Principal Examiner Feedback

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Pearson Edexcel GCSE
In Mathematics B (2MB01)
Higher (Calculator) Unit 1

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GCSE Mathematics 2MB01
Principal Examiner Feedback – Higher Unit 1

Introduction

Far fewer able students took this paper than previous series, perhaps due to the new rules on resits. As a result performance overall was weaker. This was particularly the case with questions near to the end of the paper, where there were few attempts at the questions.

The inclusion of working out to support answers remains an issue for many. Particularly in QWC or longer questions presentation of ordered method is key to gaining the many method marks available on this paper.
Performance was weakest on questions which required making connections in mathematics: where a question used aspects across a number of mathematical areas.

The presentation of work and statements in QWC questions were usually good.

Report on Individual Questions.

Question 1

This was generally well done with the majority of students getting full marks. The main error was the absence of a key (or an inappropriate key), whilst some failed to provide a stem and leaf diagram that was ordered.

Question 2

In part (a) most students were able to provide two reasons for having a poor sample, including references to gender, location, or sample size. The main failing in part (b) was providing a set of response boxes that were not exhaustive. Wording chosen for the question did not always address the need to find the number of times travelled (by bus).

Question 3

Completely correct answers were rare. Most students were able to make an attempt at adding together the three algebraic terms, but many failed to progress to considering them as a mean, and introduce a division by 3. Of the few that did, there were too many occasions where the answer was given ambiguously (eg $4x+5 \div 3$).

Question 4

On too many occasions the plotting was at the end of the interval, rather than at the midpoint. A few introduced extraneous lines (eg joining the first and the last point). In part (b) only a few gave the frequency instead of the class interval.

Question 5

This was a well answered question. Nearly all students recognised that deduction from 100 was needed, and most also associated this with the need to divide by 3 to find the value of x. However, a very common error was $0.15 \div 3 = 0.5$

In part (b) there were many correct answers. A few wrote their answer incorrectly as a probability, and a few chose to use a colour other than red.

Question 6

There were many misconceptions with this question, and much misunderstanding about rates. Most understood the need to use multiplication or division as operators, but regularly confused these, not always recognising that the result of their calculations did not make sense in the given context. Many students failed to understand the relationship of miles to litres, and failed to identify the distance of 450 miles from the question. By far the biggest failing was inappropriate rounding, with amounts of money truncated rather than being rounded to the nearest penny. As a result many got near to, but failed to reach, the accurate answer.

Question 7

Not all students can divide a quantity by a given ratio. The ability to do so enabled them to make a good start on this question since numbers of boys or girls was needed to move to a second stage. However, as long as the student stated some figures for boys or girls then credit could be given for some subsequent working. It was disappointing to find some students unable to find $\frac{3}{4}$ of an amount.

It was of course important in this 5 mark question for working to be shown in order for credit to be given. Even though many failed to get to the final answer, many method marks were given where examiners could see the evidence of appropriate working.

Question 8

Usually a well answered question, but more care is needed to be taken by some students, who knew the probabilities but wrote them on the wrong branches of the tree diagram.

Question 9

A well answered question where many gained full marks. Some failed to plot the point in (a). In part (c) students are advised to draw a line of best fit to assist them with their estimate.

Question 10

It remains disappointing that many students treat this as a simple interest rather than compound interest question. Those choosing to work with indices need to ensure they use the correct multiplying factor: use of 1.25^3 instead of 1.125^3 was a fault of some students.

Question 11

Working with the mean is not well understood, as exemplified by the many confused solutions given to this question. Some attempted to make a comparison without undertaking any calculations, but marks were only given for a conclusion if such a calculation was attempted. Few attempted to work backwards using the given information in the statement, though this was a valid method. Most who arrived at a re-calculated mean then went on to make a sound conclusion.

Question 12

Most correctly stated the median in part (a). In part (b) some made an inaccurate reading, sometimes starting on the wrong axis, but the most common error was in giving the answer as the "raw" reading of 37, that is finding the number who failed the test, rather than pass it. It was disappointing to find many poor responses to part (c). A significant number of students failed to demonstrate an ability to read off the quartiles from the graph. There were many diagrams that only barely resembled a box plot. Rarely were full marks gained.

Question 13

Most realised that the maximum bound was needed, and many correctly stated this as 4.5. Some preferred to use a recurring figure, which was acceptable as long as this was not rounded or truncated. It was also encouraging to find many dividing this into 1000 to give 222.72 (or 222). But of these, many failed to arrive at the correct conclusion, rounding the wrong way (usually to 222) or leaving the answer unrounded.

Question 14

In part (a) the statement needed to make some reference to proportion. A significant number of students instead chose to make reference to random sampling, either directly or by describing the need to remove bias or ensure even chance. Part (b) was done better, with many correct answers. The main errors were failing to round off the answer to the calculation, or totalling the numbers incorrectly, which was surprising given that this was a calculator paper.

Question 15

This was not well done. Students appeared confused by the context, and many chose not to attempt the question. There were some attempts at sample spaces, and lists of amounts where students were trying to make combinations leading to 40p, but frequently without stating probabilities. Some gained credit for deriving correct probabilities which they might have then gone on to use. Where probabilities were incorrect, some method marks were awarded if the work was clearly stated.

Question 16

This was another question where there were very few attempts. Those who did attempt it were able to draw a graph that usually demonstrated knowledge of frequency density. There were too few attempts at part (b) to come to any conclusion.

Summary

Based on their performance on this paper, students should:

- remember to provide a key in stem and leaf diagrams

- draw a line of best fit, as appropriate, to take readings from a scatter graph

- read the question carefully and ensure that the final answer given provides the answer to the actual question asked

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:
http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx