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

Principal Examiner Feedback

PMAT1 SET 3

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Introduction

The third live paper-based test 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 with money in familiar contexts.

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 time to develop strategies to ensure they calculate the correct figure.

Learners would also benefit from having plenty of opportunities to practice converting and working with time in various formats.

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.

Where learners are required to show a check of their working care must be taken to show that process and the answer in the answer box. 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.

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.

Section A (Non – Calculator)

Question 1

A straightforward opening question which asked learners to find the saving when buying a weekly bus ticket instead of individual day tickets. The majority of learners were able to multiply accurately without a calculator, some used repeated addition, and then subtract the weekly ticket price from their figure. A few learners made arithmetic errors in the first steps but they were able to gain two marks for processes only losing the final accuracy mark. Working was required for this question and was seen in almost all cases.

Question 2

The first part was an underpinning knowledge question to work out the range of a set of data. Most learners were able to identify the lowest and highest values from the set although not all were sure what to do with them subsequently. A few learners calculated the mean which is a commonly seen error at this level. The second part specified that learners should use estimation to check their answer. Whilst many learners were able to approach the demand for a check with a reverse calculation only a few used rounded figures enabling them to pick up the mark. Since the type of check required is now stipulated from time to time learners need to read the demands carefully to ensure they are able to gain the maximum available marks.

Question 3

This question asked learners to calculate from times given in a list with different formats (minutes as well as fractions and decimals of hours) to find an end time. Learners at this level often find working with time challenging and this question was no exception. Most learners were able to gain the first two marks for converting at least one time correctly and beginning to add times together or onto the start time. A surprisingly high number of learners do not know how many minutes are in $\frac{3}{4}$ hour nor are they able to work it out. Some learners work with 3 hours and 40 minutes, others with 15 minutes. On some occasions learners missed the half hour break out when working with the times perhaps because it was given in words in the text. Almost all learners, who arrived at an end time, gave a decision as required by the demand.

Question 4

Overall a somewhat challenging question for learners at this level.

Part (a) was underpinning: 'Angles around a point add up to _____ degrees.' Only a minority of learners were able to answer this question correctly, many wrote 90 and some 180.

Part (b) was to interpret a pie chart and specifically a 90-degree angle within it (shown by a right angle sign in the diagram). While many identified the right angle or showed an intention to work with a quarter few were able to apply it correctly to the total number of people represented by the chart. Some subtracted angles from the total or subtracted the value in the question from it instead of working with the proportion.

Section B (Calculator)

Question 1

Here learners were required to show a metric conversion and work with proportion to find the number of lengths that could be cut from a roll of ribbon (some used a valid build up method which was given full credit if used appropriately). Common errors included not rounding functionally for the final answer and not showing a correct conversion. Some learners attempted to multiply the numbers given in the question but this did not score a mark.

Question 2

- (a) This underpinning question required the conversion of 1.07 litres to millilitres. It has been noted at this level that learners do not always know appropriate conversion factors or struggle to use them correctly. In this case only a correct answer gained the mark. There were some notation issues, 1.070 was seen but is considered too ambiguous to score the mark when seen alone.
- (b) Many learners were able to engage well with this question although some stopped after $164 \div (3+1) = 41$ so were only able to gain one mark. The most common error seen by far was to divide 164 by 3. Learners should take care to ensure they are calculating with the correct figures for the question, in particular with ratios whether they are working with the total or a part.

Question 3

- (a) Another underpinning single mark question asked learners to convert 60% to a fraction and simplify it. Most attempted to simplify their first fraction but many stopped at $\frac{6}{10}$ or $\frac{30}{50}$ and were unable to gain the mark.
- (b) This question allowed learners to choose from a range of treatments from a list with constraints and then find a discounted total price. Partial marks were available for any attempt at a relevant discount or discounted price. The vast majority of learners were able to select three treatments from the list and find a total cost and most went on to work with 25% of this cost. Some did not show a correct process for the 25% calculation so were unable to gain further marks (unless an accurate figure was seen). Learners who made the connection to divide by 4 were able to pick up the marks in less steps than those who divided by 100 and multiplied by 25 and were equally accurate. As often seen at this level some learners attempted to calculate 10% and then 5% but this often leads to arithmetic errors or stated incorrect figures. A few learners attempted to divide by 25 gaining no further marks. Multiple accurate final figures were accepted provided they were under the given budget because of the choice of treatments.

Question 4

Learners were required to find two different missing lengths in order to calculate the total perimeter of this composite shape. This added a layer of complexity to this question that learners found challenging with only a small number of fully correct responses seen. Many were able to find at least one missing length.

Question 5

This question required learners to input a figure into a formula. It was pleasing to see almost all learners were able to do this accurately.

Question 6

This question required learners to demonstrate a range of skills from measure and space including scale, area and perimeter. They were also asked to work with proportion to compare the amount of fencing with the perimeter of the shape they drew. Most learners were able to work with the scale given and the total amount of fencing available but were often confused about perimeter and area as is commonly seen at this level. A range of different rectangles were acceptable for full marks if they met the constraints given in the question (ie that the area be 24m^2). Learners need strategies to help them remember the difference between area and perimeter.

Question 7

Three single mark underpinning questions testing ordering of decimals up to 3 decimal places, rounding to 2 decimal places and a time conversion from hours to minutes.

- (a) Learners struggled with ordering the 3 different numbers possibly because they had different numbers of decimal places.
- (b) Learners appeared to find rounding to 2 decimal places particularly challenging with correct answers only seen occasionally.
- (c) Most learners could convert one and a quarter hours to minutes successfully.

Question 8

- (a) This question asked learners to find the probability of a boy being chosen at random from a class with 13 boys and 17 girls. The first step required learners to find the total number of students and then create a fraction. Most learners were able to find the total number of students in the class with many giving the correct probability. A common error was to give $13/17$ as a probability but this scored one mark for the correct numerator over a larger denominator.
- (b) Learners were required to show a probability of $15/20$ on a probability scale. The majority of learners were able to do this correctly. Some learners showed a mark at $\frac{1}{4}$ on the scale possibly as a result of not reading the question carefully.

Question 9

Learners engaged well with this mean calculation and check. Almost all learners were able to calculate the total units used and most went on to divide by 6 as required. Some lost marks by not giving a decision to answer the demand and a few made arithmetic errors. The check was carried out well by most that attempted it. Most learners know that a sensible check of a mean calculation is to multiply the final figure by the divisor, and they can show this accurately to gain the mark.

Question 10

This question tested learners' ability to engage with estimating using fractions. Here they had to find a figure to compare with a number given in the question and to do this they needed to find that total number of people at a show and compare a quarter of this with the actual figure of a certain demographic from the table. Many were able to find the total but appeared unsure what to do next. A common error was to divide the numbers in the table by 4 and other learners only added two figures from the table instead of all of them.

Question 11

This multistep problem asked learners to work out the volume of a cuboid, calculate $\frac{2}{3}$ of it and carry out a unit conversion given a conversion factor. As mentioned earlier learners often struggle to use the correct process to find a volume and many here added the given dimensions instead of multiplying. Some learners were able to calculate $\frac{2}{3}$ of a relevant figure (any dimension or their attempt at volume) but few were able to correctly convert a volume from cm^3 to litres by dividing by the conversion factor given to them. Only a small number of fully correct responses was seen.

Pass mark for FS Level 1 Maths set 1

Maximum mark	56
Pass mark	33