

# **Foundations of Advanced Mathematics (MEI)**

INTERMEDIATE FSMQ 6989

## **Report on the Unit**

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**January 2010**

**6989/MS/R/10J**

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This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

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## Foundations of Advanced Mathematics – 6989

There were nearly 800 entries for this session, an increase on the previous January series. The mean mark was 24.5. The lowest mark on this paper was 12. One candidate achieved full marks, one 39 and a further seven candidates scored 38 marks.

In many papers in recent series there have been no candidate omitting a question. In this paper there were thirty questions in which at least one candidate offered no response and there were two questions where eight candidates did not give an answer. Given that there is no penalty for an incorrect response this is surprising.

In all questions each of the distracting answers was selected by at least one candidate.

In four questions the correct response was chosen by a minority of candidates and in four further questions an incorrect response was chosen by a majority of candidates.

### Q 21 (Algebra – solution of inequalities)

The correct response required a division by a negative number with the inequality sign not changing. This was missed by a significant proportion of candidates who chose instead the most complicated looking inequality.

### Q 28 (Vectors)

A third of candidates selected the response that the angle between **b** and **i** was more than  $90^\circ$  which was, in fact correct. Rather fewer decided that two vectors had the same magnitude in a situation where the coefficients of one were double the other; these two vectors are parallel with one double the length.

### Q 33 (Algebra – formulation of a formula from a statement in words)

Just a few more candidates chose to turn seconds into hours by multiplying by 3600 rather than dividing by 3600.

### Q 38 (Algebra – subtraction of algebraic terms)

This question was a standard one which has appeared many times before. It was necessary to deal with an LCM but more significantly, the subtraction of a negative term – many candidates subtracted the positive equivalent.

	Question	Topic
91 - 100%	7	Solution of equation
	8	Statistics – selection of a random sample
	12	Arithmetic – choice of sensible units
81 - 90%	1	Arithmetic
	4	Rounding of numbers
	9	Evaluation of expressions
	13	Algebra – simplification of algebraic terms
	19	Arithmetic – standard form
	20	Arithmetic – fractions
71 - 80%	40	Algebra – quadratic sequence
	6	Statistics – average and spread of a set of data
61 - 70%	5	Coordinate geometry – plotting of points.
	11	Coordinate geometry – the straight line

*Report on the Unit taken in January 2010*

	15	Arithmetic – range of rounded values
	16	Arithmetic – percentages
	22	Arithmetic – ratios
	23	Arithmetic – volume and capacity of cuboid
	24	Vectors
	25	Graphs – interpretation of exponential graph
	27	Algebra – quadratic factorisation
	31	Statistics – cumulative frequency graph
51 - 60%	3	Arithmetic – conversion of units
	10	Algebra – expressions
	26	Algebra – solution of linear simultaneous equations
	30	Algebra – expansion of brackets
	34	Probability
	36	Algebra – rearranging formulae
	37	Graphs – graph of cubic function
	39	Trigonometry – identification of graphs of trigonometrical functions
41 - 50%	2	Arithmetic
	14	Probability
	18	Algebra – solution of quadratic equation
	29	Algebra – interpretation of speed/time graph
	35	Arithmetic – scales of maps
31 - 40%	17	Trigonometry – right-angled triangles
	32	Trigonometry – diagonals and angles in a cuboid
	33	Algebra – formula for a statement in words
	38	Algebra – subtraction of 2 algebraic terms
21 - 30%	21	Algebra – solution of inequalities
	28	Vectors
11 - 20%		

# Grade Thresholds

Foundations of Advanced Mathematics FSMQ (6989)  
January 2010 Assessment Series

## Unit Threshold Marks

Unit	Maximum Mark	A	B	C	D	E	U
6989	40	31	27	23	19	16	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
6989	19.2	36.1	61.6	84.5	93.8	100	792

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