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Edexcel Functional Skills

**Qualification in Mathematics at
Level 1**

Principal Examiner Feedback

PMAT1 SET 2

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Introduction

The second 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.

While learners are often able to begin to work with percentages of money in familiar contexts and multistep problems many do not show a process to allow them to gain marks if they make an arithmetic error. Learners should be encouraged to show exactly how they work out steps in percentage calculations to avoid losing marks.

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.

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

This question required learners to write a large number given in words and then find a fraction of this amount. A number of learners missed a zero for the number (giving 8400 instead of 84000).

This question required working to be shown so a correct answer with no working seen would score no marks.

Question 2

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

- (a) A calculation, $28 - 20 \div 4$, 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. $28 - 20 = 8$ and then $8 \div 4 = 2$) and arrived at the wrong answer.
- (b) Required learners to square a single digit. Some correctly wrote down 6×6 but then gave the commonly seen incorrect answer of 12.
- (c) Required learners to work with negative numbers ($-25 - 14$) and many found this challenging and 11 was a common incorrect answer seen.

Question 3

- (a) This question required learners to work out the perimeter of a lawn and calculate and compare the cost of edging for it. Most were able to begin to engage with the problem and gain a mark for finding the perimeter or the cost of edging for one side length. Learners sometimes confuse the calculations for perimeter and area at this level.
- (b) Learners were required to show a check using a reverse calculation for example, $360 \div 5 = 72$. In some cases the check was left blank.

Question 4

This question required learners to find the volume of a cuboid which is new to the specification at this level and then convert the units. One mark was given for any correct multiplication using the decimal side length and many learners were able to gain this mark. A number of learners were able to give the correct process to work out the volume but a significant number of learners just added the three side lengths together.

Section B (Calculator)

Question 1

Almost all learners were able to engage in this underpinning style question to calculate the mean of a set of numbers with two or fewer decimal places.

Question 2

- (a) This part required learners to work out the number of 'working' days (Monday to Friday) in a year with 46 'working' weeks. This was generally tackled well but some learners used 7 as the number of days in the week.
- (b) This part required learners to use their answer to part (a) and input it into a simple formula to find and compare the absence rate for a member of staff. Almost all learners were able to use the formula correctly and make a decision based on the answer. Follow through marks were available and learners were able to gain all marks where appropriate for part (b) for using their answer to part (a) in subsequent calculations.

Question 3

This multi-step problem required learners to work out a percentage discounted price and add it to 18 months' worth of charges to find the total cost of a broadband contract. Almost all learners were able to engage with the question and multiply the monthly cost by 18 months as required to gain a mark. Many were able to find 15% of the price for the router but did not always subtract from the original price to find the discounted cost. Some learners lost marks because they did not show a correct process to find the percentage discount and just stated an incorrect figure.

Question 4

This question required learners to split a total amount of 9 litres in a ratio of 5 : 1. Many learners began by adding 5 and 1 together which gained a mark. Commonly seen errors included going on to multiply 6 by 9 and some learners simply multiplied 9 by 5.

Question 5

Learners were required to draw two concentric circles using one given radius of 6cm and one calculated radius (half of the given one). Many were able to find the second radius and attempted to draw at least one of the circles. However, it was clear that a significant number of learners either did not have a pair of compasses or were unable to use them accurately. A pair of compasses should be available along with the other equipment listed on the front of each paper.

Question 6

Here learners had to work out the total area of a ceiling, divide this by the coverage per pack of tiles and multiply a whole number of packs by a price to find the total cost. Functional rounding of the number of packs required was carried out accurately where seen.

Compound and combined areas such as the ceiling in this question are new to the specification at this level. As noted earlier, learners often confuse perimeter and area and should be encouraged to develop strategies to decide on the correct one to use for the demand.

Other common errors, including not showing calculations for incorrect missing lengths, squaring the area covered by a pack of tiles and calculating the total cost using partial packs which is not considered functional, were seen.

Question 7

Most learners are able to produce a bar chart following a given start to a linear scale on the y-axis and accurately plot the data, but still 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 (then the labels are implied by the title).

Question 8

This question required learners to draw the net of an open cube using a simple scale on a grid. The vast majority of learners were able to correctly interpret and use the scale to show at least one face of the cube. Common errors included attempting to draw a 3D sketch of the cube or attempting to draw 6 sides on the net which did not fit on the given grid. Some learners did not appear to have used a ruler. As stated earlier learners should have access to the equipment listed on the front of the test paper and should be encouraged to use it appropriately.

Question 9

- (a) The majority of learners were able to begin to process this scaling up of a recipe using proportion. Some calculated the meat required for a single portion and multiplied up and others worked with 1.5 times the original recipe. Either method was able to score partial marks for process or full marks as appropriate.
- (b) The check required a reverse calculation which, where seen, was carried out accurately.

Question 10

- (a) The first part required learners to work out the range of a set of given temperatures. Most learners were able to identify the highest and lowest figures and many went on to gain full marks for an accurate figure. Common errors included working with the values at the beginning and end of the table which did not gain any marks.
- (b) Learners were asked to write a further comment about the data given. This appeared to be challenging for many and they repeated information about the range calculation. Simple statements describing the changes in temperatures were acceptable such as 'The temperature goes down after day 6' or 'The temperatures increase and then fall again'. Alternative true statistics such as 'The mean of the temperatures is 68°' were also acceptable.

Question 11

- (a) Learners were asked to put in size order a list of large numbers for this mark. This was correctly done by the majority of learners.
- (b) Learners were asked to tick the numbers over a given value from a list of large numbers. This was correctly answered by the majority of learners.
- (c) This question required learners to find 5% of a purchase price and add it to the original within a problem. Many learners were able to process this fully. Common errors included not showing a correct process for finding the percentage (where an incorrect figure was seen) or not adding the percentage to the original value. Some learners divided the price by the given percentage.

Pass mark for FS Level 1 Maths set 2

Maximum mark	56
Pass mark	33