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General Certificate of Secondary Education
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Mathematics 43602F

(Specification 4360)

Unit 2: Number and Algebra (Foundation)

Report on the Examination

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Unit 2: Foundation Tier

General

The paper was accessible and there was no evidence that students were short of time. Many students understood what methods were required but the standard of arithmetic was often poor.

Topics that were well done included:

- identifying multiples and factors
- ordering decimals, fractions and percentages
- calculating percentages
- solving a number grid
- solving equations.

Topics which students found difficult included:

- changing between decimals, fractions and percentages
- solving an inequality
- interpreting a graph
- proportion
- highest common factor.

Question 1

This question was well answered.

Question 2

Many students obtained an answer within the acceptable range. Many others approximated at least one of the numbers correctly. Some students attempted long multiplication. A common misconception was that after finding $30 \times 5 = 150$ it was necessary to manipulate the decimals to try to get a closer estimate.

Question 3

This question was well answered.

Question 4

Overall the question was well attempted but there were many arithmetical errors and it was common to work out the two totals correctly and then to subtract them incorrectly. Few students realised that a simple route to the answer was just to add two lots of 85p. A common incorrect answer was to subtract 2×85 from 3×85 and give the answer 85p. A few students thought that "3 for the price of 2" meant 3 tins for £2. Repeated addition was a common method for finding 6×85 or 4×85. Quite a few students used incorrect money notation.

Question 5

Parts (a) and (b) were well answered but students found powers of 10 more difficult.

Question 6

Many students managed to put the three numbers in the correct order in part (d). Common incorrect answers were 80% = 8.0, 0.7 = 1/7 and $\frac{3}{4} = 3.4$

Question 7

Many students were able to find 10% of 3000, although some went on to double their answer when attempting to work out 5%. Most students made the correct conclusion from their answer, but a significant number compared their answer to 3000 which invalidated their conclusion.

Question 8

In part (a) many students solved the equation correctly but $x = 2$ was a common wrong answer.

In part (b) there were a good number of correct answers and many were well presented. A common error was to write $2y = 11$, $y = 5.1$. Some students interpreted $2y$ as $2 + y$. Trial and improvement methods often resulted in only integers being tried.

In part (c) there was quite a good response. It was common to see $5m + -7p$ on the answer line. Some students had $5m$ followed by the terms in p unsimplified.

Question 9

Few fully correct solutions were seen, although many students gave an answer of 42. A small number of students realised that 99 and 98 would have to be 2 of the numbers. Clearly some students did not interpret the question correctly, with both 3-digit and 1-digit numbers appearing in their answers. Many students used the technique of dividing 240 by 3 and then giving the answer as 70, 80, and 90. Some students tried to re-arrange the digits 2, 4 and 0 to make different 2-digit numbers.

Question 10

This question was very well answered with many fully correct responses. Some students misunderstood the question and put the correct numbers in the table but then totalled these numbers on their answer line; for example, there were 8 As in the table so they gave the answer as 48 for A (6 × 8).

Question 11

Apart from a few who used 53 instead of 5 × 3, most students recognised which calculations were required. 5 × 3 was generally calculated correctly but fraction work was weak. Many incorrect answers to $4 \times \frac{1}{2}$ were seen, for example, 8 or $4\frac{1}{2}$. Another common error was to write $15 - 4\frac{1}{2} = 10\frac{1}{2}$ (or $11\frac{1}{2}$).

Question 12

A significant number of students did not attempt this question but those who did generally had some success by working out one trial. A large number of students of those who were successful gave 36 – 1 = 35. Many of these also went on to show that their answer was a multiple of 7 by writing 7 × 5 = 35. A common error was to multiply by 2 rather than squaring.

Question 13

This was one of the least well attempted and least well answered questions. There was a general lack of understanding of the 'greater than or equals' sign. There was a lot of working where the inequality sign was replaced by an equals sign.

Question 14

The majority of students made good attempts at this question. However, many ignored the 'profit of £100' part of the question and merely divided their profit so far by 15. Many students did not show working even though this was a requirement of the question. There was some very good arithmetic seen but some students used inefficient methods on calculations, for example using repeated addition for multiplication.

Question 15

Part (a) was not particularly well answered. 24 was a common incorrect answer as the return journey had not been included.

In part (b) the vast majority recognised that the horizontal sections corresponded to "stationary". Interpretation of the horizontal scale was not as well answered, although many students gave two of the three sections that were correct, generally the 20 and the 10. A common misconception was just to add the squares without reference to the scale, giving an answer of 22 from 7 + 10 + 5.

In part (c) many students correctly mentioned the word 'steeper' or 'steepest' in their answers which shows understanding of the subject matter, but some thought that AB was the fastest as it was the longest. "A long distance in a short time" was a common incomplete reason. There were a few misconceptions such as "going downhill is faster" or "she can go faster early on as there is less traffic".

Question 16

This question was quite well answered. Some students simply subtracted 150 from each amount rather than doing a proportion.

Question 17

This question was accessible to most students. A significant number of students gave $2w$ for $w \times w$. Some students, having obtained two terms went on to try and combine them, giving, for example, $6w^2$. Some used incorrect terminology such as $w6$.

Question 18

In part (a) there were many lists of prime numbers seen and most students gave at least one pair of factors. Often, addition signs were used in place of multiplication signs; for example 2 + 3 + 3 + 7.

In part (b) there were few fully correct answers although some gave 6 or 9 or a pair of factors. A significant number of students attempted to find the least common multiple.

Question 19

Many good answers were seen. However, a large proportion of students worked out £8 for Billie and then tried to find two-thirds of £8 for Chris, leading to a decimal answer. Common incorrect answers were 9.6 and 10.

Mark Range and Award of Grades

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