

Graphical Times.

Volume 16, Issue 60, 2016.



Welcome back to term 4! We hope that the September/October break has given you the opportunity to be a restful one.

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:** Series for finding Pi
- **Worksheet for the FX9750GII and similar models:** Inverse Normal Distribution calculations – with and without the average given.
- **Worksheet for the FX82AU+II and similar models:** Estimating Pi
- **Term 4 pricing and Back to School Pricing:** Valid until the end of February, 2017.

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 acknowledging 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 classroom technologies.



Worksheets downloaded off the web.

Visit Monaco Corporation and Graphic Technologies websites to view and download worksheets and activities or past newsletters. There are links to other 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, for your preparation for 2017, of the Casio Education NZ 'Top Schools Program' supporting schools using the FX82AUplus II scientific and FX9750GII graphic calculators. The goal for 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. Register now for 2017, if you have not already done so.

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

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

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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. 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 4, 2016 and 'back to School', until February 2017.

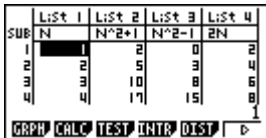
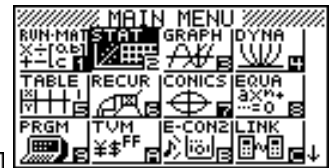
Some pricing specials, valid until the end of February, 2017, while stocks last.

Product	Price per unit (excl GST)
FX9750GII graphic calculator (monochrome) RRP \$159.95	\$80.00
FX82AU+II scientific calculator RRP \$39.95	\$19.00

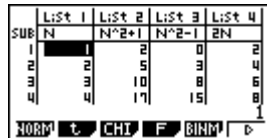
FX9750GII Activities

A. Binomial distribution calculations in STAT Mode.

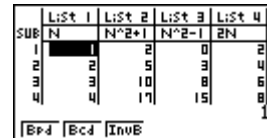
Select the **STAT** icon from the **Main Menu** by using the arrow keys to highlight the **STAT** icon followed by **[EXE]** or pressing 2.



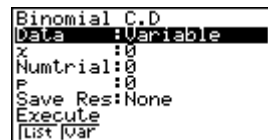
Entry from MAIN MENU
F5 for DISTributions



F5 for BINomial Distribution



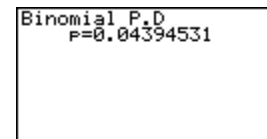
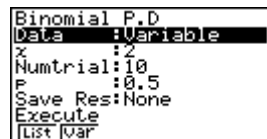
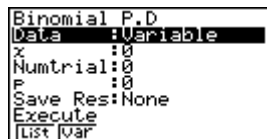
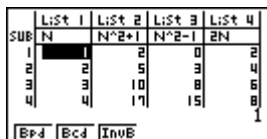
F1 for Binomial Probability Distribution
F2 for Binomial Cumulative Distribution
F3 for Inverse Binomial Distribution



Change the data selection from **List** to **VARIABLE** - press **F2**.

Example 1: Calculate the probability that from 10 trials there are two successful outcomes and the probability of a success is 0.5.

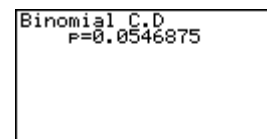
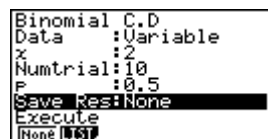
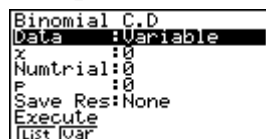
Here X = 2, p = 0.5 and n = 10. Select **Bpd [F1]** for a single Binomial Distribution probability calculation.



Answer: Probability = 0.0439 (4 dp).

Example 2: Calculate the probability that from 10 trials there are at most two successful outcomes and the probability of a success is 0.5.

Here X = 0, 1 or 2, p = 0.5 and n = 10. Select **Bcd [F2]** for a Binomial Cumulative Distribution calculation.



Answer: Probability = 0.0547 (4 dp).

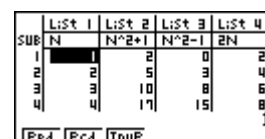
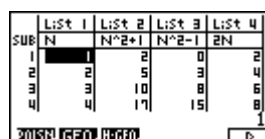
Checking in **RUN MODE**.



Similarly these types of calculations can be done for the Poisson Distribution – See below (Part B).

B. Poisson distribution calculations in STAT Mode.

Select the **STAT** icon from the **Main Menu** by using the arrow keys to highlight the **STAT** icon followed by [EXE] or pressing 2.

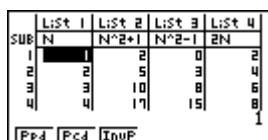


Entry from MAIN MENU

F6 for more choices

F1 for Poisson Probability Distributions

F5 for DISTributions



F1 for Poisson Probability Distribution

Change the data selection from **List** to **VARIABLE** - press **F2**.

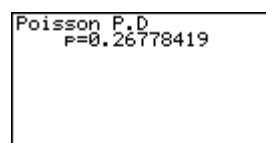
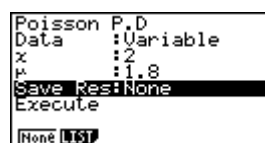
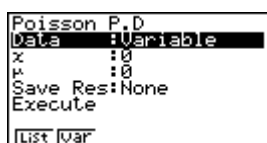
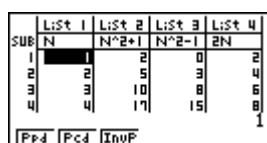
F2 for Poisson Cumulative Distribution

F3 for Inverse Poisson Distribution

Example 1:

Calculate the probability that from a carpet of size 1 square metre will have 2 flaws and the carpet generally has on average 1.8 flaws per square metre?

Here $X = 2$ and $\lambda = 1.8$ Select Ppd [F1] for a single Poisson Distribution calculation.

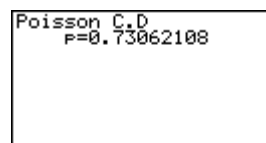
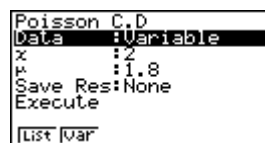
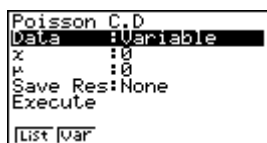
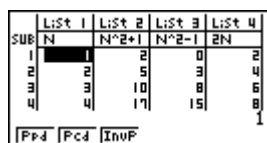


Answer: Probability = 0.2678 (4 dp).

Example 2:

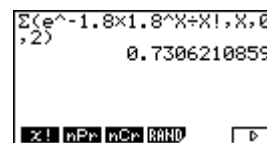
Calculate the probability that from a carpet of size 1 square metre will have at most 2 flaws and the carpet generally has on average 1.8 flaws per square metre?

Here $X = 0, 1$ or 2 and $\lambda = 1.8$. Select Pcd [F2] for a Poisson Cumulative Distribution calculation.



Answer: Probability = 0.7306 (4 dp).

Check in **RUN MODE**.



C. Piecewise graphs.

Select the **GRAPH** icon from the **Main Menu** by using the arrow keys to highlight the **GRAPH** icon followed by [EXE] or by pressing the [3] key.

Note: Piece wise 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.



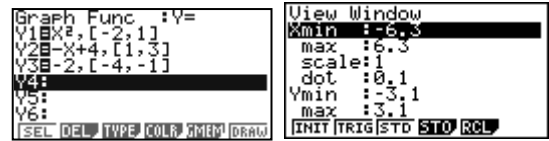
Example: Draw the graphs of: $y = x^2, -2 \leq x \leq 1$

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

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

Answer: Enter the functions in the Y1, Y2 and Y3 spaces.

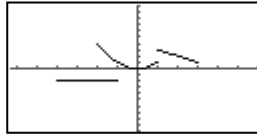
To restrict the domain values [] are used.



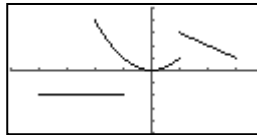
Next, set up the **View-Window** by pressing **SHIFT**

Then **F1** for **INITIAL V-WINDOW**.

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



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



You can 'trace' over the graphs by pressing **SHIFT F1** (for Trace), then use the left, right, up or down arrows to scroll each of the graphs drawn.

[A focus on interactive with probability concepts](#)

<http://mrnuissbaum.com/probfair/> Students will learn the practical application of the concept of probability by playing carnival games.

<http://www.mathplayground.com/probability.html> Spin a spinner and tally the results.

<http://www.shodor.org/interactivate/activities/ExpProbability/> Experimental Probability.

[A helping hand](#)

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

[Guess my number – introduction to ALGEBRA](#)

[http://www.wikihow.com/Read-Someone's-Mind-With-Math-\(Math-Trick\)](http://www.wikihow.com/Read-Someone's-Mind-With-Math-(Math-Trick))

<http://www.learn-with-math-games.com/math-number-tricks.html>

<http://brobible.com/life/article/numbers-guessing-mind-reader-trick/2/>

<http://www.pedagonet.com/math/phonemath.htm>

<https://blog.udemy.com/number-tricks/>

[A last word!](#)

Well again, that's all I can fit onto the 4 pages! Enjoy term 4! 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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