Principal Examiner Feedback

Summer 2016

Pearson Edexcel Level 2 Award
in Algebra (AAL20)

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Edexcel Award in Algebra (AAL20)
Principal Examiner Feedback – Level 2

Introduction

This Level 2 examination paper provided all students with the chance to show what they knew and that they could apply this knowledge.

Whilst some students were well prepared others seemed less so. Centres are advised to ensure all students are fully prepared for this Level 2 algebra award examination which does include curve sketching.

Good students were able to display a range of skills and techniques whilst weaker performances were often typified by inaccurate arithmetic as this is a non-calculator examination.

The design of this paper was consistent with previous papers and the performance of students on this paper was consistent with that expected when the paper was set so that a pass mark of about 66% of the total mark could be considered as showing proficiency in Algebra at
Level 2

Reports on Individual Questions

Question 1

Many students demonstrated a good understanding of what was required in this question. The first three parts were well answered. However in part (d), many students did not deal with 2^4 appropriately or simply ignored that the 2 was to the power of 4. The most popular incorrect answer to this was giving '$a = 2$'. The other common error seen was in part (a) where students failed to simplify fully either leaving in multiplication signs or not evaluating 3×4.

Question 2

A significant number of students were able to succeed on this question. Part (a) was very well answered and in part (b) even when the answer was incorrect the bracket was usually expanded correctly.

Question 3

Many students were able to succeed on this question. Some errors of only partial simplification were seen in part (a). In part (b) the main errors seen were usually a lack of accuracy, for example missing out one letter in the final answer, part marks could still be awarded. Part (c) was very well answered.

Question 4

The majority of students scored on this question. In part (a)(ii) many students chose to list the terms of the sequence, trying to get to the 26th term. An algebraic approach would have been more accurate and efficient as many lists either contained an arithmetic error or did not list 26 terms. Some errors were due to the negative answer. Several students attempted to find the 'nth term' but often used '$-4n + 20$ or $-4n + 16$' instead of the correct expression '$-4n + 24$'. Students who did obtain the correct 'nth term' then often struggled with the negative numbers, often giving $-104 +24$ as either -128 or $+80$.
The last two parts were well answered with many fully correct answers seen.

Question 5

A significant number of students were able to succeed on this question. Some errors of only partial factorisation were seen in part (a). Good answers were seen for parts (b) and (c).

Question 6

The first part of this question was well answered.
In the second part too many students failed to use brackets when showing working. They often ended with the incorrect answer $4x + 7$, showing a lack of knowledge of notation and the correct way to subtract a two term expression. Students need to use brackets appropriately.

Question 7

In part (a) many students showed the first step of adding 2 to both sides. They then said that $6 \div (\frac{1}{3})$ was required but gave an answer of 2. The ability to deal effectively with fractions is required in this specification. Part (b) was well answered and students were able to evaluate a final answer involving a decimal. Most students wrote 4.5 rather than $\frac{9}{2}$ or $4\frac{1}{2}$.

Question 8

Many correct straight lines were seen. A few lines which did not cover the full set of values given for x were drawn. Students should draw the line for the full set of values given in the question. The most successful method seen was to set up a table of values and plot points. A quadratic graph was seen; whilst this was unusual students should know the basic equation of a straight line.

The gradient tested in part (b)(i) of this question was negative. Too many positive answers were given. Students should show full working for these questions as a final answer only is a high risk strategy.

A follow through was allowed for part (b)(ii) but too many answers seen did not include the '$y=$' part of the equation. The meaning of $y = mx+c$ is an important part of this specification.

Question 9

All of this question was well answered. The main error seen was not to use the scale correctly when working out the gradient in part (b). Too many students assumed the number of days 'x-axis' would start at 0 and did not relate the real life scenario to the graph given. The plotting of the points given in part (c) was well carried out and the point of intersection was interpreted correctly.

Question 10

Sketching a quadratic was difficult for some students. In part (a) many students did not draw the quadratic curve through the origin but did give the general shape. Labelling was sometimes weak or non-existent in this question but 2 marks could be scored even without labels being seen.
In part (b) the sketch was often correct though sometimes a table was used to plot points rather than a true sketch being drawn. Students need to be reminded that they should label where a graph cuts the axes.

Question 11

Students MUST look at and interpret the scale of graphs. The main error in part (a) was to use

1.2 hours as the time taken to travel 80 km. Students who converted this to 80 minutes often got an answer of 1 but then did not convert this into the correct units. Method marks were awarded for appropriate calculations.

Part (b) was well answered. In part (c) many drew a line for a 30 km journey in 30 minutes but this was not the question asked. Some students showed a return to the beginning or a part return journey. This distance-time graph was clearly for a journey to a concert and gave no indication of a return journey. Again the real life context of this question must be interpreted by students.

Question 12

This question was stepped in difficulty and the marks achieved reflect this fact. Part (a)(i) was well answered and part (a)(ii) was usually well answered with the main error seen being to multiply by 3 rather than 4 as a first step.

Part (iii) was often correct but occasionally the letters were reversed or the operations reversed. Students found part (b) more difficult especially part (ii) where squaring was not always seen.

Question 13

This question had a fairly standard format and students were able to answer accurately most parts. In part (a) the 2 was sometimes missing and the equality should have been noted.

Parts (b) and (c) were well answered, again; the main mistakes seen were a lack of equality on the answers given in part (b) and in part (c) the circle shaded in . A few arrows going down the number line were seen.

Part (d) was well answered but the negative number in part (e) was difficult for many to interpret and process.

Question 14

This final question had many fully correct answers. The obvious mistake leading to an incorrect answer was that the negative value of x led to the most popular incorrect value of y. Even with this incorrect value many students plotted correctly and gave 1 value in part (c). Students are advised to check the shape of their graphs as some did spot their arithmetic mistake when the graph was not a parabola. Some students used the plotting to correct their table.

Summary

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

● ensure you have a good understanding of all topics in the specification

● ensure you can deal with negative signs in both numerical and algebraic manipulation

● be able to recognise the type of graph required from the equation given

● carefully read and interpret the scales on given graph questions

● understand and interpret the context of real life problems

● label intercepts with axes in curve sketching questions

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