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GCSE

# Mathematics

8300/2F      Paper 2 Foundation

Report on the Examination

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Specification 8300  
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**General**

Students appeared to find most questions accessible and there was no evidence of time pressure. Students often did not set out their solutions clearly. It was apparent at times that some students did not use a calculator.

Topics that were well done included:

- price problem
- use of a calculator
- two-way table
- mean problem
- population density
- quadratic sequence.

Topics which students found difficult included:

- factors
- approximations
- circumference problem
- ratio in the form  $n : 1$
- enlargement by a fractional scale factor
- volume of a prism.

**Question 1**

This question was well answered.

**Question 2**

This question was well answered.

**Question 3**

Most students chose the correct answer. The common incorrect answer was  $\frac{3}{10}$ .

**Question 4**

Most students chose the correct answer. The common incorrect answer was  $A = B^2$ .

**Question 5**

Part (a) was very well answered. In part (b) some students attempted to collect terms that were not similar leading to an answer of  $15a$ . Another common incorrect approach was to subtract the 9, and sometimes students subtracted both the 2 and the 9.

**Question 6**

This question was fairly well answered. Some students omitted the axis labels or title and non-linear scales were seen occasionally.

**Question 7**

Most students started by correctly adding one or both sets of coins. Those who then worked out the amount each person needed usually gave a fully correct solution. Many students attempted to move coins between Eve and Ola but their approach was often unclear. A few students gave the correct coins with incorrect units.

**Question 8**

This question was well answered. Some students only managed to work out one offer accurately, usually for the suits, and occasionally, arithmetic errors were seen.

**Question 9**

Many students were able to work out that the twins were 14 at the moment but often only subtracted one twin from the total age. Some students started the problem by dividing 39 by 3.

**Question 10**

This question proved to be a good discriminator. Students usually gave the correct answer for the last statement but the others had a mixed response.

**Question 11**

This question was poorly answered. All the other options were chosen relatively frequently.

**Question 12**

This question was well answered.

**Question 13**

Part (a) was very well answered. Part (b) was poorly answered. Many students correctly rounded 437 or 11 to 1 significant figure but 18 953 often became 19 000. Some students simply rounded the answer to part (a). It was common for students to omit the decision as to whether their answer was actually sensible.

**Question 14**

Both parts to this question were very well answered.

**Question 15**

Some students worked out the score of 128 but then compared this with 65% of her total rather than 65% of all the marks available. It was common to see build-up methods used for the percentages and these often resulted in errors.

**Question 16**

This question was poorly answered with most students only working out the length of the spokes correctly.

**Question 17**

Both parts of this question had a high proportion of non-attempts. In part (a) students who knew to substitute  $-40$  into the equation usually completed this part successfully. However, it was common to see the 1.8 omitted or added. In part (b) almost all students chose to substitute  $-15$  but sometimes did not evaluate the temperature correctly.

**Question 18**

This question was very well answered with most students successfully working out the mean of different sets of four numbers.

**Question 19**

Part (a) was fairly well answered. The common incorrect approach was to divide by 4. Part (b) was very poorly answered and had the highest proportion of non-attempts. Incorrect responses often contained  $n$ .

**Question 20**

Most students were able to calculate Han's new monthly pay. Some also worked out the number of hours he worked a year. Many tried to divide the monthly pay by 4 to get the weekly pay resulting in an incorrect answer of £9.18. It was common to see a value divided by 37.5 and then multiplied by 47. A build-up method was often used for the percentage increase and this frequently resulted in incorrect work, for example, a starting point of 1% as £135 was common.

**Question 21**

Both parts were fairly well answered. In part (a) some students were only able to work out the frequency of M and showed no correct work for relative frequencies, often giving matching relative frequencies of 0.29 for L and M. In part (b) a significant minority worked out the expected number for 600 times. A few students worked out 210 but then gave their answer as a relative frequency.

**Question 22**

This was well answered with most students able to work out both population densities correctly and almost all giving them in a comparable form. Many students did not compare their values or simply worked out the difference.

**Question 23**

This question was fairly well answered. The common incorrect answer was "Time taken to deliver a television".

**Question 24**

This question was poorly answered. A small number of students correctly stated it was an enlargement but many contradicted this by offering a second transformation, for example, stating it was enlarged and moved up. There was a lot of incorrect terminology seen with students stating, for example, that it had shrunk and not recognising that this is still called an enlargement.

**Question 25**

In part (a) many students added the two ends of the curve to give  $12 + 12 = 24$ . Some only showed a point on the line but did not show how that made 24. Part (b) was very poorly answered with many incorrectly combining values. Almost all students omitted the factor of a half needed for the area of the triangle. It was very rare for students to use the graph but some did manage to work out the area of the cross section by dividing 24 by 5.

**Question 26**

This question was mostly well answered. In part (a) some used incorrect methods to work out three quarters of 15 and some only wrote it in words rather than showing the calculation. In part (b) most students worked out two thirds of the first bounce from (a) and compared with their answer to part (a). Those who compared two thirds and three quarters often stated that two thirds was 0.6 and made no further progress.

**Question 27**

This question was a good discriminator. The brackets were often expanded well but even students who reached a correct equation often divided 10 by 3 rather than 3 by 10. There was a lot of poor notation seen and a significant number of students did not work with equations but separate expressions which almost always meant they had sign errors.

**Question 28**

This question was very well answered.

**Question 29**

Some students worked out  $\tan \frac{3}{7}$ . Many students only used Pythagoras' theorem and some gave calculations involving  $360^\circ$  or  $180^\circ$ . Those who were able to set up the ratio correctly usually went on to give a fully correct solution.

**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.