Pearson

Principal Examiner Feedback

January 2017

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

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Introduction

The inclusion of working out to support answers remains an issue for many; but not only does working out need to be shown, it needs to be shown legibly, demonstrating the processes of calculation that are used.
There were too many instances in this paper where working out was set out in such a disorganised way that it was almost impossible to identify a chosen route of solution by the candidate, in order to award method marks.
There were also cases where several methods were shown; unless made clear by the candidate which is to be accepted for marking, no marks can be given.

Candidates need to be reminded about how they write their numbers. There are an increasing number of occasions when numbers are written ambiguously (e.g. 1s and 7s, 2s and 5s) or numbers are over-written, leaving them illegible.

There were too many attempts that resembled trial and improvement approaches.

In this season, too many candidates appeared unprepared for the paper, evidenced by unattempted questions, by confused methods, and by poor mathematical processing.

Reports on Individual Questions – Section A

Question 1

There were many correct answers to this question. The most common error was in reading the scales in reverse, usually giving incorrect answers of 5.3 and 13.2

Question 2

This was a well answered question.

In (c) a few multiplied the individual numbers, using 6 and/or 15; some added at the second stage rather than multiplying.

Question 3

There were the inevitable mixtures of signs, but usually both answers were given correctly.

Question 4

Candidates need to understand that whenever calculations are required in this section, they must be worked out accurately. With a calculator this was a relatively easy question, yet some candidates spoilt their answer by truncating unnecessarily.

Part (b) was poorly answered. Rounding was the main issue, with many rounding to the nearest 10p, the nearest pound, or to one decimal place irrespective of the fact that this was money. Some rounded to 116.66 rather than 116.67

Question 5

There was evidence of much trial and improvement, most unsuccessful. A common error was to relate the 25 with the 45°, but then to try to work out the values for each of the angles, rather than using the fact that 45 to 360 only needed use of a factor of 8.
Anyone giving a correct final answer gained full marks.

Question 6

Although this was a long question it was usually very well done. The arithmetic was well done. The only common error was mixing up the operations, for example multiplying 16.5 by 12 rather than 25. A minority showed evidence of transcription errors in working.

Question 7

A well answered question which attracted full marks in nearly every case. The only error was in adding the numbers, or in attempting to work out the surface area.

Question 8

There remains some misunderstanding with this type of question. A significant minority incorrectly showed 902÷5 and 902÷6. Of those who started correctly division by 11 was shown for the first mark. Some candidates gave the result (82) as an answer. When the two numbers 410 and 492 were given as answers, in any order, full marks were given.

Question 9

With all percentage problems the most common error is to divide (14000÷6) rather than multiply. Those who correctly multiplied usually ended up showing the number 840, but there were a significant minority who then went on to do more work with this number, such as adding it to 14000, or even taking it away. In this question full

marks were still given, as long as the 840 was seen, in recognition of their skill shown in terms of percentage calculations.

Question 10

Most understood the need to multiply, and to multiply using the three given numbers. A very common error was to give 396 as the answer, without realising the need to divide by 2.

Question 11

The majority of candidates attempted this by a traditional approach, writing these as improper fractions. The weakest candidates tried to do this using only 3/4 and 2/5. There was no requirement to simplify fractions after processing. Of those candidates who changed the fractions into decimals to use a calculator, most then went on to give the correct answer.

Question 12

Candidates who could not work with percentages were unable to make much progress with this question. Sometime the division by 100 was not done. Fewer candidates than in previous series attempted this question using compound interest methods, but there remained some confusion as to whether to add their answer back onto the £600; unlike question 9, here it was penalised by loss of the final mark.

Question 13

There were the predictable number who attempted this by area methods, who therefore gained no marks. Some confused radius and diameter, but most working with circumference formulae went on to give the correct answer.

Question 14

There was a lot of confusion with the shape. Most realised that it had to be divided up to find the area (or alternatively create a single rectangle and take away a single triangle).
One error was in failing to divide up the lengths appropriately to match their divided shape, but for many the error was in treating the right hand part as a rectangle rather than a trapezium that needed dividing into a rectangle and a triangle (evidenced by 6×4+14×6). Failure to remember the ½ when finding the area of a triangle was another common error. Candidates sometimes earned more marks when they showed how they were dividing up the shape on the diagram, but the only mark usually gained was in working out the area of a single rectangle.

Question 15

Most divided to get the correct answer, but some multiplied, and should have realised that the answer then given was unrealistic.

Question 16

There were many attempts using factors, which gained no marks. The most successful attempts were those who listed multiples, frequently arriving at the correct answer. Those who used factor trees gained some credit for showing the prime factors, but most using this method did not know how to use their prime factors to arrive at the answer.

Question 17

Most gained some credit for the first step of showing 42, but could not then convert this to a percentage.
Some got as far as 65%, but then left this as their answer rather than performing a subtraction from 100. As a result, few got to the 35 as their final answer.

Question 18

More candidates used the correct circle formula that in Question 13. Not all calculated the area of the square, which was arguably the easiest mark to gain. A few were confused by the 8 in working out the area, and some were unable to recall the area formula accurately. Overall this question was better done than in previous series.

Section B

Question 1

A well answered question.

Question 2

In this question the common errors were related to poor arithmetical processing, either by adding or subtracting incorrectly, or by poor recall of times tables.

In part (a), it was disappointing to see a significant number of candidates using operations incorrectly. For example, by just adding all four numbers, or by showing $(117 - 60) + (24.58 + 17.5 - 60$), or similar. The weakest candidates confused place value, for example adding 117 to 2458. If the first three numbers were first added, subtraction of the 60 then became an issue for some.

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. Those who ignored the decimal point during processing either forgot to put it back, or did so in the incorrect place.

Question 3

A well answered question.

Question 4

Those who wrote their fraction the wrong way around gained no marks. Many confused units, and converted incorrectly using 1000 or 10 rather than 100. Many attempted to simplify, but failed to do so down to 1/5.

Question 5

It is important that candidates realise that in these types of question their final answer needs to be supported by working. Credit was sometimes given for an incorrect conclusion as long as this was correct for their two answers, which must then be shown. Whilst many candidates realised that 1/5 of 280 was just a division by 5, fewer remembered a process by which 3/4 of 80 could be found.

Question 6

Most showed 21 : 35 in working to gain the first mark. Many then failed to simplify correctly. Some gave the answer the wrong way around (5 : 3).

Question 7

Some attempted this by division, but most realised that a multiplication was required. However, this caused problems for many since this was a non-calculator question. The most successful approaches involved finding half and then adding back on; least successful were those who treated this as a formal long multiplication problem.

Question 8

Candidates who attempted to work this out accurately gained no marks. Those who chose appropriate numbers to use as estimates gained some credit, though this did not include those who just truncated to 60 or 50. Some calculations were again spoilt by poor arithmetic.

Question 9

Those who knew how to work out a percentage usually gained some credit. Many found 10% then 5% as part of this method. Some just left their answer as the percentage figure (120) and some spoil their answer by adding onto 800.

Question 10

In part (a), a number of methods were seen, but where candidates understood the method they were using, this usually led to the correct answer.

Part (b) was well answered. In neither part did candidates have to simplify, and correct equivalent fractions were therefore accepted for full marks.

Question 11

This was not well answered. Credit was sometimes gained for showing the fraction 560/800, but few then realised how to write this as a percentage.

Question 12

There were some good attempts at this question. Some wrote the two fractions using a common denominator before multiplying, which was an acceptable method, but then caused them more work when simplifying at the end.

Summary

- Working needs to be presented legibly and in an organised way on the page, sufficient that the order of the process of solution is clear.
- Figures need to be written clearly, and not written-over.
- Candidates need to spend more time ensuring they read the fine detail of the question to avoid giving answers that do not answer the question.
- Basic numeracy such as addition/subtraction needs practice.
- Times tables need to be learned.

Grade Boundaries

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