

Graphical Times.

Volume 13, Issue 54, 2015.



Welcome back to term 2, 2015! Hope that you had an enjoyable Easter break and whanau time and now rearing to go again at the whiteboard! Please find this term 2's newsletter and activities informative and term 2 pricing giving you and your students significant savings on the RRP. An important date for the end of the term is the NZAMT Conference being held in Auckland, 7th – 10th July 2015 at AUT.

What's in here!

Included in this terms newsletter are calculator activities for the Classpad, graphic and scientific calculators:

- **Worksheet for the Classpad and similar models: Solving simultaneous equations**
- **Worksheet for the FX9750GII and similar models: Matching functions with their first and second derivatives**
- **Worksheet for the FX82AU+II and similar models: Stamps with a Mathematical Theme**
- **Term 2 pricing valid until 5th July, 2015**

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 and the ClassPad), to look at how the graphic calculator and CAS could impact on and be integrated into classroom practice. With NZQA having acknowledged that year 12 & 13 students without the use of a graphical calculator are being disadvantaged, a large number of schools have taking up the opportunity to up skill teachers and students in using these mathematics/statistics technologies.



Program to support the use of the FX82AU+II and FX9750GII.

Casio Education NZ launched the 'Top Schools Program' is to support schools using the FX82AUplus II scientific and FX9750GII graphic calculators. The goal of the programme is to have all senior students in New Zealand using a graphics calculator, so that no one is disadvantaged during NCEA examinations. Professional development courses will be offered in conjunction with Graphic Technologies supporting this initiative.

Please make sure that your schools stationery lists are updated for 2016.

Details of the program can be uploaded from: www.casio.edu.monacocorp.co.nz

Classpad update.

The ClassPad II [fx-CP400] features a much larger, backlit screen than the previous models, while keeping the same functionality. Major differences for this handheld are the 3D graphing and presentation applications have been replaced by E-Con EA200 for data logging. Connectivity is much easier, and the ClassPad II acts as a USB drive when plugged into a PC. **eActivities** are a great way to store procedures and these can also be downloaded and sent to the handheld model using the USB cabling (SB-67). **Programs** can be written and downloaded to extend the functionality of your ClassPad II. eActivities, files and programmes can also be transferred from calculator to calculator using the SB-62 cabling. Visit: <http://www.classpad.com.au/index.html>

Mathematics and Statistics faculty circulation [Pass it on to . . .]

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Graphic Technologies Specials for Term 2, 2015.

Some pricing specials valid until the end of this term, 5th July, 2015, only.

Product	Price per unit (excl GST)
FX9750GII graphic calculator (monochrome) RRP \$132.95 For each multiple of 10 FX9750GII ordered in term 2, 2015 receive a free FA-124 USB cable [high-speed data communication between the PC and FX9750GII]. Buy 10 get 1 FA-124 USB cable, buy 20 get 2 FA-124 USB cables, buy 30 get 3 FA-124 USB cables. To a maximum of 3 FA-124 USB cables per school per order – while stocks last.	\$82.00

Terms 2 &3, 2015 - Casio XJM240 Data Projector Promotion.

The winning school is: [YOUR SCHOOL NAME COULD BE HERE] will be receiving the schools prize in July and October, 2015. Two to give away to schools who purchase products totalling \$200 or more – one to give away each term.



Mercury-free, high-luminosity Hybrid Light Source

Graphic Technologies are resellers of Casio projectors. If you are thinking of replacing your current data projectors or looking for additional units to meet your schools requirements then please consider any of these six units in our school pricing list that suit your needs. Additional information on these data projectors is available on request or click on the URL link on the product in the pricing list.

Features include:

- ecologically sound and energy saving
- a mercury-free light source
- 2 × optical zoom
- Lamp-free technology with up to 20,000 hours continuous performance
- WLAN capability
- USB 2.0 for FX9750Gii graphic calculator can be connected directly into the projector [XJA145]
- USB data files can be connected directly into the projector
- is the size of a ream of A4 paper!



For terms 2 and 3, we have a 2015 promotion. For every order received between 20th April, and 26th September, 2015 will go into the draw for winning a XJM240, 2500 ansi lumen, wide screen data projector. One on offer each term

See <http://www.casio-projectors.eu/euro/products/xjm240/> for technical details and the Graphic Technologies pricing list of the six data projector models we are resellers for. See the term 2 pricing list for more products and specials.

Websites of interest.

<http://www.educatorstechnology.com/2014/01/20-great-math-websites-for-teachers-and.html>

<http://mathworld.wolfram.com/>

<http://interactivesites.weebly.com/math.html>

<https://www.mathsisfun.com/>

http://www.bbc.co.uk/schools/websites/11_16/site/math.shtml

<http://nrich.maths.org/frontpage>

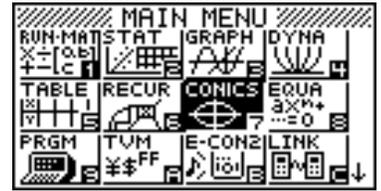
Worksheets downloaded off the web.

Visit Monaco Corporation and Graphic Technologies websites to view and download worksheets. There are links to other informative mathematics education websites too. For teachers we currently offer a large number of ‘classroom ready’ resources available and are designed primarily for the CASIO® FX82AU, FX82AU+ii, FX9750Gii, FX9750G, FX9750G+, CFX9850GB, CFX9850GB+, CFX9850GC+, FX9750GA, FX9750GA+ and FX9750Gii and the ClassPad300, 300+, 330A and 330A+ series. More have been added to the website since the last newsletter.

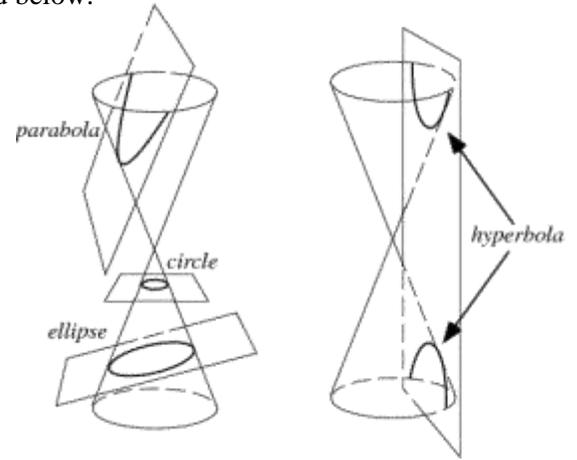
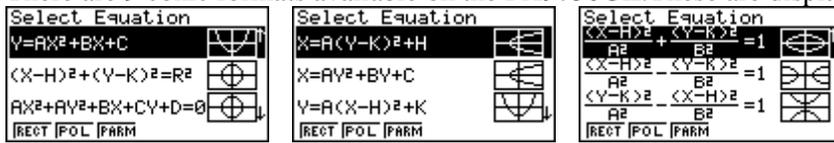
Please visit: www.casio.edu.monacocorp.co.nz and <http://graphic-technologies.co.nz>

Conic sections on the FX9750GII

Select **CONICS** mode from the **MAIN MENU** by using the arrow keys to highlight the **CONICS** icon then press **EXE**, or pressing the **[7]** key.



In mathematics, a **conic section** (or **conic**) is a curve obtained as the intersection of a right circular **conical** surface with a plane. http://en.wikipedia.org/wiki/Conic_section
 There are 9 conic formats available on the FX9750GII. These are displayed below:



These 9 conic formats can be written and displayed in the 3 formats:

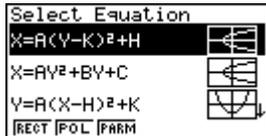


Rectangular Polar Parametric.

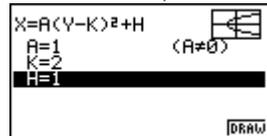
Example:

The conic parabola written as: $x = (y - 2)^2 + 1$

Select the format



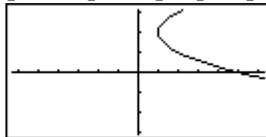
Enter the values of **A**, **H** and **K**



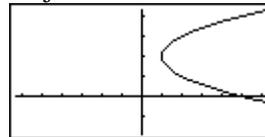
Select an appropriate **View window** **[SHIFT]** **[F3]**



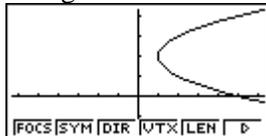
[EXIT] and **[F6]** or **[EXE]** to draw.



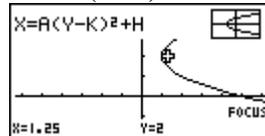
Adjust the **V-window** as necessary.



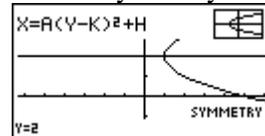
Using **G-Solve** for:



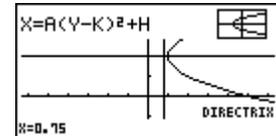
Focus (Foci)



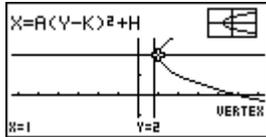
Line of symmetry



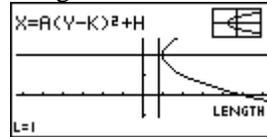
Directrix



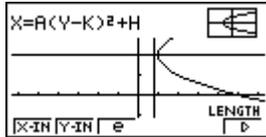
Vertex



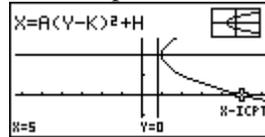
Length



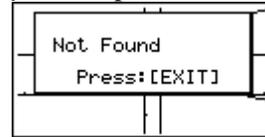
[F6] for ...



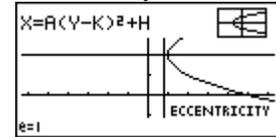
x-intercepts



y-intercepts



Eccentricity



Note:

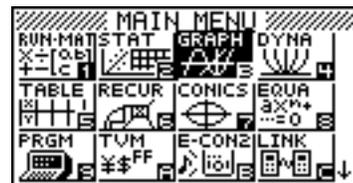
- Other conics have asymptotes as a **G-Solve** feature, e.g. hyperbolae.
- All the **G-Solve** features are the same in each of the Rectangular, Polar and Parametric formats.

Activity - Piecewise Functions

Select GRAPH mode from the main menu by using the arrow keys to highlight the GRAPH icon or pressing 3.

Note: Piecewise functions are little pieces of different functions, restricted in the domain (x -values) for which they are to be drawn on a set of axes.

To restrict the domain values, these bracket types [] are used with comma separators. For example to enter the restricted domain: $-2 \leq x \leq 1$ do this: **Y1 = function, [-2,1]**.



Example:

Draw the graphs of:

$$y = x^2, -2 \leq x \leq 1$$

$$y = -x + 4, 1 \leq x \leq 3$$

$$y = -2, -4 \leq x \leq -2$$

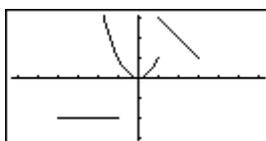
Solution:

Enter the respective functions into the Y1, Y2 and Y3 spaces.

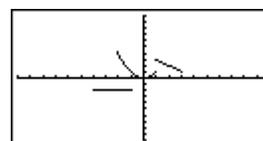


Next, set up the **View-Window** by pressing **shift F3**.

Press **EXIT** then **F6** or **EXE** to draw the graphs.

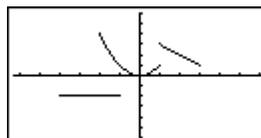


INITIAL setting



STANDARD setting

If you want to, change the **View-Window** to 'zoom' in on the graphs, to get a better picture (view).



You can 'trace' [**SHIFT**] [**F1**] over the graphs by pressing , then use the left, right, up or down arrows to scroll across each of the graphs on the screen.

Note: The calculator cannot distinguish on the graph between the inequalities: $<$ and \leq along with the $>$ and \geq symbols.

Try these:

$$h(x) = \begin{cases} 2, & \text{if } x \leq 1 \\ x, & \text{if } x > 1 \end{cases}$$

$$f(x) = \begin{cases} x^2 & \text{if } x < 2 \\ 6 & \text{if } x = 2 \\ 10 - x & \text{if } x > 2 \text{ and } x \leq 6 \end{cases}$$

A Doctor's fee is based on the length of time:

- Up to 10 minutes costs \$50
- Over 10 to 30 minutes costs \$80
- Over 30 minutes costs \$80 plus \$5 per minute above 30 minutes.

A last word!

Well again, that's all I can fit onto the 4 pages! Enjoy term 2! Hope to see you at some workshops or hear from you 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 us either by snail-mail, email, website, telephone, text or fax.

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