Mark Scheme (Results)

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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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 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 question**s: 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** **or**	1 of linear scale(s), labels, plotting (2mm tolerance)
	2 **or**	2 of linear scale(s), labels, plotting (2mm tolerance)
	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: Gym Viva

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R1	Process to find time difference	1 or	A	Attempts to find time difference **OR** Complete process to count on from 0630 to 1200 (=5.5) or from 1200 to 2200 (=10) **OR** 15.30
	A1	States correct time difference	2	AB	15 hours 30 mins **OR** 15.5 hours **OR** 15½ hours **OR** 930 mins units required
Q1(b)	R3	Process to calculate number of customers or staff ratio	1 or	C	15 × 5 (=75) **OR** 15 + 15 + 15 + 15 + 15 **OR** counting up in 15's(at least 4 shown) **OR** 70 ÷ 5(=14) **OR** 70÷15(=4.66)
	I	Valid decision from correct figures	2	CD	Yes **AND** 75 (customers) **OR** Yes **AND** 14 **OR** Yes **AND** 4.66..

Q1(c)	R1	Interprets problem	1 or	E	2 of: Input opportunities for area heading or at least 2 of: fitness centre, pool, weights area. customer heading or at least 2 of: men, women, children.
	I	Improves solution	2 or	EF	All of: Input opportunities for at least 2 of: fitness centre, pool, weights area. at least 2 of: men, women, children.
	I	Completes solution	3	EFG	All of: Efficient input opportunities for All of: fitness centre, pool, weights area. All of: men, women, children.
Total marks for question			**7**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	A1	Begins to consider durations	1 or	H	Shows correct start time and finish time (or start of following break) for any 2 activities.
	I	Considers all durations	2	HJ	Shows correct start time and finish time (or start of following break) for Body Combat and 2 other exercise classes and at least one 30 minute swim.
	R2	Begins to consider time between activities	1 or	K	Allows suitable time between at least 2 activities (this will probably be implicit in finish time to next start time)
	A2	Considers time between all activities	2	KL	Shows swimming first **AND** Allows correct time (incorporating breaks) between start times of all 4 activities (this will probably be implicit in finish time to next start time)
	I	Clearly presented accurate timetable	1	M	Sequentially ordered correct schedule showing the start and finish times for Swimming, 2 named exercise classes and Body Combat (condone missing finish time for last activity)
Total marks for question			5		

Q3	R1	Works with adults and children	1	N	Selects at least 2 correct monthly costs (£)51 **or** (£)41 **or** (£)28 **or** (£)12
	A1	Full process to calculate cost of adults and children monthly or yearly	1	P	'51'+'41'+'28'+'12' (=132) **OR** ('51'+ '41'+ '28'+ '12')×12(=1584)
		Finds correct monthly total	1 or	Q	(£)132
		Works with annual cost to compare, and does not select family membership	2	QR	£132 **AND** £135 **OR** £1584 correct money notation
Total marks for question			**4**		

Section B: Supermarkets

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R1	Process to calculate with basic rate	1	A	20 × 6.20(=124) **OR** 27 × 6.20(=167.40) **OR** 167.4÷6.2(=27)
	A1	Process to calculate with bonus rate	1	B	(27-20) × 7.80(=54.6) **OR** 7 × 1.60(=11.2) **OR** identifies all hours at basic rate or no hours at bonus rate
	A1	Works with basic pay and bonus pay	1	C	'124' + '54.6'(=178.6) **OR** '167.4' + '11.2'(=178.6) **OR** 27 from correct calculation in mark A
	1	Correct decision from valid working	1	D	No **and** (£)178.6(0) **OR** No **and** (£)11.2(0) short **OR** No **and** she didn't calculate the bonus hours **OR** No **and** she only calculated the time at basic rate
Q4(b)	I	Identifies hours required	1	E	Any 3 squares in total shaded on Saturday or Sunday on chart.
Total marks for question			**5**		

Q5(a)	R1	Process to calculate total or work with differences	1 or	F	42 + 34 + 56 + 26 + 59 + 65 + 47(=329) **OR** 45 × 7(=315)**OR** ±3, ±11, ±11, ±19, ±14, ±20, ±2
	A1	Process to calculate mean or reverse check	2	FG	'329' ÷ 7(=47) **OR** 45 × 7(=315) and 42 + 34 + 56 + 26 + 59 + 65 + 47(=329) **OR** Sum of differences (=14)
	I	Correct decision from correct process and correct figures	1	H	Yes **and** 47 **OR** Yes **and** 329 and 315 **OR** Yes **and** 'over' by 14 Provided mark F is awarded
Q5(b)	R2	Starts to interpret graph	1 or	J	Clear indication at 190
	A1	Finds correct number of minutes	2	JK	23 (minutes) Allow 18 (from 23-5)
Total marks for question			**5**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(a)	R3	Starts to find a route	1 or	L	Describes any complete route e.g. OAODUO **OR** Calculates distance for at least 3 stages **OR** 64 or 69
	I	Gives the route and the distance	2	LM	OAUDO **or** ODUAO **AND** 64 **OR** OADUO **or** OUDAO **AND** 69 **OR** ODAUO **or** OUADO **AND** 69 (May be seen on diagram)

Q6(b)	R2	Uses consistent units	1	N	0.8 (kg) **OR** 2400 (g) **OR** scale factor of 3 used **OR** 1000 g = 1 kg used in calculation
	A1	Finds scale factor for weight or price **OR** Unit price for weight or unit weight per £/p	1 or	P	3 **OR** 1/3 **OR** 552 ÷ 216(=2.55...) **OR** 216 ÷ 800(=0.27) **OR** 552 ÷ 2400(=0.23) **OR** 800 ÷ 216(=3.70..) **OR** 2400 ÷ 552(=4.34..)
	A1	Process to find figures to compare	2 or	PQ	3 × 2.16(=6.48) **OR** 5.52 ÷ 3(=1.84) **OR** 2.55..× 800(= 2.04..) **OR** 216 ÷ 800(=0.27) **AND** 552 ÷ 2400(=0.23) **OR** 800 ÷ 216(=3.70..) **AND** 2400 ÷ 552(=4.34..)
	I	Valid decision from correct figures	3	PQR	Large box **AND** (£)6.48 **OR** Large box **AND** (£)1.84 **OR** Large box **AND** 2 correct figures compared, e.g. 27p and 23p
Total marks for question			**6**		

Section C: The conservatory

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R2	Process to calculate area of floor	1	A	4 × 3(=12) **OR** tiles indicated on diagram as 6 per square
	A1	Process to calculate number of tiles	1 or	B	'12' × 6(=72) **OR** 72 tiles seen on diagram **OR** 15 × 5(=75)
	A1	Process to calculate figures to compare	2	BC	'12' × 6(=72) **AND** 5 × 15(=75) **OR** '72' ÷ 15 (=4.8) **OR** '75' ÷'12'(=6.25) **OR** '75' ÷ 6(=12.5)
	I	Correct decision from correct figures	1	D	Yes **AND** 72 and 75 **OR** Yes **AND** 4.8 **OR** Yes **AND** 6.25 **OR** Yes **AND** 12.5
Q7(b)	**R1**	Substitutes in formula	1 or	E	**50 + 4 × 10 OR 50 + 40 OR 90 seen**
	A1	Calculates cost of bill	2	EF	**(£) 90**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(c)	A2	Uses appropriate check	1	G	Reverse check of at least part of their calculation or different method e.g. '90' − 50(=40)
Total marks for question			**7**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R1	Large chair sketched on plan	1 or	H	2 of: correct length, correct width, suitable position
	I		2	HJ	All of: correct length, correct width, suitable position
	R2	TV stand sketched on plan	1 or	K	2 of: correct length, correct width, suitable position
	I		2	KL	All of: correct length, correct width, suitable position
Total marks for question			**4**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	R3	Process to calculate fraction at DFX	1	M	1296 ÷ 4 **OR** 1296 ÷ 2 ÷ 2 **OR** 0.25 × 1296(=324)
	A1	Works with instalments at L of C	1	N	100 + 239.88(=339.88) **OR** 19.99× 12(=239.88)
	A1	Works with 50% at C4U	1	P	0.5 × 699 (=349.5(0)) o.e.
	A1	Correct figures to compare	1	Q	All of 324, 339.88, 349.5(0)
	I	Decision ft their figures provided 2 previous marks scored	1	R	e.g. DFX ft. provided 2 process marks scored from M or N or P
Total marks for question			**5**		