

# Mark Scheme (Results)

January 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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 2.40E

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:

<b>Process</b>		<b>Evidence</b>
Appropriate graph or chart – (e.g. bar, stick, line graph)	1 or	1 of: 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: Organising a party**

<b>Question</b>	<b>Skills Standard</b>	<b>Process</b>	<b>Mark</b>	<b>Mark Grid</b>	<b>Evidence</b>
<b>Q1(a)</b>	R2	Selects room from table	1	A	(Room)3 <b>OR</b> (£)794.95 clearly indicated
<b>Q1(b)</b>	A4	Full process to find 20%	1 or	B	E.g. '794.95' $\div$ 10(=79.495) <b>AND</b> '79.495' $\times$ 2(=158.99) <b>OR</b> '794.95' $\times$ 0.2(=158.99) follow through from A mark provided figure is from table
	I6	Correct answer	2	BC	(£)158.99 follow through from A mark provided figure is from table condone (£)158.98 coming from clear working
	A5	Check using reverse calculation or approximation	1	D	E.g. '158.99' $\div$ 2(=79.495) <b>OR</b> '158.99' $\div$ 2 $\times$ 10(=794.95) <b>OR</b> 800 $\div$ 10 $\times$ 2(=160)

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(c)	R3	Begins to work with time or uses consistent units	1 or	E	Adds 2 times e.g 6.30 (pm) + 1 ½(hrs) or 1(hr) ) + 45(mins) <b>OR</b> E.g. 90 mins <b>OR</b> 0.75 hours <b>OR</b> 0.33(3) hours <b>OR</b> (6:30 until midnight =>) 5.5 hours oe May be seen in subsequent working
	R1	Works with time	2 or	EF	E.g. '90' + 45(=135) <b>OR</b> 12:00 – 2(=10:00) <b>OR</b> 1½ (hrs) + 45(mins) + 1(hr)(=3.25hrs) <b>OR</b> Adds on at least 2 times to 6:30
	A4	Full process to find figures to compare	3 or	EFG	6:30pm+1 ½(hrs)+45(mins)+1(hr)+20(mins)+2(hrs)(=12:05(am)) <b>OR</b> 12 – 2(hrs) – 20(mins) –1(hr) – 45(mins) – 1.5(hrs)(=6.25(pm)) <b>OR</b> 1 ½ (hrs) + 45(mins) + 1(hr) + 20(mins) + 2(hrs)(=5 hrs 35 mins or 335 min) <b>AND</b> 12 – 6:30(=5 hrs 30 mins or 330 min) oe <b>OR</b> 6.30; 8:00; 8:45; 9;45; 10:05; 12:05 oe <b>OR</b> 12:00, 10:00, 9:40, 8:40, 7:55, 6:25 oe
	I6	Decision with fully correct working	4	EFGH	No <b>and</b> 12:05 (am) or 00:05 <b>OR</b> No <b>and</b> 6.25(pm) or 18:25 <b>OR</b> No <b>and</b> 5 hrs 35mins <b>and</b> 5 hrs 30mins oe <b>OR</b> No <b>and</b> 5 mins over <b>OR</b> Accept Yes <b>and</b> only 5 mins over oe
<b>Total marks for question</b>			<b>8</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R3	Starts to process cost	1 or	J	$60 \div 6(=10)$ (packs) <b>OR</b> $60 \div 4(=15)$ (packs) <b>OR</b> $21 \div 6(=3.5)$ oe <b>OR</b> $14.50 \div 4(=3.625)$ oe
	A4	Develops process to find costs	2 or	JK	$21 \times '10'$ (=210) <b>OR</b> $14.5 \times '15'$ (=217.5) <b>OR</b> $'3.5' \times 60$ (=210) <b>OR</b> $'3.625' \times 60$ (=217.5) <b>OR</b> $21 \div 6(=3.5)$ oe <b>AND</b> $14.50 \div 4(=3.625)$ oe <b>OR</b> $60 \div 6(=10)$ (packs) <b>AND</b> $60 \div 4(=15)$ (packs)
	A4	Complete process to find difference	3 or	JKL	$'217.5' - '210'$ (=7.5) <b>OR</b> $( '3.625' - '3.5' ) \times 60$ (=7.5)
	I6	Correct answer in correct money notation	4	JKLM	£7.50 (in correct money notation)
<b>Total marks for question</b>			<b>4</b>		



Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	R1	Process to begin sharing cost	1 or	N	$84 \div 2 (=42)$ <b>OR</b> $84 - 20(=64)$ <b>AND</b> $64 \div 2(=32)$ <b>or</b> $20 \div 2(=10)$
	A4	Full process to find amounts for each person	2 or	NP	'42' - 20(=22) <b>OR</b> '32' - '10'(=22) <b>and</b> '32' + '10'(=42)
	I6	Identifies people with correct amounts	3	NPQ	S(am pays £)42 <b>and</b> B(renda pays £)22
<b>Total marks for question</b>			<b>3</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4	I6	Makes decision on likelihood	1	R	Unlikely
<b>Total marks for question</b>			<b>1</b>		

**Section B: Parachute jumping**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q5(a)</b>	R3	Works with equivalent fractions	1 or	A	E.g. $30 \div 100(=0.3)$ <b>OR</b> $\frac{3}{10}$ <b>OR</b> $1 \div 3(=0.33..)$ <b>OR</b> $\frac{1}{3}$
	I6	Makes decision with correct figures	2	AB	No <b>and</b> 0.3 <b>and</b> 0.33(3...) <b>oe OR</b> No <b>and</b> 33(.3..% ) <b>OR</b>
<b>Q5(b)</b>	A4	Plots point	1	C	78 plotted for September ( $\pm 2$ mm tolerance)
<b>Q5(c)</b>	I6	Makes valid comment	1	D	E.g. August had the highest number of people, or The total number of people in the 5 months was 355 (accept any whole number between 345 and 365) or May 52 or Jun 63 or Jul 70 or Aug 92 The number of people increased in summer months
<b>Total marks for question</b>			<b>4</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q6(a)</b>	I6	Begins to prepare sheet	1 or	E	Input opportunities <b>AND</b> 1 of: Heading for names Headings for days (week day <b>and</b> weekend) Headings for weight (< 60 kg, 60 – 75 kg, > 75 kg)
	R1	Improves sheet	2 or	EF	Input opportunities <b>AND</b> 2 of: Heading for names Headings for ‘days’ with week day <b>and</b> weekend Headings for ‘weight’ with < 60 kg, 60 – 75 kg, > 75 kg
	R3	Efficient fully correct data collection sheet	3	EFG	Fully correct, fit for purpose, efficient input opportunities
	A4	Begins to complete sheet	1 or	H	Completes categorised data correctly for at least 2 people Provided E awarded.
	A5	Fills in data correctly	2	HJ	Completes categorised data for all four people
<b>Q6(b)</b>	R1	Begins process to find mean or reverse calculation	1 or	K	$509 + 381 + 425 + 390 + 455(=2160)$ <b>OR</b> $420 \times 5(=2100)$
	A4	Completes process to find figure(s) to compare	2 or	KL	‘2160’ $\div 5(=432)$ <b>OR</b> $509 + 381 + 425 + 390 + 455(=2160)$ <b>AND</b> $420 \times 5(=2100)$
	I6	Valid decision with accurate figure(s)	3	KLM	Yes <b>and</b> (£)432 <b>OR</b> Yes <b>and</b> (£)2100 <b>and</b> (£)2160
	A5	Valid check	1	N	Reverse calculation <b>or</b> estimation or alternative method E.g. $510 + 380 + 430 + 390 + 460(=2170)$ <b>or</b> $432 \times 5(=2160)$
<b>Total marks for question</b>			<b>9</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R1	Starts to process formula	1 or	P	$8 \times 4 (=32)$ <b>OR</b> $33 + 1 (=34)$
	A4	Complete process	2	PQ	'32' - 1 (=31) <b>OR</b> '34' $\div$ 4 (=8.5)
	I6	Makes decision with correct figures	1	R	No <b>and</b> 31 (skydivers) <b>OR</b> No <b>and</b> 8.5(rings)
<b>Total marks for question</b>			<b>3</b>		

**Section C: DIY**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q8(a)</b>	R3	Works with consistent units	1	A	E.g. 0.9 <b>OR</b> 0.6 <b>OR</b> 2 <b>OR</b> 1.8 <b>OR</b> 3000 May be seen in subsequent working
	R2	Process to work with lengths	1	B	E.g. 2 + 0.9(=2.9) <b>or</b> 1.8 + 0.6(=2.4) <b>OR</b> 2 + 0.6(=2.6) <b>or</b> 1.8 + 0.9(=2.7) <b>OR</b> 3 – 2 – 0.9(=0.1) <b>or</b> 3 – 1.8 – 0.6(=0.6) <b>OR</b> 3 – 2 – 0.6(=0.4) <b>or</b> 3 – 1.8 – 0.9(=0.3) <b>OR</b> 1.8 + 0.9 + 2 + 0.6(=5.3) <b>and</b> 3 × 2(=6) (C mark not to be awarded from this method) <b>OR</b> 1.8 + 0.9 + 2 + 0.6(=5.3) <b>and</b> 5.3 – 3 (=2.7) (C mark not to be awarded from this method)
	I6	Correct answer supported by correct method	1	C	2 (lengths)
<b>Q8(b)</b>	R3	Starts to process ratio	1 or	D	1 + 3(=4) <b>OR</b> 9 × 3(=27) <b>OR</b> 36 - 9(=27) <b>OR</b> Build up method to an equivalent ratio
	A4	Full process to find figure(s) to compare	2 or	DE	36 ÷ '4'(=9) <b>OR</b> '27' + 9(=36) <b>OR</b> '27' ÷ 3(=9) <b>OR</b> Full build up method from 1:3, 2:6...to 9:27
	I6	Valid decision with correct method and accurate figures	3	DEF	E.g. Yes <b>and</b> 36 ÷ 4 = 9 <b>OR</b> Yes <b>and</b> 27 + 9 =36 <b>OR</b> Yes <b>and</b> 27 ÷ 3 = 9
	A5	Valid check	1	G	Reverse process <b>or</b> alternate method E.g. 9 × 4 = 36
<b>Total marks for question</b>			<b>7</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q9</b>	I6	Draws shape accurately	1	H	Draws a rectangle 5 squares by 3 squares
	R3	Starts to develop solution	1 or	J	Draws a rectangle with 2 of: At least 1 square from the ceiling At least 4 squares above the floor Symmetrical between left and right edges Rectangle correct in at least one dimension
	A4	Continues to develop solution	2 or	JK	Draws a rectangle correct in at least one dimension with 2 of: At least 1 square from the ceiling At least 4 squares above the floor Symmetrical between left and right edges
	I6	Fully correct dimensions and position	3	JKL	Draws a rectangle correct in at least one dimension with all of: At least 1 square from the ceiling At least 4 squares above the floor Symmetrical between left and right edges
<b>Total marks for question</b>			<b>4</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q10	I6	Process to work with area	1	M	$5 \times 4 (=20)$ <b>OR</b> Draws grid on floor to imply area
	R2	Begins to work with any packs of flooring	1 or	N	E.g White Pine $'20' \div 3 (=6.666\dots)$ (packs needed) <b>OR</b> $200 \div 29 (=6.896\dots)$ (packs affordable) Allow figures for YP, GO and WO  Fits 1 pack onto grid  E.g. Combined pine $'20' \div (2 + 3) (=4)$ <b>OR</b> $200 \div (21 + 29) (=4)$ <b>OR</b>
	R3	Complete process to find cost for one flooring type	2 or	NP	E.g. White Pine $'7' \times 29 (=203)$ <b>OR</b> $'20' \div 3 (=6.666\dots)$ <b>and</b> $200 \div 29 (=6.896\dots)$ <b>OR</b> $200 \div '7' (=28.57\dots)$ Allow figures for YP, GO and WO  E.g. Combined pine $'4' \times 29 (=116)$ <b>or</b> $'4' \times 21 (=84)$

	A4	Finds figures to compare all pine options or eliminates pine option	3 or	NPQ	E.g. White Pine and Yellow Pine ' $20 \div 3 (=6.666\dots)$ <b>and</b> ' $7 \times 29 (=203)$ <b>AND</b> ' $20 \div 2 (=10)$ <b>and</b> ' $10 \times 21 (=210)$ <b>OR</b> ' $20 \div 3 (=6.666\dots)$ <b>and</b> $200 \div 29 (=6.896\dots)$ <b>AND</b> ' $20 \div 2 (=10)$ <b>and</b> $200 \div 21 (=9.523\dots)$ <b>OR</b> $200 \div '7' (=28.57\dots)$ <b>AND</b> $200 \div '10' (=20)$
	I6	Correct decision with a consideration for whole packs	4	NPQR	E.g. Combined Pine ' $116 + '84' (=200)$ <b>OR</b> ' $4 \times ('21+29') (=200)$ No <b>and</b> (£)203 <b>AND</b> (£)210 <b>OR</b> No <b>and</b> (£)28.57..(compared to £29) <b>AND</b> (£)20 (compared to £21) <b>OR</b> No <b>and</b> 6.89.. <b>and</b> 7 (needed) <b>AND</b> 9.523... <b>and</b> 10 (needed) <b>OR</b> No/Yes <b>and</b> (£)116 + (£)84 = (£)200 <b>or</b> $4 \times (£)50 = (£)200$
<b>Total marks for question</b>			<b>5</b>		



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