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Principal Examiner Feedback

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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

This paper gave students ample opportunity to demonstrate their understanding. Students generally attempted all the questions and some very good attempts at the paper were seen.

Many students showed sufficient working out to gain method marks when the final answer was incorrect and working was often well set out. It was pleasing that in the three questions testing QWC conclusions were usually given as a statement.

Q1(d) and Q14 highlighted the problems that many students have when working with fractions.

Questions were sometimes not read with sufficient care and this resulted in a loss of marks. In Q7, for example, students were told that there was no delivery at *A* but some students nevertheless added on 5 minutes for a delivery and in question 13 some students worked out the cost of the tram for 3 people, not for 4 people.

Report on individual questions

Question 1

Very few students failed to order the numbers correctly in either part (a) or part (b). In part (b), a small number of students started with the largest number instead of the smallest number. Part (c) was also answered very well. The most common incorrect answer was 0.09. Less than half of the students could write $\frac{11}{8}$ as a mixed number in part (d). Many of the incorrect answers were written as mixed numbers but whole numbers and decimals were also seen. Some students did not answer this part.

Question 2

Almost all students drew a sketch of a rectangle in part (a), with most using a ruler. In part (b), many students knew that the straight line was a chord. A variety of incorrect answers were seen, the most common of which were sector and diameter. Students were more successful in part (c) with the majority able to identify the shape as a cylinder.

Question 3

Part (a) was not answered as well as might have been expected. The most common error was to give the order of rotational symmetry as 1. In part (b), almost all the students drew a line of symmetry on the pentagon.

Question 4

This question was answered very well. Most students subtracted the total number of laptops from the total number of tablets with very few choosing to start by finding the difference for each month. Marks were most often lost through arithmetic errors in one of the additions or in the subtraction.

Question 5

In part (a), most students wrote down 'square' and 'rectangle' but many failed to gain the mark because they listed other shapes as well. Part (b) was answered less well. The most common error was to write down only 'square'. Some of the students who did write down both 'square' and 'rhombus' also listed other shapes.

Question 6

Most students identified the angle in part (i) as being obtuse. Not surprisingly, the most common incorrect answer was 'acute'. Part (ii) was also answered very well. A small number of students read their protractor incorrectly and gave an answer in the range 53º to 57º. The answers given suggested that almost all the students had a protractor.

Question 7

This question was answered quite well. The most widely used approach was to first find the total time taken and those students who found the total time could usually then work out a correct start time for their total time. Some students chose to work backwards from 4pm, considering each delivery in turn. The most common error was for students to include five 5-minute stops, rather than four, even though the question stated that there was no delivery at *A*.

Question 8

Part (a) was answered extremely well with almost all students drawing the correct pattern. A variety of approaches were used in part (b) to find the number of sticks needed for pattern number 10. Some students wrote down the first 10 terms of the sequence, some drew pattern number 10 and some found and used the expression for the nth term. Some students mistakenly thought that the 10th term could be found by doubling the 5th term or by multiplying the 3rd term by 3 and then adding 7

Question 9

Most students gave the correct answer of $4d$ in part (a). The most common incorrect answer was d^4. Part (b) was also answered well. Incorrect answers usually contained at least one multiplication sign or powers of *e* and *f*. Only a few students failed to collect the x terms correctly in part (c). Most also collected the y terms correctly. The most common error was to give the answer as $5x - 2y$ instead of $5x + 2y$.

Question 10

A good proportion of students were able to find the size of the angle marked $x°$. Some students gave the other base angle of the triangle as 50° and worked out the third angle as 80° but then got no further. Some, however, wrongly assumed that the two unknown angles in the triangle were equal. It was good to see angles marked on the diagram but the working of some students was not presented particularly well and was sometimes difficult to follow.

Question 11

This question was generally answered well. The most common approach was to start by finding 10% of 300.

Question 12

The majority of students were able to use the graph correctly to change 16kg to pounds in part (a) and to change 15 pounds to kg in part (b). Errors were usually due to misreading the vertical scale. In part (c), some students chose to convert each of the four weights to pounds before adding them to find the total weight of the boxes and this gave plenty of opportunity for making errors. Students who added the four weights before converting to pounds or converted the maximum weight of 2800 pounds to kg only had to carry out one conversion. Attempts at using the graph were mixed and it was not always clear from working how the conversions had been carried out. Students who used 10kg = 22 pounds were often successful but some used 1kg = 2 pounds and this resulted in a loss of accuracy.

Question 13

Many students gave fully correct answers, working out the correct total cost for the 4 people to travel by tram and by taxi and writing a correct conclusion. The most common error in working out the cost of the taxi was to multiply the booking fee by 4 and when working out the cost of the tram some students found the cost for only 3 people despite the question asking “Is it cheaper for all 4 people …”

Question 14

A good proportion of the students were able to add the two fractions correctly. The majority of those who attempted to use a suitable common denominator were successful although some made errors when writing the fractions to a common denominator. Many students, however, did not appreciate the need for a common denominator and the most common incorrect answer was $\frac{6}{12}$, from adding the numerators and adding the denominators.

Question 15

This proved to be a difficult question for students. Many did not attempt to work out the dimensions of the rectangular tile and a very common incorrect response was to simply multiply 21 by 12. Students who did give values for the length and width of the tile often failed to show the strategy they had used to work these out. Some of the students who found the correct dimensions of the tile were unable to go on and find the total area of the pattern.

Question 16

This question was answered very well. In part (i), most students listed multiples of 30 and multiples of 18 and identified 90, or 180, as a common multiple. Students were not quite as successful in part (ii). Instead of giving their common multiple as the number of table decorations some students divided it by 2 or multiplied it by 2.

Question 17

Many students showed a suitable strategy to answer this question and a pleasing number of fully correct responses were seen. Arithmetic errors, though, were very common. Most students showed a correct method to work out the volume of the box but 60 × 100 × 40 was sometimes worked out as 24 000, not 240 000. Dividing 240 000 by 8000 proved problematic for some, as did dividing 70 by 2.50 for those students who decided to work out how many bags of grit could be bought for £70.

Summary

Based on their performance on this paper, students should:

- read each question carefully to ensure that all information is used appropriately
- take care with arithmetic in order to avoid careless errors
- read scales carefully when using graphs
- remember to first find a common denominator when adding or subtracting fractions

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