

Principal Examiner Feedback

November 2012

GCSE Mathematics (2MB01) Foundation
5MB1F (Calculator) Paper 01

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GCSE Mathematics 2MB01

Principal Examiner Feedback – Foundation Paper Unit 1

Introduction

Some candidates were handicapped by the lack of a calculator and geometrical instruments.

Candidates carried out basic calculations well and were able to earn communication marks for making appropriate comments on the answers to their calculations. Calculating time intervals still seems an issue for many sitting this paper.

Report on Individual Questions

Question 1

Candidates were very successful on parts (a) and (c), but less so on part (b) where many made either the wrong choice of row or made the correct choice of row but abstracted the wrong information, putting either the item (shirt) or the cost (£15).

Question 2

Candidates were very successful with part (a), but less so on part (b).

Part (c) was more challenging, where candidates had to abstract information from the diagram, then do a simple calculation and then transform the answer into a suitable form back on the diagram. The fully correct answer was 2 bunches of 4 plus 1 small circle. Candidates who gave an answer of 9 circles without grouping gained a mark, but the common incorrect response of 3 clusters gained no marks.

Question 3

A worrying number of candidates could not put down the correct answer for part (a)(i). There were a few 8:30s and 6:37s, 6:38s but also many answers which were inexplicable.

Candidates were allowed to follow through for their part (a)(ii). Candidates were allowed to give their answer in a variety of forms, although 1.54 or 1.54min was not enough to gain full marks.

One common error was to put down 1:54 as the answer, presumably from spotting 2 hours and 4 minutes off, but not carrying out the subtraction correctly. A second was to carry out a decimal subtraction to get the answer 1.96, which some then converted to 2h 36 min or even 3h 16 min.

Part (b) was generally well answered. The common errors were to assume the pointer was half way and to give the answer 8.5 or to just count bars and to give the answer 8.3

Question 4

There were many good attempts at a data collection sheet. Candidates were expected to head up three columns with 'Colour', 'Tally' and 'Frequency'. The 'Colour' column should have had at least 3 colours in. Good candidates did do this as well as put in the catch all 'Other'.

Question 5

Some candidates used the direct method of $30 \div 3.85$ to get 7.79 and then recognising that the correct answer had to be 7.

A few candidates rounded up to 8. A much more common method was to use a calculator to explore low multiples of 3.85 until something near 30 appeared.

By far the most common approach seen was $7 \times 3.85 = 26.95$, often followed by $8 \times 3.85 = 30.8(0)$ with a conclusion of 7. Candidates who tried successive addition, 3.85, 7.70, . had to get to 26.95 before they scored a mark.

Question 6

Both parts were answered reasonably well with part (b) better than part (a). In both cases most candidates knew which side of the half way mark they had to be, but in part (a) they often did not go near enough to the 0 mark.

Question 7

This was the first 'Quality of Written Communication' question on the paper. If a candidate knew how to work out at least one range they generally scored 2 or 3 marks. Most candidates were careful to denote which range (girls' or boys') they were working out and so gained full marks. There were some candidates who used the extreme values in the table, for example calculating $6 - 3$ for the range of the girls. Others calculated the mean or the totals.

Question 8

The vast majority of candidates were able to score full marks. Some used the full words but obvious abbreviations were also allowed. There were a few responses where the candidate showed a misunderstanding of the nature of the task and gave two starters, for example, as a combination.

Question 9

The mode in part (a) was well done with many candidates producing an ordered list of 18 children.

Many then went on to use the list to find the median for part (b). Since there are 18 values the median is the mean of the 9th and 10th values (both 12), so it was a mystery that a sizable minority of candidates wrote down the answer as 12.5 from a correctly ordered list. In many cases marks were lost because not all 18 numbers were listed.

Question 10

There were many good answers to part (a). Many candidates rounded their correct answer of 5.7 (years) off to 6 (years) or to 5 (years). This was allowed for full marks. An answer of 5 or 6 without working gained no marks. A common wrong answer was 57 from the sum of the ages.

In part (b), many candidates knew how to extract the relevant information from the table, either by summing the product of each pair of entries or by writing the information in the table out in full and then adding.

A common error was to write $4 \times 0 = 4$ instead of 0, giving an answer of 31. A more surprising error was to see 4 of the 5 products worked out correctly but the 4 and 3 from the table used to make 7. Also very common was an answer of 15 obtained by adding the top row of the table or an answer of 10 from the bottom row.

Question 11

Part (a) was very well answered with most candidates being able to read off the value.

Part (b) was not done so well as many candidates were unable to give the answer to a sufficient degree of accuracy.

Part (c) required some thinking and insight. The plan adopted by many of the successful was to get to 64 from $10 \times 6 + 4$ and read off the appropriate values from the table. Also commonly seen were $20 \times 3 + 4$ and 8×8 . There were several other successful strategies.

Question 12

Many students were able to produce a suitable diagram to score at least 3 marks. The most common error was to omit the labelling on the frequency axis. Words such as 'Frequency' or 'Number of students' were allowed for this label. Some candidates forgot to put a key but this tended to be rare. By far the greatest number of answers were dual bar charts. Most candidate were able to give a linear scale and to plot the 8 heights correctly.

Question 13

This question was extremely well done with the majority of students gaining all 3 marks.

Question 14

Most candidates were who aware that they had to give a number gave a correct fraction - either $\frac{3}{12}$ or $\frac{1}{4}$. Answers such as '3 out of 12' did not gain any marks.

A few candidates gave acceptable alternatives of 0.25 or 25%. Many candidates were unaware that they had to give a numerical value and wrote down 'unlikely' as their answer. They gained no marks. Candidates who wrote down the correct probability and the word 'unlikely' were given full marks.

Question 15

Part (a) was generally well answered.

There were problems for candidates with part (b) because the scale on the Judge A axis went up in 2s so many looked above 48 rather than 44. The practice of looking at the two values nearest the gap and halving the two values was seen more often.

This usually leads to an acceptable answer. Here it led to $(42 + 56) \div 2$ giving 49. However, many candidates could not read the judge B scale correctly as it went up in 2s also. In many cases answers were given just outside the accepted tolerance but were awarded no marks as there was no supporting work on the scatter diagram.

Question 16

There were many good answers to this with accurate stem and leaf diagrams and a key correctly filled in. A few candidates decided that the stem should be a single digit and so produced two rows, one starting with 1 and the other with 2. If a consistent key was shown then this was given 2 marks as the stem and leaf is not fully fit for purpose; normal practice is that the leaves are single digits. If there were errors in a nearly correct diagram, they tended to be with the number 8 from the 218.

Question 17

Most candidates were able to score a mark, either by commenting on the overlap or from pointing out that there was no 'over 20'. An acceptable alternative was to say that there was no 'other' box. Common wrong responses were to claim that the second pair of boxes should start at 10 and 15 respectively or that there was no box for 'none'. Some candidates gave answers such as 'no units' or 'no time frames' which would have been good answers to a different (bad) questionnaire.

Question 18

Many candidates could not see the connection between the statement and the information in the bar chart. A common erroneous response was that 'There were 15 in Coolkat so it could not be 1 of out 6' Of those that realised the statement was about a proportion, most could give a sensible reason why it was true. Only a few said 'No' followed by 'It's 15 out of 90'.

There were many good answers to the pie chart with well drawn and fully labelled diagrams. Some candidates clearly did not have a protractor (or ruler) but could calculate the angles correctly. Of the candidates who were successful, most carried their calculations from the original total of 90 from the bar chart. A few started from measuring the Katkins sectors and then working out the others proportionately.

Question 19

Candidates had to abstract information from a complex table and then carry out calculations to reach a decision. Many candidates were able to put together the correct combinations and reach a value of £826 for shop A and/ or £794 for shop B. Very few were able to go on and calculate the percentage reductions correctly.

One common error was to divide the shop A total by 5 and the shop B total by 3. A second was to subtract 5p and 3p. Nevertheless many candidates were able to score marks by showing a method and reaching an appropriate conclusion based on their figures.

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