



External Assessment Report 2010

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| Subject | Mathematics |
| Level | Standard Grade |

The statistics used in this report are pre-appeal.

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the Examination.

Comments on candidate performance

General comments

Across all three levels — Foundation, General and Credit — the question papers were fair and accessible.

At Foundation level, there was a good balance of questions set within interesting contexts, allowing candidates to show their knowledge and reasoning skills. The majority of candidates attempted every question and gained marks throughout the paper.

At General level, candidates were also able to attempt every question. Markers stated that candidates' responses ranged from good to excellent, with Knowledge and Understanding (KU) and Reasoning and Enquiry (RE) elements being equally accessible.

At Credit level, the questions ranged from very straightforward to much more discriminating. The question paper was perceived as very fair to Credit candidates. Whilst the majority could attempt every question, there was a broad range of responses at this level.

Areas in which candidates performed well

Foundation Paper 1

This question paper was very well attempted with the majority of candidates gaining marks in every question. Questions that candidates performed well in were:

Question 1: Basic arithmetic — There is evidence that this topic is covered well by teachers and understood well by candidates.

Question 3: Line symmetry — This question received a very good response.

Question 5: Morse code — Candidates demonstrated good reasoning from an unfamiliar code.

Question 8: Radar screen — Candidates continue to perform well here.

Foundation Paper 2

Candidates also performed well across this question paper.

Question 1: Double time — An excellent start to Paper 2 with many candidates gaining full marks.

Question 2: Perimeter — Candidate performance was better than in previous years, with fewer confusing perimeter with area.

Question 3 (a): Complete table — There is evidence that candidates have practised this type of question and are confident with the number pattern.

Question 4: Bill — This three-mark (RE) question was well received by most candidates, with the required working being shown.

Question 6: Cubes — Candidate performance in this question was excellent, with a marked improvement from previous years.

Question 8: Pictograph — Candidates provided excellent responses in part (a) together with fairly good reasoning skills in part (b).

Question 10: Graph — Candidates showed understanding in extracting information from the graph.

Question 12 (a): Football stadium — Candidates provided excellent responses to this question.

Question 14: Formula — Candidates could both evaluate and construct a formula, scoring well in the last question in the paper.

General Paper 1

Questions that candidates performed well in were:

Question 3: Integers — Candidates demonstrated a good understanding of integers in the context of temperature.

Question 5: Stem and leaf — There is evidence that this topic is well covered in centres and there has been an improvement in candidate performance in this topic.

Question 6 (a): Number Pattern — As in the Foundation paper, candidates performed well in this question.

General Paper 2

Question 3: Selections — This question received a very good response, with care taken both in the selections and in the cost column.

Question 6: Algebra — This continues to be well attempted, but some candidates need to be made aware of the difference between an algebraic equation and an algebraic expression. Marks were lost for using equation-solving techniques to simplify an expression.

Question 7: Theatre tickets — There was a variety of successful methods here.

Question 10: Trigonometry — Again, candidates were well prepared and could apply their skills in this question.

Question 11(a): Scale — Candidate performance was very good in this question.

Credit Paper 1

Question 1: Basic arithmetic — This was well attempted although some candidates continue to make errors in the order of operations.

Question 2: Fractions — Division of fractions received a better response than in previous years.

Question 3: Change subject — Candidates demonstrated very good algebra skills here.

Question 5: Probability — Candidates demonstrated excellent comprehension of this topic.

Question 10(a), (b): Number pattern — This question was attempted fairly well, although a number of transcription errors appeared here.

Credit Paper 2

Question 1: Reverse percentage — This question was a good start to Paper 2.

Question 3: Statistics — Candidates provided excellent responses in (a), and demonstrated improving understanding of valid comparison in (b).

Question 4: Quadratic formula — This is another improving area, with fewer candidates attempting to use negative discriminants.

Question 6: Arc length — Candidates demonstrated a good understanding of this topic.

Question 8: Trigonometry — There was evidence that this is also well practised by the majority of candidates. Some candidates, however, assumed a right-angled triangle.

Question 9: Ratio — This was relatively well attempted, although ratios were not always given in the simplest form.

Question 10: Area of triangle — This question was fairly well attempted.

Areas which candidates found demanding

Foundation Paper 1

Question 2: Fractions — Some candidates looked for a number pattern, resulting in answers such as $0/1$, $1/1$.

Question 7(b): Line graph — Candidates found extracting information from the graph challenging. The units, cost and number of litres were confused.

Question 9: Team scores — Some candidates did not follow the scoring system. Others did not give a numerical comparison.

Foundation Paper 2

Question 5 (b): Timetable — Candidates found both reading the timetable and finding the time interval challenging.

Question 7 (b): Metric units — Candidates demonstrated a lack of knowledge that $1000 \text{ g} = 1 \text{ kg}$.

Question 11: Area of triangle — Finding the area of the rectangle and then forgetting to halve the answer proved to be a common error.

General Paper 1

Question 1 (a), (b): Basic arithmetic — The order of operations was not well understood. The 8 times table was not performed as well as should be expected.

Question 4: Line symmetry — Some candidates ignored the given axis of symmetry and tried to add further sides to the design.

Question 10: Angles — This question received mixed responses, often with the candidate working not clearly set out.

General Paper 2

Question 1: Statistics — Candidates demonstrated a lack of knowledge of range and median. Range was frequently stated as '198–310' whilst median was confused with mean.

Question 4: Equation of line — Completing the table and drawing the graph proved challenging.

Question 5: Speed — Although a variety of successful strategies were demonstrated, there was much confusion over units.

Question 13: Volume — Both cm and m were used in this question and some candidates did not check for consistency of units. Others found substituting into the volume formula challenging.

Credit Paper 1

Question: 7 (a), (b), (d) Simultaneous equations — Writing equations in terms of m and c proved challenging. Some candidates appeared only to expect equations in terms of x and y . In part (d), some candidates did not realise they already had the value of the gradient and used new strategies to calculate the gradient.

Question 8 (a), (b), (c): Surds — This question received probably the worst response in the question paper, with only a minority of candidates showing an understanding of this topic. Some candidates appeared never to have experienced surds before and many were not familiar with simplification of surds.

Question 11: Algebra — The algebraic manipulation required to solve the equation proved to be challenging.

Credit Paper 2

Question 2: Algebra — This question exposed problems with algebraic expansion.

Question 7: Volume scale factor — Linear scale factor was frequently used.

Question 12: Algebra — Whilst candidates managed to set up the appropriate equation, yet again marks were lost in algebraic expansion and simplification.

Question 13: Trigonometric formula — This question showed lack of familiarity with a trigonometric equation. Errors occurred in substitution and in use of a calculator. In part (b), some candidates assumed that midday and midnight would be when the maximum and minimum depths of water would be.

Advice to centres for preparation of future candidates

Congratulations to both candidates and their teachers/lecturers for the hard work and dedication behind this cohort's success where good learning and teaching were evident. RE skills continue to improve and it is apparent that a greater variety of methods are being employed.

Centres are advised to address the areas which candidates found demanding (detailed above). Candidate performance in non-calculator basic arithmetic at General and algebra work at Credit have not seen the required improvement. Ongoing exposure to these could be made either in 'class starters' or in short weekly recaps. Extensive practice will assist candidate performance in these areas.

Statistical information: update on Courses

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|---|-------|
| Number of resulted entries in 2009 | 46779 |
| Number of resulted entries in 2010 | 43985 |

Statistical information: performance of candidates

Distribution of overall awards

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|----------|-------|
| Grade 1 | 17.1% |
| Grade 2 | 14.0% |
| Grade 3 | 22.8% |
| Grade 4 | 17.6% |
| Grade 5 | 20.5% |
| Grade 6 | 6.3% |
| Grade 7 | 1.7% |
| No award | 0.1% |

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 | 34 | 22 | 40 | 28 | 19 | 40 | 27 | 19 |
| RE | 45 | 31 | 21 | 40 | 25 | 18 | 40 | 26 | 18 |