



GCSE

Mathematics

8300/2H Paper 2 (Calculator) Higher

Report on the Examination

June 2025

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Summary

Overall performance compared to last year

The paper was accessible to most students with only a few questions having a significant number of non-attempts. Most of the questions common with paper 2F were well answered. This year's paper overall is of a similar standard to last year. Some students' poor presentation made it difficult to know what was trying to be communicated. This was particularly evident in questions requiring reasoning and explanations.

Topics where students excelled

- Writing a number as a product of its prime factors
- completing an error interval
- identifying a factor of $3x + 15$
- probability outcomes problem
- right-angled triangle trigonometry
- percentage problem
- speed, distance and time problem.

Topics where students struggled

- Identifying the gradient of a horizontal line
- probability coin problem
- equation of a circle
- equation of a tangent to a circle
- composite and inverse functions proof.

Individual questions

Question 1(a)

This question was very well answered.

Question 1(b)

This question was well answered.

Question 1(c)

This question was very well answered.

Question 2

There were more correct equations of line A than correct gradients of line B.

Misreads or misunderstandings meant that $y = 2$ was often written for the gradient of line B.

A significant number of students were not awarded any marks.

Question 3(a)

Nearly all students were awarded at least one mark. About half of these plotted all six points within tolerance and joined them with straight lines in tolerance. The vast majority of lines drawn were continuous.

Question 3(b)

Most students used an appropriate number of views and multiplied by 0.018. The most common error was to not change to pounds.

Question 4

This question was well answered although it was quite common for students to confuse the discs removed and not removed resulting in quite a lot of answers of 57.

Question 5(a)

This question was very well answered.

Question 5(b)

Most of the students who identified the correct upper bound showed sufficient working to be awarded both marks. A significant number made no progress, usually because they worked with an incorrect upper bound or did not use an upper bound at all.

Question 6

This question was very well answered.

Question 7

This question was very well answered. The most common error was the write the probability of C as 0.1

Question 8(a)

A small majority of students were awarded full marks. Common errors included using diameter instead of radius and using an incorrect formula for circumference.

A good discriminator at this stage of the paper.

Question 8(b)

This question was very well answered.

Question 9

Although a significant number ticked the Yes box there were many very good answers.

Explaining that the increase was 100% was the most common correct reason given.

A good discriminator at this stage of the paper.

Question 10

This question was very well answered. Those students who used the sine rule usually achieved full marks.

Question 11

Many worked out 45° and 135° but it was often unclear which angles they represented.

A majority of students were awarded full marks

Question 12(a)

This question was well answered. Some responses were difficult to read or were not well communicated.

Question 12(b)

This question was very well answered. The most common error was to use 93 as the total number of students.

Question 13

This question was very well answered. A few students made errors with units of time. Nearly every student made the correct decision after being awarded the method marks.

Question 14

This question was answered quite well, and the overall performance was better than on previous identities questions. However, there are some students who did not understand what to do and often did a lot of work for no reward.

A good discriminator at this stage of the paper.

Question 15

This question was answered quite well. Some students had both solutions correct with no working, presumably from using a calculator correctly. Only a few students had one or both signs of the solutions incorrect. Most errors in using the formula involved using c as 9.

Question 16

Many different starting values for the car were used and this was the most common approach used. Working year on year sometimes led to errors in calculated values. Premature approximations meant that some final answers lost the required accuracy. Many students identified 0.879 or 87.9% but others worked incorrectly with 0.121 or 12.1%. A number of students used logarithms and usually had fully correct responses.

Question 17

This question was challenging for many but there were also a significant number of students awarded full marks. A common error was to work out $\frac{5}{7} \times 4$ for the 1st way. More correct methods were seen for the 2nd way. Some did not answer the question, only saying that the 1st way was more likely. Another common error was to work out the difference between the probabilities of the two ways.
A good discriminator at this stage of the paper.

Question 18

Some students thought this was a similar triangles problem while others did not realise the bottom triangle was isosceles and could not work out the 116° angle correctly. Most of the students that used the cosine rule did apply it correctly even if their angle was not 116° .

Question 19

Although working with the category 65 or over was the more straightforward way of tackling this problem it was not a common approach. Conceptual and arithmetical errors were made when considering the Under 65 category.
Overall, the question was well answered considering the position in the paper.

Question 20

This question was answered quite well. Some responses were difficult to read or were not well communicated.

Question 21(a)

This question was not well answered. Some students did not know the correct form for the equation of a circle while others used an incorrect radius in their answer.

Question 21(b)

There were a significant number of fully correct responses, but many students did not show any correct working and there were quite a lot of non-attempts. Some attempts at the gradient of the tangent had the change in x over the change in y while others involved 45.

Another common error was to find the reciprocal of the gradient of the tangent rather than the negative reciprocal.

Question 22

There were quite a lot of poorly communicated answers. Not giving a single transformation was a common error. A scale factor of $\frac{1}{2}$ was often given while others gave incomplete answers, omitting either the centre or the scale factor or both.

Question 23

There were a significant number of fully correct responses. More students did not work out any correct vectors and there were quite a lot of non-attempts. Some worked out at least one correct vector but there were not many students awarded part marks. Poor notation for vectors was quite commonly seen.

Question 24

This was a challenging question for many students. Most students who made a valid attempt worked out a set of values for m , k and t and then doubled their value of t and worked out a new value for m . Premature approximations meant that some final answers lost the required accuracy.

A good discriminator at this stage of the paper.

Question 25

This was a challenging question for many students with the highest number of non-attempts on the paper. Sign errors were common and there were quite a lot of responses that were poorly presented. There were more correct expressions for the composite function than the inverse function.

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)

Use our exam results analysis tool to create and customise as many different reports for comparison as you like.

Professional development

Attend one of our feedback [courses](#) where you can review example responses from students and commentaries from our examiners.

Contact us

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

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