

Principal Assessor Report 2005

Assessment Panel:

Mathematics and Statistics

Qualification area

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

Mathematics – Intermediate 2

Statistical information: update

Number of resulted entries in 2004	13,723
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Number of resulted entries in 2005	15,163
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General comments re resulted entry numbers

The percentage of entries by stage (at pass mark stage) in 2004 and 2005 are shown in the table below.

Stage	2004	2005
S3	0.3	2.2
S4	8.1	17.6
S5	72.6	63.7
S6	13.8	9.7
FE	4.8	6.5
Other	0.4	0.3

The percentage of entries in 2004 and 2005 for the two optional courses C100 Mathematics: Maths 1, 2 and 3 and C101 Mathematics: Maths 1, 2 and Applications are shown in the table below.

Course	2004	2005
C100	73.9	76.1
C101	26.1	23.9

Statistical Information: Performance of candidates

Distribution of awards including grade boundaries

Distribution of awards	%	Cum %	Number of candidates	Lowest mark
Maximum Mark- 80	-	-	-	-
A	32.1	32.1	4,868	56
B	16.1	48.2	2,437	48
C	17.0	65.1	2,571	40
D	6.6	71.7	1,000	36
No award	28.3	100.0	4,287	-

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 arrangements evolve and change.

Comments on any significant changes in distribution of awards/grade boundaries

The grade boundaries for C, B and A are 50%, 60% and 70% respectively.
Factors taken into consideration in deciding these boundaries were

- The paper was designed to produce these 'a priori' boundaries
- More candidates are performing at a high level

Comments on candidate performance

General comments

The question paper was accessible to the vast majority of candidates.
Markers reported a good standard of response, with few very poor candidates.
Candidates seemed well prepared and presented at the correct level.
Candidates sitting Units 1, 2 and Applications continued to do less well than candidates sitting Units 1, 2 and 3.

Areas of external assessment in which candidates performed well

Paper 1

Question 1 (both versions)
Question 2 (a) (both versions)
Question 4 (a) (both versions)
Question 7 (units 1, 2, applications)
Question 9 (units 1, 2, 3)

Paper 2

Question 1 (both versions)
Question 2 (a) (both versions)
Question 3 (units 1, 2, applications)
Question 4 (units 1, 2, 3) and question 5 (units 1, 2, applications)
Question 7 (a) (units 1, 2, 3) and question 9 (a) (units 1, 2, applications)
Question 8 (units 1, 2, 3)
Question 10 (a) (units 1, 2, applications)
Question 10 (c) (units 1, 2, 3)
Question 12 (a) (units 1, 2, applications)

Areas of external assessment in which candidates had difficulty

Paper 1

Question 4 (b) (both versions). Many candidates did not seem to realise what was required as evidence here: even those who had the correct answer found it difficult to explain their reason fully.

Question 5 (units 1, 2, 3). Candidates could not raise a power to a power.

Question 5(b) (units 1, 2, applications). The format of a formula in a spreadsheet presented problems. Many candidates omitted the equals sign or placed it in the wrong position.

Question 6 (both versions). The vast majority of candidates had difficulty with the tangent of an angle greater than 90° . They seemed to think that $\tan 135^\circ = 3 \times \tan 45^\circ$.

Question 8 (b) (both versions). There was confusion here between area and perimeter.

Question 9 (units 1, 2, applications). Candidates are picking up the marks for substitution but continue to have difficulty in carrying out the calculations to evaluate the formula.

Paper 2:

Question 3 (units 1, 2, 3) and question 4 (units 1, 2, applications). The performance in this question was surprisingly disappointing. Many candidates seemed to have a confused approach to finding where the straight line crossed the x-axis.

Question 6 (units 1, 2, applications). As in last year's paper, a significant number of candidates did not appreciate that the percentage details on the table were for information only and should not be used in calculations.

Question 6 (a) (i) (units 1, 2, 3) and question 8(a) (i) (units 1, 2, applications). Few candidates calculated angle HKM correctly but followed through to pick up the other marks in the question.

Question 10 (b) (units 1, 2, 3). This multiplication of algebraic fractions presented difficulties for candidates. Many attempted to multiply by using the method for addition/subtraction.

Question 10 (b) (units 1, 2, applications). A lot of candidates did not understand how the charges/interest in a credit card are calculated.

Question 11(b) (units 1, 2, 3). Manipulation of trigonometrical functions continues to present problems.

Question 12 (b) (units 1, 2, applications). The cumulative frequency curve was not well done, most noticeably in the scaling of the axes.

Recommendations

Feedback to centres

Knowing how to find where lines cross axes is an important skill at all levels from Intermediate 1 onwards. Centres should continue to encourage candidates to revisit/ practise this skill.

Candidates should be encouraged to practise all 4 rules with algebraic fractions, not confining their attentions to addition and subtraction.

In evaluating formulae, candidates often pick up the marks for substitution but lose the calculation marks. Sometimes the calculations can be eased by changing the order in which they are carried out. Centres should remind candidates to consider this.