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Principal Examiner Feedback

Summer 2015

Pearson Edexcel Level 2 Award in Algebra (AAL20)

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Principal Examiner Feedback – Level 2

Introduction

This Level 2 examination provided all students with the chance to show what they knew.

Whilst most students were well prepared, others seemed less so. Centres are advised to ensure all students are fully prepared for this Level 2 Award examination which is slightly different to GCSE examinations.

Good students were able to display a range of skills and techniques whilst weaker performances were characterised by poor comprehension, inaccurate arithmetic and gaps in content knowledge. Particular attention should be paid to dealing with negative numbers.

Students should expect to be tested on all areas of the specification content and will be at an advantage if they have experienced all the topics stated in the specification.

Reports on Individual Questions

Question 1

Many students demonstrated a good understanding of what was required in this question. Part (a) was not well answered with many students multiplying all terms together.
In part (b) some students left a multiplication sign in their answer, this is not a full simplification.
Parts (c) and (d) were well answered.
In part (e), some correct answers were seen from incorrect working and so did not score the marks.

Question 2

A significant number of students were able to succeed on this question. Parts (a) and (b) were well answered. In part (c), many students scored full marks but when this was not the case, most scored at least 1 because they were able to remove one of the brackets successfully. The most usual mistake was to miss off the x from $3x \times 2$ to give 6 instead of $6x$ or $x \times -4$ giving -4 instead of $-4x$.

Question 3

Most students scored full marks in this question.

Question 4

The majority of students scored on this question, with a good proportion gaining full marks. Some students gave incorrect answers for the second row or the fourth row.

Question 5

The success rate for this question was rather mixed.

Part (a) was generally well done but part (b) was poorly answered with even the students, who realised that gradient is the change in y divided by the change in x, forgetting to use the scale on the y-axis. In part (c) there were a variety of answers with some students stating speed or how fast the sprinter ran, others discussed hills and some just gave units. Centres would be well advised to work on the interpretation of gradient.

Question 6

Part (a) was usually well answered, occasional incorrect answers of 4 instead of 3.5 were seen.
For part (b) many correct answers were seen but students lost marks when multiplying by 3 incorrectly e.g. $3m + 12 = 1$ instead of $m + 4 = 3$. For those who got to $m + 4 = 3$ the negative answer was clearly given.
In part (c) many correct answers were seen and most students were able to expand the bracket successfully but some struggled with isolating the unknown and constant on different sides of the equal sign.

Question 7

A very well answered question. The majority of students scored full marks and the most common error seen was to draw the correct line but not from x is -1 to 4.

Question 8

Part (a) was very well done with many students scoring full marks and if this was not the case then the partial factorisation earned 1 mark. The most common incorrect answer was $16e$, suggesting a simplification had been attempted.
Part (b) was not so well answered with many students writing their answer as $ab(c + ab)$, suggesting that the common error was to confuse ab^2 with $(ab)^2$.
For part (c) most students scored marks but not all factorised fully. In this qualification students are expected to factorise fully were possible for full marks.

Question 9

Students found this expression challenging. Many wrote $3n - 5$ while others were able to write $n/3$ but could not then deal with the difference of 5 years, again confusing addition and subtraction. Centres would be advised to work on writing down expressions with students and also the difference between an expression and an equation.

Question 10

On the whole this was a well answered question. Part (a) was usually correct and part (b) was often fully correct however errors were seen, the common ones seen were $+5n$, $n - 5$,
$-5n + 35$ and $45n - 5$. For part (c) the placing of the square was again a faulting step for some students with 15^2 often seen.

Question 11

A much improved question from previous sessions.
Many students gave the correct gradient or showed a full method. Occasionally $2x$ or a full equation was given but on the whole most students isolated the graduate correctly. A popular incorrect answer was ½ indicating the incorrect ordering of division.
Once a gradient was found many students went on to give the correct equation of the straight line. Common errors seen were to miss out the x or the y in the equation or transpose the 3 and the 2 eg $y = 3x + 2$. Other students tried to use **L** in their answers which usually led to a loss of the final accuracy mark

Question 12

Part (a)(i) was generally answered well with few errors. Where errors were made it was for conceptual rather than for numerical reasons. However in part (a)(ii) there were many cases of -7 given as the answer. This was either from $-6 + 1$ or $-6- -1$, which gained a mark, or from $-6 - 1$ which did not.
Part (b) was generally done well although there were occasional issues with incorrect signs eg $w - y$ in the answer. There were also cases of rearranging incompletely or in the wrong order, eg attempting to divide w only by 3 before adding the y.
Most students were able to substitute correctly in part (c). However there were errors in the first stage of rearranging. Some ignored the brackets, others multiplied s by ½ or only partially multiplied by 10. Those that rearranged first and then substituted in values were awarded the marks appropriately but this method resulted in less fully correct answers than substitution first method.

Question 13

Many students found this question difficult.
In part (a) they did not give coordinates, often just -3 or 3. Students must answer the question asked.
In part (b), some students were able to describe y as increasing or preferably becoming very large but some lost the mark here by then contradicting their initial statement.
In part (c), the graphs were often strange curves, or an arrangement of line segments. Too many students still try to sketch curves by plotting points. Some inverted parabolas were seen and other students drew the correct curve but then did not to label the minimum point

Question 14

This question was also much better answered than in previous sessions.
Part (a) was very well answered with the occasional omission of 4.
In part (b) the common error was related to confusion over the use of inequality signs rather than reading the values from the number line incorrectly so that 1 mark was often awarded.
For part (c), the correct answer was often seen.
In part (d) some students just gave –5 as the answer and forgot to write its relationship to p.
Finally in part (e), -3 frequently appeared with the wrong inequality as students often did not know to reverse the sign when dividing both sides by a negative number.

Question 15

In parts (a) and (b), many students completed the table correctly and plotted the points from their table but then joined the points with straight line segments rather than a parabolic curve. A curve is required at this level.
For part (c) more single value responses then double value responses were seen. Students missed that there are 2 solutions to a quadratic equation.
Centres should encourage students to use a ruler to draw lines parallel to the axes to aid accuracy when reading values as estimates in this type of question.

Question 16

Generally a well-answered question with students being able to read accurately from the graph in parts (a) and (b).
In part (c) most lines drawn had a negative gradient but not all went to (120, 0).

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
- Make sure you understand algebraic notation
- Make sure you know the difference between an expression, an equation and a formula
- Ensure that when asked to factorise, you factorise as fully as possible
- Practise working with negative numbers
- Practise your skills at curve sketching without the need for plotting points

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:
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