

---

GCSE

# Mathematics

8300/1H      Paper 1 Higher  
Report on the Examination

---

Specification 8300  
November 2017

---

Version: 1.0

---

---

Further copies of this Report are available from [aqa.org.uk](http://aqa.org.uk)

Copyright © 2018 AQA and its licensors. All rights reserved.  
AQA retains the copyright on all its publications. However, registered schools/colleges for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to schools/colleges to photocopy any material that is acknowledged to a third party even for internal use within the centre.

**General**

The first half of the paper proved accessible to most students, but there was an increasingly large number of non-attempts towards the end of the paper. This is probably due to the nature of the candidature (resitters), rather than any time pressures.

Topics that were done well included:

- working with square roots
- dividing in ratio
- the product rule for counting
- interpreting a capacity/time graph.

Topics which candidates found difficult included:

- bounds
- writing algebraic expressions
- proof
- cumulative frequency
- ratio and proportion problems
- working with indices.

**Question 1**

This question was not particularly well answered. Many students did not correctly evaluate  $2^6$ .

**Question 2**

This question was well answered.

**Question 3**

This question was well answered.

**Question 4**

This question was well answered.

**Question 5**

Neither part of this question was particularly well answered.  $(x - 10)^2$  was a common incorrect answer to part (a), while rearrangement and sign errors were often seen in part (b).

**Question 6**

This question was well answered, although many students evaluated  $\sqrt{3}$  as 1.5 and  $\sqrt{2}$  as 1

**Question 7**

Most students correctly obtained  $36\pi$ , but many then did not divide by 4 or carried out a different further calculation.

**Question 8**

This question was not well answered. Most students looked for numbers which rounded up rather than down, with 67 from numbers such as 39, 19 and 9 being a common answer.

**Question 9**

This question was not well answered, with the incorrect options being generally more popular than the correct one.

**Question 10**

Part (a) was not well answered, with few students giving a correct initial expression, and only a small proportion of those going on to correctly simplify it. In part (b), there was even less success in achieving a starting expression, this time in terms of  $b$  and  $s$ , but of those who did a greater proportion went on to obtain a correct expression in terms of  $b$ .

**Question 11**

This question discriminated well, with a good range of marks. Many students who chose a correct method then made due to arithmetic errors, particularly when calculating  $260 \div 5$ .

**Question 12**

There was a reasonable response to this question. Rounding 0.526 to 1 and incorrectly evaluating  $40^2$  were the most common errors.

**Question 13**

This question was well answered. Students who based their method on dividing 88 by  $(7 + 4)$  usually arrived at the correct answer, and those who used trial and improvement with numbers in the ratio 7 : 4 also had some success.

**Question 14**

Students who worked with an exterior angle of  $30^\circ$  were usually successful, but those who worked with the interior angle rarely made progressed beyond the first step.

**Question 15**

Part (a) was well answered, and there was reasonable success in part (b). Many students, however, added 7, 5 and 3 in part (a) and added  $\frac{2}{7}$  to  $\frac{3}{5}$  in part (b).

**Question 16**

This question was very well answered.

**Question 17**

This question was not well answered, with many students stating that Alex was correct. Those who ticked the correct box rarely gave a correct reason.

**Question 18**

There was a reasonable response to this question, although a sizeable proportion of the students only circled one value.

**Question 19**

Despite only needing simple angles theorems this proof question was very badly answered, although some students showed that the four central angles summed to  $360^\circ$ .

**Question 20**

Many students argued correctly that the mode was not suitable, as none of the numbers were duplicated, but most said that the mean was the appropriate average to use. Some students

simply defined the two terms they had not selected, for example 'median is the middle' and 'mode is the most', which did not answer the question.

**Question 21**

While a reasonable number of students worked out that 56 was important, few gave coordinates that resulted in that value.

**Question 22**

In part (a), a reasonable proportion of the students worked out the cumulative frequencies correctly, but many then plotted them at the mid-points and started their curve at (0, 0). Part (c) was not well answered, with a high number of non-attempts.

**Question 23**

This question was reasonably well answered, although (3, 5) was the favourite option.

**Question 24**

This question using circle theorems in a problem solving context was not well answered, with many students writing an expression in all four variables or starting with  $x + x + 20 = 180$ . Again, there was a large number of non-attempts.

**Question 25**

Although there were few non-attempts, this question was not well answered. Many students started by trying to divide 15 by 8 or 8 by 15, and this and other methods often led to working in minutes rather than hours, which was almost always unsuccessful.

**Question 26**

There were some reasonable answers to part (a), but many incorrect answers were unnecessarily complex. Those who were successful in part (b) usually used an algebraic approach from first principles rather than using the information in part (a).

**Question 27**

Students who were successful had usually drawn a tree diagram, but many of those who did draw a tree diagram failed to take into account the conditionality of the context.

**Question 28**

The first two parts of this question were well answered, but few students were successful in part (c) and even fewer in part (d), with very large numbers of non-attempts in both these last two parts.

**Question 29**

Part (a) was reasonably well answered, but there were very few correct answers to part (b).

**Question 30**

Students had some success in part (a), but very few made any progress in part (b).  $16 \times 8$  was a common starting point.

### **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.