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**Edexcel Functional Skills Qualification in
Mathematics at Level 1**

Principal Examiner Feedback

PMAT1 SET 1

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Introduction

This first live test paper for the reformed qualification covered a broad range of topics from the new specification. Some concepts were more familiar than others. A number of questions now appear without a context and are referred to as underpinning but the majority of problem solving questions are still set in functional contexts.

It was pleasing to note that learners are well prepared and able to calculate the mean of a set of data and also to work with percentages of money in familiar contexts and multistep problems. They were also able to identify the correct net and plan view for a range of 3D shapes and were able to complete a scale drawing with given constraints.

Where learners are required to show a check of their working this may now be requested for a specific step or process in a calculation or ask that the learner use a specific method (e.g. by reverse calculation or using estimation) so care must be taken to show that process in the answer box. In this paper, checks were required of a mean calculation and a percentage calculation both within multi-step problems. Some learners gave a check of a subtraction instead and were unable to score the mark. Overall, many checks are still left blank and learners should work on their understanding of how to show a check that confirms that they have given a reasonable and meaningful answer.

Learners at this level find choosing the correct process for perimeter, area or volume challenging and should be encouraged to practise each skill and its applications extensively. They should be given the opportunity to develop strategies to ensure they calculate the correct figure.

Centres should allow plenty of time for learners to work on problem solving and ways to approach multistep problems so that they are able to extract what is required from the information given to answer the question asked. Learners should, at all times, be encouraged to show organised working. This is essential for the questions that require it, as marks may be lost where working is not seen.

Some learners did not appear to have access to the full range of equipment required by the assessment, for example, rulers, and centres would do well to ensure that learners do have the mathematical equipment listed on the front of the paper so that they can access all of the questions that they may be set.

Report on Individual Questions

Section A (Non – Calculator)

Question 1

Three single mark underpinning questions where only the correct answer scored a mark.

- (a) Standard unit conversion from metres to centimetres. The majority of students answered correctly.
- (b) This division by 1000 resulted in a decimal answer which appeared to challenge some learners. Giving a remainder is not sufficient for the mark. Learners must be confident in multiplying and dividing whole numbers and decimals by 10, 100 and 1000.
- (c) A calculation ($35 - 15 \div 5$) which required the application of the order of precedence of operators. Many learners incorrectly carried out the calculation in the order it was written (i.e. $35 - 15 = 20$ and then $20 \div 5 = 4$) and arrived at the wrong answer.

Question 2

This 3-mark question asked learners to use estimation to decide if a delivery charge would need to be paid. It was pleasing to see almost all learners showing their working as required by the question. Either of the numbers 1025 or 2.89 could be rounded to gain the first mark, the process to multiply them together gained a second and these two steps seen with a valid decision the third. Many learners did not take the opportunity to simplify their working by using appropriately rounded figures such as 1000 or 3, and instead opted to work out 1025×2.89 on paper. This meant they spent a great deal of time calculating accurately when a rounded figure could have been used effectively and efficiently.

Question 3

- (a) Learners were asked to calculate the perimeter of a rectangular field given its length and width. Whilst some learners were able to calculate this correctly some simply added the two lengths given (without multiplying them by two) and others worked out the area of the field which scored no marks.
- (b) Here learners were asked to work out how many fence panels were needed to give a total length of 200 metres. The panels were 2.5 metres long. Many learners struggled to divide by a decimal accurately and a significant number multiplied the two numbers together.

Question 4

It was pleasing to see the vast majority of learners engaged with this question which combined working with averages and money to compare the costs of running two different cars over a 5-year period. Almost all learners could access at least one mark either by adding the two costs for the petrol car together or by multiplying the average yearly running cost of the diesel car by 5 to find a figure to begin the comparison. A number of learners did not read the information given carefully enough and went on to multiply the total running cost for the petrol car by 5 as well and were unable to score full marks.

Section B (Calculator)

Question 1

- (a) Most learners were able to begin to process this ratio simplification. Common errors seen included not completing the simplification e.g. stopping at 12:3 or writing down the figures in the wrong order. Learners should understand the importance of the order of the words in ratio questions and how they apply to the numbers given.
- (b) Almost all learners were able to identify the likelihood of a customer picking a cup of tea with sugar in it.

Question 2

This multistep problem combined money and percentages in the context of VAT being added to a cost and the majority of learners were able to begin to engage with the problem by finding the total cost of the chairs or the VAT for the cost of one chair. Those learners that could combine these two steps were able to achieve full marks. A common error was to find the total cost of 14 chairs and the VAT for one chair and add these two figures together. A few omitted the decision which lost the final mark. Care should always be taken to ensure any question such as 'Is £1200 enough to buy the 14 chairs?' is also answered.

Question 3

Compound and combined areas such as this question are new to the specification at this level. Learners often confuse perimeter and area and should be encouraged to develop strategies to decide on the correct one to use for the demand. Another common error here was to incorrectly interpret the coverage of a box of grass seed of 15m^2 as 15^2 and work with 225. Learners could divide the total area by the coverage of a box or work with the coverage of the box in a build-up method to find the minimum number required to cover the area. Functional rounding of the number of boxes required where seen was carried out accurately.

Question 4

It is pleasing to see almost all learners confidently approaching this familiar style formula given in words and only a few made errors in calculation or omitted the decision with the answer and so failed to pick up the last mark.

Question 5

Most learners are able to produce a bar chart with a linear scale on the y-axis and accurately plot the data, but a significant number of learners do not label the axes and are unable to gain full marks. Centres should continue to stress the importance of these labels or an appropriate and clear title – where the labels are implied by the title. Good use of the available space on the grid should also be encouraged to enable accuracy in plotting.

Question 6

- (a) This multistep problem set in a bakery required learners to work out the number of sacks of flour needed for the fifth week and then go on to use this figure, with the others given, to calculate a mean and then round the final figure. Some learners were able to identify the figures they needed to work with and convert from grams to kilograms. Many were not clear on what was required and instead of multiplying 2400 by 250 divided and worked with 9.6. It is pleasing to see that almost all learners can calculate a mean from a set of numbers. Here, some learners only worked with the four figures in the table (this could gain one process mark). Those that worked with five figures were able to pick up the second process mark for the mean and the correctly rounded figure gained full marks.
- (b) Where a check of the mean calculation was carried out it was often accurate and meaningful.

Question 7

This question asked learners to interpret and draw a rectangular space on a scale diagram. The majority of learners were able to do this accurately and following constraints. Some learners did not appear to have used a ruler. Learners should have access to the equipment listed on the front of the test paper and should be encouraged to use it appropriately.

Question 8

Creating a grouped frequency table with non-overlapping groups of discrete data is new to the specification and the majority of learners did not seem prepared for this with a number of blank responses seen by examiners. Where a table was attempted, often the groups overlapped (e.g. 1-5, 5-10, 10-15, 15-20) and headings were rarely seen. Some learners gave a group for each individual value seen in the table of results and tallied them. Learners should be given the opportunity to look at a lot of grouped frequency tables and consider the requirements for designing one of their own. They should also practise creating them for a range of data sets.

Question 9

Here the problem required learners to work backwards from a given volume to find a missing length. Most learners were able to use a given conversion factor to find the capacity in cubic centimetres and many took a correct first step of multiplying the two given lengths together. Only a few were able to correctly process these two figures to find the missing length and round to the nearest whole number as required.

Question 10

- (a) It was pleasing to see that almost all learners are able to match a representation of a 3D shape with a corresponding net.
- (b) Most learners were also able to select the correct plan view of a cylinder with a very small minority incorrectly selecting the rectangular elevation option.

Question 11

- (a) This question required learners to write a large number given in words, find a percentage of this amount and then work out how much more money James needed for his deposit. Many learners were able to correctly write a quarter of a million in digits with only a few giving the wrong place value. A very small number gave 750 000 instead of 250 000. Learners were often able to find 15% of this figure and complete the process to find the correct answer. Some worked to calculate 15% of £32 000 using only the numbers written in figures in the question.
- (b) Part (b) asked for a check of the percentage calculation. Where a check was given it was often for the subtraction (the last step of the calculation) and did not gain the mark. Learners should ensure they clearly show a specific step if that is what is asked for.

Pass mark for FS Level 1 Maths set 1

Maximum mark	56
Pass mark	32