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Principal Examiner Feedback

January 2014

Pearson Edexcel Level 2 Award
In Number and Measure (ANM20)
Paper 2A+2B

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Section A

Introduction

Section A is a calculator paper. It was evident from some work that students were attempting the paper without the aid of a calculator. This is not advisable, since calculation errors will cost marks.

Generally the standard of work on this paper was encouraging, but there were too many cases where students failed to show their working out. On these occasions an incorrect answer would lead to the loss of all marks for that question.

Students need to take particular care with their numbers. Some figures written by students were either ambiguous or illegible. Equally it was not uncommon to see students mis-copying answers from working space onto answer lines.

Reports on Individual Questions

Question 1

A question that was answered well, however students are reminded that they must clearly show their decimal points as some decimal points seen were very faint.

Question 2

This question was mostly done well. There was some evidence of poor “keying-in” to calculators, and attempts to do this by non-calculator methods (presumably from those without a calculator).

Question 3

The most common incorrect method was to divide 126 by 4 and by 5. Many students divided 126 by 9, but did not know what to do with the 14 that came from this. Many who calculated 56 and 70 then went on to give this as the final answer, but a significant number either rejected these numbers in favour of stating 14 as the answer, or then cancelled down to give an incorrect answer, some to the point of re-stating 4:5

Question 4

Students who used the staged approach of finding 18% of 450 in a single step usually gained the mark for the 81 seen. Some unfortunately then took this away rather than adding it to 450.

Many students used a staged approach of finding 18%, which was unnecessary on a calculator paper. Rarely was this successful, since sometimes they found 15%, 10%, 5%, and were then unable to find 18%; some found 1% but rounded this to 4 instead of using 4.5, a significant number failed to accumulate correctly, sometimes finding 17% or 16%; addition errors were too frequent.

Centres are advised to discourage a staged approach when a calculator is available.

Question 5

Students used a variety of methods in working towards the answer. Many incorrectly assumed this was a question about factors, and merely listed the factors of each number.

Some credit was given to those who drew factors trees, where these led to listing prime factors, since these could then lead to the answer. Unfortunately this was rare, since once the prime factors had been found for each number, students did not know how to use this information to find the lowest common multiple.

By far the most successful method was simply listing the multiples, an easy task given they had calculators, which usually led to the correct answer.

Question 6

The first two parts were answered well.

In part (c) some worked out 5×5 rather than55.

In part (d) the most common error was in using their calculator. An answer of −66 was regularly seen, from a calculation of 15−81, which the calculator could not then find the square root of. It is likely that the type of calculator used was not scientific, and the squaring of the expression 225−81 at the end would lead to −66

Question 7

Many students used πr^2 and therefore gained no marks. Many also used 14 as the radius. Of those who did substitute into the correct formula, some then misused the calculator. But there were also many fully correct answers

Question 8

The most common error was in multiplying instead of dividing by the exchange rate, but most gained full marks.

Question 9

Nearly all students gave 9 : 15 somewhere and gained a mark for doing so, but there were many who could not then simplify this ratio. Some gave 5 : 3 as their answer, and some used incorrect ratio notation, replacing ":" with a comma, a space or a decimal dot.

Question 10

The majority of students appear to have been prepared for a question on compound interest, but that is not part of the specification for this subject. Most who realised that only simple interest was needed went on to give the correct answer, though some failed to divide by 100

Question 11

This question was well attempted. Most found the total cost of each item and also subtracted the £23.80. Some only worked out one of the items. Some failed to write the answer correctly, giving it either as a decimal or incorrect money notation (eg £95.3).

Question 12

Too many students attempted to find the total surface area. The majority undertook multiplicative work with the numbers 3, 4 and 7. Many failed to divide by 2 (due to the triangular face).

Question 13

It was encouraging to see many correct pie charts. However some students calculated the correct angles to be drawn, but then drew a completely inaccurate pie chart, suggesting they might not have had a protractor with them.

Many who did not know how to calculate the angles merely guessed the approximate proportions, which usually failed to attract any credit.

Most used labels on their pie chart. Accuracy in calculating the angles was an issue for some. Rather than calculating the angle in one step many worked out the scaling factor first by working out 600÷360, but then rounded this to 1.6; subsequent use of 1.6 then led to inaccurate angles.

Students would be better performing the calculations in one step, or using accurate factors.

Question 14

Those who knew the decimal conversion could use a calculator, and did so to success. A significant number attempted this by non-calculator methods, but this was frequently done badly, either by ignoring the whole numbers or failing to convert correctly to a multiplication problem.

Question 15

There were many correct answers. It was surprising, however, how many merely worked out the rectangle 24×16 or 18×8, but not both.

Question 16

Most students deduced that a subtraction of 40 from58 was needed, but many failed to progress beyond this stage.

Question 17

Few students correctly recalled the correct formula. There were a variety of incorrect or incomplete methods including use of πr^2 (no h), πh^2, πrh, or finding the surface area. There was some evidence of poor use of calculators.

Section B

Introduction

Some students clearly struggled with performing calculations without a calculator; there were more questions that were not attempted in section B.

Reports on Individual Questions

Question 1

Part (a) was well answered.

In part (b) a significant minority of students failed to line up the 209 correctly, frequently treating it as 2.09

There were too many errors in simple arithmetic, even for those who adopted staged approach.

In part (c) the greatest success was achieved by those students who attempted to add up from 237 to 1000, usually by a staged approach. Errors would have been detected if students had added their answer to237 to check that is actually worked. Those who attempted a formal subtraction had a variety of success; not always borrowing the correct way.

Question 2

This question was answered well by students.

Question 3

A surprising number of candidates tried to work out the bigger quantity by comparing the two fractions alone, or even the 84 and 90

Of those who attempted to work out fractional quantities a minority calculated the unitary value only for comparison, that is $\frac{1}{4}$ of 84 and $\frac{1}{3}$ of 90. Having found the two values 60 and 63 nearly all then came to the correct deduction, and clearly stated this.

Question 4

Too many candidates worked out the cost of one ruler only, without then considering the cost of 7. Some performed the calculations incorrectly and arrived at answers that were not realistic.

Question 5

A variety of methods were seen in this question, all which suffered from poor arithmetic. For those adopting the traditional method most placed the figures correctly in respect of place value.

Those using grid methods frequently confused the numbers used to set up the grid, confused as to whether they should include 4 or 0.4

There were many cases of candidates arriving at 888, to then spoil their answer by either not putting a decimal in, or putting it in the wrong place.

In part (b) there were many more examples of correct answers, with a division being undertaken by either short or long division methods. It was usually just poor arithmetic (or correct recall of tables) that prevented full marks being earned.

Question 6

Many students gained some marks from rounding the 5.7 and the 39.1 and multiplying them together. Most failed to realise that a division of 0.5 was equivalent to multiplying by 2 (rather than a division of 2). No marks were awarded to the significant number of candidates who attempted the calculation without any rounding of numbers.

Question 7

It was poor arithmetic or recall of tables that spoilt it for many candidates. Surprisingly some only undertook one operation, leaving the calculation unfinished.

More success was gained by those who did the division by 8 first, since they then only had a small number to multiply, a strategy that is useful in non-calculator papers.

Question 8

In part (a) Those who started by writing the fractions as top heavy could eventually have reached the final answer, but had the hindrance of having to deal with very large numbers. The most common error was failing to write the fractions suing a common denominator, or changing to a common denominator without changing the numerators. Cancelling their final fractions also caused problems for many.

In part (b) it was re-writing with common denominators that created larger numbers that hindered reaching an accurate solution. Some ignored the 1. Cancelling final solutions again caused problems for some

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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