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Examiners' Report

Principal Examiner Feedback

Summer 2017

Primary and Lower Secondary Curriculum
(PLSC)

Pearson Edexcel in Year 9 Mathematics
(LMA01) Paper 01

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General Comments

This year's paper again appears to have provided an appropriate level of challenge to the majority of candidates who sat the test. This is reflected in the range of scores achieved, which were spread across the full mark range. In both sections of the paper, most of the questions differentiated well between candidates of different abilities.

Most of the questions were attempted by almost all candidates and only a small minority missed questions out, usually towards the end of each section. As we have seen in previous series, the shape, space and measures questions seem to have presented the most significant challenges to candidates while algebra questions were generally completed very successfully.

Candidates seem to have had access to suitable calculators, which enable them to complete several of the questions in an efficient manner. However, it was pleasing to see a further increase in the amount of working out being shown compared to previous series, even when calculators have been used. This remains important, especially on questions worth two or three marks, as some candidates are scoring no marks where their answer are not quite correct, perhaps because of rounding or truncation errors, due to a lack of correct method being shown in working.

Section A

Section A of the paper had 30 multiple choice questions. There was a choice of four answers for each question and almost all candidates attempted all the questions. There were a few cases where questions were left blank and they often came towards the end of this Section. There was very little evidence of working shown in Section A which makes it difficult to know which answers arose from correct methods and which came from a process of elimination or even good fortune.

As expected, the earlier questions were generally done well and the later questions were done less well. However, there were some exceptions to this, with Questions 5, 8 or 10 being incorrect and Questions 26, 27 or 30 correct for a considerable proportion of candidates.

There were several candidates who earned high marks from the paper overall but the marks that they lost were on multiple choice questions, often towards the start of the Section A, which highlights the need for candidates to take care with these questions.

Answers were almost always expressed clearly and there were only a few examples where candidates had selected more than one answer for any individual question. Whilst credit was given in this series for any unambiguous indication of the correct answer, circling or underlining answers will not be recognised if scripts are marked by OMR in subsequent series. It is therefore essential that all candidates record their answers to multiple choice questions in the correct manner and understand the importance of doing so.

Section B

This section contained fifteen questions, ten of which had more than one part. Each question attracted one, two or three marks towards the total of 50 marks for this section. On questions that were worth more than one mark, marks were available to reward evidence of correct methods. Further comments on each individual question can be found below.

Question 31

Most candidates got Part (a) correct and those who didn't often wrote only the next term, rather than the next two. Part (b) was done slightly less well with " $n + 5$ " given as the most common wrong answer. Very few candidates earned 1 mark on Part (b) as answers were either completely correct or completely wrong. Part (c) was done relatively well and most candidates secured the mark, although a number were after a 'follow through' from their incorrect answer in Part (b). It is important to note that " $n = 5n + 2$ " is not an acceptable answer to Part (b) and the use of " $n =$ " in front of an n th term is mathematically incorrect.

Question 32

This question was done well by the majority of candidates. The most common errors were arithmetic, with candidates using a correct method but processing their values incorrectly. This highlights the importance of using a calculator when available, even for relatively simple calculations.

Question 33

Part (a) was done correctly by almost all candidates but Part (b) proved to be far more challenging. Only around half of the candidates got full marks, and very few scored 1 mark for a correct method with an incorrect answer. Those who scored generally failed to identify the sum of interior angles in a pentagon correctly (often subtracting from 360 instead) although several also misread the information in the question so added up the wrong values for the angles given. However, it was pleasing to note that many candidates showed clear working throughout this question to communicate their method.

Question 34

Part (a) was done well by almost all candidates. However almost half the candidates got Part (b) wrong because they failed to factorise fully. Many of those who failed to secure this mark factorised correctly but only took out a factor of " 3 " or " y " but not both. Part (c) was generally done quite well although some candidates failed to score any marks after subtracting 9 from both sides (rather than adding). It is worth stressing to candidates

that the solution should have been expressed as " $k = 12.25$ " or equivalent, although they were not penalised on this occasion for omitting the " $k =$ " in front of their numerical answer.

Question 35

A small proportion of candidates left this question completely blank, suggesting that they were not familiar with the topic at all. Of those who understood stem and leaf diagrams, some candidates lost marks for an error or omission and others lost marks for not having an appropriate key. A few candidates earned one mark for a correct but unordered diagram.

Question 36

Most candidates answered this correctly. Those who did make mistakes tended to gain the first mark but then went on to calculate an incorrect amount, with only a small number thinking that they could divide the 300 by 3 or sometimes 4, and hence scoring no marks. A small number of candidates calculated the amount that each person should receive, but failed to secure the final mark as they gave all three amounts in a ratio as their answer, rather than selecting the appropriate amount as their answer.

Question 37

Part (a) and (b) were both done well by most candidates, with the only common error leading to an answer of 9 on Part (b). However Part (c) was not done well by the majority of candidates. Those who did not get it completely correct generally scored no marks, as very few candidates earned 1 mark for a correct method with an incorrect answer. The most common error was to multiply the recurring decimal by 10 (rather than 100) although a significant proportion also gave " $14/100$ " as an incorrect answer with no creditworthy working out.

Question 38

Although generally answered well, a significant number of candidates used the area formula to calculate circumference and vice versa in this question. In Part (b) a common mistake was to add on 48 (instead of 36) for the sides of the square, having incorrectly included the dotted line as part of the perimeter. A few candidates calculated the area of the shape instead of perimeter. A pleasing number of candidates showed clear working out on this question and a relatively large number secured 1 mark on Part (b) as a result of their working.

Question 39

An overwhelming majority of candidates got this question correct. There were a number of different, incorrect ways of spelling "positive" (although these were condoned) and sometimes other words accompanying the correct answer, such as "strong" or "weak" although these were not considered when awarding the mark. Of the few incorrect answers that were seen, "increasing" and "strong" were amongst the most common.

Question 40

Part (a) was done very well by most candidates, many of whom chose to leave their answer as $\sqrt{232}$ (which earned full marks). In Part (b) just over half the candidates showed some knowledge of trigonometry and those who did almost always chose the correct ratio. Most of those who chose the correct ratio generally went on to answer this part of the question correctly. Most other candidates left the question out completely. Very few used incorrect methods, such as trying to use Pythagoras' Theorem.

Question 41

Part (a) was only answered correctly by around half of candidates. Those who got it wrong generally either added 3 to both sides (rather than subtracting) or left it blank completely. Part (b) was answered more successfully although a large proportion of candidates lost the second mark for expressing their answer incorrectly, despite accurate algebraic manipulation. It is important that candidates appreciate the importance of expressing the solution of an inequality correctly, as many gave their answer as just "3.75" or " $x = 3.75$ ". In Part (c) there were many candidates who understood the manipulation of fractions but failed to appreciate the algebraic nature of this question, either leaving the answer as $31/35$ or $31a^2/35$.

Question 42

This question was not done well by many candidates at all. A small minority started with a table of values and calculated a number of coordinates, and these candidates generally scored full marks. A slightly larger proportion understood how to illustrate an intercept of -1 on the y-axis but generally were not able to do so with the correct gradient. A significant number of candidates left the question completely blank or drew points or a line which were not creditworthy with no supporting working out shown.

Question 43

This question was done very well once again, as seen in previous series. Of those who did not score any marks, some had used the sum of midpoints divided by 30 or 4 and some erroneously worked out cumulative frequency. Amongst those who secured at least one mark, there was great variety in how candidates answered this question. Many got a fully correct solution,

some made a correct start but then divided by 40 (rather than 30) while others used the correct midpoints and added totals but then divided by 4. A small minority used the upper bound of each class, rather than the midpoint.

Question 44

Most candidates did Part (a) well and scored full marks. Those who did not often multiplied the powers, rather than adding. Relatively few candidates scored 1 mark as most got it completely correct or completely wrong. Part (b) was attempted less successfully as several candidates gave incorrect answers of 0, 5 or 25. Part (c) attracted a wide range of answers including some that were completely correct with thorough working out shown. Other candidates scored 1 mark for answers that were correct but not in standard form. There is a good chance that candidates who gave the correct value but not in standard form, and showed no working, relied upon a calculator to find their answer.

Question 45

Part (a) was mostly correct. Those that weren't were often left blank and there were no common incorrect answers. Part (b) was less well answered, although around half the candidates did managed to score full marks. The most common error was to write "0.5" rather than 0.05. Some used fractions for their answers, which were acceptable as long as they were correct. Others used the answer from Part (a) on their diagram which was obviously not correct.

