



GCSE

Mathematics

8300/1H Paper 1 (Non-calculator) Higher

Report on the examination

June 2025

Version: 1.0

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Summary

Overall performance compared to last year

The paper proved to be accessible to the vast majority of students, with very few non-attempts on all questions. There was no evidence of students having time problems to complete the paper.

Topics where students excelled

- simple simultaneous equations
- frequency trees
- ratio
- simplifying surds
- completing the square

Topics where students struggled

- inequalities
- inter-quartile range
- algebraic proof

Individual questions

Question 1

This question was very well done, with most students scoring full marks. Arithmetic errors sometimes crept in when students multiplied the second equation by 5 to eliminate y rather than x . As often happens at the end of equation solutions, some students went from $2x = 3$ to $x = \frac{2}{3}$ instead of the correct answer of $x = \frac{3}{2}$.

Question 2

This question proved to be tricky for a fair proportion of students, with approximately one third failing to score both marks. While most realised that multiplication by 9 was the key, many multiplied the midpoint of the range, 1.12, rather than the given bounds. This led to the common answer of 10.08, perhaps due to some students not reading or not understanding the word 'integer'.

Question 3

This question was done very well, with only a few students using division rather than multiplication. Arithmetic errors were fairly rare.

Question 4

This question was not done well, with a range of incorrect approaches seen. Calculating the range from $33 - 2$ was a common answer, and some students tried to use the quartile formula and went awry.

Question 5

This question was well done, with two thirds of the students scoring full marks. Very few students went wrong with the first statement.

Question 6a

Nearly all of the students scored at least one mark here. Those who went wrong often converted 0.006 to 6×10^{-2} or, less frequently, 6×10^3 .

Question 6b

This question was not answered quite as well as part a, often due to a miscalculation of 40×30 as 120. After this error, students often still scored one mark for a correct conversion of their numerical answer. Very few students went down the route of converting 40 and 30 to standard form first, which may have led to fewer arithmetic errors.

Question 7

Most students scored full marks on this question, with the only common error being 47 instead of 147 in the Year 11 No medal oval.

Question 8

Addition of fractions and division by a half was done fairly well, with most students scoring full marks or SC2 for going wrong with their order of operations. As usual with addition of fractions, by far the most common error was to simply add the numerators and add the denominators. Some students started by changing all three fractions to a common denominator, which could lead to the correct answer but sometimes included arithmetic errors.

Question 9

Over half of the students selected the correct option, with $\frac{9}{20}$ being the most common incorrect answer.

Question 10

Over two thirds of the marks were scored in this question, with many of the students getting the correct answer. Some students found the solution by setting up and solving a quadratic equation, while others used the factors of 120 to work out that x must be 13.

Question 11a

Nearly three quarters of the students gave the correct answer here, with incorrect signs on the digits being the main errors.

Question 11b

Three quarters of the students scored an easy mark for giving a correct angle of rotation, but only half gave a correct centre of rotation. Despite the question stipulating that the transformation was a rotation a fair proportion of students gave a translation or a composite transformation as their answer.

Question 12

Most students scored full marks on this question. The students who went wrong usually tried to divide 27 by 13 or 13 by 27

Question 13

Half of the students found the correct answer here, but there were many and varied incorrect approaches, one of which was to work out 4.5^3 . Some students scored one mark by subtracting two consecutive cube numbers, apparently ignoring the inequality.

Question 14

In part (a), the vast majority of students correctly gave the second and third values, but nearly half gave the first one as -2 or $-\frac{1}{2}$. Only those who scored full marks in part (a) could do the same in part (b), as a fully correct graph was required, but virtually every student scored at least one mark for correctly plotting their points.

Question 15

The first two marks of this question proved very accessible, requiring understanding of only the sum of angles in a triangle and on a straight line. Knowledge of a right angle in a semicircle was crucial for the final marks, and over half of students successfully displayed this.

Question 16

This question was answered very well, with over 80% of the marks awarded. The main error was linking the bottom box to the bottom Venn diagram.

Question 17

Half of the students scored both marks in part (a), with another 40% scoring the first mark only. A common error was to think that doubling $\frac{4}{13}$ gives $\frac{8}{26}$. Over three quarters of the marks were awarded in part (b), with the most common mistakes being to add the two given fractions or simply give the answer as $\frac{9}{13}$.

Question 18

Recall of the trig values was good, but less than one quarter of the students were able to manipulate them into the required form. The most common error in working was to fail to multiply 4 by 3, giving the answer as $\frac{\sqrt{6}}{4}$ rather than $\frac{\sqrt{6}}{12}$.

Question 19a

This part discriminated quite well between students who understood the various parts of the index: negativity, square root and cube. A number of students received two marks for arriving at $\frac{64}{27}$ but making it negative.

Question 19b

This part was not as well done, with less than one quarter of the students successful. By far the most popular answer was 3, with students apparently ignoring the square root sign on 125.

Question 20

Students tended to either understand the process required here and score full marks or not know where to start. A few struggled with the simplification of $\sqrt{275}$ and a small number thought that $2\sqrt{11} + 3\sqrt{11} + 5\sqrt{11} = 10\sqrt{33}$

Question 21

Part (a) fared better than part (b), with just over half of the students scoring the mark as opposed to just under half. In part (a), the most common error was to reflect in the vertical axis, and in part (b) it was to move the graph on square to the right.

Question 22

This question discriminated well, with over half of the students scoring at least two marks. Having worked out 8 and 2 (or their negatives), students often either gave them as the answer or added them to/subtracted them from the wrong coordinates.

Question 23a

This part was well answered for this stage of the paper, with nearly two thirds of the students scoring both marks. Those who scored zero often started with $(x - 6)^2$, with the change from positive to negative possibly being confused with the requirement in part (b).

Question 23b

Half of the students scored both marks, with a further 20% achieving one mark. As usual, the signs of the numerical answers caused most problems.

Question 24

Over half of the students scored at least one mark for a factorisation of the numerator or denominator or multiplying out the denominator. Roughly half of the small percentage of students who simplified to $-5x^2$ failed to score the last mark as they simply said that this must be negative, while discussion of the x^2 was required.

Question 25

An algebraic approach was required in this question, and most students who set up a correct equation scored full marks. Just under one quarter of the students scored 1 mark for $\frac{6}{n}$ but made no further progress. Very few students gave an answer of 16 without taking the required algebraic approach, but these students did score 1 mark as a special case.

Further support

Mark ranges and award of grades

Grade boundaries and cumulative percentage grades are available on the [results statistics](#) page of our website.

Enhanced Results Analysis (ERA)

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Professional development

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Contact us

Our friendly team will be happy to support you between 8am and 5pm, Monday to Friday.

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