

Mark Scheme (Results)

May 2014

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

- 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: Barbecue

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	A4	Interprets question to find a correct date	1 or	A	Identifies 9(th) or 2(nd) on invitation or calendar OR Identifies two dates 7 days apart marked on calendar or on invitation either way round
	I6	Complete correct answer	2	AB	9(th) (August) and 2(nd) (August) correctly shown on invitation Accept unambiguously labelled on calendar.
Q1(b)	R3	Full process to find figures to compare	1 or	C	$120 \div 4 (=30)$ OR $20 \times 4 (=80)$ OR $20 / 120 (=1 / 6)$ oe
	I6	Correct conclusion and accurate value	2	CD	No AND 30 or 80 or $1/6$ OR e.g. he would need an extra 10
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R1	Begins process to work with number of packs or cost for one item	1 or	E	$100 \div 50(=2)$ (packs of burgers) OR $50 \times 2(=100)$ (burgers) OR $200 \div 40(=5)$ (packs of sausages) OR $40 \times 5(=200)$ (sausages) OR $100 \div 25(=4)$ (packs of chicken pieces) OR $25 \times 4(=100)$ (chicken pieces) OR $11.5 \div 50(=0.23)$ (1 burger) OR $12 \div 40(=0.3)$ (1 sausage) OR $8 \div 25(=0.32)$ (1 chicken piece)
	A4	Complete process to find number of packs or costs for items	2	EF	2 packs of burgers AND 5 packs of sausages AND 4 packs of chicken pieces may be implied by subsequent working OR 23(p) per burger oe AND 30(p) per sausage oe AND 32(p) per chicken piece oe
	R2	Process to calculate costs	1 or	G	'2' \times (£)11.50(=£23.00) OR '5' \times (£)12.00(=£60.00) OR '4' \times (£)8.00(=£32.00) OR '23' \times 100(=£23.00) OR '30' \times 200(=£60.00) OR '32' \times 100(=£32.00)
	A4	Process to add costs of individual items or subtract costs from budget	2 or	GH	(£)'23' + (£)'60' + (£)'32'(=£115) OR (£)120 - (£)'23' - (£)'60' - (£)'32'(=£5)
	I6	Correct total cost or amount of money left	3	GHJ	(£)115 OR (£)5
	I6	Valid decision from their working	1	K	[Note adding pack sizes gives $50 + 40 + 25 = 115$] E.g. Yes AND (£)115 or (£)5 ft provided marks E and H are awarded.
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R2	Correct process to work with perimeter	1	L	$12 + 10 + 12 + 10 (=44)$ OR $90 - (12 + 10 + 12 + 10) (=46)$
	A4	Full process to find figures to compare, doubling their perimeter. This must not come from an area method	1 or	M	'44' $\times 2 (=88)$ OR $90 - (12 + 10 + 12 + 10 + 12 + 10 + 12 + 10) (=2)$ This must not come from an area method or be 120.
	I6	Correct decision and accurate figures	2	MN	Yes and 88(m) OR Yes and 2(m) over
Q3(b)	R1	Uses scale	1 or	P	Rectangle with Correct length or correct width OR Sides in the ratio 3:8 OR Marks region 4 squares from edges and 6 squares from clubhouse
	I6	Considers constraints	2 or	PQ	Rectangle with three of: length 8 squares, width 3squares, at least 4 squares from edges of patio, at least 6 squares from clubhouse
	A5	Fully correct solution	3	PQR	Rectangle with correct length, correct width, suitable distance from edge of patio, suitable distance from club house (Rectangle 3 by 8 squares, at least 4 squares away from edges of patio and at least 6 squares away from club house)
Total marks for question			6		

Section B: Cycling holiday

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R2	Starts to design data collection sheet	1 or	A	Input opportunities and Two of: Heading for name or Heading for transport or Heading for month OR Input opportunities and One of: Heading for ferry and plane or Heading for July and August
	I6	Develops data collection sheet	2 or	AB	Heading for name (may be completed already) and input opportunities for transport or month OR Input opportunities and Heading for ferry and plane and Heading for July and August Maximum 2 marks for questionnaire or sheet for individual input
	A5	Checks and presents solution fit for purpose	3	ABC	All of: input opportunities for at least 6 people and Heading for transport or for ferry and plane Heading for month or for July and August

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(b)	R1	Starts to process information	1 or	D	$75 \div 2(=37.5(0))$ OR $20 \times 2(=40)$ OR $75 + 75(=150)$ OR $75 - 20(=55)$
	A4	Full process to find figures to compare	2 or	DE	$'37.5' \div 2(=18.75)$ OR $(150 - 112.5) \div 2(=18.75)$ OR $75 \div 2(=37.5(0))$ and $20 \times 2(=40)$ OR $'40' \times 2(=80)$ (reverse the half price) OR $('37.5' + 75) \div 2(=56.25)$ and $75 - 20(=55)$ OR $112.5(0) + 40(=152.50)$ OR $75 + '37.5'(=112.5)$ and $(75 - 20) \times 2(=110)$
	I6	Valid conclusion and correct figures	3	DEF	No and (£)18.75 OR No and (£)37.5(0) and (£)40 OR No and (£)80 (usual price) OR No and (£)56.25 and (£)55 OR No and (£)152.5(0) and (£)150 OR No and (£)112.5(0) and (£)110 OR No and one saves £20 and the other only saves £17.5(0)
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	R1	Begins mean process or reverse calculates or find differences	1 or	G	180 + 254 + 288 + 272 + 264(=1258) OR 250 × 5(=1250) OR ±70, ±4, ±38, ±22, ±14
	A4	Process for figures to compare	2 or	GH	'1258' ÷ 5(=251.6) OR (180 + 254 + 288 + 272 + 264) ÷ 5(=251.6) OR 180 + 254 + 288 + 272 + 264(=1258) and 250 × 5(=1250) OR 70 under and 78 over
	I6	Conclusion and accurate figures	3	GHJ	Conclusion and 251.6 OR No and 1258 and 1250 OR No and sum of differences = ±8 OR Yes and 251.6 is about 250
Q5(b)	I6	Finds range	1	K	108 (km)
Q5(c)	R1	Draws appropriate graph (appropriate graphs include bar chart, barline chart, line graph)	1 or	L	One of: linear scale, labels, plotting
	A4	Improves graph or chart	2 or	LM	Two of: linear scale, labels, plotting
	I6	Fully correct graph or chart	3	LMN	All of: linear scale, labels, plotting Minimum labelling: one axis: week 1 to week 5 other axis or title: (number of) km (cycled) Plotting tolerance ±2 mm
Total marks for question			7		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R1	Starts to substitutes into formula	1 or	P	48 ÷ 6 OR 40 ÷ 5
	A4	Full process to use formula	2 or	PQ	48 ÷ 6 × 5(=40) OR 40 ÷ 5 × 6(=48)
	I6	Finds number of pounds or euros	3	PQR	Yes and (£)40 OR Yes and (€)48 Must be seen with correct calculations
Total marks for question			3		

Section C: The garage

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R1	Starts to schedule bookings in diary	1 or	A	Books 1 customer correctly (valid time slot, duration, name and job) OR Books 2 customers in valid time slots AND shows name or job
	R2	Improves schedule in diary	2 or	AB	Books 2 customers correctly (valid time slot, duration, name and job) OR Books 3 customers in valid time slots AND shows name or job
	A5	Checks detailed schedule	3 or	ABC	Books 3 customers correctly (valid time slot, duration, name and job) OR Books 4 customers in valid time slots AND shows name or job
	I6	Completes diary clearly and correctly	4	ABCD	Books all customers correctly (valid time slot, duration, name and job)
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R2	Starts to use the diagram	1 or	E	Finds a route starting or finishing in Salford to 2 other towns shown by distances or names. (Could be shown on diagram)
	R3	Uses diagram to find route and distance	2 or	EF	Finds a route from Salford to all 3 towns shown by distances or names. If only names are given total distance must be correct E.g. $9 + 18 + 31 (=58)$ OR S to B to A to N = 58
	I6	Works out complete route with distance	3 or	EFG	Adds complete route from Salford to Salford shown by distance OR Gives names AND finds correct total distance (without showing addition) E.g. S to N to B to A to S = $17 + 14 + 18 + 13 (=62)$ S to A to B to N to S = 62 S to B to A to N to S = 75 S to N to A to B to S = 75 S to B to N to A to S = 67 S to A to N to B to S = 67
	A5	Shows complete correct route with shortest distance	4	EFGH	S to N to B to A to S = 62 (miles) or S to A to B to N to S = 62 (miles)
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9(a)	A4	Full process to work out percentage	1 or	J	$0.2 \times 138.5 (=27.7)$ OR $2 \times 13.85 (=27.7)$ (from 10% + 10%) oe Or repeated addition leading to 20% of 138.5
	I6	Correct answer	2	JK	(£)27.7(0)
Q9(b)	R1	Process to find total	1 or	L	$138.5 + '27.7' (=166.2)$ Accept their figure for the addition of VAT
	I6	Correct answer in correct money notation	2	LM	£166.20 correct money notation
	A5	Valid check: reverse process, alternate method or estimation	1	N	Any valid check: reverse process, alternate method or estimation
Total marks for question			5		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q10	R2	Works with consistent units	1	P	12000 (ml) or 0.3(00 litres) May be seen or implied by subsequent working
	A4	Begins to work with ratio	1 or	Q	'12000' \div 50(=240 ml) OR '0.3' \times 50(=15 litres) OR '12000' \div 300(=40) oe OR '12000':300 or 1200:30 or 120:3
	I6	Correct decision from accurate figures	2	QR	No and 240 (ml) (oil) OR No and 15 (litres) (petrol) OR No and 40:1
Total marks for question			3		

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