Principal Examiner Feedback

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Pearson Edexcel GCSE
In Mathematics Modular (2MB01)
Unit 3: (5MB3F_01) Foundation (Calculator)

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GCSE Mathematics 2MB01
Principal Examiner Feedback – Foundation Paper Unit 3

Introduction
It was encouraging to note that most candidates showed some working for the questions that involved multiple calculations.

Many candidates lost marks for poor arithmetic even when it was evident that they had a calculator. For example on question 8(b) many candidates wrote $130 \div 2 = 75$ and on question 18 it was not uncommon to see errors such as $4 \times 6 = 20$. Centres should advise candidates that when they have time over at the end they should go back and check their simple calculations with their calculator.
Candidate should be encouraged to read the question again after they have written their answers to ensure they are answering the question set. For example, in question 13(b) a large number of candidates worked out the percentage of the students who were present rather than absent.

Report on individual questions

Question 1
This question proved to be a good starter question with nearly all candidates drawing correct reflections.

Question 2
Part (a) was well answered with most candidates writing $12 + 19 + 23 = 54$

Unfortunately, there was an issue with the wording in part (b). All responses to this question were reviewed fully by the senior examiners to ensure that candidates were not disadvantaged and the mark scheme was amended accordingly. The most common error (seen often) was for candidates to get an answer of 3 from $(19 - 12) - (23 - 19)$.   It was disappointing to note that there were many arithmetic errors on this calculator paper such as $19 + 12 = 41$, $23 + 19 = 41$.

Question 3
Most candidates successfully answered all parts to this question although there were many careless errors in part (d) such as thinking the shape had 6 sides or writing $540 \div 5 = 108$ and then writing 180 in the answer space. The most common incorrect response was $540 \div 3 = 180$ or 180 on the answer line without any working.

Question 4
Most candidates were able to score at least one mark generally for $23 - 7 = 16$ but then many failed to continue. Others wrote $8 \times 2 + 7 = 23$ but did not then go on to identify that 8 was the answer with many going on to write 23 on the answer line. However, the majority did score all 3 marks for identifying that Jodie had thought of the number 8.

Question 5
It was pleasing to note that nearly all candidates were in possession of a calculator and knew how to us it correctly. Many candidates lost marks in part (c) because they rounded their answer to 19.68 or 19.7 rather than writing the answer as 19.683. Candidates are advised to always write any answer in full before they round it. This often leads to full marks being awarded.

Question 6
Most candidates were able to provide the correct answer of 27. Of those who were not able to reach the correct answer many scored a mark for 6 × 24 and often another for their 144 − 17. Again there were many arithmetic errors in the calculation of 6 × 24 which was disappointing to note on this calculator paper. Nearly all candidates used the first method shown in the mark scheme.

Question 7
This question was answered well by most candidates although some did not read the question thoroughly in part (b) and gave their answer as a percentage.

Question 8
Most candidates answered part (a) successfully although some candidates tried to convert 4 hours to minutes and then found that the car had travelled 19 200 km in the 4 hours! Candidate should be encouraged to check that their final answer makes sense. Part (b) was answered less successfully with many candidates not understanding how to reverse the process, It was not uncommon to see 130 × 2 = 260 km per hour as the average speed.

Question 9
Nearly all candidates were successful in drawing the correct conversion graph and many went on to show that Kate was taller either for converting 62 inches to 155 cm or for converting 150 cm to 60 inches. Many who used the graph to do their conversion drew a vertical line at 6.4 rather than 6.2 or read of 15.5 on the vertical axis as 16 or 15.1.

Question 10
Candidates were successful in solving the equations in parts (a) and (b) and there was a lot of success in solving part (c). However part (d) proved far more challenging with (41 − 9) ÷ 4 = 8 being a common incorrect answer.

Question 11
This question tested quality of written communication and it was good to see candidates showing their working clearly. Most candidates found the total of selling the hardback books, the paperback books and the 26 magazines to be £48.60 and commented that Cheryl could not meet her target. It is essential in these questions that the final statement indicates what two values they are comparing although 'her target' was acceptable instead of £50.

Question 12
Candidates often struggle with bearings and this year was no exception with candidates being unsure of which angle to measure. Part (b) was tackled well with most candidates measuring at least one of the distances correctly in cm and then converting this correctly to km scoring at least 2 marks. Many then went on to produce a final answer between 7 and 9 from correctly measuring all 3 distances.

Question 13
Most candidates were able to draw 6 of the shapes joined together. Unfortunately it was not uncommon to see a tessellation pattern using rhombuses or triangles to complete the pattern. These diagrams scored no marks.

Question 14
Part (a) was well answered although a number of candidates wrote $\frac{75}{100}$ rather than $\frac{75}{200}$ or its equivalent. Candidates struggled to answer part (b) correctly with many candidates either doing a partial calculation such as 81 ÷ 1350 = 0.06 or a completely incorrect calculation such as 850 ÷ 81 = 16% or 16.7%. Others did not read the question properly and found the percentage of the students who were present!

Question 15
Most candidates understood what was required and drew a correct enlargement although quite a few candidates only scored 1 mark as they enlarged the shape by a scale factor of 2. A few candidates enlarged the shape by a scale factor of 4 possibly adding on 3 times the length to the original diagram. Others struggled with enlarging the sloping sides, scoring only 1 of the 2 available marks.

Question 16
This question also tested quality of written communication and in this question the correct money notation was required in order to score the final mark. Most candidates were able to correctly work out the price of 60 folders for each company but lost a mark either for inaccurate answers from a correct method or for incorrect money notation where they either omitted the £ sign or did not write their answers to 2 decimal places. Nearly all candidates used the first method shown on the mark scheme. The few candidates that worked out the cost of one folder for each store sometimes gave answers 0.54 and 0.56 and hence lost marks for incorrect money notation.

Question 17
It was disappointing to note that a number of candidates did not know how to convert between kg and grams. Others added the weight of the box to one plate and then divided 25 kg by this total, effectively using lots of boxes. Solutions often involved multiple additions (of 760g) and a solution found by trial and improvement often had errors in addition or in incorrect conversions resulting in low scores on this question. Others ignored the weight of the box altogether. Fully correct answers were not often seen.

Question 18
Candidates were generally successful in working out the correct value of *P* although a large number of candidates wrote 46 + 25 = 71, clearly not understanding what 4*a* or 5*b* meant. Other common incorrect responses were 4 + 6 + 2 + 5 = 17 and even 6 + 5 = 11 was seen. Others included the letters in their answer such as writing 24*a* + 10*b*.

Question 19
There were many correct responses with 58.05 as the final answer. However many candidates used the Peak prices instead of the Off peak prices whilst many others only found the cost of the tickets for 1 adult and 2 children rather than 1 adult and 3 children. Other candidates decided that the adult would be accompanied by 3 senior citizens. Some candidates did not read the question properly writing the total discount of £6.45 on the answer line rather than the total cost of the discounted tickets.

Question 20
Few candidates understood what was required in part (a).
By far the most common answer was to see the net of the shape drawn. Those that knew to draw a 6 cm by 6 cm square lost the final mark as they did not draw in the diagonals of the square for a completely correct plan. Others drew the correct square with one or two triangles as well. Part (b) was done far more successfully with nearly all candidates scoring at least 1 mark for one accurately drawn line. Many others went on to correctly draw the required triangle within the tolerances given,

Question 21
Most candidates tried to find 65% of 8420 (often unsuccessfully) and one fifth of 8420 (often successfully). Calculating 65% of 8420 by 'breakdown' methods of finding 10% and 5% often lead to inaccuracies and as working was not clearly shown such as 10% = 8420 ÷ 10 and 5% = their 10% ÷ 2, many marks were lost. Those that wrote 65 ÷ 100 × 8420 tended to be more successful. Only a small percentage of candidates went down the route of adding 65% and 20%. Of those that employed this method most then gave an answer of 15% rather than continuing to find 15% of 8420.

Question 22
There are still many candidates who substitute for 3.5 correctly and 3.6 correctly and then look for the answer that is closest to 60 rather than trial 3.55. Others wrote the answer as 3.58 as this led to an answer closest to 60, thereby losing the final mark and possibly a further mark if they did not do a successful trial between 3.55 inclusive and 3.58 exclusive, Only a small percentage of the candidates struggled with this question and scored no marks. These candidates generally substituted into $x^3 + 4$ rather than into $x^3 + 4x$.

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:
http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx

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