



## **General Certificate of Secondary Education**

# **Mathematics (Modular) 4307** *Specification B*

**Module 3 Foundation Tier 43053F**

## **Report on the Examination** *2008 examination - June series*

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## General

The paper provided a test of some standard procedures together with longer questions set in contexts. It was pleasing to see that many candidates were able to understand how to solve some of these longer questions although arithmetic errors often meant that correct final answers could not always be obtained. Some candidates penalised themselves by not reading questions carefully enough (for example questions 2(c) and 4). Many showed their working clearly and this was welcomed even on Section A where a calculator is allowed. Candidates should ensure that answers are not written in the margins and should use an additional sheet if they need more space. The use of 'build-up' methods was rarely successful. Understanding of standard procedures for subtracting fractions, multiplying decimals and estimating continues to be lacking in many candidates.

Topics that were well done included:

- simple fraction work
- ordering integers
- writing integers in words
- identifying multiples of 5
- adding integers
- choosing operations
- explaining about ten million.

Topics which candidates found difficult included:

- rounding to one decimal place and to the nearest hundredth
- writing a ratio in the form  $1:k$
- estimating
- dividing a four digit integer by a two digit integer
- multiplying two decimals
- using a given calculation to evaluate a related calculation
- subtracting fractions
- identifying integers that are both square numbers and cube numbers
- expressing a number as the product of prime factors
- least common multiples.

## Question 1

This question was answered well although a number of candidates chose the wrong answer in part (a)(ii).

## Question 2

Most candidates scored well. The most common error was in part (c), where some candidates did not use the two odd numbers.

## Question 3

Many correct responses were seen but a number of candidates were unable to process calculations involving negative integers.

**Question 4**

Common errors were 90 for the percentage,  $\frac{15}{10}$  for the fraction and 0.08 or 0.45 for the decimal. The most successful part was the percentage answer, with the decimal response resulting in the most wrong answers.

**Question 5**

Many correct responses were seen with working being shown clearly. Arithmetical errors were quite common, even though a calculator could have been used. The subtraction from £100 was sometimes evaluated incorrectly. Reading a calculator display of 42.9 as £42.09 was a common error. A significant number only worked out the total cost of 1 DVD, 1 dress and 1 bag while others did not work out the change from £100. Some candidates rounded the costs of the items but did not compensate for this subsequently.

**Question 6**

This standard calculation was not done well. Many did not use a calculator but tried to 'build-up' to 47%. This method was rarely successful. 40% (or 50%) of 58 was often correctly worked out but then errors were nearly always made as candidates tried to work out 47%. A few misread the word 'of' as 'off'.

**Question 7**

Many correct responses were seen to part (a) with less success being achieved in part (b). Some applied the operations the wrong way round in parts (a) and (b) and others multiplied by 1.25 in both parts. 'Build-up' methods were again unsuccessful and others had the correct digits but with a decimal point inserted.

**Question 8**

Part (a) was not answered well although this type of calculation has been set many times previously. Rounding to one decimal place in part (b) was poorly answered. Many candidates had no understanding of this topic. Some of those that did should have realised that an answer to one decimal place should only have one digit to the right of the decimal point. Hardly any correct responses were seen in part (c). More correct answers were seen in part (d).

**Question 9**

Ratio remains a difficult topic for many candidates. Correct responses were seen in part (a) but many divided 126 by 6 instead of by 7. Some attempted a 'build-up' method with little success. Of those who obtained the 18 and 108, some assigned them to adults and children in the wrong order. Part (b) was very poorly answered with most candidates unable to process the information in the question correctly. Some added 9 to the number of adults from part (a) but did not compare this with the number of children from part (a). Understanding of the form  $1 : k$  was rare.

**Question 10**

Part (a) was answered well with most using a column method. This was also the preferred method in part (b) although there was a greatly reduced success rate. Although there were many who were able to divide by 4 in part (c), more wrong answers were seen than expected. There was a disappointing response in part (d) with a significant number of candidates making no attempt. Many answers of 24 were seen, possibly from multiplying 3 by 8 or as a result of halving 48. Another common wrong answer was 16, from dividing 48 by 3.

**Question 11**

Part (a) was answered well. Part (b) resulted in many correct responses although not as many as in part (a).

**Question 12**

Both parts were answered well.

**Question 13**

Many candidates seemed to be unfamiliar with the idea of estimating. Candidates should have rounded the given numbers to one significant figure which would have resulted in a very straightforward calculation to evaluate.

**Question 14**

Part (a) was often correct but a number of candidates were unable to place the three decimals in order of size. Part (b) was answered well. Those who failed to score sometimes had the negative numbers in the correct order but placed the 6 before the 2.5. Very few gave an order that started with the largest.

**Question 15**

Although many realised that they needed to divide 1475 by 35, carrying out this process caused major problems for the majority of candidates. Strategies such as dividing by 5 and then 7 were seldom seen. A wide range of answers were obtained with many resorting to trial by multiplication or to repeated addition. Some did obtain marks by a 'build-up' approach. Many responses were difficult to understand with work spreading well beyond the allotted space for the question.

**Question 16**

Many candidates appeared to be unfamiliar with numbers of this magnitude. Errors in the number of zeros in half a billion were common. Other candidates struggled to express themselves clearly.

**Question 17**

Only a small proportion of candidates were able to position the decimal point correctly in part (b).

**Question 18**

There was a poor response to this question. There were very few correct answers to part (b) and many candidates did not make an attempt.

**Question 19**

Few candidates knew that a common denominator was required in part (a) and an answer of  $-\frac{1}{2}$ , obtained from subtracting numerators and denominators, was common. Another common incorrect answer was  $\frac{1}{2}$ . Part (b) resulted in a better response although a significant number made no attempt. Those candidates who did not use their answer to part (a) were not successful.

**Question 20**

Of the two correct answers, 64 was seen more often than 1. Many gave answers that were square numbers but not cube numbers.

**Question 21**

Some correct answers were seen. Those attempting a factor tree often wrote pairs of numbers that had a sum of 36. Others wrote down some factors of 36 but did not indicate those that were prime. Many made no attempt. Part (b) met with a slightly better response than part (a).