GCSE
Mathematics

8300/1H   Paper 1 Higher

Report on the Examination

Specification 8300
November 2018

Version: 1.0

General

The first half of the paper was accessible to most students, and comprised many questions which discriminated well. In the second half of the paper, however, there was a large number of non-attempts on many questions.

Topics that were done well included:

- laws of indices
- volume of a cylinder
- algebraic simplification
- recalling a trigonometric value
- identifying an outlier
- congruence

Topics which candidates found difficult included:

- proportion
- geometric proof
- working out the nth term of a quadratic sequence
- solving an equation involving algebraic fractions
- ratio of measures for similar solids
- surds
- working out the equation of a curve
- the formula for the area of a triangle and the cosine rule

Question 1
This question was well answered, with 25^8 a popular incorrect answer.

Question 2
This question was well answered, with 40π a popular incorrect answer.

Question 3
This question was well answered, with $38a$ a popular incorrect answer.

Question 4

This question was well answered, with $\dfrac{1}{2}$ a popular incorrect answer.

Question 5
Many students made progress with this question. Common errors were to incorrectly convert the mixed numbers to improper fractions as $\dfrac{9}{2}$ and $\dfrac{4}{3}$ and, having inverted the second fraction and changed the divide sign to multiply, to use a method for the addition of fractions rather than multiplication.

Question 6
Most students were able to score at least one mark on this question, but many divided the final distance from home by 4 rather than the miles actually travelled by 4. Some students incorrectly interpreted the scale on the vertical axis.

Question 7
A reasonable number of students showed that the correct sum was 540°, but many thought that the given sum was correct.

Question 8
Part (a) was very well answered. Most students scored at least one mark in part (b), but some did not scale up the 4-hour period to a full day. In part (c), many students said that her prediction was too high, often reiterating the two pieces of information given.

Question 9
Many students correctly simplified one or both side(s) of the equation. Common errors included saying that the left hand side simplified to 14 and saying that the right hand side simplified to $5a^3$.

Question 10
This question was a very good discriminator. Some students worked out what percentage 280 is of 80, rather than what increase it is.

Question 11
This question was well answered, with B and C being the other common answer.

Question 12
Most students tried to solve the equation by factorisation, and those who factorised correctly usually went on to give the correct solutions. Those who used the quadratic formula tended to make more arithmetic errors, particularly when using $b = -1$

Question 13
This question was not well answered. Most students either gave the ratio as 1 : 2 (from 2 : 4) or added the respective ratios to get $\frac{2}{5}$ and $\frac{4}{9}$.

Question 14
Many students worked out the missing probability from the Venn diagram or P(B), but few went on to achieve the correct answer.

Question 15
In part (a), many students chose supermarket B, with a common reason being the size of the box.

In part (b), many chose the correct supermarket but gave an incorrect or non-mathematical reason, with a common reason being that the box was the same length either side of the median.

Question 16
This question was well answered, with 2700 a popular incorrect answer.

Question 17
Many students ignored the negative power or used it to make their answer negative.

Question 18
This question was not well answered, with many students giving an answer greater than the number of days taken by either individual translator. The most successful answers were based on a possible number of pages which was a common multiple of 8 and 10.

Question 19
In part (a), many students attempted a numerical, rather than algebraic, method, which was unsuccessful.

In part (b), most students failed to link the two parts of the question, but those who did were generally successful.

Question 20
Many students were able to gain marks by working out one or more of the required angles, but few went on to explain why QS was not a diameter. Very few students gave the required geometrical reasons for their working. Many students based their answer on X not being the centre of the circle.

Question 21
Most students correctly worked out the first and second differences, with many knowing that this meant that the expression started $2n^2$. Many did not make progress from there, with those using a subtraction method often taking away $(2n)^2$ rather than $2n^2$.

Question 22
Few students made progress with this question, with those who did attempt some algebraic work often multiplying each numerator by their own denominator.

Question 23
The first correct step in this question was to take the square root of each side of the ratio, but very few students did this. Most simply divided 480 by 4 and multiplied by 9.

Question 24
There were many non-attempts to this question. Those students who did make an attempt often combined the denominators incorrectly to get $\sqrt{15}$.

Question 25
Most students failed to make any progress with this question, although a reasonable proportion did give an equation of a quadratic equation that passed through (0, 18).

Question 26
Various incorrect Pythagorean and trigonometric methods were attempted with this question. Few students scored any marks.

Question 27
Neither part was well answered, with '1 − k' the most popular choice in part (a) and 'k + 1' the most popular in part (b).

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.