Examiners' Report/
Principal Examiner Feedback

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Pearson Edexcel International GCSE
Mathematics A(4MA0)

Pearson Edexcel Level 1/Level 2
Certificate
Mathematics A (KMA0)

Paper 1F

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Most questions seemed accessible to students at this tier but, as expected, those towards the end of the paper proved more challenging. On the whole, students seemed to understand the need to show the method that led to their answer although it was apparent that some students made arithmetic errors when the use of their calculator might have been more appropriate.

Question 1
Each part of this question proved to be of similar difficulty to the students. Those who made errors offered a number of alternatives such as metres for centimetres, kilograms for grams and litres for millilitres. A small number of students confused mass with length and volume with mass, etc.

Question 2
This proved accessible to all but the least able students. Those who failed to score sometimes subtracted the cost of one stamp from £10. Others failed to show working for 8 × 0.60 and so were penalised more heavily if they made an error. Some students added 0.6 to itself eight times which is fine, if a little inefficient.

Question 3
This was done well by most students. A large number thought one letter cost 110 pence in (a). Follow through was allowed in (b) and these students often gained a mark for an answer of 5.5. Some drew 17 envelopes in (c) whilst others drew half of an envelope rather than a quarter. In (d), those who were familiar with the mode were able to answer correctly but some either had no awareness of it or confused it with the median.

Question 4
Part (a) was answered correctly by almost all students. Part (b) proved to be a little more challenging with many misreading the scale and putting their arrow at 98.6.

Question 5
This was a standard number sequence question. Apart from the occasional arithmetic error, students were successful at attempting (a) and (b). Although most mentioned the need to add 7 in (b), others described the pattern in terms of the difference. Part (c) proved to be more of a challenge. Some made a list of the first twenty terms of the sequence. Others found the 19th or 21st term of the sequence. Very few found the formula for the nth term.

Question 6
Students found rounding to 1 decimal place in (b) more challenging than to the nearest thousand or to 3 significant figures. In (a), some students rounded to the nearest 10 or 100. Others failed to round up which was also true in (b).

Question 7
Only a small minority of students were unable to score full marks in (a). Some made arithmetic errors without showing working and others failed to subtract 44 from 100. In (b), the most common mistake was to leave the answer in an unsimplified state or to incorrectly simplify $\frac{24}{100}$. Students approached (c) in a number of ways. Correct methods included the build up approach as well as $\frac{20}{100} \times 75$. Incorrect methods included $\frac{20}{75} \times 100$.

Question 8
Students were most able to arrange the four discs to make the smallest possible number in (b). Some didn't seem to be familiar with square numbers and fewer with cube numbers. In (e), non-prime odd numbers were often given as the answer.

Question 9
Most students were able to measure the line in (a) although some gave their answer in millimetres. Some confused perimeter with area in (c) and (d) and others made arithmetic errors leading to their answer. In (e), the most common error was to translate the shape although some reflected it in a vertical line other than the one given.

Question 10
Parts (a) and (b) were accessible to all but a relatively small number of students. The most common error in (b) was to multiply 875 by 2.5. In (c), correct answers were limited to the more able students. Some scored one mark for a correct formula such as n = $\frac{V}{2.5}$ although others failed to score for an answer of n = 2.5V.

Question 11
Students who were familiar with the mean and the range usually scored well in (a) and (b) although the mean was sometimes confused with the median. Some failed to score because they gave mean for range and vice versa, some thought the range was 4 to 67 and others lost marks in (b) because of a misunderstanding of BIDMAS. Students who failed to score in (c) often didn't link the question to the list of numbers at the start of the question. An answer of $\frac{1}{6}$ was sometimes given, which scored one mark.

Question 12
This question was in some part accessible to most students although only those achieving a high grade usually managed to score full marks. Those who were able to score in (a) were then able to give a correct reason in (b) although many unnecessarily gave calculations as part of their reason. A number of incorrect answers in (c) were seen, including 70° and 125°. Likewise in (d), 55° was sometimes given as an answer and others took 55 from 180 before dividing by 2. This demonstrated a lack of understanding of which lengths were the same in the isosceles triangle.

Question 13
The vast majority of students managed to score in this question. Some lost marks because they used 1.2 rather than 120 in their calculation in (a) and/or (b). Others divided when they should have multiplied in (a) and multiplied when they should have divided in (b). Similar errors were made in (c) although some scored one mark for a partially correct conversion.

Question 14
A large proportion of students were able to find the value 2.5^3 although some multiplied 2.5 by 3. Those who lost marks did so by calculating $\frac{451.4}{14.1} + 10.3 = 42.31$ in (b). In (c), some evaluated $\sqrt{7.8^2} - 7.2^2 = -44.04$ and others worked out $\sqrt{7.8^2 - 7.2^2} = 7.8 - 7.2 = 0.6$.

Question 15
Most students were able to score full marks in (a). Those who didn't sometimes added 5 to 26 and then divided by 3. Others scored one mark for 3*x* = 21 and then made an error such as subtracting 3. To achieve any marks in (b), at least one bracket needed to be expanded correctly. This was mainly accessible to the higher grade students although even they often failed to score more than one mark. Some of the expansion errors included 20y – 1 and 18y + 7. Most students were unable to even attempt to manipulate the equation. More able students still often found the simplification and rearrangement of the equation difficult, often ending up with equations such as 38y = 25, –2y = 25 and 2y = 17.

Question 16
Students who managed to score any marks at all usually did so by finding the area of a rectangle, typically for 15 x 12. Some students confused area with perimeter whilst others multiplied base by height in an attempt to find the area of a triangle. Only the higher grade students were able to provide a fully correct method.

Question 17
This proved not to be accessible to a high proportion of students. Most were not aware how to calculate either exterior or interior angles. Some did score one mark for evaluating the size of one interior angle although others scored zero for finding the size of one exterior angle. Apart from this most solutions demonstrated a lack of awareness of the topic.

Question 18
Most students scored well in (a). Errors in (a)(i) included 0.24, and a fraction with an incorrect denominator. In (a)(ii), $\frac{20}{72}$ and/or $\frac{28}{72}$ were sometimes given as the answer. Part (b) proved more challenging but was still accessible to most students. Some added 0.01 to 0.08 but failed to subtract from 1. A number of responses were seen in (c), including $\frac{60}{20}$, $\frac{60}{20} \times 100$, and 20×60.

Question 19
The majority of students failed to score more than one mark in total. In (a) many subtracted 125 from 153 for one mark but then either gave 28 as the answer or used 28 incorrectly. In (b), a very common error was to treat 153 cm as 100% and increase it by 15%.

Question 20
In (a), students were often unable to attempt expanding brackets. Those who were able normally lost one mark for 6c – 15 – 2c – 8. It was unusual to see a fully correct answer in (b). Occasionally one mark was scored, usually for writing their answer as a product that included 16. As in (a), students weren't always able to attempt to expand double brackets in (c). Those who did, sometimes only multiplied the first terms in each bracket and the last terms in each bracket. Others added the last two terms of each brackets whilst some made errors when simplifying.

Question 21
Over half of all students scored zero in total. Many were unfamiliar with Pythagoras' Theorem and the trigonometric ratios. Those who had an awareness that part (a) required the use of Pythagoras' Theorem often added 15^2 to 10^2. In (b), students sometimes used sine or cosine or Pythagoras' Theorem. Alternative methods were rarely correct.

Summary
- It was apparent from question 1 that students would benefit from having a better awareness of metric units.
- When asked to give a reason for an angle related question, it is only necessary to state the rule, not the calculation that leads to the answer.
- When asked to show clear algebraic working, as in question 15, a trial and improvement approach should be avoided because it is likely to result in no marks.
- The formula for the area of a triangle is not part of the formulae sheet and therefore students should be encouraged to learn it.
- It was clear from responses to question 17 that fewer than expected students had an understanding of interior angles.

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