

Mark Scheme (Results)

February 2015

Pearson Edexcel Functional Skills  
Mathematics Level 1 (FSM01)

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February 2015

Publications Code FC040616

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## Guidance for Marking Functional Skills 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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 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,  
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)
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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: Moving house

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q1a</b>	A4	Process to find total	1 or	A	$112500 + 594 + 795 + 207.70 (=114096.70)$
	I6	Finds functionally correct figure using correct notation	2	AB	£114096.70 or £114097 or £114100 Correct money notation required
<b>Q1b</b>	R2	Process to find 25%	1 or	C	$0.25 \times 112500 (=28125)$ oe <b>OR</b> $112500 \div 4 (=28125)$ oe <b>OR</b> Full build-up method to 25% <b>OR</b> Accept $0.75 \times 112500 (=84375)$ oe <b>OR</b> $29300 \times 4 (=117200)$
	A4	Correct figure to compare	2	CD	(£)28125 (needed) <b>OR</b> (£)117200 (can afford) <b>OR</b> (£)1175 (leftover) oe <b>OR</b> $29300 \div 112500 (=0.2604\dots)$ <b>OR</b> 26% oe (available)
	I6	Correct decision from correct figures	1	E	Yes must come from correct figures
<b>Total marks for question</b>			<b>5</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2a	R3	Process to find area	1 or	F	4 × 3 (= 12) <b>OR</b> evidence of counting squares <b>OR</b> 300 ÷ 23.7 (=12.65...)
	A4	Full process to find figures to compare using their area calculation	2 or	FG	eg '12' × 23.7(0) (=284.40) <b>OR</b> 300 ÷ 12 (=25) <b>OR</b> 300 ÷ 23.7 (=12.65...) <b>and</b> 4 × 3 (= 12)
	I6	Correct answer with correct figures	3	FGH	Yes <b>and</b> (£)284.4(0) <b>OR</b> Yes <b>and</b> (£)25 per pack of tiles <b>OR</b> Yes <b>and</b> 12 <b>and</b> 12.65... (packs)
Q2b	R2	Works with lengths of shower	1 or	J	Draws rectangle with 1 dimension 6 squares <b>OR</b> 1 dimension 4 squares <b>OR</b> sides in ratio 3:2 e.g. 12 by 8 or 3 by 2
	A4	Uses correct scale	2	JK	Draws rectangle 6 squares by 4 squares
	I6	Meets constraints	1	L	Draws rectangle in correct position: against wall at least 1 square from window at least 2 squares from basin Not in door space Not over toilet
<b>Total marks for question</b>			<b>6</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	A4	Works with consistent units	1	M	Converts measurements appropriately e.g. 3000 or 3.8 or 4.3 or 1.6 or 14.6 or 16.2 or cm May be seen in subsequent working
	R1	Works with lengths in packs	1	N	$3 \times 5 (=15)$ <b>OR</b> '3000' $\times$ 5 (=15000) <b>OR</b> '14600' $\div$ '3000' (=4.866...) <b>OR</b> Subtracts 3 m from 1 wall length
	R2	Works with window or works with lengths of walls	1	P	$3800 - 1600 (=2200)$ <b>OR</b> $4300 + 4300 + 3800 (=12400)$ <b>OR</b> $4300 + 3800 + 4300 + 3800 (=16200)$ <b>OR</b> Subtracts 3 wall lengths from '15000' <b>OR</b> Subtracts 3 m from each wall length <b>OR</b> '15000' $- 4300 - 3800 - 4300 - 3800 (= -1200)$ <b>OR</b> 4.86...



	A4	Full process to enable decision	1 or	Q	<p>'16200' – 1600 (=14600) <b>OR</b>          '15000' – 4300 – 3800 – 4300 – (3800 – 1600) (=400)  <b>OR</b>          Works with individual packs for all 4 sides,          e.g. 3800 = 1 pack + 800</p>
	I6	Correct decision and accurate figures	2	QR	<p>Yes <b>and</b> 14600 <b>and</b> 15000 oe <b>OR</b>          Yes <b>and</b> 4 packs <b>and</b> 2600 oe <b>OR</b>          Yes <b>and</b> 400 oe spare <b>OR</b>          Yes <b>and</b> 4.86...</p> <p>If mark R is awarded also award mark M          all measurements may be in m, cm or mm</p>
<b>Total marks for question</b>			<b>5</b>		

### Section B: Trip to Paris

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4a	R1	Makes correct selection	1	A	228 identified
Q4b	A4	Works with ratio	1 or	B	45 ÷ 8 (=5.6...) <b>OR</b> Build-up method seen up to 40 <b>OR</b> 5 × 8 = 40
	I6	States sensible answer based on correct calculation	2	BC	Yes <b>and</b> 5 (teachers) dep on the award of mark B <b>OR</b> Yes <b>and</b> 5.6... <b>OR</b> Yes <b>and</b> 40 (students) <b>OR</b> Yes <b>and</b> 45 ÷ 5 = 9 <b>and</b> full explanation e.g. we have more than enough students for 5 teachers.
Q4c	R3	Process to find 1/3	1 or	D	24.93 ÷ 3(=8.31) <b>OR</b> 24.93 × 1/3 (=8.31) Condone 0.33 × 24.93 (=8.2269) oe <b>OR</b> 2 ÷ 3 × 24.93 (=16.62) <b>OR</b> 0.66 × 24.93 (=16.4538) oe
	A4	Correctly finds 1/3	2	DE	(£)8.31
Q4d	R3	Starts to substitute into rule or reverse substitution.	1 or	F	45 × 3(=135) <b>OR</b> 200 – 40 (=160)
	A4	Full process for figures to compare	2 or	FG	45 × 3 + 40 (=175) <b>OR</b> 200 – 40(=160) <b>AND</b> 45 × 3 (=135) <b>OR</b> 200 – 40(=160) <b>AND</b> 160 ÷ 3 (=53.333) <b>OR</b>

	16	Makes decision with accurate figures	3	FGH	Yes <b>AND</b> (£)175 <b>OR</b> Yes <b>AND</b> 53 or 54 (students) <b>OR</b> Yes <b>AND</b> 135 and 160
<b>Total marks for question</b>			<b>8</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
<b>Q5a</b>	R1	Begins to interpret problem	1 or	J	Input opportunities <b>and</b> one of Space for student names, at least 4 menu choices listed
	R2	Improves solution	2 or	JK	Input opportunities <b>and</b> space for student names and all menu choices listed accept questionnaire
	I6	Fully correct solution	3	JKL	All of: efficient input opportunities, space for at least 5 student names, all menu choices listed
<b>Q5b</b>	R2	Uses graph	1 or	M	Evidence of reading graph for the given purpose.
	I6	Correct conversion	2	MN	[92, 96]
<b>Total marks for question</b>			<b>5</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	A4	Begins to work with time – conversion or adding on 1 time or subtracting 1 time	1 or	P	e.g. 30 = 0.5 <b>OR</b> 4 hrs = 240 oe <b>OR</b> 7.45 + 4 hours (=11.45) oe <b>OR</b> 1415 – 4 hrs(=1015)
	A5	Coordinates and calculates using all times	2 or	PQ	4 + 1 + '0.5' (=5.5) oe <b>OR</b> 7.45 + 4 hours + '0.5 hrs' + 1 hour (=13.15) <b>OR</b> 1415 – 1 hours – '0.5' – 4 hours (=8.45) oe
	I6	Identifies correct ferry time	3	PQR	1415 accept any common time format
<b>Total marks for question</b>			<b>3</b>		

Section C: Making soap

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R1	Process to work with ratio for <b>bath butter</b>	1 or	A	$35 \times 40 (=1400)$ <b>OR</b> $930 \div 35 (=26.57\dots)$ (bars) <b>OR</b> $930 \div 40 (=23.25)$ (g per bar)
	I6	Correct figures for <b>bath butter</b>	2	AB	1400 (g) <b>OR</b> [26, 27] (bars) <b>OR</b> 23.25 (g per bar)
	R2	Process to work with ratio for <b>white soap base</b>	1 or	C	$50 \times 40 (=2000)$ <b>OR</b> '2000' $\div$ 50 (=40) (bars) <b>OR</b> 2 $\div$ '0.05 (=40) <b>OR</b> '2000' $\div$ 40 (=50) (g per bar)
	A4	Correct figures for <b>white soap base</b>	2	CD	2000 g <b>OR</b> 40 (bars) <b>OR</b> 50 (g per bar) These figures must come from calculation and consistent units
	I6	Correct decision for both bath butter and white soap base	1	E	Yes for bath butter <b>and</b> No for white soap base Dep on the award of mark AB and CD
<b>Total marks for question</b>			<b>5</b>		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8a	R1	Begins to draw graph	1 or	F	<b>One of:</b> Linear scale, suitable labels, correct plotting $\pm 2$ mm <b>Two of:</b> Linear scale, suitable labels, correct plotting $\pm 2$ mm <b>All of:</b> Linear scale, suitable labels, correct plotting $\pm 2$ mm Minimum labelling: names of months, profit or £ sign (may be seen on axis or in title)
	A4	Improves graph	2 or	FG	
	I6	Correct graph	3	FGH	
Q8b	I6	Makes valid comment	1	J	Makes 1 valid comment e.g. profits were highest in December <b>OR</b> profits were lowest in October <b>OR</b> they went up until December then they went down  Do not accept only quantitative statement e.g. The profit figure for November is 1400 Do not accept non-specific statements e.g. they went up and then they went down.
Q8c	R1	Works with mean	1 or	K	900 + 1400 + 2300 + 1100 (= 5700) <b>OR</b> 1400 $\times$ 4 (= 5600) <b>OR</b> Compares differences $\pm 500, 0, \pm 900, \pm 300$  '5700' $\div$ 4 (=1425) <b>OR</b> 900 + 1400 + 2300 + 1100 (= 5700) <b>and</b> 1400 $\times$ 4 (= 5600) <b>OR</b> Total differences $\pm 100$  Yes <b>and</b> 1425 <b>OR</b> Yes <b>and</b> 5700 <b>and</b> 5600 <b>OR</b>
	A4	Completes calculation	2 or	KL	
	I6	Correct decision with correct figures	3	KLM	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
					Yes <b>and</b> total is (£)100 above
<b>Total marks for question</b>			<b>7</b>		



Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	R3	Process to work with monthly payments	1 or	N	$410 \times 36 (=14760)$
	A4	Process to find difference	2 or	NP	'14760' - 11997 (=2763)
	I6	Accurate answer	3	NPQ	2763
	A5	Valid check	1	R	Any valid check, e.g. reverse process or alternate method or estimation
<b>Total marks for question</b>			<b>4</b>		

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