Examiners' Report
Principal Examiner Feedback

January 2017

Pearson Edexcel International GCSE
Mathematics B (4MB0/02) Paper 02

Introduction

It was pleasing to observe that, overall, the clarity of work was high.

The question paper did highlight the following problem areas, followed by their corresponding question numbers, which should receive special attention by Centres:

- Poor algebraic manipulation ((1), (2) and (11))
- Matrix multiplication and manipulation (3(b) and 8(b) & (d))
- Breaking down the demands of a question into its constituent parts (5)
- Tree diagrams (6)
- Use of trigonometrical formulae (7)
- Transformations of triangles and describing transformations (8)
- Use of vectors and their properties (9)
- Ranges of values in graphs involving inequalities (10(d))
- Mensuration of solids (11)

Report on individual questions

Question 1

Most of the candidates who managed to write down the two correct equations required by parts (a) and (b), went on to collect full marks from part (c). The work of the some of the others unfortunately suffered from algebraic slips which resulted in the loss of at least the accuracy marks, whilst the remainder of this group showed a surprising lack of ability to solve simultaneous equations.

Question 2

A number of candidates showed poor discipline with the algebraic handling of brackets and this resulted in the loss of the first method marks leaving these candidates only able to possibly collect the method mark for using the quadratic formula and the mark for obtaining the related discriminant.

Question 3

The application of the given formula for the evaluation of an inverse matrix proved problematic to a number of candidates. Many of these candidates went on to show a lack of skill in matrix multiplication or matrix manipulation in part (b), losing most of the marks there.

Question 4

Many candidates collected their marks for this question in parts (a) and (b) and then had no meaningful attempt at part (c). A common error seen was to think that n $\left(C \cap [F \cup G]' \right)$ was 30 and not 11 resulting in the loss of at least 2 of the 9 available marks.

Question 5

Many candidates were able to find the selling price associated with the first 200 items but then found problems with finding the corresponding price for the remaining 100 items essentially because they appeared to be unable to extract the relevant information from the question.

Question 6

A sizeable number of candidates managed collect at least the method marks in parts (c) and (d) using their information provided in parts (a) and (b) but many were let down by their inability to provide a complete tree diagram.

Question 7

This question was an enigma to many candidates, particularly the weaker ones, who did not make any real attempt. It was disappointing to note that there were a number of candidates who were not able to correctly apply the well-known formulae given at the bottom of the question. Most of the rest used the formulae to collect some marks. However, it was pleasing to note that there were a number of candidates who provided a fully correct answer to this question.

Question 8

Numerous candidates collected their marks from parts (a) to (d) leaving the abler candidates to collect some or all of the 3 marks available in part (e). Some candidates unfortunately lost marks in parts (b) and (d) because of their poor matrix algebra.

Question 9

Vector questions are usually found to be difficult by most candidates apart from the ablest and this question proved no different. Part (b) proved problematic to many who did not seem to realise that the ratios of the given expression immediately followed as a result of the similarity of the triangles, losing at least 1 of the 2 marks available for (b). Part (f) was an enigma to many who failed to notice that the expression given in (b) immediate led to the area of triangle *COB* being 4 times the given area of triangle *ACD* (M1) and then that the ratio of *AE* to *ED* led to finding the area of triangle *FCB*. Centres are advised to spend time with their candidates on questions of this type and drilling them in the basic properties of vectors.

Question 10

It was pleasing to a see a sizeable number of candidates making meaningful attempts at the first two parts of this question usually followed by a correct estimate of the maximum value in (c). It was disappointing to note that very few candidates understood what was required by the last part of the question.

Question 11

A number of candidates were able in parts (a), (b) and (c) to write down correct expressions for the surface area and the volume of the solid but were then let down by their poor algebra. Numerous candidates, who perhaps were not successful in parts (a) to (c), nonetheless used the volume expression given in the demand of (c) and obtained most of the marks in (d).