Examiners' Report
Principal Examiner Feedback

Summer 2019

Pearson Edexcel Award
In Algebra (AAL20)
Level 2

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Introduction
All questions on this paper provided students with the chance to show the relevant skills required by the specification.

Many displayed good skills but a failure to show working and incorrect arithmetic computation led to some students not gaining marks. The ability to draw and sketch graphs was better this year.

Good students were able to display a range of skills and techniques whilst weaker performances were often characterised by errors in the basic skills required.

Reports on Individual Questions

Question 1

Part (a) many students gave the correct answer, unfortunately the most common incorrect answer was m^6, occasionally $3m^6$ was also seen.

Part (b) was well answered, most students gave the correct answer. The most common incorrect answer was d^3

Part (c) was very well answered and only a few incorrect answers of $12n^2$ were seen.

In part (d) most students scored full marks on this question, with the modal score being 2. Of those who did not score full marks the majority did score one mark. A common error seen was to forget one part entirely or to square 4 to give the incorrect answer of 8.

Question 2

Parts (a) were very well answered. There was no real pattern to errors seen.

Part (b) most students scored at least half marks in this question showing some ability to write the correct partial factorisation with 2 factors, $p(w + w^2)$, $w(p + pw)$. However, a significant proportion of students made the mistake of writing $pw(1 + pw)$.

Part (c) was generally well done with most students gaining a mark for a correct factorisation involving x and a significant amount scored full marks. The most common error seen was to not deal with the second power of x correctly.

Question 3

Part (a) was well answered with only a few incorrect answers seen. These were mainly when students did trials but failed to give the correct answer.

In part (b) many correct answers were seen. Most students tried to rearrange the equation and often did so correctly, the main error seen on this question was incorrect arithmetic.

Part (c) was not so well answered, students were unable to deal with the quarter in the question. $\frac{h}{4} = 8$ was often seen and did score a mark but far too many then went on to give an answer of 2 rather than 32. A simple check of the final answer would have led students to see the error in their answer.

Question 4

A well answered question.
The table and graph were usually correct. The main error seen was to give positive answers for the negative x values and a few "V" shaped graphs were seen. It would appear that negative values are challenging for the weaker students.

Question 5

Part (a) most students scored full marks. A very few lost marks due to an arithmetic error.

In part (b)i almost all answers were correct, the common error seen was $31 - 6 = 45$. For (b)ii answers were more variable. Some students did not realise this was a decreasing sequence and so gave $6n$ as part of the sequence. Of those that use $-6n$, most went on to give a fully correct answer.

For part(c) the simplest approach was to substitute and evaluate the expression given and those students who did that were usually successful and gained full marks. A significant proportion tried to expand the expression first and some were unsuccessful with $3n - 4$ often given as the incorrect expansion this then led to the incorrect substitution and did not gain any marks.

Question 6

In part (a) the majority of the students gave the correct answer, but a sizeable minority gave an incorrect answer of $2xy - 10$, having missed the x from the last term.

For part (b) most students scored some marks. The brackets were usually expanded correctly but the last accuracy mark was often lost when students used q^5 in their final answer. Centres may wish to practice collated different powers of a variable within an expression.

Question 7

Parts (a) and (b) were well answered. However part (c) was more variable. The simplest approach was to give then times and describe the comparative steepness of the line. However many students tried to compare all the sections of the graph in detail. This was acceptable as long as all their statements were correct.

Question 8

Almost all students gained full marks on this question. The few that went wrong did usually score 1 mark for at least 1 correct answer.

Question 9

Overall this question was well answered with a good proportion of fully correct answers seen, including labels. Where marks were lost the correct graphs may have been seen but not labelled or even incorrectly labelled. Alternatively the graph for part (a) was seen but not for part (b).

There were a small proportion of students who did not know the general shape of a parabola but this is a clear requirement of this specification.

Question 10

Part (a) was well answered by most students. In Part (b) a variety of answers were seen with students using incorrect equality signs or given inequalities that are impossible e.g. $2 < m < -2$, students should check it is possible to find a number that satisfies the inequality they give.

In part (c) many fully correct answers were seen. Occasionally the end point terminology was reversed.

Part (d) was not so well answered, many students failed to deal with the negative value correctly. Some just made $6 - 9$ positive and gave their answer as 3 rather than -3, whilst others left the inequality in $-w$ not w.

Question 11

A well answered question with most students gaining marks.

In part (a) the most common error was to give the answer to part (b) here. Careful; reading of the question is required and students should be selective and use the relevant information only.

Part (b) was usually correct but the most common error seen was $4a5b7p$ as a product. Some students chose to write $a4 + b5 + p7$, whilst not the normal convention this was given credit.

Question 12

Students found this question challenging. The majority were unable to complete the horizontal line between the correct times. Where a horizontal line was given it was usually correct as students were able to read the x-axis effectively. However far too many students drew lines ending at the x -axis, sometimes a diagonal line form (11 06,6) to (11 36,0) other times they joined the right hand sides of the lines given. Students would benefit of more practice with speed-time graphs as they seem to think they are distance-time graphs.

Question 13

All parts of this question were well answered.
In part (a)(i) most students gained both marks. For those that only scored 1 mark many wrote $(4 + 3)^2$ but then calculated this as $16 + 9$ rather than 7^2.
(a)(ii) was also similar and most students did gain the mark.

Part (b) was very well answered, with most students correct and gaining both marks. However when this was not the case it was often the first step of rearranging that was incorrect and so no marks were scored. In some cases students did not always show their first step but went straight to an incorrect answer. Students should be reminded to show all working.

The answer in part(c)(i) was usually correct, a few arithmetic errors were seen.

Whilst part (c)(ii) was not so successfully answered as part (c)(i) it was still correct in the vast majority of cases.

Question 14

This question posed some issue for some students. In part (a) and in part (b), a common initial error was to evaluate using $t = 0$ to give $h = 0$. When the graph was plotted the error seen here was often to join the points with straight line segments.
In part (c) students read off at 2.15 not 2.3 and this could not gain any marks as it is clearly incorrect use of the scale on the axis. Marks were often seen at *h*=8 but figures were not always read using these points. The follow through from part (c) to part (d) was not always seen with some students starting afresh to try to solve the equation.

Even though these errors were seen almost all students gained some marks on this question and over 50% scored 5 or more marks in total for the question.

Question 15

Two thirds of the students gave a correct answer in part (a) of this question.
The common errors seen were $L1 = x,\ y = 0\ +\ 1,\ y = x2,\ x\ +\ y\ =\ 0$

In part (b) many correct answers were seen and some partially correct. Common errors here where $y = -1 + 5,\ y = 5x - 1, 5 + x = 5 + y,\ L = 5$. A fully correct answer does require both y and x used in an equation correctly.

Question 16

Students found this question challenging.
In part (a) not all were able to expand the brackets correctly. Often the error was in the final term and 1 was given instead of 2. For those that could expand correctly they then found it difficult to combine $-5y\ +\ 6y$ correctly, a significant number of students gave this as $11y$.
The final common error often seen was for $y + 12 = 0$ to be given and then 12 placed on the answer line. Centres are advised that the use of negative numbers within equations should be practiced by students. The difficulties seen in this question are common with errors seen in previous series.

For part (b) the ability to correctly clear the dominators was often poor. Whilst students realised to multiply by 3, they often actually multiplied 'top and bottom' by 3, hence the full expression by 1. Some chose to rewrite the right hand side as $w + 3$ and were given a mark for this. But they could not rearrange form this point. The use of fractional equations does appear to need more practice.

Question 17

Far too many students just ignored the scale on the graph and worked in squares. As this is a real life graph the scale is very important.
Some good answers for the interpretation of the gradient were seen but some students just described what the graph was in general and not the gradient specifically. Those that were most successful wrote about an hourly rate.

Summary

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

- ensure you can carry out basic arithemetic accurately, particularly when dealing with negative numbers and 0
- Work more with negative numbers and fractions in algenraic manipulation
- use curves when drawing quadratic graphs
- remember to use the scale correctly on given graphs.

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