

Examiners' Report

March 2016

Pearson Edexcel Functional Skills
Mathematics Level 1 (FSM01)

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Introduction

Most learners completed all of the questions and gave thoughtful answers to the problems set. Overall, learners found questions challenging when the context appeared unfamiliar or where the question was multi stage. Centres could ensure that learners are offered many opportunities to solve such problems in preparation for the tests.

General comments

- There appear to be a substantial number of learners not working with a calculator. Those learners who do not use a calculator can make arithmetic mistakes.
- In many cases, not nearly enough of the working in the questions is shown. In particular, where questions require a change of units, e.g. cm to m, l to ml, learners should write these down, as a mark may be dependent upon demonstrating use of units.
- When a question requires a comparison, the figures for comparison need to be stated explicitly.
- On occasion, questions requiring a yes/no answer or a conclusion were not communicated.
- Highlighting important information in the question can be useful aid.
- Learners should be encouraged to consider whether their solution is fit for purpose. They should be questioning whether their answer is sensible in the context of the question and the real world.
- Money answers need correct money notation. Learners should keep reminding themselves that money always has 2dp, no matter what figures a calculator displays. Problems arise with e.g. 48.5 being written as £48.5
- Learners have difficulties working with time and need practice.
- Using word formulae will often be required; use of function machines can be very helpful especially as they can then be reversed for a calculation check.
- Checking can either be approached as the reverse of a calculation, starting with the answer and working backwards or as a different method in the problem.

- Learners need practice with multi stage problem solving - knowing how to read and interpret a question and what relevant information to extract from it.

Section A

Q1a) This question was answered well. They realised they needed to double. Some interpreted 300g of flour needed for 8 although they did double other ingredients. Recipes provided on the internet could be used to practice this type of question.

Q1b) As with the previous question, this was answered well. Occasional answers for Yes included 400F would burn it, or just short on the dial. An improvement in correct answers to formulae questions has been seen in the last two series.

Q1c) A minority of learners dealt with the time as a decimal i.e $1.50 + 0.55 = 2.05$ and then converted this to 14:05. Some learners dealt with this misconception by using a timeline and adding the minutes to next hour, 10 minutes until 2:00pm and the 45 giving 2:45pm. A few subtracted from 1:50. Learners do struggle with time questions, but the number answering this question correctly was encouraging.

Q2) Many correct answers were seen. Although learners were able to seat 6 of the 8 guests, a small number did not seat Liu and Felix, but still managed to earn 1 of the 2 marks available.

Q3) With this question, a number of calculations had to be performed such as 8×330 . It became apparent that a number of learners did not have access to a calculator although in general the arithmetic was good. There was also evidence of some mistakes which lost the accuracy marks. A significant number of learners lost one mark by not showing all the working out stages. i.e many performed the most challenging part of the question finding 2 packs of 8 cans contains more lemonade 5280ml and compared this to 5 litres making the correct decision. Learners should be encouraged to use the same units so if they are giving their answer in ml then they should compare this with 5000ml. Most learners converted litres to ml correctly but a minority multiplied by 100 instead of 1000. Some showed the calculation to gain 5280 but did not make any comparison thus losing 2 marks.

The check part of the question was answered very poorly. When a question involves a number of calculations similar to this type of question, learners should be reminded any reverse calculation is a valid check.

Part answers included $5 \times 1 = 5$ ie $5/1 = 5$ $8 \times 2 = 16$ ie $16/2 = 8$. Rarely did anyone use cost per litre (per ml) as an alternative method.

Section B

Q4a) Overall, this was a well-answered question with most learners applying the scale correctly and considering the placement constraints of the stage on the plan. The majority of errors made by learners not achieving full marks appeared to be with using the scale. Some were drawing 10 squares for one dimension then 4 squares for the other. Learners need to look very carefully and make sure they understand what scale is being used. Common errors were to fail to check that they have satisfied all of the conditions for the position of the stage. When working with this type of question encourage learners to address each requirement by marking in borders ie 8m from back wall etc, this then shows the available area for the stage. A number only came in 3 squares from back wall. They should be encouraged to tick off each instruction/constraint as they go or as a check of their response. Checks for each constraint after the drawing is complete would enable learners to highlight errors and make appropriate changes.

Q4b) Learners need to learn how to calculate perimeter and area and be able to recognise the difference between the two. Those who recognised that 9×5 was the length of material available and were also able to recognise that this had to be compared with the perimeter of the stage got full marks. The majority of learners who did not gain full marks calculated area instead of perimeter. An alternative way to tackle this type of question to avoid having to remember the difference between area and perimeter is to measure how many pieces fit each dimension eg 20m would need 4 x 5m pieces – they can visualise doing this task practically. Centres would benefit from focussing on the difference between the two and the practical uses of perimeter by providing kinaesthetic activities using string for perimeter and lego bricks for area. Learners must also ensure that they answer 'yes' or 'no' for questions that require this as some lost the final mark for not doing so.

Q5) On the whole this question was well done. Marks were lost because some learners did not read the question carefully enough and did not take note of the requirement that "the time plan must show the start and finish time of each presentation and the break". Many errors were made in adding on the duration of the presentation to the start time. Some did not realise that the presentations had to be separate and instead had all three 30 min presentations going on at the same time or following each other so that only the start time and the finish time after the third presentation was given. Most had a suitable start time for the break but did not realise that it had to end by 18:00. A large proportion misunderstood the criteria for the long break. Many started their 1.5-hour break too late, taking them over the 6 o'clock deadline. Facility with the 24h clock seems much better now and learners were happy to work with 24-hour timings, or convert to 12-hour timings, or even use a mixture.

There were some errors made when calculating the durations, with some learners struggling to add 45 mins when it passed over the hour. Some learners did not know that a time plan is a timetable with time of day given for each event. Some simply worked out the total amount of time required with no start/finish times given. It is clear that some learners use calculators to add time this is always problematic as they forget there are not 100 mins in an hour. Centres could encourage learners to draw a time (number) line or clock faces, or practice using time sheets and diary pages/booking sheets. When practising this type of activity centres could also give learners pro-forma that set out both start time and finish times. Learners would benefit from practising these types of questions while being encouraged to draw a draft plan and ticking off each requirement when met. They should also be encouraged to read questions carefully and check completed work against criteria.

Q6a) A significant number of learners did not know how to calculate with percentages. It was also clear from some responses that they did not have access to a calculator during the exam and a build-up method was used to get 15%. Mistakes were consequently then made here. A number successfully calculated 15% of 130 then added the two numbers to give their answer; learners need to be encouraged to read the question carefully and check answer against instructions on completion as they had clearly misinterpreted what the question was asking. It was fairly common to see dividing by 15 when attempting to find 15% or find 12.5% using a "build-up" method from 50%, 25% etc. Many found 1560, the total fees paid but then then went on to divide by 15. Some tried to find 12%, although not very well. Centres could also focus on making sure learners can interpret the question once the maths has been successfully completed. Several wrote NO when the answer was clearly YES.

Q6b) Many learners did not know how to find a fraction of an amount. Instead of simply dividing by 5, they halved it (and sometimes divided by 2 again) or attempted to change $\frac{1}{5}$ to a decimal or percentage incorrectly. Some learners also struggled to calculate $\frac{1}{5}$, a half and a tenth appear to be the common starting point then they have difficulty getting to the fifth. A number of learners attempted to calculate 5% so more emphasis needs to be put on equivalencies of percentages and fractions and also common fractions/percentages. When teaching fractions more emphasis could be put on the purpose of the divide line in the fraction as this will give a clue as to how to find the amount ie 1 divided by 5 may help give the start that an amount has to be divided by 5. This is another question where some learners are calculating correctly but giving the incorrect part of the answer as many confused of with off and went on to subtract the discount. At the other end there were those who knew to multiply by 0.2. Many of those who calculated correctly were penalised for incorrect money notation by either not including the £ sign,

not having two numbers after the point or both or the answer being given as 8.06. The check was shown well by learners who had divided by 5 in the first part. Even those who had used an incorrect method were sometimes able to do a reverse calculation.

Section C

Q7a) Learners need to understand what the full process is to find the mean, addition of values is not enough. This was seen relatively frequently. A common error was to find the range. For those who found the median they found it difficult to then show a check. Centres need to find a way for learners to know how to work out the different averages, perhaps a rhyme may help especially if they came up with it themselves. Centres need learners to be aware a check is not just rewriting work already carried out, again they need to consider frequent incorporation of checking methods in order to breed a familiarity with carrying this out as a routine skill and to therefore understand its relevance.

Q7b) A surprising number of learners failed to complete this question or found they could not cope with drawing an adequate scale then abandoned the question. Centres need to encourage learners to try to use the dark lines of the grid and to count up in 2000s or 5000s first to see if their potential scale will fit before writing any numbers in. Some who used 5,10,15,20,25,30 or 14,16,18,20,22,24,28 failed to then say they were in 1000s. Several just used values in order from the table for their scale. It would be useful if centres held a session showing examples of errors drawn on different graphs. A mnemonic would be useful e.g. "Some People Lie" to remind learners.... Scale Plotting Labels.

Q7c) This question was answered well with many commenting, "It goes up and down". Some failed to comment due to no graph drawn. Centres could focus on giving out sheets with tables and encourage them to come up with comments, focusing on basics such as the highest value, the lowest value. They could then come up with more complex comments.

Q8) It was very encouraging to see so many correct responses to this question. Of those that were not correct it was usually Offer A where learners had got to the 6.5, and then stopped. Another outcome was they got to the 52, but failed to realise this needed to be divided by 2. Some learners failed to halve £13. Others just multiplied £13 and £9 by 24, showing misunderstanding. Centres should encourage learners to highlight the key information. Working with multiples for each worked very well and should be shown as a tool learners can use when comparing items. Centres could encourage learners to bring in flyers with offers to then work out which is best.

Q9) Most learners managed to gain at least 2 marks for this question by using all requirements, although several of the record sheets were not efficient. For the third mark, the sheet needed to be efficient, and to have input opportunities for 5 responses. Centres need to encourage learners to underline the key words required for the record sheet. They also need to ensure differences are understood between a record sheet and

questionnaire. Giving out examples of each and then saying how each could be improved would help, also discussing which were good or bad. Each learner could design their own and then get others to try and complete it to see how efficient it was.

Ofqual



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