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Mark Scheme (Results)

October 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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 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÷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 Appropriate graph or chart – (e.g. bar, stick, line graph)	1 or	**Evidence** 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: Cars

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1a	R3	Works with ratio	1 or	A	5 × 125 (= 625)
	I6	Finds amount of water required with units	2	AB	625 ml **OR** 0.625 litres
Q1b	R2	Starts to work with time	1 or	C	Adds all durations (= 5h 55 min or 355 min) **OR** 5h 55 min (award mark for incorrect notation e.g. 5.55) **OR** subtracts any two durations from 1:30pm **OR** Completes one trial and error from a start time e.g. 7:30 + 5:00 + 0:45 + 0:10 = 13:25
	A4	Full process to calculate start time	2 or	CD	1:30 pm – '5 hrs 55 min' **OR** subtracts all three durations from 1:30 pm (=7:35)
	I6	Finds valid start time.	3	CDE	7:35 am o.e.
Total marks for question			**5**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2a	R1	Works with saving per week or cost for 4 weeks	1 or	F	72 ÷ 3(=24) **OR** 100 ÷ 4 (= 25)**OR** 72 × 4(=288)
	A4	Full process to find figures to compare	2 or	FG	'24' × 4 (=96) **OR** 100 ÷ 24(=4.1..)**OR** 72 ÷ 3(=24) **and** 100 ÷ 4 (= 25)**OR** '288' ÷ 3(=96) **OR** '25'×3(=75)
	I6	Accurate figures with justification	3	FGH	E.g. No **and** (£)96 **OR** No **and**(£)24 **and**(£)25**OR** No **and** (he needs to spend) (£)75 **OR** Nearly **but** he needs 4.1 weeks
	A5	Valid check	1	J	Check by reverse calculation, alternative method or estimation.
Q2b	R2	Begins to substitute in word equation or to work with costs	1 or	K	36 × 200(=7200) **OR** 8000 − 1400(=6600)
	A4	Full process to find figures to compare	2 or	KL	1400 + '7200'(=8600) **OR** 6600 ÷ 200 (=33) monthly payments needed **OR** 6600 ÷ 36(=183.33) monthly payments needed **OR** 36 × 200(=7200) **AND** 8000 − 1400(=6600)

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
	I6	Negative decision from accurate figures	3	M	No **and** (£)8600 **OR** The cash price is cheaper by (£)600 **OR** No **and** 33 payments of (£)200 needed **OR** No **and** monthly payments would be (£)183.33 No **and** (£) 7200 **AND** (£) 6600
Total marks for question			**7**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	R1	Reads data from graph	1	N	At least 3 of: 124 .7, 129.4, 128.5, 123.4, 121.9 (allow ± 0.1 for all)
	R3	Starts to find the mean	1 or	P	'124 .7' + '129.4' + '128.5' + '123.4' +'121.9' (= [627.4, 628.4]) **OR** 1.87 −2.83 − 1.93 + 3.17 + 4.67 (= 4.95)
	A4	Process to find mean or differences	2 or	PQ	'[627.4, 628.4]' ÷5(= [125.48, 125.68]) **OR** '4.95' ÷ 5 (=0.99)
	I6	Comment with accurate figures	3	PQR	E.g. Local garages are cheaper **or** mean price lower **and** [125.48, 125.68](p) **OR** Local garages cheaper by 0.99 (p)
Total marks for question			**4**		

Section B: Hillside Players

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4a	I6	Starts to work with constraints	1 or	A	Exactly 3 correct dates each in a different week **OR** 4 correct dates but some may be in the same week
	A5	4 rehearsal dates selected within constraints.	2	AB	October 2nd **AND** October 13th **or** 16th **AND** October 20th **or** 23rd **AND** October 27th **or** 30th
Q4b	R2	Process to find cost for 1 day or budget available for 1 day	1 or	C	37 + 32(=69) **OR** 37 × 6 (=222) **OR** 32 × 6 (=192) **OR** 450 ÷ 6(=75)
	A4	Full process to find figures to compare	2 or	CD	'69'×6 (=414) **OR** 450 ÷6(=75) **OR** '222' + '192'(=414) **OR** 37 + 32(=69) **AND** 450 ÷ 6(=75)
	I6	Affirmative decision with accurate figures	3	CDE	Yes **and** (£)414 **OR** She has enough **and** (£)36 under **OR** Yes **and** (it) cost(s) (£)69 per day (£)75 available
	A5	Valid check	1	F	Check by reverse calculation, approximation or alternative method.
Total marks for question			**6**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5a	R1	Uses consistent units	1	G	7000(mm) **or** 0.5(m) **OR** 700 (cm) **and** 50 (cm)
	A4	Process to calculate the number of seats in 1 row **OR** begins to find number of seats needed	1 or	H	'7000' ÷ 500 (=14) o.e. **OR** 250 ÷ 16(=15.6...) **OR** 500 × 250 (=125 000)
	R3	Full process to calculate figures to compare	2 or	HJ	'14' × 16(=224)**OR** '7000' ÷ 500 (=14) **and** 250 ÷ 16 (=15.6...) **OR** 250 ÷ 14(=17.87) **OR** '125000' ÷ 16 (=7812.5)
	I6	Correct decision with accurate figures	3	HJK	No **and** 224 (seats) **OR** No **and** 14 chairs in a row need 15.6 **OR** No **and** needs 17.8... (rows) OR No **and** 7812.5 (mm) (needed and only) 7000 (mm) (available) Award G if K given
Q5b	A4	Process to work with fraction	1	L	6 ÷ 2(=3)
	I6	Process to find number of child tickets	1	M	1160 – 290 (=870)
	R2	Process to find money from child or adult tickets	1 or	N	290 × 6(=1740) **OR** '870' × '3'(=2610)
	A4	Process to find money from child and adult tickets	2 or	NP	290 × 6(=1740) **and** '870' × '3'(=2610)

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
	R1	Process to find total money made	3 or	NPQ	'1740' + '2610'(=4350)
	I6	Correct answer with correct money notation	4	NPQR	£4350 (correct money notation)
Total marks for question			**10**		

Section C: New bathroom

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R1	Process to calculates total cost for one bathroom range	1 or	A	323.45 + 184 + 267.95 (=775.40)**OR** 202 + 253.63 + 242.57 (=698.20)**OR** 243.78 + 247.52 + 227 (= 718.30)
	A4	Process to find prices to compare	2	AB	323.45 + 184 + 267.95 (=775.40) **and** 202 + 253.63 + 242.57 (=698.20) **and** 243.78 + 247.52 + 227 (=718.30) Allow errors in unit pence figure
	I6	Correct answer with accurate figures and to 2 d.p.	1	C	(£)698.20 – 2 d.p. required
	A5	Valid check	1	D	Check by reverse calculation, alternative method or estimation.
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7a	R2	Process to calculate the number of tiles needed in 1 dimension or works with area	1 or	E	240 ÷ 60(= 4) **OR** 240 ÷ 30 (= 8) **OR** 300 ÷ 60 (= 5) **OR** 300 ÷ 30 (= 10) **OR** 240 × 300(=72000) **OR** 60 × 30 (= 1800)
	A4	Process to calculate the number of tiles needed in both dimensions or process to calculate both areas	2 or	EF	240 ÷ 60 (= 4) **and** 300 ÷ 30 (= 10) **OR** 240 ÷ 30 (= 8) **and** 300 ÷ 60 (= 5) **OR** 240 × 300(=72000) **and** 60 × 30 (= 1800)
	A4	Process to calculate the number of tiles needed to cover the wall	3	EFG	'4'× '10' (=40) **OR** '8'× '5'(=40) **OR** 72000 ÷ 1800 (=40) oe **OR** 1800 × 6 (=10800)
	I6	Finds correct number of tiles needed	1	H	40 (tiles) **OR** 10800 (cm^2 in a box)
	R3	Process to find number of boxes	1 or	J	'40' ÷ 6 (=6.6....) **OR** 72000 ÷ 10800 (=6.6....)
	I6	Finds number of boxes from their working provided E and F awarded	2	JK	7 (boxes) ft their answer provided marks E and F are awarded

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7b	R2	Begins to substitute into formula	1 or	L	32 × 11 ÷ 10 (= 35.2) **OR** 40 × 10 ÷ 11 (=36.3...)
	I6	Correct decision with explanation	2	LM	e.g No **and** 35.2 **or** 36 (tiles) No **and** 36.3… (tiles estimated)
Total marks for question			**8**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R3	Works with dimensions or position of toilet	1 or	N	Rectangle with 2 of: Correct length (2), correct width (5), In a corner **OR** Rectangle in a corner with sides in correct ratio
	I6	Positions toilet	2	NP	Rectangle with length 2 squares, width 5 squares and in a corner
	A4	Begins to position basin	1 or	Q	Square with correct side (3) **OR** Square with sides >1 against a wall
	I6	Fully correct solution for basin	2	QR	Square (3 by 3) against a wall and not blocking the door Allow missing or incorrect labels
Total marks for question			**4**		

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