Pearson Edexcel

Examiners' Report
Principal Examiner Feedback

January 2019

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

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Grade Boundaries

Grade boundaries for all papers can be found on the website at:
https://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html

January 2019
Publications Code ANM20_2A_1901_ER

Contents

1.) Introduction -- -- -- -- -- -- -- 1

2.) Examiner Report – Level 2 Section A -- -- -- -- -- -- -- 1

3.) Examiner Report – Level 2 Section B -- -- -- -- -- -- -- 5

4.) Grade Boundaries -- -- -- -- -- -- -- 8

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

Introduction

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 student, in order to award method marks. This was particularly the case in Q10 and Q12 in Section A. There were also cases where several methods were shown; unless made clear by the student which is to be accepted for marking, no marks can be given. 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.

Completion of some questions in section A by non-calculator methods (eg Q8, Q10 and Q13) would also suggest the absence of a calculator.

Students need to be reminded about how they write their numbers. There are an increasing number of occasions when numbers are written ambiguously (eg 1s and 7s, 2s and 5s) or numbers are over-written, leaving them illegible. There were several instances where students appeared not to be able to read their own writing when transferring numbers to perform additional calculations. Poor arithmetic was regularly seen; not only on the non-calculator section, but also in section A, where a calculator should have been used to check working out.

Report on Individual Questions.

Section A

Question 1

There were many correct answers to this question. The most common error in part (a) was mis-counting the divisions, or counting back to give 17.3, whilst in part (b) the common error was in ignoring place value for example by giving the answer as 23.2

Question 2

This was a well answered question. In (a) some showed a lack of understanding by multiplying by 2.

In (b) most used the square root facility on their calculator correctly to give the required answer. In (c) a few multiplied the squared numbers, or failed to square root.

Question 3

In this question students were unsure as to the association between the parts. Many seemed to think it was linked to 360° degrees in a circle, and few realised that red and blue were quarters of a circle, and that division of 60 by 4 was needed. Some found the correct number of pens for each of the colours but did not realise that it was the difference between these which was asked for and gave a different answer.

Question 4

Although a straight-forward question this was compounded by students' misunderstandings. Most common was a desire to use 15^2 since the units were squared units. A few divided the numbers.

Question 5

A well answered question. The only common errors occurred when students divided instead of multiplying, or rounded their answer in some way, for example showing their final answer as just 168 or 169

Question 6

Another well answered question, the only problem, predictably, being the signs.

Question 7

In part (a) students 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 students spoilt their answer by truncating or rounding 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 21.42 rather than 21.43

Question 8

Students who could not work with percentages were unable to make much progress with this question. Sometimes the division by 100 was not done, or the figure of 6 was used as a divisor. Those who used non-calculator partitioning methods rarely gained any marks: whilst most found 10% then 5%, they became confused as to how to get to 1% (though of course a simple division by 100 would have achieved this).

Question 9

There were many who gave the correct answer of 140, but an equal number who did not divide by 2 in finding the area of the cross-section, arriving at an answer of 280 instead. A significant minority either multiplied all the numbers, or added them all.

Question 10

Although this is a long question in the past it has been well done, but on this occasion students appeared to have little understanding of overtime rates. There was much evidence of students assuming that there were 36 or 28 hours of overtime, or an inability to calculate the overtime rate per hour. Some failed to subtract the stated deductions. A minority showed evidence of transcription errors in working, or mixed up the order of operations.

Question 11

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 12

Most students showed understanding of rectangular area by showing how to work out an appropriate area, usually 5 × 3 or 9 × 10. Most also showed understanding that in order to find the total area the shape (or a 9 by 10 rectangle) had to be divided up into a number of rectangles. Finding the dimensions of the inner rectangles was the greatest problem for the majority of the students. A significant minority thought the route to the answer was to add or multiply all the given numbers.

Question 13

As with question 8, students needed an understanding of how to work with percentages in order to achieve any marks. A common error appears to be the failure to divide by 100 as part of their percentage calculation. 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 £600

Question 14

There was the usual confusion of students over whether to use 8 or 16 in any circle formula, and of course a minority of students who tried to use the formula for working out the area of a circle. Other common errors included a failure to divide by 2 (for a semicircle) or not adding on the straight edge of 8 cm in finding the total perimeter.

Question 15

Although the number of kilometres was just 20 times the number of kilometres given in the question (leading to 20 × 5 miles), few spotted this, and instead attempted a two-staged approach to finding the answer. Whilst many divided by 8 and/or multiplied by 5, it was not uncommon to see multiplication by 8 or division by 5

Question 16

The majority of students attempted this by a traditional approach, writing these as improper fractions. The weakest students tried to do this using only 3/4 and 1/5. 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 greater number than in previous years were seen to be using this decimal approach.

Question 17

Most gained some credit for the first step of showing 516, but could not then convert this to a percentage of 25. Some attempted to use the given figures, but it was most common to see these given incorrectly as the inverse 2150÷1634

Question 18

The most common mark awarded was for those who realised they needed to calculate the area using 10 × 8. There were the usual problems with finding the area of the centre circle, with students using 6 as a radius, or finding the circumference instead of the area, but this was better done than in previous years. A significant minority added their two areas, rather than taking them away.

Section B

Question 1

A well answered question.

Question 2

In this question the common errors were related to poor arithmetical processing.

In part (a) it was disappointing to see a significant number of students using operations incorrectly. For example, by just adding all four numbers, by just adding the first three numbers, or similar. The weakest students confused place value, for example adding 206 to 4362. Some attempts to calculate in a different order did not work: for example, then subtracting the answer to 30–12.7. Many students knew that some form of decomposition was needed when subtracting, but for many this was only done partially, perhaps by just using 1 rather than 9.

In part (b) the most successful method was the traditional method of just multiplying by 6. Those attempting grid methods made a mess of the place value, by using 54 instead of 0.54 and 48 instead of 4.8. For many arithmetic errors were made with poor recall of time tables.

Question 3

There were many good attempts at this question. The final mark was frequently lost since students did not write the final answer in its simplest form.

Question 4

Many students were unable to make progress with this question since they ignored the units and simply wrote their initial fraction as 40/5. There were some who worked with ratio rather than a fraction.

Question 5

A well answered question. Most students realised that a division by 8 was needed, and most then went on to multiply their answer by 3, arriving at the correct answer. The most common error was to divide 560 by 3, and by 5

Question 6

Those who knew how to work out a percentage usually gained some credit. Many found 10% and 5%, leading to 8+8+8+4; a significant minority found 5% as 4 but then ignored this and just used 3×8. The reason for this is not clear. Many worked out the 35% and then finished, gaining only the first mark for stating 28

Question 7

In part (a) few noticed that 4 – 4 removed the whole numbers. Some added these. Far too often students started by converting the fractions into improper fractions which meant that they then had to deal with larger numbers. Many failed to attempt to use common denominators and just added numerators and added denominators.

Part (b) was answered far better.

Question 8

This question was well answered. The most common approach was to divide by 6 and then multiply by 11. Some used an acceptable alternative approach of doubling he £54 to find the cost of 12 then subtracting the cost of one (using 54÷6). The only regular error was arithmetic when times tables were not correctly recalled.

Question 9

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 1/5 of 175 was just a division of 5 (though many struggled with this), fewer remembered a process by which 3/4 of 48 could be found.

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 credit. Some calculations were again spoilt by poor arithmetic.

Question 11

Many wrote this as the fraction 405/900 but did not know how to covert this into a percentage.

Question 12

The key to this question was of course finding a common denominator. Those who merely showed 2+1 and 5+4 or equivalent gained no marks. But it was encouraging to see many who wrote $\frac{8}{20}+\frac{5}{20}$. 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. Surprisingly students had more success with this fraction question than the simpler Q7(a).

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 process of solution is clear.
- 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.
- Ensure that they have learned the times tables.
- Be aware of how best to use their calculator: to help check their working out in section A, or to use a method of solution that is most suited to calculator use.

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

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom