

Mark Scheme (Results)

July 2018

Functional Skills Mathematics Level 1

FSM01

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FUNCTIONAL SKILLS (MATHEMATICS) MARK SCHEME – LEVEL 1 JULY 2018

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

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- **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 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**.

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: Ironing service

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	I6	Reads scale	1	A	4.5 (kg) oe
Q1(b)	R1	Full process to find 20%	1 or	B	$16 \div 100 \times 20 (=3.2)$ oe May be implied by 12.8(0)
	I6	Accurate figure with correct money notation	2	BC	£3.20
	A5	Valid check	1	D	Valid check, e.g. reverse calculation or alternative method
Q1(c)	R2	Process to find extra weight	1	E	$5.5 - 2.5 (=3)$
	A4	Begins to work with costs using 4.5 and/or 12	1 or	F	'3' \times 4.50 (=13.5) oe OR $12 + 4.50 (=16.5)$ OR $25 - 12 (=13)$ Condone 2×12 or 5×4.5
	A4	Full process to find figures to compare	2 or	FG	'13.5' + 12 (=25.5) OR $12 + 4.50 + 4.50 + 4.50 (=25.5)$ OR '3' \times 4.50 (=13.5) oe and $25 - 12 (=13)$ OR $25 - 12 - '13.5' (= - 0.5)$ oe
	I6	Valid decision and accurate figures	3	FGH	No AND (£)25.5(0) OR No AND (£)13.5(0) and (£)13 No AND (£)0.5(0) oe (under) NB If awarding FGH, award E
Total marks for question			8		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R3	Works with consistent units	1	J	e.g. 9500 or 0.19 or 3800 or 0.9
	A4	Process to find number of shirts	1 or	K	e.g. '9500' ÷ 190 (=50) oe OR '3800' ÷ 90 (=42.2..) oe OR 190 ÷ '9500' (=0.02)
	A4	Process to find figures to compare	2 or	KL	e.g. 38 ÷ '50' (=0.76) oe OR '50' × 90 (=4500) oe OR '9500' ÷ 190 (=50) oe and '3800' ÷ 90 (=42.2..) oe OR '42.2..' × 190 (=8022.2..) OR '9500' ÷ '42.2..' (=225) OR '0.02' × 38 (=0.76)
	I6	Valid decision with accurate figures	3	KLM	e.g. Yes AND (£)0.76 (and (£)0.9) OR Yes AND 50 and 42(.2..) (shirts) OR Yes AND (£)45 OR Yes AND 225(g) OR Yes AND 8022(.2..) (g) (and 9500(g))
Total marks for question			4		NB If awarding KLM, award J

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	R2	Begins to find a route	1 or	N	Finds a route starting or finishing at Roditch that goes past/through at least 2 of : Roditch, Flamden, Padley or Tipington (indicated by names, distances or on the diagram) or uses 9.6 in their total
	I6	Finds the distance for the shortest route	2	NP	23.3 (miles) OR R,T,F,R,P,R = 23.3(miles)
	A4	Full process to find the total distance for their route	1 or	Q	e.g. $9.6 + 2.2 + 3.5 + 7 + 2.4 (=24.7)$ OR $2.2 + 3.5 + 3.2 + 2.4 + 2.4 (=13.7)$ NB their route must include at least 3 distances
	I6	Accurate distance for their route	2	QR	e.g. $(9.6 + 2.2 + 3.5 + 7 + 2.4 =) 24.7$ (miles) OR $(2.2 + 3.5 + 3.2 + 2.4 + 2.4 =) 13.7$ (miles) NB their route must include at least 3 distances
Total marks for question			4		

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Section B: Football training

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R2	Begins process to find perimeter or calculates distance to be covered by each lap	1 or	A	e.g. $68 + 105 + 68 + 105 (=346)$ oe OR $1600 - 68 - 105 - 68 - 105 (=1254)$ oe OR $1600 \div 4 (=400)$ OR $(68 + 105) \times 4 (=692)$
	A4	Full process to find figures to compare	2 or	AB	e.g. $'346' \times 4 (=1384)$ oe OR $1600 \div '346' (=4.62..)$ oe OR $68 + 105 + 68 + 105 (=346)$ oe and $1600 \div 4 (=400)$ OR $1600 - 68 - 105 - 68 - 105 - 68 - \dots (=216)$
	I6	Valid decision with accurate figures	3	ABC	e.g. No AND 1384 (m) OR No AND 4.6(2..) (laps) OR No AND 346 (m) and 400 (m) OR No AND 216 (m left to run)
Q4(b)	R1	Begins to work with mean	1 or	D	$25.1 + 24.3 + 26.8 + 27.6 + 29.2 (= 133)$ OR $27 \times 5 (= 135)$
	A4	Full process to find mean or finds figures to compare	2 or	DE	$'133' \div 5 (=26.6)$ OR $25.1 + 24.3 + 26.8 + 27.6 + 29.2 (= 133)$ and $27 \times 5 (= 135)$
	I6	Valid decision with accurate figures	3	DEF	Yes AND 26.6 (seconds) oe OR Yes AND 133 (seconds) and 135 (seconds) oe
	A5	Valid check	1	G	Valid check, e.g. reverse calculation or alternative method or estimation

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(c)	R3	Begins to draw graph	1 or	H	One of Completes linear scale, labels, accurate plotting (2mm tolerance)
	I6	Develops graph	2 or	HJ	Two of Completes linear scale, labels, accurate plotting (2mm tolerance)
	I6	Fully correct suitable graph	3	HJK	All of: Completes linear scale, labels, accurate plotting (2mm tolerance) Minimum labels: time (seconds) (Test) A B C D E
Total marks for question			10		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	R2	Begins to use formula	1 or	L	192 × 15 (=2880) OR 54 × 50 (=2700)
	A4	Full process to find figures to compare	2 or	LM	'2880' ÷ 50 (=57.6) OR '2700' ÷ 15 (=180) OR 192 × 15 (=2880) and 54 × 50 (=2700)
	I6	Valid decision with accurate figure	3	LMN	e.g. Yes AND 57.6 OR Yes AND 180 (max bpm) OR Yes AND 2880 and 2700 OR Yes AND 3.6 (more)
Total marks for question			3		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R1	Begins to work with time	1 or	P	Adds at least 3 relevant times together e.g. $90 + 15 + 20$ OR subtracts at least 2 relevant times from 8:00 OR adds at least 2 relevant times to 5:30 OR $8:00 - 5:30 (= 2 \text{ hrs } 30 \text{ mins})$ oe
	A4	Full process to find elapsed time and time available or start time or finish time	2 or	PQ	$90 + 15 + 20 + 10 + 25 (= 160)$ and $8 - 5:30 (= 150)$ oe OR $5.30 + 90 + 15 + 20 + 10 + 25 (= 8:10)$ oe OR $8:00 - (90 + 15 + 20 + 10 + 25) (= 5:20)$ oe
	I6	Correct decision with accurate figures	3	PQR	No AND 160 (mins) and 150 (mins) oe OR No AND (he will get home by) 8:10 (pm) oe OR No AND (kick off needs to be) 5:20 (pm) oe OR No AND 10 (mins) (late)
Total marks for question			3		

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Section C: Treetop adventure park

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R1	Process to work with area	1	A	$4 \times 3 (= 12)$ OR evidence of counting squares
	A4	Begins process to work with proportion or finds total area	1 or	B	e.g. $'12' \div 2 (= 6)$ OR $9 \times 5 (= 45)$ OR $2 \times 5 (= 10)$ OR $'12' \times 8 (= 96)$
	R3	Develops solution	2 or	BC	e.g. $'6' \times 8 (= 48)$ OR $'45' \times 2 (= 90)$ or $'10' \times 9 (= 90)$ OR $'45' \div 8 (= 5.625)$ OR $'96' \div 2 (= 48)$ OR $'12' \times 8 (= 96)$ and $9 \times 5 (= 45)$
	A4	Full process to find figures to compare	3 or	BCD	e.g. $'96' \div 2 (= 48)$ and $9 \times 5 (= 45)$ OR $'6' \times 8 (= 48)$ and $9 \times 5 (= 45)$ OR $'12' \times 8 (= 96)$ and $'45' \times 2 (= 90)$ or $10' \times 9 (= 90)$ OR $'12' \div 2 (= 6)$ and $'45' \div 8 (= 5.625)$ OR $'48' \div 5 (= 9.6)$ oe OR $'96' \div '45' (= 2.13..)$
	I6	Valid decision with accurate figures	4	BCDE	e.g. No AND 48 (L needed) and 45 (L available) OR No AND 96 (m ² needed) and 90 (L available) OR No AND 6 (L per roof needed) and 5.625 (L available) No AND 9.6 (tins needed) OR No AND 2.1(3..) (m ² per L coverage needed)
Total marks for question			5		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(a)	R3	Works with constraints	1 or	F	2 of : a vertical line 11 cm or a point marked at 9 cm from the ground or a point marked at 4 cm from the ground or a horizontal line 12 cm
	A4	Develops solution	2 or	FG	2 vertical lines 11 cm high, 12 cm apart OR 2 vertical lines 11 cm high with 1 of: point marked at 9 cm or point marked at 4 cm OR 1 vertical line/ point 9 cm high and 1 vertical line/point 4 cm high, 12 cm apart
	I6	Accurately drawn diagram	3	FGH	Fully correct diagram connected by a diagonal line
Q8(b)	R1	Measures their diagonal line or begins to work with measures	1 or	J	e.g. 13 (± 2 mm) OR '13' + 6 (= 19) OR 20 – '13' (= 7) OR 20 – 6 (= 14) NB Do not accept 12 for '13' in the working
	I6	Valid decision with accurate figure	2	JK	Yes AND [18.8, 19.2](m) OR Yes AND [6.8, 7.2](m) OR Yes AND 14 and [12.8, 13.2] OR Yes AND [0.8, 1.2] (m left over)
Total marks for question			5		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9(a)	R2	Starts to complete tally chart	1 or	L	2 of : 4 tallies added TT 3 tallies added to SFT 2 tallies added to HON total 32 (TT) total 25(SFT) total 26 (HON)
	I6	Correct tally chart	2	LM	All totals correct
Q9(b)	R1	Begins to work with cost or fraction	1 or	N	e.g. $10 \times 12 (=120)$ OR $12 \div 5 (=2.4)$ OR $25 \div 10 (=2.5)$
	A4	Full process to find figures to compare	2 or	NP	e.g. ' 120 ' $\div 5 (=24)$ OR ' 2.4 ' $\times 10 (=24)$ OR $12 \div 5 (=2.4)$ and $25 \div 10 (=2.5)$
	I6	Valid decision with accurate figures	3	NPQ	e.g. No AND (£)24(.00) OR No AND (£)2.4(0) and (£)2.5(0)
	A5	Valid check	1	R	Valid check, e.g. reverse calculation or alternative method or estimation
Total marks for question			6		

Ofqual



Llywodraeth Cynulliad Cymru
Welsh Assembly Government



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