

Version



**General Certificate of Education (A-level)
June 2012**

Use of Mathematics

UOM4/1

(Specification 5350)

Applying Mathematics Paper1

Report on the Examination

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General

This paper requires candidates to engage with a particular area of the specification in some considerable depth and consider its application in a certain context. Consequently it is essential that candidates use the period prior to the examination to become fully familiar with and confident in using the relevant range of mathematical principles and techniques. Unfortunately those not in this position at the time of sitting the examination are likely to find the experience somewhat disappointing. On the other hand those who have prepared carefully and are fully familiar with the mathematical ideas presented in the pre-release material often find they are able to quickly work through questions successfully. This year this was particularly noticeable as a substantial minority of candidates seemed ill-prepared. As always candidates should be advised to show their working in full as only then are they likely to gain partial credit for incorrect answers.

Question 1

The first part of this question required candidates to work with the graph provided and was well done. In their interpretation of the meaning of a negative sound level not many candidates stated that the value of p needs to be less than that of p_{ref} : the majority suggested that p needs to be low and did not give a sufficiently accurate answer.

Question 2

Candidates who had fully understood the expression for the sound level in decibels had little problem in successfully substituting the given value into this and calculating the required value. However, a surprising number of candidates seemed unable to complete this.

Question 3

Many candidates were able to carry out the reverse process of calculating the pressure ratio using logarithms successfully: however, a substantial minority were unable to do this and did not appear to have a firm grasp of the important mathematical method at issue.

Question 4

Candidates that had a firm understanding of the mathematics that had been presented on the Data Sheet appeared well-prepared for this question which they tackled with ease. A small number of candidates made little progress with the question.

Question 5

A considerable number of candidates were unsure of how to proceed with this question and of those who were able to identify the correct equation to use only a minority were able to work to a final correct answer. The first step of the calculation, isolating the logarithm, disappointingly proved a stumbling block for some.

Question 6

Candidates attempted part (a) in many different ways. In general, those candidates who chose a particular value for the pressure at one distance and worked correctly with that throughout were most successful. Very few candidates were able to work with the general case. Part (b) was badly done. This is somewhat disappointing as it suggests that candidates had not understood the concepts underpinning the phenomena described in the Data Sheet article very well.

Question 7

In general, responses to this question were disappointing. Many candidates drew a straight-line graph (many for the case of direct proportion). Those who drew the correct general shape were often inaccurate in representing the key features of horizontal and vertical asymptotes. Only those candidates with a good understanding of models of inverse proportion were able to write an adequate description of the gradient of the graph.

Question 8

Part (b) of this question proved accessible to more candidates than part (a) which only a minority were able to solve correctly. A substantial proportion of candidates were able to identify which formula to use in part (a) and were able to write down a correct statement but were then unable to proceed.

Mark Ranges and Award of Grades

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