



## **General Certificate of Secondary Education**

# **Mathematics (Modular) 4302** *Specification B*

**Module 3 Higher Tier 43003H**

## **Report on the Examination** *2007 examination - June series*

Further copies of this Report are available to download from the AQA Website: [www.aqa.org.uk](http://www.aqa.org.uk)

Copyright © 2007 AQA and its licensors. All rights reserved.

#### COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

## General

The paper proved accessible to many candidates who were able to show their knowledge and understanding of mathematics. Many candidates showed their working and were able to gain method marks even if they did not obtain the correct final answer. Poor presentation will have cost some candidates marks. Some weaknesses in percentages and fractions were evident which is disappointing at this level. Candidates should realise that questions requiring an explanation need sufficient detail to gain full marks. Some candidates were clearly unprepared for the more challenging topics being unable to make any progress on these questions.

Topics that were done well included:

- use of calculator
- value for money problem
- simple percentage problems
- sharing in a ratio.

Topics which candidates found difficult included:

- working out the equation of a line to solve a quadratic equation
- converting a recurring decimal to a fraction
- least common multiple
- manipulation of surds.

## Question 1

Many candidates were able to use their calculator accurately in part (a), but surprisingly, at this level, fewer were successful at rounding to one decimal place.

## Question 2

Most candidates were able to gain at least two of the three marks available. A variety of methods were used. Those finding the number of balls per pound were most likely to go on to choose the incorrect pack.

## Question 3

Part (a) was answered well. Part (b) resulted in many successful attempts although some used 2.3 hours or changed the time to minutes, but failed to convert the final answer to kilometres per hour. These candidates were awarded no marks.

## Question 4

Part (a) was answered well although it was surprising that some candidates at this level were not able to successfully answer this straightforward ratio question. Part (b) required candidates to show that the ratio was 5:7 and many simply divided 24 in the given ratio without explaining their answers fully.

## Question 5

Most candidates gained at least one mark in part (a). Point plotting was often completed successfully and the standard of curve sketching was a little better than in past series. Drawing  $y = 10$  in (b)(i) met with mixed success and solving the equation in (b)(ii) was even less successful. Some misread the scale and others did not know how to interpret the question so

that the answers could be read from the graph. Very few candidates had little idea how to attempt part (c).

### **Question 6**

Many candidates successfully wrote the number in standard form. In part (b) those who firstly converted out of standard form were often unsuccessful and inputting standard form numbers into a calculator proved a better method.

### **Question 7**

Many candidates were unprepared for this question and although some standard approaches were seen, many used trial and improvement as their method. This meant that either full marks or no marks were gained. Poor presentation was often seen with inconsistent use of powers making answers unconvincing.

### **Question 8**

Only the best candidates were able to gain marks and many were unprepared for this question.

### **Question 9**

A surprising number of candidates at this level were unable to process the calculation with various incorrect methods seen. Many obtained a common denominator but then processed incorrectly and gained no marks.

### **Question 10**

Most candidates gained at least one mark with many scoring both marks in part (a) on this straight-forward problem solving question. Many candidates were also successful in part (b). Those that were not usually only gave the outcome of one of the matches.

### **Question 11**

Although many of the candidates scored well there were too many build-up methods seen that were very rarely successful. The use of £50 should have prompted more candidates to adopt an easier method.

### **Question 12**

Part (a) was answered quite well but a surprising number had no idea how to proceed. Part (b) was very poorly attempted with only the best candidates being successful. Many instances of finding the HCF were seen.

### **Question 13**

Part (a) was answered very well with nearly all candidates following Simon's method. Some careless arithmetical errors were made. Part (b) often saw one mark being awarded but a lack of detail meant that full marks were rarely awarded.

### **Question 14**

Parts (a) and (b) were answered well by the better candidates but writing  $10^{-3}$  as  $10 \div 10 \div 10$  was a common error in (b). The answer zero was often seen in part (a). Part (c) was not

---

answered as well as expected. Quite a few fluked the answer by obtaining  $25^{11} \div 5^3$  as their intermediate step. These candidates were awarded no marks. Others tried to evaluate the powers of 5 and inevitably ran into difficulties.

### **Question 15**

Although a challenging topic, a significant number of candidates gained marks here with an encouraging number scoring three or more marks. Some candidates were unprepared for this topic of limits of accuracy and simply used the numbers in the question, obtaining 16.6 as their answer.

### **Question 16**

Poor presentation was often evident here with inconsistent use of square root signs in the working. Part (a) proved very challenging. Those who obtained  $2\sqrt{2} - \sqrt{2}$  for the bracket often “cancelled” the  $\sqrt{2}$ . More success was seen in part (b) but candidates generally gained one mark, usually for  $\frac{\sqrt{5}}{\sqrt{20}}$ .

### **Mark Ranges and Award of Grades**

Grade boundaries and cumulative percentage grades are available on the <http://www.aqa.org.uk/over/stat.html> page of the AQA Website.