



Examiners' Report
Principal Examiner Feedback

January 2018

Pearson Edexcel International GCSE
In Mathematics A (4MA0) Paper 1FR

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Well prepared students were able to tackle all questions on the paper. It was clear that, in places, students failed to read the question sufficiently carefully. Care should be taken to ensure that the final answer does satisfy the original question.

Students would be well advised to learn how to apply the various metric conversions such as centimetre to metre and metre to kilometre.

Report on individual questions

Question 1

Students performed well in part (a), with most gaining one mark. In part (b) most gained one mark; those that didn't usually incorrectly copied one of the values. In part (ci) a variety of incorrect answers were seen. Part (cii) was answered very well, with most students gaining one mark.

Question 2

Part (a) was answered very well with most students giving an answer in range with the correct units. Students should be encouraged to read the question carefully as some gave a value in range without units. For part (bi) almost all students knew the correct answer of acute. For (bii) most gave an angle in range, however some students gave an incorrect answer of '130', probably from reading their protractor incorrectly.

Question 3

This question was answered well as the majority of students were able to gain full marks. Of those that didn't gain full marks, most either made arithmetic errors (which could be avoided if students made use of their calculators) or failed to include one of the number of men, women or children in their total.

Question 4

In part (a) and (b) most students gave the correct answer, generally continuing the sequence to find the required values. Most students managed to gain 1 mark for part (c) and a variety of answers were seen. Some students recognised the sequence was odd and 102 was even, some found the n^{th} term and solved $4n - 1 = 102$. Other students found the terms in the sequence before and after 102 (99, 103).

Question 5

In part (a) most students gave the correct answer, the majority of those that didn't gave an answer of 8, most probably confusing perimeter with area. There were mixed results in part (b) with a large number of students drawing a shape 4 times the size of R, doubling both the length and width. Some students did manage to draw a shape of area 16 cm^2 , either the correct square for full marks or a 2 cm by 8 cm rectangle for one mark.

Question 6

This question was answered well with most students giving a correct answer of 62 or -62. Of those that didn't gain two marks, many gained no marks with an incorrect method of adding both temperatures.

Question 7

In part (a) almost all students gave a correct answer of 160. In part (b) most students were able to gain two marks with a correct answer of 190; those that didn't usually gained one mark for subtracting two areas where one was correct. Part (c) was answered very well with most students gaining one mark. Students also fared well in part (d) with almost all picking up two marks. Those that didn't generally used an incorrect value for 7% such as 0.7 or $\frac{7}{10}$.

Question 8

For part (a), students generally gained at least one mark for converting the values into a common form (usually decimals) and most were able to gain two marks for a correct order. Part (b) was also answered well with many students gaining two marks. Of those that didn't most gained one mark by giving two correct factors of 24, but not summing to 18.

Question 9

In part (ai), many students failed to order the values before beginning a process to find the median, leading to an incorrect answer. For (a ii), most students gained one mark as they were able to find a percentage for the number of lengths greater than their median. In part (b), many students were able to gain two marks for a correct mean. There were a number of students who confused the methods for median and mean in parts (ai) and (b). Part (c) saw mixed results with most students scoring two marks or no marks. Those that did not gain two marks did not understand the information given in the question; many saw it as a 'reverse mean' problem and took 32 mm to be the 'new' mean.

Question 10

For part (a), almost all students gave the correct answer. For part (b) most students gave the correct answer, those that didn't had not taken into account that the tile had to be grey and gave an answer of $\frac{2}{7}$. In part (c) most students gained one mark, however some students did not read the question properly and gave an answer of $\frac{2}{7}$. Part (d) unfortunately saw most students failing to gain two marks. Many were unable to process the information given in the question and use it to form an answer. The most common successful method was a systematic process of adding one more grey tile with a letter C.

Question 11

In part (a) almost all students gained one mark, with those that didn't giving a common incorrect answer of 4, presumably from doing $8 \div 2$. For part (b), again most students gained one mark; those that didn't gave an answer of 13. Part (c) saw a large number of students gaining two marks for a correct answer. For those that didn't, most scored no marks as they were unable to simplify $2t + 2t$ before solving the equation.

Question 12

Part (a) saw a good number of students getting one mark for the correct answer. Unfortunately there were a number of students who labelled *FPA* as 70° on the diagram but

then gave a different value on the answer line, indicating a lack of understanding of three-letter angle notation. Part (b) was answered well with many students gaining two marks. For those that didn't, many got as far as $2x = 110$ but then failed to divide by 2 to find x .

Question 13

For part (a) almost all students gained one mark, the most common incorrect solution being $30 \div 2 = 15$. In part (b) most students gained two marks. Those who didn't failed to substitute values for c and d , instead showing incorrect algebra processes leading to answers such as $5cd$. Part (c) was less well-answered with few students gaining full marks. Some students were able to pick up some marks for a correct expression for a length. Students should be encouraged to work on simplifying algebraic terms as many incorrect processes were seen, such as $2 \times x = x^2$.

Question 14

This question saw a variety of different marks awarded. Some students were able to process the information in the question and gain full marks. Of those that didn't, a significant number did manage to gain some marks for a start to the process or getting as far as $2.5\text{kg of onions} = 1.75 \text{ dinars}$. Unfortunately these students could not then go on to use a process to find the cost of 1kg.

Question 15

To score marks on this question, students had to begin by using a correct method to find angle ADE . Unfortunately this was rarely seen and therefore many students went onto to gain no marks. Correct workings to show the value of 56 was often seen in the space below the diagram but students did not use three-letter angle notation or label the values on the diagram and therefore did not gain credit. For those students who did manage to find angle ADE , it was pleasing to see many go onto gain full marks.

Question 16

It was pleasing to see a significant number of students able to give a correct answer in range and gain full marks on this question. Of those that didn't, the most common error was to work with euros, but then fail to convert their difference into US dollars, therefore gaining two marks.

Question 17

Part (a) for this algebra question was answered very well, with most students gaining two marks. For those that didn't, the most common error was to multiply all four terms by 5, instead of just the two in the bracket, thereby gaining no marks. For part (b) most students gained one mark, those that didn't generally multiplied rather than added the powers. In part (c) there were a variety of answers given, many were correct but the most common incorrect answers given were m^7 and m^{64} .

Question 18

This familiar question proved to be a successful one for students as the majority picked up marks on at least one of the parts. Part (a) was answered very well with most students able to

correctly draw a line between the given x -values. Those that didn't generally did not pick up any marks – possibly due to the fact that, due to the absence of a table of values, they were unsure how to start the solution. Part (b) proved to be a problem for a small number of students, with some substituting 50 in for x instead of y .

Question 19

This area and perimeter question was answered with varying degrees of success. Most students could work with the area of a trapezium formula but many then failed to square root to find the length of the square, therefore gaining one mark only. Of those that did, some then gave an answer of 18, instead of going on to find the perimeter of the square. Only a small number of students managed to gain full marks on this question.

Question 20

This circle question saw a mixed degree of success for students. For students not gaining full marks, the most common errors were incorrect use of circumference formula (using 80 as the radius), failure to correctly calculate Sachin's distance and to prematurely round values resulting in an answer out of range.

Question 21

There were a pleasing number of students who gained full marks on this question. Some students failed to find the percentage profit, instead giving the final percentage in relation to the initial expenditure (165%); this answer gained three marks. Some students were unable to work with percentages but many of these still managed to gain two marks for finding an income gained from some of the lemons.

Question 22

This scale ratio question saw most students gain at least one mark. Most students gained either one mark or full marks, as those who were able to make the first step either went on to reach the correct answer or could not complete their method. For those that only gained one mark, students did not use both the cm to m and m to km conversions (or equivalent).

Question 23

This fraction question saw most students trying to work with 320. A significant number of students were able to gain full marks; of those that didn't some gained two marks for an answer of 230, but then failed to go on to express their answer as a fraction. There were many students who did not know how to work with the fractions and 320, leading to an array of incorrect methods and answers, some greater than 1.

Question 24

Part (a) gave a mixed set of responses, some students clearly understood the notation and gave a correct list of values, whereas others did not, giving the most common incorrect answer of 6, 12. For part (b) many students were able to give all four correct values. Those that didn't usually gained no marks as they were unsure how to go about answering the question, although some did pick up one mark for finding 3 correct values.

Question 25

Considering this was the final question of the paper, it was pleasing to see a significant number of students gaining full marks. There were a large number of students who scored three marks for a complete method that had lost accuracy due to premature rounding. Some students did not know how to begin the question and some attempted trigonometry; these methods generally scored no marks.

Summary

Based on their performance in this paper, students should:

- ensure that they read the question carefully and check that their final answer does answer the set question; at times the answer given, while worthy of some method marks, did not answer the set question
- learn the different methods for finding mean, median, mode and range and ensure they are clear in regards to the differences between them
- practice how to read, interpret and use three-letter notation for angles and label values for angles on diagrams
- learn how to convert between different metric units of measure and how to work with scale ratios
- practice direct proportion problems, including those involving money and units of measure
- practice basic algebraic simplification processes such as $2 \times x = 2x$ and $x \times x = x^2$
- ensure that values are not rounded prematurely in questions.