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Mark Scheme (Results)

June 2016

Pearson Edexcel Functional Skills Mathematics Level 1 (FSM01)

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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- If working is **crossed out and still legible**, then it should be marked, as long as it has not been replaced by alternative work.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÷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. Candidate's scale must be in numerical order.
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: Kayaking

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q1(a)	A4	Process to find percentage	A	1 or	25 ÷ 100 × 72(=18) oe NB if 54 seen award mark A only
	I6	Correct answer	AB	2	(£)18
Q1(b)	R3	Starts to substitute into formula	C	1 or	17 × 11 (=187) **OR** 33 × 5 (=165)
	A4	Full process to use formula	CD	2 or	17 × 11 ÷ 5 (=37.4) **OR** 33 × 5 ÷ 11 (=15)
	I6	Makes decision with accurate figures	CDE	3	No **AND** 37(.4)(pounds) **OR** No **AND** 15(kg)
	A5	Valid check	F	1	E.g. Reverse calculation or estimation or alternative method
Q1(c)	I6	Extracts relevant data from table	G	1	249.5, 57.50, 63.95 , 22.95 May be seen in subsequent working
	R3	Process to add or subtract the prices	H	1 or	'249.5' + '57.50' + '63.95' + '22.95' (=393.9) **OR** Subtracts at least three of these figures 249.5, 57.50, 63.95, 22.95 from 316.95 NB allow 1 error or omission
	A4	Complete process to find saving	HJ	2	E.g. '393.9' – 316.95 (=76.95)
	I6	Correct answer in correct money notation	K	1	£76.95 (correct money notation required)
Total marks for question is				**10**	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q2	R2	Uses time consistently	L	1	E.g. 180 (mins) **OR** $\frac{1}{4}$ (hour) May be seen in subsequent working
	R3	Starts process to work with proportion	M		e.g. 6000 ÷ 600 (=10) **OR** 6000 × '$\frac{1}{4}$' (=1500) **OR** 15 ÷ 600 (=0.025) **OR** 600 ÷ 15(=40) **OR** '180' ÷ 6000(= 0.03) Allow build up method with at least 4 steps e.g. 600+600+600+600(=2400) in 1 hour
	A4	Complete process to find figures to compare	MN	2 or	e.g. '10' × 15 (=150) (mins) **OR** '1500' ÷ 600(=2.5)(hrs) **OR** '0.025' × 6000 (=150) (mins) **OR** '40' × 180 (=7200)(m) **OR** 6000 ÷ '40'(= 150)(mins) **OR** '0.03' × 600(=18) (mins) Allow full build up method
	I6	Correct conclusion with accurate figures	MNP	3	No **and** 2.5 (hours) oe **OR** No **and** 150 (mins) **and** 180(mins) **OR** No **and** 7200 (m) oe **OR** No **and** 18 (mins) oe Award L mark if this mark is awarded
Total marks for question is				**4**	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q3	R1	Identifies correct sector or process to convert between percentages/decimals/fractions	Q	1 or	Identifies 40(%) and no other **OR** 1 ÷ 3 (=0.333…) oe **OR** Converts to comparable fractions e.g $\frac{1}{3} = \frac{5}{15}$ **AND** $\frac{40}{100} = \frac{6}{15}$
	I6	Correct conclusion with accurate working	QR	2	Yes **AND** 0.33(3…) **and** 0.4 **OR** Yes **AND** 33.3(3…) (%) **and** 40(%) **OR** Yes **AND** comparable fractions
Total marks for question is				**2**	

Section B: Moving offices

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q4(a)	R1	Process to calculate total	A	1 or	5 + 2 + 4 + 3 + 2 + 6 + 3 (=25) **OR** 4 × 7 (=28)
	A4	Completes process to find figures to compare	AB	2 or	'25' ÷ 7 (=3.571…) **OR** 5 + 2 + 4 + 3 + 2 + 6 + 3 (=25) **and** 4 × 7 (=28)
	I6	Correct conclusion from accurate figures	ABC	3	No **AND** [3.5, 3.6] **OR** Yes **AND** the mean/average rounds to 4 oe **OR** No **AND** 25 **and** 28
	A5	Valid check	D	1	E.g. Reverse calculation or estimation or alternative method
Q4(b)	I6	Correct answer	E	1	Indicates angle C
Total marks for question is				**5**	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5	R2	Considers meeting time	1	F	M(eeting) 10:50(am) - 11:30(am)
	A4	Begins to work with time	1 or	G	A(ccounts) assigned 90 min between 9am and 1pm **OR** H(elp desk) assigned 45 min between 9am and 1pm NB No overlap with any other activity End of one activity may be implied by the start of next activity
	A5	Improves their time plan	2 or	GH	A(ccounts) assigned 90 min between 9am and 1pm **AND** H(elp desk) assigned 45 min between 9am and 1pm NB No overlap with any other activity End of one activity may be implied by the start of next activity
	I6	Completes time plan	3	GHJ	Fully correct plan with all packing start and finish times shown
Total marks for question			**4**		

Example solution

Start time	Finish time	Activity
9 am	10:30 am	Accounts
10:30 am	10:50 am	Pack
10:50 am	11:30 am	Meeting
11:30 am	12:15 pm	Help desk
12:15 pm	1 pm	Pack

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q5(b)	R2	Starts process to draw diagram using shape and measure	K	1 or	Draws a rectangle with 1 side 5 **or** 8 (square lengths) **OR** Draws a rectangle in ratio 5:8 against a wall **OR** Draws a rectangle at least 3 squares lengths away from window
	R3	Correct solution for desk	KL	2	Draws a rectangle 5 by 8 (square lengths) against a wall **AND** at least 3 (square lengths) away from window
	A4	Continues to draw diagram	M	1 or	Draws a square 4 by 4 (square lengths) **OR** Draws a square with at least 2 by 2 (square lengths) with a clear space of 2 square lengths all the way round it (not over door arc)
	I6	Correct solution for table	MN	2	Draws a square 4 by 4 (square lengths)**AND** at least 2 (square lengths) of clear space all the way round it (not over door arc) NB Full marks cannot be awarded if any rectangle is over the door arc or any other feature. (Do not award mark N)
Total marks for question is				**8**	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q6	R1	Uses consistent units	1	P	E.g. 15000(ml) **OR** 0.25(l) oe May be seen in subsequent working
	A4	Process to work with capacity	1 or	Q	e.g '15000' ÷ 250(=60) oe **OR** 75 ÷ 4(=18.75) oe **OR** 75 × 250 (=18750) oe **OR** 15 ÷ 75 (=0.2) oe
	I6	Correct conclusion with accurate figures	2	QR	No **and** 60(glasses) **OR** No **and** [18,19](litres) **OR** No **and** 18750 **and** 15000 (ml) **OR** No **and** 0.2 **and** 0.25 (litres per cup) Award mark P if this mark is given
Total marks for question is				**3**	

Section C: Garden improvements

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q7(a)	R3	Full process to find figures to compare	1 or	A	e.g. 2 ÷ 4 × 3 (=1.5) oe **OR** 1.6 × 4 ÷ 3(=2.13..) NB maybe shown in clear diagram
	I6	Correct decision with accurate figure	2	AB	No **and** 1.5(m) oe **OR** No **and** 2(.13..) (m)
	A5	Valid check	1	C	E.g. Reverse calculation or alternative method
Q7(b)	I6	Correct answer	1	D	Indicates unlikely
Total marks for question is				**4**	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(a)	R2	Uses consistent units	1	E	900(cm) **OR** 630(cm) **OR** 1.8(m) **OR** 0.9(m) **OR** 2340(cm) **OR** 540(cm) May be seen in subsequent working
	R3	Starts process to work with number of fencing panels or perimeter	1 or	F	E.g. 9 + 9 + 6.3 – '0.9' (=23.4) **OR** 6.3 – '0.9' (=5.4) **OR** '900' ÷ 180 (=5) **OR** 90 + 180 + 180 + 180 (=630) **OR** 13 × 180 (=2340)
	A4	Completes process to work with number of fencing panels or perimeter	2	FG	9 + 9 + 6.3 – '0.9' (=23.4) **AND** 13 × '1.8' (=23.4) oe **OR** (9 + 9 + 6.3 – '0.9') ÷ '1.8' (=13) oe **OR** '540' ÷ 180 (=3) oe **and** '900' ÷ 180 (=5) oe **and** '3' + '5' + '5' (=13) **OR** '2340' + 90 – '900' – '900' – '630' (=0) oe
	I6	Correct conclusion with accurate figures	1	H	E,g. Yes **and** 13 (must be from correct working) **OR** Yes **and** 0 (must be from correct working) **OR** Yes **and** 2340 (cm must come from two correct processes) NB Working may be in either cm or m or mm

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q8(b)	R2	Starts to plan the route	1 or	J	Finds a route starting or finishing at the store to at least 2 houses, shown by distances or names or on diagram
	A4	Develops solution	2 or	JK	Finds a route and process to find the total distance for their route (allow one error or omission in route) e.g. 6.3 + 9.5 + 5.8(=21.6) **OR** Complete correct route with one error or omission in the process to find the total distance for their route e.g. 6.3 + 9.5 + 5.8 + 3(=24.6)
	I6	Finds a complete correct route with correct total distance	3	JKL	Fully complete route with correct total distance E.g. (6.3 + 8 + 5.8 + 4 =)24.1 NB routes between houses via store are allowed
Total marks for question is				**7**	

Question	Skills Standard	Process	Mark	Mark Grid	Evidence
Q9	R1	Process to find number of bags	1	M	E.g. 300 ÷ 25 (=12) **OR** uses build method e.g. 10 × 25 + 2 × 25(=300) May be seen in subsequent working
	R2	Starts to process cost and offer	1 or	N	'12' × 8.49 (=101.88) **OR** 2 lots of 5 (bags) + 2 (individual bags) oe **OR** 100 – 34.95 (=65.05) **OR** 100 – 8.49(=91.51)
	A4	Continues process	2 or	NP	2 × 34.95 (=69.9) **OR** 2 × 8.49 (=16.98) **OR** (12 − 5) × 8.49 (=59.43) **OR** 100 − 2 × 34.95 (=30.1) **OR** 100 − 2 × 8.49 (=83.02)
	A4	Full process to find figures to compare	3	NPQ	'69.9' + '16.98'(=86.88) oe **OR** '59.43' + 34.95 (=94.38) oe **OR** 100 − '69.9' – '16.98' (=13.12) oe
	I6	Correct conclusion with accurate figures	1	R	Yes **and** (£)86.88 accept 87 **OR** Yes **and** (£)94.38 **OR** Yes **and** (£)13.12 accept 13 Award mark M if this mark awarded
Total marks for question is				**5**	

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