Mark Scheme (Results)

Functional Skills Mathematics
Level 2 (MAT02)

Set 1

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Guidance for Marking Functional Mathematics Onscreen

General
1 All candidates must receive the same treatment. You must mark the first candidate in exactly the same way as you mark the last.
2 Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
3 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 onscreen tests, many questions have a mechanism for the candidate to give their decision or answer, as well as the working box. In most cases the marks are awarded for the process which leads to the answer. Full marks cannot be gained from simply clicking the correct answer. You must read what is in the working box. You may need to award marks for an answer which is only stated in the working box.

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÷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 Marker Leader / Assistant Marker Leader.

Graphs

The mark schemes for most graph questions have this structure:

Process		Evidence
	1 or	1 of
		linear scale(s), labels, plotting
	2 or	2 of
		linear scale(s), labels, plotting
	3	all of
		linear scale(s), labels, plotting

Note that the mechanism usually restricts the candidate's choice of graph.

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.

Question	Process	Mark	Evidence
Q1	Writes statements to compare graphs	1 or	1 of: e.g. uses more gas in winter months than in summer months uses more gas in winter than electricity gas varies more than the electricity between summer and winter uses more electricity this year than last year used more gas last year than this year uses (far) more gas than electricity peak use in January and/or February for gas peak use in January and/or February for electricity any other relevant statement OR 1 or 2 simple statements which only compare data points
		2	2 of the above where at least one is not a simple statement Figures do not have to be checked for accuracy
Total marks for question		**2**	

Question	Process	Mark	Evidence
Q3	Uses formula by substitution or reverse check	1 or 2	(6 - 1) x 25(=125) **OR** 400 - 275(=125) '125' + 275 (=400) **OR** 400=25(6-1) + 275 '125' ÷ 25 (=5)
	Decision made, must have achieved first process mark. **and** have calculated a value to use for comparison	1	e.g. yes, 6 gives 400 F **OR** yes, 5+1=6
Total marks for question		**3**	

Question	Process	Mark	Evidence
Q5	Works with area	1	7.5 x 5.5 (= 41.25)
	Converts weight to be same units	1	1.5 kg = 1500g **OR** 35g = 0.035kg may be seen in a calculation
	Process to calculate sand required or box coverage	1	'41.25' x '0.035'(=1.44375 or 1443.75) **OR** '1500'÷35(=42.857..) or 1.5 ÷ '0.035' (= 42.857..) digits 35 or digits 15 must be present in the calculation
	Correct decision	1	clicks yes and correct evidence in working box. Yes with [42.8, 42.9](m²) **and** 41.25(m²) Yes with [1.43, 1.45](kg) **and** 1.5(kg) **OR** [1443, 1445](g) **and** 1500(g)
Total marks for question		**4**	

Question	Process	Mark	Evidence
Q6	Works with percentage	1 or	0.2x139.99[=27.99, 28] o.e. **OR** 0.8x139.99[=111.99, 112.01]
	Finds price of mobile	1 or	64.99÷3[=21.44, 21.67] **OR**
	Finds price of printer	2	64.99÷3x2 [=42.88, 43.54] condone use of 0.3 for 1/3 provided 45.5 or 45.49 seen [=42.88, 43.54]
	Chooses correct combination based on at least one percentage mark(Q6a) and at least one fraction mark(Q6c) awarded	1	e.g radio and printer
Total marks for question		**5**	

Question	Process	Mark	Evidence
Q8	Uses conversion factor	1 or	59 × 0.6256 (=36.91…) OR 40 ÷ 0.6256 (=63.938…)
	Gives converted amount	2	[36.90, 37] OR [63.90, 64]
	Selection based on first mark for conversion factor awarded	1	($)59
Total marks for question		**3**	

Question	Process	Mark	Evidence
Q9	Works with total points scored in games so far **OR** process to find mean difference	1	20x42.7(=854) OR 43.5-42.7(=0.8)
	Works with total points required **OR** Finds number of extra points needed per game	1	22x43.5(=957) OR 43.5x 20(=870)OR '0.8'x20(=16)
	Finds total points needed	1	103 cao (or any two numbers that add to 103)
	Total marks for question	**3**	

Question	Process	Mark	Evidence
Q10	Converts quantities to same units	1	Change 1.5 litre to 1500 ml or 250 ml to 0.25litre or 250ml to ¼ litre could be seen within a calculation
	Finds scale factor	1 or	1.5 ÷ '0.25'(= 6) or '1500' ÷ 250 (= 6) or 6 x ¼ in 1½ or 1.5 **OR** 250 ÷ 2 = 125ml
	Finds number of teaspoons		12 teaspoons cao
	Total marks for question	**3**	

Question	Process	Mark	Evidence
Q12	Calculate amount to spend on balloons **OR** amount left to spend	1	46x5(=230) oe. **OR** 260 -208(=52)
	Calculates no. of cupcakes	1 or	26÷6(=4.33..) or 52÷6(=8.66..)
	Chooses number of packs to buy	2	5 to 9 whole packs with some justification
	Calculates cost of party bags or	1	26x1.60(=41.60) **OR** '38.90'÷1.6(=24.31)
	Finds how many bags Pat can afford Ft decision based on at least **3** previous marks scored working Must see valid statement or total spent or total left for this mark	1	e.g yes, if she buys one cupcake per child (5 packs) **OR '**49.90' seen **OR** '2.10' left over yes, if she buys 6 packs of cupcakes **OR '51.10'** seen no, if she buys more than 6 packs of cupcakes no, for 7 or 8 packs cupcakes she can only afford 25 party bags no, for 9 packs cupcakes she can only afford 24 party bags
Total marks for question		**5**	

Maximum Mark	**40**
Pass Mark	**23**