Examiners' Report
Principal Examiner Feedback

Summer 2019

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

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4MA1 1FR June 2019 Principal Examiners Report

Question 1

It was pleasing to see the majority of this cohort pick up plenty of marks in the first half of this 4MA1 1FR paper. Questions targeting grades 1 to 3 were generally well answered and problem solving questions were given a good attempt. It is also pleasing to see students follow the instructions on the front page and show sufficient working, in particular on questions where the wording specifically asks for

Question 2

Questions targeting grades 4 and 5 were not answered well and this is certainly an area for improvement for this cohort. In particular, topics new to the specification including converting units of speed and pressure, force, area provided little success

Question 3

Students made an excellent start to this paper in general with the first part of this question yielding 2 marks for most. Part (b)(i) was answered very well with the majority of students able to give the correct answer of 2457. There were some students who confused an odd and even number which led to several giving a 4 digit number that ended in 5 or 7 for (b)(ii).

Question 4

This cohort has no issue with interpreting bar charts as almost all students gave correct answers of Vietnam and 30 for parts (a) and (b) respectively. Part (c) was also answered well with the majority of students drawing a bar of the correct height. In part (d) students were asked to show their working in the question and those that didn't were not able to gain any marks. Fortunately most were able to follow the instructions and go on to gain 1 or 2 marks. There were a small number of students who used 30 for the Cambodia height, presumably confusing this with the China bar.

Question 5

Part (a) of this fractions and percentages question was answered well with almost all able to give a correct simplified fraction. Some students gained 1 mark only by giving an answer of $\frac{72}{100}$. Part (b) was also answered well with most giving an answer of 75. This cohort know how to find a percentage of an amount as most were able to give an answer of 468. Part (d) was also answered well with most students gaining 2 marks. For those that didn't, many gained 1 mark for correctly converting $\frac{9}{20}$ or $\frac{4}{9}$ to a decimal.

Question 6

This shape drawing question required students to think about perimeter and area. In part (a) almost all knew how to draw a rectangle and it was pleasing to see a good number of fully correct answers. Some gave squares of length 3.5cm which also gained 2 marks. For those that didn't give a fully correct answer 1 mark could be gained for any rectangle. In part (b) it was common to see a right-angled triangle drawn for 1 mark. A good number of students were also able to give the correct area, with 6 by 4 and 8 by 3 being the most commonly seen correct answers.

Question 7

This familiar directed number question saw most students pick up 2 or 3 marks in total. Parts (a) and (b) were answered well with almost all students able to pick up 1 mark on each for answers of 14 and 18 respectively. −14 and −18 were also accepted for 1 mark. The answers given for part (c) were more varied; a good number of students still gave a correct answer of −12 but common incorrect answers of 12 and −28 were also seen.

Question 8

Labelling circle parts is clearly an area these students need to practise as almost half did not give a correct answer of tangent for part (a), with each of the other four options from the box seen several times as answers. Part (b) saw more success with almost all able to correctly draw a radius on the circle. Part (c) was also answered well with many students able to work with 360 correctly; the most common incorrect answer seen was 50 coming from 180 – 130.

Question 9

The first problem solving question of the paper saw students working with costs and change. There were a large number of students who gained the full 3 marks for an answer of £1.15. Some students picked up only 2 marks as they ended their method at £3.45, failing to divide by 3 to find the cost of one packet of crisps. One common incorrect method saw students fail to acknowledge that there were 4 packets of sandwiches and instead used one packet in their calculations.

Question 10

Part (a) of this algebra question was answered well with almost all students giving the correct answer of $4a$. Of those that didn't, the most common incorrect answer was a^4. Part (b) was poorly answered with less than half of the students giving the correct answer; missing the squared off c was frequently seen. Part (c) was answered well with most students giving the correct answer. There were some incorrect simplifications seen such as $11eg$ and $8e^2 + 3g^2$.

Solving one step equations proved no issue for this cohort as almost all gave the correct answer of 23 in part (d). These students were also competent when it came to factorising this linear expression as most gave a correct answer of 5(y + 3). Changing the subject proved to be a problem with around half giving the correct answer; it was common to see students simply swap y and H to give an answer of y = 3H – w, which gained 0 marks.

Question 11

This familiar probability question saw most students pick up 3 marks in part (a). There were a small number of students who gave the correct values but incorrect notation such as ratio, and some also gave worded answers such as 'unlikely' or 'impossible'. Part (b) saw less success as most failed to get to grips with context of the question. For those that were successful, most began by calculating the total number of cars in the box as 30, leading to a correct answer of 18 extra red cars.

Question 12

For this number machine question, part (a) was answer very well with almost all students able to give a correct output of 47. Part (b) also saw plenty of success with almost all students able to gain 2 marks for a correct answer. Of those that didn't, many gained 1 mark for a correct method e.g. 82 + 9 ÷ 7 but forgot to include brackets which resulted in an inaccurate answer from the calculator. Part (c) did cause issues although it was pleasing to see around half of the cohort give a correct answer. There were a large number who gave an answer of y = 7x – 9; this gained 1 mark for the correct values but a change of variable.

Question 13

This 3 mark linear graphs question was answered well with the majority of students picking up 3 marks. For those that didn't, common mistakes included plotting the points but failing to join them with a straight line, or plotting one or two points incorrectly. Some students also failed to extend their line for the entire interval for values of x from −1 to 5.

Question 14

Most students were able to make a correct start on this number problem with a method to find the number of marbles in bag A. The second method mark was often gained too by dividing the remaining marbles by 2, but many students could not complete the method and added and subtracted 4 from 30 to gain incorrect values for the number of marbles in B and C. For those students who did not show their method, only 1 mark was gained for incorrect answers of 15, 34, 26.

Question 15

This familiar algebra question generally produced 1 or 3 marks for this cohort. There were a good number who managed to give a correct answer and gain the full 3 marks. For those that didn't, the most common incorrect answer seen was $T = p + c$, which gained 1 mark.

Question 16

Translating shapes caused an issue for around half of this cohort as they failed to understand that the vector meant 5 units left, 2 units up. Those that did understand the meaning of the vector managed to translate the shape correctly. In part (b) it was common to see most students gain at least 1 mark for identifying the correct transformation. The angle of rotation and direction was also seen often but the centre of rotation was regularly missed. There were a small number of students who described more than one transformation; this automatically gained 0 marks.

Question 17

It was extremely common to see most students pick up the first mark on this problem solving question, usually with a method to find the total volume of the cylinder. Unfortunately the majority of students failed to go on and pick up any more marks, one of the main issues being a failure to deal with the unit conversion between litres, millilitres and cubic centimetres.

Question 18

It was rare to see students give a fully correct solution to this angles in a polygon question. Most were not aware of how to begin the problem; working incorrectly with the sum of the interior angles formula and dividing 360 by 162 were common incorrect methods. For those that did manage to make progress on the question, working with the exterior angle of 18° proved to be the most successful method.

Question 19

Set notation is certainly an area this cohort needs to work on as it was common to see the intersection and union symbols confused, with the 'correct' answers for (i) and (ii) written on the incorrect answer lines. For those that did manage to give a correct answer for (i), most went on to give a correct answer for (ii) too. Part (iii) saw little success with the most common incorrect answer being to list the members of A rather than the complement.

Question 20

It was pleasing to see a good proportion of this cohort pick up 1 mark in part (a) for finding the HCF of 21 and 35; some students incorrectly worked out the LCM instead. Part (b) was answered much better with a good number of students able to go on and pick up 3 marks. It was pleasing to see students follow the instructions in the question to show their working; an answer with no working was occasionally seen, gaining 0 marks. Very few students managed to grasp what part (c) was asking and as a result it was rare to see the correct answer.

Question 21

Part (a) of this familiar percentages question was answered well with many students picking up the full 3 marks for a correct answer of 4.59. Of those that didn't it was common to see 1 mark gained for reaching 0.34. Part (b) saw less success with many students decreasing 9.45 by 8% instead of recognising that this was a reverse percentages problem. Of those that did spot this aspect of the problem, almost all went on to gain full marks.

Question 22

It was pleasing to see some students spot the need for Pythagoras' Theorem in this question and of those that did, almost all gave the correct method to achieve 4.5 for the length of half of the base. Many were then able to go on and gain a correct answer of 27, although some failed to use the correct method for the area of the triangle and gave answers of 13.5 or 54. There were a substantial number students who did not make a correct start and tried to work with 6 and 7.5 to find the area. There were almost no students who used trigonometry for their method.

Question 23

It was rare to see any progress made on this reverse mean question. Many students tried to work with 79.2 and 68 to find the mean of the 7 remaining people. A small number were able to pick up one method mark for 79.2 × 10 or 68 × 3, although most made no further progress. There were a very small proportion of the cohort who managed to show a complete method and these usually gained the full 3 marks for a correct answer of 84.

Question 24

Parts (a) and (b) were answered very well with the majority of students picking up 1 mark on each; common incorrect answers were t^3 and w^{35} respectively. Part (c) was more mixed with very few fully correct answers seen. There were plenty who managed to pick up 1 mark for two correct terms as part of a product, with 5^3 often evaluated as 15.

Question 25

It is clear that converting units of speed is an area this cohort needs to work on. There were very few fully correct methods seen although some students were able to make a correct start to the method by dividing 22 by 1000 or multiplying 22 by 60 twice. It is clear that many need to be more aware of the conversion between metres and kilometres; using 1 km = 100 metres was seen often.

Question 26

It was all or nothing on this ratio problem with most students scoring 0 or 3 marks. For those that scored full marks most were able to find that 2 : 7 was equivalent to 12 : 42 and therefore Clemmie's age now as 45. For those that weren't able to make a correct start the most common incorrect method was using 15 with the ratio of 2:7.

Question 27

Another topic new to the specification saw mixed results. A large proportion of the cohort were unable to consider the area of the 3 different faces of the cuboid and divided 105 by the volume instead. Others thought this was a bounds question and proceeded to find the upper and lower bound for each of the edges and work with those. It was pleasing to see some students consider the pressure for at least one of the faces. Of those that did all three possibilities, most were able to select the greatest and the least and find the difference.

Summary

Based on their performance in this paper, students should:

- practise labelling names of circle parts
- to work on algebraic simplification in particular questions like $3c \times 5c$
- ensure basic skills such as conversion of units do not impede their success at higher grade questions
- practise problem solving questions to ensure it is clear what skills are required to solve a problem
- work on grade 4 and 5 level questions e.g. those on the final third of the paper