

Principal Assessor Report 2003

Assessment Panel:

Mathematics and Statistics

Qualification area:

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

Mathematics – Intermediate 1

Statistical information: update

Number of entries in 2002	5078
Pre appeal	5045

Number of entries in 2003	5321
Pre appeal	

General comments re entry numbers

The increase in the number of candidates was maintained this year. More candidates (around 26% compared to 16% in 2002) were presented for Mathematics 1, 2 and Applications. Around 628 candidates from S4 were presented for Intermediate 1. 297 of these for Mathematics 1, 2 and 3. The mean mark increased from 37 out of 78 in 2002 to 42 out of 80 in 2003.

General comments

- Feedback from markers/centres indicated that the paper reflected the syllabus.
- The paper was designed to have a 50% pass-mark.
- More candidates attempted all questions. Many markers reported an increase in the amount of working shown by candidates.
- The increase in presentations for Mathematics 1, and 2 and Applications ensured that more candidates had access to a more appropriate course.
- Mathematics 1, 2 and Applications appeared to be attempted by the poorer candidates.

Mathematics 1, 2 and 3.

Paper 1 (non-calculator)	Average mark	18.2
Paper 2	Average mark	24.8

Mathematics 1, 2 and Applications

Paper 1 (non-calculator)	Average mark	16.6
Paper 2	Average mark	21.0

The total mark for paper 1 in both versions is 32

The total mark for paper 2 in both versions is 48.

Grade boundaries at C, B and A for each subject area included in the report

Distribution of awards	%	Cum %	Number of candidates	Lowest mark
Upper A	3.1	3.1	165	69
Lower A	11.5	14.6	612	59
B	17.7	32.3	944	50
C	20.4	52.7	1085	41
No award	47.3	100.0	2515	
			5321	

General commentary on passmarks and grade boundaries

- While SQA aims to set examinations and create mark schemes which will allow a competent candidate to score a minimum 50% of the available marks (notional passmark) and a very well-prepared, very competent candidate to score at least 70%, it is almost impossible to get the standard absolutely on target every year, in every subject and level
- Each year we therefore hold a passmark meeting for each subject at each level where we bring together all the information available (statistical and judgmental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the senior management team at SQA
- We adjust the passmark downwards if there is evidence that we have set a slightly more demanding exam than usual, allowing the pass rate to be unaffected by this circumstance
- We adjust the passmark upwards if there is evidence that we have set a slightly less demanding exam than usual, allowing the pass rate to be unaffected by this circumstance
- Where the standard appears to be very similar to previous years, we maintain similar grade boundaries
- An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions are different. This is also the case for exams set in centres. And just because SQA has altered a boundary in a particular year in say Higher Chemistry does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related as they do not contain identical questions
- Our main aim is to be fair to candidates across all subjects and all levels and maintain standards across the years, even as syllabuses evolve and change

Comments on grade boundaries for each subject area

The pass mark was set at 41. In determining in the 2003 pass mark the following factors were considered.

- adjustment made to wording and structure of questions at setting stage to allow candidates access to the mathematics
- additional 2 marks available this year (previously total mark 78)
- increase in presentation of candidates. Clear indication that centres are more comfortable with the Qualifications
- the number of presentations of S4 candidates was considered to be insignificant.

The overall effect was an increase of 5.3% in the number of candidates passing at Pass Mark Stage. (at Pass Mark Stage in 2002, 47.3% passed).

Comments on candidate performance

General comments

Overall candidates performed to expectations. Many markers reported better responses all round compared to previous years. A significant number of candidates continue to be unable to carry out routine calculations. The skills acquired in mental calculation appear not to be transferred by candidates to written calculations that have to be performed without access to a calculator.

Areas of external assessment in which candidates performed well

The questions which attracted a high number of correct responses were:

Questions 5, 8 and 9 in paper 1 of Mathematics 1, 2 and 3 and 5, 7 and 9 in paper 1 of Mathematics 1, 2 and Applications.

Question 1 in paper 2 of Mathematics 1, 2 and 3.

Question 3 in paper 2 of Mathematics 1, 2 and Applications.

The performance in Question 4 (mean from frequency table) has shown an improvement in performance this year.

Areas of external assessment in which candidates had difficulty

Paper 1

Question 2 Many candidates did not understand the order of operations.
A common wrong answer was 43.33 resulting from 619×0.07 .

Question 3 (b) Many candidates were unable to express 2 hours 24 minutes as a decimal equivalent.

Question 4 (Mathematics 1, 2 and 3) trial and improvement method/substitution used by many candidates. The algebraic method is clearly stated in the question.

Question 4 (b) (Mathematics 1, 2 and Applications) the majority of candidates did not appear to understand what was being asked. A common wrong answer was £3600.

Question 10 (b)

Paper 2

Question 6 (a) Many candidates had difficulty in interpreting the pie chart. Few recognised the need to calculate $\frac{1}{6}$ of 5062000 and became involved in unnecessary calculations involving.

Question 6 (b) Communications of differences in populations proved very demanding.

Question 7 (c) Comparison of costs and explanation of which was better value proved difficult for many.

Question 9, 10 and 12 were difficult for many candidates but the majority received partial credit due to working being clearly set out.

Recommendations

Feedback to centres

Centres should continue to consider the appropriateness of the Applications option for their candidates.

In the National Assessment Bank packs, candidates have access to a calculator. Centres may need to consider how best to maintain and practise number skills and mental strategies in preparation for the non-calculator paper in the external examination especially in the 1, 2 and Applications option.

In the majority of cases, candidates tackled most questions. Centres should continue to consider how best to maintain and practise knowledge acquired at earlier stages in the course on a regular basis in an attempt to improve retention.