GCSE
Mathematics

8300/2H Paper 2 Higher
Report on the Examination

8300
November 2019

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General

Most students attempted the questions in the first half of the paper. Many of the questions in the second half of the paper were not well answered and often no attempt was made. Most students appeared to have used a calculator where appropriate although some misinterpretation of the display occurred in one question. Questions requiring an explanation or a reason were not answered well.

Topics that were well done included:

- identifying the type of correlation
- speed, distance, time problem
- repeated percentage change
- identifying how to work out average speed from a graph.

Topics which students found difficult included:

- working out values in an identity
- percentages involving algebra
- quadratic equation problem
- algebraic proof
- similar shapes problem
- inequalities
- geometric proof
- proportion problem.

Question 1

This question was very well answered.

Question 2

This question was not well answered. The two most common incorrect choices were 10^3 and 10^5

Question 3

This question was not well answered. The most common incorrect choice was $\dfrac{5}{8}$

Question 4

This question was not well answered. The most common incorrect choice was $y = -x^2$

Question 5

This question was quite well answered with many giving the correct answer. Others gained a mark for expressing at least one of the given numbers in index form. A significant number of students gave the highest common factor as their final answer.

Question 6

Part (a) was well answered. Many students drew an appropriate line of best fit in part (b). A common error was to draw a line of best fit passing through (0, 0). Most students who drew a line of best fit were able to use it correctly. Part (c) was not well answered.

Question 7

This question was quite well answered with nearly all students gaining at least one mark. Many correct answers were seen A common error was to convert 0.8 hours to 80 minutes. Overall the question was a good discriminator.

Question 8

Most students did not know how to approach this question although there was some improvement in performance compared to last year. Many expanded the brackets correctly but only a small proportion of students attempted to equate coefficients.

Question 9

Many gained one mark by calculating an angle of 62° and this was often given as the final answer. Only a few appeared to know which angle they needed to work out.

Question 10

Most students obtained the common difference correctly. A significant number obtained the correct answer and the question was quite a good discriminator.

Question 11

This question was well answered with many gaining at least three of the four marks available. Some students appeared to have missed the instruction to give their answer to 2 significant figures. Most students completed the question in an efficient way using a multiplier rather than working one year at a time. The most common error was to work out 5% of £120 000 and then multiply the answer by 4 before adding this on to £120 000

Question 12

Many students did not use Pythagoras' theorem and often worked with areas rather than perimeters. Some who did use Pythagoras' theorem did not halve 16. Very few gained part marks and a large majority did not score any marks.

Question 13

Part (a) was answered quite well with some improvement compared to a similar question last year. Some initially multiplied midpoints by frequencies but then chose an incorrect method, for example, dividing 200 by 4. In part (b) most did not understand how to draw a histogram and very few part marks were gained.

Question 14

Part (a) was answered quite well and was a good discriminator. Some students were only able to work out one correct area, usually the triangle. Some who divided 25 by 178 misinterpreted their

calculator display. When it gave them the decimal value $0.1\dot{4}04494....$ they subsequently wrote

$0.1\dot{4}$ as their final answer, which was incorrect.
Part (b) was answered quite well for a question of this type.

Question 15

This question was answered quite well. The most common incorrect answer was $w = \sqrt{y^3}$

Question 16

Part (a) was not well answered. Many students made no attempt and nearly all of those who did just gave a numerical example. Part (b) was answered quite well.

Question 17

Part (a) was quite well answered. Most worked out 0.85 x 80 and subtracted the answer from 80. Part (b) was more challenging. Many students tried to use the answer to part (a) and there were a significant number of non-attempts.

Question 18

In part (a) many students just tried to solve the given equation. Those who did attempt to show how to form the given equation often did not give sufficient detail of how the 1400 was obtained. Part (b) was not well answered with a large majority of students ticking the wrong box.

Question 19

This question was not well answered with both exponential and quadratic being chosen more often than the correct answer.

Question 20

This question was quite well answered. The most common wrong answer was (9, 28).

Question 21

Very few students made any progress in this question with many making no attempt.

Question 22

This question was well answered. The most common wrong answer was the gradient of the chord from O to B.

Question 23

Neither part was well answered. In (a) very few understood that the linear scale factor should not be used. In (b) a significant number of students worked out 468.75 but did not know how to use this value to work out x.

Question 24

This question was not well answered. A small number of students tried to use x as –2 but could not make any further progress. There were a large number of non-attempts.

Question 25

Many of the students who attempted this question assumed that *AB* was parallel to *ED*. Very few managed to score any marks with many making no attempt.

Question 26

Some students managed to make some progress with most success being achieved from working out the correct value of the constant for the inverse proportion part. Many took P to be directly proportional to Q rather than to the square of Q. There were many non-attempts.

Question 27

A significant number of students were able to correctly process one iteration but fully correct solutions were rare. Again there were many non-attempts.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.