

Mark Scheme (Results)

October 2016

Pearson Edexcel Functional Skills
Mathematics Level 1 (FSM02)

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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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 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.
- 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 $£12 \div 5$,
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
 - (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.

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: Yoga

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	A4	Begins to work with units	1 or	A	E.g. $183 \div 2.5 (=73.2)$ oe OR $6 \times 12 (=72)$ OR $12 \times 2.5(=30)$ May be seen in subsequent working Award mark for correct conversion of width or depth
	R3	Full process to find figures to compare	2 or	AB	E.g. $'73.2' \div 12 (=6.1)$ OR $'72' \times 2.5 (=180 \text{ cm})$ OR $183 \div 2.5 (=73.2 \text{ ins})$ and $6 \times 12 (=72)$ OR $183 \div '30'(=6.1)$
	I6	Correct conclusion with accurate figures and correct units	3	ABC	E.g. Yes AND $73(.2) \text{ ins}$ and 72 ins OR Yes AND 180 cm OR Yes AND 6.1 feet (in correct units)
	A5	Valid check	1	D	E.g. Reverse process or alternative method

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(b)	R2	Process to find a cost for 10 or more mats (using correct multiplier)	1 or	E	E.g. $21.95 \times 10 (=219.5)$ OR $15.37 \times 12 (=184.44)$ OR $13.17 \times 24 (=316.08)$
	A4	Process to find figures to compare	2 or	EF	$10 \times 21.95 (=219.5)$ AND $12 \times 15.37 (=184.44)$ or $13 \times 15.37 (=199.81)$ or $14 \times 15.37 (=215.18)$ For EF mark only allow $11 \times 21.95 (=241.45)$ AND $12 \times 15.37 (=184.44)$ AND 12
	I6	Correct answer with supporting processes	3	EFG	(Buy) 12 (from correct processes using 10)
Q1(c)	R1	Full process using number machine	1 or	H	$591.60 - (591.60 \div 1.2)(=98.60)$ (may be seen in steps)
	I6	Correct answer with money notation	2	HJ	(£)98.60 (final zero required)
Total marks for question			9		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R2	Full process to find finish time	1 or	K	6:45 (pm) + 1.5 (hours) + 40 (mins) (=8:55 pm) oe or 6:45 (pm) + 1.5 (hours) + 40 (mins) + 20 (mins) = 9:15 (pm)
	I6	Finds correct time	2	KL	8:55 (pm) oe
Q2(b)	A4	Works with common units	1	M	E.g. 2 (m) or 1.8 (m) or 0.6 (m) or 1000 (cm) or 700 (cm) May be seen in subsequent working.
	I6	Begins to work with dimensions	1 or	N	E.g. 7 - '0.6'(=6.4) or 10 - 2.1(=7.9) or 10 - '0.6'(=9.4) or 2.1 + '0.6'(=2.7) or '0.6' + '0.6'(=1.2)
	R1	Full process to work with length or full process to work with width	2 or	NP	E.g. '(10 - 0.6 - 0.6 - 2.1)' ÷ '2' (=3.35) OR '(10 - 0.6 - 0.6 - 2.1)' ÷ '1.8' (=3.72...) OR '(7 - 0.6 - 0.6)' ÷ '2' (=2.9) OR '(7 - 0.6 - 0.6)' ÷ '1.8' (=3.22...) OR Allow '(7 - 0.6 - 0.6)' × '(10 - 0.6 - 0.6 - 2.1)' (=38.86)
	A5	Full process to find consistent number of spaces in both directions	3 or	NPQ	'(10 - 0.6 - 0.6 - 2.1)' ÷ '2' (=3.35) and '(7 - 0.6 - 0.6)' ÷ '1.8' (=3.22...) OR '(10 - 0.6 - 0.6 - 2.1)' ÷ '1.8' (=3.72...) and '(7 - 0.6 - 0.6)' ÷ '2' (=2.9)

	I7	Correct conclusion with justification	4	NPQR	Yes AND 3 by 3 (=9) (All measurements/solution may be seen on diagram)
Total marks for question			7		

Section B: TV sound bars

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R2	Process to find 7.4%	1 or	A	0.074 × (99 + 8.99) (=7.99...) oe OR 0.074 × 99(=7.326) oe OR 0.074 × 8.99(=0.66526) oe OR Allow 0.074 × (99 + 8.99 + 0.35) (=8.01...)
	R1	Full process to add all costs	2 or	AB	'7.99..' + 0.35(=8.34...) OR '7.326' + '0.66526' + 0.35(=8.34..)
	I6	Correct conclusion with accurate figures	3	ABC	E.g. No or it costs more AND (£) 8.33 or 8.34
	A5	Valid check	1	D	E.g. Reverse process or alternative method
Q3(b)	R1	Begins to work with distance or scale	1 or	E	E.g. 5.4 cm for Maidstone allow ± 2 mm OR 6 ÷ 5 × 4(=4.8) OR 0.8 cm oe = 1 mile OR 1 cm oe = 1.25 miles
	A4	Works with distance and scale	2 or	EF	E.g. '5.4' × '1.25'(=6.75) OR 6 ÷ 5 × 4(=4.8) and 5.4 cm for Maidstone allow ± 2 mm OR counts up in 1.25 miles for each cm on map OR '5.4' ÷ '0.8'(=6.75) OR Draws an appropriate arc with a radius of '4.8'cm centred on Maidstone or Chatham

	I7	Correct conclusion with accurate figures or accurate drawing	3	EFG	E.g. No AND [6.5,7] (miles) oe OR No AND 4.8 (cm) and [5.2,5.6] (cm)
Total marks for question			7		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R3	Begins to work with dimensions from either box	1 or	H	$350 \div 70 (=5)$ or $250 \div 70 (=3.7..)$ or $250 \div 80 (=3.1..)$ or $350 \div 80 (=4.3..)$ or $1000 \div 940 (=1.0...)$ or $1000 \div 70(=14.2..)$ or $1000 \div 80 (=12.5)$ OR $1000 \div 12(=83.3..)$ or $350 \div 12(=29.1..)$ or $250 \div 12(=20.8..)$ OR $70 \times 12(=840)$ or $940 \times 12(=11280)$ or $80 \times 12(=960)$ OR $70 \times 940 \times 80 (=5264000)$ or $250 \times 1000 \times 350 (=87500000)$
	A4	Works with all of depth, width and height	2 or	HJ	E.g. $350 \div 70 (=5)$ and $250 \div 80 (=3.1..)$ and $1000 \div 940 (=1.0...)$ OR $250 \div 70 (=3.7..)$ and $350 \div 80 (=4.3..)$ and $1000 \div 940 (=1.0...)$ NB $1000 \div 940$ can be implied OR Allow full volume comparison for HJ mark only
	I6	Process to find number of sound bars to fit in large box with correct rounding.	3	HJK	'5' \times '3' ($\times 1$)(=15) OR '3' \times '4' ($\times 1$)(=12)
	I7	Correct conclusion with accurate figures compared.	1	L	E.g. Yes AND 12 or 15 (sound bars) from calculation (do not allow volume method for this mark)

					Note: Learner could work in cm oe
Q4(b)	A4	Extracts and uses appropriate information from the table	1 or	M	E.g. (£)27.64 linked with 11.3 (kg) OR 20.9 × 2(=41.8)
	I7	Correct conclusion supported by accurate figures or statement	2	MN	Yes AND (£)27.64 and (£)41.8(0) OR Yes AND statement e.g. double (£)20.90 is more than (£)27.64 OR Yes AND (£)14.16 (difference)
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	R2	Full correct substitution or process to find minimum number of positive feedback required	1 or	P	$4357 \div (4357 + 53) \times 100 (=98.79..)$ OR $0.987 \times (4357 + 53) (=4352.67)$
	A4	Correct accurate figures	2	PQ	[98.7,98.8] (%) OR [4352,4353] (positive feedback needed)
	I7	A valid conclusion and accurate figure rounded to 1 dp for rating or accurate figure rounded to nearest whole number of customers	1	R	E.g. Yes AND 98.8 (%) OR Yes AND 4352.7 or 4353 (positive feedback needed) Ft. their figures
Total marks for question			3		

Section C: Selling cars

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(a)	R2	Starts graph	1 or	A	2 of: Axes labelled, linear scale within range, one set of results plotted within $\pm 2\text{mm}$ tolerance, line drawn with type of car indicated
	A4	Develops graph	2 or	AB	3 of: Axes labelled, linear scale within range, two sets of results plotted within $\pm 2\text{mm}$ tolerance, lines drawn with type of car labelled
	I6	Completes graph	3	ABC	Fully correct graph with: Axes labelled, linear scale within range and appropriate, two sets of results plotted within $\pm 2\text{mm}$ tolerance, lines drawn with type of car labelled Labels: Number of cars sold, quarters, used cars, new cars
Q6(b)	R2	Starts to process data	1 or	D	$627 + 681 + 648 + 695 (=2651)$ OR $627 + 681 + 648 + 695 + 210 + 218 + 236 + 219 (=3534)$ OR $210 + 218 + 236 + 219 (=883)$
	A4	Works with data and percentage	2 or	DE	'2651' \div '3534' (=0.7501..) OR $\frac{3}{4} \times 3534 (=2650.5)$ OR $\frac{1}{4} \times 3534 (=883.5)$ OR $883 \times 3 (=2649)$ OR $2651 \div 3 (=883.6)$

	17	Correct conclusion with accurate figures to compare	3	DEF	E.g. No AND 0.7501.. and 0.75 Yes AND 0.7501.. (rounds to) 3/4 OR Yes and 2650.5 (rounds to) 2651 OR No and 2650.5 is not an exact number of cars OR Yes/No and 883.5 and 883
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R1	Starts to work with fraction in Offer A	1	G	E.g. $120 \times \frac{1}{3} (=40)$ oe OR $120 \times \frac{2}{3} (=80)$ oe OR $4 \times 120 \times \frac{1}{3} (=160)$ oe
	R2	Starts to work with percentage in Offer B	1	H	$150 \times 0.35 (=52.5)$ oe OR $150 \times 0.65 (=97.5)$ oe
	A4	Complete process for Offer A or Offer B	1 or	J	' $4 \times 120 \times \frac{2}{3}$ ' + 350 (=670) oe OR ' 150×0.65 ' + 500 + 45 (=642.5) oe
	A4	Complete process to find accurate figures to compare	2 or	JK	' $4 \times 120 \times \frac{2}{3}$ ' + 350 (=670) oe AND ' 150×0.65 ' + 500 + 45 (=642.5) oe
	I6	Correct conclusion with accurate figures	3	JKL	E.g. Offer B AND (£)670 AND (£)642.5 OR (£)643 Note: Allow use of 0.333 or better
Total marks for question			5		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(a)	I6	Begins to prepare sheet	1 or	M	Input opportunities AND 1 of: Headings for age categories (18-25,26-50, over 50) Headings for new and used Headings for cash and loan
	R1	Improves sheet	2 or	MN	Input opportunities AND 2 of: Headings for age categories (18-25,26-50, over 50) Headings for new and used Headings for cash and loan
	R3	Efficient fully correct data collection sheet	3	MNP	Fully correct, fit for purpose, efficient input opportunities
Q8(b)	A4	Enters all data correctly into their collection sheet	1	Q	All data entered correctly on their sheet using no more than four entries
	A5	Evaluates the effectiveness of their collection sheet	1	R	All data entered correctly on an efficient data collection sheet or appropriate comment. e.g. I easily found the cell to input the information about James I had to write a lot, my table was not easy to use.
Total marks for question			5		

Example of fully correct answer to Q8(a)

	N(EW CARS)		U(SED CARS)	
Age	C(ash)	L(oan)	C(ash)	L(oan)
18-25				
26-50				
Over 50				

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