

Principal Examiner Feedback

Summer 2012

GCSE Mathematics (2MB01)
Paper 5MB1F_01 (Calculator)

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GCSE Mathematics 2MB01

Principal Examiner Feedback – Foundation Paper Unit 1

General Points

Candidates appeared to be able to complete the paper in the allotted time.

Candidates were showing their working out well. In starred questions most candidates realised that they needed to show numerical working and rarely offered unsupported worded responses.

Candidates need to practice writing concise sentences where questions required a sentence to confirm their result.

Candidates were, in most cases, showing their working out well but were frequently making arithmetic errors even though they were allowed a calculator.

Reports on Individual Questions

Question 1

In part (a) majority of the candidates completed the table correctly. If candidates failed to score it was because they didn't fill in the table, possibly missing the question. It was very rare to see incorrect information on the table.

In part (b) almost all candidates gave the correct response of 2. Of the few who failed to score the most frequent response was 7, the total number of children on the table.

In part (c) majority of candidates gave the correct response of cat. The most common incorrect responses were due to not reading the question carefully enough, stating Carl, the youngest child with green eyes rather than their pet, or dog, the pet of the youngest child.

Question 2

In part (a) majority of candidates gave the correct response of 24. Incorrect answers were varied demonstrating that either the candidate had read the wrong day or in the case of the weaker candidates did not understand the significance of the key.

In part (b) 77% of candidates gave the correct response of 18. Where incorrect responses were given most candidates failed to gain the method mark due to lack of working out shown. Common incorrect responses were 56 instead of 54 and 30 instead of 36. Where candidates did gain 1 mark it was usually for realising that half a symbol was equal to 6 text messages.

In part (c) This question was well attempted candidates achieving 2 or 3 marks. Candidates who achieved 2 marks were able to arrive at the correct number text sent on Thursday and multiply by 8, but were unable to correctly place the decimal point and gave the answer £264 or, in fewer cases, 26.4 or 0.264. Weaker candidates gained 1 mark for 33 without going on to calculate the cost or for 96 or 192 seen indicating they could at least find out the cost of a symbol's worth of text messages. The most common error, which due to lack of working out often led to 0 marks, was from incorrectly calculating $\frac{3}{4}$ of 12 as 8 and hence writing 32×8 or calculating $\frac{1}{4}$ of 12.

Question 3

In part (i) nearly all of candidates correctly identified the word that best describes the probability as impossible, either on the answer line or by circling the word. Incorrect responses were varied and included choosing others words from the list and attempting to write a probability.

In part (ii) a number of candidates correctly marked the scale at $\frac{1}{2}$. Incorrect responses were varied usually indicating a probability between $\frac{1}{2}$ and 1. Other incorrect responses included 0 and 1.

In part (iii) half of candidates correctly wrote $\frac{1}{6}$. The most common incorrect responses were where candidates again chose a word from the list instead of attempting to write a probability.

Question 4

This question was well attempted by candidates who were scoring the full range of marks with candidates able to gain full marks. Candidates frequently drafted their responses before writing them on the table. Of the candidates who opted not to use the table many were able to gain marks, though it was rarer to see a fully correct response. The most common error was failure to leave a gap of 4 hours for shopping in Middleton. Weaker candidates were able to score 1 mark, usually for leaving at least 5 minutes walking time to the station, even if they confused by the timetables and unable to write correct start and finish journey times. Some candidates thought that they needed to convert to 12 hour clock times which, although not always an issue, in the main led to errors and lost marks. It was rare to see schedules, even incorrect ones, that finished after 4pm. Only a few candidates offered a fully correct schedule then went on to leave a gap of less than 5 minutes to walk home.

Question 5

In part (a) nearly all of the candidates correctly identified Thursday as the day Sophie and Zach spent the same time on the internet. Only the very weakest candidates answered this incorrectly.

In part (b) majority of candidates correctly read Zach's bar for Friday. Incorrect responses were varied and usually resulted from reading Sophie's bar or the wrong day.

In part (c) the question was correctly attempted by a number of candidates who correctly drew two bars and shaded them appropriately. The most common incorrect responses, which in most cases still gain 1 mark, were to misread the scale and draw a bar of length ≈ 12.5 units for Sophie or to draw Zach's bar to the edge of the chart hence 65 and not 60. Though rare, some blank responses were seen.

In part (d) nearly half of candidates gave a correct comparison of the time spent on the internet by Sophie and Zach for the week. Most candidates over complicated the question and instead of simple statements such as 'Sophie spent more time on the internet than Zach at the start of the week' or vice versa, calculated the total time spent on the internet by each person, which although successful for many, was unsuccessful for far more due to poor arithmetic. Other incorrect responses talked about Sophie or Zach's time increases and decreasing throughout the week but did not compare Sophie to Zach.

Question 6

This question was not well attempted. Candidates frequently misread the scale of the graph or did not choose appropriate points to get an accurate reading. Those that did state a conversion fact, correct or incorrect, frequently did not know how to use their fact correctly to compare the prices. Some more able candidates correctly found and used a conversion fact then forgot to compare the prices. The most common incorrect response was to compare the prices as if they were both the same currency hence 'New York was \$80 or £80 more expensive'.

Question 7

This question was well attempted by the majority of candidates however only third of candidates gained full marks for £14.50. Despite a fully correct method shown some candidates wrote 14.5 on the answer line hence only achieved 2 marks. Some candidates failed to realise that buying in a pack of three was cheaper than buying three calculators separately hence did more calculations than necessary, which although should not have affected them arriving at the correct answer, did due to poor arithmetic. Others, that also did not realise that the pack was cheaper, did not look at all the ways of buying eight calculators so arrived at the answers in the special case, with £10 being the most common incorrect response. Another common incorrect response was subtracting from £20 instead of £40.

Question 8

Majority of candidates scored 3 or more marks on this question. If marks were lost it was usually in part (c).

In part (a) this question was well attempted with the majority of candidates gaining 2 marks, however, despite demonstrating the ability to correctly tally and write down correct frequencies, too many candidates made careless errors leading to a single row being incorrect. Only the weakest candidates failed to score at least 1 mark. Possibly the more able candidates, over complicated the question and were multiplying frequencies or were writing them as relative frequencies. A few of the weaker candidates were incorrectly tallying the score i.e. six tallies for each score of 6.

In part (b) this was well attempted but frequently incorrect. Some candidates predictably wrote 7 the frequency of the mode but as many wrote others score, the most common of which was 3. A few candidates were attempting to work out the mean.

In part (c) this question was well attempted with few blank responses seen. The majority of candidates drew a bar chart but few gained 3 marks. The most common errors included failing to label their axis with score and frequency or labelling them incorrectly, missing 0 from the frequency axis and inconsistent spacing on the frequency axis. A few candidates drew pie charts which, although an acceptable alternative answer which could have gained full marks, rarely gained any. Weaker candidates struggled to draw scales which could have enabled them to gain marks and labelled the frequency axis with 3, 7, 5, 4, 2, 3 from their table, in that order!

Question 9

This question was well attempted with candidates scoring the full range of answers, very few blank responses and 76% of candidates scoring 3 marks. Most incorrect responses demonstrated an understanding of how to complete the table with a mixture of correct answers and nearly correct answers due to poor arithmetic.

Question 10

This question was well attempted with few blank responses but very few correct responses in either part.

In part (a) only 9% of candidates gained 1 mark. Common incorrect responses included $b > a$ or giving Abigail and Bob ages then calculating a numerical difference.

In part (b) only 4% of candidates wrote down the correct expression. Several candidates demonstrated that they understood how to calculate the mean but not how to correctly write this in algebra, writing $a + b \div 2$. Other common incorrect responses included repeating the answer offered in part (a), ab , $a + b$ and other expressions involving a 's and b 's.

Question 11

This question was well attempted with candidates achieving the full range of marks and blank responses rarely seen. Half of candidates gained full marks, however, poor arithmetic again let candidates down and, although candidate had correctly identified the values needed from the table, multiplied them by 2 and 3 respectively and added them together, they still lost the accuracy mark. Other common errors of the weaker candidates were using incorrect values from the table or calculating the cost of one adult and one child, though many were still able to achieve a method mark and also the QWC mark. Most candidates clearly and correctly stated the correct conclusion from their answers.

Question 12

This question was well attempted with candidates scoring 3 or 4 marks.

In part (a) this question was well attempted with very few blank responses seen. Most candidates correctly plotted the value but too many plotted at 250, 350 or were just incorrect.

In part (b) this question was well attempted with few blank responses seen. More candidates attempted to explain the relationship, as asked, than wrote negative correlation. The more able candidates were able to describe the relationship correctly and sufficiently clearly but the less able tended to state facts about specific points than describe a trend.

In part (c) candidates were most successful on this part of question 12. Most did not draw a line of best fit but gained full marks for an answer in range. The most common correct answer was 500. Incorrect answers were very varied.

Question 13

This question was well attempted with a number of candidates scoring 2 or more marks, 35% of which gained full marks.

In part (a) this question was well attempted with few blank responses seen. A common incorrect response was $\frac{1}{4}$ and, in some cases, after correctly writing 0.26 in the table. Many candidates demonstrated that they understood what was required but poor arithmetic led to them losing the accuracy mark. Another common incorrect response was 0.74 which lost both marks.

In part (b) this question was well attempted with few blank responses seen. Common incorrect responses included $300 \div .15$ and finding $\frac{1}{4}$ of 300. Some candidates demonstrated that they knew to multiply the probability by 300 but used their answer to part (a) or selected an incorrect value from the table.

Question 14

In part (a) a number of candidates gained 2 or 3 marks. Those who lost a mark usually forgot the key though a few missed a value or forgot to sort the leaves. Weaker candidates simply sorted the values or attempted to tally them and the very weak drew some interesting pictures of plants!

In part (b) a small number of candidates gained full marks. The better candidates scored 3 marks for stating highest, lowest and mean values for Jamal, a few of which were able to gain one of the QWC marks for a correct statement. Many failed to realise that they needed to calculate Jamal's mean or incorrectly attempted to do so. Candidates who gained 2 marks were usually correctly calculating the mean and those who only gained 1 mark were usually correctly stating the highest and lowest scores for Jamal. Very few candidates found the range but those that did were usually the more able candidates and gained 3 or more marks.

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