Pearson Edexcel

Examiners' Report
Principal Examiner Feedback

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Pearson Edexcel International GCSE
Mathematics A (4MA1) Paper 1F

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International GCSE Mathematics
4MA1 1F Principal Examiner's Report

This was an unusual examination series, with a very small entry. A large proportion of responses were of a high standard, but there was significant variation in quality, with many leaving questions blank.

On the whole, working was shown, but it is still the case that many students would do well to show us all the stages in their work, especially when a calculator is used.

Problem solving questions often cause students problems and the best advice for them is to always try to do what they can, even if they cannot complete the question, as valuable method marks can often be gained.

Question 1

(1a) The vast majority of candidates were able to select the two fractions equivalent to $\frac{1}{5}$, although some ticked just one.

(1b) Naming mathematical shapes is often problematic for foundation tier candidates, and common incorrect answers were 'hexagon' or 'decagon'

(1c) A fairly high proportional of candidates were able to shade in the correct fraction of the octagon, however some candidates simply shaded in 3 regions, failing to take account of the denominator on the fraction given.

(1d) Nearly all candidates were able to find $\frac{3}{4}$ of 56.

Question 2

(2a) This question was answered correctly by the vast majority of candidates, identifying the largest number in the table and selecting Sevilla as their answer.

(2b) Answered well by most candidates, the common error was to truncate and write 65 000.

(2c) For such an early question on the paper, this was not answered very well, with candidates often giving the answer of 'six' or '6', ignoring the place value of the digit.

(2d) The majority of candidates were able to simplify the ratio to give the correct answer.

(2e) This part was also well answered with correct answers from most candidates.

Question 3

All parts of this question were answered well, with candidates having no trouble identifying the scale being used, and both reading off values and drawing bars with great success. Some candidates lost marks on part (c) for not shading the correct bar, or not shading at all.

Question 4

The first two parts of this question were answered with good levels of success, but part (c) caused problems for many. The most common error was to add on four increments of 2, and also some candidates started with 7 rather than -7 as the temperature for Detroit.

Question 5
Candidates found the first part much easier than the second, with almost all candidates obtaining a correct answer to (a), but found (b) more difficult. Common errors in part (b) were to leave the price difference in dollars, or to use the exchange rate incorrectly and obtain a watch price of 98×1.75.

Question 6
(6a) The vast majority of candidates were able to write down the coordinates of *A* correctly
(6b) This part was one of the most poorly attempted questions on the paper, with the majority of candidates demonstrating no understanding on the definition of a bearing, let alone measuring it correctly with a protractor.
(6c) Measuring the length of *AB* was answered well by those candidates who clearly used a ruler. Unfortunately some just counted squares and gave an answer of 6 or 8, and some even went on to use Pythagoras' Theorem to calculate the length of the line, which did not gain any credit.
(6d) This part was not well answered, with many candidates not able to use the scale and measured distance to work out the distance that Aaron cycled.
(6e) A correct answer given by most candidates, the common errors were to lose track of hours, and give 3 hours 20 minutes, however some candidates obtained answers that demonstrated no understanding of time, possibly because they tried using a calculator to do this question.

Question 7
(7a) This part was answered well with nearly all candidates giving a correct answer.
(7b) Similarly, candidates were very successful with this part, however some candidates failed to simplify the number parts, giving an answer of $3a8b$.
(7c) The minus signs in this question caused problems, with a large number of candidates not attributing them correctly, giving answers of $7w$ or $+7y$ as part of their answer.
(7d) Correct factorisations were obtained by about half of the candidates, with many not understanding what was required. Incorrect partial factorisations occurred occasionally, with candidates attempting to factorise out 12 or even 16.

Question 8
Whilst many candidates were able to get a correct answer for part (a), they were less successful on the other parts which required a clear understanding of what was being asked for. For those candidates who were able to interpret the table correctly, it was a good source of marks, with the better candidates scoring full marks on this question. Common errors on part (c) were to include the 'same grade' numbers. Throughout this question, candidates would have been able to gain method marks if they had shown some working out, which was sadly lacking in most cases.

Question 9
This question was not answered very well, as many candidates did not identify a valid approach to calculate the area of the region. Successful responses commonly subtracted the small triangle from the larger *DEF*. Common errors were to mis-read the scale and identify 5 or 7 as the lengths, to use the area of a rectangle rather than triangle formula. Counting squares generally did not lead to a correct answer and should be discouraged for a question of this type.

Question 10
Both parts of this question were answered fairly well.
In part (a) many candidates were able to convert to a multiplication, although not all of those obtained the answer of $\frac{12}{10}$, or other suitable working to lead to the given result.
In part (b) many candidates were able to convert to a suitable common denominator, although some simply subtracted numerator and denominator, having failed to recall the appropriate strategy.

Question 11
This question was a good source of marks for most candidates – use of a calculator is something that many seem familiar with, and the correct answer was seen in the majority of cases. A few candidates made errors in part (b) by either truncating, or rounding to the incorrect number of significant figures (with some rounding to 2 decimal places instead).

Question 12
Part (a) of this question was not answered with a high degree of accuracy. Many students described multiple transformations, in particular translation or 'moving'. Those who stated a single transformation of enlargement often went on to score full marks.
In part (b) many students gained 1 mark for a reflection in the correct orientation, however only a minority managed to reflect in the correct line $x = 5$.

Question 13
Both parts of this question were answered well, with correct algebra seen in the majority of cases. Some weaker candidates struggled in particular with the expanding brackets in part (b), most often giving $2x$ instead of x^2, or incorrect signs on multiplication.

Question 14
With the absence of a clear instruction to use Pythagoras, weaker candidates struggled to make a start on this question. A very common error was to add the squares of sides, rather than to take away.

Question 15
Many candidates were able to score 2 marks on part (a), but then failed to gain any marks on part (b). A correct approach to part (b) was lacking from all but the best candidates, with common incorrect methods using $\frac{27}{57}$ leading to an answer of 3 seen.

Question 16
Many candidates were able to gain the first method mark for a correct expression for the area of the door, however a significant proportion of these were not able to make any further progress. Use of the area of a circle instead of semi circle meant that candidates were not able to gain the 4th method mark, and only a small proportion of candidates were able to make it all the way to a correct answer, as many forgot the detail about needing 2 coats of wood varnish.

Question 17
This question was one of the most challenging on the paper. Although a good number of candidates gained one mark for finding the area of one tile, not many were able to

construct and solve the equations needed to solve the problem. Of those who gave correct answers, many simply guessed and verified their answer, rather than using an algebraic approach.

Question 18
This question was challenging for foundation candidates. The most successful approach was to create a pair of simultaneous equations that could be solved. Unfortunately, many of the weaker candidates assumed that the apples and pears had the same price, and were not able to gain any marks at all.

Question 19
This question was answered well by a good number of candidates, obtaining a correct prime factorisation of the number 3600. Where candidates only used their calculator and did not show a suitable method (eg factor tree), then no marks were scored due to the instruction 'show your working clearly'.

Question 20
A correct answer was obtained by a good number of candidates, although many did score zero marks due to leaving this question blank, or giving a calculation that had no relation to the correct method. Candidates should be encouraged to show the working out (ie $5.48 \div 0.22$) as quite a few candidates missed out on all the marks due to giving an answer of 24.8 or 25 with no working shown.

Question 21
Responses to this question generally showed some correct algebra for a first step of working, however many candidates were not equipped to deal with a double ended inequality. Some candidates split it into two inequalities, however the more successful approach was to deal with all 3 terms at the same time, firstly adding 3, then dividing by 2.
In part (b), many candidates were not able to gain marks, as they had not obtained the answer of -2 or 4, or had lost the double ended inequality as part of their attempt at (a).

Question 22
Many candidates were able to use the density formula, although some did rearrange it incorrectly, however it was commonplace to award 2 marks for working out the volume correctly. After this, a large number of candidates struggled to make progress, either leaving the remainder of the question blank, or using incorrect or inappropriate formulae to work out the volume of the cylinder.

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

- Learn the mathematical names of 2D and 3D shapes
- Provide written reasons for angle methods when asked for ‘give a reason for each stage of your working’.
- Develop understanding of transformations, both applying and identifying transformations.
- Show written working for calculations, rather than just the answer.
- Use algebraic equations when solving simultaneous equations.
- Develop use of volume formulae, particularly for cylinders and other prisms.

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