

Principal Examiner Feedback

June 2011

Functional Skills Mathematics
Level 2 (FSM02)

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Functional Skills Mathematics Level 2

Introduction

The majority of marks on Functional Skills paper are for showing a correct process. Candidates should be encouraged to show how they arrive at an answer. Showing logical steps, especially when a calculator is used, is so important for communicating the way a problem is solved. Many candidates demonstrated poor presentation skills when setting out their calculations and often did not make their answer clear. In addition some candidates do not write numbers clearly making it difficult to determine whether they have actually arrived at an acceptable answer. When communication is poor with a mass of figures given in no particular order it is difficult to credit students for demonstrating the correct process.

It was clear from responses seen that some candidates did not have access to a calculator when sitting the paper. Candidates are expected to have access to a calculator when sitting a functional skills mathematics qualification. It was also clear that those candidates who did have access to a calculator did not always use their calculator effectively to process arithmetic. In particular, working with fractions and percentages caused difficulties.

Candidates should be encouraged to read through questions carefully and identify key information. They should also re-read the question after answering it to ensure that they have provided the answer required: for example, when a decision was needed this was occasionally omitted.

Report on Individual Questions

Q1 (a) The majority of candidates scored full marks for this question. A small number of candidates chose 'Complete fitness off- peak' indicating they did not read the entire question carefully.

Q1 (b) A significant number of candidates applied the 'special' offer to £850 instead of a price from the table which gained no marks. A number of candidates deducted $\frac{1}{4}$ from the two year cost of membership, instead of just the first year. Other errors included working with the monthly membership cost instead of the annual cost. A minority of candidates carried out all the processes correctly and showed a correct final figure but then failed to make a decision.

Q2 (a) Some candidates completed this question well showing good calculations. Most of those who failed to gain full marks did gain at least one or two marks for dealing with the various times, often starting at 9 am and working backwards. Many candidates however struggled with this question, demonstrating a poor understanding of adding and subtracting time. A few candidates made the mistake of subtracting 1.3 from 9 am and writing 7.7 which obviously led to a wrong answer. Some candidates tried to work forward from their own alarm time and had difficulty reaching the required time of 6.20 am. Candidates would benefit from lessons dealing with advanced time questions using real life example such as catching a train or bus so that they can relate to their own situations.

Q2 (b) Many candidates found this question difficult, with some not attempting any part of the question. A surprising number used 1 km = 100 metres in their calculations. Of those who used 1 000 m, many were able to work out that 40 lengths were equivalent to 1 km but were not able to show the full process to arrive at the correct answer of 64 lengths.

Q3 Some candidates started the question well and demonstrated they could calculate the amount of protein in each portion of food that Chris ate; however, some candidates made calculation errors particularly with the amount of protein in a banana. A handful of candidates tried to round answers incurring calculation errors. Other candidates started by adding the figures in the 'Protein (per 100g)' column and used this as the amount of protein Chris ate.

Some candidates demonstrated they could calculate the amount of protein Chris should eat for his body weight of 95 kg by multiplying by a number between 1.2 and 1.7. However, many students divided 95 kg by their result for the amount of protein, rather than the other way round. Some candidates made a decision without any working or compared the total of the 'Amount eaten' column with the total of 'Protein (per 100g)' column total to give their answer.

The majority of candidates with fully correct answers made good use of the blank column to calculate the amount of protein eaten in each food type.

Many candidates did not know how to attempt the first part of the question. One of the most important skills candidates need to have is the ability to read the question carefully rather than diving into it. There are plenty of real-life scenarios that can be used to practice the skills needed for this type of question. Candidates should be encouraged break down longer questions such as this, into different tasks and complete each one in turn.

Q4 (a) The majority of candidates were able to substitute successfully although some candidates were unable to use their calculators correctly to find the correct weight. A significant number of candidates did substitute correctly but did not understand the significance of the squaring process, and multiplied by two. There were a noticeable number of misreads from the calculator display regarding the decimals. Teachers would be well advised to give their pupils plenty of practice in using their calculators for more complex calculations in order to increase familiarity.

Q4 (b) The two features required here confused many students. They either worked out the percentage or the ratio but not both. There were some interesting answers, ranging from over 1 million kg of hay needed for a 400kg horse (per day) – to 0.08g of hay for the same weight horse. This is because candidates did not check that their answer looked sensible. Other incorrect answers, such as 8 kg or 80 kg were derived because candidates could not deal with the simple ratio. The majority of candidates who arrived at the correct answer included units of weight with the answer but some did not and therefore only gained two of the three available marks.

Q5 This question was well-attempted with an array of different graph types including composite bar graphs, dual bar charts and separate bar charts. The plotting of the data was generally accurate and well presented. Many students lost a mark for omitting to label the vertical scale. Having three factors (rosettes/years/position) to consider seemed a factor too many for some.

Q6 Many candidates calculated correctly that 3 mats and 2 mats were required on each side, then sadly added (instead of multiplying) giving them 5 mats. Some candidates then used the bigger number, 3, assuming the 2 was subsumed within this number. The process after the calculation of the mat quantity was successful on the whole, although a small number of candidates adding on a delivery charge for each mat.

Q7 There were many good and varied correct answers to this question. The places where candidates failed were when event C was only given a 5 minute time slot. Some answers showed clashes – especially where they tried to run events concurrently. There were some who missed out a horse for some reason, while others who only had a start and end time, but nothing to indicate when a particular horse was to start its event. Others failed because they went past the 1230 deadline, or started their last event then. The best answers were those candidates who worked out that there were about 2 hours of events to fit into 2 and a half hours of time slots. They then got through each event separately, giving each horse a built in time slot to have a rest – usually more than the 5 minutes minimum. Practical experience of situations where detailed organising is required (e.g. a day full of interviews with many candidates/ school sports day calculations/ festivals/ zoos trips TV scheduling etc) in their lessons will increase confidence in tackling these kinds of functional maths questions.

Q8 Virtually all candidates found the cost of having ten lessons with Cal's driving school. Most candidates attempted to resolve the problem for Alpha and Ben's school but with varying degrees of success. Alpha seemed to be the school whose cost seemed most difficult for candidates. A total of £20 was interpreted as £20 each doubling the £20 for 2 hours for Alpha, by some. A common error was taking off $10 \times £2$ for Ben rather than $9 \times £2$. Candidates would be well advised to re-read the set of instructions, in a question such as this, to check they have not missed out/misread anything. Lots more practice on breaking down multi-stage best buy questions in class would also be of benefit.

Q9 (a) This question was generally well done except by candidates who really didn't understand percentages. A common error was to attempt to find a percentage of 43. Having arrived at the correct figures, some candidates failed to give a decision.

Q9 (b) This question was generally very well done, the few exceptions being those candidates who confused mean for median, mode or range.

Q9 (c) A lot of correct answers here; most candidates seem to understand how to do a check although far too many just repeat the original calculation or writing in words how to find the mean. This is an area where more practice is needed in class.

Q10 (a) The majority of candidates realised that they needed to work out $\frac{1}{3}$ of £8.50 but were unable to cope with the fraction. Common incorrect methods were to use 0.3 in place of $\frac{1}{3}$, to find the price of just one rather than two tickets and to round prematurely. There were some candidates who misread 'off' as 'of' and therefore gave the discount as the ticket price.

Q10 (b) This question was generally well done although there was a problem for some students in recognising whether an answer is sensible or not. A few forgot to add on the parking charge. A few candidates found the correct cost when travelling by car but then failed to give a decision.

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.

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