Pearson

Examiner Report

Principal Examiner Feedback

January 2017

Pearson Edexcel International GCSE in Mathematics A (4MA0) paper 2F

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Introduction to Paper 2F

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.

Report on Individual Questions

Question 1

Most students answered part (a) correctly, although some wrote their answer as 3579 rather than 35079.
Part (b) was answered correctly by almost all but part (c) proved more challenging. Many students listed at least 4 factors but often omitted 70.In part (d), all but a few chose the smallest and largest numbers, although some then subtracted the largest number from the smallest.

Question 2

Only a small proportion weren't able to score full marks. A few students measured the length of *AC* or *BC* in part (a) and others gave their answer for the angle marked *x* in part (b) slightly out of the range allowed. In part (c), rectangle was occasional given as the answer rather than right angle.

Question 3

Majority of students were able to write down the coordinates of *C* and *B* in part (a), although some wrote the *x* and *y* coordinates the wrong way round. In part (b), most successfully marked the point *D*, although a small minority weren't fully aware of the properties of a Kite. Very few were able to make an attempt at finding the gradient of *AB* in part (d) although a small proportion gained 1 mark for an answer of 0.5

Question 4

some of the students gained full marks in part (a) for drawing a parallelogram although some didn't use the squares to ensure their diagram was accurate and others just drew one pair of parallel lines. In part (b), those who didn't know the mathematical name for a 5 sided shape sometimes thought it was a hexagon while in part (c) a common error for the name of the 3-D shape was a prism. In part (d), some students confused edges with vertices giving the answer as 5.

Question 5

A high proportion of students gained full marks in part (a) for an answer of 8/24 although some incorrect simplified this fraction (which was not penalised).
A small number gave the fraction of rectangle **A** that is unshaded. Likewise in part (b), most students shaded rectangle **B** correctly although some shaded two full columns (6 squares). Part (c) was answered using a variety of methods. Those using a build-up approach were more likely to make errors; some divided 185 by 30 while others found 70% of 185.

Question 6

Parts (a) and (b) were answered corrected by all but a very small proportion of students. Some in (b) made an arithmetic error. The most common method in part (c) was to continue the sequence by adding 4 although occasional arithmetic errors were made. Very few students attempted to use the *n*th term or subtracting square numbers. Errors in part (e) included $w = 2n$. $w = n + 1$ and $n = 2w$.

Question 7

In part (a), most students were able to put brackets in the correct place. Some could not apply BIDMAS correctly in part (b), working out $\frac{18}{6} - 3$ rather than $\frac{18}{6 - 3}$. Others obtained 16/2 and 18/3 but were unable to make more progress.

Question 8

Parts (a) – (c) were accessible to all but a few students with only a small number misreading the scale. Some students answered part (d) as 26 – 155 while others subtracted 36 from 155. Many were unable to find the median number of goals in part (e). A number of incorrect responses were seen, including finding the mean and finding the middle number from 0, 1, 2, 3, 4, 5, and 6.

Question 9

A relatively small number of students either had problems dealing with negative numbers or understanding how to find the difference between 2 numbers in parts (a) and (b). In part (c), finding the mean from a list with some negative numbers caused problems; a few did not know the method for finding the mean.

Question 10

Many failed to appreciate part (a) is an estimation question. Some did use measurements from the diagram but weren't able to use them with the actual length of the container. In part (b), students who knew the formula for the volume of a cuboid usually scored 2 marks. Some, however, found the surface area instead while others simply added the length, width and height.

Question 11

Some students answered part (a) correctly by counting squares or using the formula for the area of a triangle. However, many others measured each side of the triangle and attempted to use these values. In part (b), a small proportion scored full marks. Those who scored one mark usually drew a triangle that was a translation of **E**. Many students weren't able to correctly answer part (c) because they couldn't draw the line $x = 1$. A common mistake was to reflect the triangle in the x-axis itself or in a diagonal line through the origin. A few gained one mark for reflecting **Q** in the line $y = 1$.

Question 12

A very high proportion of students either scored zero of full marks. The most common error was made by the students who subtracted 530 from 715.5 and then added their answer to 750. A few lost the accuracy mark because of premature rounding.

Question 13

In part (a), some students changed the powers of x, usually adding them. The most common error in part (b) was to correctly substitute the given values but then to add the two values rather than subtract. Many students started part (c) by attempting to substitute the given values into $e = 2f - 5g$ but some wrote $e = 2f - 30$, not taking into account that g is negative. Those who were able to deal with this stage usually continued to score full marks.

Question 14

Most students gained no marks in total. In part (a) many left their answer as a fraction, rather than a percentage. Some used the age group, 25-54, to try and work out a percentage. In part (b), some found 5% of 64, the age group, instead of 5% of 360.

Question 15

A large proportion of students scored at least 2 marks in total. Most were able to find $\sqrt{95}$ in part (a)(i) but writing their answer correct to 2 decimal places was more problematic. An understanding of BIDMAS was useful in part (b)(i), as was the ability to use π in their calculator. Many were successful but, again, writing their answer correct to 3 significant figures proved challenging.

Question 16

Whilst most were able to write down the smallest fraction in part (a) (i), some chose $\frac{10}{11}$ as the largest in part (a) (ii), probably because the numerator and denominator were greater in value than the other fractions in the list. In part (b), the minority that answered it incorrectly did so in a variety of ways, including making arithmetic errors that could have been avoided with the help of a calculator.

Question 17

This proved only to be accessible to a small proportion of students. The notation used in the question was not well understood, particularly {b,d} intersection Q. Indeed some student seemed completely unfamiliar with this topic.

Question 18

Majority of students (Most) scored at least 2 marks in total. In part (a), incorrect answers included 0.3 (1 – 0.4 – 0.2 – 0.1), 0.35 (0.7 ÷ 2) and $\frac{1}{5}$; in part (b), errors included 200 ÷ 4.

Question 19

Most students scored at most 3 marks in total because part (b) proved inaccessible to almost all. Many had little knowledge of bearings although it was still possible to pick up 1 mark in part (a) for marking the point C south of A. In part (b), some students attempted to measure the required angle by drawing their own diagram. Part (c) was answered relatively well although answers such as 6.2 were sometimes seen.

Question 20

Only a small proportion of students scored any marks on this question. Those who did usually

attempted to eliminate the *x*-values. However, many had problems with adding -2*y* to 8*y*, often ending up with 6*y* =15. Many used a trial and improvement approach to this question scoring zero marks because this question required an algebraic approach.

Question 21

Those who scored marks in part (a) usually did so for drawing a line with a negative gradient starting at (12:30, 4.5) but it was common for the horizontal scale to be misread. In part (b), many gave the distance from Abri's home rather than from the village.

Question 22

Those who appreciated part (a) related to Pythagoras' Theorem often scored full marks although some failed to find the square root of $2.1^2 + 3.5^2$. Others multiplied 2.1^2 by 3.5^2 rather than adding. Only a few students realised that part (b) required the use of a trigonometric function. Those who did appreciate this often used the wrong sides for the function chosen and others found angle *FEG*. Some students assumed the triangle to be isosceles and gave an answer of 45°.

Summary

- Students would benefit from understanding that 70 is a factor of 70, etc.
- It was clear that very few students had a basic understanding of bearings.
- Students should ensure they know the mathematical names for polygons and 3-D shapes.
- Some students failed to gained full marks in some questions because they chose not to use their calculator.
- Students would benefit from learning the basic notation for set theory.

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

http://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html

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