

Principal Examiner Feedback

Summer 2013

GCSE Mathematics (2MB01)
Paper 5MB1H_01 (Calculator)

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Publications Code UG036386

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GCSE Mathematics 2MB01

Principal Examiner Feedback – Higher Paper Unit 1

Introduction

Overall candidates did very well on this paper. They were able to access most of the questions. For the QWC questions clear working out was given and candidates showed confidence in their answers. There was evidence of the appropriate use of calculators.

Report on individual questions

Question 1

This was an accessible question for most candidates. It allowed candidates a positive start to the paper. A variety of approaches were used with many pupils choosing to build up the ingredients by doubling, halving and then adding their results together.

Those candidates who failed to score full marks either made an arithmetical error and scored B2, or lost track of their multiples and calculated quantities for an alternative number of scones.

Question 2

This question was also well answered. The majority of candidates were able to produce an ordered stem and leaf diagram, occasionally there was an error or omission but the understanding was clear. Providing a key was less consistent. Candidates should be encouraged to always provide a key as this is an independent mark which can be awarded even if the diagram has multiple mistakes.

Question 3

Candidates were able to plot the point successfully, as you would expect on this paper. They were also able to name the type of correlation, some giving strength as well, this was not necessary but was accepted. Only a few candidates gave positive as an incorrect answer. The line of best fit was well drawn by the majority, it most commonly started at the upper limit on the left at (1,48) which was just in tolerance. The most common incorrect answers appeared where the line was drawn just above this point. The reading from the graph was usually accurately given.

Question 4

In part (a), most candidates answered well, although many candidates found it hard to distinguish between their comments relating to the lack of a time scale (per week, month, etc.) and the lack of specific time intervals in the response boxes. The most common error was to make the same point twice in different ways rather than making 2 distinct criticisms.

Mostly good answers found in part (b), with sufficient response boxes. Common errors were to omit a time frame, to omit units for the response boxes, or to base the question on number of visits to the website, rather than time spent. Too many candidates are still using inequalities, despite this being mentioned in the principal's report every series.

In part (c), some candidates continued to discuss the quality of the question rather than looking at the sampling technique used. Others felt a need to comment on the truthfulness or lack of it of the answers, again this is not about the sampling technique.

Question 5

A variety of diagrams were seen. Some candidates insist on joining the first to last points forming an enclosed shape. This may come from their interpretation of the word polygon in this question. Centres should ensure candidates are aware this is not correct when drawing a frequency polygon. Another common error is to plot the heights at the end of the intervals. If candidates did this consistently they were awarded one mark. Some candidates draw the histogram first and then add the frequency polygon, this is an acceptable method and full marks can be awarded.

Question 6

Candidates tended to score better on part (a) than part (b).

In part (b) some candidates wrote 17.49 but did not show that the decimal continues and so did not gain the mark. The main incorrect answers seen were 17.4, 17.49, 17.9.

Question 7

The most popular approach was to draw an appropriate triangle and then divide the relevant lengths. Many candidates were successful with this method, some did fail to get the final answer as they divided incorrectly, often giving the incorrect answer of 2 instead of 0.5. Another approach was to use two sets of coordinates and the formula, however more arithmetic errors crept into this method. Some candidates did find the gradient accurately but then gave the equation of the line as their answer, never isolating the gradient. This was seen as an embedded answer. Centres should encourage candidates to check they have clearly answered the question asked in the examination.

Question 8

This question is becoming more familiar to candidates and many were able to draw a two way table. They usually highlighted the required answer and so gained full marks. In this question it was fairly easy to get to the correct answer quickly without the need of a full table, a good proportion of candidates took the quicker option and again gained full marks.

Question 9

Centres should ensure that candidates read the questions carefully before attempting these multi-stepped tasks. Candidates tended to misread the 40% OF and calculated 40% OFF instead. They also used the price for two adults as a starting point, effectively calculating the price for two children. Often the mathematical procedure attempted was correct but the choice of procedure was incorrect. These candidates were able to gain part marks for their method shown. When dealing with the villa some candidates made this far too complicated by thinking the £200 for meals was either per day or per person per day and hence getting very high totals. Centres should encourage candidates to check their answers for realism. As a QWC question, working and clear communication are required. It is pleasing to see that the vast majority of candidates showed working that could be easily followed. Many finished the question off with a short concluding sentence, this practice should be encouraged. As a whole most candidates scored some marks on this question.

Question 10

Some candidates found this question more challenging. They could often find 10 % and/or 5% but not always of the correct figures. A sizeable number calculated all their percentages from £20,000, either thinking the question was asking for simple interest, or just in error. Thus subtracting £3000 and then £2000 gaining the correct number of years by an incorrect method, this did not gain full marks.

Some candidates stopped after correctly calculating £15300 and stated 3 years, this was deemed sufficient for full marks.

Question 11

In part (a) many candidates realised the 45 was associated with three quarters but they were not able to determine what it was three quarters of. Often they calculated 0.75×45 and so did not gain any marks.

Part (b) was well answered, with a majority of fully correct diagrams seen.

In part (c) a comparison was required not just a relisting of figures. For full marks candidates needed to compare both the central figure and the spread of the distribution. Some incorrect answers confused the median with the mean.

Question 12

The cumulative frequency graph was well drawn by many. A few with points plotted at midpoints of intervals, and some graphs condensed into the $t=0$ to 30 region.

Unfortunately part (b) was poorly answered as far too many candidates used the 70 from the axis and not 65 pieces of data when finding the lower and upper quartile. This is an incorrect method. Another common mistake was to find 25% and 75% of the total frequency but then simply to subtract these values.

In part (c) most scored at least M1 by reading off from $t=45$, although many failed to score the A1 by forgetting to subtract from 65, or by subtracting from 70.

Question 13

There were a high proportion of fully correct answers. Those that didn't score full marks often used 68 and 92 independently, rather than adding to make 160. Another common mistake was simply to divide 30 by 6. A number of candidates started by dividing 160 by 30, those who realised they needed to divide the result by 33 were then able to continue to a fully correct answer.

Question 14

There were a good proportion of fully correct frequencies given in part (a). With others scoring M1 by calculating the first line (15) correctly. There were then significantly more errors in the following lines.

In part (b), many correct answers were seen, although some failed to read the question fully and wrote "13:80" rather than "13:93". Many scored follow through full marks, using "13:their frequency total". Some candidates failed to score, having calculated the bottom frequency as "13", and not providing reasoning or a complete method for using 13 again in the ratio, evidence of a correct method was necessary to gain marks. Some gave the final answer as a fraction.

In part (c), very few marks scored. A fair number identified that they had to find the 47th value, but had no idea how to do this. The most common incorrect answer was 1250, and even amongst the stronger candidates a method to find the 46.5th value was frequently seen. The mean was also incorrectly given as the answer for this part.

Question 15

A good number of fully correct answers were seen, usually achieved with well drawn tree diagrams. A significant number opted for the "replacement" method, scoring B2 for 0.44. There were some poor answers to this question usually confusing when to add and multiply probabilities, and numerical manipulation was poor here, despite the availability of calculators. Centres should ensure candidates can use calculators to manipulate fractional values.

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

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