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Principal Examiner Feedback

November 2015

Pearson Edexcel GCSE
In Mathematics B (2MB01)
Foundation (Non-Calculator) Unit 2

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GCSE Mathematics 2MB01
Principal Examiner Feedback – Foundation Unit 2

Introduction

The paper was accessible to all students, with every question attempted by most students.

Many students lost marks because they did not read the question properly. For example in question 10 many gave an answer of 9.45 (the total of 3 medium drinks) rather than the price of each drink.

Report on individual questions

Question 1

This question proved to be a good starter question with most students scoring at least 2 of the 3 marks. Students struggled most with part (c) where '100' or 'hundreds' was the most common incorrect response.

Question 2

It was encouraging to note that most students provided units with their numerical value with only a handful writing 1.17 or 117 without units. Students tended to show their working with the majority of students working in metres rather than centimetres.

Question 3

In part (a) nearly all students were able to write down the correct coordinates of the point Q. Some students still put letters with their answers such as (x4, y3) which is not acceptable.

There were mostly correct answers to part (b).

Question 4

A large number of students scored a mark for 120 ÷ 3 but then gave 40 as their answer. The vast majority of students who did not score first tried to write one third as a percentage. These students tended to write this percentage as 30% (with some 33%) which meant they did not show any correct working for a method mark.

Question 5

Nearly all students were able to measure the line within the acceptable tolerances. However, when no units were provided with their answer, the answer was meaningless and no marks were scored. Nearly all students were able to provide the special name for the angle marked *x* and most were able to measure the angle accurately.

Question 6

Nearly all students totalled Jack's scores and Lewis's scores and found that the difference was 3, scoring both marks. However there were quite a few arithmetic errors in addition which meant the accuracy mark was lost.

Question 7

In part (a) there were many acceptable responses with 'rhombus' being the most common incorrect answer. Many struggled to write down the correct order of rotational symmetry in (b) with '4' being the most common incorrect response.

Question 8

It was pleasing to see that students wrote clear working out with many writing that Ahmed arrived at the station at 8.53 am. However, some students then did not score the C mark as they did not then communicate that Ahmed would miss the train. There were some arithmetic errors in adding on the 37 minutes.

Question 9

There were many correct responses to part (a) but many wrote 0.37, 0.46, 0.401, 0.439 often because they were trying to order 37, 46, 401 and 439

In part (b) many students tried to convert all the numbers to decimals but then struggled to convert $\frac{7}{8}$ to a decimal and often wrote that $\frac{2}{3}$ was 0.6 when written as a decimal.

Question 10

This question was tackled in many different ways. The most common method was to add up the total cost of the tickets first with most doing this correctly. Many then subtracted this from £30. Unfortunately many could not accurately work out 30 – 20.4 with 10.6 being a very common incorrect response. Others did not read the question properly and did not write the answer as 3.15 preferring to write down the total cost of the 3 medium drinks thereby losing the final mark.

Question 11

Many wrote that 14 was the answer to part (i) not recognising that the multiplication should be done first. Part (ii) was well answered and there was quite a lot of success with part (iii) although some wrote the answer of 16 thinking 5^2 simplified to 10.

Question 12

This was well answered with students showing clear working. However, many wrote letters with their answer such as 27*ab* or 12*a* + 15*b* which meant they could not score unless some prior working was shown correctly. The most common incorrect answer was 16 from 6 + 2 + 5 + 3.

Question 13

Most students were able to simplify the algebraic expressions correctly.

Question 14

Some students scored only 1 mark generally for either writing 8 on the diagram as the length of one of the sides or for 24 × 3. However, most students did not understand that the perimeter of the trapezium did not include the two lines inside the trapezium with 8 × 7 = 56 being the most common answer.

Question 15

Students did not tend to be systematic in their approach with many just writing down the answer (nearly always incorrect if no working shown) or tried to find the answer through trial and improvement. Those that did show working tended to score at least one mark, mostly for writing at least two square numbers.

Question 16

Many students did not recognise that the angles in the equilateral triangle were each 60° which meant that they tended not to score any marks. Many thought that the base angles of the isosceles triangle were 140 ÷ 2 = 70° which meant y was 40°. Others thought the base angles were each 40° quoting that angles on a straight line totalled 180°. Both of these methods did not score. The most successful students wrote 60° for the central triangle on the diagram and were then able to work out that *y* = 20°. Hardly any of these students then went on to provide all the correct reasons for their working.

Question 17

This question was well answered with most showing the average speed as 200 ÷ 4 = 50. The most common error was where 200 × 4 = 800 was provided as the solution.

Question 18

This multi-step question proved too much of a challenge for students sitting this paper. Many scored 1 mark either for converting 3 m (or 2.5 m) to cm or for 3 × 2.5 (or 20 × 25).

Those that used the latter method were then not able to convert 7.5 m^2 to cm^2 or 500 cm^2 to m^2. Others failed to round their number of boxes up to the next whole number.

Question 19

Most students did not score any marks on this question. Those that could generate at least 3 terms for sequence A failed to do the same for sequence B often because they wrote $2 - 10 = -8$, $4 - 10 = -6$, $6 - 10 = -4$ instead of $10 - 2 = 8$, $10 - 4 = 6$ and $10 - 6 = 4$. The few that did generate both sequences correctly and identified that Sally was correct because 4 was in both sequences then did not go on to say that one sequence was increasing and the other was decreasing thereby not scoring the final mark. Some students put $3n - 2 = 10 - 2n$ and tried to solve this equation, not recognising that solving for n was not a correct approach.

Question 20

Most students approached this question by adding 9 minutes many times to 6.45 and then 12 minutes on to 6.45. There were many arithmetic errors found when using this approach. Those that were able to do this accurately tended to get the correct answer of 7.21 am. Very few students approached this by trying to find the LCM of 9 and 12.

Question 21

Most students tried to draw a table of values. Many of these students struggled to find the correct y value when x was negative. Overall this question was not done well by the students on this foundation paper even though this type of question has been tested many times.

Summary

Based on their performance on this paper, students should:

- understand the importance of reading the question again after answering to ensure their answer is what is required. For example in question 10 many gave an answer of 9.45 (the total of 3 medium drinks) rather than the price of each drink.

- be encouraged to write as much information as they can on given diagrams. For example in question 3 it would help writing 3, 5, 7 as the length, width and height on the diagram of the cuboid, question 16 it would help writing any of the angles calculated on the diagram, question 18 it would help writing 300 cm next to the 3 m on the diagram and showing how many 20 cm fitted on this side on the diagram.

- show all working clearly. For example on question 8 many wrote 8 16, 8 31, 8 43 scoring no marks. Had they written 8 16 + 25 = 8 31 and 8 31 + 12 = 8 43 they would have scored a method mark for showing that they were adding 25 and 12 to 8 16.

- ensure units are consistent. For example, where one diagram has units in metres and the other in cm, it is advisable to convert to the same units before working out areas as these length conversions are much easier to do than working out area conversions.

Grade Boundaries

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