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Principal Examiner Feedback

Summer 2015

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

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Contents

Edexcel Award in Number and Measure (ANM20)
Principal Examiner Feedback – Level 2

Introduction

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 with no working 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 miscopying answers from the working space onto answer lines. Errors should be crossed through and re-written: over-writing work or answers usually leaves them illegible.

Report on Individual Questions.

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.

Section A

Question 1

A question that was answered well. Students must clearly show their decimal points, some are very faint.

Question 2

In part (a) the division was attempted by nearly all students. But this question was written to assess students' ability to write their answers appropriately, and it differentiated well. Many incorrectly wrote down an amount of money that was merely a long decimal copied from their calculator. Others realised that rounding to 2 decimal places was needed, but truncated rather than rounded. As a result, only a minority gained full marks.
In part (b) the only students to lose the mark were those who chose not to give the answers accurately from the calculator and those who did not have a calculator.

Question 3

Many gained full marks. There were the predictable incorrect answer of 134 in (a) and evidence of some guesswork in (b). There were many correct answers in (c), though there were some who chose to use 8 and 6 and, surprisingly, some who decided to add rather than multiply.

Question 4

Students who understood the division into parts usually arrived at the correct answer of 8. But there were also many estimates, with 10 the most common incorrect answer.

Question 5

This question was answered better than in previous series. There was the inevitable confusion over minus signs, but many correct answers.

Question 6

A well answered question, with few choosing to multiply rather than divide.

Question 7

The most common method seen was one of ×80÷100. Some students worked out 10% then 8% by a variety of means, which were sometimes incorrectly processed. The most common failing of students was in not reading the question, which asked only for the percentage, rather than a percentage increase or decrease. Many students therefore went on to perform an extra stage in their working, but as long as the correct answer of 320 was shown, they were not penalised on this occasion (see question 10 also).

Question 8

This was not well answered, with too many processes demonstrating error. Some students merely added the lengths or appeared to want to find the surface area. A further error was to halve at some stage, as if working with a triangle.

Question 9

A question on both perimeter and area usually results in some confusion, but most students were correctly able to distinguish between the two and give their solutions in the correct part, though any who did swap their answers were still credited for their method. The most common error in (a) was to multiply the three figures, or divide their sum by 2. In part (b) there were fewer correct answers, with some either forgetting to divide by 2, or multiplying all three numbers before dividing by 2.

Question 10

A significant minority of students incorrectly applied a compound interest approach to this question, which is surprising since compound interest is not on this specification. There was some confusion in using the 4 and the 3, with working not always clear. As with question 7 there were too many staged approaches in trying to find percentages. And just like question 7 there were too many who failed to read the question, resulting in the final answer given representing the total amount after 3 years, or even the result of taking the simple interest from the initial amount. This incurred a penalty for the final answer, though working was still credited.

Question 11

A well answered question, with few choosing to multiply rather than divide.

Question 12

Predictably the two main errors were either choosing to use the circle formula for circumference, or in using the diameter instead of the radius. Those who chose correctly on both counts usually went on to gain full marks. There was some credit for those who just showed evidence of recalling the correct formula, or those who worked with a radius of 16, but still with the intention of finding the area.

Question 13

Most students used a formal approach with these fractions with only a minority choosing to convert to a decimal, even though they had a calculator. Most gave the correct answer in a variety of forms. It was clear that some tried to use the fraction function button on their calculator but did not understand how to use it with mixed numbers. Equivalent answers of decimals, mixed numbers or fractions were all acceptable for the final answer.

Question 14

Many students understood that it was necessary to divide the face up in some way, and showed this on the diagram by either dividing up the given shape into a combination of rectangles, or less often by taking a 2 × 2 square from a 4 × 4 square. But methods were sometimes confused, demonstrated by addition rather than multiplication. Most who arrived at an answer in (i) were then able to multiply to find a volume, though a minority went back to re-calculate, usually incorrectly.

Question 15

Students used a variety of methods in working towards the answer. Many incorrectly assumed this was a question about multiples, and merely listed the multiples of each number. Some credit was given to those who drew factor trees, where these led to listing prime factors, since these could then lead to the HCF. 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 HCF. By far the most successful method was simply listing the factors, an easy task given they had calculators, which usually led to the correct answer.

Question 16

This question was not well answered, with only one mark usually awarded for finding the amount earned for the first 28 hours. Many failed to understand the significance of the 1.5, or what it had to be applied to. There were many examples of multiplying 1.5 by the 28, by the total hours worked, or even the tax and national insurance. Not all students realised that 7 hours overtime was worked, with instead many choosing to work with only the 35 hours. Only a minority showed a complete method, processed in the correct order.

Question 17

Most realised they had to work with the number 72, which gained some credit, but only a minority understood how to do this to form a percentage. The insistence of building up or trial and error to find the percentage was very common, but rarely attracting any marks since it was usually incomplete.

Question 18

It was encouraging to find that more students than is usually the case remembered the formula for finding the volume of a cylinder, and those who did normally went on to gain full marks.

Section B

Question 1

This question was well answered.

Question 2

Performance on this question appeared weaker than is usual. In part (a) most students abandoned a traditional approach involving decomposition. A very common error was to write 3.42 with 0.002 giving 3.422 which failed to convey whether they were adding, or incorrectly subtracting. Putting the digit 6 under the far right column of numbers, rather in the units column, was also prevalent in many solutions. In part (b) there were many examples of incorrect multiplication, and misplacing of carries. For such a simple multiplication problem, grid methods seemed inappropriate, yet many chose to use them, but became confused since they were only multiplying by a single digit.

Question 3

Students who tried multiplication of 5 before a division of 8 found this harder to answer. An alternative method of dividing by 8, and then a combination of ×3 and subtraction to find 5 was done badly, either because of poor arithmetic, or because more or less than 3 was subtracted.

Question 4

Most students understood they were working with 24 and 20, and gave these as a ratio. Some found cancelling down quite difficult, and lost the final mark as a result.

Question 5

Fractions questions rarely attract the most marks, and this was the case here. In part (a) many attempted the cross-multiply method which should have resulted in $\frac{20}{32}-\frac{8}{32}$ but for poor multiplication. Few demonstrated the simpler method of just writing 1/4 as 2/8. Once the correct answer was shown subsequent poor simplification was not penalised.
In part (b) methods were equally confused, with many students again choosing unnecessarily to try to write their fractions as $\frac{8}{20}\times\frac{5}{20}$. But having got there, adopting methods not only linked to multiplication, but also to addition. Most students who understood that simple multiplication was all that was needed gave their answer either as 1/10 or 2/20.

Question 6

Only a minority of students know how to write one number as a percentage of another. Some confuse this by working with 30. Some get as far as writing the fraction 120/150 but then do not know what to do with it. Certainly a weakness in many.

Question 7

In part (a) students need to understand that just identifying the larger fraction is insufficient, as it needs to be supported through evidence of working or calculation. This most did, and gained the full marks, though a significant minority did not know how to find a fraction of a quantity. Part (b) was usually well answered.

Question 8

Most were able to round at least two of the numbers ready for calculation, and indeed many then went on to carry out a process of calculation, usually 20 × 40 or 21 × 40. Few realised that division of 0.5 resulted in doubling; most halved to give 400 or 420.

Question 9

Most realised that a division of 70 by 7 was necessary, and went on to gain full marks. Only a minority chose to divide 70 by both 2 and 5, the most common incorrect method.

Question 10

Rather than divide by 5, the most common method seen was to find 10% as 50 and then double, which was successfully executed by many students. Rather than just add this to £500, some students chose to leave their answer as £100, or subtract from £500.

Question 11

Conversion to improper fractions made calculation more difficult. Equally so when it came to converting back to a mixed number. It was the process here that caused more problems for students than the arithmetic, since the numbers were small. An error for some was to process the fractions and forget the existence of the whole numbers. That said, there were also many correct answers, which was pleasing to see at the end of the paper.

Summary

- Taking care when writing numbers and having the correct equipment for each section
- Showing working out
- Writing money appropriately
- Understanding the difference between finding the volume of a cuboid and finding its surface area
- Understanding simple interest
- Knowing the difference between HCF and LCM
- Calculating with salaries, overtime, national insurance and tax
- Calculating a percentage increase or decrease and writing one number as a fraction or percentage of another
- Calculating with fractions and decimals without a calculator

Grade Boundaries

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