



Examiners' Report

February 2018

Pearson Edexcel Functional Skills
Mathematics Level 1 (FSM01)

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Introduction

This level 1 paper included questions based on the contexts of working in a cafe, planning a meal and garden design. Some of the questions required extracting information from lists and diagrams which were mainly accessible to the learners.

General comments

Most learners attempted the majority of the questions on the paper and engaged with the contexts. A significant number appeared not to have the use of a calculator for this paper which was a distinct disadvantage. Centres should remind learners of the importance of taking their calculators to the exam and should prepare them in their effective use. A substantial number of papers contained lengthy arithmetic calculations. The additional time learners devote to these calculations can often result in them being unable to complete the paper in the allocated time.

Learners should be encouraged to read the questions carefully and check they have provided a full answer to the question, including a decision if this is requested in the demand. They should also understand that when they are asked to explain their answer, it is important to provide a decision and a reason for it. It should be emphasised that examiners award marks for the process and need to see how the learner arrived at their answer. Many learners confuse the order for writing the number to be divided and the divisor in a division calculation, which can cost marks on the exam paper. A significant number of learners do not write down their working, which again can cost marks if they use a correct method but arrive at the wrong answer.

It was pleasing to see that more learners are providing checks when required, although some still leave the working box empty or rewrite their original calculation. There are three marks awarded for checking on the exam paper which can make the difference between being successful and not. Centres should emphasise that learners can provide a check for any part of their working. Using a reverse calculation is usually the easiest approach. i.e. showing a subtraction following an addition, or a division following a multiplication or vice versa.

Centres should also make sure that they are familiar with the Guidance for Marking Functional Skills Maths Papers. In particular, they should convey to learners the accepted forms for correct money notation.

Section A

Question 1a

This was a standard level 1 unit ratio question with a check, which was attempted well by many of the learners. However, a substantial number of learners divided the total number of cups of tea and cups of coffee sold by 3 instead of 4. Of those who did correctly divide by 4, a minority seemed to confuse cups of tea with cups of coffee and failed to multiply their result by 3

Those learners who attempted a build-up from 1:3 did not arrive at any meaningful conclusion and often did not achieve any marks for this question.

Learners often respond well to kinaesthetic approaches when learning about ratio, they can use different coloured cards or blocks to represent the relevant 'shares' or 'parts' that make up the ratio.

It is also good practice to relate ratios to fractions e.g.

cups of tea:cups of coffee = 1:3 means that cups of tea are $\frac{1}{4}$ of the total sales and cups of coffee are $\frac{3}{4}$ of the total sales.

A pleasing number of learners provided a valid check. It is worth noting that a particularly good check for ratio questions is to check the sum of the two parts makes up the total. In this example, $183 + 61 = 244$ was often seen and should be encouraged.

Question 1b

This straightforward money calculation question was about extracting relevant prices from a list and working out a total cost. The question was answered well. The majority of learners identified the correct values to work with from the table and were able to find the total cost of the items using correct money notation.

Common errors were misreading the relevant costs, adding the values incorrectly, (commonly by those learners who did not appear to use a calculator) and not using correct money notation. Centres should refer to the guidance on the mark scheme for correct money notation.

Question 1c

This question was about working with likelihood. The majority of learners gained the 1 mark allocated to this question, realising the likelihood of picking blue was 'unlikely' as there were fewer blue lollipops than any other colour.

Question 2a

Learners generally attempted this standard mean calculation correctly. The few errors that occurred in calculations mainly arose from calculator error, when only the final figure was divided by 6 and a sum error when no calculator was used. A significant number lost the final mark in accuracy from pre-rounding, showing their answer as 69 or 70 instead of 69.5. Learners should be encouraged not to prematurely round their answers.

Some learners reached the wrong conclusion following correct calculations. Other learners worked out the median or range, when the question clearly asked for the mean number of people and so gained no credit.

Question 2b

This best buy multi-step question was answered well by many of the learners, although often with little working shown. Learners should always be encouraged to write down their working, enabling them to gain process marks even if they do not achieve the accuracy mark(s).

Most learners were able to engage with the problem, correctly working out how many boxes were needed for offer 1 and realising they only needed to pay for three boxes in offer 2. Those who attempted the question mainly worked with comparing the total price, although there were some who compared the price per cup when making their decision. Again, some learners did not write down a decision, and only gained 4 out of the possible 5 marks for this question.

Section B

Question 3a

Most learners were able to correctly work with proportion and conclude that three times the weight of each ingredient was needed to make enough pie for 12 people. The most successful approach was to multiply 750 by 3, or use a build-up method, then compare 2250g with 2500g

A smaller number of learners used the weight of apples for 4 people to work out the weight required for 1 person and multiplied this by 12. Both methods gave rise to an inverse method for a check, which was adopted by a large number of learners who gained a mark even if their original multiplication was not valid.

Common errors included multiplying 750 by 4, thus misinterpreting the scale factor, or making the wrong decision following correct working.

Proportion questions based on recipes are common in functional maths papers and centres should ensure learners are given the opportunity to practice strategies to tackle this type of question.

A significant number of learners neglected to do a check; some learners just repeated the process they had used to solve the problem in the check box, thus losing the final mark.

Question 3b

Most learners performed well in this time calculation question, the most successful learners used a clear time line to count on from 4:30 pm to find the time the stew would be ready. Other learners compared the time it would take to follow the cooking instructions, with the time available from 4:30 to 6 pm which was accepted provided the times were in the same units.

A number of learners who calculated the final time the stew would be ready as 5:50 pm correctly, concluded 'No' for the stew being ready for 6 pm but this was accepted as long as they validated their answer with a comment such as 'No it will be ready for 5.50 pm'.

The most common error was incorrectly adding 25 mins over the hour; i.e. $4:30 + 10 + 5 = 4:45$ [correct], but then ' $4:45 + 25 = 5:05$ ' not 5:10. A small number of learners did not provide a decision following correct working and achieved 2 out of the possible 3 marks.

Question 4a

A substantial number of learners either did not attempt this question or did not perform well in this capacity based problem, involving conversion of units. Many were unable to convert correctly between litres and millilitres and were only able to access 2 out the possible 4 marks for this question. The most common incorrect conversion was $100 \text{ ml} = 1 \text{ litre}$. Problems involving conversion of units in practical situations appear frequently on functional maths papers; centres need to ensure learners are familiar with metric conversions and are given the opportunity to practice expressing measures in different units.

Learners who were successful with this question used a variety of methods, including working out the total capacity of the fluid which was mixed, 5250 ml and comparing with the amount of fluid needed to fill 24 glasses with 330 ml of fluid, 7920 ml. Also working out how many glasses could be filled with 5250 ml of liquid, $15(.9)$ to compare with 24 glasses needed; or the amount of fluid that would be in one glass if 5250 ml was divided equally between 24 glasses, $218(.75)$ to compare with 330 ml

A substantial number of learners did not make any attempt to convert between units and added mixed units to get $2 + 1 + 1.5 + 750 = 754.5$. Other learners were unable to find figures to compare and reach a valid conclusion, whilst others failed to provide a decision following correct working.

Question 4b

This new style of practical question was generally tackled well with relatively few incorrect answers. The vast majority of learners drew two rectangles joined at their shorter ends. A diagram consisting of one rectangle clearly labelled as 6 m by 1 m was also an acceptable solution, as were relevant T shaped and L shaped arrangements.

The most common error was to place the two tables together along the longer side, which meant only 10 people could be seated. Some learners did not show two rectangles touching; a few learners presented either one or two rectangles showing total dimensions of 6 m by 4 m or 12 m by 2 m which are not viable for two tables together.

Question 5

The majority of learners gained either 2 or 3 marks for this word formula question, which involved interpreting a diagram for a route. Some learners only worked with part of the distance and could only access 1 out of the 3 marks available for this question.

The most common error was interpreting the correct result of the calculation, 1.5 hours, as 1 hour 5 minutes or 1 hour 50 minutes. Centres need to reinforce conversion from decimal parts of an hour to minutes with their learners, as this error is commonly seen in functional maths papers.

Section C

Question 6a

In general, this multi-step problem involving area and paint coverage was not tackled well. Some learners were unable to identify the correct dimensions needed and a significant number confused area with perimeter, meaning they were only able to access either 3 or 4 out of the 6 marks available respectively. A small number of learners interpreted the coverage of 1 litre covers 3 m^2 as $3 \times 3 = 9 \text{ m}$.

Some learners correctly found the area to be painted but were unable to go on to find the number of litres needed to paint this area; others misread the question and used £15.99 as the price for 1 litre of paint.

Problems involving decorating and building are commonly set on functional maths papers and centres should ensure learners have the opportunity to work with perimeter, area and volume problems, where they need to extract and understand information from diagrams and text.

Question 6b

The confusion between area and perimeter was also evident in this question which required working out a missing length and the total distance around the edges of a lawn.

Common errors included incorrectly working out the missing length and using area calculations instead of perimeter. A minority of learners omitted the units in the answer or gave the units as m^2 thus losing 1 mark.

Learners should be encouraged to always write the units with their answers when relevant.

A large number of the learners provided a valid check, usually a reverse operation.

Question 7a

Many of the learners achieved full marks for this question, demonstrating a good understanding of the context for this problem. However, a sizeable number of learners were unable to work out 60% of a valid figure and could only access 2 out of the 4 marks for this question. Some learners started working out 60% of 50 and then struggled to work out how to progress from there.

Many learners were able to work out 10% with no difficulty but then were unsure how to progress to find 60%. Centres need to ensure learners are able to work out straightforward percentages involving multiples of 10

Question 7b

This range calculation question was mainly tackled well by learners. Errors included working out the median or the mean, or failing to identify the highest and lowest figures for the calculation. A significant number of learners identified the heaviest weight and the lightest weight but did not subtract them. They were awarded 1 out of the 2 marks available for this question.

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