

# Mark Scheme (Results)

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R1	Starts to work with correct costs	1 or	A	eg: $2 \times 5.45(=10.9)$ <b>OR</b> ' $11.1$ ' + $9.7(=20.8)$ <b>OR</b> $30 - '11.1'(=18.9)$ <b>OR</b> $30 - 9.7(=20.3)$
	A4	Full process for cost	2 or	AB	' $11.1$ ' + $9.7 + '10.9'(= 31.7(0))$ <b>OR</b> $30 - '10.9' - '11.1' - 9.70(= -1.7(0))$ oe
	I6	Correct decision from correct figures	3	ABC	E.g. No <b>and</b> (£)31.7(0) <b>OR</b> Indicates No <b>and</b> (£)1.7(0)

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(b)	R1	Develops solution	1	D	Indicates one time from hotel to Lincoln <b>and</b> indicates one later time from Lincoln to the hotel Times may be indicated on the timetables
	R2	Works with constraints	1 or	E	Indicates arrival time at hotel before 1730 <b>OR</b> indicates 6 hours in Lincoln e.g. could indicate by arrival time in Lincoln and depart time from Lincoln or a time calculation e.g. 0947 + 6 hrs(=1547), 1438 – 6 hrs ((0)838), 1019 + 6 hrs(=1619) Times may be indicated on the timetables
	A4	Improves solution	2 or	EF	Indicates arrival time at hotel before 1730 <b>AND</b> shows 6 hours in Lincoln eg: could indicate by arrival time in Lincoln and depart time from Lincoln or a time calculation e.g. 0947 + 6 hrs (=1547), 1438 – 6 hrs ((0)838), 1019 + 6 hrs(=1619) Times may be indicated on the timetables
	A5	Fully correct solution	3	EFG	States (Hotel) 0905 – (Lincoln) 0947, (Lincoln) 1628 – (Hotel) 1710 <b>OR</b> (Hotel) 0935 – (Lincoln) 1019, (Lincoln) 1628 – (Hotel) 1710 Ignore any incorrect calculations seen if the bus times are correct.
<b>Total marks for question</b>			<b>7</b>		



Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R1	Process to calculate total or work with differences	1 or	H	$6+5+7+6+2(=26)$ <b>OR</b> $5 \times 5(=25)$ <b>OR</b> $\pm 1, 0, \pm 2, \pm 1, \pm 3$
	A4	Process to calculate mean or reverse check	2 or	HJ	'26' $\div 5(=5.2)$ <b>OR</b> $5 \times 5(=25)$ <b>and</b> $6+5+7+6+2(=26)$ <b>OR</b> sum of differences (=1)
	I6	Valid decision from correct figure	3	HJK	Yes <b>and</b> 5.2 <b>OR</b> Yes <b>and</b> 25 and 26 <b>OR</b> Yes <b>and</b> 'over' by 1
Q2(b)	A4	Full process to calculate discount	1 or	L	$0.2 \times 190(=38)$ o.e. <b>OR</b> complete build up method <b>OR</b> $0.8 \times 190(=152)$
Q2(c)	I6	Calculates correct discount	2	LM	(£)38
	R2	Works with Special Offer A	1	N	$6 \times 61(=366)$ <b>OR</b> $[360, 370] \div 6(=[60, 61.67])$
	A4	Works with Special Offer B	1 or	P	$6 \div 2(=3)$ <b>OR</b> $125 \div 2(=62.5)$
	R1	Full process for Special Offer B	2	PQ	eg: $6 \times 125 \div 2(=375)$ <b>OR</b> '62.5' $\times 6(=375)$ <b>OR</b> $[360, 370] \div 3(=[120, 123.34])$
	I6	Correct figures and correct conclusion	1	R	eg: Indicates No <b>and</b> (£)366 and (£)375 <b>OR</b> $[120, 123.34]$ <b>and</b> $[60, 61.67]$ <b>and</b> only Special Offer A
<b>Total marks for question</b>			<b>7</b>		

**Section B: Family visit**

<b>Question</b>	<b>Skills Standard</b>	<b>Process</b>	<b>Mark</b>	<b>Mark Grid</b>	<b>Evidence</b>
<b>Q3</b>	R1	Begins to construct diagram	1 or	A	Rectangle with correct length <b>OR</b> correct width <b>OR</b> length : width is 2:1.
	I6	Bed drawn correctly on scale diagram.	2	AB	Rectangle: 8 squares by 4 squares <b>and</b> satisfies door and furniture constraints, at least 2 squares from door and furniture
<b>Total marks for question</b>			<b>2</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q4(a)</b>	R2	Process to find the amount of bacon available or starts to find amount of bacon needed	1 or	C	$5 \times 8 (=40)$ <b>OR</b> $2+2+6+2 (=12)$ per day <b>OR</b> e.g. $2 \times 3 (=6)$ (y.c. for 3 days)
	A4	Process to find amount of bacon needed or amount available per day	2 or	CD	'12' $\times$ 3 (=36) <b>OR</b> '40' $\div$ 3 (=13.33.....)
	A4	Full process to find figures to compare	3 or	CDE	'12' $\times$ 3 (=36) <b>and</b> $5 \times 8 (=40)$ <b>OR</b> '36' $\div$ 8 (=4.5) <b>OR</b> '40' $\div$ 3 (=13.33.....) <b>and</b> $2+2+6+2 (=12)$
	I6	Correct figures and correct conclusion	4	CDEF	Yes and 36 <b>and</b> 40 <b>OR</b> Yes and 4 pieces spare (with correct working) <b>OR</b> Yes and 4.5 (packs) <b>OR</b> Yes and 12 <b>and</b> 13(.3)
<b>Q4(b)</b>	R1	Dealing correctly with either child or adult constraints	1 or	G	eg: SLKGTBMD <b>OR</b> SLMKTBDG
	I6	Fully correct solution	2	GH	eg: SLKBTDGM <b>OR</b> SMLBTKGD
<b>Total marks for question</b>			<b>6</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	R2	Converts and uses fraction of time	1	J	$\frac{1}{2}$ hour = 30 (mins) used
	A4	Process to use a time period from the travel note	1 or	K	Uses a period of time from the travel note. Eg: 10,11.15 ( 1 hr 15mins) $11 + 5\frac{1}{2}(=1630)$ oe
	I6	Correct answer	2	KL	6.00 (pm) or 1800 oe
Q5(b)	R1	Begins to process at least two ticket costs for the family	1 or	M	E.g. $26.40 + 6.70( =33.70)$
	I6	Communicates full process for one combination	2	MN	$(2 \times 6.60) + (3 \times 8.70) + 6.70 + 6.70(=52.7)$ <b>OR</b> ( not family) $26.40 + (2 \times 8.70) + 6.70 + 6.70(=57.2)$ <b>OR</b> ( family 1a + 3c) $26.40 + 8.70 + 6.70 +6.70 (=48.5)$ <b>OR</b> ( family 2a + 2c)
	A4	Full process for at least two combinations or process to check family ticket cheaper than buying separately.	1	P	At least two of: $(2 \times 6.60) + (3 \times 8.70) + 6.70 + 6.70(=52.7)$ <b>OR</b> $26.40 + (2 \times 8.70) + 6.70 + 6.70(=57.2)$ <b>OR</b> $26.40 + 8.70 + 6.70 +6.70(=48.5)$ <b>OR</b> $8.70 + 3 \times 6.60 (=28.50)$ ( 1 a + 3c) <b>OR</b> $2 \times 8.70 + 2 \times 6.60(=30.60)$ ( 2a + 2c)
	A4	Correct figures for at least one combination or correct check for family ticket being cheaper than buying separately	1	Q	At least one of: <b>52.7 or 57.2 or 48.5 OR</b> <b>28.5 ( 1a + 3c) or 30.6 ( 2a + 3c)</b>
	I6	Correct tickets and correct cost in correct money notation.	1	R	Family, 2 adult and 2 children <b>AND</b> £48.50 correct money notation
<b>Total marks for question</b>			<b>8</b>		

**Section C: Business Enterprise Centre**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q6(a)</b>	R3 A4	Uses top half of board Process to consider lengths	1 1 or	A B	$930 \div 2 (=465)$ Works with any length from board or table E.g: $297 + 297 (=594)$ <b>OR</b> $690 - 297 - 297 (=96)$ <b>OR</b> $690 \div 2 (=345)$ <b>OR</b> $'465' \div 2 (=232.5)$ <b>OR</b> [Condone area approach if full working seen: E.g. $('465' \times 690) \div 2 = 160435$ <b>and</b> $420 \times 297 = 124740$ <b>and</b> $594 \times 420 = 249480$ ]
	A4	Finds correct lengths to compare	2	BC	465 <b>and</b> 345
	I6	Correct decision and accurate figures	1	D	Indicates A3 ( accept 420 by 297)
<b>Q6(b)</b>	R1	Begins to work with word formula	1 or	E	$25 - 10 (=15)$ <b>OR</b> $n \times 2.5 (=2.5n)$ $1 < n < 9$
	A4	Process to find additional length	2 or	EF	E.g. $'15' \div 2.5 (= 6)$ <b>OR</b> $2.5 \times 6 (=15)$ <b>OR</b> $10 + ('6' \times 2.5) (=25)$ <b>OR</b> $'6' + 5 (=11)$ Build-up methods must be complete
	I6	Correct answer	3	EFG	11(cm)
<b>Total marks for question</b>			<b>7</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R1	Starts to construct a data collection sheet	1 or	H	Input opportunities <b>and</b> at least one of Monday – Saturday inclusive <b>OR</b> At least 3 times with a 2 hour gap
	I6	A complete data collection sheet with input opportunities.	2 or	HJ	Input opportunities <b>and</b> at least 5 times (with a gap of 2 hours) <b>and</b> Monday – Saturday inclusive Condone inclusion of Sunday for this mark only
	I6	A complete data collection sheet with efficient input opportunities.	3	HJK	Efficient input opportunities <b>and</b> at least 5 times with a gap of 2 hours <b>and</b> Monday – Saturday inclusive
<b>Total marks for question</b>			<b>3</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(a)	I6	Writes the correct clock time	1	L	1:40 (pm) <b>or</b> 1340 (accept comma, full stop, colon or no punctuation)
Q8(b)	R1	Converts to consistent units	1	M	E.g. 2000, 6000, 0.4, 5.6 May be implicit in a completely correct solution
	A4	Starts to process how much coffee needed or available coffee or cups in a jug.	1 or	N	E.g. '2000' $\times$ 3(=6000) <b>OR</b> 14 $\times$ 400(=5600) <b>OR</b> '2000' $\div$ 400( = 5)
	R3	Process to compare coffee available with coffee required or cups in 3 jugs.	2 or	NP	E.g. 2000 $\times$ 3(=6000) <b>and</b> 14 $\times$ 400(=5600) <b>OR</b> 5600 $\div$ 2000(=2.8) <b>OR</b> 3 $\times$ 2000 $\div$ 14 (=428) <b>OR</b> '6000' $\div$ 400 (=15) <b>or</b> '6' $\div$ '0.4' (=15) <b>OR</b> 3 $\times$ '5' (=15) (cups)
	I6	Correct decision with correct figures	3	NPQ	Yes <b>and</b> 6000 <b>and</b> 5600 oe <b>OR</b> Yes <b>and</b> 5600 <b>and</b> 400 left oe <b>OR</b> Yes <b>and</b> 2.8 (jugs needed) <b>OR</b> Yes <b>and</b> 428 (ml in each cup) <b>OR</b> Yes <b>and</b> (enough for) 15 (people or cups)
	A5	Appropriate check	1	R	Reverse calculation or alternative method
<b>Total marks for question</b>			<b>6</b>		

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