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GCSE

# Mathematics

8300/1F      Paper 1 Foundation  
Report on the Examination

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Specification 8300  
June 2017

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## General

The first Foundation assessment for the new specification proved to offer students many opportunities to display their mathematical knowledge in a variety of contexts. Given the lack of non-responses throughout the paper, it was accessible and although many appeared to have worked up to the end of the allotted time, there was no evidence that students were finding that they had insufficient time.

Topics that were answered well included

- time conversion
- knowledge of number of sides on shapes
- simple equations
- problem solving in number context
- conversion between mixed units.

Topics which students found difficult included

- multiplying a fraction by an integer
- drawing a straight-line graph
- writing a worded number in standard form
- writing a formula for two variables
- interpreting a frequency table in terms of mean and range.

### Question 1

This question was well answered.

### Question 2

This question was quite well answered though 0.9 was a common wrong answer.

### Question 3

This question was well answered.

### Question 4

This question was well answered.

### Question 5

Overall this was reasonably well answered with the most common approach being a grid or partitioning method. The incorrect working  $70 \times 50 = 350$  was a common error. It was also quite common to see  $50 \times 70$  and  $8 \times 3$  worked out and added.

When traditional 'long multiplication' was used, a number of answers were missing the placeholder zero for multiplying by 10. However, this was often considered by students when adding their numbers to obtain their final answer.

### Question 6

This new topic was fairly well answered. Arithmetical issues seemed as prevalent as not understanding the notion of a frequency tree. In part (b) many correctly used their incorrect values from part (a).

**Question 7**

Most students did attempt an estimate although some attempts at a full accurate calculation were seen. It was quite common to see an error in the calculation  $60 \times 50$  with very few 'cancelling zeros' to make the calculation easier.

**Question 8**

This question was well attempted. It proved to both be accessible and discriminate well between students of different abilities. Although students could improve their communication skills to describe what they were doing at any given point, there were many good answers. Common errors were mainly arithmetical especially in multiplying 15 by 8 and / or then subtracting their £1.20 from £5. A significant number of students went no further after determining the number of rulers, omitting to calculate that two further pencils were possible.

**Question 9**

This was not particularly well answered. A few students rounded 25.68 to 26. Some long division was seen including those who found the 2, then dealt with the 1.68 by repeated addition. Others halved the 25.68, and then divided by 6 successfully. Some confusion as to where to place the decimal point was evident.

**Question 10**

This was a poorly answered question. Many students multiplied both the numerator and denominator by 11 giving an outcome that was not possible to convert to a mixed number.

**Question 11**

Many students labelled the diagrams appropriately, although a common error was to assume that the triangle was equilateral and attempt to divide 32 by 3. As a problem solving question, this proved very accessible with very few non-attempts.

**Question 12**

Part (a) was quite well answered, part (b) less so, although this second part differentiated well between students. Students went wrong when they mixed up numbers representing games and points. Some students did not use the information from (a) indicating that a draw was worth one point.

**Question 13**

Many students achieved the first of the three calculations but success on the other two was limited.

**Question 14**

This question differentiated well between students, with many good correct answers but many showed a lack of knowledge of primes or squares and / or poor arithmetic.

**Question 15**

The level of success varied significantly as some students gave a fully correct solution, whereas others struggled to interpret the ratios and made little valid progress. It was quite common for students to obtain 24 and then not double this to reach the final answer.

**Question 16**

Both parts of this question were quite poorly answered, especially part (b) where students often did not link this to the work that they had done in part (a). It was, of course, possible to start again with, for example, a table of values, but those who attempted this rarely achieved an accurate outcome. Some students had the correct line but did not rule it straight or draw it for the full range required.

**Question 17**

This question was fairly well answered, but the second option was a popular incorrect answer.

**Question 18**

This question was challenging for the majority of students. Many students did not write the initial number correctly in figures, and for those who did, few were then able to convert successfully to standard form.

**Question 19**

Part (a) was well answered as students used the given conversion correctly. Part (b) was not well answered as few could combine the variables appropriately to achieve an appropriate formula or connection between them.

**Question 20**

Some good answers were seen and familiarity with leaving an answer in terms of pi was well known. A common error was to identify the side length as 16 cm often from using the perimeter as 64 cm. Some students then used the circumference formula or squared  $\pi$ .

**Question 21**

This problem-solving question differentiated very well between students of different abilities. There were few non-attempts with most students making some progress. Many methods were seen when students worked with the percentages. A common error was to add 13% to the initial total of £80

**Question 22**

Part (a) was well answered but part (b) less so with all other options being quite common.

**Question 23**

This question was poorly answered. Some students divided 180 (instead of 360) by 20, and so 9 was a common incorrect answer.

**Question 24**

This was a poorly answered question with no one single incorrect answer being particularly popular.

**Question 25**

Although this question differentiated well, overall, it was not well answered. Most students knew that the top and bottom statement could not be true but were less confident when considering the other four statements.

**Question 26**

This was a well-attempted question with most students making a correct approach. However, many students, after writing down products for 36, did not refine them into prime number products. Of those who obtained 2, 3, 2, 3, many left them as a product or with commas, as shown.

**Question 27**

This new topic was very poorly answered.

**Question 28**

This topic, new to Foundation, was answered reasonably well. Those who opted for a trial and error approach were often more successful than those who tried an algebraic approach. A significant number of students tried to eliminate  $x$  even though it was far easier to eliminate  $y$ .

### **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.