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Mark Scheme (Results)

July 2015

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 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,
  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	1 or	1 of:

– (e.g. bar, stick, line graph)		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: Fitness centre

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1	A4	Full process to find 5% or membership cost with given saving	1 or	A	475 × 0.05 (=23.75) oe **OR** 20 × 25 (=500) Allow 475 × 0.95 = 451.25 oe for A only
	I6	Correct decision with supporting figures	2	AB	No **AND** (£)23.75 No **AND** (£)500
Total marks for question			**2**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R1	Starts to substitute in formula or reverse substitute	1 or	C	350 × 64 (=22400) **OR** 64 ÷ 300 (=0.213…) **OR** 75 × 300 (=22500)
	A4	Completes full substitution	2	CD	350 × 64 ÷ 300 (=74.66…) **OR** 75 × 300 ÷ 64 (=351.5625)
	I6	Correct answer	1	E	[74.6, 74.7] **OR** [351.5, 351.6]

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(b)	R2	Works with consistent units	1 or	F	3000 m **OR** 0.5 km May be seen in subsequent calculations
	R3	Process to find number of 500 m cycled	2 or	FG	3000 ÷ 500 (=6) **OR** Build-up method at least 2 stages seen **OR** 3 ÷ 0.5 (=6)
	A4	Process to find calories burned on Friday or calories needed to be burned by cycling 500 m	3	FGH	18 × '6' (=108) **OR** complete build-up method **OR** 100 ÷ '6' (=16.6…)
	I6	Valid decision with accurate figures	1	J	Yes **AND** 108 (calories) **OR** Yes **AND** (only need to burn) 16.(66…) (calories) per 500 m
Total marks for question			**7**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R1	Full process to find cost at gym shop	1	K	2 × 9.95 + 3.5 (=23.4)
	R2	Process to half water bottle cost	1 or	L	½ × 3.5 (=1.75) oe
	A4	Full process to find cost at local shop	2	LM	½ × 3.5 + 21 (=22.75)
	I6	Correct decision with accurate figures	1	N	Local shop **AND** (£)23.4(0) **AND** (£)22.75

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(b)	R1	Starts to work with time.	1 or	P	45 + 20 + 15 + 30 + 20 oe (=130 mins **or** 2 hrs 10 mins) **OR** subtracts at least 2 times from 8 pm **OR** adds at least 2 times to 5:30 pm **OR** 8 (pm) – 5:30 (pm) oe (=2 hrs 30 mins **or** 150 mins)
	A4	Full process to find elapsed time and time available or start time or finish time	2 or	PQ	45 + 20 + 15 + 30 + 20 (=130 mins **or** 2 hrs 10 mins) **AND** 8 (pm) – 5:30 (pm) (150 mins **or** 2 hrs 30 mins) **OR** 5.30 + 45 + 20 + 15 + 30 + 20 (=7:40 pm) **OR** 8:00 – (45 + 20 + 15 + 30 + 20) (=5:50 pm)
	I6	Valid decision with accurate figures	3	PQR	Yes **AND** 130 (mins) **AND** 150 (mins) oe **OR** Yes **AND** (she will be at her friend's by) 7:40 (pm) oe **OR** Yes **AND** (could arrive at the fitness centre at) 5:50 (pm) oe **OR** Yes **AND** 2 hrs 10 mins **AND** 2 hrs 30mins **OR** Yes **AND** 20 (mins) (left)
		Total marks for question	**7**		

Section B: Raising money for charity

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4	R2	Starts to solve problem	1 or	A	40.6 + 81.7 + 32.5(= 154.8) **OR** 8 × 5.70 (=45.6)
	R3	Develops solution	2 or	AB	200 – 154.8 (=45.2) (money needed) **OR** 40.6 + 81.7 + 32.5(= 154.8) **and** 8 × 5.70 (=45.6) **OR** 200 – (8 × 5.70) (=154.4)
	A4	Full process to find figures to compare	3 or	ABC	'45.6' + '154.8' (=200.40) (money raised) **OR** 40.6 + 81.7 + 32.5 + (8 × 5.70) (=200.40) oe **OR** '45.2' ÷ 5.70 (=7.9…) **OR** complete build up or repeated subtraction **OR** '45.2' ÷ 8 (=5.65) **OR** 200 – '154.8'(=45.6)
	I6	Correct conclusion with accurate figures	4	ABCD	Yes **AND** (£) 200.40 (total raised) **OR** Yes **AND** 7.9… (laps) **OR** Yes **AND** (£) 5.65 (per lap) **OR** Yes **AND** (£45.2(0) **and** (£)45.6(0)

	A5	Valid check	1	E	Reverse check of any part of calculation **OR** valid alternative method **OR** estimation
Total marks for question			**5**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	A4	Full process to calculate mean average	1 or	F	(39 + 179 + 72 + 51 + 122) ÷ 5 (=92.6)
	I6	Accurate answer	2	FG	92.6 **OR** 92 **OR** 93
Q5(b)	R1	Interprets problem	1 or	H	Input opportunities and at least 2 of: Salmon or pate **or** starter heading, Lamb or risotto **or** main heading, Cheese or pavlova **or** dessert heading, Opportunities for at least 4 people/tables **or** person heading **OR** questionnaire **or** form for one person covering 2 categories
	I6	Improves solution	2 or	HJ	Input opportunities for at least 4 people/tables and at least 2 of: Salmon or pate **OR** starter heading, Lamb or risotto **OR** mains heading, Cheese or pavlova **OR** dessert heading **OR** questionnaire **or** form for one person covering all categories

	I6	Completes solution	3	HJK	Efficient input opportunities for 8 people and all of: Salmon or pate Lamb or risotto Cheese or pavlova
Q5(c)	R1	Works with one kind of table	1 or	L	15 × 8 (=120) **OR** 3 × 12 (=36) **OR** 126 ÷ 12 (=10.5) **OR** 126 ÷ 8 (=15.75) **OR** repeated addition or subtraction of at least 3 times
	A4	Works with both kinds of table	2 or	LM	e.g. (126 – 12) ÷ 8 (=14.25) **OR** (126 – '36') ÷ 8 (=11.25) **OR** (12 × any number ≤ 3) + (8 × any number ≤ 15) must attempt to coordinate both types of table
	I6	Correct answer	3	LMN	15 circular, 1 rectangular **OR** 13 circular, 2 rectangular **OR** 12 circular, 3 rectangular
Total marks for question			**8**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R1	Interprets problem	1 or	P	375 ÷ 16 (=23.43…) **OR** 16 × 2 (=32) **OR** 375 + (2 × 16) (=407) **OR** 25 × 16 (=400) **OR** 25 – 2 (=23)
	A4	Full process	2 or	PQ	'23.43' + 2 (=25.43) **OR** '407' ÷ 16 (=25.43…) **OR** 375 + '32' (=407) **AND** 25 × 16 (=400) **OR** '23' × 16 (=368)
	I6	Valid decision with accurate figures	3	PQR	No **AND** (£) [25.43, 25.44] **OR** No **AND** (£) 407 **AND** (£) 400 **OR** No **AND** (£)368
Total marks for question			**3**		

Section C: Car sales

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R1	Starts to access information from graph	1 or	A	At least 3 of: 78, 52, 86, 55, 70, 66 allow ±1
	A4	Accesses information from graph	2	AB	All of: 78, 52, 86, 55, 70, 66 allow ±1
	R3	Works with figures from graph	1 or	C	78 + 52 + 86(=216) **OR** 55 + 70 + 66(=191) **OR** 78 – 55(=23) **OR** 52 – 70(= −18) **OR** 86 – 66(=20) oe Allow ±1 If differences are found directly from graph, award marks A and B as appropriate.
	A4	Process to find difference in totals	2 or	CD	'216' – '191'(=25) **OR** '23' + '−18' + '20'(=25) Calculations may be in thousands
	I6	Correct figure	3	CDE	(£)25000 **or** 25 thousand
Total marks for question			**5**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	A4	Works with speed and distance	1 or	F	125 ÷ 50 (=2.5) **OR** 50 + 50 + 25 = 125
	I6	Accurate answer	2	FG	2.5 hours oe units must be given accept 2 h 30 m oe
Total marks for question			**2**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9(a)	R2	Works out number of days or considers standing charge	1	H	Calculations using 5 weekdays and 4 weekend days seen **OR** adds 60 to day hire cost for 9 days
	R3	Process to calculate part of digger hire cost	1 or	J	'5' x 42 (=210) **OR** '4' x 55 (=220) **OR** 2(55 + 55) (=220)
	A4	Full process to find digger hire cost	2 or	JK	'210' + '220' + 60 (=490)
	I6	Accurate answer	3	JKL	(£) 490
Q9(b)	A4	Begins to use scale	1 or	M	Space clearly shown with 2 of: 1 square from the office, 3 squares from hedges, 2 squares from customer parking
	I6	Interprets information for correct placing of cars for sales	2	N	Space clearly identified with all of: 1 square from the office, 3 squares from hedges, 2 squares from customer parking
Q9(c)	R2	Works with perimeter and cost	1 or	P	70 + 55 + 70 + 55 (= 250) **OR** 10 000 ÷ 45 (222.22…) **OR** (70 + 55) × 45 (=5625)
	A4	Full process to find	2 or	PQ	'250' × 45 (=11 250) **OR**

		figures to compare			70 + 55 + 70 + 55 (= 250) **AND** 10 000 ÷ 45 (222.22…) **OR** '222.22…' – 70 – 55 – 70 – 55 (= –27.77…)
	I6	Correct decision and accurate figures	3	PQR	No **AND** (£) 11 250 **OR** No **AND** 250 (m) **AND** [222, 223](m) **OR** No **AND** [27, 28] (m) (short)
Total marks for question			**9**		

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