

Principal Examiner Feedback

February 2012

Functional Skills Mathematics
Level 2 (FSM02)

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Functionality and Process Skills

Candidates must ensure that the process of how they come to an answer is clearly shown: in real life there is more than one way to get to an answer and that 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 a number of questions on every paper, the correct answer only without working may be credited with just one mark, or sometimes none, 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.

Candidates should be prepared to check that their answers are fit for purpose such as interpreting graphs, devising a time plan, finding a numerical value and giving a data collection form.

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 realize that their answer must be supported by mathematics.

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 a number of cases, some candidates were able to gain full marks from certain sections.

Question 1

Q1a.

A significant minority of candidates forgot to add the cost of the two chairs and therefore lost 2 marks, after giving their answer as £241.50. Centres are asked to advise candidates to read the questions carefully and highlight the important information so that details are not missed.

Q1b.

Many candidates had difficulty correctly finding a 20% increase. Centres need to emphasise that taxes such as VAT are added on rather than subtracted. Some candidates found it difficult to deduct $\frac{1}{3}$ especially when they decided to use a percentage method and found 30% rather than 33%. Many forgot to deduct the answer of $\frac{1}{3}$ from the cost plus VAT but presented the $\frac{1}{3}$ as their answer. Centres should prepare candidates for this type of multistage problem, because this will be common in functional mathematics. Errors were also found when candidates rounded answers too early and consequently compounded their errors.

Question 2

Many answers only allowed for one person to be interviewed, which did not fulfil the criteria in the question: all the information on one form. Candidates were clearly very used to designing tables/forms to include all requirements and some neat tables were seen that allowed for four candidates that covered all the requirements of the question. Centres can prepare candidates for this type of data collection form as a two way table that allows clear and efficient inputs to allow all information to be recorded.

Question 3

Q3a.

This question was well done. The only errors seen were an incorrect decision or no units. When candidates are asked to explain their answer, evidence should be shown that is clear and communicates efficiently: if an answer involves money then £ should be clearly shown etc.

Q3b.

Most candidates scored three or four marks on this question. The most common error was finishing lunch at 1.30 and delivering to Mr. Jewson at 2.00 o'clock. Candidates should be taught to read through and highlight the constraints of such a time-plan and check that when they have a solution their answer makes sense and is fit for purpose. Common errors can easily be addressed by checking these key points and making sure that what they have makes sense. E.g. the delivery slots, time between deliveries, a lunch break at the correct time, and a finish time that meets all the criteria.

Question 4

Some good clear solutions were seen although some candidates had difficulty with combining £ and pence correctly. A significant number 'rounded' down to 126 from 126.2, rather than consider that the 127 tickets are needed to meet the demand of the question thus missing the functionality of their solution. Candidates need preparation for these sort of problems where values of less than 0.5 need to be rounded up. Candidates must be competent at this task as it is a common task in the 'real world'.

Question 5

Some very good and correct solutions were seen with many candidates spotting that they should approach the initial test of seeing if they had enough for 60 cakes generally then progressing to a successful outcome. Those who struggled tended to use a build-up method but were unable to complete this method correctly for the 50-60 cakes with some candidates calculating 4 lots of ingredients for 48 cakes and stopping there. Centres can help candidates by practicing more efficient methods of working with ratio and proportional change.

Question 6

Q6a

Most candidates showed that they knew how to find areas of rectangles but were not very successful at dividing the diagram up into appropriate sections. Candidates would benefit in cases like this by labelling information on the plan and planning their approach when dividing a shape up into its component parts. Many overlapped the top left-hand corner, finding the 200 but then continuing to get 164 as their answer. Practice tasks like designing a bedroom, playground, kitchen, etc could be extended to combining areas using simple squares, rectangles, circles.

Q6b.

The formula was usually applied correctly. Some candidates were confused over whether A should be squared because it was an area. Where candidates were unable to approach the compound area question they had no value to use for part b of the question so were unable to access marks for 6a and 6b. A number of candidates did not round their answer for the question in the correct way and candidates should be reminded to consider their answer so that it makes sense. In other words, an answer of 247.5 people does not make sense, nor does and a maximum of 248.

Q6c.

The majority of candidates drew the correct rectangle, to the correct scale. Candidates should be drawing their shapes with a ruler and use the scale.

Question 7

A minority of candidates gave a full correct solution to this question with many mixing up the extra costs per month with the fixed costs per year. It was pleasing to see that candidates could deal with the extra costs successfully, making it clear that they had a lot of knowledge related to this context of mobile phones. Candidates should practice this sort of scenarios where they are asked to compare costs given in one time frame, perhaps years, with one in another, months, and so decide on the best option. A number of candidates gave one cost in £ and another in pence: as these are to be compared it is sensible to use the same unit.

Question 8

Q8a

Lots of correct answers were seen with the main error being that of misreading the temperature from the rainfall axis. Many practical graphs, like these climate graphs, use a display very different from those in mathematics. Candidates need to practice reading and using these more unusual displays. In a case like this, candidates should be encouraged to reflect on the solutions that they obtain and see if they consider them to be practical: in this case 82°C is unlikely.

Q8b.

Many candidates gave two comparative statements which was pleasing. Those candidates who read figures from the graph often made errors which then lead to incorrect conclusions. A few candidates used the word climate when they were referring to individual rainfall and temperature readings. Comparisons should be specific and not vague, stating clearly the comparison and what it relates to. Practice at comparing graphs in a range of contexts would be useful.

Question 9

The vast majority chose an appropriate belt (a few missed the size) but a significant number showed no or very little working to back their decision up. Hence, they missed out on the process marks or had incomplete process marks. The working box icon is there to remind candidates that they should show the mathematics they have used that has helped them with finding their answer. Many marks throughout the functional maths papers are for showing their processes and working and consequently many marks can be lost for just stating a simple answer without justifying it.

Question 10

This was possibly the least successful question on the paper for many. It did not seem to be the combination of 24 and 12 hour clock times that was the issue but counting on with time that was a real problem. Although many candidates were able to work out the parking charge correctly, many were confused by the charging tariff which is a common one in car parks and other situations. Candidates could prepare by using a range of parking charges in their local area.

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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