Examiners' Report

February 2016

Pearson Edexcel Functional Skills Mathematics Level 2 (FSM02)

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Introduction
This level 2 paper included the contexts of an outdoor swimming pool, a holiday and working in a zoo. It also contained a few minor changes compared to previous papers, which reflected the outcome of the recent Thematic Review carried out by Ofqual. Some of these changes provided a challenge to many learners and centres would be advised to note the comments in this report particularly those that relate to these changes.

General comments
Whilst many learners were able to successfully access this paper, and attempted and gained marks in the majority of the questions, it was disappointing that a significant minority of learners did not appear to be working at the level of mathematics required to successfully attempt a level 2 exam. Learners who are unable to show a correct process for finding 15% of a given value need further preparation before attempting a level 2 examination.

Calculations relating to money, interpreting charts, calculating the total amount of food eaten by 8 elephants and producing a rota for staff were often successfully answered.
Two multistage problems relating to compound areas and a discount with special offers were attempted by the majority of learners and many were able to respond fully and correctly. However, a significant minority of learners were unable to progress beyond the first few steps needed to solve the problem. Centres would be advised to provide their learners the opportunity to practice working through a wide range of multistage problems during exam preparation if possible.

Centres should remind learners to show all stages of their working, even when they are using a calculator, in order to avoid losing marks for process. Similarly, learners need to be reminded to present answers involving units with the correct unit for the figure they have given in order to be sure of gaining the maximum marks available.

Many learners often failed to gain a final mark as they did not provide a negative or positive decision or a conclusion after the completion of their calculations.

Section A

Q1 The first question required learners to use given data to compare the given 27% with the number or percentage of swimmers who swam more than 3 times a week. A significant minority of learners failed to process the total number of swimmers given in the data and thus gained no marks. Exam practice where data initially needs to be collated before learners work with or find relevant percentages would be helpful.

Q2 In this second question learners needed to substitute given values into a formula and then find one third of the resulting answer. Many learners failed to recognise that 5.8h represents 5.8 x h and were thus unable to progress with this question. Those who successfully substituted and evaluated the formula were often unable to evaluate one third of the answer. Finding one third of a given value is a level 1 skill that learners should master before progressing to level 2. Understanding the common presentation of formula where the multiplication sign is inherent rather than stated is an important part of understanding the first stages in algebra and centres would be advised to provide learners with instruction and adequate practice in this prior to examinations.

Q3a This was a 'Best Buy' question where learners needed to compare the cost of a season ticket with single tickets and a book of single tickets to find the cheapest option. They were then required to show a check of their working and evaluate their check. Some learners failed to understand that a book of 20 single tickets could not be apportioned by cost and others just compared the price of 2 books of tickets which was not cost efficient. It is a valuable life skill to be able to work out the most economical way of paying for activities and centres should consider providing learners with a range of real-life examples to use when practising these skills.
Many learners did successfully find the cheapest option but the majority failed to show a check of their working and very few who did show a check did not evaluate it. Learners should be encouraged to check all their working and consider if the check is effectively identifying possible errors. In this case using an alternative method to find the answer would enable a comment of 'both methods give me the same answer' to effectively evaluate the check. Similarly carrying out a reverse calculation could elicit the evaluation of 'I got back to the original cost so my sums are correct'.

Q3b Many learners correctly found the mean average swims per week and correctly converted between metres and kilometres. Those who were unsuccessful did not engage with the fact that the data was given for 2 days for each week and thus added the 8 figures given and incorrectly divided by 8. It is helpful to ensure learners understand what a mean average represents and do not just follow a given rule for finding the mean average as they might do at level 1.

A minority of learners were unable to correctly convert between metres and kilometres, an Entry Level skill. Centres would be advised to ensure that learners are fully competent in converting between metric units and that the learners in classroom practice regularly use these skills.

Section B

Q4 The majority of learners were able to correctly identify the month for a visit to South Africa to meet the 3 given criteria and by interpreting the given charts. However, a significant number failed to correctly interpret the requirement for the average rainfall to be less than 40mm and identified the month when the average rainfall was exactly 40 mm in error.

Q5a It was pleasing to note that many learners were able to correctly answer this multistage problem, which required learners to work out the amount to be paid after a 15% deposit and incorporated a 4 nights for the price of 3 offer in the calculation. Learners who lost marks often failed to consider the special offer, made errors in finding 15% when using the 10% plus 5% method or failed to include the correct units. The units were South African Rand and not pound sterling (£). Learners would benefit from the opportunity to work in a range of different currencies whilst working out the cost of various special offers using real life examples in preparation for the exam.

Q5b In this question it was necessary to convert between pound sterling and South African Rands, to work out a total cost for tickets and to compare to a given budget. The majority of learners answered this question correctly but very few also used estimation to check their answer and thus lost the final mark. Some learners lost marks as they did not give their answer to 2 decimal places as is required for monetary answers and some were unable to convert correctly, multiplying by the given conversion figure rather than dividing as was required. Again plenty of opportunity to practice conversion between different currencies, preferably using real life problems, would be ideal exam practice. An understanding of how to use estimation to check calculations would also be beneficial for learners.

Q6a This next question required learners to work out the time to leave a destination, given the required arrival time at the next destination, plus the time for travel and activities along the way. Finding the time of travel given distance and average speed proved problematic to many learners and those that correctly found 5.2 hours then often failed to convert this to hours and minutes or incorrectly assuming it was 5 hours 20 minutes. Exam practice with time, distance and speed calculations with an emphasis on converting decimal time to minutes and vice versa would be very helpful to learners. The use of 0.1 hour is equal to 6 minutes might prove useful for some learners.

Q6b In the last question in this section a disappointingly small number of learners were able to find an average growth rate of a tree, given its growth in 600 years, though most converted correctly between centimetres and metres. As with speed/distance/time calculations, this required learners to understand the problem and not just think that dividing the large number by the small number would provide the answer. Centres would be advised to include a discussion about the meaning of problems similar to this during lessons as well as giving the learners opportunities to practice similar questions in a range of contexts.

The second mark required a rounding to one decimal place and learners who had achieved the correct answer to the first part of the question often ignored this requirement. Rounding to a given accuracy is a requirement likely to be seen in many Functional Skills exams papers and learners should be confident in this skill before taking the test.

Section C

Q7a The majority of learners were able to successfully convert between pounds and kilograms but many were then confused and compared the converted weight of the elephant with the converted weight of Sarah rather than comparing 2.5 times Sarah's weight with the elephant's weight in comparable units. Successful learners generally had written the units next to their converted answers, which prevented this confusion, a strategy to be recommended.

Q7b It was pleasing to see that the majority of learners were able to calculate the amount of various foodstuffs eaten by 8 elephants using the given quantities and timescales and drew a correct conclusion. Many also gave a valid check of their working, usual by using the reverse process, thus gaining the final mark.

Q8 This compound area question, which included minimum area requirements relating to the number of elephants in the enclosure, was generally poorly attempted if attempted at all. Compound area problems are often included in Functional Skills papers and a secure knowledge of finding the area a range of different shapes in various contexts would be useful exam practice for learners. It was disappointing to see that many learners were confusing perimeter with area, which is an understanding that should be acquired at level 1.

Q9 This final question required learners to produce a timetable for staff that satisfied a range of given constraints and to identify lunch breaks within a given time period. The majority of learners were able to allocate staff to activities correctly, though often with an overlapping activity, but many struggled to identify a suitable lunch break often overlapping with the allocated activities. It is possible that there was some confusion in working with the 24-hour clock here and practise working with time in all its various formats would help to secure this useful skill for learners. Where learners made use of both timetable blanks provided to correct their first attempt at the question were often seen to be successful.

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