

Mark Scheme (Results)

November 2011

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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	1 of
	or	linear scale(s), labels, plotting (2mm tolerance)
	2	2 of
	or	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: Theme Park

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1 a	R1	Starts to design a data collection sheet	1 or	A	Two of input opportunities times listed for at least 2 one hour slots times heading types of drink heading at least 3 drinks listed (tea, coffee, cola, lemonade, orange juice, mineral water)
	R2	Develops a data collection sheet	2 or	AB	Two of clear input opportunities times listed for at least 3 one hour slots at least 4 drinks listed
	I	Presents efficient solution	3	ABC	all of efficient input opportunities – a questionnaire or bar chart is not efficient times listed - 4 correct one hour slots, ignore extras all 6 drinks listed
Q1 b	R2	Starts to work with ratio	1 or	D	$250 \times 20 (=5000)$ OR $1 + 20 = 21$ OR repeated addition of 250 OR repeated ratio e.g. 1:20, 2:40 etc.
	A1	Applies ratio	2 or	DE	'5000' + 250 (=5250) OR $5500 \div 21(=261.9\dots)$ OR 250:5000 OR $21 \times 250 (=5250)$ OR [261,262]
	I	Correct decision	3	DEF	No and 5250 or [261,262]
Q1 c	I	Likelihood given	1	G	Impossible OR 0 OR 0% oe. Do not allow unlikely.
Total marks for question			7		

Section A: Theme Park

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R3	Appropriate graph or chart would be bar chart, line graph, pie chart, pictogram	1 or	H	One of linear scale, labels (time or pm and number of people), plotting
	A1	Three features	2 or	HJ	Two of linear scale, labels, plotting
	I		3	HJK	Three of linear scale, labels, plotting
Total marks for question			3		
Q3 a	I	Interprets question	1	L	Identifies 2 adult and 2 children $2 \times 38.6 (= 77.2)$ OR $2 \times 25.4 (= 50.8)$ OR $3 \times 25.4 (=76.2)$ OR $104.6 \div 4 (=26.15)$ '77.2' + '50.8' (= 128) OR 26.15 OR $38.6 + '76.2' (=114.8)$ 128 OR 114.80 OR Compares 26.15 with both 38.60 and 25.40 Correct decision ft from their answers
	R2	Starts to work with whole group	1 or	M	
	A1	Finds costs	2 or	MN	
	A1	Obtains costs to compare	3	MNP	
	I	Decision based on correct working (mark M scored)	1	Q	
Q3 b	A2	Converts units	1	R	1.38 m or 140 cm or 2 cm or 0.02 m Units required.
Total marks for question			6		

Section B: Music Festival

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4 a	R1	Selects information from table	1	A	Selects a train that arrives in London before 11:00 (may be highlighted on the timetable) 09:51, 10:19 or 10:49
	I	Reads train timetable	1	B	Chooses the correct departure time for their train from Andover (08:35, 09:04, 09:38) or ft their train
	A1	Calculates with time	1	C	Gives correct time to leave home for their train (08:15, 08:44, 09:18, 09.44, 10.18) consistent with time for B
Q4 b	R1	Calculates with time	1 or	D	Starts to work with time, hours or minutes, subtracting or counting up
	A1	Completes calculation	2	DE	Calculates a correct train journey time for any train journey 1 hour 16 min OR 76 min OR 1 hour 15 min OR 75 min OR 1 hour 11 min OR 71 min OR 1 hour 35 min OR 95 min OR 1 hour 31 min OR 91 min
Total marks for question			5		

Section B: Music Festival

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	I	Selects information	1 or	F	One of 3 correct acts OR 1 correct act with correct time and location OR Eat with friends at 8 pm
	R2	Develops solution	2 or	FG	3 correct acts with correct times or correct locations OR Eat with friends at 8 pm and 3 correct acts OR Eat with friends at 8 pm and 2 correct acts with correct times and correct locations
	R2	Improves solution	3 or	FGH	3 correct acts with correct times and correct locations OR Eat with friends at 8 pm and 3 correct acts with correct times or locations
	I	Completes solution	4	FGHJ	All of 3 correct acts with 3 correct times and 3 correct locations Eat with friends at 8 pm Sequential order No additional acts
Total marks for question			4		
Q6 a	R3	Uses proportion	1 or	K	$1.20 + 1.20 (=2.4)$ OR $2.30 \div 2 (=1.15)$
	I	Makes a valid comparison	2	KL	Correct comparison, 1 litre is cheaper AND 2.4 or 1.15 or 10p or £0.10
Q6 b		Process to calculate cost	1 or	M	$6 \times 4 + 2.79 + 2.79 (=29.58)$ OR $5 \times 4 + 2.79 + 2.79 (=25.58)$
		Process to find differences	2 or	MN	$40 - '29.58' (=10.42)$ OR $40 - '25.58' (=14.42)$
		Calculates change	3	MNP	(£)10.42 OR (£) 14.42
Q6 c		Works with money received	1 or	Q	$5.00 \times 5 (=25.00)$ OR $'29.58' \div 6 (=4.93)$ oe
		Decision with reason	2	QR	Decision and supporting figures justifying decision
Total marks for question			7		

Section C: Home Improvements

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7 a		Selects information	1	A	Crema or Romano
Q7 b		Uses consistent units	1	B	Converts between cm and m or mm Attempts division of 3 m by 30 cm or 20 cm by any method including drawing OR $3 \times 3 (=9)$ OR $30 \times 30 (=900)$ OR $20 \times 20 (=400)$ or $'10' \times '10' (=100)$ OR $'90000' \div '900' (=100)$ OR $90000 \div '400' (=225)$ 'number of tiles' (= 100 or 225) \times consistent price
		Works with tiles in one dimension or calculates an area	1 or	C	
		Process to calculate number of tiles	2	CD	
		Process to find cost from a calculation to find number of tiles	1 or	E	
		Correct answer	2	EF	(£)200 OR (£)250 OR (£)382.50
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8		Works with dimensions	1 or	G	Draws rectangle with one of
		Draws to scale	2 or	GH	Correct length, correct width, in a corner Draws rectangle with two of
		Correctly present solution	3	GHJ	Correct length, correct width, in a corner Draws correct rectangle in a corner
Total marks for question			3		
Q9 a		Finds area	1 or 2	K KL	3 × 4 or indication of square counting 12 (m ²)
Q9 b		Starts to substitute in formula	1 or	M	'12' × 2.5 (=30) or '12' × 10 (=120) or 2.5 × 10 (=25)
		Completes substitution	2 or	MN	'12' × 2.5 × 10 (=300)
		Calculates solution	3	MNP	300 ft from their area only
Q9 c		Interprets data with solution from (b)	1 or	Q	Fan correct for their airflow
		Selects to meet criteria	2	QR	Name or cost of cheapest fan for answer to (b) (standard fan or (£)82.56)
Total marks for question			7		

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