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Principal Examiner Feedback

November 2015

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

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GCSE Mathematics 2MB01
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Introduction

The number of students sitting this paper was relatively small. There were few very weak performances.

Students appear to have been able to complete the paper in the time allowed. They found that the paper gave them the opportunity to demonstrate positive achievement.

Students generally set out their working in a clear, logical manner.

Report on Individual Questions.

Question 1

Students almost always scored both the marks available in part (a) of this question, though there were some students who merely gave the sum of the three probabilities (0.8) as their answer.

Part (b) was not completed quite as well as part (a). Common incorrect working seen included 0.20 × 50 and 0.25 × 50. It would appear that some students had used their answer to part (a) not realizing that yellow was the colour focussed on here.

Question 2

Most students found this question to be straightforward and scored at least 3 of the 4 marks available. Occasionally students did not plot the extra point in response to part (a) and when it was plotted, this was often done inaccurately. Students did not pay enough attention to ensure they had a good understanding of the scale on the vertical axis and plotted the point at (146, 40.5). The relationship was clearly described by nearly all students in part (b) though some students wrote the single word “positive” rather than the phrase “positive correlation”. Many students scored both marks in part (c) though again, some students misused the scale and did not read off from 47.5 on the y axis.

Question 3

This question proved to be relatively straightforward for those students who realised that a table could be used to record the information given and work out what was necessary. This was the case for the majority of students entered at this tier. Attempts which did not use a table were less frequently successful and often could only be awarded 1 mark for calculating either the number of females (108) or the total number of economy tickets (96).

Question 4

Over a half of the students entered for this paper wrote fully correct responses to this question. However, when there were errors, many students had not read the demand in the question with sufficient care. Much working involving costs was seen in the working space for a response to part (a), answers were often scattered randomly, and insufficient detail was given in schedules. Students did not always give the time of arrival of their train in Colwyn for the outward journey and the time spent in Colwyn was not always calculated. Many students chose the earliest train for the outward part of the journey rather than the cheapest. Where time calculations were attempted, errors were sometimes made. In part (b), too many students reduced the adult fare by 30% to calculate the child fare. This resulted in unnecessary working together with a loss of marks.

Question 5

This question was very well answered. Most students were able to identify two things wrong with the question. Where students did not score two marks, it was often because their response was too vague.

Question 6

Only a disappointingly low proportion of students were able to identify how to combine the three algebraic expressions given. About a half of students wrote down an expression for the sum of the three ages and about two thirds of these students then divided this by 3 to score both marks. Responses to this question revealed a widespread lack of ability to work with simple linear algebraic expressions set in a problem with some context.

Question 7

This question was a good discriminator. There were a good number of fully correct solutions but more frequently students scored only part or no marks because they did not fully understand the concept of compound interest or were unable to show a correct method for calculating $3\frac{1}{2}\%$ of a quantity.

Question 8

This question was quite well attempted, particularly part (b).
Part (a) often attracted the incorrect answer "$20 < n \leq 30$" given by students who either picked the middle of the 5 intervals or who calculated the mean then gave the interval in which the mean lay.

Part (b) was often well answered though many incorrect methods were seen. For example, some students used class widths instead of mid interval values. Some students who did use the correct method were prone to making careless errors which might have been detected with careful checking.

Question 9

Nearly all students attempted to draw a box plot but a sizeable minority of them plotted all the values given in the table rather than realise that they needed to calculate the value of the upper quartile by adding the interquartile range to the lower quartile. As a result many students restricted the number of marks gained to one.

Question 10

This question was attempted by the majority of students sitting the paper.

The cumulative frequency table was usually completed accurately. However there were a few students who attempted to use lengths of the intervals calculated from the first column and some other students tried to calculate frequency densities. Most students who had completed the table successfully drew a cumulative frequency graph and few students plotted points at values other than at the upper boundaries. Part (c) was not answered well primarily because many students did not interpret the scale on the height axis correctly and used 186 or 188.5 rather than the 187 required. A significant number of students did not show any evidence of their method on the graph whereas some other students read values from the graph but did not subtract from 40.

Question 11

This question was a good discriminator and most students made some progress though the question was answered well only by the more able students. Providing an argument to support the given result was not found to be straightforward for the many students who used the £20 to work backwards and then try to give a convincing argument. This approach could not be awarded full credit.

Most students calculated the income (£56) from the 80 students and they could usually identify the 3 ways in which a total score of 9 could be obtained. However, only about one in every five students could complete the chain of reasoning right through to the final conclusion.

Question 12

For many students this question proved to be straightforward and the four marks very accessible. In part (a) some students who used a correct method did not round their answer to give an integer. In part (b), a common incorrect approach was to calculate the number of students in year 11 (190) then merely divide by 2.

Question 13

A small proportion of students answered this question apparently without hesitation and a few of these students gave a concise clear assumption. However, for most students the working space contained many calculations few of which were relevant to a correct solution.

Question 14

Not all students attempted this probability question but most did. There were some clear, concise and correct solutions usually using a tree diagram. A large proportion of students made an attempt to draw a diagram but many wrote incorrect probabilities on the branches. Most students did realise that the problem involved non replacement of the counter and tried to take this into consideration when completing their diagram. Some students used decimals rather than fractions but the most common probabilities seen in these cases were 0.4 and 0.7, values which were not given to at least 2 decimal places and so could not be awarded any credit.

Question 15

This question was answered well by about a quarter of students, though a good proportion of these students missed the units of time from the x axis on their diagram. Though diagrams were attempted by nearly all students many of them used height rather than area to represent frequencies.

Summary

Based on their performance on this paper, students should:

- make sure they have a good understanding of the scales used on graphs before the take readings from them

- take care to read through all parts of a question before attempting to answer it so they are clear about what evidence is needed to be presented in each working space

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:
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