

Principal Examiner Feedback

November 2012

GCSE Mathematics (2MB01) Foundation
5MB2F (Non-Calculator) Paper 01

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GCSE Mathematics 2MB01

Principal Examiner Feedback – Foundation Paper Unit 2

Introduction

The candidates made far too many simple arithmetic mistakes. Change from £10 was not well answered and $40 \div 8$ was beyond many candidates. The metric conversions, even from metres to centimetres, were also beyond the skills of many candidates. It was pleasing to see that many pupils were able to successfully attempt the longer questions but that the final answer was sometimes poorly communicated. Geometric explanations still need to be developed. In future, mark scheme and the specification should be referred to, to see the mandatory words that must be included in geometrical responses.

Reports on Individual Questions

Question 1

In part (a), most candidates were able to successfully complete the question. However a few candidates incorrectly gave a specific time rather than a time gap.

In part (b) candidate's work was generally reasonably well done with some relevant working out shown. Unfortunately some candidates insisted on decimal addition for time and this led to an incorrect answer. 2300 was often seen as a wrong answer. Some candidates tried to separate 72 minutes into hours and minutes but not all were aware that there are 60 minutes in one hour.

Question 2

In part (a) of the question, Many of the candidates scored full marks. It was well answered. Unfortunately candidates found part (b) of the question more demanding. The answer 0.4 was often seen as the lowest number, possibly because it only has one decimal place. The 0.35 also was often incorrectly placed as well, again pupils thinking it was less than 0.345.

Question 3

The candidates answered part (a) of the question well, with a large amount of candidates scoring the mark.

In part (b) (i), many pupils answered correctly however "diamond" was a popular incorrect answer. Rhombus and kite were the most popular acceptable answers. Some candidates knew that the sides were equal and so tried to use the word equilateral in their answer, this approach did not score the mark. As a pointer, candidates should be more prepared in regards to their spelling skills as many different variations were seen.

Part (b) (ii) proved to be by far the worst answered part of the question but still with 64% of candidates correct. Some candidates tried to draw arrows on the diagram but many just seemed to write a random number on the answer line.

Question 4

Part (a) was again a well answered question with a large majority of answers being fully correct. Only a few candidates rounded inappropriately.

Part (b) was not as well done as part (a) however many candidates did succeed in rounding correctly. A popular incorrect answer was 200 000.

Question 5

A mixture of approaches and answers were seen for this question.

In part (a) many candidates tried repeated addition or occasionally repeated subtraction, but far too many basic errors in arithmetic were seen. Even when the arithmetic was correct candidates then miscounted and gave an incorrect answer or they gave a monetary value. Some failed to stop at £10 and chose to spend £10.70 instead. It was rare to see candidates rounding the £1.95 to £2 and then dividing 10 by 2, a rather easy and sensible method to use.

In part (b) many candidates realised they had to subtract their total spend from £10; however a significant proportion lacked the skills to do this accurately. Many candidates tried to use decimal subtraction, when other methods would have been easier. Once an answer was achieved a significant number of candidates lost the final mark in part (b) by failing to write their monetary answer correctly, a common error being 0.25p.

Question 6

In part (a) 98% of candidates answered correctly.

Part (b) was not so well answered, with a significant number of candidates giving 6 as their answer.

Part (c) proved to be a trying question. With a few of the candidates unable to deal with the negative number, incorrect answers of -4, 10 or -10 were seen.

In part (d) nearly half of candidates could not correctly answer this part of the question. Many candidates failed to understand fractions during the answering of this question. Finding one eighth of 40 seemed beyond some candidates.

Incorrect approaches seen included stating $\frac{1}{8} = 0.8\%$ or 8% and $3 \times 8 = 24$.

An alternative method seen was to work out one half of 40 and one eighth of 40 and subtract their answers or one quarter of 40 and one eighth of 40 and add these together.

Question 7

Part (a) was a well answered question with the correct order of coordinates usually seen. In Part (b) the majority of candidates answered this correctly although many of them marked a cross rather than the letter D as requested. The most common wrong answer was (3, -1) followed by (0,2) and (0,3), all of which are one square away from the correct answer. There were relatively few misunderstandings with x and y coordinates.

Question 8

Very few incorrect answers were seen in part (a).

Part (b) saw most candidates obtain the result of 45, although 41 and 49 were also answers presented. Many candidates answered this correctly with an increased number using the n^{th} term rule, even though this was not asked for specifically. Another common reason given was 'add 4 each time'. Quite frequently a B1 mark was lost because the answer was a number other than 45 even though their explanation was correct.

Question 9

In part (a) many correct answers were seen but some answers of t^3 were also in evidence. Part (b) of the question was also well answered but the most common mistake seen was 5w. Most candidates were able to get part (c) of the question correct.

Question 10

Most candidates made scoring attempts at this question. Some candidates did not mix the size of packs they bought and so only combined large with large etc. This approach did allow for two correct combinations and one incorrect. If everything was done correctly then 4 out of 5 marks could still be awarded. For those that tried to mix pack sizes most candidates found more than one combination and their total prices. Some inaccuracy in basic addition led to marks being lost. For the communication mark candidates needed to clearly communicate what Astrid should buy. Candidates should be encouraged to read their answers back and check that someone could go to a shop with their instruction and purchase a sensible combination. A circle around a pack size is not clear communication and so was not awarded the mark.

Question 11

Part (a) was not a well answered question. Answers like 150m, 300m, 6m and 3m were all seen and indicate that candidates have little idea of a sensible metric height for a man. The figure 6 was often seen as the diagram measured 6cm in height.

Part (b) was possibly one of the least accessible questions on the paper. Pupils could have estimated a child's height, or used their answer in part a, the fact that the child was about a third the size of the adult, was beyond many candidates. The conversion between centimetres and metres was also often incorrect with a general lack of understanding about this evidenced by $1\text{m}=10\text{cm}$ or $1\text{m}=1000\text{cm}$ being seen far too often. For those candidates that did score on this question it was usually because they had an answer within the range allowed without working or for measuring the diagrams and seeing the ratio of 3:1 in their working. They often could not use this information effectively.

Question 12

Part (a) was a reasonably well answered question but there were many candidates who thought that the question was a code, giving $54 - 23 = 31$. Another common mistake was to calculate 20 and 6 correctly but then to add rather than subtract. On occasions poor arithmetic led to incorrect answers of the kind $20 - 6 = 16$.

In part (b) only a few of the candidates scored the available mark here. The answers 25, -25, 10 and -10 were seen in nearly equal proportion for this question.

Question 13

There was little trend in this question. Some candidates got part (a) correct and part (b) incorrect whilst others achieved marks the other way around.

Many candidates did not read the question carefully, not realising that the given recipe was for two people thus their final answers were incorrect. A significant number of candidates were able to deal with this conversion as it was given in the question, so most candidates managed to pick up at least one mark. Very few of them found ingredients for one person then converted. In general candidates seem to struggle with combining proportion and unit conversions in the same question.

In part (b) many candidates only started the required calculations; they did not multiply by 2 and so gained no marks.

Question 14

As with previous examinations, far too many candidates still confuse area and perimeter; some even gave the same answer for each part. A significant number of candidates worked out volume for part (a). When area was attempted, most could calculate the area of a rectangle or triangle but all too often area was not calculated at all.

In part (b) pupils often realised there were 4 repeated perimeters but often failed to deal with the overlapping lengths. Basic arithmetic skills were a real problem in this question.

Question 15

Even though candidates are looking for communication marks, it is unacceptable to just list every angle fact they know in the hope that the examiner will pick the correct facts for them. This approach did not gain marks. Candidates often calculated 75° and a good proportion went on to calculate P correctly. The geometric reasons given were considered once at least a correct first step was taken. There were usually three reasons required but even pupils who clearly had a good grasp of the question often forgot to state that the internal angles of a triangle sum to 180° . Many used this fact without stating it. The word 'angle' is often missed out of explanations and this leads to a loss of marks.

Question 16

The ways of multiplying are many and varied and most have been seen in this question when trying to calculate 1.30×30 . The decimal point proved confusing when using methods other than formal written method, £3.90 and £390 being common answers. The majority of candidates found this difficult. Some candidates did try to write 1.30 out 30 times and add the full list, this always produces errors. Most candidates managed $240/8$ satisfactorily but could only write down their method for multiplying, some did again list 8 out 30 times. Some students decided to take the '240 x 1.3' route and give this as their final answer, they did not divide by 8.

Question 17

Many of the students did not fully understand how to factorise and this resulted in few getting full marks for a fully correct factorisation. It was however, pleasing to see how many attempted the question and achieved a partially correct result. Quite a few got the B1 mark mostly for $x(7 - 28xy)$ or $7(x - 4x^2 y)$. Common wrong answers were $28x^2y$, $35xy$, changing the $-$ to $+$, $7x(-4xy)$ and $7x(x - 4xy)$.

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