

# Mark Scheme (Results)

March 2016

Pearson Edexcel Functional Skills  
Mathematics Level 2 (FSM02)

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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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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  $£12 \div 5$ ,  
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 **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.

**FUNCTIONAL SKILLS (MATHEMATICS)**  
**MARK SCHEME – LEVEL 2 – MARCH 2016**

**Section A: Sheep farming**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1 (a)	R2	Works with lengths of field perimeter	1 or	A	E.g. $147 - 107 (= 40)$ <b>OR</b> $98.5 + 147(=245.5)$ <b>OR</b> $500 - 147(=353)$
	A4	Full process to find length of fencing needed or to show that 500 m is sufficient	2 or	AB	$(147 + 98.5) \times 2 (= 491)$ <b>OR</b> $(147 + 98.5) \times 2 (= 491) - 3(= 488)$ <b>OR</b> $147 + 54.5 + '40' + 44 + 107 + 98.5 (=491)$ o.e. <b>OR</b> $147 - 3 + 54.5 + '40' + 44 + 107 + 98.5 (=488)$ o.e. <b>OR</b> $500 - (147 + 98.5) \times 2 (=9)$ <b>OR</b> $500 - (147 + 98.5) \times 2 + 3(=12)$
	I6	Correct answer	3	ABC	491 (m) <b>or</b> 488(m) <b>or</b> 9 (m) <b>or</b> 12(m)
	I7	Decision ft. their working Dependent on A awarded	1	D	E.g. Yes <b>and</b> '491' <b>or</b> '488'(m) <b>OR</b> Yes <b>and</b> 9 (m) <b>or</b> 12(m) Dependent on A awarded

**FUNCTIONAL SKILLS (MATHEMATICS)**  
**MARK SCHEME – LEVEL 2 – MARCH 2016**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(b)	R1	Begins to find area	1 or	E	$98.5 \times 147 (=14479.5)$ <b>OR</b> $44 \times (147 - 107) (=1760)$ <b>OR</b> $147 \times 54.5 (= 8011.5)$ <b>OR</b> $107 \times 44 (= 4708)$ <b>OR</b> $107 \times 98.5 (= 10539.5)$ <b>OR</b> $(147 - 107) \times 54.5 (= 2180)$
	A4	Full process to find area	2 or	EF	$98.5 \times 147 - 44 \times (147 - 107) (=12719.5)$ <b>OR</b> $147 \times 54.5 + 107 \times 44 (= 12719.5)$ <b>OR</b> $107 \times 98.5 + (147 - 107) \times 54 (= 12719.5)$
	I6	Finds area of field	3	EFG	$12719.5 \text{ (m}^2\text{)}$
	R3	Process to find number of acres or area needed by 1 sheep	1 or	H	$'12719.5' \div 4050 (=3.14\dots(\text{acres}))$ <b>OR</b> $4050 \div 6 (= 675(\text{m}^2))$
	A4	Process to find number of sheep	2 or	HJ	$'3.14' \times 6 (=18.8\dots)$ (sheep) <b>OR</b> $'12719.5' \div '675' (= 18.8\dots)$
	I7	Correct answer with E and F awarded	3	HJK	18 (sheep) with E and F awarded
<b>Total marks for question</b>			<b>10</b>		

**FUNCTIONAL SKILLS (MATHEMATICS)**  
**MARK SCHEME – LEVEL 2 – MARCH 2016**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R3	Process to find total weight of 54 ewes <b>OR</b> amount for 1 ewe <b>OR</b> number of kg of sheep can be treated from 1 bottle	1 or	L	$54 \times 23 (= 1242)$ <b>OR</b> $23 \div 10 \times 2 (= 4.6)$ <b>OR</b> $250 \div 2 \times 10 (= 1250)$ <b>OR</b> 4 <b>or</b> 5 <b>or</b> 6 (ml per sheep)
	A4	Full process to find wormer needed <b>OR</b> number of sheep which can be wormed or maximum dose available	2 or	LM	$'1242' \div 10 \times 2 (=248.4)$ <b>OR</b> $'4.6' \times 54 (=248.4)$ <b>OR</b> $'4' \times 54(=216)$ <b>or</b> $'5' \times 54(=270)$ <b>or</b> $'6' \times 54(=324)$ <b>OR</b> $'1250' \div 23(=54.34)$ (sheep) <b>OR</b> $54 \times 23 (=1242)$ <b>AND</b> $250 \div 2 \times 10 (=1250)$ <b>OR</b> $250 \div ('1242' \div 10)(=2.013)$
	I7	Correct decision supported by correct calculations.	3	LMN	Yes <b>AND</b> [0.248, 0.2485] (litres) <b>OR</b> Yes <b>AND</b> [248, 248.5] (ml) <b>AND</b> 250 (ml) <b>OR</b> Yes <b>AND</b> 54(.34) (sheep) (must come their calculations) <b>OR</b> Yes <b>AND</b> 1242 <b>AND</b> 1250 <b>OR</b> Yes <b>AND</b> 2.013 (ml) <b>OR</b> Yes <b>AND</b> 216 (ml) <b>AND</b> 250 (ml) <b>OR</b> Yes <b>AND</b> 0.216 (litres) <b>OR</b> No <b>AND</b> 0.27 (litres) <b>or</b> 0.324 (litres) needed <b>oe</b> <b>OR</b> No <b>AND</b> 270 (ml) <b>or</b> 324(ml) <b>AND</b> 250 (ml)



**FUNCTIONAL SKILLS (MATHEMATICS)  
MARK SCHEME – LEVEL 2 – MARCH 2016**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q2b</b>	R2	Begins to work with differences	1 or	P	$(4.79 - 4.56)(=0.23)$ <b>and</b> $(5.04 - 4.79)(=0.25)$ <b>and</b> $(5.31 - 5.04)(=0.27)$ <b>and</b> $(5.49 - 5.31)(=0.18)$ <b>and</b> $(5.80 - 5.49)(=0.31)$ <b>OR</b> $5.80 - 4.56(=1.24)$ <b>OR</b> $0.25 \times 5(=1.25)$
	A4	Full process to find figures to compare	2 or	PQ	$(‘0.23’ + ‘0.25’ + ‘0.27’ + ‘0.18’ + ‘0.31’) \div 5(=0.248)$ <b>OR</b> $‘1.24’ \div 5(=0.248)$ <b>OR</b> $5.80 - 4.56(=1.24)$ <b>and</b> $0.25 \times 5(=1.25)$ <b>OR</b> $0.25 \times 5(=1.25) - 5.80 - 4.56(=1.24)(=0.01)$ <b>OR</b> $‘1.25’ + 4.56(=5.81)$ <b>OR</b> $5.80 - ‘1.25’(=4.55)$
	I7	Correct decision with accurate figures	3	PQR	No <b>and</b> 0.248 (kg) <b>and</b> 0.25 (kg) <b>OR</b> No <b>and</b> 248 (g) <b>OR</b> No <b>and</b> 1.24(kg) <b>and</b> 1.25 (kg) o.e. <b>OR</b> No <b>and</b> 0.01(kg) o.e. <b>OR</b> No <b>and</b> 5.81(kg) weight lamb should have on day 6 <b>OR</b> No <b>and</b> 4.55(kg) starting weight required  <b>NB May work in grams throughout</b>
<b>Total marks for question</b>			<b>6</b>		

**FUNCTIONAL SKILLS (MATHEMATICS)  
MARK SCHEME – LEVEL 2 – MARCH 2016**

**Section B: Football**

<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 produce table	1 or	A	Input opportunities <b>AND</b> at least 2 of: Name, level 5 and/or 6 and level 7 or senior and junior, day, <b>OR</b> Input opportunities for referees/name <b>AND</b> level 5 and/or 6 and level 7 or senior and junior <b>or</b> Saturday <b>and</b> Sunday
	I6	Produces table, which could contain all of the data or showing referees and levels needed and available for each day but may not be efficient.	2	AB	Input opportunities <b>AND</b> headings for all of: Name, level 5 and/or 6 and level 7 or senior and junior, day <b>OR</b> Input opportunities for referees/name <b>AND</b> level 5 and/or 6 and level 7 or senior and junior <b>and</b> Saturday <b>and</b> Sunday  May not be efficient.
	R1	Begins to organise data	1 or	C	Data for at least 1 person entered with all of: Name, level 5 and/or 6 and level 7 or senior and junior, day,
	I6	Organises all data efficiently or produces functional table to show referees available and needed	2	CD	Efficient completed table with: either all data included <b>or</b> clearly showing where referees are in place and where referees are needed
	I7	Correct decision communicated	1	E	Sat needs 1 level 5 and/or 6 <b>OR</b> senior <b>AND</b>  Sun needs 3 level 5 and/or 6 <b>or</b> senior <b>OR</b> Sun needs 1 level 7 <b>or</b> junior <b>and</b> needs 2 level 5 and/or 6 <b>or</b> seniors
<b>Total marks for question</b>			<b>5</b>		

**FUNCTIONAL SKILLS (MATHEMATICS)  
MARK SCHEME – LEVEL 2 – MARCH 2016**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4	R1	Begins to update table	1 or	F	Correctly updates or enters 1 team <b>OR</b> Correctly updates or enters 2 columns
	A4	Updates table for data from one match or updates first 6 columns for all teams	2 or	FG	Correctly updates or enters data from one match <b>OR</b> Correctly updates or enters columns for all teams for: won, draw, lost, goals for, goals against
	I7	Fully correct updated table	3	FGH	See below
<b>Total marks for question</b>			<b>3</b>		

Updated

	won	draw	lost	goals for	goals against	goal difference	points
Lancaster	2	1	1	8	5	3	7
Coppice	1	1	2	5	7	-2	4
Seaton	2	0	2	7	6	1	6
Northway	1	0	3	6	9	-3	3

Updated

	won	draw	lost	goals for	goals against	goal difference	points
Lancaster	2	1	1	8	5	3	7
Seaton	2	0	2	7	6	1	6
Coppice	1	1	2	5	7	-2	4
Northway	1	0	3	6	9	-3	3

Entered (for FG only)

	won	draw	lost	goals for	goals against	goal difference	points
Lancaster	1	0	0	3	1	2	3
Coppice	0	0	1	1	3	-2	0
Seaton	1	0	0	2	1	1	3
Northway	0	0	1	1	2	-1	0

Entered (for FG only)

	won	draw	lost	goals for	goals against	goal difference	points
Lancaster	1	0	0	3	1	2	3
Coppice	0	0	1	1	3	-2	0
Northway	0	0	1	1	2	-1	0
Seaton	1	0	0	2	1	1	3

**FUNCTIONAL SKILLS (MATHEMATICS)**  
**MARK SCHEME – LEVEL 2 – MARCH 2016**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q5(a)</b>	R2	Full substitution into formula or process to evaluate at least 3 values or rearranges formula	1 or	J	$200 = \frac{1500}{250} \times 3.5 \times h$ <b>OR</b> $\frac{1500}{250} \times 3.5 (= 21)$ <b>OR</b> $\frac{C \times 250}{3.5h} = t$
	A4	Full process to evaluate formula	2 or	JK	$\frac{200 \times 250}{1500 \times 3.5} (=9.52)$ <b>OR</b> $200 \div '21' (=9.52..)$
	I7	Decision from accurate figures in correct money notation	3	JKL	£9.52 <b>OR</b> £9.50 from correct working seen correct money notation required
	A5	Valid check	1	M	Check by reverse calculation, substitution of answer into formula, alternative method or estimation.
<b>5(b)</b>	R1	Process to work with speed	1 or	N	E.g. 30 miles per hour = 1 mile in 2 min <b>OR</b> $40 \div 30 (= 1.33...)$
	R2	Process to find travel time	2	NP	$40 \times 2 = 80$ min <b>OR</b> $'1.33...'$ $\times 60 (= [79.8, 80$ min])
	A4	Complete process to find start time	1 or	Q	1:00 pm – '80' min – 20 min (=11:20)
	I6	Correct start time	2	QR	11:20 (am) o.e.  <b>NB Award NPQR mars for 11:20 (am)</b>
<b>Total marks for question</b>			<b>8</b>		

**FUNCTIONAL SKILLS (MATHEMATICS)**  
**MARK SCHEME – LEVEL 2 – MARCH 2016**

**Section C: Hair products**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q6(a)</b>	R2	Process to work with percentages	1 or	A	24 ÷ 100 × 135 (=32.4) oe <b>OR</b> 8 ÷ 100 × 135 (= 10.8) oe <b>OR</b> 8 ÷ 100 × (135 + 25) (= 12.8)
	A4	Process to find figures to compare	2 or	AB	24 ÷ 100 × 135 (=32.4) oe <b>and</b> 8 ÷ 100 × 135 (=10.8) oe <b>OR</b> 25 + '10.8' (= 35.8) <b>OR</b> '32.4' – '10.8' (=21.6) <b>OR</b> (24 – 8) ÷ 100 × 135 (=21.6) oe
	I7	Correct decision from correct figures	3	ABC	Yes <b>AND</b> (£)35.8(0) <b>AND</b> (£)32.4(0) <b>OR</b> Yes <b>AND</b> (£)3.4(0) (difference) <b>OR</b> Yes <b>AND</b> (£)21.6(0) (compared with £25) <b>OR</b> Yes <b>AND</b> (£)170.8(0) <b>AND</b> (£)167.4(0)
<b>Q6(b)</b>	R2	Adds 2 fractions or 2 decimal fractions correctly	1 or	D	E.g. 8 ½ + 3 ½ = 12 <b>OR</b> 2.66 + 5.33 =7.99
	I6	Finds correct total distance for a complete route	2	DE	E.g. H, M, J, F, K, H <b>and</b> 25.25(miles) oe <b>OR</b> H, K, M, J, F, H <b>AND</b> 29 (miles) <b>OR</b> H, M, K, F, J, F, H <b>AND</b> 28 <sup>11</sup> / <sub>12</sub> (miles) <b>OR</b> H, F, K, M, J, F, H <b>AND</b> 31 <sup>5</sup> / <sub>6</sub> (miles)
	A5	Writes a comment to evaluate route	1	F	E.g. My route visits each agent only once I think my route is shortest. I do not have to backtrack on my route My route visits all of the agents but may not be shortest.
<b>Total marks for question</b>			<b>6</b>		

**FUNCTIONAL SKILLS (MATHEMATICS)  
MARK SCHEME – LEVEL 2 – MARCH 2016**

<b>Question</b>	<b>Skills Standard</b>	<b>Process</b>	<b>Mark</b>	<b>Mark Grid</b>	<b>Evidence</b>
<b>Q7(a)</b>	R3	Begins to draw graph	1 or	G	Begins to draw a graph: 1 correct from: linear scale, plotting, labels
	A4	Improves graph	2 or	GH	Improves graph with 2 correct from: linear scale, plotting, labels
	I6	Completes graph	3	GHJ	Correct graph with all of: linear scale, plotting, labels  Minimum labels: £ or sales, Mia, Jo, Jan, Feb, Mar, Apr
<b>Q7(b)</b>	16	Makes a simple comment	1 or	K	Makes a simple comment E.g. Mia has better sales in March
	I7	Makes a comparative statement based upon their results.	2	KL	Makes comparative comment on all points: E.g. Mia is consistently improving but Jo's sales fluctuate Overall Jo sold more than Mia in the 4 months
<b>Total marks for question</b>			<b>5</b>		

**FUNCTIONAL SKILLS (MATHEMATICS)  
MARK SCHEME – LEVEL 2 – MARCH 2016**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q8</b>	R1	Process to find profit per product or at least one trial for buying some of 2 or 3 products for less than £50	1	M	$7.99 - 6.5(=1.49)$ <b>or</b> $6.99 - 5.5(=1.49)$ <b>or</b> $5.99 - 5(=0.99)$ <b>OR</b> E.g. $3 \times 6.5 + 3 \times 5.5 + 2 \times 5 (=46)$
	R3	Process to find number of products or RRP cost for a valid number of 2 or 3 different products	1 or	N	$50 \div 6.5 (=7..)$ <b>or</b> $50 \div 5.5(=9..)$ <b>or</b> $50 \div 5(=10)$ <b>OR</b> E.g. $3 \times 7.99 + 3 \times 6.99 + 2 \times 5.99 (=56.92)$
	A4	Full process to find profit for a valid number of products costing less than £50	2 or	NP	'9' $\times$ '1.49' (=13.41) <b>or</b> '10' $\times$ '0.99' (=9.9) <b>OR</b> E.g. $3 \times 1.49 + 3 \times 1.49 + 2 \times 0.99 (=10.92)$ <b>OR</b> E.g. '56.92' - '46' (=10.92)
	I6	Maximum profit found	3	NPQ	(£)13.41
	A5	Valid check	1	R	Valid check using reverse calculation or alternative method.
<b>Total marks for question</b>			<b>5</b>		

**FUNCTIONAL SKILLS (MATHEMATICS)  
MARK SCHEME – LEVEL 2 – MARCH 2016**

(Question 3)

	<b>Junior or level 5/6/7</b>	<b>Junior or level 5/6/7</b>	<b>Senior or level 5/6/7</b>	<b>Senior or level 5/6/7</b>	<b>Senior or level 5/6/7</b>
<b>Saturday</b>	Paul	Zaph	Chris	Mo	
<b>Sunday</b>		Zaph		Mo	

<b>Name</b>	<b>Saturday</b>		<b>Sunday</b>	
	Senior or levels 5,6	Juniors or level 7	Senior or levels 5,6	Juniors or level 7
<b>Chris</b>	✓	✓		
<b>Mo</b>	✓	✓	✓	✓
<b>Paul</b>		✓		
<b>Zaph</b>		✓		✓



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