Questions matter

GCSE

Mathematics

8300/2F Paper 2 (calculator) Foundation

Report on the Examination

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Contents

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Summary

Topics where students excelled

- Simple algebra
- Basic numerical work
- Pictograms

Topics where students struggled

- Tree diagrams
- Reverse percentage
- Standard form

Individual questions

Question 1

The vast majority gained full marks in all parts of this question. Amongst incorrect answers, $\frac{2}{7}$ was common in part (a) and 0.25 was common in part (b).

Question 2

Very well done by the majority of students, only part (c) caused issues with many thinking that $2m \div m$ was either $2m$ or just m. Part (d) was correctly done by approximately two thirds of the cohort, a common incorrect answer was 3y or y3.

Question 3

This question was also done well by the majority in particular parts (a) and (b) were done well. Part (c) was less well done as many thought that the shape had one or more lines of symmetry.

Question 4

Approximately 95% worked out the correct answer in part(a) and three quarters worked out that the cucumbers cost £2.56 in part (b).

Question 5

In part (a) over 90% were able to correctly use the key and correctly work out that 60 was the correct difference. It was quite common for the other 10% of students to use the key correctly for just one of the bottle types and not the other.

Part (b) was slightly less well done, with just over two thirds of the entry managing to find the correct total for steel bottles. The difficulty for students who did not gain full marks here was usually in using the key to find there were 125 steel bottles.

Question 6

Just under one half of the cohort were able to correctly identify how to complete the ratio in part (a). It was quite common for students to put a value or an incorrect side in the gap. In part (b) approximately 40% were able to correctly draw a rectangle with an area of 10. Approximately 2% were able to find the area of the given shape correctly but went on to draw an incorrect diagram. Many thought the given shape had an area of 12 or 15. Many did not realise that a rectangle had to be drawn.

Question 7

Just over one third measured accurately, found the perimeter and gave the correct units. Common errors included failing to measure accurately, finding the area instead of perimeter and most commonly of all, not stating the units.

Question 8

Part (a) was done well with over 85% working out the correct number of red cubes. Part (b) was less well done. Although many were able to work out that after adding 24 cubes there would then be 80 in the box, the majority made little further progress and only 15% went on to find the correct number of green cubes.

Question 9

Almost two thirds were able to find the correct cost to travel 270 miles. Many of those who didn't find the correct total cost did manage to either make a correct first step in finding the cost or found the cost and gave it as £4500 rather than £45.

Question 10

Part (a) was generally well done with approximately 60% gaining the correct value of £4.20 and a further 10% finding the correct value but giving their answer as £4.2 rather than £4.20 A common error was for students to use just 1 metre of linen rather than 2. Part (b) was answered correctly by approximately half of the cohort. It was quite common for students to know what to do without any indication that 15 would be the number of buttons that could be bought. Some did all the correct work and then chose 'Yes' rather than 'No.' Those who had little or no success in this question usually only worked with the £5 or 7 buttons.

Question 11

Approximately two thirds were able to correctly plot the points and about half of these were able to join them with a line. Common errors were to 'miss' the points when joining and to not plot the points at $(2, 7)$ and $(4, 13)$ accurately. Part (b) was generally done well with the majority preferring not to use the graph but to use the equation of the line.

Question 12

This was the first question to be found challenging by students with approximately 10% finding the correct set of five digits. A further 15% were able to give a set of five digits that met all but one of the constraints, often forgetting that 1 is a square number, common amongst these was $1, 3, 6, 7, 9$. It was quite common for students to give 2-digit numbers, especially when they started at the left with a small number and worked their way to the right using larger and larger numbers.

Question 13

Over 50% managed to work out the correct value. The rest made very little progress, often just adding the three values then dividing by 3.

Question 14

Just over half the cohort rearranged the equations correctly.

Question 15

Approximately 30% were able to find the correct formula for the linear sequence. A further 10% were unable to find the correct formula but knew that n had to be multiplied by 3. It was very common amongst the rest to think that adding on 3 meant $n + 3$, or $1n + 3$.

Question 16

Approximately 30% chose one correct word from the list and placed it in the correct place and a further 20% chose the correct two words from the list and placed them in the correct places.

Question 17

Just over 60% were able to add the two vectors together correctly. It was quite common for students to add a fraction line. Some students did treat the two given vectors as fractions and gave their answer as $\frac{7}{6}$

Question 18

In part (a) it was very common to see $\frac{1}{4}$ and $\frac{3}{4}$ in the correct places on the tree diagram with frequencies for green and white. The majority of students did not know that they should be using probabilities on this tree diagram. Part (b) was done less well as many attempted to add their values from the tree diagram. Almost one quarter of the cohort left this blank.

Question 19

Approximately 10% knew that sine was involved but didn't know how to use it, whilst a further 20% who did know how to use it generally went on to work out the correct value of x.

Question 20

Two very challenging topics, reverse percentage and standard form, were assessed in this common question. It was quite rare to see fully correct solutions from the Foundation tier students. The more able students stopped at 2 500 000, and although there were a number of students that knew 88% would be involved, they often didn't know how. Some were able to show their understanding of standard form by finding 12% of 2 200 000 and then converting it to standard form.

Question 21

Approximately two thirds of the cohort chose the correct option from the list. Less than 10% were able to complete the table correctly, and a further 20% either found one of the values or knew that 240 was involved.

Question 22

Almost 85% made no progress with part (a), often missing that the number of 7s had to be the same as the number of even numbers. Students enjoyed much more success with part (b), often because they recognised that probabilities should sum to 1 and the total here was 1.1 It was quite common to add them up and get a total of 0.11

Question 23

Part (a) was not done well with approximately 5% correctly completing the coordinates. Slightly more success was had in part (b) with approximately half getting one of the two values correct.

Question 24

Students rarely understood what the question required. It was quite common to add the values in the table and answers of $\frac{126}{500}$ and $\frac{126}{200}$ for the probability followed by a description of how the probability had been found. Many read the word 'estimate' and thought that the answer was about $\frac{1}{4}$ and so that was what was required. Explanations about it being 'about a quarter' then followed.

Question 25

Approximately 10% knew what was required and found a correct change in distance and divided correctly by the appropriate time to gain the answer 18. It was quite common for students to attempt a change in distance between consecutive seconds on the graph, but the scale was such that this didn't prove to be easy, and values tended to be approximately 20. It was very common for students to realise that speed is distance divided by time and so divided a distance read from the graph by a number of seconds without realising that a change in distance was needed.

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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.

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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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