Mark Scheme (Results)

June 2018

Functional Skills Mathematics Level 1

FSM01

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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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

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- **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 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.

Section A: New car

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	R1	Begins process to find cost	1 or	A	229.2×24 (=5500.8)
	A4	Completes process to find total cost	2 or	AB	'5500.8' + 5875 (=11375.8)
	I6	Accurate figure in correct money notation	3	ABC	£11375.80 Correct money notation
	A5	Valid check	1	D	Valid check, e.g. reverse calculation or estimation
Q1(b)	I6	Selects insurance company	1	E	Identifies D (may be seen in table)
Q1(c)	R3	Process to work with percentage	1 or	F	e.g. $15 \div 100 \times 400$ (=60) oe **OR** $\frac{50}{400} = \frac{12.5}{100}$ oe **OR** $50 \div 400$ (=0.125) **and** $15 \div 100$ (=0.15) oe
	I6	Correct decision from accurate figures	2	FG	e.g. No **AND** (£)60 **OR** No **AND** 12.5(%) oe **OR** No **AND** 0.125 **and** 0.15 oe
Total marks for question			**7**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R3	Begins to work with scale	1 or	H	Draws 1 rectangle with 2 of : side 6 sq lengths side 1 sq length longest side along a wall. Do not accept 1 x 1
	A4	Fully correct drawing for workbench space	2	HJ	Draws 1 rectangle with all of : side 6 sq lengths side 1 sq length longest side along a wall
	A4	Considers constraints for freezer space	1 or	K	Draws 1 rectangle with 2 of : side 3 sq lengths side 2 sq length longest side along a wall. **OR** sides in the ratio 3:2. Do not accept 1 x 1.5
	I6	Fully correct solution	2	KL	Draws 1 rectangle with all of : side 3 sq lengths side 2 sq length longest side along wall **NB** If the freezer space and the workbench space overlap or are not 1 metre apart withhold the L mark **NB** if no marks have been awarded mark H can be awarded for a rectangle with side 8 sqs long and side 6 sqs long **or** states 2 sq = 1m oe **or** uses this scale consistently for 1 item

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	R1	Begins to plan route	1 or	M	Finds any acceptable route, e.g. T to K to S to M to L to T May be seen or inferred in subsequent working
	I6	Finds the most efficient route	2	MN	Indicates T to L to S to M to L to T Accept the reverse of this route May be seen or inferred in subsequent working
	R3	Begins to work with any route distance or petrol cost	1 or	P	e.g. 22 + 24 + 33 + 52 + 22 (=153 miles) **OR** 38 + 13 + 33 + 52 + 22 (=158 miles) **OR** 38 + 13 + 33 + 33 + 13 + 38 (=168 miles) **OR** 22 + 24 + 33 + 33 + 13 + 38 (=163 miles) **OR** 16×10 (=160 miles possible) **OR** e.g. $38 \div 10$ (=£3.80) **NB** Accept addition for their route must add at least 4 distances
	A4	Full process to find figures to compare for their route	2 or	PQ	e.g. '153' ÷ 10 (=15.3) **OR** 22 + 24 + 33 + 52 + 22 (=153) **and** 16×10 (=160) **OR** '160' – 22 – 24 – 33 – 52 – 22 (=7) **OR** '2.2' + '2.4' + '3.3' + '5.2' +'2.2' (=15.3)
	I6	Correct decision from accurate figures for their route	3	PQR	e.g. Yes **AND** (£)15.3(0) **OR** Yes **AND** 160 (miles) **and** 153 (miles) **OR** Yes **AND** 7 (miles left over)
Total marks for question	**5**				

Section B: The Exhibition

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4 (a)	R1	Starts to work with time	1 or	A	e.g. 4(pm) – 11(am) (=5) **OR** 1 (hr) 20 (mins) × 3 (=4) oe **OR** 45 + 30 (=75) oe **OR** 1 of : 1 (hr) 20 (mins) **or** 30 **or** 45 used in a time plan
	R3	Develops solution	2 or	AB	e.g. 4(pm) – 11(am) (=5) **and** 1 (hr) 20 (mins) × 3 (=4) oe **OR** '5' (hr) **–** 1 (hr) 20 (mins) (=3 hours 40 mins) oe **OR** '5'(hr) – '75' (mins) (=3 hours 45 mins) oe **OR** 1 (hr) 20 (mins) × 3 (=4) oe **and** 45 + 30 (=75) oe **OR** 3 of : 1(hr) 20 (mins) (× 3) **or** 30 **or** 45 used in time plan
	A4	Full process to find figures to compare	3 or	ABC	e.g. 4(pm) – 11(am) (=5) **and** 1 (hr) 20 (mins) × 3 + '75' (=5 hr 15 min) oe **OR** '5'(hr) **–** 1 (hr) 20 (mins) (=3 hours 40 mins) **and** '5'(hr) – '75' (mins) (=3 hours 45 mins) oe **OR** '3 (hr) 45 (mins)' ÷ 3 (= 1 hour 15 mins) oe **OR** All of : 1(hr) 20 (mins) (× 3) **and** 30 **and** 45 used in time plan
	I6	Valid decision with accurate figures, fully supported	4	ABCD	e.g. No **AND** 5 (hr) **and** 5 (hr) 15 (mins) oe **OR** No **AND** 3 (hr) 40 (mins) **and** 3 (hr) 45 (mins) oe **OR** No **AND** 1 (hr) 15 (mins) oe **OR** No AND fully correct time plan ending at 4.15(pm) **OR** No **AND** 10.45(am) **Example at the bottom of the mark scheme**

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4 (b)	R2	Begins to work with area	1 or	E	5×8 (=40) **OR** 25×3 (=75) **OR** Shows at least six 3 by 1 rectangles on the diagram
	A4	Develops solution	2 or	EF	e.g. 5×8 (=40) **and** 25×3 (=75) **OR** '40' $\times 2$ (=80) **OR** '75' $\div 2$ (=37.5) **OR** '40' $\div 3$ (=13.3..) **OR** Shows or implies at least twenty display spaces on the diagram
	A4	Full process to find figures to compare	3 or	EFG	e.g. 5×8 (=40) **and** '75' $\div 2$ (=37.5) **OR** '40' $\times 2$ (=80) **and** 25×3 (=75) **OR** '13.3..' $\times 2$ (=26.6..) oe **OR** Fully correct diagram Condone '80' $\div 3$ (=26.66..) **or** '80' $\div 25$ (=3.2)
	I6	Valid decision with accurate figures	4	EFGH	e.g. Yes **AND** 26 (.6..) **OR** Yes **AND** 40 (m^2) **and** 37.5 (m^2) **OR** Yes **AND** 80 (m^2) **and** 75 (m^2) **OR** Yes **AND** 3.2(m²)

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(c)	R2	Works with consistent units or states conversion	1	J	e.g. 2000 (ml) **or** 1.8 (litres) **or** 1 litre = 1000 ml
	A4	Full process to find figures to compare	1 or	K	120×15 (=1800) **OR** '2000' ÷ 15 (=133.3..) **OR** '2000' ÷ 120 (=16.6..)
	I6	Valid decision with accurate figures	2	KL	Yes **AND** 1800 (ml) (**and** 2000 (ml)) **OR** Yes **AND** 133(.3..) (bottles) **OR** Yes **AND** 16(.6..) (ml) **OR** Yes **AND** 1.8(litres) **OR** Yes **AND** 200 (ml) (leftover) **OR** No **AND** she will need more bottles supported by accurate figures
	A5	Valid check	1	M	Valid check, e.g. reverse calculation alternative method
Total marks for question			**12**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(a)	A4	Writes down appropriate fraction or decimal	1 or	N	$\dfrac{21}{84}$ **OR** $21 \div 84$ (=0.25)
	I6	Correct answer	2	NP	$\dfrac{1}{4}$
Q5(b)	R2	Starts to work with tally chart	1 or	Q	One complete row, e.g. good, 6 tallies **and** 6 **OR** Completes tallies for at least 2 ratings, e.g. poor, 2 tallies, good, 6 tallies **OR** Completes total column 2, (4), 6, 9 with no tallies seen
	A4	Completes table	2	QR	Fully correct tally chart with totals of 2, (4), 6, 9 **NB** tallies must be seen
Total marks for question			**4**		

Section C: Snooker

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(a)	R1	Works with consistent units	1	A	e.g. 550 (cm) **or** 1.45 (m) **or** 2.7 (m) May be seen in subsequent working
	R2	Begins to work with formula	1 or	B	e.g.145 $\times$ 2 (=290) **OR** 550 – 270 (=280)
	A4	Full process to work with formula	2 or	BC	e.g. '290' + 270 (=560 cm) **OR** '280' $\div$ 2 (=140cm)
	I6	Valid decision with accurate figures	3	BCD	e.g. No **AND** 560 (cm) (**and** '550' (cm) oe) **OR** No **AND** 140 (cm) oe **OR** No **AND** 5.6 (m)

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6(b)	R1	Begins to work with costs	1 or	E	e.g.1.80 ÷ 4 (=0.45) oe **OR** 2.28 ÷ 6 (=0.38) oe **OR** 1.80 + 4 × 0.1 (=2.2) oe
	R3	Develops solution	2 or	EF	e.g.1.80 ÷ 4 (=0.45) oe **and** 2.28 ÷ 6 (=0.38) oe **OR** '0.45'× 6 (=2.7) **OR** '0.38'× 4 (=1.52) **OR** '0.45' − 0.1 (=0.35) oe **or** '0.38' + 0.1 (=0.48) oe **OR** '2.2' ÷ 2 (=1.1) oe **and** 2.28 ÷ 3 (=0.76) oe
	A4	Full process to find figures to compare	3 or	EFG	e.g. '0.45' − '0.38' (=0.07) oe **OR** '2.7' − 2.28 (=0.42) **and** 0.1 × 6 (=0.6) **OR** 1.80 − 1.52 (=0.28) **and** 0.1 × 4 (=0.4) **OR** '0.35' **and** '0.38' oe **OR** '0.45' **and** '0.48' oe **OR** '1.1' **and** '0.76' oe **OR** 0.45 **and** 0.38 oe
	I6	Valid decision with accurate figures	4	EFGH	e.g. No **AND** 7(p) **oe OR** No **AND** 42(p) **and** 60(p) oe **OR** No **AND** 28(p) **and** 40(p) oe **OR** No **AND** 35(p) **and** 38(p) oe **OR** No **AND** 45(p) **and** 48(p) oe
	A5	Valid check	1	J	Valid check, e.g. reverse calculation, alternate method or approximation.
Total marks for question			**9**		

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R1	Starts to plan games	1 or	K	Indicates at least 3 of: PS, PT, PV, RS, RT, RV, ST, SV, TV
	I6	Develops process to plan games	2 or	KL	Indicates at least 6 correct pairings e.g. PS, RS, RT, ST, SV, TV
	A4	Fully correct plan	3	KLM	e.g. PS, RS, RT, ST, PV, TV, PT, RV, SV
Q7(b)	I6	Indicates correct angle	1	N	Indicates 45 degree angle
Q7(c)	R2	Works with consistent units	1	P	e.g. 150 (mins) **or** 3 (hr) **or** 0.75 (hr) **or** $\frac{3}{4}$ (hr) **or** 30 (mins)
	A4	Process to work with mean or mean time	1 or	Q	e.g. '150' ÷ 4 (=37.5) **OR** 150 ÷ 45 (=3.3..) **OR** 45 × 4 (=180) **OR** ('150' − 45) ÷ 3 (=35)
	I6	Valid decision with accurate figures	2	QR	e.g. No **AND** 37.5 (min) **OR** No **AND** 3(.3.. games) **OR** No **AND** 180 (min) **and** 150 (min) oe **OR** No **AND** 3 (hr) **OR** No **AND** 35 (min average for other 3 games)
Total marks for question			**7**		

Example for Q4a

TIME PLAN

1100 – 1220 exhibition 1

1220-1305 lunch

1305-1425 exhibition 2

1425-1455 coffee

1455-1615 exhibition 3