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Mark Scheme (Results)

February 2018

Functional Skills Mathematics Level 1

FSM01

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Guidance for Marking Functional Skills Maths 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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 his or her answer.
- You will often see correct working followed by an incorrect decision, showing that the candidate can calculate but does not understand the functional demand of the 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 in a written paper); mark the better answer.
- **Incorrect method** if it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.
- **Follow through marks (ft)** 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.

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- 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 **oe** 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
- **Parts of questions:** because most FS questions are unstructured and open, you should be prepared to award marks for answers seen in other parts of a question, even if not explicit in the expected part. E.g. checks in on earlier answer box.
- **Graphs**
  The mark schemes for most graph questions have this structure:

Process	Mark	Evidence
Appropriate graph or chart – (e.g. bar, stick, line graph)	1 or	1 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	2 or	2 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	3	all of: linear scale(s), labels, accurate 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,** and use consistent intervals. The scale may not start at 0 and not all intervals must be labelled. Thus a graph that is 'fit for purpose' is one where 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. Candidate's scale must be in numerical order. Award the mark for plotting if you can read the values, even if the scale is not linear.
The mark schemes for **Data Collection and/ or summary Sheets** refer to **input opportunities** and to **efficient input opportunities.**

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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.

Discuss any queries with your Team Leader.

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Section A: Cafe

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R2	Starts to work with ratio	1 or	A	244 ÷ (3+1) (=61) **OR** 200 ÷ 3 (=66.66…) **OR** 3 ÷ (3+1) (= 0.75) **or** 200 ÷ 244 (=0.819…)
	A4	Full process to find figures to compare	2 or	AB	'61' × 3 (=183) **OR** 244 – '61' (=183) **OR** 244 ÷ (3+1) (=61) **and** 200 ÷ 3 (=66.66…) **OR** '66.66' × (3+1) (= 266.66..) **OR** 3 ÷ (3+1) (= 0.75) **and** 200 ÷ 244 (=0.819…) **OR** 200 + '61' (=261) **OR** (244 – 200) × 3 (=132) oe
	I6	Correct conclusion with accurate figures	3	ABC	No **AND** 183 (cups of coffee) **OR** No **AND** 61 **and** 66(.6..) **or** 67 (cups of tea) **OR** No **AND** 266 (.66…) (in total) **OR** No **AND** 0.8(19672) **and** 0.75 **OR** No **AND** 261(in total) **OR** No **AND** 132 (cups of coffee)
	A5	Valid check	1	D	Valid check e.g. alternative method or reverse calculation

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(b)	R1	Process to begin to find total cost	1	E	e.g. uses 2.25, 1.75, 1.95, 2.55 in a calculation **OR** 3 × 2.55 (=7.65) **OR** 2 × 2.25 (=4.5)
	A4	Process to find total cost	1 or	F	2 × '2.25' + '1.75' + '1.95' + 3 × '2.55' (=15.85) allow one price error
	I6	Correct answer with correct money notation	2	FG	£15.85
Q1(c)	I6	Indicates likelihood	1	H	Indicates unlikely
		Total marks for question	**8**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R2	Starts to find total number of people or begins to work with mean	1 or	J	55 + 75 + 72 + 19 + 71 + 125 (=417) **OR** 65 × 6 (=390)
	A4	Full process to find mean or find figures to compare	2 or	JK	55 + 75 + 72 + 19 + 71 + 125 (=417) **and** 65 × 6 (=390) **OR** '417' ÷ 6 (=69.5)
	I6	Valid conclusion with accurate figures	3	JKL	Yes **AND** 69.5 **OR** Yes **AND** 417 **and** 390
Q2(b)	R1	Find number of boxes or starts process to find cost per cup for offer 2	1 or	M	4000 ÷ 1000 (=4) OR 4 × 39 (=156)
	I6	Finds cost for offer 2	2	MN	(4 – 1) × 39 (=117) oe NB 0.029 implies MN mark
	R3	Starts to find number of boxes or cost of multiple boxes or cost per cup for offer 1	1 or	P	4000 ÷ 500 (=8) OR Begins build up method to 2000 cups / (£)60 OR 15 ÷ 500 (=0.03) '8' × 15 (= 120) OR
	A4	Finds cost for offer 1 or figures to compare	2	PQ	Full build up method for the total cost OR 15 ÷ 500 (=0.03) and '117' ÷ 4000 (=0.029..)
	I6	Valid conclusion with accurate figures	1	R	Offer 2 AND (£)117 and (£)120 OR Offer 2 AND (£)0.029 and (£)0.03 oe If mark R is awarded, award all other marks.
Total marks for question			**8**		

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Section B: A meal

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R2	Starts to work with ratio	1 or	A	12 ÷ 4 (=3) **OR** 4 + 4 + 4 (=12) **OR** 2500 ÷ 750 (=3.3…) **OR** 750 ÷ 4 (=187.5) **OR** 2500 ÷ 12 (=208.3..)
	A4	Full process to find figures to compare	2 or	AB	e.g. '3' × 750 (=2250) oe **OR** '3.3' × 4 (=13.3…) **OR** 12 ÷ 4 (=3) **and** 2500 ÷ 750 (=3.3…) **OR** '187.5' × 12 (=2250) **OR** 750 ÷ 4 (=187.5) **and** 2500 ÷ 12 (=208.3..)
	I6	Valid conclusion with accurate figure	3	ABC	Yes **AND** 2250(g) **or** 2.25(kg) **OR** Yes **AND** 13(.3..) **OR** Yes **AND** 3 **and** 3.33 **OR** Yes **AND** 187(.5)(g) **and** 208(.3..)(g) oe **OR** Yes **AND** 250(g) (left) May work in g or kg throughout
	A5	Valid check	1	D	Valid check e.g. alternative method or reverse calculation

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(b)	R3	Starts to work with time	1 or	E	adds at least 3 times e.g. 10 + 5 + 25 (=40) (mins) **OR** 6 – 4:30 (=1hr 30 mins) oe **OR** subtracts at least 2 cooking times from 6pm **OR** adds at least 2 cooking times to 4:30pm
	A4	Full process to find figures to compare in consistent units	2 or	EF	10 + 5 + 25 + 40 (=80) oe **and** 6 – 4:30 (=90) oe **OR** 4:30 + (10 + 5 + 25 + 40) (= 5:50) (pm) **OR** 6 – (10 + 5 + 25 + 40) (= 4:40) (pm)
	I6	Valid decision with accurate figures	3	EFG	e.g. Yes **AND** 80 (minutes) **and** 90 (minutes) oe **OR** Yes **AND** 5:50 (pm) **OR** Yes **AND** 4:40 (pm) **OR** Yes **AND** 10 (minutes to spare) Must come from full process No **AND** 10 **(**minutes) early
Total marks for question			**7**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R1	Uses consistent units	1	H	e.g. 2000 or 1000 or 1500 or 0.75 or 0.33 May be seen in subsequent working
	R2	Begins to work with capacity	1 or	J	'2000' + '1000' + '1500' + 750 (=5250) oe **OR** 330 × 24 (=7920) oe **OR** at least 3 of '2000' ÷ 24 (=83.33..) **or** '1000' ÷ 24 (=41.66..) **or** '1500' ÷ 24 (=62.5) **or** 750 ÷ 24 (=31.25) oe
	A4	Full process to find figures to compare	2 or	JK	'2000' + '1000' + '1500' + 750 (=5250) oe **and** 330 × 24 (=7920) **OR** '5250' ÷ 330 (=15.9…) oe **OR** '5250' ÷ 24 (= 218.75) oe **OR** '83.33..' + '41.66..' + '62.5' + '31.25' (=218.75) oe
	I6	Valid conclusion with accurate figures	3	JKL	No **AND** 5250 (ml) **and** 7920 (ml) oe **OR** No **AND** 15(.9..) **or** 16 (glasses) **OR** No **AND** 218 (.75) (ml) oe May work in ml or l throughout
Q4(b)	I6	Process to arrange tables with 1 edge touching	1 or	M	2 rectangles drawn with one edge of each rectangle touching
	I6	Process to arrange tables in a suitable arrangement	2	MN	2 rectangles drawn with one edge of each rectangle touching that can seat at least 12 people
		Total marks for question	**6**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	R1	Begins to work with formula	1 or	P	44.6 + 15.4 (=60) Allow 44.6 ÷ 40 (=1.115) **or** 15.4 ÷ 40 (=0.385) for this mark only
	A4	Full process to work with formula	2 or	PQ	'60' ÷ 40 (=1.5) oe
	I6	Accurate figure	3	PQR	1.5 (hours) oe
Total marks for question			**3**		

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Section C: Garden design

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(a)	R2	Starts to work with correct lengths for correct region of the diagram	1 or	A	Identifies 4 (m) **and** 6 (m) May be seen on the diagram
	I6	Process to find area	2	AB	4 × 6 (=24) May be seen by counting squares
	R1	Starts to find litres or coverage of 1 tin or number of tins	1 or	C	'24' ÷ 3 (=8) **OR** 3 × 2 (=6) **OR** 65 ÷ 15.99 (=4.06..) oe Allow 4 or 4.06.. for CDE marks
	A4	Complete process to find number of tins or coverage per tin purchased	2 or	CD	'8' ÷ 2 (=4) **OR** '24' ÷ 6 (=4) **OR** '4.06..' × 2 (=8.12..) **OR** '4.06..' × 3 (=12.18..)
	A4	Full process to find figures to compare	3 or	CDE	'4' × 15.99 (=63.96) **OR** '8.12..' × 3 (=24.36..) **OR** '12.18..' × 2 (=24.36..) accept '4' × 16 (=64) from correct working
	I6	Valid conclusion with accurate figures (allow comparison)	4	CDEF	e.g. Yes **AND** (£)63.96 **OR** Yes **AND** (£)64 **OR** Yes **AND** 24 (m^2) **or** 24 (m^2) both from full supporting work

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(b)	R2	Starts to work with perimeter **or** finds missing length	1 or	G	e.g. 25 – 4 – 5 (=16) **OR** 25 + 6 + 25 + 6 (=62)
	A4	Full process to find the required perimeter	2 or	GH	'16' + '16' + 6 + 6 (=44) **OR** '62' – 5 – 5 – 4 – 4 (=44)
	I6	Correct answer with correct units	3	GHJ	44 m
	A5	Valid check	1	K	Valid check e.g. alternative method **or** reverse calculation
Total marks for question			**10**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R3	Works with percentage or total number of seeds	1 or	L	50 ÷ 100 × 60 (=30) **oe OR** 3 × 50 (=150)
	A4	Works with percentage and total number of seeds or works with total number of seeds and seeds in a row	2 or	LM	'30' × 3 (=90) **OR** '30' ÷ 15 (=2) **OR** '150' ÷ 100 × 60 (=90) **OR** '150' ÷ 15 (=10)
	A4	Full process to find number of rows	3 or	LMN	'90' ÷ 15 (=6) **OR** '2' × 3 (=6) **OR** '10' ÷ 100 × 60 (=6)
	I6	Correct answer	4	LMNP	6 (rows)
Q7(b)	R2	Process to find range	1 or	Q	7.01 – 2.9 (=4.11) **OR** Indicates 7.01 **and** 2.9
	I6	Correct answer	2	QR	4.11 (kg)
Total marks for question			**6**