

Principal Examiner Feedback

January 2013

Functional Skills Mathematics
Level 2 (FSM02)

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General Comments

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 maths in context and have the skills to apply their mathematics in unfamiliar situations. In a number of cases, candidates were able to gain full marks from certain sections.

It was clear that some candidates had not used a calculator; this led to far too many arithmetic mistakes and would have taken the candidates far too long to work out the answers. Centres are asked to ensure that all candidates are equipped correctly.

There are a number of questions that require a decision or a conclusion following the mathematics. Candidates should ensure that they check the question and ensure they have confirmed they indeed have made a decision or drawn a conclusion to complete their answer.

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 usually 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 show all stages in their working. In number of questions throughout a 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. Centres should ensure that preparation for functional mathematics is based on real life situations and not those that are made up or contrived.

Candidates should be prepared to check their answer is fit for purpose such as interpreting graphs, devising a schedule which meets different constraints, and concluding decisions based on a numerical value.

In questions that involve comparing possible values to draw a conclusion from them, 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, and with so many problems being multi-stage it is essential that candidates show a methodical approach and plan their answers carefully.

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

Report on Individual Questions

Section A

Q1a – There was evidence that some candidates did not have a calculator or chose to complete the question by paper and pencil methods. A small minority did not use correct money notation, missing the zero to write £36.5 or 36.5 without a £ sign. The processing to reach this point was well within the capacity of candidates.

Q1b – There were more difficulties in the second part of this question where a significant number of candidates failed to reduce the hutch prices by 25% either not applying the discount at all, being unable to find 25% of a given amount or applying the discount to all items. In some cases the costs were rounded too soon and the final mark was lost as a consequence. Centres should consider providing candidate with practice at obtaining all the correct information required to answer a question. Careful reading along with highlighting of important facts is to be encouraged.

Q2a – A good number of candidates were able to work with scale correctly and to interpret the criteria for the position of the play space given in the question. Some candidates need more practice at working with scale drawings and a range of different scales.

Q2b - Most candidates were able to calculate the amount of food needed by the 3 guinea pigs for 2 weeks but many lost marks because they did not show a comparison with the 2.5 kg in consistent units or they made an error in the conversion of 2.5 kg to grams or they failed to provide a decision. Functional Skills mathematics questions do often require a decision and marks can be lost if a candidate fails to provide this in their written answer.

Q3 - Candidates were creative and successful in constructing schedules and mostly managed to fill their tables with meaningful data. The main hurdle to success was ensuring all children had an equal score. A minority did not realise that all three tasks need to be undertaken on Sunday. Recognising that cleaning the hutch was an **extra** job on Sunday and not the only job was a common error. Candidates should be encouraged to read the question a few times and make a mental plan on how to approach these questions. Candidates who started to calculate the total points were able to move on and gain full marks. Candidates need practice in coordinating several features within a problem.

Section B

Q4a – The majority of candidates were able to correctly calculate a fraction of the field area and work out the number of tents the field would hold although some candidates who used the approximate decimal equivalent of $\frac{2}{3}$ made errors in their calculations. However, some candidates misunderstood or misinterpreted the demand and thought that there were enough tents. Decision making is a central consideration in functionality and needs to be incorporated into planning to help candidates prepare in the future. Encouraging candidates to read through the question a number of times will also help.

Q4b - This part of the question was correctly completed by a significant number of candidates, the most common error being to fail to round the number of bags of grass seed needed and therefore working out the cost of seed for 30.35 bags. Again emphasis on careful reading and therefore fully understanding the task rather than just 'number crunching' is to be encouraged.

Some candidates find questions containing a range of conditions, which need to be read carefully to avoid being confusing. Experience at solving this type of problem in a range of contexts would be a very useful exam practice.

Q5 – Most candidates understood how to produce the graph required but marks were lost due to inaccurate plotting – mainly from those who elected to use quite a difficult scale and also for not labelling the profit axis. Some answers were seen that did not use the grid provided on page 11 but used the blank space on page 10 thus losing plotting marks due to inaccuracies in their scale, and also the linear scale mark too. A few attempted to produce a scatter graph which was inappropriate for the task and data and gained no marks.

Q6 – Most candidates were able to attempt this 6 mark question but either ignored the time required for pumping the milk or failed to convert the $\frac{1}{8}$ hour to minutes before adding to the other elapsed times. Those who employed a build-up method were often successful.

Section C

Q7a - It was pleasing to note that the majority of candidates were able to make valid comments on the consumption of gas and electricity over the two years shown on the graph. There were some comments written either just about gas, just about electricity or just one year. Those who did not gain these marks often failed to make a comparison but just described the energy usage.

Q7b - The majority of candidates were able to find the number of words correctly and substitute this correctly into the formula. Where errors were made, this was invariably when candidates were unable to process the formula correctly, usually putting the order of operations in the incorrect sequence. Some candidates replaced the letter with a value but they didn't know what to do with it. So putting $(0.4515 + 1.25)$ was quite common. They must understand that that $(0.45w)$ means $(0.45 \times w)$.

Q8 - Some candidates were able to handle the context of this multi stage problem and find the area of the composite shape. Finding an area continues to cause problems for many level 2 candidates and finding a compound area was even more of a challenge. Extensive practice at working out compound areas would be very useful exam preparation. Not realising that missing sides needed to be found first was a common mistake. Many candidates were insecure in finding area and found perimeter or used other strategies which did not connect with the context of the problem. Those that found the area proceeded to find the correct kitchen volume.

Q9a - Most candidates were able to work out the BTU required successfully but then chose the most obvious radiator and not the cheapest combination thus losing the final mark.

Q9b - Most candidates who began using a direct calculator method eg: 0.175×370 were successful. Candidates who tried to find percentages of a quantity by a build-up method were less successful. Candidates need to know how to use a calculator to find percentages.

Pass mark for FSM02

Maximum mark	48
Pass mark	30
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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