



FSMQ

Foundations of Advanced Mathematics (MEI)

Unit **6989**: Multiple Choice

Free Standing Mathematics Qualification

OCR Report to Centres June 2014

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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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There were fewer entries for this series. The mean mark was 25.1. The minimum mark scored by two candidates was 9 and two candidates scored the maximum mark of 40.

In 31 questions at least one candidate offered no answer and in some cases there were quite a number of such omissions. These were scattered throughout the paper so this did not provide any evidence that candidates found the paper too long. This continues to surprise given that there is no penalty for choosing the incorrect response. Also, a little surprisingly, the questions where there were the highest number of omissions were questions where a significant majority of candidates chose the correct response.

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

In 7 questions, although the correct response attracted the highest number of candidates, it was chosen by fewer than 50% of candidates.

Q3 Arithmetic – comparison of imperial and metric units

The correct response (B) (the comparison was the wrong way round) was only chosen by 40% of candidates. A large minority chose A, the only one which was not a comparison of imperial and metric units, but a conversion of metric speed.

Q14 Algebra – formation of algebraic expression

Just over 40% chose the correct response for this question; the remainder were equally scattered amongst the other three responses.

Q15 Algebra – notation

Just over 40% chose the correct response for this question; the remainder were equally scattered amongst the other three responses.

Q20 Algebra – factorisation of quadratic expressions

Just over 40% chose the correct response for this question but here the remainder were not equally scattered amongst the other three responses.

Q21 Algebra – simplification of fractions

Again, just over 40% chose the correct response for this question but here the remainder were not equally scattered amongst the other three responses.

Q25 Trigonometry – the cosine rule

About 40% chose the correct response for this question but the remainder were not equally scattered amongst the other three responses.

Q31 Graphs – plotting and interpreting properties of a curve

43% chose the correct response. This was that the area was a specific value. The range offered was far too small. A large minority chose to assert that the gradient of the curve was not within the range offered, although it was.

Additionally, there were 5 questions where more candidates chose the wrong response than the right response. In 3 of these, the number choosing the correct response came 3rd on the list.

Q13 Algebra – roots of quadratic equations

The question asked which one of the given quadratic equations did not have two roots. Response A was " $x^2 = 8$ ". 10 more candidates chose this response rather than the correct one where the discriminant was negative and so had no roots. Interestingly the response " $x^2 - 4 = 0$ " was chosen by very many fewer candidates than response A.

Q17 Probability – independent events

In this question the responses chosen were approximately equal but the correct response was 3rd on the list with two other responses attracting more candidates.

Q32 Vectors

The time for swimming across the river was chosen by more candidates as being incorrect than the angle to the bank which was incorrect.

Q33 Algebra – rearranging equations

Most candidates thought that one or both of the rearrangements offered were incorrect, but in fact they were both correct. A very small proportion of candidates chose this response.

Q37 Probability – dependent events

The correct response was chosen by fewer candidates than two of the other responses.

As in previous sessions here is a summary of questions and topics with the approximate percentage of candidates giving the correct responses.

Percentage obtaining the correct response	Question	Topic
91 – 100	2	Arithmetic – operations
	5	Arithmetic – percentages
	10	Arithmetic – fractions
	29	Graphs – conversion graph
	36	Statistics – pie chart
	40	Arithmetic – scale drawings
81 – 90	1	Arithmetic – terminology and notation
	4	Arithmetic – ratio
	7	Arithmetic – indices and standard form
	8	Arithmetic – area, volume and percentages
71 – 80	11	Arithmetic – conversion of numbers
	18	Arithmetic – understanding of prime numbers
	22	Algebra – simultaneous equations
	34	Statistics – organising data, measures of central tendency
	38	Statistics – measures of spread
61 – 70	6	Algebra – <i>n</i> th term of sequences
	12	Arithmetic – expected order of magnitude
	16	Algebra – expansion of brackets
	23	Trigonometry – Pythagoras, area and angles
	26	Vectors – magnitude and direction
	28	Algebra – equations and inequalities
	30	Graphs – properties of a straight line
	39	Graphs – velocity-time graph

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51 – 60	9	Arithmetic – approximate values and accuracy
	19	Algebra – solution of quadratic equations
	24	Trigonometry – solution of trigonometrical equations
	27	Trigonometry – properties of a triangle
	35	Algebra – formation of algebraic formula
41 – 50	13	Algebra – roots of quadratic equations
	14	Algebra – formation of algebraic expressions
	15	Algebra – notation
	20	Algebra – factorisation of quadratic expressions
	21	Algebra – addition of algebraic fractions
	31	Graphs – plotting and interpreting a curve
31 – 40	3	Arithmetic – conversion of imperial and metric units
	25	Trigonometry – the cosine rule
21 – 30	17	Probability – independent events
	32	Vectors
	33	Algebra – rearranging equations
	37	Probability – dependent events

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