MATRIC REVISION

MATRIC REVISION 2008

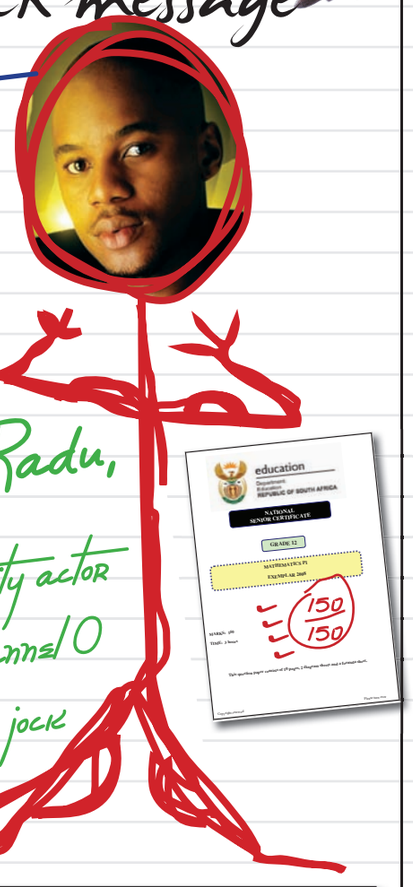
education
Department:
Education
REPUBLIC OF SOUTH AFRICA

TOP TIPS FROM THE EXPERTS: EDITION 7 OF 13

MATHEMATICAL LITERACY 2

Good luck message

Celebrity hola!



Lungile Radu,
Rhythm City actor
and Channel O
video jock

Keep a cool head, do what you have to do and at the end of the day the best will count for yourself. Be prepared. Good luck.

MEET OUR MATHEMATICAL LITERACY EXPERT

Thomas Masango

PRACTICALLY SPEAKING: Our Maths Lit expert, Thomas Masango, Chief Educational Specialist at the national Department of Education, believes that his subject equips you to solve everyday problems in real-life situations

Mathematical Literacy helps you handle real-life issues such as hire purchase and investments.

Thomas Masango matriculated at Makhosana Secondary School in Mpumalanga in 1983. He holds a BA degree (Mathematics and Psychology) and HDE from Fort Hare, a BSc Honours degree and a Post Graduate Diploma in Science Education from Wits. He taught Mathematics before becoming a Mathematics subject adviser and then the regional head of subject advisers in Mpumalanga. He was a moderator and examiner in Mathematics in Mpumalanga and also served on the national panel of Mathematics examiners. He joined the national Department of Education in 2006 as a Chief Education Specialist for Mathematics and Mathematical Literacy, a position he still holds.

NEXT WEEK: AFRIKAANS ADDISIONELE TAAL

Hard work + these tips = SUCCESS

We hope that last week's tips on Paper 1 helped give you a broad picture of the Mathematical Literacy examination in general and the nature of the expected questions in the first paper in particular. As you prepare for Paper 2, remember that there are a number of issues that apply to both papers:

- You will be expected to use mathematical content knowledge to solve problems that are based on real situations.
- There are four broad content areas in Mathematical Literacy:
  - Number and operations;
  - Functional relationships;
  - Space, shape and measurement; and
  - Data-handling.
- Both papers will cover all four broad content areas. The papers will differ only with regard to the level of difficulty of the questions. Paper 2 will be more demanding than Paper 1.
- Paper 2 is also 3 hours long and out of 150 marks. This paper will consist of between four and six longer questions. These questions will require more interpretation and application of the information provided than the questions in the first paper.
- In both papers, make sure that for each hour in the examination you answer questions worth at least 50 marks.
- The questions in both papers will require some reading of the given scenarios – make sure you take time to understand a problem before you attempt to solve it.

AN ANALYSIS OF MATHEMATICAL LITERACY PAPER 2

When you prepare for Paper 2, make sure you cover the following content and are able to answer the following kinds of questions. Take note that mathematical problems drawn from real-life situations usually overlap in two or more broad content areas.

1. Number and operations (30 – 45 marks)

- Calculate compound interest compounded more than once in the year.
- Calculate profit if only either income OR expenses is given and the other still needs to be calculated.
- Calculate compound growth/decline with reference to the rates of taxation, inflation and interest rates.
- Interpret answers in terms of the context, e.g. when to round up and when to round down.
- Rework a problem if the first answer is not sensible.
- Revise a budget if conditions change.
- Estimate and check profit/loss.
- Interpret answers in terms of context.
- Analyse and interpret the effects of changing taxation, inflation and interest rates.
- Rework a problem if the initial conditions change.
- Choose your own method to find a solution to a problem.
- Interpret calculated answers logically in relation to the problem and communicate processes and results.

2. Functional relationships (30 – 45 marks)

- Determine given input values for a given output value (changing the subject of a formula).
- Draw graphs from a given formula.
- Find break-even points involving linear functions by solving simultaneous equations (linear and inverse relationships).
- Solve equations algebraically.
- Perform one or two calculations before determining the desired solution (e.g. calculate πR^2 and πr^2 separately in order to calculate $A = \pi R^2 - \pi r^2$.)
- Identify maximum/minimum/critical points from a graph that you draw.
- Draw graphs with negative values on the axes.
- Describe trends.
- Determine how the calculated answer fits the actual situation and make adjustments. For example: If in the calculation it is found that 9 litres of paint are needed and paint is sold in 5ℓ tins, then two 5ℓ tins need to be bought.
- Generalise patterns and making predictions.
- Critically interpret graphs with negative values on the axes.
- Analyse graphs with more than one graph on the same set of axes.
- Critically interpret tables and graphs.
- Solve planning problems by reasoning out various options.
- Investigate the impact of compound change on situations.

3. Space, shape and measurement (30 – 45 marks)

- Make adjustments to calculated values to accommodate measurement errors and inaccuracies due to rounding.
- Use grids and maps to plan trips in an unfamiliar context and apply multi-step procedures where the information is readily available.
- Use grids, maps and compass directions (global positions) in order to:
  - Determine locations; and
  - Describe relative positions.
- Check values (applying multi-step procedures where the required procedure is not immediately obvious from the way the problem is posed) for solutions against the contexts in terms of suitability and degree of accuracy in a variety of contexts.
- Draw scale drawings where the scale is not given and derive the scale.
- Describe relationships between input and output values in a table of data (concerning space, shape and measurement) by means of an equation.
- Convert units of measurement between different scales and systems, applying multi-step procedures and using the conversion tables provided to deal with problems in a variety of contexts.
- Interpret scale drawings of plans to describe situations and answer questions about what mathematics they require to solve a problem.
- Use and interpret scale drawings of plans to estimate and calculate values according to scale.
- Use grids, maps and compass directions to determine locations in the context of the problem and, where necessary, to adjust the mathematical solution to make sense of relative positions.
- Critique solutions to problems and statements about situations made by others. Here you are expected to evaluate the statements and then critique the outcome based on your own real-life experiences.
- Generalise patterns observed in situations, make predictions based on these patterns and/or other evidence, and determine conditions that will lead to desired outcomes.

4. Data-handling (30 – 45 marks)

- Determine the median, quartiles and percentiles when data is not arranged in ascending order.
- Draw graphs if you still have to find appropriate data to use: *These graphs include pie charts, single and compound bar graphs, line and broken line graphs, and histograms.*
- Express a probability that:
  - An event will occur; or
  - An event will not occur.
- Communicate trends and predictions based on an analysis of data. You need to understand and be able to use terms such as: increase, decrease, constant, impossible, likely, fifty-fifty chance, etc.
- Identify and describe the use and misuse of statistics and make justified recommendations.
- Manipulate scale to create desired impressions.
- Decide whether to use a pie chart, a bar graph, a line graph or a histogram in order to create a particular impression, and be able to explain why you chose that particular graph.
- Select the most appropriate data from a number of options in a table of values and use them to make the problem understandable.
- Interpret quartiles and percentiles as measures of spread.
- Provide probable reasons for why certain scores are odd or strange.
- Critically interpret data and representations thereof.

TEAM EFFORT: Learners from Pretoria High School for Girls have found the Pretoria News Matric Revision tips very helpful Left to right: Shavani Vandeyar, Bernadette Fourie, Janneke Hattingh, Clementene Milton and Mabel Anyimadu

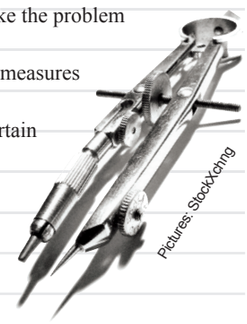
CONCLUSION

Because Paper 2 is more challenging than Paper 1, you should start with the questions you understand best (just make sure you number them exactly as they are numbered in the examination paper).

Always show all the necessary calculations – the person marking your script will not only be interested in your final answers, he or she also needs to see how you got to your answers. If you show all your working details, it will be easy for the marker to see where you missed the point: you will then only be penalised at that point and will still get most of the other marks.

It also helps to use a calculator where necessary – if in doubt, use it.

Good luck and enjoy the paper!



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