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Examiners' Report
Principal Examiner Feedback

Summer 2017

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

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Students who were well prepared for this paper were able to make a good attempt at all questions.

On the whole, working was shown and easy to follow through.

Despite this being a paper where the use of a calculator was allowed, a number of careless arithmetic errors were seen. It was notable that students were frequently reluctant to use their calculator to work out a percentage of a quantity, in this case 35% of 120. Build up methods are certainly valid methods but, too frequently, incorrect values are given with no working so no marks can be awarded. There were also errors seen when working with negative number arithmetic.

1 Counting the squares was usually done correctly in part (a) although an answer of 15 probably came from slight miscount from some candidates. Others multiplied the height by the width of the shape so gave the incorrect answer of 40. Counting in order to find the perimeter proved more problematic with 22 (4 too few) and 30 (4 too many) being the common incorrect answers. There was evidence that some candidates remain confused between perimeter and area.

Surprisingly for this stage in the paper there were a significant number of blank responses in part (c). Plenty of correct answers were seen but both 1 and 4 were common incorrect answers. 180^{o} was given by a few candidates who clearly partially understood the question. Candidates usually gained at least one mark in part (d) for one correct line of symmetry. Some of those that drew in both lines of symmetry sometimes also drew in the diagonals and so gained just one of the two available marks.

2 When the answer to part (a) was incorrect, the answer given was usually 'hippopotamus'. It was equally rare to see an incorrect answer in (b); when it did occur the number given was usually 'two thousand and six' rather than 'two thousand five hundred and six'. More errors were seen in part (c) with tenths being the most common incorrect answer. There were more errors seen in part (d) than in the first three parts of the question; 1000 and 1100 being the most frequently seen errors. Part (e) was correct more often than not. The incorrect response, when there was one, was 2506. Part (f) was well done.

3 Candidates coped well with this question on sequences. Candidates found part (c) the most demanding with some making an error when writing down a list of the terms; this was the most common method of solution. Occasionally in part (d) 34×7 was evaluated rather than $241 - 7$.

4 It was extremely rare to see an incorrect answer in either of the first two parts. Part (c) was also done well with a variety of methods seen. The majority of candidates either stated that he was wrong because one quarter of 20 was 5 not 4 or that the fraction should be $\frac{1}{5}$ rather than $\frac{1}{4}$. Some still have difficulty in

writing down a ratio; those who were able to write down a correct ratio in part (d) sometimes failed to simplify it correctly.

5 A common error in part (a) was 4 from those candidates who found the middle number of the list of numbers as written in the question rather than first rewriting the numbers in either ascending or descending order. Whilst the range was often calculated in part (b), the value of the mean was a common incorrect answer.

6 The first two parts of this question were well done with candidates able to identify the city with the lowest temperature and work out a difference. Part (c) proved more demanding with −5 and 5 being common incorrect answers. Some gave an answer of 17 rather than the correct −17.

7 Parts (a) and (b) were invariably correct. Where there was an error it was usually 3 shaded triangles in (a) and an answer of 4.0 or $\frac{2}{5}$ in (b). The substitution was usually done correctly in part (c) but, following the evaluation of 6×3.2 and 3×−4, the resulting numbers were sometimes added.

8 The most likely part to be correct was (i). The answer to (iii) was generally a number from those in the box but a variety of different numbers were seen in (ii) arising from attempts to find the cube root of 32 768.

9 Unsurprisingly, diameter was sometimes seen as an incorrect answer in (ai) but there were also other incorrect terms such as circumference, straight line and chord seen. The angle given in part (aii) was usually within the range given on the mark scheme but other answers such as 90^o and 180^o were also given. The angle in part (bi) was usually correct but working was frequently given instead of a reason in part (bii). However, more candidates were able to supply a correct reason for (aii) than for (bii) where the words ‘ corresponding angle’ proved rather elusive.

10 In part (a), B was generally correct but A was sometimes marked at 0. Incorrect answers in part (b) included 0.3 and 0.2. Some candidates had difficulty with place value when adding decimals, giving the sum of 0.3 and 0.25 as 0.28.

11 In part (a) x^6 was the most common incorrect answer and appeared more frequently than the correct answer of $3x^2$. The signs caused problems for many in part (b) with $10e$ rather than $-2e$ featuring in many answers. The answer given in part (c) was sometimes insufficiently simplified with $2a \times 4b$ frequently seen. In part (d) 3 was a very common incorrect answer seen almost as frequently as the correct answer of 48. The common incorrect answer in part (e) was 7; candidates who showed an algebraic method of solution usually got to the correct answer.

12 This multi-stage problem was correctly answered by many candidates; a further good number, who lost the accuracy mark by working with rounded values, still gained the three method marks. Almost all were able at least to make a start, usually by finding one-sixth of $120. One common

misinterpretation was to ignore the words 'total cost' the second time they appeared and wrongly calculate a percentage or fraction of the remaining amount.

13 The answer to part (a) was generally correct although some failed to gain the mark by including pm in their answer. In (b), working out the number of minutes between 6 07 and 7 35 was correctly done by many. However, a noticeable number gave the difference between the times as 128 minutes, failing to recognise that this was 1 hour and 28 minutes. Some started their calculation at 6 00 and then added on the 7 minutes instead of subtracting it. Other attempts were extremely muddled. A high number of candidates struggled in part (c) to start at 7 35 and find the end time of a journey that lasted 8 hours 42 minutes. Surprisingly many made an error just with adding on 8 hours and even more with trying to deal with the 35 and 42. For those candidates who were able to arrive at the correct time, a mark was often lost by failing to give the time using the 12-hour clock.

14 There were a good number of correct answers in part (a) but $35a$ was a very common incorrect answer. There was a similar level of success in part (b) where $3w^2$ was a common incorrect answer. In (c), the correct expansion was fairly often seen, as were answers with one of the two terms correct. Some candidates tried wrongly to combine their two terms, losing a mark. Expanding two brackets in (d) was at least partially understood by many, with candidates able to gain two marks for a fully correct and simplified expression and others gaining a mark for finding at least 3 correct terms. Where there was some understanding, a mark was often lost for not dealing with the positive and negative signs correctly. Wrongly combining terms was again seen regularly.

15 In (a), many candidates were able to enlarge a shape with scale factor 2; however, only the minority were able correctly to use the centre (7,3) so gained only one of the two marks. Partially enlarged shapes were seen and there were a noticeable number of non-responses. The rotation in (b) produced more fully correct responses than in (a) and one mark was frequently awarded for the rotated image being in the wrong position on the grid.

16 An encouraging number of candidates gained full marks, more in part (a) where they had to calculate an amount needed for 10 people when given the amount for 4 people. One error seen regularly was working out that this was 6 extra people and multiplying the amount for 4 people by 6; another was simply multiplying the given amount for 4 people by 10. In (b), many made a start and found that the amount of blackberries in this question was 8 times the amount in the recipe but many stopped at this point to give 8 as their answer, rather than multiplying it by 4 to give the correct answer. Also common was to add this 8 onto 4.

17 14 was a common incorrect answer in (a) as were both 11 and $2 < L \leq 3$ from those who were attempting to find the median rather than the modal class. In (b), finding the mean from grouped data presented in a frequency table enabled some candidates to gain the full 4 marks. Others used end-points

rather than midpoints but could still gain credit for their method. Division by 5, being the number of group intervals in the table, was much in evidence. Sum of midpoints, sum of end-points and sum of frequencies, usually divided by 5, were also frequently seen.

18 An encouraging number of candidates in (a) were able to find the correct value for a given calculation using their calculator efficiently. Not surprisingly, others did not appreciate that the order of operations needed to be considered before simply entering the values. Writing in part (b) their answer to part (a) correct to 3 significant figures defeated many; in particular, many answers had 3 decimal places, being either rounded or truncated from the answer in (a).

19 Overall, there was a pleasing success rate with drawing the graph of $y = 2x + 4$ Where the full 3 marks could not be awarded, a variety of partially correct responses (including correct points not joined or a line with gradient of 2) gained candidates some credit. However, there were also a high number of responses with seemingly random points and lines, and of blanks.

20 A minority of candidates were able correctly to use trigonometry to find the length of the hypotenuse using cosine. Many, however, worked as if they'd been given they hypotenuse and been asked to find the length of the adjacent side. A noticeable number started by finding the length of the opposite side using tangent but usually gave this as their final answer rather than going on to use Pythagoras' theorem to find the required length. Other attempts were completely muddled, often ignoring the fact that one value was a length and the other an angle and combining the numbers in a meaningless way.

21 Again, only a minority were able to score both marks here for an accurate construction of an angle bisector, although a few more gained one mark for the correct line without evidence of the construction. Other responses showed a variety of irrelevant compass drawn arcs, some accurate perpendicular bisectors of the line QR, and there were a noticeable number of blanks.

22 It was pleasing to see some candidates achieve full marks on both parts of this percentage question, although this was rare. Working out a percentage increase in part (a) had a slightly higher success rate than part (b) but nevertheless most candidates were not able to progress beyond finding the difference between the two amounts. Trial and improvement was in evidence as a method but hardly ever did candidates then arrive at the correct percentage. In (b), the demand of the question was widely misinterpreted; given that one pay figure was 95% of a later pay figure and asked to find this later value, most took this to mean either increase or decrease the given pay figure by 5%

Summary
Based on their performance in this paper, students should:

- learn statistical vocabulary : for example, median, range
- ensure that, when writing down a ratio, the numbers are given in the correct order
- practise arithmetic using negative numbers
- practise working out a percentage of a quantity using a calculator
- read the question carefully and review their answer to ensure that the question set is the one that has been answered
- practise writing time as a decimal.

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