edexcel

Mark Scheme (Results)

November 2017

Functional Skills Mathematics Level 1

FSM01

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FUNCTIONAL SKILLS (MATHEMATICS)
MARK SCHEME – LEVEL 1 – NOVEMBER 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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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 ÷ 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: College

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	A4	Process to find figures to compare	1 or	A	2.35 × 5 (=11.75) oe **OR** 12 ÷ 5 (=2.4) **OR** 12 ÷ 2.35 (=5.10…)
	I6	Correct decision with accurate figures	2	AB	Yes **AND** (£)11.75 oe **OR** Yes **AND** 25(p) (left over per week) **OR** Yes **AND** (£)2.4(0) oe **OR** Yes **AND** 5(p) (left over per day) oe **OR** Yes **AND** 5(.106.. days)

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(b)	R2	Extracts information from timetable	1	C	8:15 (bus departure time) May be seen in subsequent working
	R1	Starts process to working with time	1 or	D	45(mins) **OR** 7:15 + 10(mins) (=7:25 am) oe **OR** '8:15' – 10 (mins) (=8:05 am) oe **OR** '8:15' – 7:15 (=1 hour) oe Ft from C mark
	A4	Completes process to find figures to compare	2 or	DE	7:15 + 10(mins) + 45(mins) (=8:10 am) oe **OR** '8:15' – 10 (mins) – 45(mins) (=7:20 am) oe **OR** '8:15' – 7:15 (=1 hour) oe **and** 10 + 45 (=55mins) oe Ft from C mark
	I6	Correct decision with accurate figures	3	DEF	No **AND** 8:10 (am) **AND** 8:15 (am) oe **OR** No **AND** 7:20 (am) **OR** No **AND** 5 (mins extra) **OR** No **AND** 1 (hour) **and** 55(mins)
		Total marks for question	**6**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R1	Begins mean process or reverse calculation	1 or	G	56 + 42 + 47 + 59 + 48 (=252) **OR** 50 × 5 (=250) Allow ordering and showing an intention to select the middle value
	A4	Completes process to find figures to compare	2 or	GH	'252' ÷ 5 (=50.4) **OR** 56 + 42 + 47 + 59 + 48 (=252) **and** 50 × 5 (=250) Allow selection of 48
	I6	Correct decision with accurate figures	3	GHJ	Yes **AND** 50(.4) **OR** Yes **AND** 252 **and** 250 Allow No **AND** 48 All figures must come from correct processes seen
	A5	Valid check	1	K	Valid check e.g. reverse calculation or alternative method
		Total marks for question	**4**		

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<table>
<tr><th>Question</th><th>Skills Standard</th><th>Process</th><th>Mark</th><th>Mark Grid</th><th>Evidence</th></tr>
<tr><td rowspan="3">Q3(a)</td><td>R2</td><td>Starts to work with amounts</td><td>1 or</td><td>L</td><td>e.g. 80 ÷ 8 (= 10) OR 45 ÷ 5 (=9) OR
8 ÷ 5 (= 1.6) OR 5 ÷ 8 (=0.625) OR
80 ÷ 45 (=1.7..) OR 45 ÷ 80 (=0.5625) oe</td></tr>
<tr><td>A4</td><td>Correct process to find figures to compare</td><td>2 or</td><td>LM</td><td>e.g. ‘10’ × 5 (=50) OR ‘9’ × 8 (=72) OR
80 ÷ 8 (= 10) and 45 ÷ 5 (=9)</td></tr>
<tr><td>I6</td><td>Correct decision with accurate figures</td><td>3</td><td>LMN</td><td>e.g. No AND 50 (eggs) OR
No AND 72 (people) OR
No AND 10 and 9 (flans) OR
No AND 0.5625 AND 0.625 oe</td></tr>
<tr><td rowspan="3">Q3(b)</td><td>R1</td><td>Begins to prepare sheet</td><td>1 or</td><td>P</td><td>Input opportunities AND 1 of:
Heading for questions (meal, service, value)
Heading for rating (poor, OK, good)</td></tr>
<tr><td>R3</td><td>Improves sheet</td><td>2 or</td><td>PQ</td><td>Input opportunities AND
Heading for questions (meal, service, value) AND
Heading for rating (poor, OK, good)</td></tr>
<tr><td>I6</td><td>Efficient fully correct data summary sheet</td><td>3</td><td>PQR</td><td>Fully correct, fit for purpose, efficient input opportunities
e.g.
<table>
<tr><td></td><td>Poor</td><td>OK</td><td>Good</td></tr>
<tr><td>Meal</td><td></td><td></td><td></td></tr>
<tr><td>Service</td><td></td><td></td><td></td></tr>
<tr><td>Value</td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td colspan="3">Total marks for question</td><td colspan="3">6</td></tr>
</table>

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Section B: Holiday in Pula

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4	R1	Engages with the diagram	1 or	A	Finds a route starting or finishing at the hotel that goes past/through at least two of: the church, the arch and the Old Town (indicated by names, distances or on diagram)
	I6	Finds a correct route no more than 6 km	2	AB	Finds a route starting **and** finishing at the hotel that goes past/through all of: the church, the arch and the Old Town with a total distance of no more than 6 km (indicated by names, distances or on diagram) e.g. H to A to OT to C to H
	A4	Full process to find the total distance for their route	1 or	C	e.g. 0.5 + 1.6 + 1.2 + 1.3 + 0.8 (=5.4) 0.5 + 0.5 + 0.8 + 0.8 + 0.9 + 1.2 + 0.9 (=5.6) NB their route must include at least three distances
	I6	Accurate distance for their route	2	CD	e.g. (0.5 + 1.6 + 1.2 + 1.3 + 0.8 =) 5.4 (km) **OR** (0.5 + 0.5 + 0.8 + 0.8 + 0.9 + 1.2 + 1.3 + 0.8 =) 6.8 (km)
Total marks for question			**4**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	R1	Begins to draw graph or chart	1 or	E	One of: Linear scale, labels, accurate plotting (2 mm tolerance)
	I6	Develops graph or chart	2 or	EF	Two of: Linear scale, labels, accurate plotting (2 mm tolerance)
	I6	Fully correct suitable graph or chart	3	EFG	All of: Linear scale, labels, accurate plotting (2 mm tolerance) Graph must be of a sensible or appropriate size Minimum labels: number **or** people, W(alking), D(ay boat trip), E(vening boat trip), C(able car), L(ake)
Q5(b)	R3	Process to work with fraction	1 or	H	18000 ÷ 3 (=6000) **OR** 5400 × 3 (=16200) **OR** 5400 ÷18000 (=0.3) **OR** 18000 ÷ 5400 (=3.33..)
	A4	Correct decision with accurate figures	2	HJ	No **AND** 6000 **OR** No **AND** 16200 **OR** No **AND** 0.3 oe **and** 0.33(3..) **OR** No **AND** 3.3.. **and** 3
	A5	Valid check	1	K	e.g. reverse calculation or alternative method
		Total marks for question	**6**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(a)	I6	Interprets criteria	1	L	Indicates C(lub Hotel)
Q6(b)	R2	Works with percentage	1 or	M	0.15 × 250 (=37.5) oe
	I6	Starts process to work with capacities	2	MN	37.5(0) (Croatian Kuna)
		Total marks for question	**3**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7	R3	Starts process to work with rule	1 or	P	230 × 3 (=690) **OR** 230 ÷ 25 (=9.2**) OR** 26.5 × 25 (=662.5) **OR** 26.5 ÷ 3 (=8.833…)
	A4	Complete process	2 or	PQ	‘690’ ÷ 25 (=27.6**) OR** ‘9.2’ × 3 (=27.6) ‘662.5’ ÷ 3 (=220.833…) **OR** ‘8.833…’ × 25 (=220.833…)
	I6	Correct decision with accurate figures	3	PQR	Offer A **AND** (£)27(.60) **OR** Offer A **AND** 220(.83) (Croatian Kuna)
		Total marks for question	**3**		

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Section C: Hot tub

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8	R2	Process to work with percentage	1	A	20 ÷ 100 × 5000 (=1000) oe may be seen in subsequent working
	R3	Starts process to find difference in cost	1 or	B	2 × 12 (=24) **OR** 183.8 × 12 (=2205.6) **OR** 183.8 × 2 (=367.6) **OR** 5000 – 1000 (=4000)
	A4	Develops process	2 or	BC	'24' × 183.8 (=4411.2) oe **OR** '4000' ÷ 12 (=333.33..) **OR** '4000' ÷ 2 (=2000) **OR** '4000' ÷ 183.8 (=21.76..) **OR**
	A4	Completes process to find difference	3 or	BCD	e.g. '4411.2' + '1000' – 5000 (=411.2) oe Ft A mark
	I6	Correct answer with accurate figures in correct money notation	4	BCDE	£411.20 (in correct money notation)
Total marks for question			**5**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9(a)	R3	Starts to consider constraints	1 or	F	rectangle with side 10 sq lengths **or** 6 sq lengths **OR** with sides in ratio 5:3
	A4	Develops solution	2 or	FG	rectangle 10 sq lengths by 6 sq lengths **AND** 1 of: at least 2 sq lengths away from each edge **or** at least 4 sq lengths away from the house **OR** rectangle with one side 10 sq lengths **or** 6 sq lengths **AND** all of: at least 2 sq lengths away from each edge **or** at least 4 sq lengths away from the house
	I6	Fully correct diagram	3	FGH	rectangle 10 sq lengths by 6 sq lengths **AND** at least 2 sq lengths away from each edge **AND** at least 4 sq lengths away from the house **AND** not overlapping the shed (Example at bottom of MS)

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9(b)	R1	Uses consistent units	1	J	e.g. 2(m), 500(cm), 300(cm) may be seen in subsequent calculations
	R3	Process to work with perimeter or total of fencing available	1 or	K	2 × (5 + 3) (=16) oe **OR** 5 ÷ '2' (=2.5) **or** 3 ÷ '2' (=1.5) oe **OR** Subtracts at least 2 lengths from any dimensions e.g. '500' – 200 – 200 (=100) **OR** 200 × 7 (=1400)
	A4	Full process to find figures to compare	2 or	KL	e.g. '16' ÷ '2' (=8) **OR** '2.5' × 2 + '1.5' × 2 (=8) oe **OR** 2 × (5 + 3) (=16) oe **AND** 7 × '2' (=14)
	I6	Correct decision with accurate figures	3	KLM	No **AND** 8(lengths) oe **OR** No **AND** 16(m) **and** 14(m) oe **OR** No **AND** 1(length short) **or** 2(m short)
Q9(c)	A4	Process to find time to fill hot tub	1 or	N	1350 ÷ 18 (=75) **OR** 1350 ÷ (18 × 60) (=1.25) oe
	I6	Accurate figure with correct units	2	NP	75 mins **OR** 1.25 hours oe **OR** 1 hour 15 mins (in correct units)
	A5	Valid check	1	Q	Valid check e.g. reverse calculation or alternative method
Total marks for question			**10**		

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Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q10	I6	Reads correct temperature	1	R	–3(°C)
		Total marks for question	**1**		

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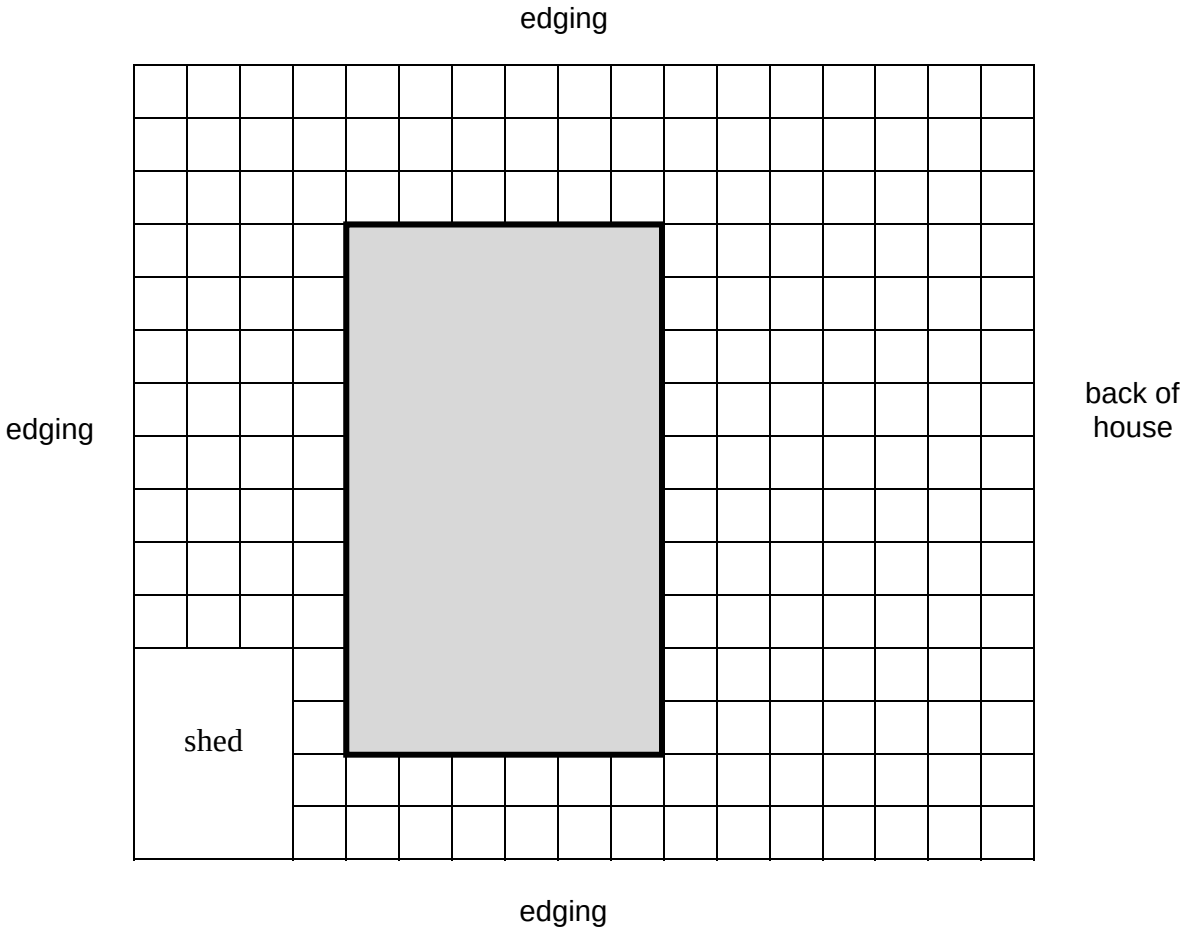
Example for Q9a



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