Examiners' Report/
Principal Examiner Feedback

Summer 2013

International GCSE Mathematics A
(4MA0) Paper 1FR

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General comments

This paper gave students the chance to demonstrate positive achievement throughout the paper. Many correct answers were seen to all questions right the way through the paper.

Whilst most students showed their working, some students lost marks by failing to do so. This is equally true when it comes to writing down answers from their calculators. Marks were frequently lost in Questions 22 and 23 when students went straight to an incorrectly rounded answer rather than first writing down the full answer shown on their calculator. Similarly, at the start of the paper some students went straight to the final answer when asked to give a fraction or ratio in its simplest form. Marks were sometimes lost when the only fraction or ratio written down was incorrect. Students would be well advised to write down the initial, unsimplified, fraction or ratio and then cancel.

Question 1

It was rare to see an incorrect answer to part (a). In part (b) a small number of students gave 0.25% rather than 25% as the percentage equivalent of $\frac{1}{4}$.

Part (c) proved to be more challenging with a significant number of students either drawing in no lines of symmetry or drawing in only the vertical line of symmetry.

Question 2

This question was generally well answered. In part (e) the incorrect answers "116" and "−116" were seen almost as frequently as the correct answer. In part (g), very occasionally, a candidate would get to the right answer of $\frac{24}{25}$ but then incorrectly cancel further and therefore lose the accuracy mark.

Question 3

Students demonstrated a good level of understanding in both the interpretation and drawing of dual bar charts. Some students tended, incorrectly, to give a fraction rather than a ratio for part (d). Others went straight to the simplified answer which, if correct, scored full marks but, if incorrect, no marks could be awarded. Students would be well advised to write down the initial, unsimplified, fraction or ratio and then cancel.

Question 4

A common error in part (b) was to multiply rather than divide by 2, students who made this error would have then obtained an incorrect car length of 17 metres. A number of students did not realise the connection between the two parts of the question.

Question 5

This question was generally well answered although 'square' rather than 'cube' was occasionally seen for shape (i).

Question 6

The hands drawn on the clock face in part (b) were sometimes ambiguous. It is important that it is possible to distinguish between the hour hand and the minute hand.

Question 7

In part (b) those who knew how to work out the range generally got full marks although a few gave the answer as 42 seconds rather than 0.42 seconds and some students left the answer as 10.78 - 11.2 or similar. Some students incorrectly identified 10.98 rather than 10.78 as the minimum value.

In part (c) some students failed to identify the two middle numbers, sometimes copying out the numbers incorrectly. Following the identification of the correct middle numbers, errors occasionally occurred in then finding the mean of these numbers.

Question 8

"4.7" and "5" were common incorrect answers for part (a). A significant number of students failed to think through this problem from a real-life perspective and simply applied the 'normal' rules of rounding. Following an incorrect answer of 5 in part (a), "10" was not accepted as an answer for part (b) as this represented the amount of space in the 5th box, not the number of CDs left over.

Question 9

The only error that was occasionally seen in part (a) was to have four squares where there should have been three. Parts (b) and (c) were both well answered. There was slightly less success in part (d). $T =$ was omitted from some solutions, others interchanged T and P and some students gave P as the subject of the formula.

Question 10

The correct answer of $80°$ was given by the majority of students. Occasionally, the wrong answer of $50°$ was seen.

Question 11

Part (a) was well answered. The common error in part (b) was to find the square root rather than the cube root. In part (c), "27" was a common incorrect answer.

Question 12

In part (a) the most common method seen was to convert the fractions to decimals although sometimes equivalent fractions were used. Some students correctly converted the fractions into decimal equivalents, but then placed the fractions in the incorrect order. Part (b) was not as well answered as some students did not identify that, in order to solve the question, they needed to find a common denominator.

Question 13

Part (a)(i) was invariably correct. In part (a)(ii), "q^{15}", "$3q^{15}$" and "q^{125}" were common incorrect answers. Success was more evident in (a)(iii) where few incorrect answers were seen.

Question 14

Students who understood how to answer the question generally gained full marks. However, students who chose to start with 90÷42 often lost the final accuracy mark through premature rounding or else had an incorrect second step, multiplying 90÷42 by 135 rather than dividing 135 by 90÷42.

Question 15

It is important that students state all three pieces of information required to score full marks. Of the three necessary pieces of information required, it was the centre of enlargement that was most frequently missing or incorrect. In part (b) a significant number of students reflected the shape in the y axis rather than in the line AB. $x = 2$ rather than $y = 2$ was frequently seen in part (c).

Question 16

Some students made errors in adding the given decimals in part (a) with 0.3, 0.35 and 0.15 added incorrectly to give 0.57 (0.03 was used instead of 0.3). Provided it was clear that the candidate had attempted to sum the given probabilities and subtract the result from 1 then the method mark could be awarded but an answer alone of 0.47 with no working scored no marks. Very occasionally, the wrong probability was used in part (b) suggesting that more attention needs to be paid to reading the question carefully.

Students who gave their final answer as $\dfrac{6}{40}$ in part (b) only gained one of the two available marks.

Question 17

Success in this question was directly related to the student's ability to deal with 2 hours and 15 minutes. Some students answered the question using a journey time of 2 hours only and so gained no marks. For others, errors fell into one of two categories. Students either wrote 2 hours 15 minutes incorrectly as 2.15 (rather than 2.25) or worked initially in minutes. Those who worked in minutes generally found an answer in km/min and then either didn't realise the need to convert into km/h or else multiplied by 100 rather than 60 in an attempt to do so.

Question 18

The most commonly seen errors in part (a) were to make 32 out of 60 into a percentage or to use 3 or 9 instead of 6. Some students lost the accuracy mark as the correct answer to the question (18.75%) was never seen with students going straight to an answer of 19. Where there is no requirement in the question to give a rounded answer, the full answer should always be given.

In part (b) it was relatively common to see the mean given as the final answer rather than the total time spent. Indeed, some students went straight to the mean. It is imperative that students read the question carefully and give the answer that is asked for in the demand. Some students used the values at the ends of the intervals rather than the mid-interval values.

Question 19

In this question, clear algebraic working was required and this was seen in almost all responses. However, not all working was correct, as many students had problems dealing with the fraction. From those who made a correct start, the equation $3x = 7 - 2x$ was seen, but this was sometimes followed by the incorrect $3x - 2x = 7$ and a final incorrect answer of 7.

Question 20

Although some students confused the union and intersection symbols, part (a)(i) was well answered. There was slightly less success in part (a)(ii) where some students gave all the letters (ie repeated the letters u,p,e and r).

In part (b) some students gave the answer very succinctly with the correct statement $X \cap Y = \{2, 3\}$. Others gave the same information in a written explanation. A common error was to identify 1 as both a prime number and factor of 12. Some students ticked 'yes' and then proceeded to explain that 2 and 3 are members of both X and Y; the fact that 'yes' was ticked meant that the mark could not be awarded.

Question 21

A significant number of students did not acknowledge the instruction in part (a) to give the answer in index form and therefore failed to score any marks. 9^9 and 81^{14} were common incorrect answers to part (a)(i). Some correct answers to part (b) were seen, but many students made an initial error, writing $5^{n+3} = 5^{24}$ and then concluding that $n = 8$. There were a number of non-responses to this question.

Question 22

A significant number of students lost the accuracy mark by going straight to an incorrect rounded answer (usually 684) without first writing down the full answer from their calculator. Other errors included using 22 rather than 11 as the radius of the cylinder and use of the wrong formula for the volume, usually $2\pi rh$ rather than $\pi r^2 h$.

Question 23

The majority of students used Pythagoras's Theorem correctly and gained full marks. However, some students added rather than subtracted the squares of the given sides getting the common incorrect answer of 17.8 cm.

Question 24

The majority of responses to this question scored either full marks or no marks. Students who failed to score often did one of the following:
- offered no response to the question,
- used the wrong operation when attempting to eliminate a variable,
- or made arithmetic errors.

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