Course report 2024

National 5 Applications of Mathematics

This report provides information on candidates' performance. Teachers, lecturers and assessors may find it useful when preparing candidates for future assessment. The report is intended to be constructive and informative, and to promote better understanding. You should read the report with the published assessment documents and marking instructions.

We compiled the statistics in this report before we completed the 2024 appeals process.

Grade boundary and statistical information

Statistical information: update on courses

Number of resulted entries in 2023:   19,021

Number of resulted entries in 2024:   24,285

Statistical information: performance of candidates

Distribution of course awards including minimum mark to achieve each grade.

A	Number of candidates	6,225	Percentage	25.6	Cumulative percentage	25.6	Minimum mark required	63
B	Number of candidates	3,789	Percentage	15.6	Cumulative percentage	41.2	Minimum mark required	53
C	Number of candidates	4,391	Percentage	18.1	Cumulative percentage	59.3	Minimum mark required	43
D	Number of candidates	4,026	Percentage	16.6	Cumulative percentage	75.9	Minimum mark required	33
No award	Number of candidates	5,854	Percentage	24.1	Cumulative percentage	100	Minimum mark required	N/A

We have not applied rounding to these statistics.

You can read the general commentary on grade boundaries in the appendix.

In this report:

♦ 'most' means greater than 70%

♦ 'many' means 50% to 69%

♦ 'some' means 25% to 49%

♦ 'a few' means less than 25%

You can find statistical reports on the statistics and information page of our website.

Section 1: comments on the assessment

The course assessment was accessible to most candidates. Feedback suggests it gave candidates a good opportunity to demonstrate the breadth and depth of their knowledge.

The question papers largely performed as expected, but the overall level of demand was slightly higher than intended. The grade boundaries were adjusted to take account of this.

Question paper 1 (non-calculator)

Overall, this paper performed as expected and most candidates attempted all of the questions.

Many candidates missed out on marks because they did not demonstrate the necessary basic number skills.

Question paper 2

This paper mostly performed as expected. However, questions 3 and 7(d) proved more challenging than expected.

Section 2: comments on candidate performance

Question paper 1 (non-calculator)

Question 1: reading scales with minor unmarked divisions

Most candidates successfully marked the temperature on both scales and made a correct conclusion.

Question 2: tolerance

Some candidates did not state the upper and lower limit. Some candidates did not clearly indicate which weights were within tolerance or out of tolerance.

Question 4: gradient

Many candidates did not ensure dimensions were in consistent units.

Some candidates did not express the gradient as a fraction in its simplest form.

Question 5(b): comparing calculated statistics

Most candidates did not make an appropriate comment to compare interquartile ranges. Many candidates used the phrase 'on average'.

Question 6: fractions

Most candidates used an appropriate strategy to begin answering this question. Most candidates did not deal with the improper fraction and did not achieve the third mark.

Question 7: volume of a prism

Most candidates did not find the volume of the triangular prism.

Most candidates did not find the volume of the cuboid.

Most candidates did not convert cubic centimetres into litres.

Some candidates missed out on marks due to basic numeracy errors.

Question 8: container packing

Many candidates used an appropriate strategy for this question.

Some candidates missed out on marks due to basic numeracy errors.

Question 9: perimeter involving quarter circles

Many candidates did not differentiate between calculating a circumference and calculating an area. Many candidates incorrectly used the radius to attempt the calculation of the circumference.

Question 10: extracting and comparing data

Many candidates did not gain any marks for this question because they did not use a valid strategy.

Question 11(a): planning a navigation course

Many candidates correctly used the scale to calculate the lengths in centimetres.

Few candidates accurately constructed a diagram of the entire course.

Question 11(b): planning a navigation course

Most candidates did not measure the bearing of the return journey. Of those who did, few stated the angle as a three-figure bearing.

Question paper 2

Question 1: calculating a compound percentage

Most candidates applied an appropriate strategy to calculate the answer. Some candidates used a year-by-year approach instead of the multiplier and power strategy.

Question 2(a): volume of a sphere

Some candidates missed out on marks in this question because they used incorrect units.

A few candidates used an incorrect formula despite having access to a formulae list.

Question 3: probability

Some candidates attempted to answer this question using a method that was not appropriate to the context of the question, such as creating a table.

Question 4: area of a composite shape

A few candidates did not differentiate between calculating the circumference and calculating the area of a circle.

Some candidates did not calculate the area of a triangle.

Some candidates attempted to answer this question using Pythagoras' theorem.

Question 5(a): calculating National Insurance

Many candidates did not calculate the National Insurance correctly, usually as a result of not dealing with the 0% band.

Question 5(b): calculating net pay

Many candidates did not correctly calculate the pension contribution, often as a result of subtracting the National Insurance payment first.

Question 6: Pythagoras' theorem

Although most candidates identified Pythagoras' theorem as the correct strategy to answer this question, most did not identify the correct dimensions to use.

Question 7(c)(ii): identifying the critical path

Many candidates did not identify the critical path.

Some candidates added all the numbers together to calculate a total time.

Question 7(d): inverse proportion

Some candidates attempted to use direct proportion to answer this question.

Many candidates did not calculate a finishing date consistent with their previous working, often because they included the weekend.

Question 8(b): comparing calculated statistics

Few candidates successfully compared mean and standard deviation. Many candidates made comments such as, 'on average… the visitors in Stirling were more varied'.

Question 8(d): payment plans

Some candidates did not subtract the deposit from the total price.

Section 3: preparing candidates for future assessment

The following advice may help prepare future candidates for the National 5 Applications of Mathematics question papers:

♦ Maintain and practise number skills to prepare candidates for the non-calculator question paper.

♦ Practise questions that require candidates to communicate a reason or an explanation. Candidates should know that a numerical comparison is required in this type of statement.

♦ Practise questions that require candidates to compare data sets.

♦ Spend time ensuring candidates are confident with prior learning in perimeter, area and volume. This includes things like calculating the area of a triangle and volume of a cuboid.

♦ Use the formulae list in day-to-day teaching to help candidates develop the habit of using it when answering questions.

♦ Encourage candidates to use correct units and notation throughout the question paper. Make sure candidates understand that they can miss out on marks for failing to write amounts of money to two decimal places and omitting am or pm from 12-hour times.

♦ Encourage candidates to show all relevant working throughout the question paper.

♦ Encourage candidates to check if their answers seem sensible. For example, would increasing the number of people doing a job realistically lead to an increase in the time taken to complete the job?

♦ Encourage candidates to use the most efficient strategy available to them when answering questions. For example, calculating a compound percentage using a multiplier and a power rather than a year-by-year approach.

♦ Practise calculating gross pay, income tax, National Insurance, and net pay.

♦ Practise probability questions in contexts other than those from past papers.

♦ Ensure candidates understand the difference between direct and inverse proportion.

Appendix: general commentary on grade boundaries

SQA's main aim when setting grade boundaries is to be fair to candidates across all subjects and levels and maintain comparable standards across the years, even as arrangements evolve and change.

For most National Courses, SQA aims to set examinations and other external assessments and create marking instructions that allow:

♦ a competent candidate to score a minimum of 50% of the available marks (the notional grade C boundary)

♦ a well-prepared, very competent candidate to score at least 70% of the available marks (the notional grade A boundary)

It is very challenging to get the standard on target every year, in every subject, at every level. Therefore, SQA holds a grade boundary meeting for each course to bring together all the information available (statistical and qualitative) and to make final decisions on grade boundaries based on this information. Members of SQA's Executive Management Team normally chair these meetings.

Principal assessors utilise their subject expertise to evaluate the performance of the assessment and propose suitable grade boundaries based on the full range of evidence. SQA can adjust the grade boundaries as a result of the discussion at these meetings. This allows the pass rate to be unaffected in circumstances where there is evidence that the question paper or other assessment has been more, or less, difficult than usual.

♦ The grade boundaries can be adjusted downwards if there is evidence that the question paper or other assessment has been more difficult than usual.

♦ The grade boundaries can be adjusted upwards if there is evidence that the question paper or other assessment has been less difficult than usual.

♦ Where levels of difficulty are comparable to previous years, similar grade boundaries are maintained.

Every year, we evaluate the performance of our assessments in a fair way, while ensuring standards are maintained so that our qualifications remain credible. To do this, we measure evidence of candidates' knowledge and skills against the national standard.

During the pandemic, we modified National Qualifications course assessments, for example we removed elements of coursework. We kept these modifications in place until the 2022–23 session. The education community agreed that retaining the modifications for longer than this could have a detrimental impact on learning and progression to the next stage of education, employment or training. After discussions with candidates, teachers, lecturers, parents, carers and others, we returned to full course assessment for the 2023–24 session.

SQA's approach to awarding was announced in March 2024 and explained that any impact on candidates completing coursework for the first time, as part of their SQA assessments, would be considered in our grading decisions and incorporated into our well-established

grading processes. This provides fairness and safeguards for candidates and helps to provide assurances across the wider education community as we return to established awarding.

Our approach to awarding is broadly aligned to other nations of the UK that have returned to normal grading arrangements.

For full details of the approach, please refer to the [National Qualifications 2024 Awarding — Methodology Report](#).