

Mark Scheme (Results)

February 2016

Pearson Edexcel Functional Skills
Mathematics Level 1 (FSM01)

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

February 2016

Publications Code FC043283

All the material in this publication is copyright

© Pearson Education Ltd 2014

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.

Section A: Hairdressing

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R1	Works with ratio	1 or	A	$45 \times 2 (=90)$ or build up method
	I6	Correct answer	2	AB	90(ml)
Q1(b)	A4	Process to calculate percentage	1 or	C	$0.2 \times 38 (=7.6)$ oe or 30.4
	I6	Correct answer, correct money notation	2	CD	£7.60 (in correct money notation)
Total marks for question			4		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R1	Starts to work with constraints	1	E	Dev and Hal with same stylist, booked one after the other
	I6	Begins to work with time constraints	1	F	Mr Brown with Alex and Mrs Kellett with Leanne and Ms Patel with Jane (could be anywhere)
	R2	Begins to plan with correct stylist	1	G	Mrs Kellett before 3:30 and Ms Patel after 2:15
	I6	Begins to work with time duration	1 or	H	2 of: Mr Brown 1 hour 30 mins or Mrs Kellett 45 mins or Ms Patel 30 mins or Dev and Hal 30 mins in total
	A5	Fully correct plan	2	HJ	All of: Mr Brown 1 hour 30 mins with Alex and Mrs Kellett 45 mins with Leanne before 3:30 and Ms Patel 30 mins with Jane after 2:15 and Dev and Hal 30 mins in total, consecutively with same stylist. No overlap with other bookings. Accept initials
Q2(b)	R1	Process to begin to work with mean	1 or	K	$3580 + 4810 + 4320 + 5460 + 5120 + 6860 (=30150)$ OR $5000 \times 6 (=30000)$
	A4	Full process to find mean	2 or	KL	'30150' $\div 6 (=5025)$ OR $3580 + 4810 + 4320 + 5460 + 5120 + 6860 (=30150)$ and $5000 \times 6 (=30000)$
	I6	Correct decision with accurate figures	3	KLM	Yes and (£)5025 OR Yes and (£)30150 and (£)30000
	A5	Valid check	1	N	E.g. approximation or alternate method or reverse process
Total marks for question			9		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	R3	Uses consistent units	1	P	$5 \times 1000(=5000)$ or $400 \div 1000(=0.4)$ or 6(l) and 6000
	A4	Full process to work with shampoo or bottles	1 or	Q	'5000' \div 400(= 12.5) or 5 \div '0.4'(=12.5) or $15 \times 400(=6000)$ or $15 \times '0.4'(=6)$ or '5000' \div 15(=333.3..) or $5 \div 15(=0.33\dots)$
	I6	Correct answer, accurate figures	2	QR	No and 12.5 (bottles) OR No and 5000 and 6000(ml) OR No and 6(litres) OR No and 333.3..(ml) OR No and 0.33..(litres)
Total marks for question			3		

Section B: Holiday Jobs

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R2	Process to find hours worked or amount earned per week	1 or	A	30 + 32 + 35 +23(=120) OR 30 × 6.70(=201) and 32 × 6.70(=214.4) and 35 × 6.70(=234.5) and 23 × 6.70(=154.1) OR 750 ÷ 6.70(=111.94..)
	A4	Process to find total wage or total hours worked	2 or	AB	‘120’ × 6.70(=804) or ‘201’ + ‘214.4’ + ‘234.5’ +‘154.1’(=804) OR 750 – ‘120’ × 6.70(= – 54) or 750 – ‘201’– ‘214.4’– ‘234.5’ – ‘154.1’(= – 54) OR 30 + 32 + 35 + 23(=120) and 750 ÷ 6.70(=111.94..) OR 750 ÷ 120(=6.25)
	I6	Correct decision, accurate figures	3	ABC	Yes and (£)804 OR Yes and (£)54 more OR Yes and 120(hours) and [111, 112](hours) OR Yes and (£) 6.25
	A5	Valid check	1	D	E.g. reverse process or alternate method or approximation
Q4(b)	R1	Process to work with fractions	1 or	E	600 ÷ 3(=200)
	I6	Correct answer in correct units	2	EF	200 ml (in correct units)
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	R3	Starts to work with pay or hours	1 or	G	$27 \times 6.10 (=164.7)$ OR $7.60 - 6.1 (=1.5)$ OR $35 - 27 (=8)$ OR $35 \times 6.10 (=213.5)$
	A4	Process to work with bonus	2 or	GH	'8' \times 7.60(=60.8) OR '8' \times '1.5'(=12) OR $250 - '164.7' (=85.3)$
	A4	Full process to find figures to compare	3	GHJ	'164.7' + '60.8'(=225.5) OR '213.5'+ '12'(=225.5) OR '85.3' \div 8(=10.66..) OR '85.3' \div 7.6(=11.22..)
	I6	Correct decision, accurate figures	1	K	No and (£)225.5(0) OR No and (£)24.5(0) short OR No and (£)[10.66, 10.67] (per hour for extra hours worked) OR No and [11, 12](extra hours worked needed) and 8 (hours)
Q5(b)	R1	Begins to access schedule	1 or	L	At least 2 correct blocks indicated within 17:00 to 21:00 OR Identifies 17:30 (start) or 20:30 (finish)
	I6	Schedule indicated correctly	2	LM	Correct blocks indicated 17:30 to 20:30
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R2	Finds a valid route (starts and finishes at S, visits at least A and B and C)	1	N	E.g. S, B, A, D, C, S OR $14 + 26 + 30 + 12 (=82)$ OR Indicates any route on diagram
	I6	Finds time taken for their route	1 or	P	E.g. $S + B + A + (D) + C + S (=78)$ or $S + C + A + B + S (=78)$
	A4	Finds the total time for optimum route	2	PQ	$S + B + A + (D) + C + S (=78)$
	I6	Communicates solution in hours and minutes, ft. their route, P must be awarded	1	R	1 hour 18 minutes ft. correct total for their route, P must be awarded. Accept 1 h and 18 min
Total marks for question			4		

Section C: Home improvements

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R2	Uses consistent units	1	A	500 or 400 or 0.5 seen or used
	A4	Process to fit tiles on one side or to find an area	1 or	B	500 ÷ 50(=10) or 400 ÷ 50(=8) or 5 ÷ 0.5(=10) or 4 ÷ 0.5(=8) OR 500 × 400(=200000) or 5 × 4(=20) OR 50 × 50(=2500) or 0.5 × 0.5(=0.25)
	A4	Process to fit tiles on 2 sides or to find area of both floor and tile or find area available with tiles given	2 or	BC	500 ÷ 50(=10) and 400 ÷ 50(=8) oe OR 500 × 400(=200000) and 50 × 50(=2500) oe OR 90 × '2500'(=225000)
	R3	Process to find tiles he needs or figures to compare	3 or	BCD	'10'×'8'(=80) OR '200000'÷ '2500'(=80) or '20'÷ '0.25'(=80) OR 90 × '2500'(=225000) oe and 500 × 400(=200000)
	I6	Correct decision with accurate figures	4	BCD E	Yes and 80(tiles) OR Yes and 22.5(m ²) and 20(m ²) OR Yes and 225000(cm ²) and 200000(cm ²)
Q7(b)	R3	Starts to substitute in formula	1 or	F	15 × 20(=300) or 342 – 52(=290)
	A4	Completes substitution	2 or	FG	'300'+ 52(=352) or '290'÷ 20(=14.5) or '290'÷ 15(=19.337...)
	I6	Correct answer, accurate figures	3	FGH	No and (£)352 OR No and (£)14.5(0)(per hour) OR No and [19, 19.5] (hours) oe
Total marks for question			8		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(a)	R2	Starts to access problem	1 or	J	Rectangle with 2 of: Correct length(4 squares), correct width(2 squares), at least 1 square all around it, at least 2 squares from TV
	A4	Develops solution	2 or	JK	Rectangle with 3 of: Correct length(4 squares), correct width(2 squares), at least 1 square all around it, at least 2 squares from TV
	I6	Treadmill drawn correctly on plan	3	JKL	Rectangle with all of: Correct length(4 squares), correct width(2 squares), at least 1 square all around it, at least 2 squares from TV NB: Accept rectangle 6 squares by 4 squares for treadmill and clear space around combined

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(b)	R1	Starts to work in years or months	1	M	$23 \times 12 (=276)$ OR $16.5 \times 12 (=198)$ OR $18 \times 12 (=216)$ OR $23 \div 2 (=11.5)$ and $18 \div 2 (=9)$ OR $(23 + 18) \div 2 (=20.5)$ OR $150 \div 12 (=12.5)$ OR $12 - 3 (=9)$
	R3	Starts to work with discounts	1 or	N	$(18 \times 12) \div 2 (=108)$ OR $(12 - 3) \times 5 (=45)$ OR $23 + 18 \div 2 = 32$ OR $(9 \times 5) \div 12 (=3.75)$ OR $(23 + 18) \div 2 (=20.5)$ for M and N only OR $'11.5' + '9' (=20.5)$ for M and N only
	A4	Full process to find figures to compare	2 or	NP	$'276' + '108' (=384)$ or $'32' \times 12 (=384)$ OR $'198' + 150 + '45' (=393)$ OR $23 + '9' (=32)$ or $16.5 + '12.5' + '3.75' (=32.75)$
	I6	Correct decision and accurate figures	3	NPQ	Offer 1 and (£)384 and (£)393 OR Offer 1 and (£)32 and (£)32.75
	A5	Valid check	1	R	E.g. reverse process or alternative method or estimation
Total marks for question			8		

Ofqual



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London WC2R 0RL

