

Mark Scheme (Results)

May 2017

Functional Skills Mathematics Level 1

FSM01

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**FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 1 – MAY 2017**

Guidance for Marking Functional Skills Maths 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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 will often see correct working followed by an incorrect decision, showing that the candidate can calculate but does not understand the functional demand of the 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 in a written paper); mark the better answer.
- **Incorrect method** if it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.
- **Follow through marks (ft)** 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 $£12 \div 5$,

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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
- **Parts of questions:** because most FS questions are unstructured and open, you should be prepared to award marks for answers seen in other parts of a question, even if not explicit in the expected part. E.g. checks in on earlier answer box.
- **Graphs**
The mark schemes for most graph questions have this structure:

Process	Mark	Evidence
Appropriate graph or chart – (e.g. bar, stick, line graph)	1 or	1 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	2 or	2 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	3	all of: linear scale(s), labels, accurate 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**, and use consistent intervals. The scale may not start at 0 and not all intervals must be labelled. Thus a graph that is 'fit for purpose' is one where 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. Candidate's scale must be in numerical order. Award the mark for plotting if you can read the values, even if the scale is not linear.

The mark schemes for **Data Collection and/ or summary 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.

Discuss any queries with your Team Leader.

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Section A: Using the train

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R1	Begins to work with mileage	1 or	A	$80 \times 9 (=720)$ oe OR $750 \div 80 (=9.375)$ OR Begins to subtract 0.8 from 7.5 at least 3 times oe
	I6	Correct answer	2	AB	No AND (£)7.2(0) OR No AND 720(p) OR No AND 30 (p) (less) OR No AND 9.3(75) (more than 9 miles)
Q1(b)	A4	Begins to calculate using money	1 or	C	$1.05 + 1.69 + 3.49 + 1.95 (=8.18)$ OR $10 - 1.05 - 1.69 - 3.49 - 1.95 (=1.82)$ OR $1.05 + 1.69 + 3.49 + 1.95 + 1.35 (=9.53)$ OR $10 - 1.35 (=8.65)$
	I6	Valid decision with accurate figures	2	CD	No AND (£)1.82 OR No AND (£)9.53 OR No AND (£) 8.18 and (£) 8.65
Q1(c)	R1	Process to calculate percentage	1 or	E	$90 \div 100 \times 4\,732\,000 (=4258800)$ oe
	I6	Accurate figures	2	EF	4 258 800
	A5	Valid check	1	G	Valid check e.g alternative method or reverse calculation or estimation
Total marks for question is				7	

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R2	Process to find arrival time in Crewe	1	H	Adds 1 hour and 35 minutes to any London to Crewe departure time e.g. 17.40 + 1hr 35 mins (19.15) Working may be seen on a number line or timetable or diagram
	I6	Process to find arrival time in Kidsgrove via Crewe	1	J	Adds 13 minutes to their Crewe to Kidsgrove departure time '20.10' + 13mins (20.23) Ft their answer to H (i.e. Functional subsequent train) OR Adds 13 minutes to all Crewe to Kidsgrove departure times (may be implied by accurate figures)
	R2	Process to find arrival time in Stoke	1	K	Adds 1 hour and 24 minutes to any London to Stoke departure time e.g. 18.00 + 1hr 24 mins (19.24) Working may be seen on a number line or timetable or diagram
	I6	Process to find arrival time in Kidsgrove via Stoke	1	L	Adds 8 minutes to their Stoke to Kidsgrove departure time '19.34' + 8mins (19.42) Ft their answer to K (i.e. Functional subsequent train) OR Adds 8 minutes to all Stoke to Kidsgrove departure times (may be implied by accurate figures)
	A5	Fully correct time plan with start and finish times, showing optimal time planning, leaving London after 17.25	1	M	19.42 implied as earliest arrival time AND (17.25 – 18.00 wait in London) 18.00 – 19.24 London to Stoke (19.24 – 19.34 wait in Stoke) 19.34 – 19.42 Stoke to Kidsgrove and 20.23 Any stage may be shown on timetable as long as arrival times are given If the M mark is awarded award all marks
Total marks for question is				5	

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3(a)	R1	Begins to draw graph or chart	1 or	N	1 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	A4	Develops graph or chart	2 or	NP	2 of: linear scale(s), labels, accurate plotting (2 mm tolerance)
	I6	Completes graph or chart	3	NPQ	All of: linear scale(s), labels, accurate plotting (2 mm tolerance) (minimum labels: months J(an), F(eb), M(ar), A(pr), M(ay) and % (of trains arriving on time) or trains)
Q3(b)	I6	Writes a simple, appropriate and accurate comment	1	R	e.g. The percentage peaked in March (and went down slightly in April) OR The percentage has improved up until March
Total marks for question is				4	

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Section B: Garden birds

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R1	Starts to mark centre	1 or	A	1 of: Plots a line or marks 150 mm from the bottom OR Plots a line or marks equal distance from the left and right edges
	I6	Identifies correct position for the centre	2	AB	Marks a cross 150 mm from the bottom AND equal distance from the left and right edges
Q4(b)	I6	Correctly labels the diagram	1	C	250 side a AND 200 side b
Q4(c)	A4	Converts into same units	1	D	e.g. 1200 OR 0.15 or 0.45 or 0.2 or 0.25 or 0.12 or 0.35 may be seen/used in later calculation
	R3	Begins to works with lengths	1 or	E	Subtracts at least 2 lengths from 1200 oe OR Adds at least 3 lengths for small bird box must use at least 2 different lengths e.g. 450 + 120 +350 + 200 + 200 (=1320) oe or 450 + 200 + 200 (=850) oe or Piece 1 450 + 200 + 200 +120 (=970) oe
	A4	Full process to find how much more wood is required	2	EF	1200 – 450 – 120 – 350 – 200 – 200 (= -120) oe OR '1320' – 1200 (=120) oe OR e.g. Piece 1 450 + 200 + 200 +120 (=970) oe AND Piece 2 350
	I6	Accurate figure	1	G	120 (mm) oe OR e.g. 350 (mm) supported by correct working May work in cm throughout
Total marks for question is				7	

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	R2	Correct process to write 1 figure correctly or to find difference for their figures	1 or	H	8546845 or 8262662 OR '8546845' – '8262662' (=284,183) OR '8262662' – '8546845' (= -284,183)
	I6	Accurate figure	2	HJ	284,183
Q5(b)	R1	Starts to use rule	1 or	K	$\pm 74186 \div 2472888$ (=0.0299...) OR $5 \div 100$ (=0.05)
	A4	Develops calculation	2 or	KL	'74186 \div 2472888' \times 100 (=2.99...) OR '5 \div 100' \times 2472888 (=123644.4)
	I6	Valid decision with accurate figures	3	KLM	No AND [2.9, 3] (%) OR No AND 123644(...)
Q5(c)	R3	Begins process to find mean	1 or	N	$8000 + 7500 + 8700 + 8200 + 7700 + 8200$ (=48300)
	A4	Full process	2 or	NP	'48300' \div 6 (=8050)
	I6	Accurate figure	3	NPQ	8050
	A5	Valid check	1	R	Valid check e.g. any reverse calculation or estimation
Total marks for question is				9	

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Section C: The bakery

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(a)	R1	Starts to work with proportion	1 or	A	$500 \div 50 (=10)$ OR '15000' $\div 500 (=30)$
	A4	Full process	2 or	AB	$15 \div '10' (=1.5)$ OR '30' $\times 50 (=1500)$
	I6	Accurate figure with correct units	3	ABC	1.5kg OR 1500g
	A5	Valid check	1	D	Valid check e.g. Reverse calculation or alternative method
Q6(b)	R3	Begins to work with lengths or perimeter or twice round	1 or	E	e.g. $25.5 + 20 (=45.5)$ OR $25.5 + 20 + 25.5 + 20 (=91)$ OR $150 \div 2 (=75)$ OR $150 \div 4 (=37.5)$ May be seen on diagram
	A4	Full process to find figures to compare	2 or	EF	e.g. $'91' \times 2 (=182)$ OR $'45.5' \times 2 \times 2 (=182)$ OR $25.5 + 20 (=45.5)$ and $150 \div 4 = (37.5)$ OR $25.5 + 20 + 25.5 + 20 (=91)$ and $150 \div 2 (=75)$ OR $150 \div '91' (=1.6\dots)$ OR $150 - '91' (=59)$ May be seen on diagram
	I6	Valid decision with accurate figures	3	EFG	e.g. No AND 182 (cm) OR No AND 45.5(cm) and 37.5(cm) OR No AND 91(cm) and 75 (cm) OR No AND 32 (cm) more needed OR No AND 1.6(...) OR No AND 59 (cm) May be seen on diagram
Total marks for question is				7	

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R1	Starts data collection sheet	1 or	H	Input opportunities and 1 of: Headings (flavor and buttercream) Headings V, L, C Headings P, Y, B, G OR Identifies all 12 possible combinations
	A4	Improves data collection sheet	2 or	HJ	Input opportunities and 2 of: Headings (flavor and buttercream) Headings V, L, C Headings P, Y, B, G NB data collection may not be efficient. Accept questionnaire
	I6	Complete and efficient data collection sheet	3	HJK	Efficient input opportunities and all of: Headings for flavor or buttercream Headings V, L, C Headings P, Y, B, G
Q7(b)	I6	Explains the likelihood	1	L	e.g. equal chance or evens May be given numerically
Total marks for question is				4	

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R2	Starts to work with Grillo payments	1 or	M	$24 \times 249.99 (=5999.76)$
	A4	Works with Grillo payments and delivery	2	MN	'5999.76' + 180 (=6179.76)
	R3	Starts to work with Oven World payments	1 or	P	$18 \times 185.99 (=3347.82)$ OR $2498.99 + 120 (=2618.99)$
	A4	Works with Oven World payments and delivery	2 or	PQ	'3347.82' + 2498.99 + 120 (=5966.81) OR '2618.99' + $18 \times 185.99 (=5966.81)$
	I6	Valid decision with accurate figures	3	PQR	Oven World AND (£)6179.76 and (£)5966.81 NB Allow comparison of truncated or rounded figures as long as supported by accurate working NB If 250 and 2499/2500 and 186 are used throughout all marks can be awarded
Total marks for question is				5	

Ofqual



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