

Mark Scheme (Results)

July 2015

Pearson Edexcel Functional Skills
Mathematics Level 2 (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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 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 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

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		1 or		1 of:		Evidence	
Appropriate graph or chart							

– (e.g. bar, stick, line graph)		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: Holiday

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1a	R2	Begins to process given information	1 or	A	14 00 – 4 hours (= 10 00) OR Adds 4 hours to any London departure time OR Method to work out arrival time in Tenerife of any flight OR 06 45 or 07 35 or A101 or A102 OR 16 25 or 18 10 or 18 30 or 19 35 or 21 50 or B203 or B204 or B205 or B206 or B207 OR Flight out and flight back from/to same London airport
	I7	Appropriate pair of flights	2	AB	06 45 or A101 and 16 25 or B203 OR 07 35 or A102 and 18 30 or B205 OR 07 35 or A102 and 21 50 or B207 If more than one solution offered - must be correctly paired
Q1b	R3	Changes to consistent currencies	1 or	C	$960 \div 1.17 (=820.51\dots)$ OR $850 \times 1.17 (=994.5)$ OR $25 \times 1.17 (=29.25)$

	A4	Finds total price	2 or	CD	'820.51...' + 25 (=845.51..) OR (960 + '29.25') ÷ 1.17 (=845.51..) OR '994.5' - '29.25' (=965.25) OR (850 - 25) × 1.17 (=965.25) OR 960 + '29.25' (=989.25) and 850 × 1.17 (=994.5)
	I6	Accurate figures	3	CDE	(£)845.51(28...) or (£)845.52 OR (€)965.25 OR (€)989.25 and (€)994.5(0) OR (£)4.49 or (€)5.25 (left over) NB: Allow functionally and correct rounded solutions
	I7	Decision ft from their figures	1	F	Decision ft from their figures provided at least CD scored
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R3	Changes stones into pounds	1	G	$6 \times 14 (=84)$ OR $6 \times 14 + 2(=86)$
	A4	Converts between kg and pounds	1 or	H	$40 \times 2.2 (=88)$ OR $(\text{'84' } + 2) \div 2.2(=39.09\text{..})$ OR $\text{'86' } \div 2.2 (=39.09\text{..})$ OR $\text{'84' } \div 2.2(=38.18\text{..})$
	I7	Correct conclusion with correct figures	2	HJ	Yes and 88(pounds) and 86(pounds) OR Yes and 39(.09...)(kg)
Total marks for question			3		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3a	R1	Process to calculate number of litres	1 or	K	$750 \div 14 (=53.57..)$
	A4	Full process to find cost of petrol	2 or	KL	'53.57' \times 1.1(=[58.9, 59.(0)]) OR $54 \times 1.1 (=59.4)$ OR $750 \times 1.1 \div 14 (= [58.9, 59.(0)])$
	I7	Correct answer	3	KLM	(€)[58.9, 59.4]
Q3b	R1	Finds travel time for car journey	1	N	$40 \div 30 (=1.333...)$ OR 1 hour 20 min OR 80 min OR $2 \times 40 \div 30 (=2.666...)$ OR 2 hours 40 mins OR 160 min
	R3	Starts to work out total time or starts to subtract from 4 pm	1 of	P	3 of '2h 40 min' , 15 min, 15 min, 1h 45 min added OR 3 of '2h 40 min' , 15 min, 15 min, 1h 45 min subtracted from 4 pm OR 3 of '1h 20 min', '1h 20 min', 15 min, 15 min, 1h 45 min added OR 3 of '1h 20 min', '1h 20 min', 15 min, 15 min, 1h 45 min subtracted from 4pm OR 2 hours 15 min oe

	A4	Finds total time or complete subtraction method	2 of	PQ	All of '2h 40 min' , 15 min, 15 min, 1h 45 min added OR All of '2h 40 min' , 15 min, 15 min, 1h 45 min subtracted from 4pm OR All of '1h 20 min', '1h 20 min', 15 min, 15 min, 1h 45 min added OR All of '1h 20 min', '1h 20 min', 15 min, 15 min, 1h 45 min subtracted from 4pm OR 4 hours 55 min oe
	I7	Correct time	3	PQR	11 05 or 11 05 am
Total marks for question			7		

Section B: Dance Group

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4	R1	Finds cost to hire hall	1	A	$46 \times 18 (=828)$
	A4	Finds total income without discount	1	B	$(21 - 7) \times 3 \times 46 (=1932)$ OR $46 \times 3 \times 21 (=2898)$
	R2	Finds discount	1 or	C	0.05×3 oe $(=0.15)$ OR $46 \times 3 \times 0.05$ oe $(=6.9)$ OR $7 \times 3 \times 0.05$ oe $(=1.05)$
	A4	Finds discounted subscription	2	CD	$(3 - 0.15) \times 46 (=131.1)$ OR $(3 - 0.15) \times 7 (=19.95)$ OR $46 \times 3 - '6.9' (=131.1)$ OR $(3 - 0.15) \times 46 \times 7 (=917.7)$ OR $(46 \times 3 - '6.9') \times 7 (=917.7)$ OR $7 \times 46 \times (3 - 0.15) (=917.7)$ OR $7 \times 46 \times 3 \times 0.05 (=48.3)$ OR $(7 \times 3 - '1.05') \times 46 (=917.7)$
	I6	Complete process to find money left at end of year	1 or	E	e.g. $7 \times '131.1' + (21 - 7) \times 3 \times 46 - '828' (=2021.7)$ OR $'917.7' + (21 - 7) \times 3 \times 46 - '828' (=2021.7)$ OR $'917.7' + '1932' - '828' (=2021.7)$ OR $'2898' - '828' - '48.3' (=2021.7)$

	17	Correct figure with correct money notation	2	EF	£2021.70 correct money notation
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5a	R2	Begins to calculate cost of material	1 or	G	$18.90 \div 3 (=6.30)$ OR $12 \times 2.5 \times 18.9 (=567)$ OR $2.5 \times 18.9 (=47.25)$ OR $350 \div 12(=29.16..)$
	R2	Develops calculation to find total cost	2 or	GH	$18.9 - '6.3' (=12.6)$ OR $\frac{2}{3} \times 18.9 (=12.6)$ OR $'567' \div 3 (=189)$ OR $'47.25' \times \frac{2}{3} (=31.5)$
	A4	Full process to find figures to compare	3 or	GHJ	$12 \times 2.5 \times '12.6' (=378)$ OR $350 \div (12 \times 2.5) (=11.66...)$ OR $'567' - '189' (=378)$ OR $\frac{2}{3} \times '567' (=378)$ OR $350 \div 12 \div '12.6' (=2.3...)$ OR $350 \div '12.6' \div 2.5(=11.1..)$ OR $'31.5' \times 12 (=378)$
	I7	Correct decision with correct figures	4	GHJK	No and (£)378 OR No and (£)28 (short) OR No and (£)11.66(6...) or (£)11.67 and (£)12.6(0) OR No and 2.3(m) OR

					No and 11(dresses) NB: Allow 0.33(3...) in place of 1/3 and 0.666... rounded or truncated to two or more dp throughout this question for marks GHJ
Q5b	R1	Process to find total length of ribbon or number of pieces per roll	1 or	L	$8 \times 20 (= 160)$ OR $8 \times 30 (=240)$ OR $8 \times 20 \times 30 (=4800)$ OR $'0.3' \div 25 (=0.012)$ OR $'2500' \div 30(=83.3..)$ OR $25 \div 0.3(=83.3..)$ build up methods may be seen
	A4	Full process to find number of rolls	2 or	LM	$'0.012' \times 8 \times 20 (=1.92)$ OR $'160' \times '0.3' (=48)$ OR $'160' \times '0.3' \div 25 (=1.92)$ OR $'240' \times 20 \div 100 (=48)$ OR $'4800' \div '2500'(=1.92)$ OR $20 \times 8 \div '83'(=1.927...)$ OR 20×8 and $'83'(=2)$ from 83.3 rounded
	I6	Uses consistent units to find correct number of rolls	3	LMN	2 (rolls) and 1.92 or 48 or 1.927... OR 2 (rolls) and 4800 and 5000
Total marks for question			7		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R1	Starts to interpret information	1 or	P	Correct number of qualified men or women shown for one dance
	I6	Develops solution	2 or	PQ	Correct number of qualified men and women for all dances.
	A5	Correct plan	3	PQR	Fully correct plan Correct number of qualified men and women for each dance Peter and Colin not together No more than 3 dances per person Accept initial letters
Total marks for question			3		

Section C: Shepherds hut

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7a	A4	Finds correct prices from table and starts to work with these	1 or	A	Adds together at least 3 of 7335, 750, 2125, 190 OR 10 400 Subtracts at least 3 of 7335, 750, 2125, 190 from 10 000 OR 400 or – 400
	I7	Correct decision from correct figures	2	AB	No and (£)10 400 OR No and (£)400 too much or –(£)400
Q7b	A4	Full process to calculate mean	1 or	C	$(450 + 445 + 440 + 390 + 400 + 495 + 550 + 420) \div 8 (=448.75)$ OR $3590 \div 8 (=448.75)$
	I6	Correct mean	2	CD	(£)448.75
	A5	Shows appropriate check	1	E	E.g. reverse calculation, estimation, alternate method
Total marks for question			5		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8a	R2	Finds a missing side	1or	F	3 OR 4.8 may be seen on diagram
	R3	Process to find an area	2 or	FG	9 × 12(=108) OR 12 × '3'(=36) OR 9 × '4.8'(=43.2) OR 6 × '4.8'(=28.8) OR 6 × 7.2(=43.2) OR 7.2 × '3'(=21.6)
	A4	Full process for compound area	3	FGH	'108' – '43.2'(=64.8) OR '36' + '28.8'(=64.8) OR '43.2' + '21.6'(=64.8)
	A4	Substitution into formula	1	J	'64.8' × 0.07 (=4.536) OR 5 ÷ 0.07 (=71.42...) OR 5 ÷ 64.8(=0.077)
	I6	Correct figures	1	K	4.536 (m ³) or 4.54 (m ³) OR 71 (m ²) or 71.4(2...) (m ²) AND 64.8 (m ²) OR 0.077 (m)
	I7	Valid decision ft. their figures provided marks H and J are awarded	1	L	E.g. Yes ft. their answer provided marks H and J are awarded

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8b	R3	Process to find number of stones along one side or to find one area	1 or	M	$720 \div 60 (=12)$ OR $600 \div 60 (=10)$ OR $720 \times 600 (=432000)$ OR $60 \times 60 (=3600)$ OR Build up methods or diagrams may be seen. NB any measurements could be in metres, centimetres or millimetres; units need not be consistent for this mark.
	A4	Process to coordinate features and find number of stones needed	2 or	MN	$'12' \times '10' (=120)$ OR $'432000' \div '3600' (=120)$ OR $'3600' \times 110 (=396000)$ NB units need not be consistent for this mark.
	I6	Correct decision from correct figures using consistent units	3	MNP	Yes and 120 OR Yes and 10 (more) OR Yes and 396000 (cm ²) and 432000 (cm ²) OR Yes and 39.6 (m ²) and 43.2 (m ²) oe NB units must be consistent for this mark
Total marks for question			9		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	R1	Process to calculate percentage	1 or	Q	0.03 × 475 oe OR 14.25 ÷ 475 × 100 oe OR 14.25 × 100 ÷ 3 = 475
	I7	Correct answer	2	QR	(£)14.25 OR 3(%) Must be from correct calculation
Total marks for question			2		

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