac{3}{40} \times 100(=7.5)$ oe
	A4	Correct figures to compare	2	HJ	2 OR 7.5 OR 60
	I6	Correct decision ft. from their figures provided mark H awarded	1	K	E.g. No and 2 OR No and 7.5 OR No and 60 provided H awarded
Q6b	R2	Process to work out cost of salmon	1	L	$3 \times 4 (=12)$
	A4	Process to work out cost of trifles	1	M	$2.35 + 2.35(=4.7)$
	R2	Process to calculate total cost or begins to calculate change	1 or	N	'12' + '4.7(0)' + 1.4(0)(= 18.10) OR $20 - '12'$ or '4.7(0)' or 1.4(0)
	I6	Complete process to calculate change	2 or	NP	$20 - 18.1(0)(=1.90)$ OR $20 - '12' - '4.7(0)' - 1.4(0)(= 1.90)$
	I6	Finds correct change with correct money notation	3	NPQ	£1.90 correct money notation
	A5	Evidence of a check using a reverse calculation.	1	R	Check by reverse calculation or other method. e.g. $1.9 + 18.1$
Total marks for question			9		

Section C: The landscape gardener

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7 (a)	R3	Begins to substitute or reverse calculate	1 or	A	Calculates correctly with at least 2 of $50 \times 75 \div 1000 \times 120$ OR $480 \div 120$
	A4	Completes full process	2 or	AB	$50 \times 75 \div 1000 \times 120 (=450)$ OR $480 \div 120 \times 1000 \div 75 (= 53.3)$ OR $480 \div 120 \times 1000 \div 75 \div 50 (=1.066..)$
	I6	Correct decision with correct amount	3	ABC	No and (£)450 OR No and enough for $53.3(m^2)$ OR No and would pay for 1.06... times the area needed
Q7 (b)	R2	Begins to work with mats.	1 or	D	Draws 1 mat – which connects with the given mat without a gap (see examples below) OR fits 2 mats together
	R3	Process to position mats	2 or	DE	3 additional mats drawn with no gaps or overlaps
	I6	Process to position 4 mats	3	DEF	4 more mats fitted together without gaps or overlaps with original (this need not be a tessellation)
Total marks for question			6		
Q8(a)	A4	Uses consistent units	1	G	E.g. 0.1, 3000, 5000, 16000
	R1	Process to find perimeter or blocks along one side	1 or	H	$5+3+5+3(=16)$ OR $5000 \div 100 (+1 \text{ or } 2 \text{ or } -2)(=50 \text{ or } 51 \text{ or } 52 \text{ or } 48)$ oe OR $3000 \div 100 (+1 \text{ or } 2 \text{ or } -2)(=30 \text{ or } 31 \text{ or } 32 \text{ or } 28)$ oe
	A4	Process to find total number of blocks.	2 or	HJ	$'16' \times 1000 \div 100 (=160)$ OR $'50' + '30' + '50' + '30'$ (=160 or 164 or 156 or 152)
	I6	Correct total number of blocks	3	HJK	164 Allow 160 or 156

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(b)	R2	Process to find cost fence panels	1 or	L	$15 \times 42 (=630)$
	I6	Finds correct cost GP	2	LM	(£)630
Q8(c)	R2	Identifies quantity required	1	N	Use 1 pack and 5 singles OR 2 packs OR 15 singles
	R3	Finds cost without sale or works with fraction	1	P	$5 \times 86 + 800 (=1230)$ OR $\frac{1}{2} \times 800 (=400)$ OR $\frac{1}{2} \times 86 (=43)$
	A4	Process to find cheapest total cost	2 or	PQ	$\frac{1}{2} \times '1230' (=615)$ OR $'400' + 5 \times '43' (=615)$
	I6	Valid decision from accurate figure for BF and ft. from their figure from GP	3	PQR	BF and (£)615 and (£) '630'
Total marks for question			10		

