

Mathematics B (MEI) (Two Tier)

General Certificate of Secondary Education **GCSE J519**

Report on the Units

June 2008

J519/MS/R/08

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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 syllabus 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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Chief Examiner's Report

General Comments

The change from three tiers of entry to two is still relatively new and clearly some previously Intermediate Tier candidates have gone in either direction. This has led to better candidates than previously being entered at Foundation Tier as grade C is available. It also naturally meant that some candidates who previously would have been entered at Intermediate Tier were entered at Higher Tier. This was clearly evidenced by the number of candidates making little or no attempt at the later parts in each section which were aimed at A and A* candidates. It was pleasing to note, however that there were relatively few candidates clearly entered at an inappropriate level.

The QCA requirement is that 50% of the assessment be targeted at the lower grades. This means that there are relatively lower numbers of marks targeted at grades C and D in Foundation and grades A and A* at Higher Level. Particularly at Higher Tier, this in turn means that there is less to challenge the very best candidates. This was particularly noticeable in the limited content module examination, which has 72 marks in total.

There was a distinct difference between Foundation and Higher Tier candidates with regard to showing working. At Higher Tier working was usually shown although it was sometimes set out in a rather haphazard fashion. At Foundation Tier working was often omitted. This meant that no part marks could be awarded. Candidates should realise that, where more than one mark is allocated to a question, part marks will be awarded for correct work, even if the answer is wrong.

At both tiers, examiners report that questions where verbal reasoning responses were required were poorly done by many candidates. It is a requirement to test reasoning in the written papers and in J519, where coursework has been discontinued, there are more marks targeted at this type of question. In many cases there are standard responses which candidates can be trained to give. These include the standard reasons in the specification for geometrical facts and the standard comparisons of average and spread that are made in Statistics. Of course there will always be a number of questions of this type which really test a depth of understanding and for which there is no standard response.

At both Foundation and Higher Tiers, Arithmetic remains a problem for candidates on the non-calculator sections. Even Higher Tier candidates are often hindered by their inability to carry out the simple processes. Fractions particularly are a problem and many candidates simply omit fraction questions. It is pleasing, however, to note the comments in the individual papers about improvement in Algebra.

B291 Foundation Paper 1

General Comments

This was the modular paper for the Foundation Tier. Section A was non-calculator. Candidates appeared to have plenty of time on both sections. Questions 8, 9, 10, 17 and 18 were common with all or part with questions 4, 2, 5, 12 and 13 of Paper B293.

Comments on Individual Questions

Section A

- 1) Generally well done.
- 2) Good. The main error was confusing P and T, or putting T in a triangle.
- 3) (a) Well done with good reasonable explanations.
(b) Many candidates managed to choose 7, though there was much confusion between the terms “square” and “square root”. They knew that 49 was the nearest square number to 47, without having the vocabulary to say so, but their working was often clear enough to earn them the marks. Others frequently chose 50, and talked vaguely about “rounding up”.
- 4) (a) Some candidates measured the ladder, rather than the distance up the wall, but were still able to earn a mark for applying the scale correctly.
(b) Most measured the angle accurately, though some gave the obtuse angle as their answer.
- 5) (a) Good. Few embedded answers seen.
(b) Most candidates kept the c and d separate, which was encouraging, but many were confused when dealing with the minus sign. Both $+d$ and $-7d$ were common results for $3d - 4d$.
- 6) Many candidates confused perimeter and area, and/or miscalculated. Area units were frequently missed, or given as m or cm^2 .
- 7) This was not very well done. Many gave the median rather than the mean. The comparisons given were disappointing. Many failed to use the values they had just worked out.
- 8) (a) The decimal point was frequently misplaced, or the two decimals were added.
(b) Foundation candidates found this difficult, and many started again, multiplying 279 by 3.16.
- 9) Many candidates answered this completely correctly, but there were quite a number who had no idea at all what was required. The key was often left blank, or had words like “tens” and “units” written either side of the vertical line.
- 10) Again there were many perfect solutions to this question, but also many who couldn't produce any correct steps.

Section B

- 11) Many candidates thought miles, feet, yards and gallons were metric units, or, more probably, failed to read the word “metric”. However most did give units rather than answers such as measuring tapes or weighing scales.
- 12) In (a) and (c) a few tried to divide by the 15 and the 17.5. Many used the “breaking down” method, starting with 10%, which is not the most efficient method when calculators are available, and often led to arithmetic errors. Those who went a stage further and gave the sale price of the car or the “eating in” price of the sandwich were not penalised.
- (b) Some used decimals here, but unfortunately divided by 0.8, and others found $\frac{1}{5}$ but forgot to multiply by the 4.
- 13) This question was generally well done, except that a very large number of candidates only used the bar chart, and did not complete it.
- 14) There were many correct answers to this, though some made errors with the signs in part (b), and some used 25 as the input in (c). Few showed working in (c), so the method mark was rarely awarded.
- 15) This was well done, though some candidates failed to explain the reason why the angles added up to 180° .
- 16) Many candidates did well in this, but there was some evidence of guesswork. In (b) the price of the jobs rather than the time was sometimes given. Part (c) was sometimes answered from the 5 hour position at the right hand side of the graph.
- 17) Many candidates were able to fill in the first two entries, but failed to divide by 2.6 to find the price per metre. Those who might have been trying to do so rarely showed their intention, and so missed the possibility of a method mark. The methods shown for the first two entries showed a lack of efficient calculator use.

B293 Higher Paper 3

General Comments

This was the first session for the non-coursework version of two tier Mathematics GCSE.. As is inevitable with the new two tier model there was less on the paper to challenge the more able candidates. Most candidates answered the early questions well but there were a few for whom all but the easiest questions were much too challenging. Candidates scored more marks on section B than on Section A, with many losing marks on question 6. The standard of algebra produced by many candidates was very encouraging.

Comments on Individual Questions

Section A

- 1) This question was answered correctly by most candidates. However there were a few who did not use $\frac{86}{200} \times 100$ but instead attempted to build towards 86 using trial and improvement.
- 2) This question was well answered with most candidates understanding what was required in the key. There were very few who were not familiar with the concept of stem and leaf diagrams.
- 3) This question was generally well answered by all but the weakest candidates. However there was a significant minority, including some strong candidates, who used the given line as one side of a rectangle rather than following the line of dots.
- 4) This question proved to be a good discriminator at the lower end of the ability range. Only the weakest experienced any difficulty in either part.
- 5) The standard of work on this question was very pleasing.
 - (a) Most candidates produced a well set out solution to this equation.
 - (b) This question proved to be a good discriminator, the strong candidates experiencing little problem with the inequality. Middle and lower ability candidates had more difficulties.
 - (c) This proved to be the least well done part of the question although once again the strong candidates were almost always successful.
- 6) This question was very poorly answered with many candidates confusing the number of students on the y -axis with the marks on the x -axis. It was not unusual to see comments such as “the marks in science were more consistent” and “the marks in geography were more consistent”.
- 7) (a) This part was almost always done well by strong candidates with many middle ability and some weak candidates producing correct solutions. There were some who left their answer as $\frac{77}{12}$.

Report on the Units taken in June 2008

- (b)** Again strong candidates had little difficulty but middle ability and weak candidates had little success.
- 8)** Only strong candidates had any success on this question, more found the HCF than found the LCM.
- 9)** This question was surprisingly poorly done by even strong candidates. Most used a scale factor of 2 for both the area in part (a) and the volume in part (b).
- 10)** This was the only question in Section A that addressed A* work and as such proved beyond the majority of candidates.

Section B

- 11) (a)** This question was generally very well answered with the only common loss of mark involving “a sensible degree of accuracy”. The data in the question was given to one decimal place or to two significant figures and so an answer correct to 2 decimal places or 4 significant figures lost this mark.

(b) Many weak and middle ability candidates found this part of the question very testing. Frequently they were unable to come up with the necessary strategy.
- 12)** This question proved to be the most accessible on the paper with almost all candidates scoring full marks.
- 13)** Strong candidates found this question very straightforward; although a few of them merely found the length of the hypotenuse and did not go on to find the perimeter. Middle ability candidates had mixed levels of success, some scored full marks, others attempted to use trigonometry and got nowhere. The question proved beyond weak candidates.
- 14) (a)** Strong candidates had little difficulty with this standard question but others had mixed success. There were some who knew exactly what to do but made an arithmetic error.

(b) Apart from the weakest candidates most were successful; it was pleasing to see that the vast majority gave the answer as a number between 0 and 1.

Report on the Units taken in June 2008

- 15)** Again the standard of algebra was very encouraging.
- (a)** The vast majority of candidates were successful with this part of the question.
- (b)** There was a mixed response to this question, many of those candidates who did multiply the brackets to obtain four terms made careless errors such as missing “squared” off the final term.
- 16) (a)** This part of the question proved to be a good discriminator, with strong candidates generally being successful along with some of the middle ability candidates. Weak candidates generally scored no marks. Some of the strong candidates treated the question as a more complex question by finding BC and then using the cosine rule, it was not unusual for premature rounding of BC to lead to a slightly inaccurate answer.
- (b)** This part was less well answered than part (a) and only the stronger candidates were successful.
- 17)** Only the very best candidates were successful with this question, weaker ones had little idea of what was required.
- 18)** This question was set to address the AO1 content. Most candidates made a reasonable attempt at the investigation and there were some good algebraic solutions. Many were able to spot the type of distribution that was needed and found a solution immediately. Some attempted a “clever” solution by choosing 5 identical numbers, but this did not meet the requirement of the question.

Grade Thresholds

General Certificate of Secondary Education
Mathematics B (MEI) (Specification Code J519)
June 2008 Examination Series

Component Threshold Marks

Component		Max Mark	a*	A	b	c	d	e	f	g
B291	Raw	72	N/A	N/A	N/A	56	47	38	30	22
	UMS	83	N/A	N/A	N/A	72	60	48	36	24
B293	Raw	72	69	56	43	31	19	13	N/A	N/A
	UMS	120	108	96	84	72	60	54	N/A	N/A

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