Principal Examiners' Report
March 2011

Functional Skills Mathematics Level 2 (FSM02)

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FSM02 - Functional Skills Mathematics Level 2

Introduction

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

Functionality and Process Skills

Candidates must ensure that the process of how they come to an answer by showing all their working is clearly shown. 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. 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 working 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, is often what we would do in real life.

Centres should ensure that all preparation for functional mathematics is in real life situations and not those that are made up out of a contrived situation.
Candidates must be discouraged from using commas and decimal points in whole numbers answers where groupings of hundreds, thousands etc are to be used.
When using money notation, candidates should ensure that correct money notation is shown, for instance the answer of £234.60, should ensure that the trailing zero is included and not be mistaken with the calculator answer of £234.6
Candidates should be prepared to show a correct method for a checking procedure such as an alternative method, estimation or clear reverse calculation.

Question 1
Part (a) Many candidates demonstrated good understanding of the question and mainly completed it well. Often answers were given without working which should be discouraged and candidates should be reminded that they should show their working of the process they are trying to do. Some candidates showed their understanding by finding amounts for 1 or 2 people but, after writing the amounts for 2 people, they failed to add their answers to the original amounts. Those that did not gain full marks either failed to find the amounts for 6 people or multiplied by 4 rather than the required division by 4.

Some misread the question, thinking it required portions for 5 people; others simply doubled the quantities.

Candidates must be encouraged to read the question carefully, to select the relevant information and to check their work to ensure they have answered the question set.

Part (b) Ratio remains a difficulty for some learners. Real life applications and practical activities should be encouraged in the classroom to embed understanding of ratio. Many candidates demonstrated their understanding of ratio and found 100ml and 150ml easily but often failed to go beyond the 250ml for 1 drink, not taking into account that the answer required the amounts for 6 people, either through lack of comprehension or failure to read the question fully. Centres should also note that the answer of 600:900 is insufficient (even though in the correct order) as a final answer. Candidates must be made aware that they should give their answers explicitly, making it clear which value belongs to which item, preferably with units.

Part (c) Comparing 'best buys' was clearly not understood by many candidates. A number of candidates did not attempt this question. Those that did were confused as to how to put the items into the same weight to compare costs or how to compare the weights for the same cost and many, inappropriately, found the differences between the prices of the different bags. This is a very useful skill for everyday life and candidates should be taught, and practice how to compare this type of offer.

Many candidates used a unitary approach which worked well when finding the price per kg or 0.5kg. Difficulties occurred when candidates found the quantity per £ - many failed to understand what their answers were telling them, many classed 1.25 as not the cheapest rather than the most amount per pound in money. When doing these type of calculations it may be useful for the student to write underneath the calculation which value has been reduced to 1, kg or £.

Weaker candidates attempted to compare unequal amounts usually 3 kg, 4kg and 5 kg. Those who found the cost per kg seemed to find it easier to make the right decision. There were others who multiplied up to find the cost of a common larger weight, like 15 kg or 30 kg. Students may find this an easier way to deal with "best-buy" problems.

Question 2
Most of the difficulties with this question lay in the comprehension of the problem. Candidates carried out the calculations well but then made incorrect decisions based upon their lack of understanding of Pedro's target. Sometimes basic errors occurred when candidates used the build up method for their percentages. If a build up method is used, candidates should be taught to show their answers and processes in a sensible organised way. Centres should perhaps encourage the use of a decimal multiplier when calculators are used.

Interpreting whether the values met the given target proved more problematical, many candidates answered this the wrong way round i.e. the target was met for women and not for men.

QUESTION 3
Part (a) A number of candidates answered this well.
However, some candidates demonstrated that they need more exposure to time plans and how they are best constructed. They often used the timings well to find total times taken but failed to give start times for the activities. The sequential nature of a time plan also needs pointing out. Centres could make cross- curricular links here, e.g. looking at History timelines, Geography and 'ages' and obviously, in Food Technology, recipes and their timings etc.
Some candidates worked backwards from the time the meal was to be served which worked well but they should be encouraged, if using this method, to put their timetable in its natural order to achieve full practical functionality. Candidates should be reminded to use Common Sense – the fish and the vegetables could be cooked at the same time and preparation of the food must come before it is cooked. At times, many candidates chose to cook the fish and vegetables consecutively which, in practice, would mean one of the items was cold when it was served and disregarded the instruction 'serve ….(the food) as soon as they are cooked'. Another common error was for the preparation of fish or vegetables to continue after the arrival of the guests – this was specifically excluded in the question.

Part (b) The vast majority of candidates answered this correctly. For a question like this the candidate could turn the paper round to look at each place setting individually.

QUESTION 4
Most candidates identified the 3% figure correctly but many had trouble calculating 3% of the correct amount. Many of those that identified correctly chose a build up method , by finding 10% then 5% and then became stuck, rather than showing the full build up method. Candidates need to be prepared to show how to use a calculator correctly and communicate the method and process they have used, rather than 3% x the amount, even when they have got the full correct answer, this will often only result in one mark.

QUESTION 5

Many students found it difficult to extract the numbers needed for calculations from the information provided. 12 m sq was frequently taken as 12 x 12 = 144 and then students divided 750 by 144 and then multiplied £19.90 by 5 tins. A common mistake was dividing 750 by 12 = 62.5 and then multiplying £19.90 either by 62.5 or 63 tins of paint. The basic understanding of 1 tin of paint will cover 60 m sq was missing. The majority of candidates realised the necessity of buying a whole number of tins of paints but some did work out 12.5 × 19.90, providing this process was shown a process mark was awarded. Students need to practice rounding up in practical situations, as they frequently used truncated or decimal numbers of tins.

The majority of candidates did give correct money notation with their final answer but there were still instances of the trailing zero being left off as well as the pound sign being omitted. For instance, many answers of 258.7 were seen, rather than £258.70

QUESTION 6

This question was done well by most candidates. Some did not gain the final mark as, having correctly carried out all the calculations; they failed to provide an answer to the actual question, by concluding what their figures meant and thus did not communicate this correctly. It is essential that candidates do ensure that, at the end of their calculations, they do check that they have answered the question asked. The most common approach was to find the income from the 2 flats for 16 years, giving the answer of £345600. A number of candidates thought that the values of £850 and £950 were the rents for a year and only multiplied by 16 instead of 192. Another common but more sophisticated method seen was for candidates to divide 335000 by 21600 and show that the money could be paid back in 15 years 7 months.

QUESTION 7

Candidates performed very well in this question. The scale was generally used correctly although the dimensions of one or other of the objects was sometimes out by one square which suggests that careful counting of the squares and comparing this with the scale is needed. Occasionally, it was evident that the height was used rather than the width or depth. Many understood how to position the shower and washbasin correctly to meet the given criteria. A few candidates had the shower and basin overlapping, covering the door way, or even the shower being over the window. Candidates should be prepared to check the criteria needed and ensure that it is fit for purpose. When communicating solutions to functional problems of this type, candidates need to be prepared to check and consider the practicality of the situation and whether their answer is sensible.

QUESTION 8

Part (a) Most candidates attempted the question successfully and were able to convert the lengths. A small number of candidates did not read the question fully and only provided one of the 45cm lengths. Candidates should be reminded to read questions fully to confirm what is required of them. Misconceptions of how to change between units of length meant that some candidates divided by 2.5 instead of multiplying.

Part (b) This question proved difficult for the vast majority of candidates. Converting units from m to cm posed some problems. There is reference to floor area so it was disappointing to see many responses where there had been an attempt to calculate volume. Even so, some candidates understood the need to show the process of subtracting 5000 for the first bird and then continuing to find the number of birds by then showing a division by 2500. Due to the large number of candidates not using a calculator for this question, many chose to use repeat addition or subtraction methods as opposed to more efficient techniques.

Centres should be reminded that in functional maths, we focus on the process skills and consequently there are many questions which give credit for multi stage answers. Candidates should then be encouraged to show the stages of their answers at all times to gain as much credit as possible.

QUESTION 9
Most candidates attempted this question but gained either full marks or no marks for this question. Learners should be encouraged to write down the formula in the question, and then insert the numbers that they are given. They should then at least be able to take the first step of a re-arrangement.

The candidates who made a start on this presented their answer in a number of ways including some form of trial and improvement. Those that did this attempted a number of possibilities and did write down their trials correctly.

Many candidates attempted to rearrange the formula, but were not successful due to not fully understanding correct processes. Centres should prepare candidates for this skill which will be a feature at level 2.

However, there were a number of candidates who fully understood the process and presented their solution in a concise way.

QUESTION 10
Part (a) There were many correct answers for this question and some good attempts at solving the problem. Some candidates did not gain all the marks because they did not write down all of their working. Centres should remind candidates to write down all the stages of their calculations because this would improve candidates' chances of success. Many times the figures 6900, 8400 with 1500 somewhere else on the page were seen but were not linked. Some candidates were again unable to cope with the multistage requirements of this question.

Part (b) In many instances the reverse calculation question was not answered and checking one's own calculations is poorly done. Centres should ensure that candidates know a correct method for a check. In this particular instance a reverse calculation on any relevant part of the calculation in 10a, or an alternative calculation would have sufficed. Candidates could also be reminded that on some occasions an estimate can be a valid check. Many candidates produce a check which is a repeat of their original calculation which is clearly not an acceptable method.

Pass mark for FSM02

Maximum mark	48
Pass mark	28
UMS	6

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