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Examiners' Report/ Principal Examiner Feedback

January 2014

Pearson Edexcel International GCSE Mathematics B (4MB0) Paper 01R

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There question paper performed well, with most candidates making reasonable attempts at most of the questions. Overall, the standard of presentation and clarity of work was high. However, it should be emphasized that candidates should be encouraged to include their working in the paper to show how they obtained their answers, since if an incorrect answer was given without any working shown, all of the associated marks would be lost. This is particularly important if the question requests the candidates to show all of their working.

Centres should emphasize to candidates the importance reading the demand of a question, thus for example, if the question requires a simplified answer, then that is what the candidate should leave as their final answer (questions 9, 16 and 19a).

For candidates who require additional sheets of paper to answer questions, candidates should be advised to indicate clearly in relevant the answer space in the examination booklet that their answer continues on a separate sheet.

It was pleasing to observe that many candidates showed that they have a good understanding of the basic techniques of arithmetic, algebra, geometry and trigonometry and were able to apply them competently. Centres should emphasise to candidates that they should give their answers to the required degree of accuracy, otherwise certain accuracy marks are lost. The question paper did, however, highlight the following areas that candidates seemed to find challenging, followed by their corresponding question numbers:

- Similar solids (Q8)
- Currency conversion (Q12)
- Manipulating inequalities (Q13)
- Intersecting chords theorem (Q17)
- Vectors (Q19)
- Constructions (Q24)
- Histograms (Q27)
- Trigonometry (Q28c)

Question 1

In was pleasing to see many candidates answering this question correctly. Common errors seen were in part (a), the assumption that ΔADE was isosceles and in part (b) the assumption that $\angle AEC = 90^o$.

Question 2

The majority of candidates collected full marks, however some forgot to take the square root, therefore losing the final mark, whilst others thought that -45 was an acceptable answer, again losing the final mark.

Question 3

This question was generally well answered although some incorrectly thought that $105 \times \frac{5}{7}$ was the correct method , this approach scored no marks.

Question 4

Generally this question was answered correctly, with only a few candidates losing marks because of algebraic slips.

Question 5

Almost all candidates collected both marks for this differentiation question.

Question 6

Nearly all the candidates answered (a) correctly although over a third of the candidates seemed less able to answer part (b).

Question 7

A significant number of candidates did not remember the formula for the union of two sets and so lost both marks. The majority though either used the formula correctly or deduced the correct answer by constructing their own Venn diagram.

Question 8

Similar solids again proved problematic to a significant number of candidates with many of these thinking that the fraction $\left(\frac{1}{2}\right)$ should have been used rather than $\left(\frac{1}{2}\right)^{\pm 3}$, resulting in a common erroneous answer of 120.

Question 9

Nearly all of the candidature collected both marks whilst the remainder lost marks due to sign slips when trying to isolate *p*.

Question 10

It was pleasing to observe that most candidates were able either to factorise the quadratic or use the quadratic formula correctly, usually collecting both marks.

Question 11

Almost all candidates scored full marks – with calculators proving to be a useful tool for this question.

Question 12

The majority collected full marks on this question with only a minority of candidates thinking that "50 × 0.5036 = 25.18" was the solution (which scored no marks) or that "SGD 99.29" was the final answer, which at least scored the first method mark according to the mark scheme.

Question 13

This question presented no problems to the majority of candidates although some candidates made sign errors when attempting to isolate x on one side of the inequality. The majority were still able to collect 1 mark.

Question 14

This was an accessible question for the majority. For a small number of the less able candidates, matrix multiplication proved problematic resulting in one or more incorrect elements of $\mathbf{A}^2$, and then usually resulting in the loss of the mark for part (b).

Question 15

A minority failed to rearrange the given expression so that y was isolated and lost both marks. Some candidates confused x and y values in their answer for part (b).

Question 16

Unfortunately, a number of candidates were unable to differentiate $\frac{1}{x^2}$ correctly and thus lost the accuracy mark. In part (b), a number of candidates scored no marks either because they found it difficult to remove fractions from their answer to (a) or they did not realise that this was the way to proceed.

Question 17

Most candidates scored 2 of the available 4 marks for this question, however the variety of attempts seen suggests that the Intersecting Chords Theorem was either misunderstood and then incorrectly stated or not known by a significant number of candidates. Those who could state the theorem correctly went on and usually collected the final 2 marks of the question too.

Question 18

The source of the difficulty of this question for a number of candidates was that they were not familiar with the expression relating the number (n) of the sides of a polygon with the given sum of the interior angles of the polygon with the result that they lost all of the available marks. Others stated the expression correctly and scored a method mark but then failed to find that $n = 15$ (usually finding $n = 13$ and not collecting the accuracy mark) but then normally collecting the second method mark.

Question 19

Many candidates were unable to find $\overrightarrow{AB}$ correctly, clearly not understanding that $\overrightarrow{AB} = -\overrightarrow{OA} + \overrightarrow{OB}$. Having found a vector in (a), most candidates were then able to calculate the magnitude of their vector, usually collecting both of the marks for (b).

Question 20

The majority managed to collect the two marks for (a) with a common error in part (b) being the use of $\text{"31.5"} \times \frac{90}{100}$ for the method – scoring no marks in part (b).

Question 21

There was still a sizeable minority of candidates who did not gain any marks for this question because they were unable to translate the verbal function relationship given in the first sentence of the question into an algebraic form. Those who were able to do this correctly, usually went on and to score full marks.

Question 22

Almost all candidates answered part (a) correctly and most of these went on and successfully answered (b). Those who did not, usually failed to replace $\sqrt{32}$ and $\sqrt{72}$ with their correct expressions gained in (a) and as a result got confused in their arithmetical manipulation of the surds.

Question 23

Most answered part (a) fully correctly, however a number then incorrectly thought that $\frac{0.9}{"3.6\times10^{-3}"}$ was the method for (b), which scored no marks.

Question 24

This question was a good discriminator of the paper with many candidates failing to show all of their construction lines as instructed in the question, usually resulting in the loss of all of the marks. Some incorrectly thought in (a) that drawing a line perpendicular to *CD* and/or in (b) that the use of a protractor was required so avoiding the use of any construction lines (arcs). It is important that candidates read the demands of each question *carefully* to avoid such errors.

Question 25

Most candidates collected the available mark for (a). Part (b) indicated that many candidates did not know how to go about finding the median. Most candidates collected at least a method mark in (c), and it was pleasing to see a large number of correct answers for part (c).

Question 26

Many candidates in part (a) did not know how to correctly decide on the value of x excluded from g's domain. Part (b) was often correctly answered. The majority of candidates collected full marks for parts (c) and (d) but unfortunately a number of candidates were then let down by their algebra and only collected 2 (method marks) out of the 4 marks available.

Question 27

Parts of this question proved to be less accessible for certain groups of candidates, with many mistakenly thinking that all that was required for part (a) was to write down the heights of the bars. Many of these went on and collected the method mark in (b) for using *their* frequencies to find a percentage.

Question 28

It was pleasing to see that most candidates have mastered the base use of trigonometric ratios with the result that many of these collected at least the 2 method marks available in parts (a) and (b) with most of these also collecting the accuracy marks. The less able candidates found the complexity of the method required for part (c) too demanding and either thought that 360 – "their answer to part (b)" provided the method or did not attempt part (c) at all with the result that of all the questions on the paper, this question had the least number of candidates collecting full marks.

Grade Boundaries

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