

## Principal Assessor Report 2005

**Assessment Panel:**

**Mathematics**

**Qualification area**

**Subject(s) and Level(s)  
Included in this report**

**Mathematics Standard Grade**

## Statistical information: update

<b>Number of resulted entries in 2004</b>	56,767
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<b>Number of resulted entries in 2005</b>	53,835
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### General comments re resulted entry numbers

A slight reduction in the total number of candidates was noted. Observations from markers indicated fewer extremely poor candidates at Foundation level. However, statistical analysis would be necessary to fully understand the changes within the cohort.

## **Statistical Information: Performance of candidates**

### **Distribution of overall awards**

Grade 1	17.4%
Grade 2	14.2%
Grade 3	22.1%
Grade 4	16.4%
Grade 5	19.6%
Grade 6	7.9%
Grade 7	2.3%
No award	0.1%

### **Comments on any significant changes in distribution of overall awards**

There is no significant change in the distribution of overall awards.

## Grade boundaries for each assessable element in the subject included in the report

Assessable Element	Credit Max Mark	Grade Boundaries		General Max Mark	Grade Boundaries		Foundation Max Mark	Grade Boundaries	
		1	2		3	4		5	6
KU	45	33	22	40	29	21	40	27	18
RE	45	23	14	40	28	19	40	25	17

## Comments on grade boundaries for each assessable element

KU:

At Foundation level, the grade boundaries were slightly increased from last year, 67.5% and 45%, thus approaching a priori scores. The total marks available have now become set at 40.

At General level, there was also a very slight increase on the 2004 boundaries with total marks available having increased from last year's 38 to the current 40. Grades 3 and 4 were set at 72.5% and 52.5%.

At Credit level, Grade 1 boundary was set at 73.3%, an increase of more than 4% on 2004 whilst Grade 2 cut off was 48.9%, a 4.5% increase on last year.

RE:

At Foundation level, boundaries were set at 62.5% and 42.5% slightly lower than last year in a paper with 1 mark less than 2004.

At General level, the total marks available were this year reduced from 42 to 40. Grades 3 and 4 were set at 70% and 47.5%, slightly lower than 2004 but fairly near a priori scores.

At Credit level, the boundaries were set at 51.1% and 31.1% reflecting that Credit's greater mark increase also allowed for a greater number of marks lost when questions were omitted or not followed through. This lack of a follow through was particularly marked in several reasoning questions with some candidates appearing to 'freeze' under the more demanding extended reasoning questions. The ongoing relative weaknesses in algebra skills were again evident within the longer questions.

The cohort was however not perceived as markedly different from previous years, but that the transition to lengthier reasoning questions did not allow all candidates to show their skills and it was for this reason that the boundaries were set as above.

## Comments on candidate performance

### General comments

#### Foundation:

Examiners and markers viewed this cohort as being well prepared, with responses ranging from 'good' to 'very good'. Most candidates attempted every question and a reduction in the number of very poor candidates was noted. Candidates showed working in most of the questions although there remains a small minority whose working implied they did not have access to a calculator in Paper 2.

An accessible examination for the majority of candidates, with KU and RE elements relatively consistent.

#### General:

As in Foundation, responses ranged from 'good' to 'very good'. The questions covered a wide range of topics and proved accessible to prepared candidates. Again, current contexts allowed candidates to display their mathematical knowledge and reasoning skills.

Non-calculator work, although improving, still produces a wide variety of responses. Whilst this may only be expected, given the nature of the General cohort, progress could be made to improve the attainment of the less able candidates in the standard starter questions in Paper 1.

Some General candidates also do not appear to have access to a calculator for Paper 2.

KU element consistent with last year, with RE slightly less well done.

#### Credit:

As ever, this paper produces a wide range of responses ranging from 'excellent' to 'very poor'.

KU was better than the RE element, with Paper 1 slightly more challenging than Paper 2.

A good breadth of topics enabled many candidates to attempt most questions.

A slight increase in the number of candidates perceived as unprepared in Credit basics was observed. As remarked upon last year, good General pupils armed only with a partial exposure to Credit work invariably do not perform well. The application of a wide array of skills is necessary throughout the papers and limited exposure to Credit topics does not adequately prepare.

### Areas of external assessment in which candidates performed well

#### Foundation:

Again this year, Paper 1 was very well done with questions 1, 2, 3(a) and 6 being extremely well done.

In Paper 2, questions 1,2,3,5 and 7 were very well done.

Questions 4(b), 8 and 10 were well done.

#### General:

In Paper 1, questions 3 and 7 were very well done. Questions 1 and 6 were well done.

In Paper 2, questions 1, 2, 3, and 4(Pythagoras being tested in RE element) were very well done.

Questions 10 and 11 were well done.

#### Credit:

In Paper 1, questions 1, 3 and 8(a) were very well done.

In Paper 2, question 1 (scientific notation) continues to be very well done.

Question 2 (calculation of mean and standard deviation) was also very well done by the majority of candidates.

Questions 3,5, 6 and 7 were well done.

## Areas of external assessment in which candidates had difficulty

Foundation:

Paper 1

Question 3(b)- time duration- continues to be less well done than we would have hoped.  
Also on time topic, question 4(a) exposed a lack of knowledge of the number of days in November.  
Question 5-diameter of tablecloth- proved testing.

Paper 2

Question 4(a) illustrated confusion over the definition of 'mode'.  
Question 11(a) showed candidates had difficulty in finding a cuboid's dimensions from its net.  
11(b) indicated ongoing difficulty in calculating a volume.

General:

Paper 1

Question 4(a) - multiplication of 2 large numbers- was not well done.  
Question 5(c) -reflection in the y-axis- also proved difficult. Some candidates drew in an axis of symmetry (usually DC) and reflected in this line.  
Question 9. Although most candidates accessed partial marks, the marshalling of the 3 bullet points of information proved too much for some candidates.

Paper 2

Question 2 showed a minority of candidates had no knowledge of a stem and leaf diagram.  
Question 3 indicated that many candidates did not know that  $\frac{1}{3}$  could more easily be applied in place of the percentage.  
Question 6, again requiring several facts to be considered, was less well done.  
In question 7, the conversion of the charge from pence to pounds was frequently overlooked. The resulting, alarmingly high, total charge did not alert candidates to a possible error.

Credit:

Paper 1

Question 2 highlighted confusion over the meaning of 'of' in the fraction question. A number of candidates did a division calculation.  
Some candidates had clearly not encountered the cumulative frequency in question 7.  
Question 8(b) showed that whilst candidates could frequently form a correct expression for the nth term, they did not understand the meaning of 'simplest form'.  
Question 10 showed a lack of understanding of an appropriate strategy whilst question 11 showed an (ongoing) lack of knowledge of surds.

Paper 2

Question 8. Candidates lacked the ability to simplify 2 equated algebraic expressions.  
Question 10. The application of the written information to the diagram proved challenging.  
Some candidates had difficulty dealing with the coefficient in 11(a).

## **Recommendations**

### **Feedback to centres**

Ongoing efforts to improve candidates' non-calculator skills are evident. Candidates who accrue marks in these introductory questions can only gain confidence as they work towards the more challenging later questions.

Candidates are also more practised in writing down steps of working. This allows examiners to award partial marks when necessary and is therefore beneficial to candidates' results.

However, candidates at Credit level (now having 90 marks) should be more actively encouraged to commit working to paper. Credit candidates have more marks to be awarded but also more to lose should no attempt be made at a question.

Algebra skills must be given greater priority, as they underpin not only aspects of the Credit course but also much of the Higher course.

Particular areas for improvement have been stated in the previous section.