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Examiners' Report/
Principal Examiner Feedback

Summer 2013

Primary and Lower Secondary
Curriculum (PLSC)
Year 9 Mathematics Achievement Test
(LMA01) Paper 01

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Primary and Lower Secondary Curriculum
Year 9 Mathematics (LMA01)
Paper 1 June 2013

General Comments

This paper appears to have been appropriately challenging for all students and allowed successful differentiation between students of all abilities. The vast majority of students attempted every question. Where a calculator had been used, there was often no written working which led to students missing out on potential method marks. A high proportion of students lost marks at some point in the paper for rounding or truncating answers incorrectly but these marks may often have been earned if working and the full answer displayed on the calculator had been written.

Report on Individual Questions

Question 31
This question differentiated between students well. The majority got part (a) correct and, where errors were made, it was usually caused by incorrect subtraction from 180. A smaller proportion got part (b) correct and many left this blank, or simply repeated their answer from part (a). Part (c) was found to be more challenging and almost always had just an answer with no working, or an answer that had no relevance to the question. Where working was shown students almost always secured full marks.

Question 32
The vast majority of students drew a correct diagram in part (a) and those who didn't usually just miscounted the number of squares to give an answer that was almost correct. The vast majority also got part (b) correct, even those who had got part (a) wrong. There were very few errors on this part and students who did not score any credit usually left it blank. However part (c) was found to be more challenging and many students simply doubled their answer for shape number 5. Those who did get this part correct usually did so by writing out all of the first 10 terms of the sequence. The final part of the question showed the common error that students tried to write words or phrases in the spaces, rather than numerical values. Those who did put numbers but still got part (d) wrong often put 3 as the first value but 1 as the second.

Question 33
A high proportion of students scored full marks on part (a) and most used a full, clear method of dividing the shape into rectangles then adding their areas. Those who did not earn full marks often earned some credit for a correct method with arithmetic errors; these were usually associated with multiplying by 7 or 8 incorrectly. However part (b) was found to be more challenging by the majority of students with almost all simply multiplying their answer from part (a) by 100.

Question 34
This was a challenging question for many students. The majority gave answers to each part of the question but many of the answers seemed to have little relation to the question, and there was very little working shown. The most able students who got full marks showed a considerable amount of effective working to illustrate their high ability. Those who earned partial credit generally did so by getting part (b) correct, although several students lost marks by giving an incomplete answer of just $3 - 2x$.

Question 35
Most students got part (a) fully correct and those who didn't usually got 1 mark for correctly multiplying the numbers together but then multiplying the powers, rather than adding. Part (b) was found to be more challenging than the other parts as many students did not recognise that the power of the second term was 1. In part (c) where partial credit was earned this was almost always for finding 12x + 21 correctly but then making an error. In part (d) many students managed to achieve at least 1 mark for three correct terms, although the use of negative signs did cause many students to lose the second mark.

Question 36
Many students gave an answer of just 72 in part (a) with an answer of 360/500 in part (b). Those who did get full marks almost always did so for giving their answer to part (a) as a fraction (rather than a decimal or percentage). Hardly any students earned marks via the 'follow through' that was available although several did get part (b) correct after an incorrect answer to part (a).

Question 37
Students who got part (a) correct had often described the relationship between the variables in a sentence, rather than describing the correlation as negative. A common error seen in part (b) was that students joined up the points, rather than drawing a straight line through them, and this led them to get part (c) wrong too. Those who drew a correct line of best fit almost always got part (c) correct and a small proportion managed to draw an incorrect line of best fit but 'followed through' correctly to earn credit in part (c).

Question 38
This question proved to be challenging for many students and a significant proportion earned no marks. Those who earned some marks did so for dividing 280 by 7, although some did this incorrectly so earned no further credit. A smaller proportion divided correctly but then gave 40 as their answer, or used the wrong part of the ratio to give an answer of 80. Those who earned full marks usually did so by just giving a correct answer as they often did not show full working.

Question 39
A large majority of students clearly understood what was expected on this question, although many of them did not secure full marks. This was usually because their key was incorrect (or missing) or because they had missed out one of the values. A small proportion of students earned partial credit for an unordered diagram and even fewer used the diagram given as a tally chart. Part (b) was more accessible by most as many students wrote the values in order to find the median, rather than using their diagram from part (a). Those who got no credit in part (b) usually left it blank and there were hardly any students who erroneously calculated the mean or mode.

Question 40
This question posed a considerable challenge for many students. Those who got part (a) correct usually showed a correct method whereas those who didn't generally showed no working, often giving 2.1 as their answer. Students who earned credit for part (b) often did so for finding 0.147 but very few went on to secure full marks. Those who did score full marks did not generally use a tree diagram whereas many students who illustrated some understanding of the question earned no marks despite drawing a fully labelled tree diagram.

Question 41
Although there were a wide range of unusual methods used, many students scored full marks on this question and, of those who didn't, several earned at least one mark. Of the students who scored no marks, most either left the question blank or tried to find the lowest common multiple. However there were a few who listed almost all the factors of each number but missed out 1 or the value itself, and did not find the correct answer, hence scoring no marks.

Question 42
Students who got this question completely correct often did so without showing full working, usually leaving their answer as an improper fraction. Most errors were caused by incorrect handling of the terms with negative signs and hence those students who earned one mark generally did so for reaching 5x or 33, but not both.

Question 43
This question was a real challenge for many students and quite a large proportion left it blank, or gave answers that had no relevance to the question. Those who attempted it successfully generally gave just the correct answers with no working and those who showed working often made a mistake in their calculations and hence earned no credit. The majority of these students found the second and third terms correctly but got the first term wrong.

Question 44
The context of this question seemed to be too challenging for many students, who either did not attempt it or combined the two values given in an incorrect way. Of those who did make an attempt at the question the vast majority only earned 1 mark as their final answer was not converted into hours correctly. Those who did get full marks generally showed full working and gave the full answer from their calculator display before rounding or truncating correctly.

Question 45
A common error seen with this question was students finding 12% of the value given, and then adding it on to the new price. The few students who earned partial credit generally did so for finding the correct multiplier but did not divide by it.

Question 46
Many students managed to earn partial credit for reaching $x^2 = 11$. The majority of these did not secure full marks however as they did not give both the positive and negative solution. A number of students gave an answer that rounded to 3.32 but did not give the negative solution, and did not show any working, so earned no marks.

Grade Boundaries

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