

Mark Scheme (Results)

February 2015

Pearson Edexcel Functional Skills
Mathematics Level 2 (FSM02)

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

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)	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)
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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.

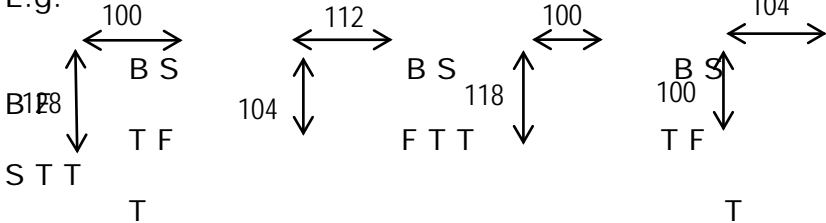
Section A: Music band

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1a	R1	Process to find total cost at normal price	1	A	$2 \times (124.5 + 22) (=293)$ may be seen in subsequent calculation
	A4	Starts to work with percentage	1 or	B	E.g. $0.12 \times '293' (=35.16)$ oe OR $0.12 \times$ any single price or combination of prices oe OR $0.88 \times$ any single price or combination of prices oe OR ' ' $293' - 259 (=34)$ oe OR
	A4	Full process to find figures to compare	2 or	BC	E.g. ' $249' + '44' - '35.16' (=257.84)$ OR $0.88 \times '293' (=257.84)$ OR ' $219.12' + '38.72' (=257.84)$ OR $259 \div 88 \times 100 (=294.3\dots)$ AND ' $249' + '44' (=293)$ OR $0.12 \times '293' (=35.16)$ AND ' $293' - 259 (=34)$ OR ' $34' \div '293' (=0.116040\dots)$ Accept use of 1 speaker and 1 stand for this mark
	I6	Accurate figures	3	BCD	257.84 OR [294, 294.4] and 293 OR 35.16 and 34 OR 11.6%

	17	Correct conclusion from valid process allow ft provided A, B and C awarded	1	E	Negative decision or clear conclusion and accurate figures E.g. (It is) about 12% AND (£)257.84 OR 12% off would cost (£)[294.31, 294.32] (not (£)293) OR No AND (£)35.16 AND (£)34 OR (He) saves 11.6% Allow ft if A, B and C awarded
Q1b	R1	Process to total points	1 or	F	1 + 2 + 5 + 31 + 1563 + 1 (=1603) or partial sum to 1600
	A4	Finds figure to compare	2	FG	1603 (points) or partial sum to 1600
	17	Interprets noise level table correctly	1	H	Yes and 1603 (points) and 97 (dB) OR No if doesn't do all activities (activities must be specified) OR clear explanation of how they have used points and noise level
Total marks for question			8		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R2	Works with fraction or proportion	1 or	J	$370 \div 5 (=74)$ oe OR $50 \times 6 (=300)$
	R3	Develops solution	2 or	JK	$370 - '74' (=296)$ OR $'74' \times 4 (=296)$ OR $50 \times 6 (=300)$ and $370 \div 5 (=74)$
	A4	Full process to find figures to compare	3 or	JKL	$'296' \div 6 (=49.33\dots)$ OR $50 \times 6 (=300)$ and $370 - '74' (=296)$ oe Accept division of money by 7
	I7	Correct conclusion with accurate figures	4	JKLM	No AND (£)[49, 49.34] each OR No AND (£)300 AND (£)296
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	R2	Starts to show arrangements of drums in boot space	1 or	N	Clear statement that all heights are less than boot height OR an arrangement with at least 2 diameters marked OR a correct arrangement of at least 3 drums – see solutions below
	A4	Shows all drums in boot space	2	NP	Shows a correct layout of all 5 drums with orientation clear AND all drum diameters shown or some working with drum sizes and boot space (at least 2 calculations seen) No credit for area or volume solutions
	A5	Shows supporting calculations	1 or	Q	At least two drums fit boot length (130) with supporting figures OR at least two drums fit boot width (131) with supporting figures E.g. $130 - '100' (=30)$ AND $60 + 34 (=94)$ OR $'62' - 44 (=18)$ AND $'71' - 40 (=31)$ May be seen on a diagram

	16	Correct solution presented and justified	2	<p>QR</p> <p>All five drums fitted within boot Dimensions and orientation must be clear May be seen on a diagram with dimensions given E.g.</p>  <p>No credit for area or volume solutions</p>
Total marks for question			4	

Section B: Disability sports

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4a	R1	Starts to work with graph	1 or	A	Makes any valid statement from graph, e.g. More Yes than No or 80% non-disabled said yes and 66% disabled said yes
	I7	Makes valid comparative statement	2	AB	Makes a comparative statement, e.g. More non-disabled people think differently than disabled people Majority of people think it did change their view
Q4b	R2	Starts to work with mean average	1 or	C	$28 + 23 + 37 + 31 + 16 (=135)$ OR $28.5 \times 6 (=171)$ OR $\pm 0.5, \pm 5.5, \pm 8.5, \pm 2.5, \pm 12.5$
	A4	Process to find points needed for an average of 28.5	2 or	CD	'171' – '135' (=36) OR 18.5 (under) and 11 (over) OR $7.5 + 28.5(=36)$ OR Trial and error method used - at least one trial shown fully to get 28.5 or more
	I6	Accurate figure	3	CDE	37 (points for Game 6) Accept 36

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4c	R1	Process to find missing points differences or finds correct difference in all three teams but negatives ignored	1 or	F	At least two of: 513 – 767 (=–254) or 660 – 716 (=–56) or 788 – 598(=190) OR 254 and 56 and 190
	A4	Correct points differences	2	FG	–254 and –56 and 190
	I6	Puts teams or points in correct order (ascending or descending)	3	FGH	Kings, Steels, Rhinos, Titans, Champs AND –254 and –56 and 190 Accept names or initials or difference in ascending or descending order May be indicated on table
	A5	Shows a checking calculation	1	J	Reverse of their calculation shown
Total marks for question			9		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	R3	Starts to work with given information	1	K	2065 – 1500 (= 565) OR Uses 26 (weeks) OR Allow use of 24 weeks (4 weeks per month) 20 × 4 (=80)
	A4	Full process to find figures to compare	1 or	L	'565' ÷ 20 (=28.25) OR 20 × 26 (=520) or 20 × 24 (=480) OR '565' ÷ 26 (=21.73...) or '565' ÷ 24 (=23.54...) OR '565' ÷ '80' (= 7.06.. months) OR
	I7	Valid conclusion from correct figures	2	LM	Yes and 28.25 and 26 (weeks) OR Yes and (paid back) (£)520 and (needed to pay) (£)565 OR Yes and (needs to pay weekly) (£)[21.73, 21.74] OR Needs another 2.25 weeks
Total marks for question			3		NB do not award full marks for use of 24 weeks

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	A4	Work in consistent units	1	N	93(cm) or 180 (cm) Award for correct conversion process following subsequent working
	R2	Starts to substitute in formula or reverse substitute and starts to evaluate	1 or	P	$1.4 \times '93'$ (=130.2) OR '180' – 57.8(=122.2) Condone use of 0.93
	A4	Completes substitution	2 or	PQ	'130.2' + 57.8 (=188) OR '122.2' ÷ 1.4 (=87.28...) Condone use of 0.93
	I7	Correct conclusion and accurate figures	3	PQR	No and 1.88 (m) OR No and 188 (cm) (height) and 180 (cm) OR No and 87(.28...) (cm) (chest to fingertip) NB Award mark N if R awarded.
Total marks for question			4		

Section C: School garden

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7a	R3	Starts to find figures to compare	1 or	A	$10 \div 80 (=0.125)$ OR $15 \div 100 (=0.15)$ oe OR $15/100 (=3/20)$ oe OR $10/80(=1/8)$ oe OR $100 \div 15 (= 6.66\dots)$
	A4	Full process to find figures to compare	2 or	AB	$'0.125' \times 100 (=12.5)$ OR $'0.15' \times 80 (= 12)$ OR $10 \div 80 (=0.125)$ AND $15 \div 100 (=0.15)$ oe OR $10/80 = 5/40$ and $15/100 = 6/40$ or any other pair of fractions with a common denominator OR 1 in 6.66..
	I7	Correct conclusion with correct comparable figures	3	ABC	E.g. Luxury and 12.5% OR Luxury and 12 (g) OR Luxury and 0.125 and 0.15 OR Luxury and 5/40 and 6/40 OR Luxury and 1 in 8 and 1 in 6.66..

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7b	R1	Works with ratio	1	D	E.g. $24 \div 10 (=2.4)$ OR $175 \div 25 (=7)$ OR $175 \div 10 (=17.5)$ OR $40 \div 25 (=1.6)$ OR '7' $\times 2.5 (=17.5 \text{ lots})$ OR $175 \times [2.1, 2.5] (=367.5, 437.5)$ (allow for D only)
	A4	Starts to develop solution	1 or	E	E.g. $175 \times '2.4' (=420)$ OR ' 17.5 ' $\times 24 (=420)$ OR ' 7 ' $\times 40 (=280)$ OR $24 \div 10 (=2.4)$ AND $175 \div 10 (=17.5)$ OR ' 437.5 ' $\div 25 (=17.5 \text{ lots})$ OR ' 17.5 ' $\times 25 (=437.5 \text{ g})$ OR $175 \times 2.5 (=437.5)$ AND $40 \div 25 (=1.6)$
	R3	Develops solution	2 or	EF	E.g. ' 7 ' $\times '2.4' (=16.8 \text{ lots})$ OR ' 420 ' $\div 25 (=16.8)$ OR $24 \div 10 (=2.4)$ AND ' 7 ' $\times 40 (=280)$ OR $175 \times '2.4' (=420)$ AND $40 \div 25 (=1.6)$ OR $40 \times '17.5' (=700)$ OR ' 437.5 ' $\times '1.6' (=700)$ OR
	I6	Full process to find water required	3 or	EFG	E.g. $40 \times '16.8' (=672)$ OR ' 280 ' $\times '2.4' (=672)$ OR ' 420 ' $\times '1.6' (=672)$ OR 700 ml
	I7	Correct answer with correct units	4	EFGH	672 ml allow 670 ml or 675 ml (units required) Allow 680 ml from 16.8 lots rounded to 17 clearly seen

	Total marks for question	8
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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R1	Works with area or position constraints	1 or	J	Draws or calculates a rectangle 1 by 16 or 4 by 4 or 2 by 8 or ½ by 32 OR clearly indicates an area where the barbecue could be correctly positioned
	I6	Works with area and scale	2 or	JK	Draws a rectangle with area 4 squares, e.g. 2 by 2 or 1 by 4 on any unused part of the plan
	A5	Fully correct solution	3	JKL	Draws a rectangle with area 4 squares, e.g. 2 by 2 or 1 by 4 AND at least 1.5 (approx.) squares from quiet area, 2 squares from playground, 1 square from school entrance
Total marks for question			3		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9a	R1	Identifies correct value from table	1	M	Onions and no other May be indicated on table
Q9b	R2	Starts to work with dimensions	1 or	N	E.g. $8 \times 1.5 (=12)$ OR $6 \times 1.5 (=9)$ OR $1.5 \times 1.5 (=2.25)$ OR $8 - 1.5 (=6.5)$ OR $6 - 1.5 (=4.5)$ OR $8 + 6 - 1.5(=12.5)$
	I7	Finds area of one section of path or process to find area	2	NP	E.g. 12 OR 9 OR 2.25 OR '6.5' \times 1.5 (=9.75) OR '4.5' \times 1.5 (=6.75) OR '3.25' \times 1.5 (=4.875) OR '2.25' \times 1.5 (=3.375)
	A4	Full process to find total area	1 or	Q	E.g. '12' + '9' - '2.25' (=18.75) OR '9.75' + 6.75' + '2.25' (=18.75) OR '4.875' \times 2 + '3.375' \times 2 + '2.25' (=18.75) OR '12' + '6.75' (=18.75) OR '12.5' \times 1.5(=18.75)
	I6	Correct answer	2	QR	18.75 (m ²)
Total marks for question			5		

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Llywodraeth Cynulliad Cymru
Welsh Assembly Government

