

# Mark Scheme (Results)

October 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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 his or her 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: Home finance

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1	R3	Begins working with percentage or proportion	1 or	A	e.g. $4000 \div 100 (=40)$ <b>OR</b> $3 \div 100 (=0.03)$
	A4	Full process to find percentage	2 or	AB	e.g. $'40' \times 3 (=120)$ <b>OR</b> $'40' + '40' + '40' (=120)$ <b>OR</b> $'0.03' \times 4000 (=120)$ oe
	I6	Correct answer	3	ABC	(£)120
<b>Total marks for question</b>			<b>3</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	A4	Works with fraction	1 or	D	$52.60 \div 4 (=13.15)$ <b>OR</b> $12 \times 4 (=48)$
	I6	Correct decision with accurate figure	2	DE	<b>B AND (£)13.15 OR</b> <b>B AND (£)48 (max spent with A to give £12 discount)</b> <b>OR</b> <b>B AND (£)40(.60) and (£)39(.45) (from longer comparison method)</b>
Q2(b)	R1	Begins to develop a solution	1 or	F	$49.99 - 34.59 (=15.4)$ <b>OR</b> $70 - 30 (=40)$ <b>OR</b> $70 + 49.99 (=119.99)$ <b>OR</b> $30 \times 12 (=360)$ <b>OR</b> $34.59 \times 12(=415.08)$ <b>OR</b> $70 \times 12 (=840)$ <b>OR</b> $49.99 \times 12(=599.88)$ <b>OR</b> Allow $50 \times 12(=600)$
	R2	Process to total savings for TV and internet or to find total monthly savings or finds current or new annual costs	2 or	FG	$(49.99 - 34.59) \times 12 (=184.8)$ <b>OR</b> $'15.4' + 30 (=45.40)$ <b>OR</b> $70 \times 12 + 49.99 \times 12(=1439.88)$ <b>OR</b> $'40' \times 12 + 34.59 \times 12(=895.08)$ Allow use of 50 for 49.99 Condone $(40 + '15.4') \times 12 (=664.8)$
	A4	Full process to find 12-month savings	3 or	FGH	e.g. $'360' + '184.8' (=544.8)$ <b>OR</b> $'45.4' \times 12 (=544.8)$ <b>OR</b> $'1439.88' - '895.08'(=544.8)$

	I6	Correct answer in correct money notation	4	FGHJ	£544.80 in correct money notation
	A5	Valid check	1	K	Valid check, e.g. reverse calculation or alternative method or estimation
<b>Total marks for question</b>			<b>7</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R1	Begins the process to find the mean	1 or	L	$274 + 283 + 297 + 299 + 335 + 312 (=1800)$ <b>OR</b> $300 \times 6 (=1800)$
	A4	Full process to find the mean or figures to compare	2 or	LM	$(274 + 283 + 297 + 299 + 335 + 312) \div 6 (=300)$ <b>OR</b> $274 + 283 + 297 + 299 + 335 + 312 (=1800)$ <b>and</b> $300 \times 6 (=1800)$
	I6	Correct conclusion with accurate figures	3	LMN	Yes <b>AND</b> 300 (must come from correct process) (kWh) <b>OR</b> Yes <b>AND</b> 1800 (coming from two correct processes) (kWh)
Q3(b)	R2	Starts to use the rule	1 or	P	$135 \times 34 (=4590)$ <b>OR</b> $1530 \times 3 (=4590)$
	A4	Full process to use the rule	2 or	PQ	$135 \times 34 \div 3 (=1530)$ <b>or</b> $1530 \times 3 \div 34(=135)$ <b>OR</b> $135 \times 34 (=4590)$ <b>and</b> $1530 \times 3 (=4590)$
	I6	Correct conclusion with accurate figures	3	PQR	e.g. No <b>AND</b> comparable accurate figures from correct processes
<b>Total marks for question</b>			<b>6</b>		

Section B: Sports day

Question	Skills Standard	Process	Mark	Mark Grid	Evidence										
Q4	R1	Considers lunch constraint	1	A	Lunch time scheduled at 1 pm to 1.45 pm										
	R2	Starts to plan day	1 or	B	Adding a time to 10 am e.g. 10 am + 20 mins = 10.20 am <b>or</b> 10 am + 1 hour 15 mins = 11.15 am <b>OR</b> 1 event scheduled correctly between 10 am and 3.30 pm e.g. F(ootball) 10.20 am to 11.35 am (end time may be implied by the start time of the next event)										
	A4	Improves solution	2 or	BC	Full day time plan showing start and end times of all events without overlap (may include breaks between events and end time may be implied by the start time of the next event) starting at 10.00 am, finishing by 3.30 pm (may include 1 error or omission – e.g. incorrect duration of an event)										
	I6	Complete sequential time plan.	3	BCD	Fully correct answer may include breaks between events. NB any valid time format Example										
					<table border="1"> <tbody> <tr> <td>10.00-11.15</td> <td>F(ootball 5-a-side)</td> </tr> <tr> <td>11.15-11.35</td> <td>R(elay race)</td> </tr> <tr> <td>11.35-12.50</td> <td>T(ug-of-war)</td> </tr> <tr> <td>13.00-13.45</td> <td>L(unch)</td> </tr> <tr> <td>13.45-14.05</td> <td>S(ack race)</td> </tr> </tbody> </table>	10.00-11.15	F(ootball 5-a-side)	11.15-11.35	R(elay race)	11.35-12.50	T(ug-of-war)	13.00-13.45	L(unch)	13.45-14.05	S(ack race)
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13.45-14.05	S(ack race)														

14.05-15.20	H(ockey)
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<b>Total marks for question</b>	<b>4</b>
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Question	Skills Standard	Process	Mark	Mark Grid	Evidence																													
Q5(a)	R2	Begins to consider the number of matches	1 or	E	Lists at least 3 correct matches oe																													
	A4	Improves the solution	2 or	EF	Lists at least 5 correct matches (and no other) <b>OR</b> Lists 6 correct matches with duplicates oe <b>OR</b> Lists at least 3 correct matches with 3 clear input opportunities for scores with no teams playing themselves shown																													
	I6	Fully correct efficient data collection sheet	3	EFG	Clearly labelled and efficient data collection sheet  Examples of fully correct answers <table border="1" style="display: inline-table; vertical-align: top;"> <thead> <tr> <th>Match</th> <th>Score</th> </tr> </thead> <tbody> <tr><td>A:B</td><td></td></tr> <tr><td>A:C</td><td></td></tr> <tr><td>A:D</td><td></td></tr> <tr><td>B:C</td><td></td></tr> <tr><td>B:D</td><td></td></tr> <tr><td>C:D</td><td></td></tr> </tbody> </table> <table border="1" style="display: inline-table; vertical-align: top; margin-left: 20px;"> <thead> <tr> <th>Scores</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr><td>A</td><td></td><td></td><td></td></tr> <tr><td>B</td><td style="background-color: #cccccc;"></td><td></td><td></td></tr> <tr><td>C</td><td style="background-color: #cccccc;"></td><td style="background-color: #cccccc;"></td><td></td></tr> </tbody> </table>	Match	Score	A:B		A:C		A:D		B:C		B:D		C:D		Scores	B	C	D	A				B				C		
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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(b)	R3	Process to find the number of teams or total number of boys	1 or	H	$42 \div 7 (=6 \text{ teams})$ <b>OR</b> $42 - 18 (=24)$ <b>OR</b> 42 divided by 2 or 3 or 6 or 14 or 21
	R1	Process to find number of girls or boys per team or number of teams and total number of boys	2 or	HJ	$18 \div '6' (=3 \text{ girls per team})$ <b>OR</b> $18 \div '3' (=6 \text{ girls per team})$ <b>OR</b> $18 \div '2' (=9 \text{ girls per team})$ <b>OR</b> $'24' \div '6' (=4 \text{ boys per team})$ <b>OR</b> $'24' \div '3' (= 8 \text{ boys per team})$ <b>OR</b> $'24' \div '2' (=12 \text{ boys per team})$ <b>OR</b> $42 \div 7 (=6 \text{ teams})$ <b>or</b> $42 \div 14 (=3 \text{ teams})$ <b>or</b> $42 \div 21 (=2 \text{ teams})$ <b>AND</b> $42 - 18 (=24)$
	A4	Full process to find number of boys and girls in a team	3 or	HJK	e.g. $18 \div '6' (=3)$ <b>AND</b> $7 - '3' (=4)$ <b>or</b> $'24' \div '6' (=4)$ <b>OR</b> $18 \div '3' (=6)$ <b>AND</b> $14 - '6' (= 8)$ <b>or</b> $'24' \div '3' (=8)$ <b>OR</b> $18 \div 2(=9)$ <b>AND</b> $21 - '9' (=12)$ <b>or</b> $'24' \div '2' (=12)$
	I6	Correct answer with accurate figures	4	HJKL	4 boys <b>and</b> 3 girls (in 6 teams) <b>OR</b> 8 boys <b>and</b> 6 girls (in 3 teams) <b>OR</b> 12 boys <b>and</b> 9 girls (in 2 teams)
	A5	Valid check	1	M	Valid check, e.g. reverse calculation or alternative method
<b>Total marks for question</b>			<b>8</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(a)	R2	Begins the process	1 or	N	$34 \times 2.75 (=93.5)$ <b>OR</b> $120 - 7.5 - 7.5 (=105)$ <b>OR</b> $7.5 + 7.5(=15)$
	A4	Full process to find figures to compare	2 or	NP	$'93.5' + 7.5 + 7.5(=108.5)$ <b>OR</b> $34 \times 2.75 (=93.5)$ <b>and</b> $120 - 7.5 - 7.5 (=105)$ <b>OR</b> $'105' \div 34(=3.08..)$ <b>OR</b> $'105' \div 2.75(=38.18..)$
	I6	Correct conclusion with accurate figures	3	NPQ	Yes <b>AND</b> (£)108.5(0) <b>OR</b> Yes <b>AND</b> (£)93.5(0) <b>and</b> (£)105 <b>OR</b> Yes <b>AND</b> (£)3(.08.. per metre they can afford) <b>OR</b> Yes <b>AND</b> 38(.18... m)
Q6(b)	I6	Identifies correct likelihood	1	R	Selects likely
<b>Total marks for question</b>			<b>4</b>		

**Section C: Hairdressing salon**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q7(a)</b>	R3	Begins to work with the area	1 or	A	$6 \times 10 (=60)$ <b>or</b> $2 \times 2(=4)$ may be seen on the diagram
	A4	Full process to work with total area of the room or to work with the area required per station	2 or	AB	$6 \times 10 (=60) + 2 \times 2(=4) (=64)$ <b>OR</b> $'60' \div 4(=15)$ <b>or</b> $'4' \div 4(=1)$ Allow complete square count seen on the diagram
	A4	Full process to find maximum	3 or	ABC	$'64' \div 4 (=16)$ <b>OR</b> $'15' + '1'(=16)$ Allow complete 4 m <sup>2</sup> square count seen on the diagram or repeated addition
	I6	Correct answer	4	ABCD	16 (work stations)
<b>Q7(b)</b>	R2	Begins to draw the rectangle (chair)	1 or	E	Rectangle with at least 1 of: <ul style="list-style-type: none"> <li>• one side 3 sq lengths</li> <li>• one side 5.5 sq lengths</li> <li>• shorter side touching the sink along all 2 sq lengths</li> </ul>
	A4	Improves their drawing	2 or	EF	Rectangle with sides 3 sq lengths by 5.5 sq lengths (not overlapping sink or table)
	I6	Fully correct drawing	3	EFG	Correct sized rectangle correctly placed on the grid.
<b>Total marks for question</b>			<b>7</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R1	Works in consistent units	1	H	0.25 or 5000 or 7.5 May be seen in subsequent working
	R3	Process to find total amount of shampoo needed	1 or	J	$250 \times 30 (=7500)$ oe <b>OR</b> '5000' $\div$ 250(=20) oe
	A4	Process to find number of bottles needed	2 or	JK	'7500' $\div$ '5000' (=1.5) oe <b>OR</b> $30 \div$ '20' (=1.5) oe May be implied by stating 2 bottles or use of 2 in the next mark
	I6	Process to find figures to compare	3 or	JKL	'2' $\times$ 36.99 (=73.98) <b>OR</b> $75 \div$ '36.99' (=2.02..)
	I6	Correct conclusion with accurate figures	4	JKLM	Yes <b>AND</b> (£)73.98 <b>OR</b> Yes <b>AND</b> 1.5 rounded to 2 <b>and</b> 2(.02..) (bottles)
<b>Total marks for question</b>			<b>5</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	R1	Find total number of hours worked in a day	1 or	N	'13' - 9(=4) <b>and</b> 6 - 2(=4) <b>and</b> '4' + '4' (=8) oe <b>OR</b> counting up to 8 hours <b>OR</b> '13' - 9(=4) <b>and</b> '4' × 12.50(=50) <b>OR</b> 6 - 2(=4) <b>and</b> '4' × 12.50(=50)
	R3	Full process to find total amount to pay in a day	2 or	NP	'8' × 12.50(=100) oe <b>OR</b> 100 ÷ '8' (=12.5)
	I6	Correct conclusion with figures to compare	3 or	NPQ	Yes <b>AND</b> comparable figures from their fully correct process.
	A5	Valid check	1	R	Valid check, e.g. reverse calculation or alternative method
<b>Total marks for question</b>			<b>4</b>		

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