AQA

GCSE

Mathematics

8300/2F Paper 2 Foundation

Report on the Examination

Specification 8300

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General

Students appeared to find most questions accessible and were able to demonstrate their mathematical ability at all levels. There was little evidence of time pressure. Students often did not set out their solutions clearly and did not show working when instructed to do so. It was apparent at times that some students did not use a calculator.

Topics that were well done included:

- calculation
- completing a pictogram
- number puzzle
- conversion of minutes
- describing correlation
- expanding brackets.

Topics which students found difficult included:

- writing and using expressions
- using a formula
- drawing a graph
- evaluating a method
- bearings
- combining probabilities
- error intervals.

Question 1

This question was well answered. $2 + y$ was the most common incorrect choice.

Question 2

This question was well answered. 0.035 was the most common incorrect choice.

Question 3

This question was well answered. 5^{125} was the most common incorrect choice.

Question 4

This question was less well answered. 4 was the most common incorrect choice.

Question 5

This question was very well answered with most students able to work out at least one of the values correctly. Some students showed $3^6 = 18$.

Question 6

Part (a) was fairly well answered. Netball and family and / or 8 were common errors. In part (b) the vast majority of students completed the key correctly but the need for three quarters of a symbol in the final row caused some difficulties. Sometimes a half circle and a quarter circle were shown separately, on other occasions students made an inappropriate attempt to split the circle vertically. Symbol alignment and consistency of size was often poor.

Question 7
All parts of this question were very poorly answered. Parts (a) and (b) were often answered with an equation or an inequality with few students giving expressions in terms of d. Those who attempted to use their expressions in part (c) usually made an error when subtracting the expression for f. The most successful approaches to part (c) were to substitute values for d, e and f in the correct relationship or to use the first two lines of the stem of the question to work out the difference.

Question 8
This problem-solving question proved to be accessible and very well answered.

Question 9
Frequently students converted 5 feet to inches and 8 inches to centimetres and then added them. Some divided by 2.5 rather than multiplying.

Question 10
This question was poorly answered. 12 was the most common incorrect choice.

Question 11
Most students were able to give one code, albeit with a repeated digit. A common misconception was to assume that the first number had to be halfway between 10 and 20 so only to consider the code starting with 15. Occasionally students worked out the third number as 5 times the second number. However, many correct codes were seen.

Question 12
This question was very well answered. 325 was the most common incorrect choice.

Question 13
Neither part of this question was well answered. In part (a) many students also multiplied 0.5 by 7, giving the answer 14. Some students worked out 0.5 × 7 + 1.5, giving the answer 5. In part (b), many students substituted 20 for r in the equation. Students who knew to use inverse operations usually divided 20 by 1.5 first and then rounded their answer. Some attempted to scale their answer to part (a) but were unsuccessful because they assumed direct proportion.

Question 14
Part (a) was very well answered, although students often went on to round their value. In part (b), it was common to see students rounding the answer to part (a) to 1 significant figure. A sizeable minority stated that their answer to part (a) was not sensible because it had too many decimal places. Those who used correct approximations for the original values usually completed this part successfully.

Question 15
This question was poorly answered. Some students tried to plot the graph that was already drawn. Points were not always plotted accurately so students who used a table of coordinates often performed better. In part (b), many students did not have intersecting graphs to read from but some attempted to solve the equation. There was a significant proportion of non-attempts for this part.

Question 16
In part (a), most students were able to work out angle *ACB* or angle *ECD*, although there were some who did not realise the relevance of *ABC* being equilateral. It was common to see students assume that angles *ACB* and *ACE* were equal. In part (b), the vast majority of students thought she was correct so ticked 'Yes'. Those who ticked 'No' often gave an incomplete evaluation of her method and some used incorrect values.

Question 17
In part (a) many tried to work out the length of *AB*. 90° was the common error amongst those who gave an angle. Part (b) was better answered. However, some students did not show any measurements and consequently gave a poor response. Some measurements were inaccurate, for example the 2.7 cm length was sometimes measured as 3 cm or 3.7 cm. When multiplying a decimal value by 200 it was common to see the whole number correctly multiplied and then added to 200 divided by the decimal part. For example, 4.7 × 200 was frequently evaluated as 4 × 200 + 200 ÷ 0.7, despite this being a calculator paper.

Question 18
Part (a) was well answered. In part (b), some students did not draw a line. Those who did, often did not use all of the results or drew a line diagonally from the origin. There was evidence of poor scale reading when using their line.

Question 19
This question was well answered. $x^2 - 4$ was the most common incorrect choice.

Question 20
This question was fairly well answered. 3 was the most common incorrect choice.

Question 21
In the first part many students worked out the area or did not double the radius. Students with an incorrect method sometimes did not show their unrounded value. Although many students were able to draw a diagram showing a sector, there were many segments, radii and tangents seen.

Question 22
In part (a), $\frac{3}{6}$ was often used for the probability of 3 or more. It was common to see the probabilities on the bottom right-hand branches reversed. Part (b) was poorly answered with many students adding fractions from the tree diagram or giving the answer $\frac{1}{3}$. Those who knew that they needed to multiply often incorrectly worked out the result.

Question 23
This question proved to be a good discriminator. Cube numbers and square numbers were recognised fairly regularly. The geometric progression was the most common error.

Question 24
The vast majority of students attempted to verify his claim by reproducing a variation of the given working. Some managed to work out that 60 000 was 12.5% of 480 000 but then made no further progress.

Question 25
Often students gave two integer answers or worked out the fraction of misses or misses over hits. It was also common to see the same proportion given in two forms as the two answers. In part (b), students frequently stated that they had chosen the value in its simplest form or that percentages were more accurate. Monday's value of $\frac{3}{4}$ was chosen with the reason that it was a simpler fraction. Very few used the idea of more trials leading to a better estimate.

Question 26
A common incorrect start was to add 15 and 8. Many students listed weekly savings for Theo and James but often did not attempt to link them to the ratio 15 : 8. Some ignored Theo's initial savings of £18. Those using an appropriate method sometimes counted the initial savings and gave an answer of 7 weeks.

Question 27
The vast majority of students worked only with a sphere, not a hemisphere. A common error was to give an answer in terms of π but then ignore π in the next line of working.

Question 28
This question was very poorly answered. Most students did not use bounds for their error intervals. The few who understood what was needed in part (a) often used 41.5 and 42.5 in part (b). A significant minority did not know the number of sides of a pentagon. Many students did not attempt this question.

Use of statistics

Statistics used in this report may be taken from incomplete processing data. However, this data still gives a true account on how students have performed for each question.

Mark Ranges and Award of Grades

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