Level 2 Certificate
Further Mathematics
8365/1

Report on the examination

Version: 1.0
July 2025

Further copies of this report are available from aqa.org.uk

Summary

Overall performance compared to last year

Overall students performed better on this year's paper than they did in 2024. Some topics were examined in a more accessible way than on previous papers. These included geometrical proof and binomial expansions. All students need to take extra care with their working when asked for a proof or to 'show that' something is true. If time allows, students should check through their answers at the end of the examination.

Topics where students excelled

- Working out an inverse function
- solving an equation involving matrices
- working out a midpoint
- simplifying surds
- working with an algebraic identity
- using the sine rule.

Topics where students struggled

- Product rule for counting
- solving a cubic equation
- deducing the value of a function
- showing that a function is increasing.

Individual questions

Question 1 (a)

This question was well answered. Some students used incorrect terminology or made an arithmetic error.

Question 1 (b)

Writing the inequality with x instead of g(x) was a common error. Others used incorrect inequality symbols.

Question 1 (c)

This question was very well answered. A small number of students left their answer in terms of y. Fewer errors were made by students using Alternative method 1.

Question 2

This question was very well answered. Most errors were arithmetic with most students being able to correctly multiply matrices.

Question 3

Most students were awarded at least two marks. A significant number gave the answer as 167 instead of 168.

Question 4 (a)

This question was very well answered.

Question 4 (b)

This question was quite well answered. Not many students recognised that it could be answered using knowledge of the Pythagorean triple 8, 15, 17. There were quite a few arithmetic errors when applying Pythagoras' theorem.

Question 5

Most fully correct responses came from students using Alternative method 1. Those using Alternative method 2 quite often made errors when substituting in a negative value. Very few students used alternative methods 3 or 4.

Question 6

This question was very well answered. A number of different approaches were seen but Alternative method 1 was the most efficient. An unusual method used was to write each surd as the product of its prime factors and then to 'cancel' by root 3

Question 7

This question was well answered. Most students used the graph or drew a 'CAST' diagram.
A significant number of students made no attempt.

Question 8

This question was very well answered with most students being able to apply index laws correctly.

Question 9

This topic continues to be challenging for many students. Awarding of part marks was not common. An SC1 mark was available for students who had an answer of 81. This was for those who did not realise that digits could only be used once in each combination.

Question 10

The skills needed for this question are ones that are on the GCSE Mathematics specification and this question was accessible to most students. Some errors were made when working out gradients. Those students using Alternative method 2 generally found it difficult to obtain the correct answer due to the complexity of the algebra involved.

Question 11

This question was a good discriminator. A significant number of students did not use the common factor of x which often led to only two marks being awarded. The quadratic formula was the most straightforward way to work out the solutions that were in surd form. Some gave answers involving the square root of 68 and therefore had not given their answers simplified as requested. Some students tried to use the quadratic formula or complete the square on the original cubic equation.

Question 12

This geometrical proof question was more accessible than many of the previous questions on this topic. Many students gave appropriate reasons which are expected in geometry proofs although some did not use correct terminology.

Question 13

This question was very well answered.

Question 14

Those students who factorised correctly were often able to produce a fully correct response. Some students chose to use multiplication and this made the working unnecessarily complicated and this approach usually ran into difficulties.

Question 15

This question was very well answered.

Question 16

Many students were awarded at least two marks on this question by stating the sine rule correctly and then substituting in the correct trigonometrical values. The most common errors involved when attempting to manipulate the surds.

Question 17

Fewer students were attempting full expansions than in previous years. A significant number of students made an error when working out one of the relevant coefficients and were only awarded one mark. The question was a good discriminator.

Question 18 (a)

This question was very well answered. Students should take extra care with their working when asked to 'show that' something is true.

Question 18 (b)

This question was more challenging and was a good discriminator. Most students awarded full marks used Alternative method 1. Some made errors when differentiating while others gave their answer as $x = 15$ rather than continuing to find the value of A. There were a relatively high number of non-attempts.

Question 19 (a)

This question was well answered with algebraic division the most commonly used starting point. Some students ignored the given factor and used Alternative method 4. Some students would have benefitted from checking their answer by expanding their brackets.

Question 19 (b)

The unfamiliar nature of this question will have contributed to the fact that many found this difficult. There were a high number of non-attempts and some students did a lot of working but were not awarded any marks.

Question 20

This question was challenging for many students and was a good discriminator. After differentiation, most students tried to show that the gradient was always positive by either completing the square or using the discriminant. Some students used further differentiation and this approach did sometimes lead to a fully correct response.

Question 21

A small majority of students were awarded both marks. Some students attempted to manipulate the numerator, but this rarely led to any marks being awarded. Students need to take extra care with their working when asked to 'show that' something is true.

Question 22

Some very good responses were seen. Some students attempted a solution from accurate drawing and although this was sometimes successful the solutions were not easy to find using this approach. A significant majority were awarded at least two marks.

Question 23

A significant number of students were awarded four marks. A common error was to ignore the lower bound. Students who used the quadratic formula or completing the square on the quadratic inequality rarely managed to get to the answer and on this paper most of the quadratics will factorise into double brackets.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.