



Province of the  
**EASTERN CAPE**  
 EDUCATION

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## CHIEF MARKER'S REPORT

### INSTRUCTIONS

1. The Chief Markers are required to complete this report during the marking session. The aim of the report is to provide a feed back and to help subject advisors and educators to improve teaching and learning.
2. The report should be informed by discussions between the **Chief Marker, moderator, senior markers and markers** of the particular subject. **NB: There should be one report per subject per paper.**
3. The report must be detailed, informative and indicate question by question performance of the candidates and mark distribution of centres.
4. Reference may be made to the topics identified below as well as any aspect the Examiner wishes to bring to the attention of the subject advisors and educators.
5. **The report must be submitted in hard copy and an electronic version to the centre manager at the marking centre.**
6. All markers reports must be handed in with the hard copy.
7. The electronic report should be emailed to varkchan.joseph@edu.ecprov.gov.za
6. The centre managers then forward the reports to the Directorate of Assessment and Examination (Att: Mr. V A Joseph) in King William's Town.

<b>SUBJECT:</b>	<b>Mathematical Literacy</b>
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<b>GRADE:</b>	<b>12</b>	<b>PAPER:</b>	<b>2</b>
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<b>DATE OF EXAMINATION:</b>	<b>09 November 2009</b>	<b>DURATION:</b>	<b>3hrs</b>
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### 1. ANALYSIS OF QUESTION BY QUESTION PERFORMANCE OF THE CANDIDATES

Give a detailed account of how the candidates performed in each question. In doing this, the following steps should be followed:

- 1.1 The aim/objective for setting the question (what skills, knowledge, values and attitudes were being tested by asking the question)
- 1.2 Relevance or relation of the question to the Los and Ass.  
How did the candidates perform in the question?
- 1.3 Where did candidates lack expertise or fail in giving an appropriate answer to score high marks in the question?

## QUESTION 1

The aim of this question was for learners to interpret and perform calculations with data given in the form of a table. The skill of applying knowledge of percentages and general use of operations was also tested. The performance of learners in this question varied. The reasons for this could be attributed to the level of language used in the question as well as the ambiguity in the question. Learners often got confused finding the percentage with determining the actual percentage as a value (number). In particular Qu1.1.1 learners misinterpreted the question and were unable to identify the provinces correctly or they identified only one correctly. The question asks for “the actual difference” with the result many learners calculated the answer using the percentage and then giving a numerical value. This caused learners to waste time because they did more than what was expected in the question.

In Qu1.1.4 the concept of mean/average is tested this seemed to cause a problem for many learners as they were unable to apply the concept to the calculation required.

Qu1.1.5 was misinterpreted by most learners; this could be attributed to the language used in the question and learners found it difficult to relate their answers accurately.

In Qu1.2 the learner’s ability to work with scales was tested. The attempts made by learners on the question was not good, this begs the question whether learners are exposed to calculations using scales or whether the question should have been more explicit. It should however be taken into account that Paper 2 requires more of the learner. If the question asked for a ruler to be used to measure the drawing of the screen and then for the learners to apply the scale perhaps the responses would have been better. While this may have assisted the learner it still seems evident that understanding, applying and working with scales is not covered in many centres and this is a grave concern.

Qu1.2.3 was answered by most learners the only concern voiced is the fact that the question was placed below the graphs and many learners don’t read until the end and as a result they misinterpreted the question and gave the incorrect response. Generally learners were at least able to identify the misleading graph and were rewarded for that even if they were unable to accurately express their reasoning.

## QUESTION 2

In this question the learner was required to work with and manipulate percentages using information once again supplied in a text box. The concern of many markers from the various centres was that the learners did not understand what Gross Domestic Product (GDP) meant and therefore the section in the question where the learners had to give their opinions or understanding they faulted. The language barrier also played a role as learners who are not English Home Language speakers found it difficult to express themselves where

requested. There was also extensive emphasis on the use of percentages.

Qu2.1.2. Probability is a concern, many learners were unable to answer the questions on probability and even some of the markers did not have a clear understanding of how probability is written, this means that probability is not sufficiently dealt with in our schools and it should be corrected. Teachers should make the effort to capacitate themselves with the topic so that they may carry this over in their classrooms. Learners are also not able to work with percentages and make errors in rounding. Learners also are not aware of where the rounding up and rounding down principle should be applied. Some markers at the centre have very limited knowledge of calculations with percentages and the variations used when determining a percentage. Percentage is a basic concept dealt with in lower grades and if these are the responses by the learners, it means that certain basic concepts and principles are not been taught in our schools in the lower grades.

Qu2.1.3. Learners in some cases misunderstood the word “unemployable”, these also lead to lengthy debates in the memo discussions with markers. It is thus evident that care should be taken when phrasing a question as well as with the choice of words. Language presents a huge barrier particular to the second language learner. This question also required a considerable amount of reading and interpretation of information given, since it was not set out in a table form but the information given was extensive for the learner to deal with.

Qu2.2.1 Problems experienced here could be attributed to language barrier as well as lack of understanding and interpretation of Gross Domestic Product. Learners failed to answer as was expected; mainly because they battle to express themselves and also many did not understand the question.

Qu2.2.2 In this question the learner has to deal with a fair amount of detail/data. The values supplied in the tables were also very big. Here the lack of knowledge of percentages was evident. Learners also linked values in table 3 with those in the table in the text box at the beginning of question 2. If the learner did not read and understand they approached the question incorrectly. It must also be remembered that this is Mathematical Literacy Paper 2 which requires a higher level of thinking and use of cognitive skills by learner. Teachers are advised to expose learners to these types of questions in the classroom situation so that they are more equipped when it comes to external assessments. Learners were also not able to do conversions from hectares to  $\text{km}^2$  even though the formula was given.

Qu2.2.3 In this question, learners often did not do the second calculation which is needed to answer the justification. Learners were once again unable to read the information given in the tables, often confusing the total area and total population for the country with that of various provinces. As a result of not doing both calculations learners lost valuable marks.

### **QUESTION 3.**

This question was designed to test the learners' knowledge of developing simple equations and then using and manipulating these equations. Learners generally did not perform well in this question. The question starts with a text box filled with information and then a table with more information and data which the learners need to analyse and comprehend in order to answer the questions effectively. While the language is appropriate for a learner at grade 12 level, we find that our learners' linguistic abilities are not at the expected level with the result they lack the necessary language and reading ability necessary to comprehend. This impacts on their ability to answer the questions and does not necessarily mean that they lack mathematical ability.

Qu3.1.1 This question was very poorly answered and not many pupils were able to give the answer as required by the official memorandum. The reason for this was because learners had to link Category numbers, prices and number of tickets in sequence in order to generate the formula. Where learners used a single variable they were not awarded full marks and learners in Mathematical Literacy do not have the confidence to work with variables let alone different variables. We should however, as teachers also be aware of the move to increase the standard of our subject as well as lift the standard of our learners. This can only be achieved if we ourselves are committed to lifting the standard.

Qu3.1.2 This question was equally poorly answered by learners. Learners had to work with two tables and because the tables occur on different pages learners were required to turn back in order to get the information. It would be advisable to put all information relevant to the question on the same page so that learners do not have to page back and forth to find and interpret data. Most learners made the mistake of summing only the amount of tickets.

Qu3.1.2b This question gave a fair amount of information, in the form of a paragraph, which the learner had to dissect and interpret in order to fully answer the question. The standard of the question is understandable for the level of the question paper. It was however, difficult for the weaker learner since they tended to leave out certain calculations for example finding the 48% of the mean price or finding the average ticket price of the specific tickets mentioned. As a result of the printing of the question paper learners have to move back and forth between the tables with the information and tend to choose the incorrect values from the tables.

Qu 3.2.2 In this question learners' had to be able to calculate the values of  $i$  and  $n$  and then substitute these values. In some centres learners did not divide by twelve and also did not calculate the value of  $n$  correctly. Again the language barrier caused some learners to misunderstand with the result they calculated either 13 or 15 months. It would have been advisable to place the formula at 3.2.2.c where it was to be used because learners tended to use it in 3.2.2a. In this question it was also evident that learners are not able to use their calculators effectively. It was also discovered during the marking that some teachers are unable to use calculators effectively. This is a cause for concern.

Qu3.3 tests knowledge of currency conversions or exchange rates. It was felt that the use of the Rand would have been more relevant to our learners. Learners however show a lack of expertise in application of conversions of currencies. Many learners also tended to round off

before the final calculation.

Qu3.4 This section of the question was very poorly answered. Even though the clue was provided in the information because the question said draw a line graph learners joined the minimum and the maximum point by means of a straight line. While this was accommodated in the memorandum the learners still lost marks for points not calculated. While the graph paper provided gave the learners' values to use in the equation it could also be considered that if the learners had to complete a table or were given a table they would be better able to plot the graph.

In general this question was very challenging for learners in respect of level of language for learners who do not use English as a home language. Learners are also lazy to read and comprehend and seem to have the attitude that Mathematical Literacy is linked to Mathematics where more calculations are expected and less reading. This misunderstanding must be rectified in our schools and learners and teachers should be made sensitive to the nature of the subject. Learners must be given sufficient tasks which improves their language and comprehension skills.

It is also a recommendation that in questions where learners have to attach graphs or any other form of addendum these be stapled to the question papers at the schools, since many scripts arrived without addendums and there is no indication whether the learner failed to attempt the question or whether they forgot to attach the addendum to their answer script.

#### QUESTION 4

This question tested the learners' knowledge of probability, use of equations and rounding. Probability forms part of the learning outcomes for Mathematical Literacy but from the responses to this section of the paper it is evident that there is definitely a problem with probability. Teachers and learners are not confident with the topic and this must to be addressed by the subject committees. It was clear during the memo discussions that markers/teachers are still not confident. It would be advisable for teachers to capacitate themselves with the topic and to make sure that learners are also given extensive practise in this topic. The very basic knowledge such as representation of a probability is the main concern. This question also concentrated on equations and learners interpretation of information given in the form of tables.

Qu4.1.1 In the question the common error was not being able to represent the probability as a percentage, fraction or decimal. Since it was not correctly answered by most centres it would seem that this is a section that is left out by teachers and thus learners do not have sufficient practise in this section.

Qu4.2.1 This question required the learner to understand from the question that the journey in (a) had to be doubled. This was a tricky way of asking the question and thus it provided for the more advanced learner which must be done.

Qu4.2.2 In this question, learners once again battled to construct a formula using the relevant

information in the table. Learners could have made use of the explanation in the table but most did not even recognise the formula in the table. As a result of learners not responding correctly in 4.2.3 many lost marks in the follow up where they had to apply the formula. The reverse was also evident where learners were able to do 4.2.3 accurately but were unable to represent it as a formula in 4.2.2.

Qu 4.3.1 In this question, the learners were not able to apply the concept of rounding up, with the

result many left the answer at 5. [ $\frac{77}{15} = 5.1\bar{3}$  or 5 remainder 2] This is indicative of the concept of

rounding up not being taught effectively in the schools. In their responses to the follow up question learners applied their personal experience when filling the mini busses like, overloading. Teachers should make learners aware of using the constraints (conditions, limitations) given.

Qu4.3.2 In this question most learners correctly applied the cost for the minibuses but were not able to calculate the cost for the busses accurately. A rewarding response was the calculation of the cheapest option using both the minibuses and the bus. This shows that some learners are able to apply that higher order of thinking and they were rewarded accordingly. The memo provided for this response.

Qu4.4 This question was also poorly answered by learners, common errors found were not being able to or forgetting to convert cm to km. Learners also did not apply the ratio calculation in the question. Reasons for this could be that the concept of ratio is not taught in this particular context and teachers should be aware of that. Learners should also be advised to check their answers once they have finished making sure that they have completely answered the question. These errors often occur when the question has more than one 'step'. Teachers must sensitise learners to this as it is a feature of the question set in the second paper.

## QUESTION 5

Initially it was thought that this was the easiest question and should have been placed first in the question paper. That may be the case but when it came to marking the question it was once again discovered that it was not as easy as was originally thought. Learners often did not substitute correctly. Once again the ability to use a calculator effectively is questionable.

Qu5.1.1 The justification for this question was misread by learners since the question referred to value for money as in cost effective and learners did not look at the volume when making their decision with the result they chose the smaller cake. This can also be attributed to their language ability.

Qu 5.1.1 Common errors here were that learners forgot to use the units for surface area and therefore they lost a mark. Teachers should encourage learners to make use of the units for their calculations. Also calculator work was not accurate because of the length of the calculation. It seems that it would be advisable to arrange workshops for teachers focussing particularly on the use of the calculator.

Qu 5.2 In this question many learners misunderstood VAT included and VAT excluded, with the

result they calculated VAT for both options. Many learners also calculated the VAT on R120 but failed to complete the calculations. They did not multiply R120 by 100 and then calculate the VAT. Again the reason for this is not understanding and fully comprehending the question, which could once again be attributed to a language barrier.

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

I would like teachers to make an effort to work from various sources with regard to context type questions. Learners need to be exposed to as many scenarios as possible. The only way that we are going to improve their comprehension of language is only by making the effort to find as much material as possible for the learners to engage with.

There is a concern with regard to calculator use by both learners and teachers. It is suggested that workshops be held so that these teachers may be capacitated. Teachers should not expect similar type questions from previous examinations but should focus on the LO's and SO's and teach a variety of contexts within the framework on the NCS. Percentages, probability, scales and space and shape are still a problem. These areas need to be consolidated with the learners. Learners must be made aware of the variety of contexts in which these sections can be assessed. For example Volume is not only tested using a glass or a water tank. Teachers must be aware of different forms of cylinders, like cakes, circular discs, pipes, tubes etc.

Learners need to be made aware of different terminologies like trends, surface areas, unemployable, etc. which were misunderstood in this paper. Learners need to be exposed to these terms and teachers must ensure that they allow learners to work through as many scenarios as possible.

Teachers also need to make sure that learners are allowed to work with different applications of topics like, averages, percentages, ratio and proportion as well as probability. Learners also need to be exposed to the sketching and analysing of different types of graphs.

## 8. ANY OTHER COMMENTS

Mathematical Literacy paper 2 is expected to be more challenging for our learners. The standard will be lifted every year and we have to equip ourselves and our learners for this. Yes the language is of a high quality but we must not always look for excuses, rather it is up to us as teachers to equip our learners and expose them to a higher quality of assessment. Make use of different sources and make good evaluations of textbooks used.

It would be advisable for teachers to form groups within their districts to discuss the paper once it has been written for possible solutions. These solutions should be sent to the relevant officials who will be attending memo discussions with the National department.

Schools should make it a priority to attach any annexures or addendums that are part of the question paper. Too many centres did return the addendum for Question 3. No indication is given whether the child was able to answer the question or not and marks were awarded on the graph with the result most students would have lost seven marks had they completed the graph but failed to attach it to the answer script.

Care should also be taken when doing the translation from English to Afrikaans for example the use of the words “omwenteling” and “haljaarbevolkingsberaming”. We are mindful of the fact that the level of this paper is higher than that of paper 1. However, it should just be mentioned that the language should be more accessible to all learners.

In general the paper was of good standard and I would like to urge teachers to be mindful of the comments made in these reports and to take the concerns voiced back to their classrooms.

**SIGNATURE OF EXAMINER/MODERATOR:** \_\_\_\_\_



**SIYASEBENZISANA/ WORKING TOGETHER/ SAMEWERKING**  
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