

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS) MARK SCHEME – LEVEL 2 – PRACTICE SET 2

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

- 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		Evidence
Appropriate graph or chart – (e.g. bar, stick, line graph)	1 or	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.

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

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.

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skill Standard	Evidence
Q1	Full process to calculate total gas and electric bill or monthly gas bill or monthly electric bill or total she thinks she will have to pay	1 or	A4	$(210 + 173 + 150 + 244) + (125 + 170 + 90 + 135)$ $(=1297)$ OR $(210 + 173 + 150 + 244) \div 12(=64.75)$ OR $(125 + 170 + 90 + 135) \div 12(=43.33..)$ OR $100 \times 12(=1200)$
	Full process to calculate monthly gas and electric bills or total gas and electric bill and total she thinks he will have to pay	2 or	R3	$'1297' \div 12(=108.083..)$ OR $'64.75' + '43.33..' (=108.083..)$ OR $(210 + 173 + 150 + 244) + (125 + 170 + 90 + 135)$ $(=1297)$ and $100 \times 12(=1200)$
	Correct decision with accurate figures	3	I6	Yes and (£)108.08.. OR Yes and (£)1200 and (£)1297 NB Allow quarterly estimation – review at pre-stand
Total marks for question		3		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skill Standard	Evidence
Q2 Auto	Begins to order food	1 or	R2	<p>Orders at least one of each category and all of $A \times 12 + B \times 4 + C \times 10 \geq 20$ $D \times 8 + E \times 12 + F \times 16 \geq 40$ $G \times 12 + H \times 6 + I \times 8 \geq 40$</p> <p>OR</p> <p>Orders at least one of each category and all of $J = A \times 4.2$ and $K = B \times 1.49$ and $L = C \times 2.5$ $M = D \times 2$ and $N = E \times 3$ and $O = F \times 4$ $P = G \times 1.4$ and $Q = H \times 0.85$ and $R = I \times 1$</p> <p>OR</p> <p>$J = x4.2$ and $K = y1.49$ and $L = z2.5$ AND $12x + 4y + 10z \geq 20$ where $x, y, z \in \mathbb{Z}$ AND $M = p2$ and $N = q3$ and $O = r4$ AND $8p + 12q + 16r \geq 40$ where $p, q, r \in \mathbb{Z}$ AND $P = j1.4$ and $Q = k0.85$ and $R = l1$ AND $12j + 6k + 8l \geq 40$ where $j, k, l \in \mathbb{Z}$ AND $J+K+L+M+N+O+P+Q+R = \text{Total cost box}$ or $J+K+L+M+N+O+P+Q+R \leq 20$</p>
	Develops order	2 or	A5	<p>Orders at least one of each category and three of: $A \times 12 + B \times 4 + C \times 10 \geq 20$ and $J = A \times 4.2$ and $K = B \times 1.49$</p>

**FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2**

				<p>and $L=C \times 2.5$ OR $D \times 8 + E \times 12 + F \times 16 \geq 40$ and $M=D \times 2$ and $N=E \times 3$ and $O=F \times 4$ OR $G \times 12 + H \times 6 + I \times 8 \geq 40$ and $P=G \times 1.4$ and $Q=H \times 0.85$ and $R=I \times 1$ OR $J+K+L+M+N+O+P+Q+R = \text{Total cost}$</p> <p>OR</p> <p>$J = x4.2$ and $K = y1.49$ and $L = z2.5$ AND $12x + 4y + 10z \geq 20$ where $x, y, z \in \mathbb{Z}$ AND $M = p2$ and $N = q3$ and $O = r4$ AND $8p + 12q + 16r \geq 40$ where $p, q, r \in \mathbb{Z}$ AND $P = j1.4$ and $Q = k0.85$ and $R = l1$ AND $12j + 6k + 8l \geq 40$ where $j, k, l \in \mathbb{Z}$ AND $J+K+L+M+N+O+P+Q+R = \text{Total cost box} \leq 20$ AND $A, B, C, D, E, F, G, H, I = \text{blank or}$ $J=A \times 4.2$ and $K=B \times 1.49$ and $L=C \times 2.5$ $M=D \times 2$ and $N=E \times 3$ and $O=F \times 4$ $P=G \times 1.4$ and $Q=H \times 0.85$ and $R=I \times 1$</p>
	Fully correct order	3	I6	Orders at least one of each category and all of: $A \times 12 + B \times 4 + C \times 10 \geq 20$ and $J=A \times 4.2$ and $K=B \times 1.49$

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

				and $L=C \times 2.5$ $D \times 8 + E \times 12 + F \times 16 \geq 40$ and $M=D \times 2$ and $N=E \times 3$ and $O=F \times 4$ $G \times 12 + H \times 6 + I \times 8 \geq 40$ and $P=G \times 1.4$ and $Q=H \times 0.85$ and $R= I \times 1$ $J+K+L+M+N+O+P+Q+R = \text{Total Cost} \leq (\pounds)20$
Total marks for question		3		

**FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2**

Question	Process	Mark	Skills Standard	Evidence
Q3	Begins to draw graph	1 or	I6	One of: linear scale, suitable labels, at least 1 test plotted accurately
	Improves graph	2 or	R1	Two of: linear scale, suitable labels, at least 1 test plotted accurately
	Fully correct graph	3	A4	All of: linear scale, suitable labels, accurate plotting using two icons consistently minimum horizontal labels (Minute) 1, (Minute) 2 etc minimum vertical labels H(eart) R(ate) or Beats per minute or BPM plotting tolerance ± 1 small square,
	Completes the key appropriately	1	I6	Key completed with T(est) 1 and T(est) 2 AND matches their plotted graph
Total marks for question		4		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skills Standard	Evidence
Q4	Works with percentage (Dirty Dishes)	1	R1	$0.25 \times 299.99 (=74.99..)$ oe OR $0.75 \times 299.99 (=224.99..)$ oe OR Allow $0.25 \times 300 (=75)$ oe OR Allow $0.75 \times 300 (=225)$ oe
	Works with fraction (Clean Pots)	1	R2	$319.99 \div 3 (=106.66..)$ OR $319.99 \times 2 \div 3 (= [213.32, 213.33])$ OR Allow $319.99 \times 0.333.. (= [106.55, 106.66..])$ oe OR Allow $319.99 \times 0.666.. (= [213.32, 213.33])$ oe Allow use of 320 for 319.99
	Works with percentage and delivery charge or works with fraction and delivery charge	1 or	A4	$299.99 - '74.99..' + 20 (= [244.99, 245])$ OR $'224.99..' + 20 (=244.99..)$ OR Allow $300 - '75' + 20 (=245)$ or $'225' + 20 (=245)$ OR $319.99 - '[106.55, 106.66.]' + 25 (= [238.32, 238.45])$ OR Allow $[213.32, 213.33] + 25 (= [238.32, 238.45])$
	Correct figures to compare	2	I6	$244.99..$ and $[238.32, 238.45]$ OR 245 and $[238.32, 238.45]$
	Correct decision from correct figures in correct money notation	1	I7	CP or Clean Pots and $\pounds[238.32, 238.45]$ (in correct money notation)
Total marks for question		5		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skills Standard	Evidence
Q5	Calculates area	1 or	R2	$7 \times 5.5 (=38.5)$
	Fully substitutes into formula	2 or	A4	'38.5' \times 2.5(=96.25)
	Correct answer	3	I6	96.25 (watts)
Total marks for question		3		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skills Standard	Evidence
Q6(a) Auto	Gives a probability using 32 tickets or number of tickets chosen	1 or	R1	$a / 32$ and $a < 32$ OR $3 / b$ and $b > 3$
	Gives a correct probability	2	R2	$3 / 32$ or $a / b = 0.09375$
Q6(b)	Gives correct probability or ft. their part a used correctly	1	A4	$29 / 32$ OR $a / b = 1 - \text{'part (a)'}$
Total marks for question		3		

**FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2**

Question	Process	Mark	Skills Standard	Evidence
Q7(a)	Uses exchange rate	1 or	R2	$275 \times 1.47(=(\text{€})404.25)$ OR $760 \div 1.47(=(\text{£})517.00..)$
	Deals with deposit	2 or	A4	$760 - '404.25'(=(\text{€})355.75)$ OR $('517.00..' - 275) \times 1.47(=(\text{€})355.75)$
	Accurate figures	3	I6	$(\text{€})355.75$
Q7(b)	Valid check	1	A5	E.g. Reverse process or alternative method
Total marks for question		4		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skills Standard	Evidence
Q8(a)	Process to convert from pounds to kilograms or process to convert from fluid ounces to ml	1 or	R2	$12 \times 0.454(=5.448)$ OR $7 \times 28.4(=198.8)$
	Process to convert from pounds to kilograms and process to convert from fluid ounces to ml	2	R2	$12 \times 0.454(=5.448)$ and $7 \times 28.4(=198.8)$
	Accurate figure or process to calculate ml per kg recommended per day or processes for both conversions	1	A4	'5.448' \times 150(=817.2) OR '5.448' \times 200(=1089.6) OR Allow '5.448' \times [150,200](=[817.2,1089.6])
	Process to calculate amount having per day	1	A4	'198.8' \times 6(=1192.8) OR '[817.2,1089.6]' \div '198.8'(=[4.11..., 5.48..]) OR '5.448' \times '198.8'(=1083.06..)
	Correct decision with accurate figures	1	I6	Yes AND 1083(.06)(ml allowed) and 1192(.8)(ml having) 5.48(kg should weigh to have this amount) and 5.44(8)(kg weighs)
Q8(b)	Valid check	1	A5	E.g. Reverse Process or alternative method
Total marks for question		6		

**FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2**

Question	Process	Mark	Skills Standard	Evidence
Q9	Begins to produce front view	1 or	R2	Pentagon with any 4 of: <ul style="list-style-type: none"> • 1 side 4 squares, • 1 side 7 squares, • 1 side 4 squares, • 2 right angles correctly placed • Equal sloping sides • Single apex 5.5 squares opposite longest side
	Improves front view	2 or	I6	Pentagon with any 5 of: <ul style="list-style-type: none"> • 1 side 4 squares, • 1 side 7 squares, • 1 side 4 squares, • 2 right angles correctly placed • Equal sloping sides • Single apex 5.5 squares opposite longest side
	Fully correct front view	3	A5	Pentagon in correct orientation with all of: <ul style="list-style-type: none"> • 1 side 4 squares, • base 7 squares, • 1 side 4 squares, • 2 right angles correctly placed • Equal sloping sides • Single apex 5.5 squares above base
Total marks for question		3		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skills Standard	Evidence
Q10(a) Auto	Begins to rank staff in order	1 or	A4	Any 3 people with the correct rank number OR 4 people in the correct positional order OR Full reverse order
	Ranks staff correctly in order	2	I6	1 st Ben 2 nd Evan 3 rd Ched 4 th Dev 5 th Afia
Q10(b)	Finds appropriate average	1	R3	Mean and 3.6(%) OR Median and 5(%) OR Mode and 0(%)
Total marks for question		3		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skills Standard	Evidence
Q11(a)	Process to calculate the number of hours in a week or the number of eggs needed per chicken per week or the number of hours per egg for 6 chickens or the number of 'chicken days'	1 or	R2	$24 \times 7 (=168)$ OR $40 \div 6 (=6.66..)$ OR $26 \times 6 (=156)$ OR $6 \times 7 (=42)$ OR $24 \times 6 (=144)$
	Process to calculate the total number of eggs per week or the total number of hours available for 6 chickens	2 or	A4	'168' $\div 26 (=6.46..)$ OR '168' $\times 6 (=1008)$ OR '6.66..' $\times 26 (=173..)$ OR '42' $\times 24 (=1008)$ OR '144' $\times 7 (=1008)$ OR $26 \times 6 (=156)$ and $40 \div 6 (=6.66..)$
	Process to find figure(s) to make valid comparison	3	I6	'6.46..' $\times 6 (= [36, 38.769..])$ OR '156' \times '6.66..' $(= [1039, 1040])$ and '1008' OR '173..' and '168'
	Correct decision and accurate figures	1	I7	No AND e.g. [36, 38] (eggs can be produced) or [1039, 1040] (hours needed in a week) $>$ 1008 (hours available in a week) or 173 (hours each chicken needs) and 168 (hours each chicken has per week)
Q11(b)	Valid check	1	A5	E.g. Reverse Process or alternative method
Total marks for question		5		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2

Question	Process	Mark	Skills Standard	Evidence
Q12	Uses consistent units	1	R2	6900(mm) OR 7300(mm) OR 61(cm) OR 137(cm) OR 6.9(m) and 7.3(m) OR 0.61(m) OR 1.37(m)
	Lays turf in one dimension or process to calculate area of lawn or turf	1 or	A4	690 ÷ '61' (=11...) OR 690 ÷ '137' (=5...) OR 730 ÷ '61' (=11...) OR 730 ÷ '137' (=5...) OR 690 × 730 (=503700) oe OR 610 × 1370 (=835700) oe
	Lays turf in one dimension or process to calculate area of lawn and turf	2 or	R3	690 ÷ '61' (=11...) and 730 ÷ '137' (=5...) OR 730 ÷ '61' (=11...) and 690 ÷ '137' (=5...) OR 690 × 730 (=503700) oe and 610 × 1370 (=835700) oe
	Process to calculate number of rolls needed	3	A4	'12' × '6' (=72) and deals with excess OR '11' × '5' (=55) and deals with remainder OR 503700 ÷ 8357 (=60.27..) oe
	Finds number of rolls	1	I6	70 (rolls)
	Finds correct cost	1	I7	70 (rolls) and (£)280 OR Follow through from their number of rolls to the required number of packs and the corresponding price
Total marks for question		6		

FUNCTIONAL SKILLS ONSCREEN (MATHEMATICS)
MARK SCHEME – LEVEL 2 – PRACTICE SET 2