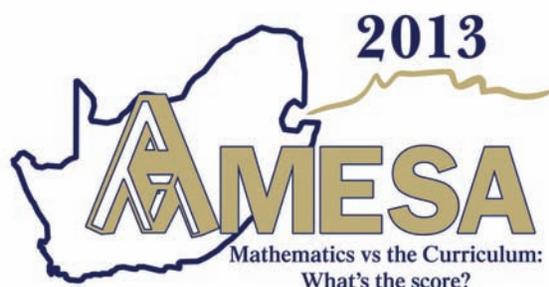


The Association for Mathematics Education of South Africa



19th Annual National Congress 24 - 28 June 2013



UNIVERSITY *of the*
WESTERN CAPE

Faculty of Education
University of the Western Cape
Bellville, Cape Town

FIRST ANNOUNCEMENT AND CALL FOR PAPERS

Design, printing and postage made possible by:



Licensed Financial Services Provider

You are invited to the Nineteenth Annual National Congress of the Association for Mathematics Education of South Africa (AMESA) and to submit contributions around the theme:

***Mathematics vs the Curriculum:
What's the score?***

VENUE:

University of the Western Cape
Modderdam Road
Bellville, Cape Town

DATE:

24 – 28 June 2013

CONGRESS THEME

For the past two decades AMESA has been witness to and has, in diverse ways, participated in the transformations of the school curriculum for mathematics, away from the apartheid-era curriculum to the interim curricula and on to the various iterations of Curriculum 2005, including the current result of such transformations, commonly referred to as CAPS.

The relation between mathematics as a disciplinary field of research and what comes to be constituted as mathematics in schooling is almost always in a state of tension, not least because the recontextualising of mathematics contents to schooling has never been a smooth process. Schooling is cut across by the interests of many important stakeholders, each making their particular demands on the mathematics curriculum, and usually in a manner that does not concern itself with the mathematical consistency and coherence of school mathematics. We recognise that schooling is an arena in which competing social, political, economic, cultural and civil interests generate distorting effects on school mathematics as they play themselves out. We also note that school mathematics is, nevertheless, obliged to strive to realise some degree of fidelity to the field of mathematics, and the ways in which school curricula, texts, teachers and students attempt to realise that goal while themselves immersed in a sea of competing interests, generates a rich and fascinating world of human endeavour. The contents of this world are not always fully congruent with their counterparts in the field of mathematics, but that is not to be lamented because it offers us a context to study and appreciate the mathematical resourcefulness of those who contribute to the realisation of school mathematics in all its forms.

The theme of the conference asks us to attend to the specific and peculiar ways in which mathematics comes to be constituted in schooling and how, and even to offer some ideas of why.

PROGRAMME:

Congress participants include an exciting combination of leading mathematics teachers, materials and technology developers, national and international researchers, and government advisers, presenting on policy directions and research findings, and sharing teaching ideas and materials.

The programme will include:

1. **Plenary addresses** by invited speakers, including overseas speakers.
2. **Panel discussions** on various issues in Mathematics Education.
3. **Parallel sessions** presented by participants, in the following areas: Foundation Phase, Intermediate Phase, Senior Phase, FET Phase, and Teacher Education.

The following formats will be used:

- **Long papers** (40 minute presentation plus 20 minute discussion)
 - **Short papers** (20 minute presentation plus 10 minute discussion)
 - **“How I Teach” papers** (20 minute presentation plus 10 minute discussion)
 - **Posters** (Exhibited on a 1,2 m x 1,8 m board, for the duration of the conference. Authors should be available at certain hours for discussion.)
 - **Workshops** (1 or 2 hours)
4. **Activity Centre:** Hands-on practical mathematics activities for participants.
 5. **Maths Market:** Promotion of their products by commercial vendors.
 6. **AMESA Annual General Meeting**

OTHER FEATURES OF CONGRESS:

Social events
Daily congress competitions
Transport
Excursions

Congress bags
Memorabilia
Internet facilities
Library facilities

20th celebration of AMESA

Note: The Final Announcement and Registration Form will be distributed in February 2013 and will contain full details about the programme, costs, transport, etc.

CONTACT DETAILS

Please send all communication about *administrative matters* to:

The Congress Secretary

Kim Styer
Room 61
Faculty of Education
University of the Western Cape (UWC)
Private Bag X17
Bellville
7535

Tel: 021 959 2229
Fax: 021 959 1508
Email: congress2013@amesa.org.za

Congress Director

Rajendran Govender
Room 69
School of Science & Mathematics Education
Faculty of Education
University of Western Cape
Private Bag X17
Bellville
7535

Tel: 021 959 2248
Fax: 021 959 1524
Email: rajjen@amesa.org.za

Congress website

See the congress website for updated relevant information:
<http://www.amesa.org.za/AMESA2013/index.htm>

Please send all communication about the *academic programme* to:

The Academic Coordinator

Zain Davis
Room 5.20.5
Graduate School in Humanities
University of Cape Town
Private Bag
Rondebosch
7701

Tel: 021 650 2775
Fax: 021 650 3489
E-mail: zain@amesa.org.za

The Western Cape Province

The Western Cape lies on the southern tip of Africa. The province is one of the country's most beautiful, attracting the lion's share of foreign tourists. It is a region of majestic mountains, colourful patchworks of farmland set in lovely valleys, long beaches and, further inland, the wide-open landscape of the semi-desert Karoo. The Western Cape's unmatched natural beauty, famous hospitality, cultural diversity, excellent wine and rich cuisine make it one of the world's greatest tourist attractions.

With a total area of 12 9 462 square kilometres, the Western Cape is roughly the size of Greece. It's the country's fourth-largest province, only slightly smaller than the Free State, taking up 10,6% of South Africa's land area and with a population of 5,2 million people.

A potpourri of diverse cultural backgrounds gives the province a cosmopolitan flavour, creating a demographic profile quite different from the national pattern. Centuries of trade and immigration have created a population with genetic and linguistic links to different parts of Europe, south-east Asia, India and Africa. Afrikaans is spoken by the majority, with isiXhosa and English being the other main languages.

The University of Western Cape

The University of the Western Cape is located in the northern suburbs of greater Cape Town – an area that is, in fact, central to all facilities and amenities on the Peninsula. Its attractive campus includes an important nature reserve, and the mountains of the Cape Peninsula and Stellenbosch afford beautiful landmarks to the east and west. The University is readily accessible by car, taxi, bus or train, and even has its own railway station, Unibell, on the southern boundary of the campus. Regional facilities, such as the Bellville Central Station and the Cape Town International Airport are a few minutes' drive from campus.

Three major shopping malls serving the region are five to fifteen minutes away. Most of the major cultural or recreational facilities of Cape Town and Stellenbosch are within half an hour's drive. These include international sports stadiums, fine theatres and concert halls, the wonderful beaches of False Bay and the Peninsula, and some of the most beautiful mountain hikes in the world.

The Western Cape is a place of vibrant cultural diversity. It has a rich history as a cultural crossroads. Those passing through or staying have contributed to what is undoubtedly South Africa's most cosmopolitan environment. True to its commitment to the disadvantaged, UWC provides education of high quality, leads South Africa in several fields of research, and makes a major contribution to the nation's human resources needs.

Remarkably, it achieves this while keeping fees low in response to the socio-economic circumstances of most of its students. It is among the best universities in Africa and the largest single producer of Black graduates in South Africa and celebrates its growth in post-graduate and research focuses.

The University has seven faculties: Arts, Community and Health Sciences, Dentistry, Economic and Management Sciences, Education, Law, Natural Sciences. In addition to its undergraduate degrees, UWC is home to a number of research schools, institutes and centres – all carrying out cutting-edge work towards building a better society for all.

Local Organising Committee (LOC)

Members of the AMESA LOC come from a variety of backgrounds and include teachers, subject advisors and university lecturers:

Aletta Loopuyt, Alwyn Olivier, Andre Lamprecht, Andrew Lewis, Anita Campbell, Bridget Cameron, Cerenus Pfeiffer, Cyril Julie, David Eadie, Duncan Mhokure, Faaiz Gierdien, Gary Powell, Gasant Gamiet, Kim Styer, Lesley Jennings, Loveness Mahwire, Mdu Ndlovu, Memory Dhiza, Michael Cameron, Monde Mbekwa, Neil Eddy, Rajendran Govender, Ramesh Jeram, Raymond Smith, Roland Fray, Shaheeda Jaffer, Sheena Rughubar-Reddy, Sibawu Siyepu, Stanley Adendorff, Trevor Moodley, Zain Davis.

Maths Market

Publishers, entrepreneurs and NGOs are invited to present and promote their commercial products in a special session called *Maths Market*. Research about such products may be presented as an academic paper, but commercial products should not be directly promoted in academic sessions. Please contact the Secretariat for more details.

Call for papers

You are invited to propose one or more contributions to the academic programme. Please note that to ensure a high standard of presentations and broad based participation:

- We will accept no more than two inputs per presenter.
- We will not accept any presentation for the programme unless a full transcript or workshop outline has been submitted for reviewing.
- We will adhere to the due dates for submission as this ensures time for useful and relevant reviews of submissions.

To help you in planning and writing your proposal, we include overleaf technical guidelines for preparing a paper. An electronic styles template is available on the congress website.

The Presentation Proposal Form (page 11) must be submitted with your proposal by **20 February 2013**

Call for reviewers

In order to have a sufficient number of reviewers for submitted papers, we invite AMESA members to volunteer to help with reviewing papers. This review process should take place during February, March and April 2013.

You can serve as reviewer if you are a current AMESA member and have presented a reviewed paper (a long or short paper) at previous AMESA congresses, or have published in *Pythagoras*.

If you qualify and are willing, please fill in the Reviewer Form (page 13) and send it to the Academic Coordinator by **31 January 2013**

Deadlines

Offer to review papers:	31 January
Submission of papers for reviewing:	20 February
Receive reviewed papers back:	20 April
Application for financial support:	30 April
Early registration:	By 30 April
Normal registration:	1 May to 31 May
Late registration:	After 31 May

***Start planning for Congress
We look forward to seeing you in Cape Town!***

Guidelines for submission of long papers

Length: 8–12 pages

Each long paper will be scheduled for a total time of 60 minutes: 40 minutes for oral presentation and 20 minutes for discussion. The following types of papers are suitable for presentation as a long paper:

- 1. Research report** This should include the following:
 - A statement about the focus of the paper or the research questions, and a motivation for the significance of the research;
 - An indication of the theoretical framework of the study reported;
 - A discussion of the related literature;
 - An indication of and justification for the methodology used;
 - Some sample data and findings and a statement of how these help to answer the research questions;
 - What your findings mean for mathematics teaching and learning or further research;
 - List of references.
- 2. The presentation of mathematics/mathematical literacy** These could include mathematics/mathematical literacy, relevant to the school curriculum, such as:
 - An innovative way of dealing with a section of mathematics/mathematical literacy;
 - Alternative proofs for theorems;
 - Interesting mathematics that teachers are conversant with;
 - Mathematics/mathematical literacy that is new in the proposed curriculum;
 - List of references.
- 3. Theoretical, methodological or philosophical essays** These should include the following:
 - A statement about the focus of the paper and a motivation for its significance;
 - An indication of the theoretical, methodological or philosophical framework within which the focus or theme of the paper is developed;
 - Reference to related literature;
 - A clearly articulated statement of the author's position on the focus or theme;
 - What your results mean for mathematics teaching, learning or research;
 - List of references.

Reviewing

Two reviewers, with experience in the area, will review your paper. Specifically, reviewers will be asked to comment on the following: mathematical content, theoretical framework and related literature, methodology (if appropriate), statement and discussion of results (if appropriate), clarity and relevance to the AMESA audience.

A developmental approach to reviewing will be applied to your paper. In other words you will be given feedback by the reviewers, which you could use to improve your paper and then (if necessary) re-submit for further review and feedback.

If your paper is not accepted in this category it will be reconsidered for submission as a short paper presentation.

Publication of Long Papers: Authors can choose *not* to have their accepted long papers published in the AMESA 2013 Proceedings, to keep open the possibility to submit it to a journal. If author(s) choose to exclude their long paper from the Proceedings, then they must submit an extended abstract of the paper for publication in the Proceedings.

Guidelines for submission of short papers

Length: 5–8 pages

Each short paper presentation will be given a total time of 30 minutes: 20 minutes for oral presentation and 10 minutes for discussion. This kind of presentation is most suitable for work in progress.

- 1. Reflection on teaching or practice:** This is mainly for mathematics educators who would like to share their reflections on their teaching or on their participation in a developmental project or research project. For reflection on teaching you need to specify the following:
 - The grade and class size;
 - The mathematics topic taught;
 - The mathematical goals and purposes;
 - A description of the lesson;
 - What factors contributed to the success of the lesson;
 - What factors tended to hamper success and how you dealt with them.
- 2. For reflection on participation in a mathematics development project** you should specify the following:
 - The duration of the project;
 - Mathematical aspects covered by the project;
 - Practical examples of how participation in the project impacted on your teaching.
- 3. The presentation of mathematics/mathematical literacy:** These could include mathematics/mathematical literacy relevant to the school curriculum. For details on this type of presentation, see (2) of the long papers.
- 4. Proposals – research or development:** This can be a presentation of a proposal for a research or mathematics education developmental project and should include the following:
 - A description of the focus of the research project or developmental project;
 - Motivation for the study or project;
 - Some indication of the theoretical framework of the study or project;
 - Some discussion of the related literature;
 - How the study or project will be undertaken, including some justification of methodology;
 - Participants and time lines;
 - List of references.
- 5. Initial sharing of data:** This is mainly for people who have done research and are still working on their analysis. The paper should include the following:
 - A statement about the focus of the paper or the research questions, and a motivation for the significance of the research;
 - Some aspects of the theoretical framework of the study reported;
 - Some discussion of the related literature;
 - An indication of and justification for the methodology used;
 - Some sample data and initial analysis or description of data;
 - List of references.

Reviewing

Two reviewers, with experience in the area, will review your paper. Specifically, reviewers will be asked to comment on the following: mathematical content, conceptual coherence, clarity and relevance to the AMESA audience.

A developmental approach to reviewing will be applied to your paper. In other words you will be given feedback by the reviewers, which you could use to improve your paper and then (if necessary) re-submit for further review and feedback.

Guidelines for “How I teach” papers

Length: Minimum 1 page and a maximum of 4 pages.

Critical information to be included:

- **Title:** A heading for your paper e.g. How to use paper folding in geometry.
- **Name:** Your Name and Surname
- **Organisation:** Where you are from e.g. the name of your school.
- **Phase:** The phase your talk is aimed at i.e. foundation, intermediate, senior, FET or tertiary.
- **Introduction:** Include here a paragraph on what your talk is about. Why you chose to talk about it. What you are going to do in the talk.
- **Content:** You might want to write one or two sentences on your experiences of using such activities in your class and some of the advantages or disadvantages of using the activities. Also provide here a brief conclusion on the talk.
- **References:** Add here any references that you might have used. In other words, if you took the activities from a textbook or from the internet, please acknowledge that.

There may be other headings you want to include (e.g. “teacher tips”) – please feel free to do so.

Reviewing

Your paper will be reviewed. *A developmental approach to reviewing will be applied to your paper. In other words you will be given feedback by the reviewers, which you could use to improve your paper and then (if necessary) re-submit for further review and feedback.*

Congress 2013 reserves the right to make minor editing changes.

Guidelines for posters

Poster presentations are available for those whose work is more suitably communicated in a pictorial or graphical format, rather than through an oral presentation. There is no formal oral presentation associated with posters, but a time will be allotted, after sufficient display time, during which presenters will be available at their posters for informal discussion with participants.

A poster (1,2 m x 1,8 m board), can present research projects, software developments, curricula innovations, educational programmes, etc., related to Mathematics Education.

Note the following as you prepare your proposal for a poster:

- Your proposal should describe both the contents of the poster and its particular visual (pictorial or graphical) characteristics.
- Your proposal should be restricted to one page, including references and figures. If accepted, this text will be included in the Congress Proceedings.
- Type and centre the title (in capitals), author(s) names, and affiliation(s) of the author(s) in this order.

Reviewing

The programme Committee will review the proposals for Poster Presentations. If your proposal is accepted, the Programme Committee will provide further guidance on the preparation of the actual poster itself.

Guidelines for workshop presentations

Note that workshop write-ups and the worksheets will be not be published in the paper Congress Proceedings. It will be included in the CD_ROM Proceedings, and copies of the activities will be duplicated only for the workshop participants.

Your proposal should include:

1. **Motivation for running workshop.** This is for reviewing and should include:
 - o **Title of the workshop**
 - o **Name of presenter(s)**
 - o **Institution where you are employed**
 - o **Target audience:** The phase your workshop is aimed at e.g. intermediate.
 - o **Duration:** There will be 1-hour or 2-hour workshop slots. Please ensure that you choose an appropriate length slot.
 - o **Maximum number of participants:** You may limit the number of participants in your workshop. Workshop presenters should attempt to cater for at least 30 participants.
 - o **Motivation for the workshop:** Why is the workshop important? How will it help participants?
 - o **Description of content of workshop**
What will be done in the workshop? How will the time slot be broken up?
 - o **The activities and worksheets to be used in the workshop** (maximum 8 pages)
2. **An abstract describing the level, nature and content of the workshop** (200 words)
Note: Only this abstract will be published in the Congress Proceedings or Programme.

Note:

- o Workshops need to be **hands-on sessions** where participants are **actively involved** in doing the activities that you provide. Usually these activities will be done in groups, consisting of 3–5 participants. There should also be ample time for discussions (approximately 25% of your time is suggested).
- o If you have used ideas from other sources, it is essential that you acknowledge these sources. We will *not* accept any submissions where more than 2 pages have been copied directly from another source.

Reviewing

The Programme Committee will review the proposals for Workshop Presentations.

Technical guidelines for preparing manuscripts

We are endeavouring to work towards a uniform appearance for all papers in the congress proceedings. An electronic template and guidelines will be available from the congress website. Please use the template as the basis for your paper.

Please adhere to these guidelines:

- o Restrict your paper to the maximum number of pages as specified for the type of presentation, including references, figures, and appendices.
- o Write the paper in English.
- o Type and centre the title (in capitals), author(s) name(s), and affiliation(s) of the author(s), in this order.
- o Underline the name of the presenting author(s).
- o Begin the paper with an abstract of up to ten lines, single-spaced, preferably in italics.
- o Use a 14-point type (Times New Roman), a 16-point line space, and 6 points between paragraphs, occupying a frame of 170 mm by 247 mm. Please use exact dimensions, and fill the entire frame. Remember that the original text will be reduced in the Proceedings.
- o Give references in the APA style.
- o **Do not number the pages**
- o E-mail the paper as an attachment to the Academic Coordinator by 20 February 2013, together with your completed Presentation Proposal Form.
Fax copies will not be accepted.

TABLE OF PRESENTATION CATEGORIES

This page is for your reference when completing the Reviewer Form or the Presentation Proposal Form.

Reviewers will receive proposals for review according to their preferred categories that they mark in their Reviewer Form.

The proposals will be sent to reviewers according to the presentation categories that authors have marked in their Presentation Proposal Form.

Focus themes for presentation

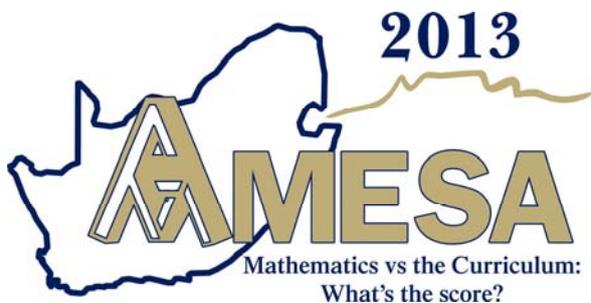
1. Teaching and learning of patterns, sequences and series	13. Functions and graphs
2. Measurement – focusing on primary education	14. Numeracy
3. Teaching and learning of algebra	15. Classroom practice
4. Teaching and learning of geometry	16. Motivation, beliefs and attitudes towards mathematics and its teaching
5. Teaching and learning of probability	17. Mathematics education in a multilingual and multicultural environment
6. Teaching and learning of statistics	18. Mathematics curriculum development
7. Teaching and learning of calculus	19. Mathematical knowledge for teaching
8. Reasoning, proof and proving in mathematics education	20. Assessment in mathematics education
9. Problem solving and modelling in mathematics education	21. Mathematical literacy
10. The use of technology in the teaching and learning of mathematics	22. Mathematics education at secondary level and access to tertiary level
11. Financial Mathematics	23. Mathematics in context
12. Geometrical and spatial thinking	24. In-service education, professional development of mathematics teachers

Educational level:

1. Foundation Phase (Gr R–3)	4. Further Education & Training (Gr 10-12)
2. Intermediate Phase (Gr 4–6)	5. Teacher Education (pre- & in-service training)
3. Senior Phase (Gr 7–9)	

In the case of research, the type of research

1. Empirical/ Experimental	4. Ethnographic/Interpretative
2. Statistical	5. Theoretical/Philosophical
3. Case study	6. Action research



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 7701 Rondebosch
 Tel: 021 650 2775
 Fax: 021 650 3489
 E-mail: zain@amesa.org.za

PRESENTATION PROPOSAL FORM

This form must be completed and submitted with every presentation proposal.

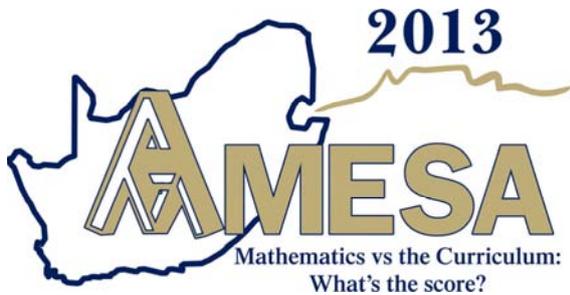
Note: You may prefer to complete the electronic form on the congress website.

DEADLINE: 20 February 2013

PLEASE TYPE OR HAND-WRITE BY USING ONLY CAPITAL LETTERS

Type of Presentation (mark one): Long paper <input type="checkbox"/> Short paper <input type="checkbox"/> How I teach <input type="checkbox"/> Poster <input type="checkbox"/> Workshop <input type="checkbox"/>	
Title of Presentation: 	
Author(s): 	
Presenting Author(s): 	
Contact Details: <i>The following information should be completed only for the Presenting Author:</i> Postal Address: City: _____ Postal Code: _____ Telephone no: _____ Cell no: _____ Fax no: _____ E-mail: _____	
<i>Complete to assist the Programme Committee in finding you an appropriate reviewer</i> Presentation categories (choose relevant numbers from the Table on page 10): Focus Themes (mark at most three numbers from 1 – 24): ____ ____ ____ Educational Level (from 1 – 5): ____ Type of Research if applicable (from 1 – 6): ____	
Publish Long Paper in AMESA 2013 Proceedings? YES: <input type="checkbox"/> NO: <input type="checkbox"/>	

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 Room 5.20.5
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 7701 Rondebosch
 Tel: 021 650 2775
 Fax: 021 650 3489
 E-mail: zain@amesa.org.za

REVIEWER FORM

Please complete this form if you are prepared to help review submitted papers for the congress.

To qualify as a reviewer, you must be a current AMESA member and have presented a reviewed paper (a long or short paper) at previous AMESA congresses, or have published in Pythagoras or another reviewed journal.

DEADLINE: 31 January 2013

Note: You may prefer to complete the electronic form on the congress website.

PLEASE TYPE OR HAND-WRITE BY USING ONLY CAPITAL LETTERS

Contact Details:

Name:

Institution:

Postal Address:

City:

Postal Code:

Telephone no:

Cell no:

Fax no:

E-mail

Complete to assist the Programme Committee to match you to appropriate submissions

Presentation categories (choose relevant numbers from the Table on page 10):

Please choose at most 4 **Focus Themes** (numbers 1 – 24):

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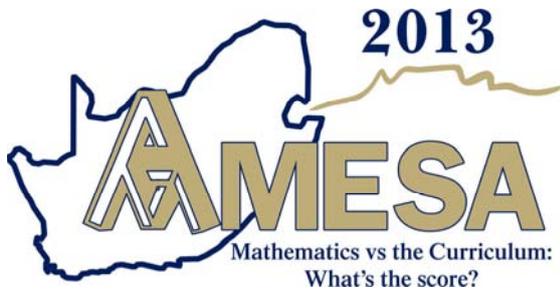
Please choose your preferred **Educational Levels** (numbers 1 – 5):

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Please choose your preferred **Type of Research** (numbers 1 – 6):

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Rajendran Govender
 School of Science & Mathematics Education
 Faculty of Education
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 7535 Bellville
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 Fax: 021 959 1524
 Email: rajen@amesa.org.za

Application for financial support: AMESA Congress

Note: Closing date is 30 April 2013

I,, would like to apply for financial support to attend AMESA Congress 2013.

Surname:

First names:

Postal address:

.....

Postal code:

Institution:

Area of interest: (Primary / Secondary / Tertiary)

Tel: (Home) (Work) Fax:

E-mail:

Complete 1 and 2 below and take note of 3:

1. I am an AMESA member: YES / NO Membership number:
2. I am able to contribute R..... of the projected R..... costs for my attendance.
3. I undertake to write an article/report on AMESA Congress 2013 which may be published in *AMESA News*.

Signature: **Date:**

Note:

- A typed ½ to 1 page motivation, as well as a detailed budget must accompany this application. The application will not be considered without a detailed budget.
- Preference for funding will be given to paid-up AMESA members who will be participating in the congress programme.

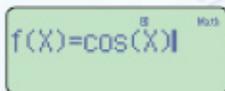
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CASIO® FX-82ZA PLUS

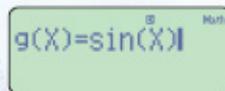
The Learning Tool of Choice.

Developed in Collaboration with South African
Educators for the SA Syllabus

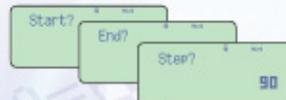
Natural Textbook Display Scientific Calculator
Now with Dual Table Function



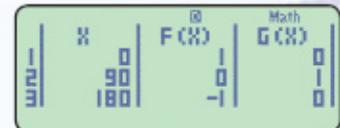
Formula registration



2nd formula registration



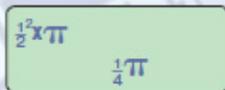
Start/End/Set up values



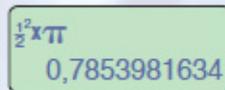
X	F(X)	G(X)
90	0	1
180	0	0

Resultant dual table

Plus Dual Result Function



Math result format

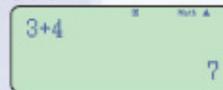


Linear result format

Results can be expressed in standard form or decimal

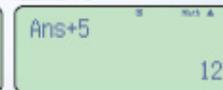
Plus Dual Answer Key to show your previous answer

3 + 4 =



Answer = 7

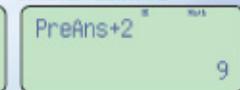
Answer+5=



Answer = 12

Previous Answer = 7

Previous Answer+2=



Answer = 9

Previous Answer = 12

Includes These Important Functions

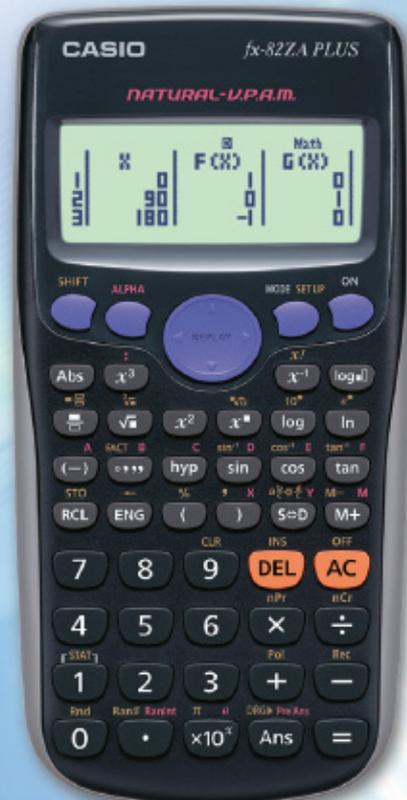
- Previous answer key for recursive functions
- 9 memories
- Statistics – data handling and regression analysis
- Random integers for statistics
- Prime factorisation
- Time conversion calculations
- Co-ordinate transformation – enhanced by dual table function
- Selectable auto power off (10 min / 60 min)

Plus another 246 functions



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