

Mark Scheme (Results)

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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 - If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 marks should be awarded for the 'best' answer.
 - A suspected **misread** may still gain process marks.
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- 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 $£12 \div 5$,
 - 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 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 (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: College

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	A4	Works with 8 mins walking time	1	A	Valid process to subtract 8 mins from 8:00 or 8:20 OR to add 8 minutes to any arrival time: 7:41, 7:53, 8:07, 8:22, 8:29 (=7:49, 8:01, 8:15, 8:30, 8:37)
	R1	Reads timetable correctly	1 or	B	Chooses correct matching times for 1 train
	16	Fully correct solution	2	BC	<p>7:39 and 7:53 and 8:01 OR 7:54 and 8:07 and 8:15</p> <p>If this mark is awarded also award mark A</p>

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(b)	A4	Begins time calculations	1 or	D	Process to calculate a correct ft elapsed time for any journey e.g. 14 (mins) or 13 (mins)
	R1	Accurate ft answer	2	DE	E.g. 42 (mins) OR 41 (mins) must fit their time plan
Total marks for question			5		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R2	Starts to address problem	1 or	F	At least four 2 by 1 blocks correctly drawn or counted using grid OR 8 blocks correctly to scale without internal boundaries
	16	Correct solution	2	FG	8 blocks with internal boundaries drawn correctly to scale in a rectangle or 'T' shape
Total marks for question			2		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3a	R3	Starts to work with given information	1 or	H	$4.5 \times 40 (=180)$ oe OR $16 \times 5 (=80)$ oe
	R2	Process to find cost of tickets sold or tickets needed	2 or	HJ	$4.5 \times 40 (=180)$ and $16 \times 5 (=80)$ oe OR $250 - '180' (=70)$ OR $250 - '80' (=170)$
	A4	Process to find costs of tickets needed or number of adults required	3	HJK	'180' + '80' (=260) OR '70' \div 5 (=14)(adults) OR '170' \div 40 (=4.25) (cost of student ticket) OR '70' \div 16 (=4.37..) (cost per adult ticket) OR $16 \times 5 (=80)$ AND $250 - '180' (=70)$
	16	Valid conclusion with valid figures	1	L	e.g. Makes £260 in total OR She only needs 14 OR Yes and (£)4.25 (cost of student ticket) OR Yes and (£)4.37 (cost per adult ticket) OR Yes and (£)4.38(cost per adult ticket) OR She needs (£)70 from ticket sales and has made (£)80
	A5	Shows a check on one of their calculations	1	M	Any valid reverse calculation or estimate or alternative method

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3b	R2	Works with fruit juice	1	N	$56 \div 8 (=7)$ oe OR $3.25 \div 8(=0.4\dots)$ May be seen in subsequent calculation
	A4	Process to calculate total cost of one item or budget per person	1	P	E.g. $56 \times 0.85 (=47.6)$ OR $56 \times 0.7 (=39.2)$ OR $100 \div 56 (=1.78\dots)$
	A4	Process to find total cost or subtract from budget	1 or	Q	E.g. $'47.6' + '39.2' + '7' \times 3.25 (=109.55)$ OR $'47.6' + '39.2' + 56 \times '0.4\dots' (=109.55)$ OR $100 - '47.6' - '39.2' - '22.75' (=9.55)$ OR $0.7 + 0.85 + '0.4\dots' (=1.95\dots)$
	I6	Valid conclusion and accurate figures	2	QR	E.g. No AND (£)109.55 OR She needs more than (£)100 AND (£)9.55 OR No AND (£)[1.7, 1.8] AND (£)[1.9, 2] OR No AND [10,20] (p) short per person
Total marks for question			9		

Section B: Youth club outing

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4a	I6	States probability	1	A	indicates impossible
Q4b	R1	Interprets problem	1 or	B	2 of: Input opportunities AND months heading or June, July, August place (to visit) heading or at least 2 of: theme park, animal park, activity centre, karting centre OR questionnaire or form for one person covering 2 categories
	R2	Improves solution	2 or	BC	All of: Input opportunities for at least 2 of: June, July, August AND at least 2 of: theme park, animal park, activity centre, karting centre OR
	I6	Completes solution	3	BCD	questionnaire or form for one person covering all categories All of: Efficient input opportunities for all of: June, July, August AND all of: theme park, animal park, activity centre, karting centre Accept abbreviations if clear
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5a	R3	Starts to substitute in formula	1 or	E	e.g. $85 \div 25 (= 3.4)$ OR $(85 \times 9) (=765)$ OR $85 \div 2(=42.5)$
	A4	Completes full substitution	2 or	EF	e.g. $'3.4' \times 9 \div 2 (= 15.3)$ OR $'42.5' \times 9 \div 2 \div 25 (=15.3)$ OR $'765' \div 25 \div 2(=15.3)$
	I6	Correct answer	3	EFG	15.3 (litres)

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5b	R1	Process to find total cost per person or total costs	1 or	H	$175 + 22 (=197)$ OR $12 \times 17 (=204)$ OR $175 \div 17 (=10.29\dots)$ OR $22 \div 17 (=1.29\dots)$
	A4	Complete process to find total cost for each passenger	2	HJ	$'197' \div 17 (=11.58\dots)$ OR $204 - 22 (=182)$ OR $175 + 22 (=197)$ and $12 \times 17 (=204)$ OR $204 - '197' (=7)$ OR $204 - 175 (=29)$ OR $'10.29\dots' + '1.29\dots'$ $(=11.58\dots)$ OR $204 - 175(=29)$
	I6	Makes a decision with accurate figures	1	K	e.g. $(\pounds)12$ is enough AND $(\pounds)[11.58, 11.59]$ OR Yes $(\pounds)197$ AND $(\pounds)204$ OR Yes AND $\pounds 7$ over OR No too much AND $(\pounds)29$ compared to $(\pounds)22$ No gives more AND $(\pounds)182$ OR No AND Could charge $\pounds 29$ for fuel
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6a	R2	Starts to interpret question	1 or	L	$2 \times 16 (=32)$ OR $9 \times 4.5 (=40.5)$ OR $4 \times 5.5 (=22)$ OR $13 \times 4.5 (=58.5)$ OR $2(4.5 + 5.5) (=20)$
	A4	Full process to find one cost for whole group or justifies using Saver ticket	2	LM	$'32' + '40.5' (=72.5)$ OR $'22' + '58.5' (=80.5)$ OR $4 \times 16 + 4.5 (=68.5)$ (paying adult tickets for children) OR 20 and decision to buy Saver
	A5	Finds figures to compare	1	N	At least two of 72.5 or 80.5 or 20 or 68.5 OR (£)19.10 compared to (£)16
	I6	Correct conclusion based on accurate figure	1	P	Use Saver oe AND (£)72.5(0)
Q6b	A4	Process to find figures to compare	1 or	Q	$7 \times 14 (=98)$ OR $108 \div 14 (=7.7\dots)$
	I6	Correct conclusion and accurate figures	2	QR	Yes AND 98 (pounds) OR Yes AND 10 (pounds) heavier OR Yes AND 7.7... (stone)
Total marks for question			6		

Section C: Local newspaper

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7a	R3	Process to find area	1 or	A	$5 \times 2 (=10)$ Process may be shown as counting squares
	A4	Process to find total cost	2 or	AB	'10' \times 85.95 (=859.5)
	I6	Finds correct total cost	3	ABC	£859.50 correct money notation required
Q7b	R3	Starts to work with fraction using a valid process	1 or	D	E.g. $8 \div 4 (=2)$ OR $6/8(=3/4)$ OR $3/4 = 0.75$ and $6/8 = 0.75$ OR $3/4 \times 8 (=6)$ May be seen clearly using a diagram
	I6	Correct conclusion with correct working	2	DE	E.g. Yes AND $8 \div 4 \times 3 =6$ OR Yes AND Simplification of 6/8 to 3/4 seen OR It is correct AND 0.75 from 3/4 and 6/8 OR It is correct AND $3/4 \times 8 = 6$
Total marks for question			5		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R2	Starts to work with scale	1 or	F	105 OR 46 with tolerance of ± 2
	I6	Obtains correct figures to compare from chart	2	FG	105 AND 46 with tolerance of ± 2
	R3	Full process to find 50% or double any figure from chart	1 or	H	E.g. $0.5 \times 105 (=52.5)$ oe OR $46 + 46 (=92)$ oe OR $46 \div 105 (=0.438)$ Allow use of (40 or 105 or 60 or 46 or 150) May be seen on chart
	A4	Correct answer	2	HJ	52.5 AND 46 with tolerance of ± 2 OR 105 AND 92 OR 0.438 AND 0.5
	I6	Correct conclusion allow FT if F and H scored	1	K	e.g. Local newspapers are not as much as 50% AND 52.5 AND 46 with tolerance of ± 2 or 105 AND 92 oe
Total marks for question			5		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9a	R2	Starts to find a valid route	1 or	L	Describes any complete route e.g. O LC S CH O OR Calculates distance for at least 3 stages
	A5	Finds a valid route or distance	2 or	LM	14.2 OR O S CH LC O or O LC CH S O OR 14.4 OR O S CH O LC O OR 13.7 OR O LC S CH O or O CH S LC O OR 15.7 OR O CH LC S O or O S LC CH O OR 16.6 OR O S O CHO LC O or O CH O S O
	I6	Gives the valid route visiting the school first and accurate distance	3	LMN	Accept distances in lieu of places for LM only O S CH LC O AND 14.2 (miles) Route may be clearly shown on diagram
Q9b	R3	Starts to calculate mean	1 or	P	$67 + 53 + 42 + 108 (=270)$
	A4	Full process to find mean	2 or	PQ	$'270' \div 4 (=67.5)$
	A4	Correct answer	3	PQR	67.5 (miles)
Total marks for question			6		

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Ofqual




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