Principal Examiner Feedback

June 2011

Functional Skills Mathematics
Level 1 (FSM01)

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Functional Skills Mathematics Level 1

Introduction

A number of candidates tackled the paper well, with clear evidence to suggest that they can work in a functional way, are having opportunities to experience real life maths in context and have the skills to apply their mathematics in unfamiliar situations. In a number of cases, some candidates were able to gain full marks from certain sections. Candidates seemed to tackle money related problems successfully which is perhaps indicative of the hard work centres are putting in, in relation to the application of budgeting and financial mathematics.

Candidates must ensure that they clearly demonstrate the process of how they come to an answer by showing all their working: in real life there is more than one way to get to an answer and rarely is it the case that only one way and one answer is acceptable. Candidates should ensure that even though they are using a calculator they should very much be in the habit of showing all stages in their working. There was evidence that this is continuing to improve compared with previous series but there are still candidates who are not doing this. In a number of cases throughout a question paper, correct answer only written down, without working, may only be credited with one mark, when the whole question may be worth 4 or even 5 marks: it is here that the process marks are important and must be shown. For instance when multiplying or dividing the process of repeated addition is perfectly acceptable as a method and the process of how the answer is achieved. This is often what we would do in real life. Centres should therefore ensure that all preparation for functional mathematics is embedded in real life situations and not those that are made up out of a contrived situation.

Candidates should be prepared to show a correct method for a checking procedure such as an alternative method, estimation or clear reverse calculation.
In questions that involve comparing possible values to draw a conclusion, those students who took a little time to analyse each situation having separately worked out these values were invariably well rewarded, especially if they came to a conclusion relating to their figures. Breaking down a question into its component parts and coming to a judgment is an important aspect of these processes.

In questions that involve an explanation, candidates must realise that their answer must be supported by mathematics.

Report on Individual Questions

Q1 (a) Most candidates understood how to use the formula and substituted the correct values. Many candidates showed the correct calculation which helped them gain the first mark, with many answers of 1.5 seen.
However many candidates did not interpret this answer correctly and failed to write 1.5 hours or an equivalent answer. Many answers such as 1 hr 5 minutes or 1 hour 50 minutes were seen.

Q1 (b) Again, this question was generally well answered with many answers being shown which involved a build up or counting on process leading to an answer of 8hrs 25 minutes. Those candidates that performed a subtraction ended up with 8.25, but again many candidates who showed their methods gained a mark with this question, demonstrating the correct process. However, of these, many candidates failed to interpret their answer correctly, or even gave just a single answer without any method being shown.
Candidates must be informed that as with all functional maths problems, showing the process or method they are using and their workings should always be encouraged.

Q2 (a) Many correct values were seen, but sometimes without showing a process of how they got it. Candidates should be reminded that when the working box icon is used then a correct process and method should always be written down. A large proportion of candidates recognised the calculations to be carried out here, some errors were seen when working out the values when a correct process had been used. Candidates must be encouraged to take care with using their calculators and interpreting the display. Many cases of money related questions with a trailing zero must be interpreted correctly   i.e., 64.5 was left as 64.5 instead of £64.50. Although this did not matter for this question in this context, but candidates need to be made aware of interpreting their calculators correctly in money situations.
The final mark was often missed by not giving a decision. Candidates need to be reminded that with questions that need a decision or explanation, then their reason needs to be supported by correct processes and in this case a correct value. A decision on its own will not be sufficient.

Q2 (b) There were many correct answers seen but creating time plans or timetables causes a problem for some candidates. This can be avoided by checking what information is needed, deciding on a suitable course of action then rewriting this in sequential order. All errors here arose from misreading the question. These included trying to put together a program which allowed them to see all the shows instead of those listed, not allowing any time to walk between shows, not including lunch, programming the Big Cats at a time other than 1045 or putting shows at times other than those in the timetable, and not considering that the plan needs a start and finish time. Candidates should be advised to highlight all the information needed and ensure that their time plan is fit for purpose and takes into account all that is needed.

Q3 (a) Although many answers were seen with an answer of yes or no, which was supported by a correct reason, many candidates failed to justify their decision or else they looked for a pattern that of course wasn't there and tried to justify using that. Some candidates had difficulty with the open ended nature of the question where either yes or no could be chosen. They could process the information (6 males 4 females) but giving a decision, especially one not ambiguous, proved difficult for some. Candidates should be encouraged to consider the nature of likelihood and why some things are more likely to happen than others based on evidence or even why some events have an equal chance in real life and consequently it is unwise to suggest that one event is more likely than another.

Q3 (b) This question was generally well answered, with many fully correct responses seen, and although not needed for this question many candidates again gave full correct money notation answers.(£2.40 instead of 2.4)
Errors that were seen could have been avoided by reading the problem carefully through and extracting the correct information needed. There were many responses seen that did not use the correct cost, although candidates knew what to do with it. Candidates also attempted a pen and paper method to show their addition and subtraction. Centres should ensure that candidates are equipped with calculators to help them with these routine tasks.

Q4 (a) This question was generally well answered with many understanding that just over 2 days was needed and thus interpreting their final answer as 3 days.
Of those that did not gain all marks, many just associated a build up method to get to 8 for two days then a bit more so left their answer as 2 and a bit. Other methods led to the answer of 2.25
Candidates need to be prepared to be able to interpret their answer correctly and realise the meaning of the least number of days.

Q4 (b) This question caused problems for the vast majority of candidates who simply either repeated their process from part a) or tried to explain a method of what they will do. This is insufficient. Candidates need to be prepared to understand a checking procedure. Repeating their method is not a check: a reverse method, alternative method or estimation should always be used here.

Q4 (c) Many good answers were seen when candidates simply followed a clear column and row representation including all the information needed with clear spaces to input names and efficient inputs for each category. An alternative fully correct solution was accepted if their record sheet was clear for one person. Candidates should be prepared for this sort of data collection sheet by including clear labels for each of the categories needed and a clear way for someone to input into clearly defined spaces.

Q5 This question was attempted well with many candidates clearly giving a selection for each course, totalling it up and checking that it was within budget. Candidates need to be reminded about checking the requirements of the question, because many answers were seen that ignored the full constraints of the problem: each dish should be a vegetarian option only. Although this did not hinder them scoring many marks as long as they gave totals within budget, candidates should be encouraged to read through the question and extracting the correct information needed to answer the problem. Interpreting, extracting and analysing are key areas in functional maths and candidates should be prepared to tackle such problems.
Fully correct responses dealt with all the constraints successfully, by having all courses that are vegetarian, giving the costs of those, totalling them up and showing that they were within the £20 budget.

Q6 (a) This question was generally answered satisfactorily. Many candidates managed to extract the correct totals for each dessert with many bar charts and vertical line graphs seen. The problem arose with the use of poor scales that were not graduated in a linear way. Many graphs were not labelled correctly on the frequency axis, and it was this where most marks were lost. Much accurate plotting was seen against their scales, but candidates should be warned that they should be careful when plotting, because if even one bar is not plotted correctly the answer will not gain the mark for plotting.

There were a few pie charts seen, but these were drawn inaccurately and without any supporting calculations. Unless asked for, pie charts should be avoided and candidates encouraged to draw simple bar charts or vertical line graphs which are a fit for purpose, straightforward way to show data of this type.
This type of question only requires the basic aspects of simple graphs. These are: Labelling, plotting, linear scale. Sometimes candidates missed some aspects of the information needed, and they should be encouraged to check that all information is displayed and used.

Q6 (b) Many good answers were seen showing a variety of methods for 50%. Sometimes there was clear misunderstanding of how to find 50% so centres should be encouraged to prepare candidates in how to apply percentages in real life scenarios. Of the candidates that did know what 50% meant, candidates should be reminded to use a calculator. Some wrote down £5.50 ÷ 2, but their answer was £2.25, showing that this had been completed without a calculator.

Q7 (a) This question was generally well done with candidates showing the full process and answer correctly. Of those that did not, some simply multiplied all four sides together or confused area with perimeter by adding the sides. Candidates should be prepared to know what to do with area and how to find it in practical cases. There were very few processes shown that involved counting the squares which was surprising because squares were given. Candidates should be prepared to check for diagrams that may help them.

Q7 (b) Most candidates attempted this question well by gaining at least partial marks. Candidates struggled with the concepts of 'cost per metre' and 'fixed costs' so centres would do well to use real life examples of this. Many candidates could start on the problem but did not always use a correct area from part a). This did not hinder them gaining many marks but they did not always make a decision or indeed made a wrong decision when all calculations were correct.

Q8 This question was well answered with many candidates scoring either 2 or 3 marks. Failing to either position the mirror so that it was symmetrical or not placing it above the fire place correctly or not getting one of the lengths correctly caused most problems. Candidates should be prepared to read all the information provided and consequently check that their answer is fit for purpose. Candidates should be encouraged to work with scales and applying this with the dimensions that are needed because this caused the most problems. A number of answers were drawn freehand: candidates should be reminded to use a ruler for drawing straight lines.

Q9 (a) There were many good answers seen, but ratio causes problems for many candidates. Some good answers were seen using either a build up method from 1 : 2, 10: 20 etc, or a diagram that led to the correct answer. Sometimes the values seen were just 20 and 40 without associating it with red or blue or even getting the colours mixed up. Candidates should be taught that when using ratio to compare quantities they clearly show which value is linked with what colour in this case.
There were some poor answers seen and this involved candidates dividing the total tiles by 2 to get 30, with some then proceeding on to get red and blue tiles grouped but the total was more than 60. In some cases candidates added 1+2 =3 and decided that the number of blues was 45 as this was 3 times the number of reds which they gave as 15. Centres should provide practice for candidates with questions involving ratio when the question is in word form rather than standard notation.

Q9 (b) Overall, this question was well answered with some candidates achieving full marks. A significant number achieved 1 mark for calculating the total amount of coal bought and were able to work out the coal needed. However, many candidates failed to comment on the number of days or months for the time period given (some clearly had a poor knowledge of how many months and then days there are between November and January) even though they had used these in their calculations. There did need to be evidence of the calculations completed for candidates to gain full marks and there was a significant minority who failed to record their working when answering the question. A large number of candidates only worked with 2 months and not 3; this may be because they did not read the question carefully. In order to improve, there must be some work done to remind candidates how many days are in a week, month, year etc and that in questions like this, they must have a comparison of some sort, not just a decision.

Pass mark for FSM01

Maximum mark	48
Pass mark	31
UMS	6

Note: Grade boundaries vary from year to year and from subject to subject, depending on the demands of the questions.