

MEDIA STATEMENT BY THE MINISTRY OF EDUCATION

Maths papers up to standard

09 February 2009

A panel of maths experts has found that maths papers in the 2008 national senior certificate exam were up to standard.

Minister Pandor asked a panel of experts to investigate the standard of the maths papers after there was scepticism at the increase in the number of successful candidates from 28,000 in 2007 to 63,035 in 2008.

The panel found that learners who scored 50% and more in 2008 would have passed mathematics higher grade with a score of 40% or more in the past.

Arnout Brombacher, chair of the panel, said: "Matriculants who passed maths 50% or more can confidently be compared to those who passed maths on the higher grade in previous years."

However, they found that there was a lack of differentiation at the level of A and B in the exam. A and B symbols in maths were good predictors of success in engineering, architecture, and business science.

Notes for editors

The panel was made up of Arnout Brombacher, former head of mathematics at Westerford High School, Alison Kitto, a member of the ministerial committee on the design of new curriculum, Khangelani Mdakane, Lwazi Moshequane, who has been teaching maths for 25 years, Belinda Huntley, maths lecturer at Wits University, Gugu Moche, and Jenny Campbell, head of maths at Bergvliet school (2000-2008).

Issued by the Ministry of Education

CME's response

Nowhere in the panel's report does it mention or imply that the papers were up to standard. The fact that the maths papers catered better for the middle-ground learners does not necessarily mean that the papers were up to standard. In fact the panel of maths experts agree with the CME when it reports in its findings:

Panel of Maths experts:

The examination did not adequately differentiate between learners in the 60 - 69%; 70 – 79%; and 80 – 100% bands. That is, the paper did not have enough questions (15%) at the “solving problems” level of the taxonomy (as per the SAG). This suggests that fewer candidates would probably have attained distinctions (>80%) had there been more questions at the “solving problems” level of the taxonomy.

The CME's argument:

The **two lower levels** of the taxonomy **are the easier levels** and the recommended mark allocation as per the SAG document is **55%**.

The recommended mark allocation for the combined **upper two levels** that require more cognitive demand is **45%**.

We tend to agree more with Umalusi's analysis of the papers where they report that **71.5%** of the marks were allocated to the less demanding portion of the papers dealing with knowledge and routine procedures instead of the recommended **55%**.

Only 28.5% of the marks were allocated to the more difficult part of the papers dealing with problem solving and complex procedures instead of the recommended **45% as per the SAG document.**

In other words the papers were much easier for the top learners than that recommended by the 2008 Maths Subject Assessment Guidelines (SAG document)

Hence our press statement:

that the 2008 Maths papers were watered-down and we further said that if this standard were to be used as the benchmark for future exams, it will not adequately prepare young learners to study maths related courses such as engineering, architecture, and business science at tertiary level.

It is practically impossible to satisfy the two extreme groups, namely the top learner and the below average learner in the same Mathematics examination.

In the 2008 Mathematics examination the top learner found the paper to be less of a challenge because approximately 70% of the paper could be done without much cognitive demand. On the other hand the below average learner started the paper off with a handicap of approximately 30% due to questions outside this learner's cognitive range.

It is crucially important that we raise the standard of mathematics education in South Africa if we are to produce engineering and science graduates of substance in the future. Hence our recommendation that Maths Paper 3 be made compulsory for learners wishing to attend university. Then Papers 1 and 2 will only test basic knowledge & routine procedures and a small percentage of complex procedures and Paper 3 will contain all the higher level questions of Papers 1 and 2. In reporting we propose to continue to show the results from Papers 1 and 2 separately from that of Paper 3. This will naturally cater for the need to distinguish between those learners wishing to enter university and those wishing to enter universities of technology.

We, the CME, are confident that our proposed modification in the assessment system, would indeed provide a solution for preparing our learners more adequately for tertiary studies as well as attract more learners into the Maths stream instead of losing them to Maths Literacy.