

Graphical Times.

Volume 6, Issue 23, 2007.



Welcome back to term 3! What a busy term with the Netball, Americas Cup etc. Enjoy the term... looking forward to the Rugby World Cup, go the AB's! I must say that it is very important to use brackets in mathematics appropriately. I was delighted to receive a facsimile from Grant Hattrill indicating that I had made an error in the calculus paper in term 2's newsletter. Please accept my apologies and there is a bottle of wine heading your way Grant for pointing out the error. The watermark has also been removed from page 1, as in PDF format it made the reading and photocopying of the page difficult.

Error repaired:

QUESTION FOUR page 3 Graphical Times Volume 6, Issue 22, 2007.

Solve $z^3 = 64i$, where z is a complex number. Write your answers in polar form, $rcis\theta$.

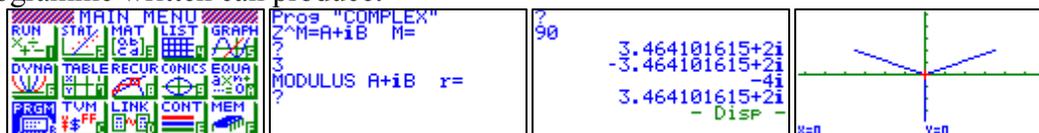
$$z^3 = 64i = 4^3i \text{ then } z = 4cis(\pi/2 + 2n\pi)^{1/3}, n \in I$$

$$z = (4cis(\pi/6 + 2n\pi/3)), n \in I$$

$$z = (4cis(\pi + 4n\pi/6)), n \in I \text{ etc.,}$$

Cannot be done on a graphic calculator.

A programme written can produce:



Included in this terms newsletter are:

Graphic calculator activities –

- **Worksheets:**

Graphic calculators – Trigonometric Identities – a visual proof– but will it hold up in an algebraic court!

CAS – Rolling a dice or two! – Histograms and Summary Statistics.

- **Term 3 pricing list. There has been some pricing downwards for term 3, due to the strong NZ \$.**

NZAMT10 Conference.

The Power of 10

25 - 28 September 2007

St Cuthbert's College, Auckland

2007 sees the tenth biennial Conference of the New Zealand Association of Mathematics Teachers, The Power of Ten, which will be held at St Cuthbert's College in Auckland from the 25th to 28th of September.

The Auckland Mathematics Association in conjunction with the New Zealand Association of Mathematics Teachers is proud to host this Conference.

And so it is back to Auckland for another great educational opportunity for all those involved in Mathematics teaching as well as the chance to experience some of the many attractions that Auckland has to offer.

Every two years the Mathematics Teachers of New Zealand have a wonderful professional development opportunity with the NZAMT Conference. This conference provides educators at all levels from Early Childhood through to Tertiary with the opportunity to get together and share ideas amongst themselves, and to learn from the experts. Quality overseas and local presenters will be sharing their ideas and expertise. It is also good to hear what the teachers in neighbouring classrooms are doing and to learn from their experiences. Trade displays and sponsorship offers give



Mathematics Department Cycle [Pass it on to . . .]

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educators wonderful opportunities to keep up with current trends in classroom resources which assist in good teaching practice.

It is expected that over 600 teachers will avail themselves of this opportunity so do come along and enjoy the learning and the fun that such a conference can give to all.

Visit: <http://www.nzamt.org.nz/> or http://www.cce.auckland.ac.nz/conferences/index.cfm?S=CCE_NZAMTC

Workshop opportunities.

Workshop opportunities, if you would like to have a workshop for teachers and or students then please make contact with **Graphic Technologies**. A large number of schools are taking up this opportunity either singularly or as a cluster of schools with both the graphic calculator or with the ClassPad300+. A large number of schools took advantage of these either by combining with another school or singularly to look at how the graphic and CAS could impact on and to integrate this technology into your classroom practice.

Classpad 300.

Downloading resources and materials, such as:

Add-in software for ClassPad Series

The latest version of E-CON EA-200 can be downloaded by going through the following CASIO Educational website.

(A) CASIO Educational website/ CASIO Online Service (Downloads) page:

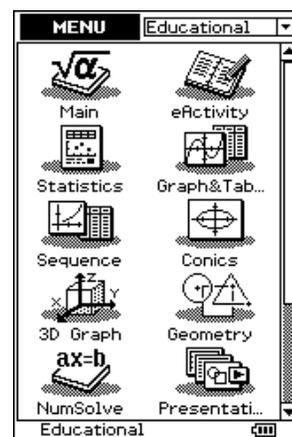
<http://edu.casio.com/dl/>

(B) You need to use your ID (E-mail address) and your password.

(C) Select the items for ClassPad 300 series,

Add-in Software for Ver.3.**

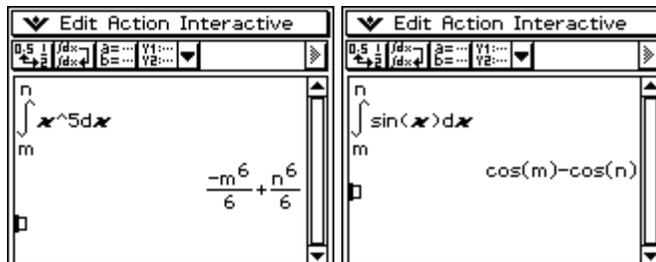
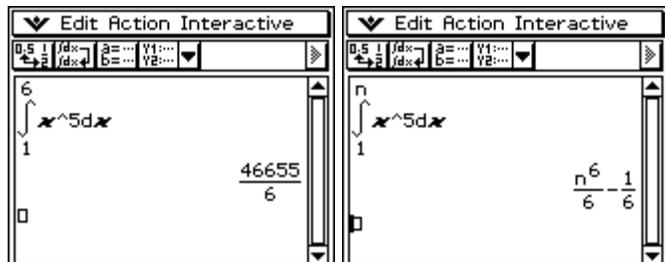
Add-in Software



Some basic calculus on the ClassPad.

1. Definite integrals

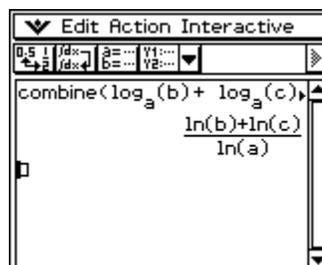
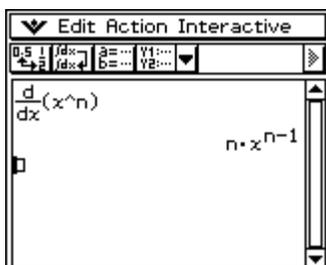
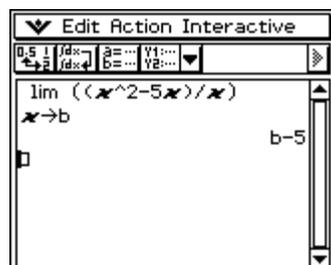
2. Definite integrals for patterns



3. Limits

4. Differentiation

5. Logarithms



Worksheets downloaded off the web.

Monaco Corporation's website has been upgraded and it is easier to view and download the worksheets. There are links to other informative mathematics education websites too. For teachers we currently offer a large number of classroom ready resources available are designed primarily for the CASIO® FX9750G, FX9750G Plus, CFX9850GB, CFX9850GB Plus models of graphical calculators and the ALGEBRA 2.0. There is also a variety of activity sheets designed for the ClassPad 300 models. All of the activities and worksheets are designed for beginners to

advanced users of the G.C. and C.A.S. all useful for all secondary year levels. More have been added to the website since the last newsletter. Bookmark: www.monacocorp.co.nz/casio

Websites of mathematical interest.

Useful CAS and Graphical Links:

http://faq.casio.com/faq/fx/faq_type_a.php?PRODUCT=ClassPad+300&CATEGORY=ALL

http://www.casioed.net.au/products/classpad_product.php

<http://www.casioed.net.au/downloads/help/classPad/ClassPadOverview.pdf>

Maths in general:

This is a video that will drive you bananas, but some students love it!

<http://digitalteaching.wetpaint.com/page/P%C4%81ngarau%2C+Mathematics>

A website for year 12 year 13 courses.

<http://www.mathsnet.net/asa2/2004/c3.html#1>

A couple of videos, lots of applets and lots of problems solved step by step.

<http://www.bbc.co.uk/education/asguru/maths/13pure/04trigonometry/index.shtml>

This BBC website has revision notes and interactive quizzes on trigonometry. It includes information on radian measure, trigonometric functions and their graphs, and solving trigonometric equations.

<http://www.clarku.edu/~djoyce/trig/>

Provides information on the derivation and application of trigonometry. An interactive Java applet where the diagram adjusts itself as the points are dragged, allowing students to investigate the relationship between the sides in right-angled triangles.

<http://www.bbc.co.uk/scotland/education/bitesize/higher/maths/trigonometry/index.shtml>

This BBC website has 'revision bites' and 'test bites' to help students' skills in trigonometry. Includes information on radian measure, trigonometric graphs, identities, compound and double angle formulae.

<http://www.counton.org/alevel/pure/mathsdirectframe.htm>

Tutorials and practice on topics covered in NCEA. Includes algebra, integration, differentiation, probability, statistics, numerical methods, coordinate geometry, sequences and series and trigonometry.

Classroom Activities.

Achievement Standard 90147

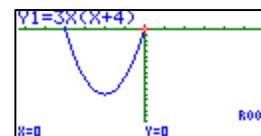
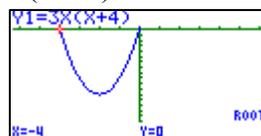
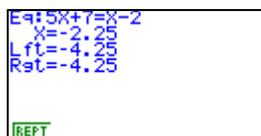
Use straightforward algebraic methods and solve equations, 2006 external paper

To be read in conjunction with the 2006 external paper.

QUESTION ONE

Solve these equations:

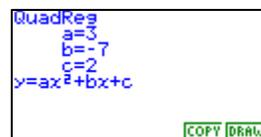
(a) $2(x - 3) = 8$ $x = 7$ (b) $5x + 7 = x - 2$ $x = -2.25$ (c) $3x(x + 4) = 0$ $x = 0$ or $x = -4$



QUESTION TWO

Expand and simplify:

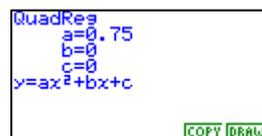
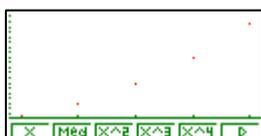
$(3x - 1)(x - 2) = 3x^2 - 7x + 2$



QUESTION THREE

Simplify:

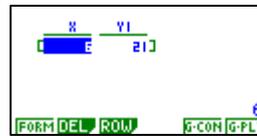
$$\frac{9x^5}{12x^3} = \frac{3x^2}{4}$$



QUESTION FOUR

$$F = \frac{n(n+1)}{2}$$

$$F = 6 \times (6 + 1) \div 2 = 21$$



QUESTION FIVE

Simplify:

$$\frac{x^2 + 7x + 10}{x + 2} = x + 5$$



QUESTION SIX

$$\frac{1}{2}x + x = 97 \quad x = 64.666\dots$$

Peter must have at least 65 CDs.



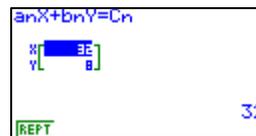
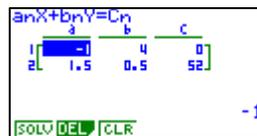
QUESTION SEVEN

Solve these equations to find out how many classical CDs Paul bought.

$$4C = P$$

$$1.5P + 0.5C = 52$$

8 classical CDs



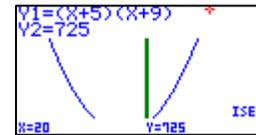
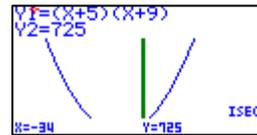
QUESTION EIGHT

If x is the number of years

$$(x + 5)(x + 9) = 725$$

$$x = -34, 20$$

Since x has to be positive, the number of years is 20



Help desk.

This is a very common problem that I get emails and 'phone calls about regularly.

Question:

Also would you please be able to give me some advice on a set of 14 new graphic calculators. I asked someone to set them up for me and unfortunately they did not follow the instructions correctly. They took out the insulating sheet before they put in the batteries. None of these calculators can be turned on. Would you please be able to tell me what to do in order to correct this problem?

Response:

The problem with the GC is easily 'fixed', using a blunt pencil or pen with a **long nib**. Press the reset button on the back of the GC, turn it over and follow the instructions on the screen.

NOTE: PLEASE make sure that a blunt instrument is used, as I have seen a compass being used to reset the GC and the point going straight through to the circuit board.

A last word!

Well again, that's all I can fit onto the usual 4 pages! Have a great term 3! Hope to see you at some workshops at NZAMT10 conference or next term via this newsletter or otherwise! If you would like to contribute or have suggestions as to what you would like to have discussed via this medium, please do not hesitate to contact either by snail - mail, email, telephone, text or fax.

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