



hp calculators

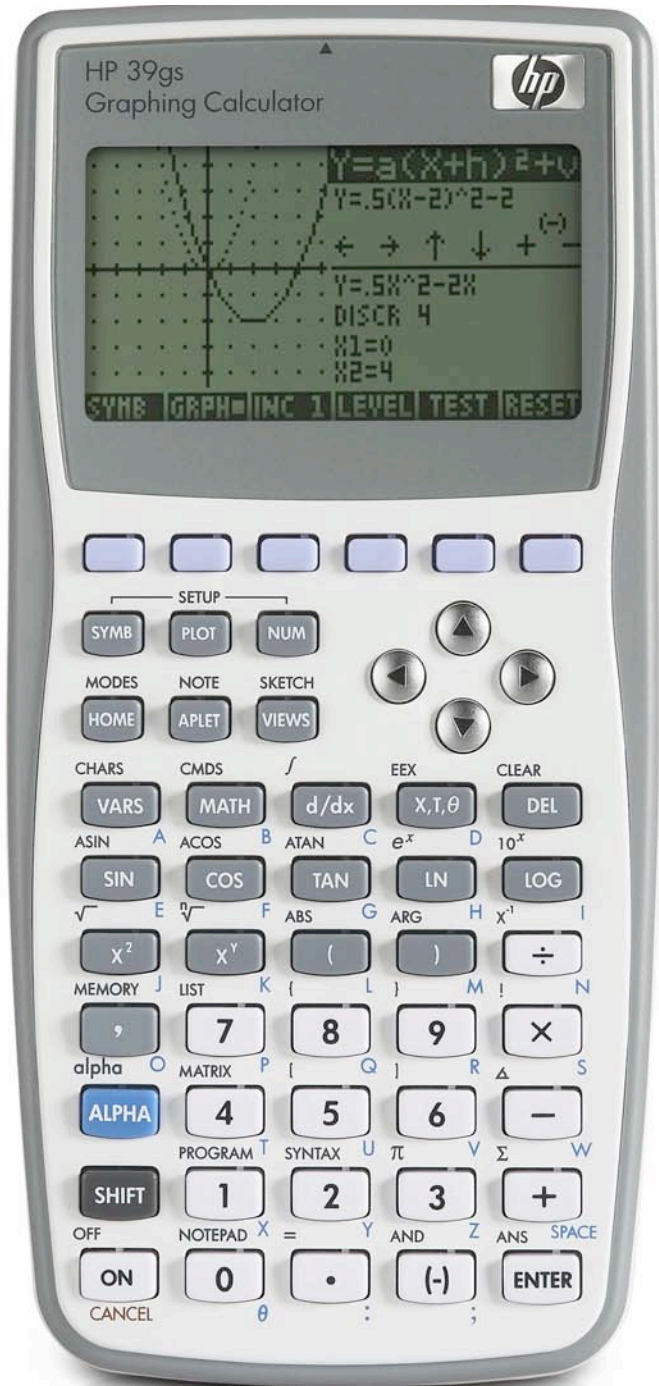
HP 39gs Aplets and e-lessons

Saving aplets for re-use

How do I save my work to a PC?

What are e-lessons?

These are great! How do I find more?



Saving aplets for re-use

An aplet containing data can be saved for later re-use and/or transmitted to another calculator. This is done in the APLET view using the SAVE and the SEND/RCV buttons.

For example, suppose we are dealing with probability distribution functions and performing calculations of individual and cumulative Binomial probabilities as in the example below.

Quality testing indicates that the chance of a defective component in a batch of computer components is 0.35%. In a container containing 100 components, find the probability that there are i) no defectives, and ii) at most three defective.

Enter the equations shown right into E1 & E2 of the Solve aplet. The Summation character is found on the + key. The COMB function is found in the Probability section of the MATH menu.

E1: $P = \text{COMB}(N, X) * S^X * (1-S)^{(N-X)}$
E2: $P = \sum_{J=0, X, \text{COMB}(N, J) * S^J * (1-S)^{(N-J)}$
 where N = number of trials
 S = probability of success
 X = number of successes
 P = probability of X successes in E1
 or P = probability of at most X successes in E2

Change to the APLET view (see Figure 1), ensure that the Solve aplet is highlighted, and then press the SAVE button. Enter the new name of BINOMIAL (see Figure 2) and press ENTER. The new named aplet is now shown in the aplet library (see Figure 3). Note that pressing A...Z (screen key 4) will lock alpha mode for easier typing.

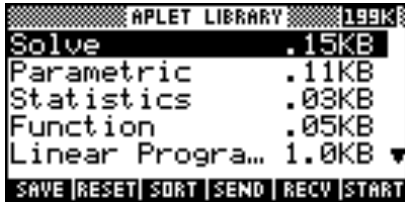


Figure 1



Figure 2



Figure 3

If desired, the original Solve aplet can now be RESET.

The original problem can now be solved. In the APLET view, highlight Binomial and START it. Ensure that E1 is the active equation as shown below.

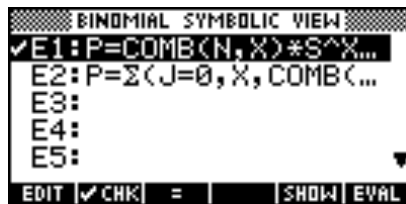


Figure 4

hp calculators

HP 39gs Aplets and e-lessons

Change to the NUM view and enter the known values of $N=100$, $X=0$ and $S=0.0035$ (3.5%). Highlight P and press SOLVE. You should find that the probability of zero defects is approximately 0.7042.

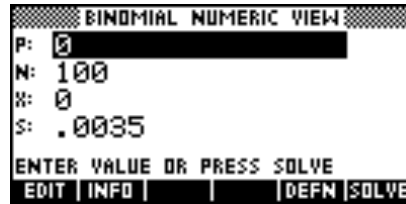


Figure 5

Return to the SYMB view and check/tick the second equation E2 as shown right. Change the value of X to 3 and then re-SOLVE for P. You should find that is 0.9995.

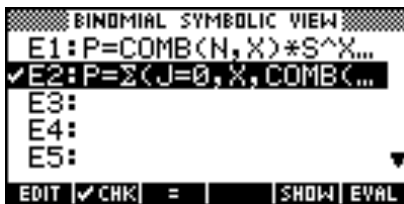


Figure 6

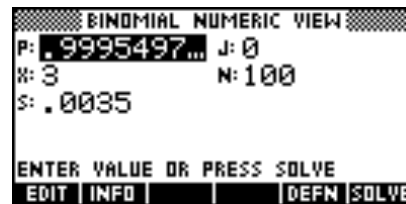


Figure 7

This aplet can now be sent to other calculators using SEND. Change to the aplet view and highlight the Binomial aplet.

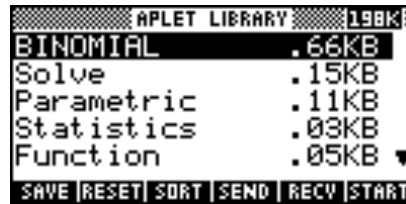


Figure 8

Line the other calculator up so that the infrared beam sent from the port at the top of your calculator (as in the arrows shown right) will enter the port on the second calculator. On your calculator, press SEND and choose the option of transmitting to another hp 39gs using infrared (IrDA). Press RECV on the other calculator and choose the same option of hp 39gs. The two calculators must be within 5 to 8 cm (2 to 3 inches) to be able to exchange information. Press ENTER on both to begin the transfer.

How do I save my work to a PC?

To interface with a computer, the hp 39gs uses the USB port instead because many modern computers no longer have a serial port. The cable is supplied with your hp 39gs.

Software to enable you to interface with the computer is available free from HP. The program is called Conn4x.exe and is available at www.hp.com/calculators on the hp 39gs webpage. Check Hewlett Packard's site for a Macintosh version.

To use the program, you should connect your calculator to the computer using the cable and then use the facilities provided by the program to either locate the file(s) you want to download to the calculator, or to choose a directory to which you want to store your files.

Once the directory is chosen then you should press SEND (or RECV) and choose the "Disk drive..." option from the menu. Objects can be sent to the computer using SEND and retrieved from the computer using RECV.

Many views have send/receive ability. When you use RECV, a list of available items will be sent to the calculator and displayed in a menu from which you can choose.

hp calculators

HP 39gs Aplets and e-lessons

Only those items which can be stored in the particular view you are working in are displayed. For example, only programs are displayed in the Program Catalog and only aplets and e-lessons in the APLET view.

A far more detailed explanation of this topic is available in an extensive help file from the Utilities page of the HP Home View website at <http://www.hphomeview.com>.

What are e-lessons?

E-lessons, or electronic lessons, are special aplets which aid in learning a concept or in the performance of a task. The terms aplet and e-lesson are interchangeable but e-lesson is particularly used for aplets intended for use in teaching and learning. The aplets Quad Explorer and Trig Explorer are two examples of e-lessons that were so often downloaded and used by owners of earlier calculators, that they were built into the hp 39gs.

Quad Explorer (figure 9) lets you investigate $y = a(x + h)^2 + v$. Users can change the values of a, h and v and observe the effect on the graph. Similarly the Trig Explorer e-lesson (figure 10) allows you to explore trigonometric graphs.

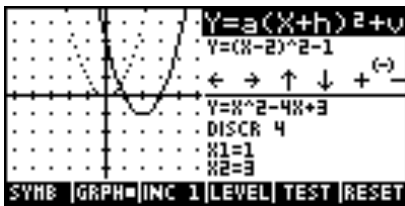


Figure 9

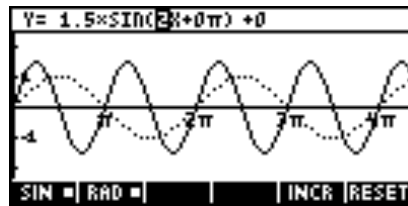


Figure 10

In addition to the two e-lessons built into the calculator it is also possible to download additional aplets and e-lessons from the internet. A sample of these is given below.

The Curve Areas e-lesson (figure 11) allows students to discover the process of integration by finding rules for areas under curves using rectangular approximations. Downloading the Linear Programming aplet (figure 12) will let you quickly and easily solve Linear Programming (Optimization) problems.

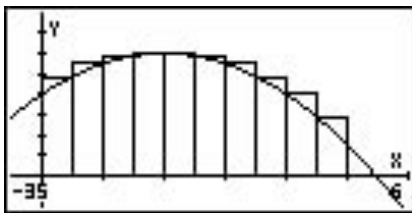


Figure 11

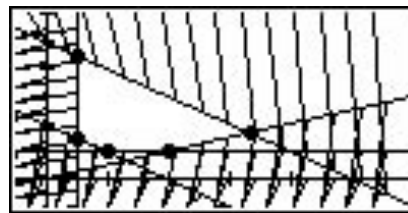


Figure 12

Using aplets you can explore the unit circle definition of the sine graph (figure 13) or trace the slope of a tangent as it moves along your function (figure 14).

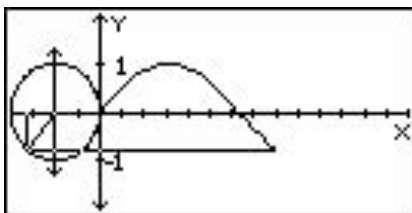


Figure 13

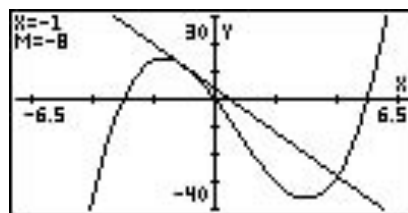


Figure 14

hp calculators

HP 39gs Aplets and e-lessons

Analysis of time series data is far easier with the aid of the Time Series aplet (figures 15 and 16). It allows you to perform 3, 4 and 5 point moving averages, to graph the results and to analyze the data to find seasonal components.

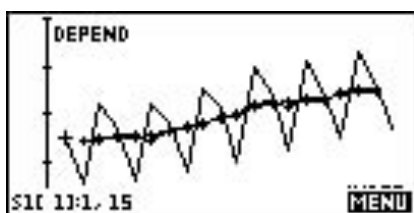


Figure 15

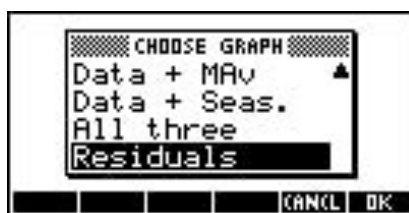


Figure 16

A histogram can be overlaid by a Normal curve quickly and easily with the aid of a program (figure 15).

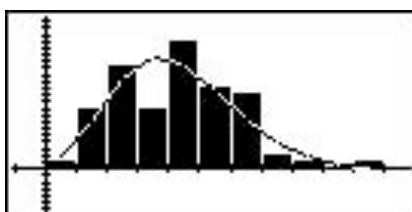


Figure 15

A histogram can be overlaid by a Normal curve quickly and easily with the aid of a program.

The aplets on the previous pages and many more can be found in the HP Select collection on Hewlett Packard's website at <http://www.hp.com/calculators>.

In addition to this there are web sites around the world which are maintained by teachers, students and other enthusiasts. Many of these contain not only aplets, programs and e-lessons but even games!

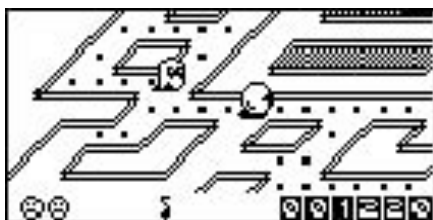


Figure 16

Notes

1. When using aplets from these web sites one should always bear in mind that they may have bugs in them which can cause loss of data on your calculator. Backing up any important data is a good idea. HP provides no warranty of any kind regarding any third party applications.
2. It is not possible for an aplet to physically damage your calculator, nor is it possible to download a virus to your calculator. At worst if a program misbehaves you can simply reset your calculator and return it to the factory default settings.

Miscellaneous Links

The HP Select collection <http://www.hp.com/calculators>

The HP Home view <http://www.hphomeview.com>