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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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General

The majority of candidates attempted all questions. Questions involving functional elements were generally well answered. The standard of algebra and basic arithmetic, particularly multiplication and division, was often poor. The problem solving type questions were often answered by trial and improvement methods. Candidates should be encouraged to apply algebraic methods in these questions. There were many instances where candidates had crossed out their responses which could then not be read. It should be pointed out to candidates that work should not be deleted until it has been replaced.

Topics that were well done included:

- coordinates in the first quadrant
- multiples of numbers
- halving numbers
- simple money problems
- sequences.

Topics which candidates found difficult included:

- prime numbers
- increasing an amount by a given percentage
- estimation
- linear equations
- expanding brackets.

Question 1

This question was well answered by most candidates although a number of candidates were unable to recognise the square number in part (e).

Question 2

This question was well answered. The most common error in all parts was to reverse the coordinates.

Question 3

This question was well answered. The most common error was to forget to multiply the 14 by 2. There were also a few slips in adding 5 and 9.

Question 4

There were some good answers, for example, 21 is a triangle number; but there were also a number of trivial answers, for example, 21 ends in a 1 or 25 does not follow the pattern. Some candidates confused factors and multiples and squares and square roots.

Question 5

There were many fully correct responses to this question. Common errors were to add the three numbers to 30 or 32, to give three correct numbers in the wrong order or to include 0 as a multiple.

Question 6

This question was well answered. Many candidates used repeated addition to obtain the answer, but sometimes the working contained an error. A common mistake was to multiply 8 by 40 to give an incorrect answer of 320 hours.

Question 7

Parts (a) and (b) were answered correctly by nearly all candidates. Although many correct answers of £750 were seen in part (c), some candidates had difficulty in completing the subtraction. The most common incorrect answer for the calculation £132500 – £131750 was £1250, from the subtraction of the lower number from the higher number in each column. The most common incorrect answer in part (d) was £1324.

Question 8

Common incorrect answers in part (a) were 60.5 and 12. The common errors in part (b) were $3 \times 5 = 15$, $45 - 15 = 30$ and $45 \div 5 = 9$; $45 \div 3 = 15$, so $9 + 15 = 24$. In part (c) candidates who tried to use a build-up method were usually unsuccessful and 10% = 15 followed by 1% = 0.15 was quite common. A few candidates used $\frac{8}{10}$ for 8% giving an incorrect answer of 120.

Question 9

In part (a) few candidates realised that the division had to be completed first and 2.5 or $2\frac{1}{2}$ was rarely seen. The most common incorrect answer was $17 - 5 = 12 \div 2 = 6 + 4 = 10$. Part (b) was reasonably well answered, but part (c) was not so successful with two pairs of brackets appearing to be randomly placed.

Question 10

A number of candidates misunderstood the question and gave an incorrect answer of 60 packs from £72 ÷ £1.20. Others ignored the profit and just worked out £72 ÷ £2.40 to give an incorrect answer of 30 packs. The most common error was to say that the increase was £2.40 which led to a value of £4.80 for each pack. A number of candidates arrived at an incorrect answer of 200 packs, from wrong working.

Question 11

Part (a) was well answered. The most common incorrect answers were 26 and 78 or 26 and 54. The most common incorrect answer in part (b) was –6, from $1 - 4 = -3$, $-3 \div 2 = -6$. The incorrect method of ÷2 followed by –4 was also frequently seen.

Question 12

The correct answer of £63.30 was rarely seen. A common error was to perform the same calculation for both 5647 units and 5345 units. Some candidates only subtracted the 200 units from the 5647 units and then worked out 5447 × 15p. It was quite common for answers to be in thousands of pounds. Arithmetic was poor in this question.

Question 13

Many candidates just listed the prime numbers between 50 and 60, often incorrectly. A few candidates started by drawing factor trees.

Question 14

Many candidates did not use approximations and tried to evaluate the given expression. Even where the correct approximations were used, the final answer was often given as 200 instead of 20.

Question 15

Many candidates showed 7 or 14 red counters in their working and a few then proceeded to subtract 14 from 50 to get 36, but the most common incorrect method was then to divide 36 by 3 instead of 4 to get an incorrect answer of 12. It was fairly common to see 43 ÷ 3 = 14 remainder 1, with an incorrect answer of 14.

Question 16

In part (a) candidates chose plan A or plan B in almost equal numbers. This was mainly because candidates seemed to consider the most important detail was the number of free minutes. Where candidates chose plan A, the reason 'because it is cheaper', was by far the most common correct response. In part (b) there were only a few cases where an attempt was made to compare cost with units, and there was hardly any evidence of the graph being used.

Question 17

A few candidates managed to expand the brackets in part (a) and $3x + 6$ was often seen. The most common error was to state that $5x + 3 = 8x$. Other frequent errors were to eliminate the 3s to obtain $5x = x + 2$ or subtract the 2 to obtain $5x + 1 = 3x$. There were hardly any correct answers in part (b) with many making no attempt. A response of $a = 6$ with $b = 11$ was common, which came from $2x + 4x = 6x$ and $16 - 5 = 11$. Very few candidates progressed to $6x + 12$, but then usually gave $a = 6$ and $b = 12$ as the answer. Of those candidates who expanded the brackets correctly, most tried to solve the equation $2x + 32 = 4x - 20$.

Mark Ranges and Award of Grades

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