Examiners' Report
Principal Examiner Feedback

January 2020

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

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

Introduction

It was encouraging to find that most students attempted nearly every question, in both sections. Students found the time allowed sufficient to complete the paper.

There were some instances in this paper where working out was almost impossible to identify a chosen route of solution by the student, in order to award method marks. In particular, questions 10, 15 and 18 in section A required several different stages or working.

In section A some students used a number of stages to answer question 14, with question 2 in Section B frequently done using partitioning methods. That said, there was an improvement this series in the way that students set out their work, with fewer instances of trial and improvement methods. Students must remember to include any working out to support answers.

Section A is designed to be completed with the aid of a calculator, but the sight of a significant number of non-calculator methods would suggest that not all students had a calculator.

Report on Individual Questions.

Section A

Question 1

There were many correct answers to this question. The most common error in either part was mis-counting the divisions whilst in part.

In either part it was not uncommon to find students counting the wrong way, for example giving an answer such as 7.8 in part (a) or ignoring scaling by giving an answer of 115.3 in part (b).

Question 2

When errors were made in this question, these errors were normally associated with the choice of the wrong sign, but this was a well answered question.

Question 3

Part (a) is a relatively easy question to answer with a calculator, however, some students spoilt their answer by truncating or rounding unnecessarily.

In part (b) it was not uncommon to find answers being rounded to something other than 2 decimal places or truncated to 2 decimal place.

Question 4

A minority incorrectly chose to divide rather than multiply, but having chosen to multiply, then most of the students went on to give the correct answer. Those without a calculator were unable to do the long multiplication they attempted.

Question 5

A well answered question. Many students obtained the correct answer. The most common error was in just multiplying the three numbers given, or spoiling a correct addition method by also dividing by 2. There was clearly some confusion between perimeter and area.

Question 6

This was a well answered question. In part (a) some showed a lack of understanding by multiplying by 3. Part (b) was done best, with many correct answers. In part (c) a few added the indexed numbers or used 12 (leading to 144). There was some evidence that students failed to understand how to use their calculator or were using a calculator without a square root facility.

Question 7

A significant minority of students divided by 15 in an attempt to find the percentage. Otherwise many understood to multiply by 15 and divide by 100. Some used non-calculator partitioning methods, finding 10% and 5%, but failed to add their 60 and 30, or used just one of them as an answer. Essentially non-calculator partitioning methods were far less successful than those who simply used a method equivalent to × 0.15

Question 8

A minority incorrectly chose to multiply rather than divide, but having chosen to divide, then most of the students went on to give the correct answer.

Question 9

There was some confusion between adding and multiplying the given figures, and some who used 1602. But this was usually well answered. There were some trial and improvement methods but they did not have to perform many trials before arriving at the answer 4.

Question 10

Although this was a long question it was usually very well done, with evidence of sound arithmetic in most cases. A minority showed evidence of transcription errors in working. It was disappointing to find a significant minority of students getting the operation wrong, but adding on one or both deductions, or just ignoring them completely.

Question 11

The majority of students attempted this by a traditional approach, writing these as improper fractions. The weakest students tried to do this using only $\frac{1}{2}$ and $\frac{1}{4}$. There was no requirement to simplify fractions after processing. Of those students who changed the fractions into decimals to use a calculator, most then went on to give the correct answer. A very common incorrect answer was 8.

Question 12

Too many failed to remember that we need to divide by 2 when dealing with the area of a triangle. As a result an incorrect answer of 520 was common. Those who remembered to divide by 2 usually went on to give the correct answer. A significant minority simply added the numbers.

Question 13

Too many listed multiples rather than factors. Some tried to list all the factors of 24 and 90 as lists; this usually resulted in them identifying at least one of the common factors. The most successful attempts were those who used factor trees, gaining some credit for showing the prime factors. Some then went on to successfully state the HCF, but many using this method did not know how to use their prime factors to arrive at the answer. The most successful approaches went on from their factor tree to put the factors into a Venn diagram, using the three 2s in the intersection to give the correct answer of 6.

Question 14

Students who could not work with percentages were unable to make much progress with this question. Sometimes, in trying to work out the percentage, the division by 100 was not done. Fewer students than in previous series attempted this question using compound interest methods, but there remained some confusion as to whether to give their interest as the final answer, or whether to add their answer back onto the 45200. Too many used a partitioning method to find the percentage by finding 10%, 1% and 3% rather than a more direct approach, usually leading to greater error. It was not uncommon to find students who used this approach finding 10%, 5% and then not knowing how to get to 3%. On this occasion it was a surprise to find many spoiling their solution by multiplying both the 1200 and the 2 by 3, typically arriving at an answer of 216.

Question 15

Some students confused perimeter with area and worked out 4 × 15. But a mark for working out 15 × 15 was common. Unfortunately the majority failed to progress any further due to much misunderstanding about working out the area of the circle. Many could not remember, and others guessed a variety of formula including $2 \times \pi \times 5, \pi 2 \times 5$ and $(\pi \times 5)2$. It was disappointing to find students who added the areas, rather than finding the difference. Overall a question that was not well done.

Question 16

Most gained some credit for the first step of showing 66, but could not then convert this to a percentage of 3. Some got as far as 1.03, but then left this as their answer rather than subtracting 1.

Question 17

Those who worked with fractions of 360 rarely gained any marks. Some worked with the angles, identifying proportional links. Others identified scale factors. Many gave both answers; it was not common to see just one answer being given.

Question 18

Most knew that the shape had to be divided up, but many failed to identify that a triangle was needed. A common mark was for working out the area of a rectangle. It was usually the case that progress beyond this case was impossible due to the fact that they chose overlapping areas, or failed to show a correct method for working out the area of a triangle. A difficult question that proved to be a good discriminator.

Section B

Question 1

This was a well-answered question.

Question 2

In part (a) was not well done by many students. For example, some students just added the first three or four numbers. The weakest students confused place value, for example adding 470 to 62.35 to give 67.05

In part (b) there were many different methods shown, including Napier's bones, grid methods and partitioning methods, even though this was multiplication by just a single digit. Place value was again an issue here, particularly with grid or partitioning methods, but so was poor recall of time tables. Those who ignored the decimal point during processing either forgot to put it back or did so in the incorrect place.

Question 3

This was well answered.

Question 4

A well answered question. Most students realised that a division by 9 was needed, and most then went on to multiply their answer by 8 (or adding back onto £2.40), arriving at the correct answer. A minority lost the final mark since they did not give the units with their answer.

Question 5

Evidence of some understanding was shown by those who added the 4 and the 7 to give 11. Division into 132 usually followed onto the correct answer. A significant minority of weaker students merely attempted to divide 132 by 4, and to divide 132 by 7.

Question 6

Most showed 24 : 16 in working to gain the first mark. Some then failed to simplify correctly. Some gave the answer the wrong way around (2 : 3).

Question 7

In answering part (a) it is important that students realise that in these types of question their final answer needs to be supported by working. Credit was sometimes given for an incorrect conclusion linked to their two answers given, as long as a correct method was shown for at least one of these two answers. Whilst many students realised that a division of 3 or 4 was needed, this was not always done accurately. Too many found 1/3 of 69, rather than 2/3.

Question 8

Those who knew how to work out a percentage usually gained some credit. Many found 10% then halved to give 5%, but of course these then had to be added. Some just left their answer as the percentage figure (24) and some spoil their answer by adding to 160. Overall a question that proved to be a good discriminator and provided a good range of marks.

Question 9

In part (a) there were many who just added across to give the incorrect answer of $\frac{6}{18}$, or even $\frac{1}{3}$. Those who tried to use a common denominator did so using either 12 or 72. This was not guaranteed to lead to the correct answer, since not infrequently an error was made in calculating the matching numerators. Any equivalent fraction to $3\frac{17}{40}$ was acceptable for the final answer.

Part (b) was a well answered question.

Question 10

Students who attempted to work this out accurately gained no marks; the question asked for an estimate, and there must therefore be evidence of estimation before any marks are awarded. Those who chose appropriate numbers to use as estimates gained some credit, though this did not include those who just truncated to 0.48 to 1. A common error was in assuming division of 0.5 was performed by halving the numerator. Some calculations were again spoilt by poor arithmetic.

Question 11

Many students started by writing 210/600, but were then unable to convert this into a percentage.

Question 12

The key to this question was of course finding a common denominator. Those who merely showed 5−1 and 8−5 or equivalent gained no marks. But it was encouraging to see many who wrote $\frac{25}{40}-\frac{8}{40}$ or equivalent. Some decided to write their fractions as improper fractions, which could still lead to the correct answer, but then involved more work and larger numbers to deal with. Some ignored the whole numbers completely. It was disappointing to see a significant minority failing to write their answers as a mixed number as requested, which meant they lost the final mark.

Summary

Based on their performance on this paper, students are offered the following advice:

- Present working legibly and in an organised way on the page, sufficient that the order of the operations can be identified.

- Ensure that they arrive to take the examination with a calculator for section A.

- Spend more time ensuring that they read the fine detail of the question to avoid giving answers that do not answer the question, and to give answers in the form required, such as simplified if asked for.

- Practice basic numeracy such as addition/subtraction and ensure that they have learned the times tables. This is particularly the case in Section B.

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