Pearson

Examiner's Report
Principal Examiner Feedback

Summer 2018

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

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Introduction

Most questions seemed accessible to students at this tier including those that differentiated appropriately and enabled students to demonstrate their ability across the assessment criteria. While method was shown in many instances, it was still lacking in some cases and students could improve their opportunity for the award of marks by clearly showing their working.

Question 1

The overwhelming majority of students were able to order the numbers in part (a). However, ordering those in part (b) was more problematic with some writing their list as $0.078,\ 0.7,\ 0.707,\ 0.078,\ 0.08,\ 0.87$. In part (c), some wrote 0.017 as $\frac{0.017}{1}$ or $\frac{17}{10}$ while in part (d), 0.6 was occasionally given as 6% or 0.6%. In part (e), most students were able to identify $\frac{12}{18}$ as equivalent to $\frac{2}{3}$ although some incorrectly gave the answer of $\frac{10}{12}$.

Question 2

Almost all students answered parts (a) – (c) correctly. In part (d), a relatively small number obtained the correct answer, with many only scoring one mark for 60×0.85 or 51. Changing from kilograms to tonnes proved a step too far for most students.

Question 3

In part (a), most students were able to round 45.621 to the nearest whole number although some gave 45 or 45.62 (2 decimal places rather than 2 significant figures) as their answer. In part (b), incorrect responses included $700,\ 6800$ and 6740 while in part (c), common errors were 5.25 and 0.3. The majority of students were able to work out 45% of 800 in part (d) although some simply multiplied 45 by 800. Likewise, part (e) was generally answered very well although a small number divided 240 by 3 then multiplied by 8. Most students scored at least one mark in part (f) for 19 with many proceeding to the correct fraction.

Question 4

In part (a), many students were not able to give the mathematical name for a 6-sided polygon, with answers including pentagon, irregular and polygon. Likewise, part (b) was not answered correctly by a significant minority; a common error was to state that shape **B** has 6 sides. Most students were able to state at least one of the shapes in part (c) that have 2 lines of symmetry, although some wrote down **B** rather than **H**. The vast majority were able to identify the shape congruent to shape **G** in part (d) although fewer found the shape similar to shape **F** in part (e) with incorrect answers including **E** and **G**. Although most students correctly stated the correct number of lines of symmetry for shape **E** in part (f), some gave an answer of 2. In part (g), finding the size of each angle was problematic with many multiplying the original angle by the scale factor 2.

Question 5

Part (a) was answered correctly by the overwhelming majority of students. Similarly, part (b) was generally well-answered, although some chose to list the first 19 terms of the sequence while others multiplied the 20^{th} term by two. Most students were unable to explain why 7 962 622 isn't a term of the sequence with some stating it is because it is an even number and others using the 19^{th} term as part of their explanation. Those students who were able to offer a correct explanation often found two consecutive terms, one of which is smaller in value than 7 962 622 and the other greater.

Question 6

Most students were able to find the range in part (a), although a relatively small number confused it with one of the three averages. In part (b), those who appreciated the need to find the 'middle' number usually scored full marks but occasionally students found the mean or failed to order the list. Likewise in part (c), student were generally familiar with the mean, although some found the median or the total number of goals scored.

Question 7

Parts (a) and (b) posed few problems although errors included 24 and 120 in (a) along with -5, 5 and 11 in (b). Although part (c) was accessible to most students, many made sign errors, with $17x$ and $9y$ often featuring in final answers. Those who were able to take a correct first step usually scored both marks in part (d) whether the method used was algebraic or numerical. Others sometimes subtracted 2 from 1 and so didn't score any marks.

Question 8

The vast majority of students scored full marks, often without showing any working. The few that didn't achieve a correct answer sometimes made a sign error, often scoring zero marks through lack of method.

Question 9

Although many students scored all three marks, others often scored only one mark for a partial method. Typically this was for dividing either 9450 or 500 by 113. Those who didn't score at all often multiplied by 113.

Question 10

The algebraic nature of this question made it inaccessible to many students. Also, some used 180º at the sum of the interior angles of a quadrilateral rather than 360º, resulting in zero marks being awarded. Others simply gave an answer of 69º. Those who formed a correct equation invariably scored full marks.

Question 11

A significant number of students didn't score any marks, some of whom calculated area rather than volume or simply added the lengths of the sides. Of those who did score, many managed to get only one or two marks. Some simply found the volume of one of both cuboids but were unable to progress further. Others divided the individual sides by each other but then added their answers $(7 + 4 + 6)$. Most students

who were able to make further progress went on to score full marks although some gave an answer of 2 rather than 3.

Question 12

Many students were able to use their calculator correctly in part (a). Those who scored only one mark often divided $\sqrt{983}$ by 13.7, rather than $56^2 + \sqrt{983}$. Some students lost marks because they divided by 42.6 rather than (42.6 – 28.9). In part (b), students often struggled to give their answer to 2 significant figures; errors included 23 and 231.

Question 13

The majority of students scored full marks. Those who failed to score sometimes simply multiplied £62.80 by 12 or multiplied £62.80 by 12 and then divided by 8.

Question 14

Those students who were aware of the relationship between distance, time and speed often scored one mark in part (a) for dividing 40 by 2.15. Others also gained credit for changing 2 hours 15 minutes into minutes. In part (b), many students found 2.4% of $\$28\ 500$ before adding this to $\$28\ 500$. Those who attempted to use a multiplying factor sometimes multiplied $\$28\ 500$ by 1.24 rather than 1.024. Part (c) was inaccessible to many, with incorrect approaches including $702 - 702 \times 0.03$, 702×0.97 and $702 \div 1.03$.

Question 15

In part (a), students were far more likely to be able to name the transformation as a reflection than describe the line of reflection correctly. Some attempted to describe the transformation using terms such as flip and mirror line. Only a relatively small number of students were able to rotate shape **A** 180^o about (4, 0) in part (b). The

rotated shape was often in the correct orientation but the wrong position although some rotated shape **A** 90^{o}, rather than 180^{o}.

Question 16

Both parts were inaccessible to most students. Incorrect answers in part (a) included $\frac{1}{5}$ and $\frac{1}{8x}$ those who added the probabilities often equated $8x$ to 100 rather than 1. In part (b), some students gained one mark for multiplying 200 by $3x$. However, it was more common for incorrect methods to be used, such as dividing 200 by 3.

Question 17

Students familiar with factorising usually answered part (a) correctly. In part (b), most scored at least one mark for expanding the brackets correctly. However, this was as far as most students progressed. Many were not able to isolate the x terms correctly, with some adding $5x$ or 21 to both sides of the equation. A significant proportion of students were not able to expand the brackets in part (c). A variety of incorrect methods were attempted, including trying to add y to 9. Those who found four terms frequently made an arithmetic error or had an incorrect sign; in such cases it was still possible to score one mark.

Question 18

Almost all students either scored zero or three marks. Those who were familiar with Pythagoras' Theorem often added the squares of the sides but those who subtracted usually produced a correct solution.

Question 19

Most students were not able to make a start with part (a). Those who did sometimes added 3 to 9 to give $x + 4 < 12$ while others didn't subtract 4 from -3, obtaining $-3 < x < 5$. Part (b) was more accessible, although a significant number were still unable to

score any marks. Some drew a line from -2 to 5 (one mark) and others drew a correct circle at either -2 or 5 and drew a line in the correct direction.

Question 20

Many students were able to identify the modal class in part (a) although many confused it with other statistical measures. The minority who knew the technique required to find the total weight in part (b) usually went on to score at least two marks. Common incorrect methods included multiplying frequencies by group widths or adding the midpoints.

Summary

- Students would benefit from learning the names of polygons.
- Students should check to see whether their answer is realistic.
- Students would benefit from learning the sum of interior angles for a quadrilateral.
- Question 4e highlighted that many students do not know what it means if two shapes are mathematically similar.
- Question 15 highlighted that many students would benefit from learning the difference between the main types of transformations.