

Graphical Times.

Volume 18, Issue 67, 2018.



Welcome back to school for term 3, 2018! ½ way through the year and the MoE are reviewing NCEA, NZQA are reviewing NCEA, the Networks of Expertise is beginning to form to support the Mathematics and Statistics whanau across Aotearoa.

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: Binomial Distribution**
- **Worksheet for the FX9750GII and similar models: Dynamic Graphing**
- **Worksheet for the FX82AU+II and similar models: How do I use my calculator to do...?**
- **Term 3, 2018 pricing: Valid for term 3, 2018, i.e. until 14/10/2018.**

Workshop opportunities

Workshop opportunities: If you would like to have a workshop for teachers and or students then please 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 taken the opportunity to upskill 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 the fx-CP400 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>

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

A reminder of the Casio Education NZ Top Schools Program which supports schools using the FX82AU+II and FX9750GII 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 2019, if you have not already done so. Further 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 updates

The ClassPad [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. The **eActivities** are a great way to store procedures and activities. These can be downloaded and sent from the handheld ClassPad to another handheld ClassPad 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 3, 2018

Some pricing specials, valid until 20th October, 2018.

Product	Price per unit (excl GST)
FX991ES plus emulator software single licence Only 1 left Special	\$50.00
FA9860B emulator software school licence [FX9750GII] Only 1 left Special	\$600.00
FX82A+II emulator software single licence Only 1 left Special	\$50.00
ClassPad330 individual user PC licence Only 1 left Special	\$170.00
AAA Batteries Card of 4 (Minimum of 12 cards (48) an order) Special price for term 3	\$4.50
AA Batteries Card of 4 (Minimum of 12 cards (48) an order) Special price for term 3	\$4.50
Back up battery CR2032 [for graphic calculator] Special price for term 3	\$1.25
Buy in multiples of 10 FX9750Gii and receive one free FA-124 USB cable Special price for term 3	\$950.00 per 10 FX9750Gii

Terms 2 & 3, 2018 - Carry Bag & Exilim Digital Camera Promotion

The winning school is [YOUR SCHOOL NAME COULD BE HERE] will be receiving this randomly drawn prize in November, 2018. A CASIO Carry Bag and Exilim Camera.

To go into the draw, schools need to purchase products totalling \$200 (excl GST) or more over these 2 terms.

[NOTE: Multiple purchases = Multiple entries.]



FX9750GII Activities

Practicing Resetting the CASIO fx-9750GII for assessment purposes

1. From the **MAIN MENU**, highlight the **SYSTEM** icon and press [**EXE**] or press [**cos**].
2. Press [**F5**] (**RSET**) to reset the memory.
3. Select [**F2**] (**MAIN**) to reset the main memories, for assessment purposes.
4. Press [**F1**] (**Yes**) to reset the memory on the calculator.

5. Press [EXIT] when the calculator is complete.
6. To return to the MAIN MENU, press [MENU].

Resetting the CASIO fx-9750GII for testing purposes

1. From the Main Menu, highlight the SYSTEM icon and press [EXE] or press [COS].
2. Press [F5] (RSET) to reset the memory. If your screen does not match the one shown, press [EXIT] until it does.
3. Select [F2] (MAIN) to reset the main memories, for testing purposes.
4. Press [F1] (Yes) to reset the memory on the calculator.
5. Press [EXIT] when the calculator is complete.
6. To return to the Main Menu, press [MENU].



The screenshots show the following sequence of screens:

- MAIN MENU:** A grid of icons including TABLE, RECUR, CONICS, EQUA, etc. The SYSTEM icon is highlighted.
- System Manager:** A list of options: F1: Contrast, F2: Power Properties, F3: Language, F4: Version, F5: Reset. The [F5] RSET option is selected.
- RESET CONFIRMATION:** A screen with the text: "***** RESET *****", "F1: Setup Data", "F2: Main Memories", and "STOP MAIN".
- RESET OK?:** A screen asking "Reset OK?" with options "F1: Main Memories" and "F2: Main Memories". The "Yes: [F1]" option is selected.
- RESET!:** A screen with the text "Reset!", "F1: Main Memories", and "Press: [EXIT]".

Useful websites

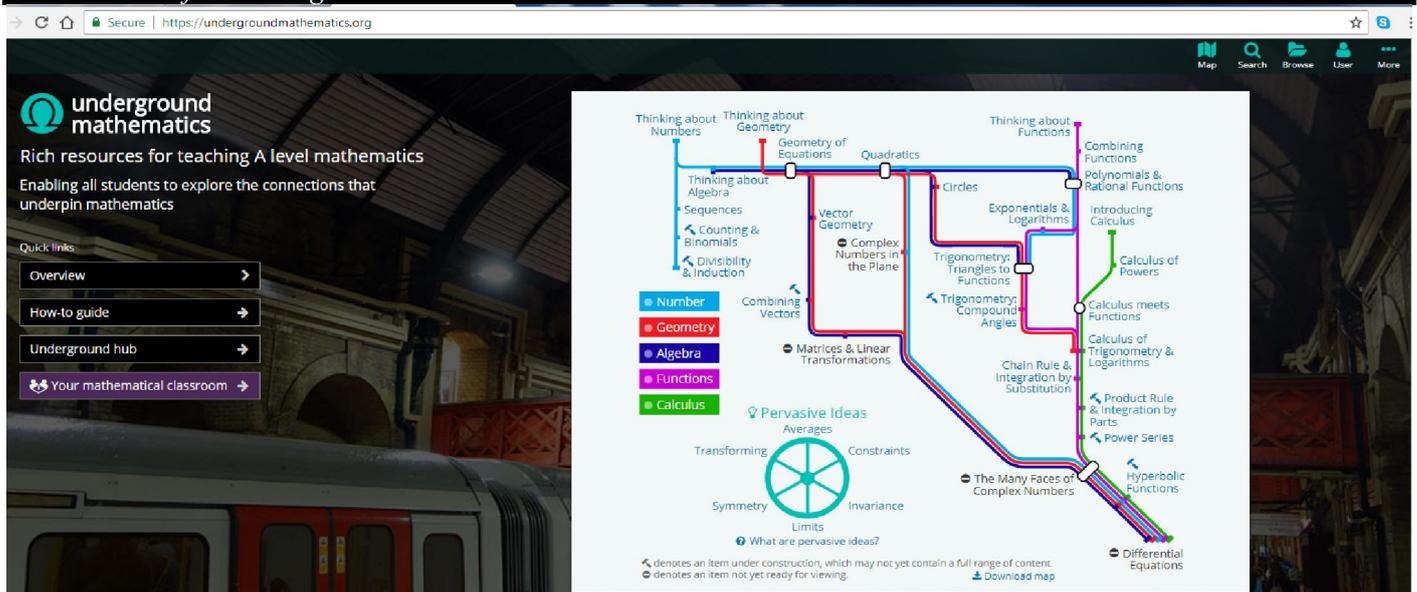
<http://www.sympy.org/en/index.html>

<http://docs.sympy.org/latest/index.html> SymPy is a Python library for symbolic mathematics.

https://students.mathsnz.com/nzgrapher/nzgrapher_a_1.html Videos are based on graph type and Achievement Standard.

<https://undergroundmathematics.org/> The Menu is hyperlinked, taking you to the topic and activities.

Rich resources for teaching A level mathematics



The screenshot shows the website interface with the following elements:

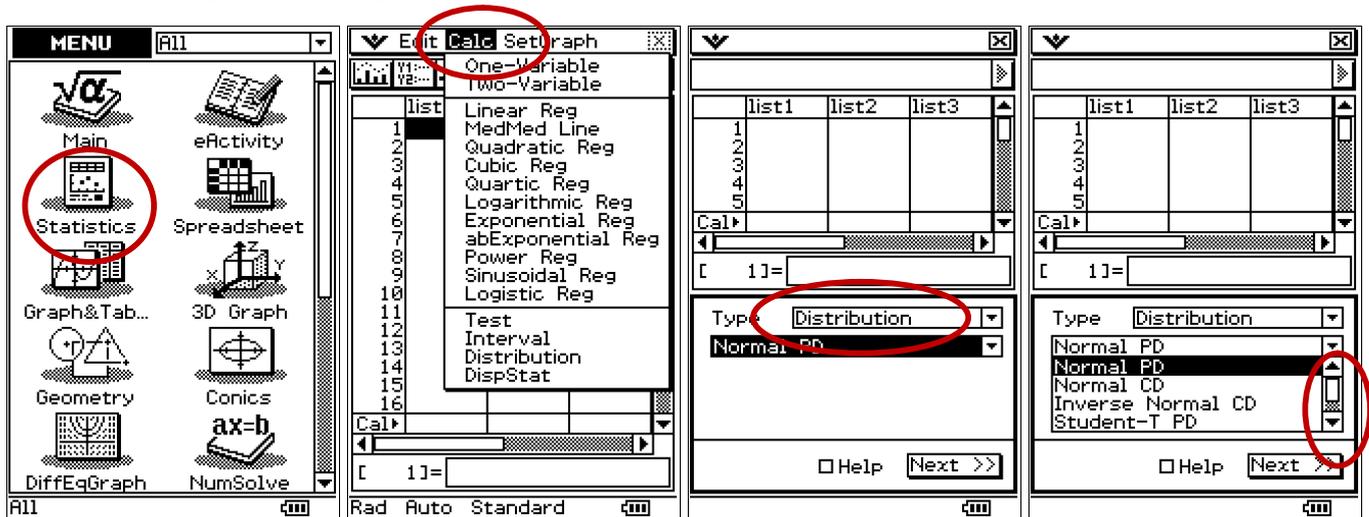
- Header:** "underground mathematics" logo and tagline "Rich resources for teaching A level mathematics".
- Navigation:** "Quick links" section with buttons for Overview, How-to guide, Underground hub, and Your mathematical classroom.
- Main Content:** A large diagram titled "The Menu" showing interconnected mathematical topics. The diagram is color-coded by subject:
 - Number:** Thinking about Numbers, Sequences, Counting & Binomials, Divisibility & Induction.
 - Geometry:** Thinking about Geometry, Geometry of Equations, Quadratics, Circles, Exponentials & Logarithms, Trigonometry: Triangles to Functions, Trigonometry: Compound Angles, The Many Faces of Complex Numbers, Hyperbolic Functions, Differential Equations.
 - Algebra:** Thinking about Algebra, Vector Geometry, Complex Numbers in the Plane, Matrices & Linear Transformations, Combining Functions, Polynomials & Rational Functions.
 - Functions:** Thinking about Functions, Calculus meets Functions, Calculus of Trigonometry & Logarithms, Product Rule & Integration by Parts, Power Series.
 - Calculus:** Introducing Calculus, Calculus of Powers, Chain Rule & Integration by Substitution.
- Pervasive Ideas:** A central wheel diagram with segments for Averages, Constraints, Symmetry, Invariance, Limits, and Symmetry.
- Footer:** Legend for icons (under construction, not ready for viewing, download map) and a "What are pervasive ideas?" link.

Binomial Probabilities (& others) on the ClassPad

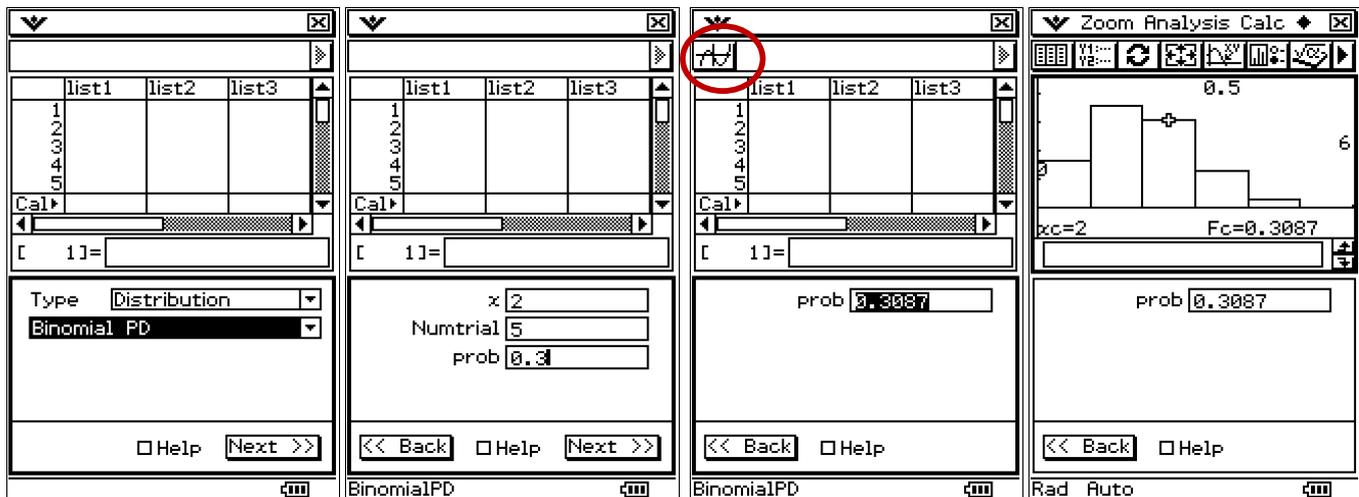
Let Y be the number of successes in n trials of some action for which the binomial assumptions hold. If p is the probability of one success in a single trial then:

$$P(Y = r) = \binom{n}{r} p^r (1-p)^{n-r} \quad P(Y \leq r) = \sum_{k=0}^r \binom{n}{k} p^k (1-p)^{n-k}$$

To compute a binomial probability (single or cumulative) the ClassPad offers a user friendly wizard to calculate single and cumulative probabilities. Go to the **STATISTICS** application and the **Calc** menu and then tap **Distribution**. You can use the wizard to compute the required probabilities and also graph the distributions associated with these (which are also traceable by using the left and right arrows).



Scroll to select then tap 'Next'.



Tap the graph icon [top left]  for the distribution.

Similar setups can be made for: Normal CD, Inverse Normal CD, Binomial PD, Binomial CD, Inverse Binomial PD, Poisson PD, Poisson CD, Inverse Poisson PD,...

A last word!

Well again, that's all I can fit onto the 4 pages! Enjoy term 3! 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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