

Graphical Times.

Volume 16, Issue 58, 2016.



Welcome back to school and term 2! We hope that the April break has given you the opportunity to be restful for you. ☺ This newsletter and activity sheets have a number of items of interest. Enjoy!

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: Features of the Classpad ... time to consider?**
- **Worksheet for the FX9750GII and similar models: Using the \log_{ab} (Feature**
- **Worksheet for the FX82AU+II and similar models: Prime factors, LCM and GCF on the FX82AU+II**
- **Term 2 pricing: Valid until the end of Term 2, 2016.**

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 skilling teachers and students in using these mathematics/statistics hand-held and emulator technologies.



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, 330A+ and fx-CP400series. 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>

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

A reminder of the Casio Education NZ 'Top Schools Program' supporting 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 are offered in conjunction with Graphic Technologies in supporting this initiative.

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

Classpad update.

The **new 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

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

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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. These can 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 the 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>

Graphic Technologies Special Promotions for Term 2, 2016.

Some pricing specials, valid until the end of June, 2016.

Product	Price per unit (excl GST)
FX991ES plus emulator software single licence	\$45.00
FX82A+II emulator software single licence	\$45.00
FA-124USB cable [high-speed data communication between PC and the FX9750GII] USB connectivity for file sharing	\$10.00

Terms 2 & 3 2016 - Casio XJM242 Data Projector Promotion.

The winning school is [YOUR SCHOOL NAME COULD BE HERE] and will be receiving this prize in October, 2016. One to give away to schools who purchase products totalling \$200 (excl GST) or more.




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 2016 promotion. For orders or \$200 (excl GST) received between 2nd May, and 1st October, 2016 will go into the draw for winning a XJM242, 2500 ansi lumen, wide screen data projector.

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 term 2's pricing list for more products and specials.

Errors Types that you could face with the FX9750GII

Ma ERROR or Math ERROR: Cause: The calculation result is outside of the allowable calculation range or you are trying to perform an illegal mathematical operation (such as division by zero). **Action:** Check your input values and adjust them to allow the calculation result to be within the allowable range. If you are using memory for your calculation, make sure that you check the memory value.

Syn ERROR or Syntax ERROR: Cause: The calculation expression is the wrong syntax, or the program you are using contains a syntax error. **Action:** Press the ◀ or ▶ key to display the location of the error, and correct it.

Stk ERROR or Stack ERROR: Cause: The calculation you are performing has caused the capacity of the numeric stack or the command stack to be exceeded. **Action:** Simplify your calculation expression. You could also split your calculation expression into two or more parts and execute the parts separately.

Mem ERROR: Cause: You executed a matrix, graphing, or some other operation that caused remaining memory capacity to be exceeded. **Action:** Delete memory data you no longer need. Make sure that the number of variables used in your expression does not exceed the number of variables that are available.

Other error messages may appear to let you know that a calculation you are trying to perform is not compatible with the calculators' current mode (setting), e.g. angle unit, display, or other setting. If this happens, check the **setup** of your calculator and try again.

FX9750GII Activities - Zooming In and Out

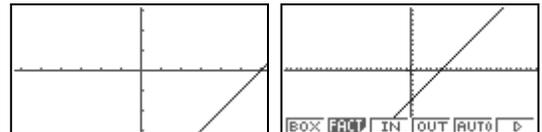
How the calculator can be used to 'zoom in' or 'zoom out' to view a graph to 'fit' onto the screen.

Once you have drawn a particular function, by pressing [SHIFT] [F2] you will activate the 'Zoom' options. This allows the user to zoom in or out from a particular point on the function by a given or specified factor, or from a specific part of the screen.

Example 1: Draw the graphs of $y = x - 6$
Answer: Type in $X - 6$ into the 'Y1 space'
 Press [EXE] to store this equation.



... and [EXE] or [F6] to draw the graph.



To redraw in a 'larger window' then use the ZOOM [SHIFT] [F2] and then OUT [F4] twice.

Example 2: Draw the graphs of $y = 2x - 15$
Answer: Reset the V-window to INITIAL conditions.
 Type in $2X - 15$ into the 'Y1 space'
 Press [EXE] to store this equation.



... and [EXE] or [F6] to draw the graph.

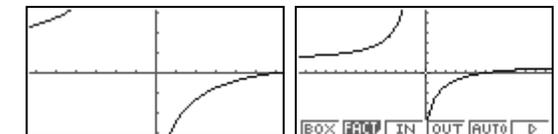


To redraw in a 'larger window' then use the ZOOM [SHIFT] [F2] and then OUT [F4] thrice.

Example 3: Draw the graphs of $y = (x - 6) \div (x + 1)$
Answer: Reset the V-window to INITIAL conditions.
 Type in $(X - 6) \div (X + 1)$ into the 'Y1 space'
 Press [EXE] to store this equation.

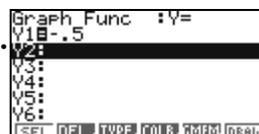


... and [EXE] or [F6] to draw the graph.



To redraw in a 'larger window' then use the ZOOM [SHIFT] [F2] and then OUT [F3] once.

Example 4: Draw the graphs of $y = -0.5$
Answer: Reset the V-window to INITIAL conditions.
 Type in -0.5 into the 'Y1 space'
 Press [EXE] to store this equation.



... and [EXE] or [F6] to draw the graph.



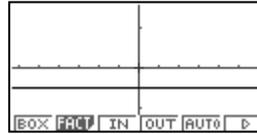
To redraw in a 'larger window' then use the ZOOM [SHIFT] [F2] and then IN [F3] once.

N.B. 1. Once a function has been drawn and you have zoomed in or out, you can activate the **Sketch** option by pressing [SHIFT] [F4]. This allows you to sketch tangents, normals, inverse functions, draw a circle with a specified radius, sketches the vertical and horizontal lines and more!

N.B. 2. The **FACTOR** for zooming in or out can be changed to suit, **[SHIFT] [F2] [F2]** and the graph type been drawn. The **INITIAL** setting is a scaling factor of 2 in both the x and y axes, as illustrated here.



An example is shown below.



Websites of interest.

Most require the education Sector Login: <http://nzmaths.co.nz/digital-learning-objects>

These do not: <http://nzmaths.co.nz/nzmaths-learning-objects-0>

You Tube support search: https://www.youtube.com/results?search_query=FX9750GII

User manual: <http://support.casio.com/manualfile.php?rgn=5&cid=004002013>

FX82AU+II features.

Powers of powers	Absolute value	Random Number generators
2^3^4	$Abs(7-11 \times 2)$	$RanInt(a,b)$
2^{3^4} 2.417851639 x 10 ²⁴	$ 7-11 \times 2 $ 15	$RanInt\#(1,6)$ 5 $RanInt\#(1,6)$ 2
Greatest Common Divisor and Least Common Multiple	Store and recall variables – A~F	Prime factorisation
$GCD(35,28) = 7$ $LCM(9,15) = 15$	Store the number 8 in 'A' space [SHIFT] [Rcl] [-] STO Recall 'A' [Rcl] [-]	1014 [=] [SHIFT] [°"]
$GCD(35,28)$ 7	8 Ans→A 8 8	Fact ($2 \times 3 \times 13^2$)
$LCM(9,15)$ 45	A 8	1014 1014 1014 $2 \times 3 \times 13^2$

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! 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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