Mark Scheme (Results)

October 2011

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

Question		Process	Mark	Mark Grid	Evidence
Q1(a)		Process to find total from average	1 or	A	85 × 120
		Correct total weight	2	AB	10200 (kg) ISW
Q1(b)		Starts to process calculation	1 or	C	Divide by 3 or multiplies by 60 E.g. 60 ÷ 3 (=20) OR 392 × 60 (=23520) OR 392 ÷ 3 (=130.6666…)
		Full process	2or	CD	Divide by 3 and multiplies by 60 E.g. '20' × 392 (=7840) OR '23520' ÷ 3 (=7840) OR '130.666…' × 60 (=7840)
		Completes calculation	3	CDE	[7800 , 7860]
Total marks for question 1			**5**		
Q2		Begins to consider constraints	1 or	F	Some of every aid item in number column with at least one below max.
		Improves consideration of constraints	2	FG	Some of every aid item in number column ALL numbers less than or equal to available items with at least one below max. **AND** at least one weight correctly calculated
		Begins to complete load sheet	1	H	At least 3 total weights calculated correctly
		Improves solution	1	J	Evidence of totalling or repeated subtraction on loading sheet or WB.
		Completes sheet	1 or	K	Their total is correct.
		Finds correct solution	2	KL	Their total weight figure is correct **AND** within the range 18000 – 19500 (kg)
Total marks for question 2			**6**		

Q3(a)	R1	Substitutes into formula or rearranges formula	1 or	M	$600 = 2700 \div$ time **OR** $T = D \div S$
	A1	Process to calculate time	2 or	MN	$2700 \div 600 \ (=4.5)$
	A1	Finds correct time	3	MNP	4.5 (hrs) or 4 hours 30 minutes
Q3(b)	R1	Process to find probability	1 or	Q	$20 \div (20 + 10\ + 20 + 40 + 10) \ (= \dfrac{20}{100})$ o.e
	A1	Correct probability found	2	QR	20% or 20/100 or 1/5 o.e but not ratio
Total marks for question 3			**5**		

Section B: Selling online

Question		Process	Mark	Mark Grid	Evidence
Q4(a)		Correct graph to display figures	1 or	A	1 of linear scale, plotting (shop and online) labels (£, costs or sales and title vertically, dates, shop and online horizontal)
			2 or	AB	2 of linear scale, plotting (shop and online) labels (£, costs or sales and title vertically, dates, shop and online horizontal)
			3	ABC	3 of linear scale, plotting (shop, online) labels (£, costs or sales and title vertically, dates, shop and online horizontal)
Q4(b)		Makes one simple statement	1 or	D	Statement of two figures that will enable comparison or simple statements e.g. Online sales are increasing, Shop sales are fluctuating, Shop sales are bigger than online sales, Total sales are increasing
		Makes two simple statements	2	DE	A second comparison is made
Total marks for question 4			**5**		

Q5		Identifies cost of advert	1	F	£1 **OR** 0.49 (maximum advert cost of 50p) change minimum price to less than £40
		Uses percentage	1 or	G	"45" × 0.12 (=5.4) **OR** "45" × 0.11 (=4.95) **OR** 1% difference
		Considers cost of selling	2	GH	'5.4' + 0.49 (= 5.89) **OR** '4.95' + 1 (= 5.95) **OR** 45 × 0.01 (=0.45) **OR** 49p+12% of 45 **OR** £1+11% of £45
		Makes valid decision from correct figures	1	J	Chooses fixed price (Option 1) **AND** 5.89 and 5.95 **OR** Chooses fixed price (Option 1) **AND** 45p and 51p **OR** Chooses fixed price (Option 1) **AND** 39.11 and 39.05 **OR** Chooses auction (Option 2) and states reduced minimum price **AND** 45p or 39.11 and 40.05 – 'advert price'
		Total marks for question 5	**4**		
Q6(a)		Works with dimensions	1 or	K	Multiplies any dimension by 4 (4 or 76 or 56 seen)
		Fully correct solution	2	KL	Indicates 19, 14, 4 **OR** 19, 28, 2 **OR** 38, 14, 2 **OR** 38, 28, 1 **OR** 76, 14, 1 **OR** 19, 56, 1
Q6(b)		Draws net of cuboid with or without lid	1 or	M	Net with 5 or 6 faces
			2	MN	Net with 5 or 6 faces **AND** sufficient dimensions to show joining edges are equal lengths.
Q6(c)		Works with consistent units	1	P	Converts units to mm 165 × 210 × 20 **OR** table units to cm
		Works with weight	1 or	Q	States postage as £1.09 or 92p or £1.96 or £1.72 OR States 2nd class large letter or 58p or 92p or £1.23 or £1.76
		Finds correct solution	2	QR	States postage is 92p
		Total marks for question 6	**7**		

Section C: The Cookery Competition

Question		Process	Mark	Mark Grid	Evidence
Q7(a)		Converts quantities to grammes or ounces or uses ratio	1 or	A	$\times\, 28$ or $\times\, \dfrac{30}{12}$ or $250 \div 28$ (=8.92oz or =8.93oz)
		Converts quantities to grammes and uses ratio	2 or	AB	$\times\, 2.5$ and $\times\, 28$ or $4 \times \dfrac{30}{12}$ (=10) and $250 \div 28$(=8.92oz or 8.93oz)
		Finds correct weight of butter	3	ABC	280g or 8.92oz (or 8.93oz)
		Compares with 250g	1 or	D	Compares '280g' with 250g or '8.92'oz(or '8.93'oz) with 10oz
		Decision	2	DE	Decision there is insufficient with '280'g compared to 250g or 8.92oz or 8.93oz with 10oz
Q7(b)		Starts to work with formula	1 or	F	$350 - 32$ (=318) **OR** 200×9 (=1800) **OR** 1800=5f-160
		Full substitution	2 or	FG	$5 \times \text{'}318\text{'} \div 9$ (=176.666...) **OR** '1800' $\div 5$ (=360) **OR** $1960 \div 5$(=392)
		Decision from correct figures only	3	FGH	No with [175, 180] **OR** No with 360 or 392
		Total marks for question 7	**8**		

Q8		Uses time constraints	1	J	Chooses Vegetable Lasagne or Paella and pudding other than treacle pud.
		Works with time	1or	K	Gives a correct start and end time for preparation of 1 dish (allow 1pm start implied)
		Begins to develop time table	2or	KL	Gives a correct start and end time for preparation of both dishes (allow 1pm start implied)
		Presents efficient timetable within constraints.	3	KLM	Gives a clear schedule for preparation and cooking of 2 courses within the time constraints, both by 14:30 Allow ft from 1 error in Prep times
		Total marks for question 8	**4**		

Question		Process	Mark	Mark Grid	Evidence
Q9(a)		Interprets the points system for time	1	N	2 of: −18, −10, −6, 0
		Calculates total points	1	P	2 of: 14 ,9 ,3 , −8
		Completes table correctly	1	Q	Fully correct table time points: 0, −6 , −10, −18 Total points 14 ,9 ,3 , −8
Q9(b)		Works out correct positions from their points	1	R	Yasmin, Tim, Rikka, Ali, Harry
		Total marks for question 9	**4**		

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