

Mark Scheme (Results)

July 2014

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

July 2014

Publications Code FC039465

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 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 indicate 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)

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: Seaside Hotels

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R2	Coordinates tallies or starts to find number of meals left	1 or	A	Tallies converted to two of 4 or 5 or 6 OR two of 8 – ‘4’ (=4) or 9 – ‘5’ (=4) or 7 – ‘6’ (=1)
	A4	Finds correct number of meals left	2	AB	4 and 4 and 1
	I6	Identifies dishes that need cooking	1	C	Steak pie and fish pie
Q1(b)	R3	Finds scale factor or converts fraction	1 or	D	$8 \div 4 (=2)$ OR $4 + 4(=8)$ OR 0.75 o.e. OR $\frac{3}{4} \div 4 (=3/16)$ o.e.
	A4	Works with scale factor	2 or	DE	$\frac{3}{4} \times '2'$ (=1 $\frac{1}{2}$) OR $\frac{3}{4} + \frac{3}{4}$ (=1 $\frac{1}{2}$) OR $0.75 \times '2'$ (=1.5) OR $'3/16' \times 8(=3/2$ or 1 $\frac{1}{2}$)
	I6	Correct answer	3	DEF	1 $\frac{1}{2}$ or 1.5 (pints)
Total marks for question			6		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(a)	R	Uses rule	1 or	G	7×20 (=140 or 2 hours 20 mins) OR Repeated addition of 20, 7 times
	A4	Complete process for cooking time	2	GH	'140' + 125 (=265) o.e. OR '2 h 20 m' + '2 h 5 m' (= 4 h 25 m)
	R2	Starts to process time	1 or	J	'265' = 4 h 25 m OR '140' = 2 h 20 m OR '125' = 2 h 5 m OR 7:00 to 11:30 = 4 h 30 m OR 7:00 to 11:30 = 270 mins OR Counts back from 11:30 or Adds on to 7:00 in: 20 minute steps (at least 3 stages) or 2 h 5 m o.e. or 2 h 20 m o.e.
	I6	Full process to compare time(s)	2 or	JK	$265 = 4 \text{ h } 25 \text{ m}$ o.e. and 7:00 to 11:30 = 4 h 30 m o.e. OR Counts back fully (to 7:05) or Counts on fully (to 11:25) OR 7:00 + 265 (mins) o.e. (=11:25) or 11:30 – 265 (mins) o.e (=7:05)
	I6	Decision from correct figures	3	JKL	Conclusion AND 4 hours 25 minutes and 4 hours 30 minutes OR 7:05 or 11:25 OR 265 (mins) and 270 (mins) OR e.g. 5 mins spare
	A5	Valid check	1	M	Reverse calculation or alternative method or e.g. $270 - 265 = 5$ o.e.

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2(b)	I6	Indicates temperatures	1	N	79 and 85 indicated
Total marks for question			7		
Q3	R1	Full process for percentage or full build up method	1 or	P	0.8 × 120 (=96) o.e. OR 92 ÷ 0.8(=115) OR 92 ÷ 120 (=0.76...)
	A4	Finds correct figures to compare	2	PQ	96 OR 92 ÷ 0.8 = 115 OR 76.6...% o.e.
	I6	Valid decision from correct figures	1	R	No and 96 OR No and 92 is 80% of 115 OR No and 0.76... of target o.e. OR 4 rooms short of target
Total marks for question			3		

Section B: Moving Home

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R1	Starts calculation	1 or	A	24450 + 23692 (=48142) OR 24450 + 24450 (=48900) OR 23692 + 23692 (=47384)
	A4	Complete process	2 or	AB	'48142' × 2 (=96284) OR '48900' + '47384' (=96284)
	I6	Completes calculation with correct figures	3	ABC	(£)96 284
Q4(b)	I6	Works with large number in words	1	D	£119095 in correct money notation
Q4(c)	A4	Process to convert ft or cm	1 or	E	6 × 30 (=180) OR 195 ÷ 30 (=6.5)
	I6	Decision with correct figures	2	EF	Gives decision AND 180 (cm) OR 6.5 (ft) o.e. OR 15 (cm) o.e. different

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(d)	R1	Uses scale	1 or	G	Rectangle with 2 of: Length 5 squares Width 2 squares 3 squares away from fire Any side against a wall Sides in the ratio 5:2
	I6	Fully correct solution	2	GH	Rectangle with all of: Length 5 squares Width 2 squares 3 squares away from fire Any side against a wall
Total marks for question			8		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	R1	Calculates total for single boxes or works with Pack & Move offer	1	J	$70 \times 3.86 (= 270.20)$ OR $70 \times 4.10 (=287)$ OR $10 \times 3.86 (= 38.6)$ OR $10 \times 4.10 (=41)$ OR $75 \div 20 (=3.75)$ OR $70 - 10 \div 20 (=3)$ OR $3 \times 20 + 10(=70)$
	A4	Deals with cost of packs of 20 at Pack and Move or at Move Matters	1 or	K	$'3' \times 75 (=225)$ OR $20 \times 4.10 (=82)$ OR $20 \times 3.86 (=77.2)$ OR $70 \times 3.75 (=262.5)$
	R2	Full process for Pack and Move using packs of 20	2	KL	$('3' \times 75) + ('10' \times 4.10) (= 266)$
	A4	Full process for figures to compare	1 or	M	$3.86 \times 70 (= 270.20)$ and $('3' \times 75) + ('10' \times 4.10) (= 266)$
	I6	Correct decision with correct figures	2	MN	Pack and Move and (£)266 and (£)270.2(0)
Total marks for question			5		
Q6	R3	Describes at least 3 stages either by name or by number of miles	1 or	P	E.g. G, N, A, C OR 4, 6, 4 OR route marked on the diagram showing direction
	A4	Finds complete route described either by name or number of miles	2 or	PQ	E.g. G, N, A, C, D, G, N, G OR $4 + 6 + 4 + 5 + 6 + 4 + 4 (=33)$ OR 25 (miles) OR a complete route marked on the diagram showing direction
	I6	Finds shortest route and gives distance	3	PQR	G, D, C, A, N, G or correct route marked on the diagram showing direction AND 25(miles)
	Total marks for question			3	

Section C: Bee Keeping

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R2	Starts to draw hexagon using the scale	1 or	A	Draws a hexagon not to scale OR Draws a polygon with at least two sides 3cm
	I6	Draws correct shape	2	AB	Draws a regular hexagon with sides 3 cm
Q7(b)	R1	Starts to calculate mean average	1 or	C	$465 + 385 + 467 + 414 + 439 + 472 (= 2642)$ OR $450 \times 6(=2700)$
	A4	Full process to calculate the mean average	2 or	CD	'2642' $\div 6 (= 440.33\dots)$ OR $465 + 385 + 467 + 414 + 439 + 472 (= 2642)$ and $450 \times 6(=2700)$
	I6	Makes correct decision from correct figures	3	CDE	No and 440(.33) OR No and 2642 and 2700
Q7(c)	R3	Starts calculation or starts to use ratio	1 or	F	$5(= 4 + 1)$ OR $2000 \div 5 (= 400)$ OR build-up at least 3 Allow 2000 ml beeswax and 8000 ml oil Allow 2000 ml oil and 500 ml beeswax
	A4	Calculates multiple parts	2 or	FG	$4 \times '400'$ ($= 1600$) OR 400 (ml) beeswax
	I6	Communicates correct solution	3	FGH	400 (ml) beeswax and 1600 (ml) oil Must clearly indicate at least one of beeswax or oil
Total marks for question			8		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R1	Starts Graph	1 or	J	1 of Labels, plotting \pm 2mm, scale, minimum labels the crops (Almonds etc) and % (crop pollinated by bees)
	A4	Develops Graph	2 or	JK	2 of Labels, plotting, scale
	I6	Completes Graph	3	JKL	All of Labels, plotting, scale
Total marks for question			3		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	A4	Converts units	1	M	E.g. 1200 (mm) OR 0.48 (m) OR 0.16 (m) OR 0.422 (m) May be seen or implied in subsequent calculations
	R2	Starts to work with length	1 or	N	480 + 160 + 160 + 422 (=1222) OR 480 + 160 + 422 (=1062) OR '1200' - 480 - 422 - 160 (=138) OR 3 × '1200' (=3600) OR 3 × 1.2 (=3.6) OR Multiplies any length by 2
	A4	Develops calculation with length	2 or	NP	'1222' × 2 (=2444) OR 160 - '138' (=22) (so 1 plank not enough for 1 frame) OR 2 × 160 (=320) OR '1200' ÷ 160 (=7.5) (so enough with 3 rd plank) OR E.g. each plank will deal with 1062 for one frame
	I6	Completes calculation	1 or	Q	'3600' ÷ '1222' (=2.94..) OR '1200' - '320' (=880) OR '3600' - '2444' (=1156) OR '22' × 2 (=44)
	I6	Correct decision with valid working	2	QR	Yes AND E.g. 3600 (mm) and 2444 (mm) OR 2.94.. so 2 can be made OR 880 (mm) left (from 3 rd plank) OR 1156 (mm) left in total o.e.
Total marks for question			5		

Some additional solutions: 1) $160 + 160 + 422 = 742$ (twice) and 480 (twice) 2) $160 + 160 + 480 = 800$ (twice) and 422(twice)

