



General Certificate of Secondary Education

Mathematics (Modular) 4307 *Specification B*

Module 1 Higher Tier 43051H

Report on the Examination *2008 examination - June series*

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General

This paper tested a variety of skills, was accessible to its target group, and there was no evidence of candidates being short of time. Presentation was generally good and the majority of candidates showed their methods clearly. However, the standard of written explanation of some candidates is a major concern.

Topics that were well done included:

- correlation and line of best fit
- interpreting a two-way table
- mutually exclusive probability.

Topics which candidates found difficult included:

- interpretation of the upper quartile from a box plot
- probability of combined events
- comparison of mean and range
- use of a trend line with moving averages.

Question 1

Parts (a) and (b) were answered well by the majority of candidates although some did not appreciate that the estimate of the number of errors in part (b)(ii) should be an integer. Parts (c) and (d) caused slightly more problems with candidates not always understanding the context of the situation or being unable to clearly explain their reasoning.

Question 2

In part (a)(i) many candidates gave the correct solution with correct probability notation.

Common incorrect responses were $\frac{12}{50}$ and 19. In part (a)(ii), the majority of candidates

realised that grouped data meant that the probability of individual amounts could not be determined. Part (a)(iv) gained a mixed response with some candidates giving fully correct answers but others adding the midpoints or frequencies and dividing this total by four. Candidates should also be aware that money answers containing pence should always have two decimal places. Part (b) of this question was poorly attempted with the majority of candidates having little understanding of what the values of mean and range actually imply. The term 'average' was rarely used in comparing the means and few candidates had any appreciation of how to compare ranges. Candidates frequently gave answers comparing the mean to the range, for example, "the range was nearly twice the mean".

Question 3

Part (a) was answered well by many candidates with the most common incorrect answer being 148, the median value. Part (b) proved difficult for many of the candidates with a lack of appreciation that 25% of the distribution lie above the upper quartile. The most common incorrect response was 10.

Question 4

This question was often attempted well but some candidates left their answer as a decimal and there were some rounding and truncating errors. A small number of candidates simply calculated $235 - 178$.

Question 5

The more able candidates accessed this conditional probability question but there were many who had little idea of where to start. Incorrect responses included adding the correct probabilities, only considering one product or calculating inappropriate products such as $\frac{9}{15} \times \frac{3}{10}$. Some candidates multiplied their $\frac{1}{10}$ and $\frac{1}{4}$, whilst others could not add or multiply simple fractions, despite this question being on the calculator section of the paper.

Question 6

All parts of 6(a) were answered well by the majority of candidates. In part (b) many gave at least one correct criticism but some gave repetitions of the same criticism or referred to the width of the groupings.

Question 7

Part (a) caused very few problems but in part (b) it was disappointing to see so many candidates adding instead of multiplying. It is also a concern that many candidates knew that they had to multiply but calculated 0.3×0.3 as 0.9.

Question 8

Many calculated the next moving average correctly but a few thought that the moving averages followed the sequence 46, 48, 50. There were some arithmetic errors in dividing 204 by 4. In part (b) the heights were generally plotted correctly but there were errors in knowing where to plot horizontally. Part (c) proved to be beyond all but the very best candidates with the majority extending their trend line off the edge of the graph paper and attempting to read a value at Autumn 2007. Several candidates attempted a seasonal adjustment method but made little headway and some simply tried to see patterns in the data from the table.

Question 9

Many different methods were seen in this question which could have led to correct answers. However, some candidates made errors with the scale whilst others made arithmetic errors in dividing up the histogram. The better candidates set out clear methods and were successful in calculating the correct value but a large proportion had little idea of how to proceed.

Question 10

Only the most able candidates realised that division of fractions was required and these candidates were generally successful. A small number managed to gain the correct answer by trial and error. A common incorrect answer was $\frac{5}{8}$ and other candidates multiplied or added

$\frac{5}{16}$ and $\frac{3}{8}$.