

Principal Examiner Feedback

March 2013

Functional Skills Mathematics
Level 2 (FSM02)

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General Comments

Overall there was a positive response to this paper; many candidates attempted and gained marks in most of the questions. Calculations relating to time plans, percentages, substitution in a given formula and calculating and comparing costs of tickets for a mixed group were often successfully answered.

The multistage problems proved a challenge to many candidates. Centres should consider providing their candidates with practice in working through a wide range of multistage problems during exam preparation. The strategy of highlighting or underlining the pertinent pieces of information in a question would improve success for many candidates.

Centres should also remind candidates to show all stages of their working, even when they are using a calculator, in order to avoid losing marks for process. There is some evidence that not all candidates use a calculator or ruler during the exam which is a significant handicap to the candidates concerned.

Report on Individual Questions

Section A

Q1 – For the first part of this question the majority of candidates were able to correctly obtain the required information of opening times from the given table. The question does, however, highlight the need for candidates to read the question carefully as a few candidates gave the opening time rather than the times of opening, i.e. the opening and closing times and some appeared to read the times for the house and not the garden. Centres should provide the candidates with plenty of opportunities to practice obtaining data from a table in a range of contexts.

The second part of the question required candidates to group children on a school outing and was accessed by most candidates but many found it difficult to work with several constraints successfully. Coordination of the various constraints within the problem needed to take place throughout the problem. The most successful candidates were those that checked their solution against the constraints and then altered their solution accordingly. Confusion arose particularly with the maximum group size of 12 but a maximum group per adult of 10 children.

Providing candidates with practice at this style of multistage and multi-constraint problem would be helpful exam preparation.

Q2 – Candidates were generally successful in setting a time plan and showing times for the various activities for the first part of this question. It would be beneficial for centres to provide some practice for candidates in the production of time plans and to encourage candidates to produce a time plan in a table, showing start and end times for each activity. Generally those who did this were likely to gain more marks than those who tried to write a list of events.

Candidates should be discouraged from adding in extra time to the given time periods. In this instance the times required for each activity included time to travel from one activity or floor to the next but a significant minority of candidates decided to add in their own additional time and consequently often made errors when working with the more difficult time periods that resulted from this action.

The second part of the question required calculation with a fraction and a metric conversion in a multi-step problem. While most candidates were able to carry out a first step towards a solution, many faltered at this stage, some through confusion over whether to divide or multiply to obtain the result they sought; a common error was 1680×4 instead of $1680 \div 4$ to find the number of teaspoons of nutmeg. Candidates should be encouraged to practice breaking down such problems into stages and present their working in a logically organised way. This would improve candidates' chances of success.

Q3 – In this question the percentage calculation was often well handled, many candidates found a correct result and then successfully compared it with the value given in the question. Some candidates had difficulty in the interpretation of the information from the pie chart and confused degrees and percentages trying to find 8% of a number using division by 360. Others chose incorrect methods such as division by 8.

Section B

Q4 – This question required candidates to substitute into a given formula and compare the resulting answer with a given figure. Many were successful but the most common error was to change the 8% to a decimal which made the result of the substitution too large. A few failed to recognise the fraction as a division and multiplied instead. Unfortunately some who managed to carry out the substitution and calculation correctly were unable to interpret the result.

A formula question is common in Functional Mathematics papers and exam practice in substitution into a given formula and correctly interpreting the resulting answer would benefit candidates.

Q5 – In the first part of this question many candidates were able to correctly produce a net of a cuboid but some showed confusion when attempting to indicate measurements on their net. This is a practical skill and drawing nets to scale, cutting them out and folding them would be very useful to demonstrate where matching measurements are required.

The second part of the question required candidates to use a scale factor and position a rectangle on a given grid to meet two given criteria. Many were successful in meeting the given criteria but only a minority managed to draw the seat to the correct dimensions. Scale drawing is often included in Functional Mathematics papers and centres should encourage candidates to practice the required skills.

Q6 – Most candidates were successful at calculating the cost of the tickets for the theatre although a few missed that £10.50 for groups was a cost per person. Some showed correct methods but made arithmetic errors either because they had no calculator or because they failed to use it correctly. Centres should advise candidates that where a question includes the demand 'Show a check of your working' it is necessary to show a reverse calculation or a different method or to estimate in order to gain full marks. A check was rarely seen in candidates' responses.

The second part of this question required candidates to work out the elapsed time required in a car park so that the correct ticket could be purchased. The responses were disappointing from many candidates and highlighted the number of candidates unable to successfully calculate with time, particularly converting minutes to hours and minutes, and converting between decimal hours and hours and minutes. Common errors were to equate 2.25 hours with 2 hours 25 minutes, or 135 minutes to 1 hour 35 minutes.

Those who managed to convert correctly usually managed to gain at least 2 marks but many lost the final mark because they failed to consider the 30 minutes between arriving at the car park and the start of the musical.

Section C

Q7 – For this multi stage question correct answers were often completed by candidates who broke the problem down into logical steps, dealing with the costs of pitches and refreshments for home and then away games in order. Careful reading of the question was needed to collect and use the relevant information, and some candidates did not take into account that two games were played every month from September to May, and based calculations on just 2 games. Others calculated the cost of refreshments for all the players in the team, but only for one game, or for all the games but for only one player. A number of previous exam papers have included questions that involved costs where some are total costs and others a unit cost and these past papers are a useful source of practice for multi-stage questions. Some wholly unrealistic answers were written down and centres should encourage candidates to consider what likely real life costs may be when presenting their answers.

Q8 – The majority of candidates were able to correctly interpret the data given in the table and used words such as more or less, most or least, but many responses were general comments on performance with no reference to specific details or a reiteration of the given figures and thus gained no mark.

In the second part of this question candidates were required to draw a graph and many were partially successful at this. Marks were lost for failing to label the axes, selecting a scale which then proved difficult to interpret and inaccurate plotting of values. Exam practice in plotting graphs with correct labels and a scale that is easy to interpret would be very valuable to candidates.

The third part of this question required the calculation of the mean and median of given data followed by a decision as to which of these averages presented the captain of the football team in the most favourable way. It was disappointing to note how few candidates could successfully find both the mean and the median correctly though many were able to find one of them. Few candidates were able to justify their selection of mean or median in order to fully answer the question. It would be useful for candidates to practise not only calculating statistical measures but also discussing their meaning, choosing which average is best in given contexts and justifying their choice.

Q9 – The final question needed an area calculation, a conversion and a comparison for full marks. It was pleasing to note that many candidates found the correct area, but some failed to show a correct conversion for the second mark. The unfortunate error in the given conversion factor did not affect candidates' success or failure in this question and the majority provided an answer which gained full marks. Some candidates failed to compare their answer to the given figure correctly, apparently believing that 4.095 was larger than 5. A key aspect of functional maths is making a decision based on given criteria, and centres would be advised to include comparison and decision making in a range of contexts during the candidates' preparation for the test.

Pass mark for FSM02

Maximum mark	48
Pass mark	27
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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