

Principal Assessor Report 2006

Assessment Panel:

Mathematics and Statistics

Qualification area

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

Mathematics: Intermediate 1

Comments on candidate performance

General comments

Mean marks (out of 80)

	2005	2006
Mathematics 1, 2 and 3	43.1	46.0
Mathematics 1, 2 and Applications	33.7	38.2

80% of candidates sat Mathematics 1, 2 and 3.

20% of candidates sat Mathematics 1, 2 and Applications.

Percentage of Candidates by Stage

Year	Entries	S2	S3	S4	S5	S6	Other
2005	7885	0.0%	13.6%	27.2%	52.0%	4.2%	3.0%
2006	10290	2.4%	22.2%	30.1%	39.2%	3.4%	2.7%

Candidates below S4 stage performed significantly better than other candidates.

[Statistics quoted are those at Passmark stage.]

Areas in which candidates performed well

Mathematics 1, 2 and 3

Paper 2 – Questions 4, 5(a) and 8(b).

Mathematics 1, 2 and Applications

Paper 1 – Questions 6(a) and 7(a).

Paper 2 – Questions 4, 5(a) and 7(b).

Areas which candidates found demanding

Mathematics 1, 2 and 3 Paper 1

1. Disappointing number of candidates could not calculate $5.42 - 1.8$.
 $5.42 - 1.08 = 4.34$ was a common answer.
2. Most candidates gained the first mark but few were able to multiply 11×12 correctly.
3. Most candidates gained the first two marks but very few could then convert 250 seconds to 4 minutes 10 seconds.
4. Disappointing number of candidates seemed to think that USA was in Europe.
5. Disappointing number of candidates could not divide by 9 correctly.
7. Many candidates were unable to complete the table in part (a) correctly.
A significant number of candidates drew a straight line in part (b) then seemed to go back to fill the corresponding values into the table in part (a) to fit their line.
9. Many candidates had problems dealing with the square root sign.
Some calculated $\sqrt{36}$ incorrectly, others stopped after getting to 36.
10. Very few candidates experimented in part (c).
Most seemed content to settle for the first answer that they wrote down.

Questions appearing only in Mathematics 1, 2 and Applications Paper 1

7. Many candidates gave an answer of $\pounds 43.07 + \pounds 18.94 = \pounds 60.21$ for part (b) and then went on to get either the correct answer or $\pounds 90.22$ for part (c).
9. Many candidates did not use the correct formula despite it being given in the formula list.

Mathematics 1, 2 and 3 Paper 2

1. Many candidates were unable to round to the nearest ten correctly.
- 5(c). Although more candidates were able to do this question correctly than in previous years, most still did not know how to calculate the mean from a frequency table.
Most candidates were able to complete the table correctly but then stopped or continued incorrectly. A significant number proceeded to calculate $652 \div 7$ or $119 \div 7$.
6. Many candidates did not convert 1.2 metres into centimetres.
 $50 \times 1.2 \times 40 = 2400 = 2.4$ was a common answer.
- 7(a). Most candidates expanded the brackets but few were able to gather the like terms correctly. $3y + 2x - 8y = 2x + 11y$ was a common answer.
- 8(c). Many candidates understood the significance of the median but hardly any were able to interpret the meaning of the range.

11. Many candidates were able to calculate the annual interest but then simply multiplied by 8.
12. A significant number of candidates interpreted the base of the triangle as 20 but were able to gain the remaining available marks.
Many candidates interpreted the triangle correctly but did not know how to proceed from there.
13. Few candidates scored full marks. A wide variety of incorrect methods were used.
14. A variety of incorrect methods were used. These included using $\frac{1}{2}\pi r^2$ with the wrong radius, πr^2 , πd or $\frac{1}{2}\pi d$ for the area of the semi-circle.

Questions appearing only in Mathematics 1, 2 and Applications Paper 2

- 2(a). Few candidates scored more than 1 mark for this question.
- 11(b). This question was done poorly. Most candidates worked out the correct discount but did not proceed correctly thereafter.

Advice to centres for preparation of future candidates

Centres should consider how best to maintain and practise number skills and mental strategies in preparation for the non-calculator paper in the external examination.

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.

Centre should consider how best to practise interpreting calculated statistics.

Statistical information: update on Courses

Number of resulted entries in 2005	7,797
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Number of resulted entries in 2006	10,284
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Statistical Information: Performance of candidates

Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum %	Number of candidates	Lowest mark
Maximum Mark - 80	-	-	-	-
A	30.7	30.7	3,155	56
B	13.7	44.4	1,409	48
C	15.8	60.2	1,624	40
D	7.1	67.2	726	36
No award	32.8	100.0	3,370	-

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.