Pearson Edexcel

Examiners' Report
Principal Examiner Feedback

January 2023

Pearson Edexcel Awards In Number and Measure (ANM20) Paper 2A

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Edexcel Awards: Number & Measure January 2023

Report on Paper ANM20 (Level 2)

Introduction

There were many high quality candidates for the examination this session, resulting in some very good performances across the questions. In particular candidates showed a considerable increase in their ability to process questions involving fractions.

Candidates need to be aware that working out needs to be shown. In cases where an incorrect answer is given without any working no marks can be awarded, even such working might be implied (but not shown). In particular, questions 9, 12, 14 and 16 in Section A required several different stages or working. There were a few occasions where several methods were shown by a candidate; unless made clear by the candidate which is to be accepted for marking, no marks can be given.

Overall there was a significant improvement this series in the way that candidates set out their work.

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 candidates had a calculator.

There were fewer occasions where attempts were made that resembled trial and improvement approaches.

It was encouraging to find that most candidates attempted nearly every question, in both sections.

Report on Individual Questions

SECTION A

Question 1

There were many correct answers to this question. The most common error in either part was miss-counting the divisions. Another less common error was where candidates counted the wrong way, for example giving an answer such as 13.3 in part (a), or ignoring scaling by giving an answer of 53.2 in part (b).

Question 2

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 or rounding unnecessarily.

Question 3

This was a well-answered question. Those without a calculator were unable to do part (a), defaulting to dividing by 2. Part (b) was answered correctly by most, though some just multiplied by 3. In part (c) most candidates were able to calculate 3^4 or 2^5 but a minority then made the error of adding.

Question 4

One error was in dividing 40 by 7.5, but some candidates were confused by the units (cm^2) and felt the need to find 40^2 as part of the process. Some divided their final answer by 2. A minority wrote numbers on the sides of the diagram and showed a method relating to finding the perimeter.

Question 5

A well answered question. Many candidates obtained the correct answers with more success in part (a) than part (b). The most common error was in just multiplying the three numbers given. The division by 2 was not well understood, with some dividing by 2 in part (a), or failing to do in part (b). Common incorrect answers included 40 in part (a) and 16320 or 480 in part (b). A small number of candidates showed some confusion between perimeter and area.

Question 6

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

Question 7

A significant minority of candidates divided by 24 in an attempt to find the percentage. Otherwise many understood to multiply by 24 and divide by 100. Many used non-calculator partitioning methods, finding 10% and 1%, but then showed error in finding the 4% needed. Other errors included adding their 50, 50, 20 incorrectly or adding the wrong numbers from their calculations. Many partitioning methods were rarely complete. Essentially non-calculator partitioning methods were far less successful than those who simply used a method equivalent to × 0.24

Question 8

A minority incorrectly chose to multiply rather than divide, but for those who chose to divide, most went on to give the correct answer. Those without a calculator were unable to do the necessary division.

Question 9

Candidates 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. A significant minority of candidates attempted this question using compound interest methods, and there remained some confusion as to whether to give their interest as the final answer, or whether to add their answer back onto the 6000. Too many used a partitioning

method to find the percentage by finding 1%, 2% and 0.5%, rather than a more direct approach, usually leading to greater error. It was also a surprise to find some spoiling their solution by multiplying both the 6000 AND the 2.5 by 2 (years).

Question 10

A minority incorrectly chose to divide rather than multiply, but of those candidates who chose to multiply, most went on to give the correct answer.

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 1/2 and 3/4. 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. The most common incorrect answer was 9/8.

Question 12

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 candidates getting the operation wrong by adding or subtracting the difference between the tax and National Insurance.

Question 13

There was the usual confusion of candidates over whether to use 11 or 5.5 in any circle formula with many showing a desire to use 11 × 11 and answers of 121. A minority of candidates tried to use the formula for working out the circumference of a circle.

Question 14

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 but it was not uncommon to see just one answer being given.

Question 15

Some tried to list many multiples of 15 and 18, but this was the surest way to gain full marks as long as they went far enough. Many used factor trees, gaining some credit for showing the prime factors. Venn diagrams were also popular for showing the prime factors. Some then went on to successfully state the LCM, but most using tree or Venn diagrams did not know how to use their prime factors to arrive at the answer. Some thought they were trying to find the HCF and listed pairs of factors.

Question 16

This question was surprisingly poorly done. Too many attempted a perimeter calculation. Many started by drawing in a line to show the 3 × 4 or 3 × 12 rectangle but needed to go further by dividing off a triangle to get the first mark. However, the second mark was gained by many for showing a calculation relating to a rectangular area. Of those who presented an almost correct solution, the most common error was failure to divide by 2 in finding the area of the triangle.

Question 17

Most gained some credit for the first step of showing 66 but could not then convert this to a percentage.

Question 18

Better candidates were able to recall the correct formula for working out the volume, but $\pi \times r \times h$ was a common misconception. But the majority just ignored π and just used 7 and 15 in a calculation, 105 being a common incorrect answer.

Concluding guidance notes for centres:

1. 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, and to give answers in the form required, such as simplified if asked for.

2. Working always needs to be shown and needs to be presented legibly and in an organised way on the page, sufficient that the order of the process of solution is clear.

3. Candidates need to ensure they arrive to take the examination with all necessary equipment, which includes a calculator for Section A.

4. Basic processes such as how to find a percentage need to be learned, whilst for section B basic numeracy such as addition/subtraction needs practice, and whilst times tables need to be learned.

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