

# Mark Scheme (Results)

February 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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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, )	<b>1</b>	1 of
	<b>or</b>	linear scale(s), labels, plotting (2mm tolerance)
	<b>2</b>	2 of
	<b>or</b>	linear scale(s), labels, plotting (2mm tolerance)
	<b>3</b>	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: Birthday party**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q1a</b>	R1	Full process to add money	1 or	A	$49.50 + 30 + 15.75 + 22.89 (=118.14)$
	A4	Accurate answer in correct money notation	2	AB	£118.14 correct money notation
	A5	Valid check of their calculation	1	C	Reverse of their calculation <b>OR</b> valid alternate calculation
<b>Q1b</b>	R2	Starts to work with time	1 or	D	Adds at least 3 times together e.g. $15 + 20 + 30 (=65)$ <b>OR</b> Begins time plan 1.30, 1.45, 2.05 ... <b>OR</b> Begins working back 4.30, 3.45, 3.15 ... <b>OR</b> Full process to work out total time available $4.30 - 1.30 (=3(\text{hours})$ or 180(minutes))
	A4	Full process to find total times to compare, or actual finish time, or latest start time	2 or	DE	$15 + 20 + 20 + 20 + 30 + 45 (=150)$ oe <b>and</b> process to find available time (=180) oe <b>OR</b> $15 + 20 + 20 + 20 + 30 + 45 (=150)$ <b>and</b> uses '150' (mins) to find actual finish time or latest start time <b>OR</b> 1.30, 1.45, (2.05, 2.25,) 2.45, 3.15, 4 condone 1 error <b>OR</b> 4.30, 3.45, 3.15, (2.55, 2.35,) 2.15, 2.00 condone 1 error
	I6	Correct conclusion with accurate figures	3	DEF	E.g. Yes <b>AND</b> 2 hours 30 minutes <b>AND</b> 3 hours o.e. <b>OR</b> Yes <b>AND</b> 4.00 (pm) <b>OR</b> Yes <b>AND</b> 2.00 (pm) counting back method <b>OR</b> Yes <b>AND</b> 30 (minutes) left
<b>Total marks for question</b>			<b>6</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R3	Starts to process costs	1 or	G	Adds cost of 3 different items, e.g. $12 + 20 + 25 (=57)$ <b>OR</b> $20 \div 24 (=0.833\dots)$ <b>OR</b> At least 3 of: $12 \times 24 (=288)$ , $20 \times 24 (=480)$ , $25 \times 24 (=600)$ , $49 \times 24 (=1176)$ , $36 \times 24 (=864)$ , $33 \times 24 (=792)$
	A4	Full process to find figures to compare	2 or	GH	E.g. $'0.57' \times 24 (=13.68)$ <b>OR</b> $'288' + '480' + '600' (=1368)$ <b>OR</b> $0.12 + 0.20 + 0.25 (=0.57)$ <b>AND</b> $20 \div 24 (=0.833\dots)$ <b>OR</b> $2000 - '288' - '480' - '600' (=632)$
	I6	Identifies 3 different items totalling less than £20 and correct supporting figures	3	GHJ	E.g. mini bag of sweets, puzzle, whistle <b>AND</b> (£)13.68 <b>or</b> 57(p) <b>and</b> 83(p) <b>or</b> (£)6.32 left
<b>Total marks for question</b>			<b>3</b>		



Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3a	R1	Starts process to work out perimeter	1 or	K	$12 + 15 + 12 + 15 (=54)$ <b>OR</b> Allow $2 \times 12(=24)$ <b>or</b> $2 \times 15(=30)$ <b>or</b> $12 + 15 (=27)$
	I6	Correct perimeter	2	KL	54 (m)
Q3b	R2	Starts to process number of prizes	1 or	M	$24 \div 4 (=6)$ <b>OR</b> $20 - 3 (=17)$
	A4	Process for figures to compare	2 or	MN	$3 + '6' + '6' + '6' (=21)$ <b>OR</b> $3 \times '6' (=18)$ <b>OR</b> $'17' \div 3 (=5.666\dots)$ <b>OR</b> $'17' \div 6 (=2.83\dots)$
	I6	Correct decision with figures	3	MNP	No <b>AND</b> 21 (prizes) <b>OR</b> No <b>AND</b> 1 (prize) short oe <b>OR</b> No <b>AND</b> 18 with 3 more needed <b>OR</b> No <b>AND</b> 6 <b>AND</b> 5.66.. (children can have prizes in a team) <b>OR</b> No <b>AND</b> 2.83..(team games can have prizes) explicitly compared with 3
Q3c	A4	Works with ratio	1 or	Q	$24 \div 12$ <b>OR</b> $210 + 210 (=420)$ <b>OR</b> $210 \div 12 (=17.5)$
	I6	Correct amount	2	QR	420 (g) <b>OR</b> 0.42 kg
<b>Total marks for question</b>			<b>7</b>		

**Section B: Cycling**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4a	R3	Full correct process to find 25%	1 or	A	$600 \times 0.25 (=150)$ oe <b>OR</b> $600 \times 0.75 = 450$ oe
	A4	Correctly finds 25%	2	AB	(£)150
Q4b	R2	Uses consistent units	1	C	Eg 8000 (ml) <b>OR</b> 0.25 (l) <b>OR</b> 8.75 (l) May be seen or implied by subsequent working
	A4	Process to find figures to compare	1 or	D	E.g. '8000' $\div$ 250 (=32) <b>OR</b> 8 $\div$ '0.25' (=32) <b>OR</b> 35 $\times$ 250 (=8750) <b>OR</b> 35 $\times$ '0.25' (=8.75) <b>OR</b> 8 $\div$ 35 (=0.2285...) <b>OR</b> '8000' $\div$ 35 (=228.5...) <b>OR</b> uses complete build up method
	I6	Correct conclusion with correct figures	2	DE	Yes <b>AND</b> 32 (pkts) <b>OR</b> Yes <b>AND</b> 3 (pkts) over oe <b>OR</b> Yes <b>AND</b> 8.75 (litres) oe <b>OR</b> Yes <b>AND</b> 8750 <b>and</b> 8000 (ml) <b>OR</b> Yes <b>AND</b> 750 (ml) spare <b>OR</b> Yes <b>AND</b> 0.2285... <b>and</b> 0.25 (l/pkt) <b>OR</b> Yes <b>AND</b> 228.5... (ml/pkt) Note: If mark E is awarded, mark C should also be awarded.
Q4c	R1	Starts to substitute in formula	1 or	F	$196 \times 6 (=1176)$ <b>OR</b> $900 + 240 (=1140)$
	A4	Completes process	2 or	FG	'1176' $-$ 240 (=936) <b>OR</b> '1140' $\div$ 6 (=190)
	I6	Correct figures	3	FGH	936 (calories) <b>OR</b> 190 (pounds)
<b>Total marks for question</b>			<b>8</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5a	R1	Process to find any route from Dieppe to Le Havre	1 or	J	Complete route indicated on diagram <b>OR</b> process to find complete route Eg. D to R to Y to S to L <b>OR</b> 30, 35, 35, 108 <b>OR</b> 30 + 83 <b>OR</b> 30 , 35, 48 <b>OR</b> 65 + 35 + 48 <b>OR</b> 65 +108 <b>OR</b> 30 + 35 + 35 + 83 <b>OR</b> Subtracts from 225 <b>or</b> 175 e.g. $225 - 30 - 35 - 35 - 108 = 17$
	I6	Shows a correct route between 175 and 225 km	2 or	JK	Eg. D to S to Y to R to L <b>or</b> $30 + 35 + 35 + 108$ <b>OR</b> D to R to Y to S to L <b>or</b> $65 + 35 + 35 + 83$ <b>OR</b> D to S to Y to S to L <b>or</b> $30 + 35 + 35 + 83$ <b>OR</b> $225 - 30 - 35 - 35 - 108$ <b>OR</b> $225 - 65 - 35 - 35 - 83$
	A5	Shows a correct route <b>and</b> correct route length with correct process	3	JKL	Eg. (D to) S to Y to R to L <b>and</b> $30 + 35 + 35 + 108 = 208$ (km) <b>or</b> $225 - 30 - 35 - 35 - 108 = 17$ (km) <b>OR</b> (D to) R to Y to S to L <b>and</b> $65 + 35 + 35 + 83 = 218$ (km) <b>or</b> $225 - 65 - 35 - 35 - 83 = 7$ (km) <b>OR</b> (D to) S to Y to S to L <b>and</b> $30 + 35 + 35 + 83 = 183$ (km) <b>or</b> $225 - 30 - 35 - 35 - 83 = 42$ (km)

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q5b</b>	A4	Interpret graph	1 or	M	30 (miles) <b>or</b> 16 (km) (May be indicated by correct marking on graph) <b>OR</b> 30 – 10 (=20) <b>OR</b> 48 – 16 (=32)
	I6	Correct answer with units where applicable	2	MN	20 miles <b>OR</b> 32 km <b>OR</b> 3 times as far
<b>Q5c</b>	R1	Process to calculate total or work with differences	1 or	P	48 + 14 + 16 + 10 + 18 + 32 (=138) <b>OR</b> 25 × 6 (=150) <b>OR</b> ± 23 ± 11 ± 9 ± 15 ± 7 ± 7
	A4	Process to calculate mean or reverse check	2 or	PQ	'138' ÷ 6 (=23) <b>OR</b> 25 × 6 (=150) <b>and</b> 48 + 14 + 16 + 10 + 18 + 32 (=138) <b>OR</b> Sum of differences (=12 under)
	I6	Correct decision from correct process and correct figures	3	PQR	No <b>AND</b> 23 <b>OR</b> No <b>AND</b> 150 <b>and</b> 138 <b>OR</b> No <b>AND</b> 12 under <b>OR</b> mean 2 under
<b>Total marks for question</b>			<b>8</b>		

**Section C: The book shop**

<b>Question</b>	<b>Skills Standard</b>	<b>Process</b>	<b>Mark</b>	<b>Mark Grid</b>	<b>Evidence</b>
<b>Q6a</b>	R1	Finds elapsed time	1 or	A	E.g. 9 am to 5:30 pm = 8.5 (hours) oe <b>OR</b> 9 am to 4:30 pm = 7.5 (hours) oe  (Condone 9.5 and 8.5 (hours) oe)
	A4	Full process for 6 days	1 or	B	'8.5' (hours) $\times$ 5 + '7.5' (=50) <b>OR</b> '7.5' $\times$ 6 + 5 (=50) <b>OR</b> '8.5' $\times$ 6 - 1 (=50)
	I6	Correct answer	2	BC	50 (hours)
<b>Q6b</b>	A4	Indicates correct likelihood	1	D	Impossible
<b>Total marks for question</b>			<b>4</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7a	R3	Starts process to work with cost	1 or	E	$170 \div 2 + 170 \times 2 (=425)$ oe <b>OR</b> $500 - 72 (=428)$
	A4	Completes process for cost	2 or	EF	'425' + 72 (=497) <b>OR</b> '428' $\div$ 2.5 (=171.2) <b>OR</b> '428' $\div$ 170 (=2.51...)
	I6	Correct conclusion with correct figures	3	EFG	Yes <b>AND</b> (£)497 <b>OR</b> Yes <b>AND</b> (£)3 spare oe <b>OR</b> Yes <b>AND</b> (he can afford ) (£)171.20 (per day) <b>OR</b> Yes <b>AND</b> (he can afford) 2.51... (days)
Q7b	R2	Considers space for the bookcase	1 or	H	Rectangle with 2 of: Width 2 grid squares Length 6 grid squares Positioned in a corner and not under a window
	I6	Fully correct solution for the bookcase	2	HJ	Rectangle with all of: Width 2 grid squares Length 6 grid squares Positioned in a corner and not under a window
	I6	Fully correct solution for the table	1	K	Square with sides of 5 grid squares in any unoccupied space
<b>Total marks for question</b>			<b>6</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R1	Process for saving in book shop	1 or	L	$6.50 \div 2 (=3.25)$ <b>OR</b> Allow $12.30 \div 2 (=6.15)$
	A4	Correct saving at book shop	2	LM	(£)3.25 Accept (£)15.55
	R2	Finds full cost of books	1	N	$12.30 + 6.50 (=18.80)$ Addition may be seen in subsequent calculation if discounts are calculated separately
	A4	Process for discount at Books.com or	1 or	P	$0.2 \times '18.80' (=3.76)$ oe <b>OR</b> $0.2 \times 12.30 (=2.46)$ <b>OR</b> $0.2 \times 6.50 (=1.3)$ <b>OR</b> $0.8 \times '18.80' (=15.04)$ oe
	I6	Finds correct saving at Books.com	2	PQ	(£)3.76 Accept (£)15.04
	I6	Valid decision ft. their answer provided marks L and P are awarded	1	R	E.g. Books.com provided marks L and P are awarded and there are figures to compare. Both should be total savings or both the total cost
<b>Total marks for question</b>			<b>6</b>		

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