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Unit 2 Foundation Tier 43602F

Report on the Examination

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General

This paper was the first for the new specification and challenged a substantial number of candidates. Nearly all questions on algebra were poorly answered and it was also a concern that the standard of basic arithmetic was very poor. Candidates were often aware of the correct method but incorrect answers were given because candidates could not carry out the basic four rules accurately. A poor standard of division was particularly prevalent. The new problem solving type questions were virtually all answered by trial and improvement methods. Candidates should be encouraged to apply algebraic methods in these questions. On a positive note, questions that involved functional elements of mathematics were usually well answered.

Topics that were well done included:

- place value
- factors and multiples
- simple money problems
- proportion
- sequences.

Topics which candidates found difficult included:

- fractions
- prime numbers
- division in a given ratio
- solving linear equations
- substitution into an algebraic expression
- expanding brackets.

Question 1

This question was well answered by the majority of candidates. In part (c) many candidates gave the largest number as their answer, instead of the largest odd number. Almost all candidates followed the instruction to use each number once.

Question 2

This question was generally well answered. In part (a) some candidates were unable to find $\frac{1}{4}$ of £200 and common incorrect answers were £80 or £150. In part (b) some candidates did not appreciate that they could only use the savings and simply stated that it only took 2 weeks. The concept of rounding up to the nearest week was well understood by the majority of candidates, although a significant number gave their answer as 6 weeks and a number of days.

Question 3

This question was well done with many fully correct responses. Those candidates who listed coins or stated 20p + 20p + 10p = 50p usually had the most success. A good proportion of candidates used a trial and improvement method with varying degrees of success. Common incorrect answers were 5 × 10p and 5 × 20p or 1 × 10p and 7 × 20p.

Question 4

This question was well done. Most candidates correctly multiplied the amounts by 3, with just a few trying to divide by 4 and then multiply by 12. Common incorrect multiplying factors were 4, 8 and 12. Poor arithmetic was fairly common, with $3 \times 120 = 363$ and $3 \times 300 = 333$ often seen.

Question 5

This question was reasonably well answered. In part (a)(i) 24 and 36 were the most common correct answers, with 18 and 26 being the most common incorrect answers. In part (b) there was less success and there appeared to be a significant amount of guessing. In part (c) a good proportion of candidates were able to give the correct answer as 52.

Question 6

The majority of candidates were able to make good progress with this question. There were some good responses but many candidates were unable to correctly multiply 50 by 12 or 85 by 10 with some using a grid method to multiply by 10. Many candidates showed little or no working out. A common error was to forget to add the £15 monthly charge.

Question 7

This question was quite well answered. Most candidates started by either adding 325 to 165 or subtracting 165 from 325 but were then unsure of the next step. The method of trial and improvement was fairly common but errors in addition or subtraction were very common. Those candidates who arrived at 245 rarely realised that this was the number of beads each girl had and was not the answer to the question. This question revealed very poor subtraction skills with many cases of 325 – 165 = 240 seen.

Question 8

This question was quite well answered. In part (a) nearly all candidates realised the rule was to subtract 8 from the previous term, but quite a number were then unable to correctly work out the two missing numbers. A common incorrect answer was 67 and 36. In part (b) those candidates who used a trial and improvement method were usually successful apart from errors in subtraction. A common incorrect method was (26 – 6) ÷ 3 leading to incorrect answers of 6 or 7 or $6\frac{2}{3}$.

Question 9

There were many correct responses within this question but very few fully correct answers were seen. There were a number of misconceptions, for example, in part (a) $3a = 3 + a$, leading to an incorrect answer $a = 9$. In part (b), a common incorrect answer was 30. The more able candidates coped well with part (c) and many well set out solutions were seen. It was common to see $5 + c = 15$ which then led to an incorrect answer of $c = 10$. In part (d) very few candidates could factorise the expression and a few candidates read it as an equation and gave an incorrect answer of 5.

Question 10

There were few correct responses for this question. In part (a), of those candidates who understood the question, a significant proportion failed to complete the working and gave an

answer of 10 + 24. Others left in the letters and gave an answer of $10a + 24b$. Common errors were 2 + 5 + 3 + 8 = 18 and 25 + 38 = 63. The responses to part (b) were poor. Candidates who multiplied out the brackets correctly, often did not collect like terms and many could not work out –12 + 10. Very common incorrect responses were $6m - 4 + 5m + 2 = 11m - 2$ and $6m - 12 + 5m + 10 = 11m - 2m = 9m$. Some candidates subtracted $5m$ from $6m$ and others tried to make it into an equation doing the same to both "sides".

Question 11

This question was poorly answered by candidates often as a result of poor arithmetic. $90 \times 1\frac{1}{2} = 91\frac{1}{2}$ being a common incorrect answer. The more able candidates simply wrote down 90 + 45 = 135 and weaker candidates often arrived at the correct answer with the aid of diagrams. Many candidates showed a lack of understanding of the question and wrote down $\frac{2}{3}$ of 60 = 40, $40 \times 1\frac{1}{2} = 60$ and it was common to see just $60 \times 1\frac{1}{2} = 90$.

Question 12

Many candidates were unable to square numbers correctly and the concept of a prime number was unfamiliar to many. In part (a) common errors were 4 + 3 = 7, 8 – 6 = 2 and 16 + 9 = 25. In part (b) pairs of numbers which would have been correct were often followed by an incorrect subtraction.

Question 13

Many candidates had difficulty reading the scale on the distance axis. Part (a) was usually correct but in part (b) many candidates did not understand the significance of the word "ahead" and forgot to subtract 5 km from 6.6 km.

Question 14

This question challenged the majority of candidates. Many simply attempted to divide £132 by 20 and, if done correctly, gave a very common incorrect answer of £6.60. A common misconception was to read the second sentence as meaning that the cost of the students' tickets was half of the total cost. This lead to an incorrect method of 132 ÷ 2 = 66, 66 ÷ 18. Many candidates attempted to use a trial and improvement method but it was rare to see a fully correct solution. The more able candidates stated that 2 teachers' tickets = 4 students' tickets, so £132 ÷ 22 = £6. No algebraic methods were seen.

Question 15

This question proved to be too challenging for the majority of candidates. Very few had sufficient understanding of fractions to be able to make any attempt. The most common incorrect answer seen was $\frac{1}{6}$. The few candidates who started with $\frac{1}{4} + \frac{1}{8} = \frac{3}{8}$ rarely managed to proceed further. Some candidates had success by drawing diagrams.

Question 16

Many candidates used a correct method in this question but then could not divide £600 by 20 with £300 as the most common incorrect answer. A very common incorrect method was to divide £600 by 9, 6 and 5. Some candidates realised there were 20 parts but then multiplied 20

by 9, 6 and 5. Others appreciated that the three amounts had to total £600 and incorrect answers of £300, £200, £100 and £200, £200, £200 were seen.

Question 17

Very few candidates completed this question correctly. Most candidates managed to start with £50 × 3, but this did not always come to £150. Many candidates were then unable to proceed to find 40% of £3, in order to reduce the price by 40%. Common incorrect answers for 40% of £3 were £1.50, £1.60 and £1. It was extremely rare to see 60% of £3 being used. Multiplication of their answer by 30 caused problems with many candidates attempting to work it out using an addition method. Of those candidates who proceeded correctly, a significant number forgot to subtract the £95 for making the jam or did not make a decision as to whether or not the target was met.