fxNEWS
Support for all Casio fx-9860G models

Programs

This edition of fxNews contains 31 programs in file **PROG06V1.g1m**

Programs are designed to enhance the capability of the fx-9860 graphics calculator. Some programs are simply utilities to speed students through their tests ands exams. Programs such as FINDRULE and TRISOLVE come to mind here.

Other programs set out to help the learning process, often taking the tedium out of repetitive calculations and keeping the focus on the bigger picture. SIMPLOTS is an example here. When an attempt is made to use the simultaneous equation solver with the equations $2x - 3y = 6$ and $4x - 6y = 8$ the reason for resulting Ma ERROR may not be immediately obvious to many students. Running SIMPLOTS illustrates the failure by automatically graphing the two lines entered.

This collection includes a whole bunch of Year 10 and 11 favourites such as FINDRULE, GP, LINEAR, TRISOLVE, SURDSIMP, QUADSOLV, LATLONG and 2PT LINE together with a stack of simulation programs for lower school such as DICE and DECAY. DICE simulates the throwing of a pair of dice 250 times, displaying a column graph of the results after each throw whilst DECAY simulates radioactive decay by throwing an n-sided dice for each of x atoms that decay with probability 1/n every year.

Below is a brief description of each program.

Name	Description
2PT LINE	Enter coordinates of two points using F1 and F2 and then choose any of gradient, midpoint, distance and equation of line.
CARDS	Simulation of drawing 100 cards from a shuffled pack and associated probabilities.
CHUCK	Chuck-a Luck game simulation. Pick a number from 1 to 6 and see how many of the same you get when 3 dice are tossed.
COIN	Simulation that counts number of H and T when a coin is tossed.
CONE	Investigation into volume of a cone as slope length and vertex angle are both varied.
CRAPS	Simulation of the classic Craps game. You can choose the amount in the bank and size of bet.
CRICKET	Simulation of dice cricket. A wicket falls when 5 is rolled.
CUMPROB	Simulates long run (100 trials) experimental relative frequency for an event with probability P.

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DECAY Simulates radioactive decay of anywhere between 1 to 1000 atoms by throwing an n-sided dice. Probability that an individual atom decays = 1/n every year. Decay continues until all radioactivity has ceased. Results summarized in table and graph.

DICE Simulation of tossing a pair of dice up to 250 times. Column graph grows as the experiment progresses. Results summarized in table.

DIE Simulates tossing a single die up to 96 times. Live update of count.

DIST Distance over surface of earth (assumed to be perfect sphere) between A and B given their Lat and Long.

DOUBLE6 Counts number of double 6's in up to 250 tosses of a pair of dice, recording each toss in Lists 1 and 2.

FINDRULE Finds best rule (from linear, power, quadratic or exponential) when at least 2 points stored in Stats List1(x) and List2(y).

FOOTY Simulates 4 quarters of a footy game.

GP Solves and/or tabulates geometric progressions.

GRAPHEQN Practice in working out gradient and y-intercept for y=mx+c from a graph.

INEQSOLV Solves single variable (linear) inequalities in the form $ax + b < cx + d$.

LATLONG Solves latitude and longitude problems - both distance from A to B or position after traveling given distance from A.

LINEAR Equation of a straight line from gradient and point or two points.

MARKS Start by entering the maximum mark, then enter student mark(s) for immediate conversion to %. To finish, enter a mark greater than the maximum. The class average is then displayed.

MEANMED Little utility to calculate mean and median for single data set without going into STAT mode.

PERPBSCT Calculates and draws the perpendicular bisector of any two points.

QUADEQN Calculates equation of a parabola from three points.

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QUADSOLV Enter quadratic in any form and have it converted into standard, completed square and factored (where possible) forms. Roots (real or complex) given as both exact and decimal values.

RIGHTTRI Right-triangle solver when angle and one of sides is known. Draws triangle to illustrate solution.

SAVOL Solves surface area and volume problems for most prisms, pyramids, cones, spheres and cylinders.

SIMPLOTS Takes simultaneous equations (2 variables) with coefficients already entered in SOLV SIML [2] and graphs them to assist in interpretation of solution.

SURDSIMP Simplifies several common types of surd expressions.

TRAPRULE Calculates area beneath a curve using trapeziums. Store function in Y1 first. FIRST is LH bound. LAST is RH bound. WIDTH is width of trapeziums. Uses Lists 1 to 3 for working.

TRISOLVE Enter known sides or angles and program solves the triangle and calculates the area. (Including ambiguous case of sin rule).

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