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Examiners' Report

February 2016

Pearson Edexcel Functional Skills Mathematics Level 1 (FSM01)

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Introduction

General comments

One of the main problems encountered by some learners was the lack of a calculator; this led to far too many arithmetical mistakes and would have taken the learners far too long to work out some of the answers. Centres should ensure learners are equipped appropriately.
In a many cases, not nearly enough of the working in the questions was shown.
Sometimes questions requiring a decision or conclusion did not have that final statement.
Highlighting important information in the question is a useful aid.
Learners should be encouraged to consider whether their solution is fit for purpose/workable/business-like. They should be questioning whether their answer is sensible.
Learners should be taught how to do a check – by doing a reverse calculation, or an alternative method or estimation, all of which are in the specification.
They must always write money answers with the correct money notation. Indeed units should always be included in any question requiring them. Perhaps it is worth emphasising that learners should keep reminding themselves that money always has 2decimal places, no matter what figures the calculator displays. They should also be aware that somewhere on each paper, there will be a mark awarded specifically for correct notation, and they may not always know whereabouts on the paper that will be.
Learners have difficulties working with time and need practice in this.
They need a basic knowledge of fractions, percentages and decimals.
They need to practise with problem solving - knowing how to read and interpret a question and what relevant information to extract from it.
A significant number need work on the difference between area and perimeter.

Functionality and Process Skills

Learners 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 rarely is it the case that only one way and one answer is acceptable.
They should ensure that even though they are using a calculator, they show all stages I their working.
In a number of questions on every paper, the correct answer only, without working may be credited with just one mark
Learners should be prepared to check that their answers are fit for purpose, for example, in interpreting graphs.

Section A

Q1a

The most common errors here included halving rather than doubling or misunderstanding that the 45ml is the total amount required and hence finding 2/3 of this. One of the most successful ways of teaching ratio is to teach students to set this up like a table with headings for the relevant part to go under (in this case lightener and developer where needed a column can be added for total). Each column could then be split into the correct number of boxes, i.e 1 part and 2 parts to help the candidate visualise. Once set up with the ratio underneath the headings and the given amount learners will usually find it easy to find and apply a multiplier or simply to share as required.

Q1b

Too many learners lost the second mark because they went beyond the demand of the question and found the cost after subtracting the 20% discount. Language was the biggest barrier here, as some clearly do not understand the difference between **of** and **off**. Displays could help to rectify this. Others lost the mark because they failed to write their answer in correct money notation. Centres could focus on asking questions such as “would we talk about having 7.60 pounds in our pocket/purse” when tackling the issue of using correct money notation as this usually helps learners to remember to write all money answers correctly. There were as usual a number of learners who tried to use the non-calculator method of finding 10% then doubling most, including the weakest have shown that they will quite happily change a percentage into a decimal and then multiply. Another common error was incorrectly dividing by 20 or halving.

Q2a

The biggest error with this question was to use too many appointment slots for each customer due to a lack of understanding of what each time slot represented. It looked as if a large number of learners had never seen an appointment sheet before which is a shame if they are doing functional skills alongside a vocational course and are likely to work in environments where this kind of booking will be normal. Perhaps teachers could collect a number of appointment sheets from different businesses and use these as a starting point for discussions. The other advice would of course be that careful reading is required in a question like this. Another common error was only to fill in one slot for each customer, possibly with the assumption that there was enough time allowed after the slot they had filled in. However, the pre-entered data should have been an indication that names needed to be entered for each time slot needed.

Q2b

A vast improvement in the number of learners providing a check, but this was still the most common reason for losing marks. Learners should be taught to always explicitly check their work as a way of demonstrating different approaches to problems; examples of different approaches to the same problem could be used in class to improve the learners' number skills generally. There are always marks awarded for an explicit check and they should be reminded to read the questions carefully and 'check' over their work to ensure unnecessary marks are not lost. Another common reason for losing marks was the lack of decision. This is an integral feature of functional maths papers and again, re-reading and checking of work should ensure these marks are not lost.

A small number of learners incorrectly calculated the median or range rather than the mean. Centres must ensure that learners know the difference between these; examples of when it is appropriate to use each one using relevant contextual examples should reinforce this.

Q3

The vast majority of learners knew that 1000ml = 1L, however some did incorrectly use 100ml = 1L. Knowledge of metric units is a crucial part of the syllabus and must be reinforced to learners. Marks for this question were lost either because learners did not clearly show how they arrived at their decision, or, in some cases made an incorrect decision despite correct working. As is common for functional maths questions, this was a question requiring a comparison of what is required against what they have, so teaching learners to clearly display their work and make a clear decision based on their workings is a fundamental skill at this level.

Section B

Q4a

Generally, this question was answered well. Most of the errors in this question were arithmetic showing poor use of a calculator or no calculator being used at all. For the check, the learners were split between showing a reverse operation or an alternative method, so the question lent itself to a wider range of check than some questions suggesting that those who failed to show a check had not met this. As usual, most learners used the space for the check to write their conclusion. Some again, failed to give a conclusion.

Q4b

The most common errors here were to either multiply rather than divide by 3 or to halve the 600 twice, followed by some estimation. Centres simply need to stress that the denominator of a fraction gives the number of equal parts in the whole. When teaching simple fractions of amounts, centres could get learners to draw “boxes” to share the total amount equally between as a visual prompt similar to ratio use.

Q5a

Some learners do not seem to have been familiar with the concept of an overtime rate and seemed to think that the higher rate applied to the whole of the time. An understanding of how to check pay is something that centres should be equipping learners with before they join the working population. A few lost the final mark because they failed to give a conclusion. Centres could teach calculating wages by collecting job advertisements with different hourly rates, construct questions/scenarios on basic hours and overtime hours at different rates, and ask them to compare the results. This could also be extended to a monthly salary for a set number of hours and overtime as an option.

Q5b

This was answered poorly, often with too many boxes being filled in and showing that the learner did not understand how to see how many drivers were working at any one time. It should be easy enough to build into a vocational course as a visual way of checking that staffing levels are correct. A task could even be devised where the rows represented the different hours worked by one employee over a week and built in with a task of calculating pay in a similar situation to Q5a. Resources to practise scheduling in a diagrammatic way could include rotas for lunchtimes or supervision situations.

Q6

Marks were generally lost because routes did not visit all 3 destinations, did not start and/or finish at the supermarket or the learners only considered one route and hence missed the optimum one due to ignoring the possibility of visiting the destination that was not included as part of the required route. Another common error was not being able to convert minutes into hours and minutes accurately, which could be due to not reading the question fully. This simply requires practice there are plenty of examples on past papers, which centres could use for both classwork and homework. Route planning with maps or comparing routes using online route planners would be useful.

Section C

Q7a

Some learners did not know the conversion for cm/m. This is an important functional skill and must be regularly reinforced to learners. Relate the prefix 'cent' to century, centurian, centipede. Many learners incorrectly used the perimeter for this question. The difference between perimeter and area **must** be regularly reinforced to ensure learners understand the difference. Use concrete, relevant examples. Use a bank of previous exam questions. Again, this is a fundamental topic of the curriculum and will always appear on the exam. Encourage learners to create index cards with definitions in their own words of the key topics and words; perimeter relates to fencing, skirting boards, picture rails, marking out a football pitch etc, whereas area relates to carpet, wallpaper, tiling and the penalty area of a football pitch etc.
Again, this was a question that required a decision; careful checking over their work should minimise missing key marks.

Q7b

Learners did not seem to have any problems with the method in this question, with errors arising from poor use of calculator or no calculator. A minority lost the final mark because they failed to compare their answer with Pete's figure.

Q8a

Some learners failed to correctly interpret the scale. Centres need to train learners to check the scale before doing anything, and again it should have been easy to spot that 2 squares would make up a metre. Other than this, it looked like errors mainly occurred because learners simply had not read all the criteria in the question carefully enough. Centres should encourage learners to tick off each criterion as a check. Activities involving drawing scaled furniture to place on a room plan are easy to create with the help of an Argos catalogue.

Q8b

Many learners struggled with the fact that some costs given were per month and some per year. There are many similar questions on past papers and centres really need to use these for classwork and homework tasks. Centres should encourage learners to work with the costs per year as this is often a bit easier (most prefer multiplication to division even when using a calculator). A significant number misunderstood the half price offer in offer 1 only applied to the line rental and not the fee as well. Another point that caught out a number of learners was the 3 free months for the Sports pack in offer 2 with many seeming to miss this completely. Again the space for the check was often used to write a conclusion.

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