

Mark Scheme (Results)

July 2016

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

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: Home Safety

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R1	Begins to work with cost of separate items	1 or	A	$5.94 + 2.29 + 7.95 + 0.80 + 0.55 (=17.53)$ OR $17.74 - 5.94 - 2.29 - 7.95 - 0.80 - 0.55 (= -0.21)$
	A4	Develops calculation	2 or	AB	$17.74 - '17.53' (=0.21)$ OR -0.21
	I6	Accurate figure in correct money notation	3	ABC	£0.21 or 21p (in correction money notation)
Q1(b)	R2	Works with a third or 2 people	1 or	D	$129.99 \div 3 (=43.33)$ OR $129.99 \times 2 (=259.98)$ OR $129.99 \times 0.33 (=42.8967)$ Allow use of 0.33 or better for 1/3 ft. their answer
	A4	Full process to find saving	2 or	DE	'43.33' $\times 2 (=86.66)$ OR '259.98' $\div 3 (=86.66)$ OR $2 \times '42.8...' = (85.7934)$
	I6	Finds total saving	3	DEF	(£)[85.79, 86.66] Must come from correct method
	A5	Valid check	1	G	Reverse calculation or approximation or alternative method
Total marks for question is				7	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	I6	Identifies likelihood	1	H	Indicates likely
Total marks for question is				1	
Q3(a)	R1	Identifies total length of extension needed or begins to work with extensions or starts to add extension costs to baby gate cost	1 or	J	132 – 97(=35) OR Adds at least 1 length to 97cm OR 15 + 8.99 or 14.99 or 15.99
	R3	Starts to work with lengths of extensions or costs or trial and error	2 or	JK	‘35’ – 28 (=7) or ‘35’ – 14 (=21) or ‘35’ – 7 (=28) OR 7 + 7 (=14) or 7 + 14 (=21) or 14 + 14 (=28) or 28 + 7 (=35) OR begins to add cost combinations with or without the gate
	I6	Finds any correct combination	3	L	28, 7 or 14, 14, 7 or 14, 7, 7, 7 OR 15.99 + 8.99 or 14.99 + 14.99 + 8.99 or 14.99 + 8.99 + 8.99 + 8.99 Condone 7, 7, 7, 7, 7 or 15 + (5 × 8.99)(=59.95)
	R2	Process to find the cheapest price with no more than 2 extensions on each side	1 or	LM	15 + 8.99 + 15.99 (=39.98) OR 15 + 14.99 + 14.99 + 8.99 (=53.97) OR 15 + 14.99 + 8.99 + 8.99 + 8.99 (=56.96)
	I6	States cheapest price with accurate figures	2	LMN	(£) 39.98

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(b)	A4	Starts to work with scale	1 or	P	1 of: Indicates on the diagram 5cm from the top OR 3 cm from the bottom OR finds equal distance from the left and right hand sides. Ignore any extra marks made
	R2	Develops solution	2 or	PQ	2 of: Indicates on the diagram 5cm from the top OR 3 cm from the bottom OR finds equal distance from the left and right hand sides. Ignore any extra marks made
	I6	Fully correct solution	3	PQR	Two correctly positioned holes NB holes may be indicated as a dot or cross
Total marks for question is				8	

Gardening business

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	I6	Measures or recognises angle	1	A	$45(^{\circ}) (\pm 2^{\circ})$
Q4(b)	R2	Starts to substitute values	1 or	B	$12 \div 4(=3)$ or $12 \times 84(=1008)$ or $240 \div 84(=2.857..)$ or $240 \times 4(=960)$
	A4	Full process to calculate cost or length using formula	2 or	BC	'3' $\times 84 (=252)$ OR '1008' $\div 4(=252)$ OR '2.857..' $\times 4 (=11.428...)$ OR '960' $\div 84(=11.428)$
	I6	Correct decision and accurate figures	3	BCD	No and (£)252 OR No and 11.4(28 m)
	A5	Valid check	1	E	E.g. reverse calculation
Total marks for question is				5	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	R3	Starts to find a route	1 or	F	Adds at least 3 distances starting or finishing at home OR Indicates a route through at least 3 places and starting or finishing at home e.g. HBCA
	A4	Finds a complete route starting from and finishing at home	2 or	FG	E.g. HBCASH OR HCABHSH OR $4 + 7.5 + 2.8 + 8.5 + 2.5 (=25.3)$ OR $5 + 2.8 + 11.5 + 4 + 2.5 + 2.5 (=28.3)$ Route may be marked on diagram and may go through any point more than once.
	I6	Fully correct distance and shortest route	3	FGH	25.3 (km) and H + B + C + A + S + H (or reverse) Route may be marked on diagram
Q5(b)	R2	Finds range	1	J	4300 from correct process
	R1	Starts process to calculate mean or median	1 or	K	$5800 + 3600 + 4200 + 1500 + 2000 + 2800 (=19900)$ OR 1500, 2000, 2800, 3600, 4200, 5800
	A4	Develops calculation	2 or	KL	'19900' $\div 6$ (3316.66....) OR 2800, 3600 indicated as mid point OR $2800 + 3600 \div 2 (=3200)$
	I6	Correct answer to two decimal places	3	KLM	(£)3316.67 OR (£) 3200
Total marks for question is				7	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	A4	Works in consistent units of time	1	N	e.g. 45 or 200 or 60 or converts mins to fraction hours May be seen in later calculation
	R2	Begins to work with time	1 or	P	Begins to add at least 3 times to 9am OR Subtracts at least 3 times from 4.15pm OR Adds 3 correct times together OR Difference between 9am and 4.15pm = 7 hrs 15 mins or 435 mins
	A4	Full process to calculate total time or start or finish time	2 or	PQ	e.g. '45' + 90 + 50 + 30 + '200' + '60' (=475) OR (9.00), 9.45, 11.15 12.05, 12.35, 3.55, 4.55 or (4.15), 3.15, 11.55, 11.25, 10.35, 9.05, 8.20 Allow one error in adding or subtracting time
	I6	Correct decision and correct answer	3	PQR	No AND 4.55(pm) OR No AND 7 hrs 55 mins and 7 hrs and 15 mins OR No AND 475 mins and 435 mins OR No AND 8.20 (am) OR No AND 40 mins difference NB If correct answer seen award Mark N
Total marks for question is				4	

Section B: Car boot sale

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R3	Starts to work with available area, cars down the length or width or the area of a car space or begins to count with squares	1 or	A	$60 \div 3 (=20)$ OR $60 \div 6 (=10)$ OR $30 \div 3 (=10)$ OR $30 \div 6 (=5)$ OR $60 \times 30(=1800)$ OR $3 \times 6 (=18)$ OR Begins to divide one length for car boot spaces
	R2	Process to work with both dimensions	2 or	AB	$60 \div 3 (=20)$ and $30 \div 6 (=5)$ OR $60 \div 6 (=10)$ and $30 \div 3 (=10)$ OR $60 \times 30(=1800)$ and $3 \times 6 (=18)$ OR Divides rectangle into correct number of car boot spaces
	I6	Finds total number of cars	3	ABC	$'10' \times '10' = '100'$ OR $'20' \times '5' = '100'$ OR $'1800' \div '18' = '100'$ OR Identifies 100 from diagram
	A4	Calculates possible income for their number of cars	1 or	D	$'100' \times 20 (=2000)$ Their number can come from an incorrect calculation
	I6	Correct answer	2	DE	(£)2000

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(b)	A4	Starts to create table	1 or	F	Input opportunities and 2 of: Headings for: name or lists all names, weeks or headings weeks 1,2,3,4, telephone number
	R2	Improves table	2 or	FG	Input opportunities and all of: Headings for: name or lists all names, weeks or headings weeks 1,2,3,4, telephone number
	I6	Completes table with efficient input opportunities	3 or	FGH	Efficient input opportunities and headings for: name, weeks, telephone number NB heading to denote name must be seen
	A5	Completes input of data correctly	1	J	Inputs all data from the notes correctly Allow errors in transcribing names and telephone numbers
Total marks for question is				9	

	1	2	3	4
Khan	x	x	x	
Parker	x	x	x	x
Ling		x		
Finney	x	x	x	x
Wright	x		x	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(a)	R1	Starts to work with ratio	1 or	K	1 + 2(=3) OR 50 × 2(=100) OR Build up method to an equivalent ratio
	A4	Full process to find figures to compare	2 or	KL	120 ÷ '3'(=40) OR 50 × '3'(=150) or 50 + '100'(=150) OR 120 ÷ 50(=2.4) OR Complete build up method
	I6	Correct conclusion with accurate figures	3	KLM	No and (£)40 OR No and (£)150 OR No and 2.4 and 3
Q8(b)	R2	Process to find 20%	1 or	N	E.g. 1250 ÷ 100 × 20 (=250)
	I6	Finds 20%	2	NP	(£)250
	A5	Valid check	1	Q	Reverse calculation or alternative method
Q8(c)	I6	Writes a suitable comment about the pie chart	1	R	E.g. Half of the money went to the Hospital A quarter of the money went to the Cats and dogs Equal amounts went to the Heart Trust and Heroes charity Heart Trust and Heroes in total were given the same as the Cats and dogs
Total marks for question is			7		

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Welsh Assembly Government

