

Examiners' Report

January 2017

Pearson Edexcel Functional Skills
Mathematics Level 1 (FSM01)

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Introduction

It has been pleasing to see that the majority of learners engaged with all questions, with a significantly smaller number of blank responses compared to previous examination series. This implies that learners were relatively well prepared to sit this Level 1 paper.

The majority of learners presented their calculations throughout each question but there were a few instances where these were not clearly organised or were missing completely. This led to some learners missing out on process marks. Learners should be encouraged to present all of their calculations, however simple, in a clear and organised way. At times, it was evident that learners did not have access to calculators and so arithmetical errors were often seen. Centres should ensure that learners have access to calculators and other equipment necessary to complete the paper. It is also critical that learners state their decision clearly (Yes or No usually suffice) as a mark in the majority of questions is awarded for a correct conclusion that is accompanied by accurate figures. Accurate figures also require learners to include the units they are working with, i.e. cm, £, minutes etc.

Learners engaged with a variety of contexts and responded to tasks well in most cases. However, there were some instances where learners misinterpreted the results of their calculations and their final answer was incorrect. Learners should be encouraged to carefully consider the context, practise extracting essential information (highlighting key data is advisable) and focus on what the demand asks for when making their final decision. They should also develop knowledge on how to show a check of their calculations, especially when explicitly asked to do so.

Areas that learners should particularly improve on include converting between units, especially units of time, understanding the concept of likelihood, interpreting a scale on a statistical diagram and being able to recall methods for calculating area and perimeter.

General comments

Section A

Question 1a

This question was answered very successfully with a vast majority of learners being able to calculate the correct quantities for each item and finding a total cost. However, some learners failed to use correct money notation when stating their final answer, giving their answer as £23.2 because they had just used the figures on their calculator. A small number of learners got confused with how many of each item they had to combine - either swapping 2 and 3 over, treating both as 2 (not so frequently both 3) and a few simply finding the cost for 1 of each item, indicating that they hadn't read the question carefully.

Learners who did not have or use a calculator ending up with £13.20 or other wrong answers because of 1 addition or multiplication error. Learners should be encouraged to take care when reading questions and highlight any quantities where multiple costs are to be calculated. Centres could use shopping tasks to help learners to prepare for questions involving calculating with money.

Question 1b

This question was completed successfully but only in part. Many learners identified the annual cost of the monthly offer for single person membership fees and were able to correctly compare their figures with the combined family membership. A common error was to only use 1 adult (instead of 2) and 1 child when working out the annual cost but still recognised the need to multiply by 12 in order to find comparable figures. Again, some arithmetic errors were present that could have been avoided with a calculator. It was disappointing to rarely award a mark for the check. Centres need to emphasise and move away from the common turn of phrase 'double check' as this implies to do something twice, with many learners rewriting their initial calculations instead of a reverse calculation or an alternative and others choosing to calculate the difference of £6, a common response to a check demand where money is involved. As a check comes up more than once in every paper it indicates that not enough emphasis is being put on writing a very simple check of any part of their calculation.

Question 2a

It was pleasing to note that the majority of learners were able to successfully engage with this geometric drawing question, with many gaining full marks for constructing with accurate length measurements. The most common errors included failing to join the two sides with the sloping roof or not using the given base, choosing to redraw their own. The correct drawing of the right angles was the mark most commonly awarded for learners failing to gain full marks, as not all learners could draw lines of the correct length. This could be because they did not use rulers to measure these. Scale drawing and measuring are vital functional skills and should be practised regularly. Centres could use tasks such as designing packaging for a product that requires measuring before a scale diagram can be attempted.

Question 2b

Pleasantly, almost all learners were able to measure their roof within 2mm tolerance and used the correct units with their figures. Learners who did not complete their diagram managed to measure the gap between the front and back side lengths of their drawing, allowing them to gain the mark for this part of the question. Instances when credit was not awarded were often due to units not being included with the numerical measurement or when learners simply added the four side lengths together due to not reading the demand of the question.

Question 3

This multi-step question required the learner to combine calculating time with planning a route with given constraints. The majority of learners were able to successfully engage with the constraint regarding the duration of time needed at each viewing point and began the process to calculate the total time needed for their chosen route, with many also identifying a valid route. Some learners then struggled to complete the process correctly when working with different units of time, concluding that 125 minutes equated to 1 hour and 25 minutes, meaning that they were unable to find figures to compare. Other common errors included planning a route which led to a pathway being used more than once or adding 30 minutes twice instead of using 35 minutes and 30 minutes once. Learners should be encouraged to underline or highlight key information to help focus their mind on the detail asked in the questions. Centres could offer tasks that involve creating a time plan for a gig or festival such as Glastonbury or V Festival, planning to see certain acts at certain times, having enough time to get food and time to walk between stages. Another suitable task for converting time would be to provide a list of movies where durations are given in minutes only and learners convert this to hours and minutes. This could then be extended to planning an outing to the cinema with travelling time such as a train followed by a walk from the train station.

Section B

Question 4a

Generally, this question was answered successfully, with many learners being able to interpret the diagram and show a full process to find the total points. Some failed to calculate the correct total due to arithmetic errors, often when multiplying by zero or by not engaging with the information stated in the question regarding the number of points awarded for a win or a draw. Learners would benefit from practising interpreting information from unfamiliar statistical diagrams. In this case a few learners misinterpreted the key and assumed 1 dot represented 1 point not 1 match thus obtaining an answer of 24 points.

Question 4b

It was disappointing to see that many learners had a poor understanding of likelihood, with many incorrectly selecting even chance as their response. Centres should encourage the use of a number line or a shape that can be separated into the appropriate number of outcomes in order to help them to visualise how likely an event is compared to the total number of possibilities.

Question 5a

Although this was a different style of graph question, the skills required to complete the question correctly are within the expected competence of a Level 1 learner. Learners who were able to engage with the partial scale given were often successful in gaining full marks, with a few failing to include labels. However, many were unable to interpret the partially completed scale, often being unable to complete the scale linearly for the range of the data given and therefore were also unable to gain credit for accurate plotting. Centres should encourage learners to add extra scale labelling when plotting graphs to help them determine how many units are represented per square. Learners would also benefit from being reminded that the scale should exceed the highest data value to be plotted. Tasks to encourage labelling of axes could include learners being shown various statistical diagrams that are not labelled and discussing sensible possibilities as to what the graph or chart is representing.

Question 5b

A very successful question in which a very high proportion of learners were able to interpret their graph and provide a suitable statement. The best responses came from learners who commented on the trend, paying attention to the slight decline in match 2.

Question 6a

It was pleasing to see that a large number of learners associated the word average with the mean. The majority of learners demonstrated the correct written process to calculate the mean and managed to find the final accurate figure(s). Unfortunately, some learners failed to complete the question by stating a wrong decision for the context of the question or, less frequently, not providing a reverse check of their calculations. Some learners calculated incorrectly by not considering BIDMAS. In particular when using a calculator they failed to use brackets around the addition, and divided the last figure in their addition by 6. Centres should remind learners to find the sum of all figures first before dividing by the number of all data entries. Learners offering incorrect responses failed to engage with the mean and stated 3 matches were below 6500 and 3 above.

Question 6b

Many learners were unable to engage with what the question was asking them to do, possibly due to misinterpreting the table by thinking that ticket sales represented an income rather than the intended number of tickets sold. However, learners who correctly identified that money notation was not present for ticket sales data were able to provide a successful response. Many thought that 4600 adults still attended the game but this time the cost was £25, others thought ticket sales related to the money the club took and divided by 25. What was pleasing to see was that most learners did have access to a calculator. Learners would benefit from working on similar questions involving large numbers especially which involve money and one other variable i.e clothes sales, or comparing supermarkets.

Section C

Question 7a

This was generally well done with many learners being able to substitute into the formula. Centres should ensure that learners have a firm grasp of the concept of place value as this would help them to spot errors in final answers. The most common error included the use of 100 instead of 1000 to divide as the final step of the calculation. The check was often omitted and centres should inform learners that this can cost up to 3 marks per paper.

Question 7b

Perimeter and area are still a source of confusion for learners. Centres must ensure that the difference and function of each is clear to learners. When area was found, 24cm^2 was often calculated correctly. However, some students used $6 \times 4 \times 6 \times 4$. When teaching this topic, emphasising examples of when area is needed would probably help, examples such as seeding or turfing a lawn, buying a carpet, painting a wall would provide a functional and familiar context. Most learners could find a quarter of 100 and compare it to the answer they worked out for the first part, however some learners did not show the process to obtain figures to compare, possibly due to knowing that 25 was a quarter of 100, so centres should reinforce the need to show seemingly obvious calculations in order to support their decisions. Some lost the final mark for comparing their figures the wrong way round and answering 'no' to 'is this enough?'

Question 8

A significant number of learners again confused area and perimeter when attempting this multi-step question. It was, however, pleasing to note that learners were more successful in calculating with consistent units than in previous series when considering the number of strips needed for a side length. Some learners still only work with the sides of the shape that are labelled rather than all four sides, although there were allowances for up to 3 marks to be awarded for such responses. Physical tasks such as creating the perimeter of a sports hall with learners laying around the edge and then laying side by side to demonstrate area may help to reinforce the technical terms by creating a memorable learning experience.

Question 9a

A very successful percentage calculation question in which learners generally scored both marks available. A few learners still attempt to divide by 20 to find 20%. Reinforcing how to find 10% is beneficial to learners, especially when extended to demonstrate how this can help to find other percentages such as doubling to find 20% or halving to find 5%.

Question 9b

This final question required learners to compare monthly payments needing to be made and answered correctly by the vast majority of learners, with many also showing two alternative methods and is encouraging to see. Failing to make a decision was often the only cause of lost marks.



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