Course report 2025

National 5 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 2025 appeals process.

Grade boundary and statistical information

Statistical information: update on courses

Number of resulted entries in 2024: 36,689

Number of resulted entries in 2025: 34,846

Statistical information: performance of candidates

Distribution of course awards including minimum mark to achieve each grade

Course award	Number of candidates	Percentage	Cumulative percentage	Minimum mark required
A	13,809	39.6	39.6	64
B	5,516	15.8	55.5	55
C	4,834	13.9	69.3	47
D	4,246	12.2	81.5	38
No award	6,441	18.5	100%	Not applicable

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 or equal to 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 suggested that the course assessment gave most candidates a good opportunity to demonstrate the breadth and depth of their knowledge of National 5 Mathematics.

The question papers were slightly less demanding than expected. We adjusted the grade boundaries to account for this.

Question paper 1 (non-calculator)

Question paper 1 performed as expected, except for question 9(a), which proved less demanding than expected.

Question paper 2

Question paper 2 performed as expected, except for question 4(b) and question 9, which proved less demanding than expected.

Section 2: comments on candidate performance

Most candidates attempted most questions.

Most candidates showed their working clearly and stated the correct units, where appropriate.

Question paper 1 (non-calculator)

Question 1: multiplying a mixed number by a fraction

Most candidates achieved full marks. However, a few candidates did not simplify correctly.

Question 2: expanding brackets and simplifying

Most candidates achieved full marks.

Question 3: interquartile range

Most candidates achieved full marks. However, a few candidates calculated the semi-interquartile range or the range instead of the interquartile range.

Question 4: reverse percentage

Most candidates achieved full marks. A few candidates did not evaluate £720 ÷ 8 or £720 ÷ 80 correctly. A few candidates calculated 20% of £720 and then added it to £720 but this was less common than in previous years.

Question 5: area of a triangle

Many candidates achieved full marks. Some candidates incorrectly substituted $\sin\frac{2}{3}$ into the area of the triangle formula.

Question 6: straight line equation

Many candidates achieved full marks. A few candidates incorrectly substituted or incorrectly rearranged from the $y-b=m(x-a)$ format.

A few candidates substituted the x-coordinates in place of the y-coordinates, or the y-coordinates in place of the x-coordinates, in the gradient formula and in the equation of the line.

Question 7(a): functional notation

Most candidates achieved full marks.

Question 7(b): functional notation

Many candidates achieved full marks. Some candidates incorrectly substituted x = 19 into the required function.

Question 8: interpreting a trigonometric graph

Many candidates did not gain any marks. Some candidates stated the correct y-coordinate, and a few candidates stated both coordinates correctly. A few candidates stated the x-coordinate in place of the y-coordinate or the y-coordinate in place of the x-coordinate.

Question 9(a): identifying features of a quadratic function

Many candidates achieved full marks. Some candidates incorrectly gave −3 as their answer.

Question 9(b): identifying features of a quadratic function

Most candidates achieved full marks. A few candidates incorrectly gave 5 as their answer.

Question 10: indices

Many candidates achieved full marks. Some candidates missed out on marks for incorrectly applying $\left(x^a\right)^b = x^{ab}$. Common errors included: $\left(n^2\right)^3 = n^5$ or n^9. A few candidates omitted the final stage of the simplification and stated $\frac{n^{13}}{n^4}$ as their final answer.

Question 11: discriminant

Many candidates found the discriminant and achieved 1 mark. However, some candidates gave an incorrect description of the nature of the roots, most commonly: ‘no distinct real roots’ or ‘no distinct roots’. A few candidates only calculated the discriminant and omitted the description.

Question 12: rationalising the denominator of a surd

Many candidates achieved full marks.

A few candidates incorrectly simplified or omitted the final stage of the simplification and stated $\frac{6\sqrt{10}}{10}$ as their final answer.

Question 13: drawing a resultant vector

Many candidates found the resultant vector in component form and achieved 1 mark. However, few candidates correctly drew the resultant vector.

Question 14: subtracting algebraic fractions

Many candidates achieved partial marks for finding the correct denominator and/or numerator. Some candidates incorrectly multiplied out the bracket in the numerator, obtaining $x-4$ instead of $x+4$. A few candidates did not achieve the final mark as they attempted to further simplify the fraction incorrectly, for example:

$$\frac{\cancel{x}+4}{\cancel{x}(x-1)}=\frac{1+4}{x-1}=\frac{5}{x-1}.$$

Question 15(a): finding an expression involving brackets

Most candidates achieved full marks. A few candidates answered part (a) in their response to part (b) or part (c) and received marks.

Question 15(b): constructing a quadratic equation

Many candidates did not gain any marks. Some candidates managed to equate the expressions and rearrange them into the required form.

Question 15(c): solving a quadratic equation

Many candidates did not gain any marks. Errors included:

- attempting to solve the equation as though it were linear
- not rejecting the negative solution and omitting the final stage
- solving the quadratic equation $(2x+3)(x+1)$ from part (a)

Many candidates answered part (c) in part (b) or part (b) in part (c). They received marks for correct working wherever it appeared. Part (c) had more no responses from candidates than part (b).

Question paper 2

Question 1: appreciation

Most candidates achieved full marks. A few candidates did not interpret the percentage increase correctly. Common mistakes were to increase by 4% for one year only, or to increase by 8% for the two years.

Question 2: volume of sphere and rounding to significant figures

Most candidates achieved at least 2 marks. Some candidates did not round their final answer to three significant figures or rounded incorrectly. A few candidates used an incorrect formula, for example $\frac{4}{3} \times \pi \times 10.5^2$ and achieved partial marks for follow-through working. A few candidates omitted units or stated incorrect units.

Question 3: scientific notation

Most candidates carried out their chosen calculation correctly, but some candidates started with an incorrect method, for example $6.1 \times \left(3.27 \times 10^{-22}\right)$ or $\left(3.27 \times 10^{-22}\right) \div 6.1$.

Question 4(a): mean and standard deviation

Most candidates achieved 3 or 4 marks. Many candidates achieved full marks.

Question 4(b): comparing data using mean and standard deviation

Some candidates achieved full marks. Some responses did not demonstrate a clear understanding of the term ‘standard deviation’, and some responses did not include a reference to the weights of rugby players. A few responses did not demonstrate a clear understanding of the term ‘mean’.

Common unacceptable responses included:

- The Scottish rugby players had a lower mean and higher standard deviation.
- The weights of the Scottish rugby players were lower.
- The Scottish rugby players’ results/scores were lower.
- The French rugby players’ weights were better.
- The French rugby players were more consistent.

Question 5: completing the square

Many candidates found the correct bracket with the square, but a few candidates did not complete the process correctly.

Question 6: sector area

Most candidates achieved full marks. A few candidates calculated the length of arc AB and achieved partial marks.

Question 7: angle properties of two-dimensional shapes

Many candidates achieved full marks. Most candidates showed working on the diagram. A few candidates showed working outwith the diagram, which they gained marks for. A few candidates incorrectly assumed the angle at the centre to be 60°, or angle FAE to be 90°.

Question 8(a): three-dimensional coordinates

Most candidates achieved full marks. A few candidates omitted brackets.

Question 8(b): three-dimensional Pythagoras' theorem

Some candidates achieved full marks. A few candidates calculated the length of one of the face diagonals but went no further. Some candidates tried to find the volume of the cuboid. A few candidates did not attempt this question.

Question 9: changing the subject of a formula

Many candidates achieved 1 or 2 marks, and a few candidates achieved full marks.

Most candidates correctly added $3c$, but only a few dealt with $\frac{1}{4}$ correctly. Some candidates included a square root in their response because there was a squared term in the formula.

Question 10: constructing and solving simultaneous equations in context

Most candidates achieved full marks for parts (a) and (b) and achieved 3 or 4 marks for part (c). Some candidates did not achieve the final mark as they omitted the final stage of the calculation and gave a final answer of $e = 100$ and $p = 300$.

Question 11: using linear and area scale factors

Some candidates achieved more than 1 mark. Some candidates found the linear scale factor and went no further, or they multiplied the linear scale factor by 24. A few candidates rounded their calculation of the linear scale factor, leading to an incorrect answer. See note 3 of the marking instructions.

Question 12: sine rule with bearings

Many candidates did not gain any marks, although some candidates achieved 3 or 4 marks. Some candidates mistook triangle ABC for a right-angled triangle, leading to an invalid strategy involving the cosine rule, Pythagoras' theorem, or right-angled trigonometry. A few candidates substituted 131 or 49 in place of 41 into the sine rule formula. A few candidates incorrectly calculated the final bearing or omitted the final stage of the calculation.

Question 13: equation with fractional coefficients

Most candidates did not correctly eliminate the denominators. Some candidates achieved 1 or 2 marks for following through their working to obtain a consistent answer.

Question 14: equation with fractional coefficients

A few candidates did not attempt this question.

Many candidates started correctly.

Some candidates did not substitute h = 13 into the formula. A few candidates substituted values in the wrong place in the equation. A few candidates rearranged their equation and obtained values for $\cos x$ that were greater than 1 or less than -1 and did not find the two required angles. A few candidates incorrectly rearranged their equation and obtained a positive value for $\cos x$, which eased the follow-through calculation and only gained partial marks.

Question 15: two-dimensional vector pathway

Most candidates did not gain any marks. Some candidates demonstrated a pathway that did not include the use of fractional vectors, therefore did not gain any marks. A few candidates achieved the first mark, but few candidates gained the second mark because they simplified their answer incorrectly or did not attempt to simplify it.

Section 3: preparing candidates for future assessment

The comments in the previous sections and those below can help teachers and lecturers to prepare future candidates for the National 5 Mathematics question papers.

- Candidates should maintain and practise number skills to prepare for the non-calculator question paper. In question paper 1, many candidates miss out on valuable marks because they do not demonstrate the necessary basic number skills.
- Candidates should maintain and practise basic algebraic skills. For example, rearranging, factorising and simplifying. In both question papers, performance in basic algebraic skills costs some candidates valuable marks.
- Candidates should maintain and practise previously acquired skills. For example, to answer question 15(a) in paper 1 this year, candidates needed to recall the formula for the area of a rectangle.
- Candidates should maintain and practise the problem-solving skills that they need to tackle questions that assess reasoning.
- Candidates should practise questions that require them to compare data sets, for example, question 4(b) in paper 2. The marking instructions contain examples of acceptable and unacceptable comments.
- If questions involve angles in a diagram, teachers and lecturers should encourage candidates to note the sizes of any angles they calculate in the relevant place on the diagram. Markers are unlikely to award marks to calculations candidates do elsewhere on the page.
- Teachers and lecturers should encourage candidates to avoid inappropriate premature rounding that leads to incorrect answers.

- When practising questions about determining the nature of the roots of a quadratic function, teachers and lecturers should remind candidates that the expected responses are:

    - $b^2 - 4ac > 0$: ‘two real and distinct roots’
    - $b^2 - 4ac = 0$: ‘one repeated real root’ or ‘two equal real roots’
    - $b^2 - 4ac < 0$: ‘no real roots’

- Candidates should ensure they prepare for questions assessing all skills contained in the course specification and not purely concentrate on recent past paper questions. For example, question 13 in paper 1 this year assessed adding or subtracting two-dimensional vectors using directed line segments, which has not featured in recent past papers.

Teachers and lecturers delivering the National 5 Mathematics course, and candidates taking the course, can consult the detailed marking instructions for the 2025 question papers on our website. Our website also contains the marking instructions from previous years.

The Understanding Standards website contains examples of candidate evidence with commentary.

Appendix: general commentary on grade boundaries

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

For most National Courses, we aim 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, we hold 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 our 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. We 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.

For full details of the approach, please refer to the Awarding and Grading for National Courses Policy.