



## **CHIEF MARKER'S REPORT**

**SUBJECT:**

**MATHEMATICAL LITERACY P1**

### **1. ANALYSIS OF QUESTION BY QUESTION PERFORMANCE**

#### **QUESTION 1**

This was a fair question and the standard complied with the Grade 12 NCS as well as the fact that LO 1 was thoroughly covered. The questions posed were unambiguous and it was easy for the learners to understand what was expected from them although most of them fair poorly in this question. Although it was one of the longer questions (33 marks) all learners attempted the entire question. Opinion of the markers is that the language covered for both rural and urban learners.

1.1

1.1.1 (a) and (b) Most learners lost valuable marks in these two questions because they could not use the BODMAS-rule to do the calculations (Their order of operation was incorrect and).

1.1.2 This was a problematic question and very few of the learners could answer this question correctly. They know how to write a common fraction, but they don't know how to work with decimals and changed it to common fractions.

1.1.3 Most learners lost 1 mark as they wrote their answers in ZAR (South African Rand) instead of Algerian Dinar. Instead of multiplying they divided.

1.1.4 Instead of dividing by 100 learners divided by 1000 to convert to cm.

1.1.5 Learners could not write the mixed fraction as a decimal or they used the calculator incorrectly and also forgot to work out the percentage.

1.1.6 The substitution was easily done, but again learners lack basic mathematical skills (using the correct order) and also used their calculator incorrectly.

1.2

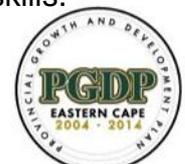
1.2.1 The answer 1.2.1 was either given as 3, 7 or 8. Some of the learners even rewrite the data.

1.2.2 (a) and (b) learners could easily identify the mode and the median in the uneven data set

1.3

1.3.1 Most of the learners answered this perfectly although sometimes switching the values.

1.3.2 Learners could easily substitute in the formula given but once again end up with the wrong answer due to the fact that they lack calculator skills.



1.4

1.4.1 Learners easily managed to answer this question with minor errors.

1.4.2 This question was well answered even if they used trial and error and not the expected method.

1.5

1.5.1 – 1.5.3 was well answered as learners could easily read from the given graph. Markers are of the opinion that if the basics of numeracy are taught it will give learners the opportunity to achieve higher marks in this question. They also noted that the marking memorandum catered for all options and educators in schools also need to show learners how a problem can be approached using various solutions.

## **QUESTION 2**

This was also a 33 mark question and most learners attempted to answer the entire question. Generally the question was fair without any being ambiguous except for 2.2.4 and it was also in line with the guidelines as prescribed in the NCS. In this question most of the LO's were well integrated.

2.1

2.1.1 (a) and (b) Even though the formulae were given, learners still made mistakes with substituting into the correct formulae. In (a) substitution were perfect but when calculation was done learners tend to omit the 2. In (b) learners substituted the correct values but then changed the addition to multiplication or their order of operation was incorrect (did not apply the BODMAS rule). Learners also tend to ignore instructions because instead instead of using 3,14 for  $\pi$ , they used either the  $\pi$  on their calculators or  $22/7$ .

2.2

2.2.1 – 2.2.5 These questions were answered fairly well as it only expected learners to read from the graph. Only few mistakes came from this question as some learners seemed to have difficulties reading graphs. It was only 2.2.4 that was ambiguous because any answer from 1m to 3000m could be accepted due to the use of the word "after" in the question.

2.2.6 This question was a problem as learners could not write their final answer of 10:67 in the correct hours and minutes.

2.2.7 Although the formula was given, they could not read the correct distance. Instead of using the distance from the shop (3 000m) they have used the distance from the post office (1000m)

2.3 Generally this question, especially 2.3.2 and 2.3.3 was answered very poorly.

2.3.1 This was well answered. It was only on a few occasions that learners used the incorrect percentages from the table.

2.3.2 (a) and (b) were problem areas while (c) was answered quite well with minor mistakes. Learners lack the skill of reading from the table correctly or it can be due to incorrect interpretation of the question. In 2.3.2 (b) some of them calculated the correct answer but did not round off to the nearest 100.



2.3.3 Only a few learners attempted to answer this question and only a few gave the correct answer. They have only identified the correct values in the ratio, but did not simplify it. It seems like learners don't understand the concept of ratio and especially in this question where they were suppose to give the answer as 1: .. They either reversed the ratio or they read the incorrect information from the table.

Markers are of the opinion that too much data was given (2.3) with different headings which could confuse learners especially with language barriers. It could be better answered if the data was represented in different tables.

In all of the above questions the marking guideline catered for all possible solutions and learners were disadvantaged at all.

### **QUESTION 3**

This question with 19 marks was well up to standard and the learners responded very good to it and no ambiguous questions were asked.

3.1

3.1.1 and 3.1.2 Learners only gave the answer without writing it with the zeros or the unit as millions and by omitting these they have lost marks. They have also used the incorrect values, instead of referring to the total income; they referred to income generated by agricultural exports and vice versa. This could have been due to a language problem or not realising the term "in million of rand" at the top of the column.

3.1.3 The only problem identified with 3.1.3 (graph) is that most learners drew a histogram instead of a bar graph. Learners need to take good care of plotting points.

3.2

3.2.1 – 3.2.3 was well answered. Only a few learners did the incorrect calculations. Again in these questions learners did not write down the required units or they did not round off correctly.

3.2.4 This seemed to be problematic as only a few learners answered this correctly. Learners only identified the average of fertilizers per hectare without any calculations.

All the possible alternatives were given in the marking guideline to the advantage of the learner.

## QUESTION 4

This question was fair and of appropriate standard for Grade 12 NCS. Learners could easily answer these questions with minor mistakes and the language used of the questions was very simple

### 4.1

4.1.1 – 4.1.5 These questions were fairly well answered, but some learners experienced difficulties reading from the graph. Most learners gave answer of constant function for 4.1.1.

4.1.2 and 4.1.3 was well answered with minor mistakes (incorrect reading from the graph. Markers were of the opinion that the scale of the graph was too small therefore learners had difficulties reading from the graph accurately.

4.1.4 was problematic as most learners rounded off to 20°F instead of 21°F.

4.1.5 was also problematic as learners did not subtract with -2. The concept of range is well understood, but they only did the calculation as  $17 - 2$ , instead of  $17 - (-2)$ . It seems they lack the understanding of adding with a negative number. The negative axis proved to be problematic.

### 4.2

4.2.1 Learners could easily substitute in the formula, but they lack calculation skills. Instead of first adding  $4+5$  and then multiplying by 3,50 in the first part, they entered these values into their calculators without using the BODMAS rule, therefore ending up the incorrect answer. Markers also indicated that learners did read the information thoroughly which had the key information to solve the problem. The words five, four and ten proved to be problematic, because learners could not change them into numerals.

4.2.2 It was well answered without any errors. Learners do not follow instructions, therefore instead of using 3,14 for  $\pi$ , learners used either the  $\pi$  on their calculators or  $22/7$ .

4.2.3 Most of the learners could easily substitute correctly and find the solution, but they did not round off to 2 decimal places.

In the marking guideline the different solutions were given in order for the learners to achieve higher marks.

## QUESTION 5

This question was fair and most learners were able to attempt it. In most of the subsection formulae were given and therefore learners were only expected to do substitution. Basic mathematical skills were tested in most of the subsections. The use of language was acceptable.

### 5.1

5.1.1 Some learners have no idea of direction and because not all our Maths. Lit learners take Geography as a subject, they experienced problems with this.



- 5.1.2 Most learners struggled with the concept of perimeter, because they are used to be given a formula to calculate the perimeter. Some of them identified the correct lengths for the perimeter, but then changed the addition in the formula to a multiplication sign.
- 5.1.3 Instead of using the height (2m) given in the question 5.1.3, they used the height of the plot (200m). Most learners lost the mark for the correct unit. Again, instead of using 3,14 for  $\pi$ , learners used either the  $\pi$  on their calculators or  $22/7$ .
- 5.1.4 This was well answered by most of the learners but they omitted the units or write the incorrect units
- 5.1.5 This question was problematic, because learners only used two incorrect values for the sum of the parallel sides ( $224 + 200$ ) which is not the parallel sides. It seem like they don't understand the concept of parallel sides. Instead of finding the area of the entire plot, some learners only calculated the area the vegetable garden which is also a trapezium
- 5.2
- 5.2.1 Learners only multiplied or added the values of 2kg and 0,12kg instead of referring to the number of cabbages and carrots in the table for 1 box .
- 5.2.2 (a) and (b) were well answered and learners used different solutions to get to their answers.
- 5.2.3 This was not well answered as learners could not calculate the number of boxes for 12 cabbages.
- All possibilities of solutions were provided in the marking guideline and no learners were disadvantaged through the fact that they gave other but correct solutions.

## **QUESTION 6**

- 6.1
- 6.1.1 This was well answered with minor calculation errors. The common errors learners made in this question were when they used instead the coffee mugs instead of the key rings. The addition was incorrectly done, therefore their final answers were incorrect.
- 6.1.2 It was problematic because they could not determine the total outcomes and if they determined the correct probability, they left it without simplifying the fraction. The concept of probability is not well understood.
- 6.1.3 (a) Learners could easily identify the two values, but subtracted the bigger value from smaller one to end up with a negative answer. Some learners also used the values of the incorrect table.
- (b) This question was well answered, but in some instances they have calculated the median instead of the mode and also used the incorrect table. Learners did not realise that it is possible to have two modes so the calculated the mean of the two values.
- (c) They could well identify the two middle values but entered  $35 + 35/2$  into the calculator at once which resulted in an incorrect answer. Once again learners lack calculator skills and this is a serious problem causing them to loose a lot of marks.



6.2

6.2.1 It was answered well. The only error occurred in this was that some learners instead of using the selling price they have used the cost price. This could be due to a language problem where learners did not understand the concepts of selling and cost price.

6.2.2 (a) The graph was drawn exceptionally well with some exceptions. Some learners lost valuable marks for drawing the incorrect graph. Some of them plotted the points incorrectly which indicated that they cannot read the scale of the graph correctly.

Markers were of the opinion that this was a fair question and the marking memorandum made provision for all possible answers.

## 7. ANY ADVICE THAT YOU COULD GIVE TO EDUCATORS TO HELP LEARNERS TO REACH THE EXPECTED LEVELS

- Educators should emphasise the importance of instructions to be carried out in answering question papers.
- Educators (grade 10, 11 and 12) must go back to basics for example teaching learners the importance of place values, order of operation, different types of fractions, percentages etc. If there is a solid foundation to these important skills it will make the more difficult work such as Space and Shape and Probability much easier for the learners.
- Most learners are too dependent on their calculators but don't know how to use it. Therefore as teaching goes on the educators can also teach learners the calculator skills to avoid the making of unnecessary mistakes.
- Educators need to emphasise the importance of writing units where necessary, because omitting these cost them valuable marks.
- Give as many revision exercises as possible on different types graphs in order for learners to become experts in reading graphs as well as the drawing of the different graphs.
- In order for learners to understand the mathematical concepts used, educators need to explain in simple language what the concepts mean as well as using the appropriate concepts in everyday teaching.
- Always try to teach the content of the work within a context so that learners can be exposed to a lot of reading with understanding, because learners tend to ignore the key information given to them and in the end make mistakes answering questions.
- Educators need to tell learners that they have three hours to complete the question paper. Therefore they have to use the allocated time to ensure that they recheck their work and avoid making silly and unnecessary mistakes which can cost them a lot of marks. It seems like learners are too much in a hurry to finish.
- As far as possible it is important that educators complete their syllabus before the trial examination. This will give learners an opportunity to prepare themselves well for the trial as well as for the final examinations. Educators should only use the fourth term for intensive revision in order for learners to be well prepared.



- Educators need to teach for conceptual understanding.
- All the content of Mathematical Literacy must be taught with integrating all the LO,s and ASS,s and not as individual units. This will also help with the conceptual understanding.
- Learners must be trained to use graph paper in their classrooms when drawing graphs such as bar graphs, histograms, etc. And not in their exercise books. Because there was in some instances where learners ignored the annexures and drew the own graph in their answer books.

## 8. ANY OTHER COMMENTS

- Subject Specialists must be more visible in schools to give proper guidance to educators especially in schools where there is a need. It is also evident that there is either little or no teaching happening in some schools because this paper was easier and most manageable paper but still learners achieved very low marks.
- More workshops should be conducted by either a SES or by experts especially in the problem areas to improve the teaching and learning in schools.
- Train educators on how to award marks and how to interpret a marking memorandum properly in the same way it is done at marking centre. This can be done at district or cluster levels where experienced markers can be used to do the training.
- It is also evident that the language barrier is still causing learners to misinterpret questions. An urgent solution must be found for this problem if we want to improve the results.