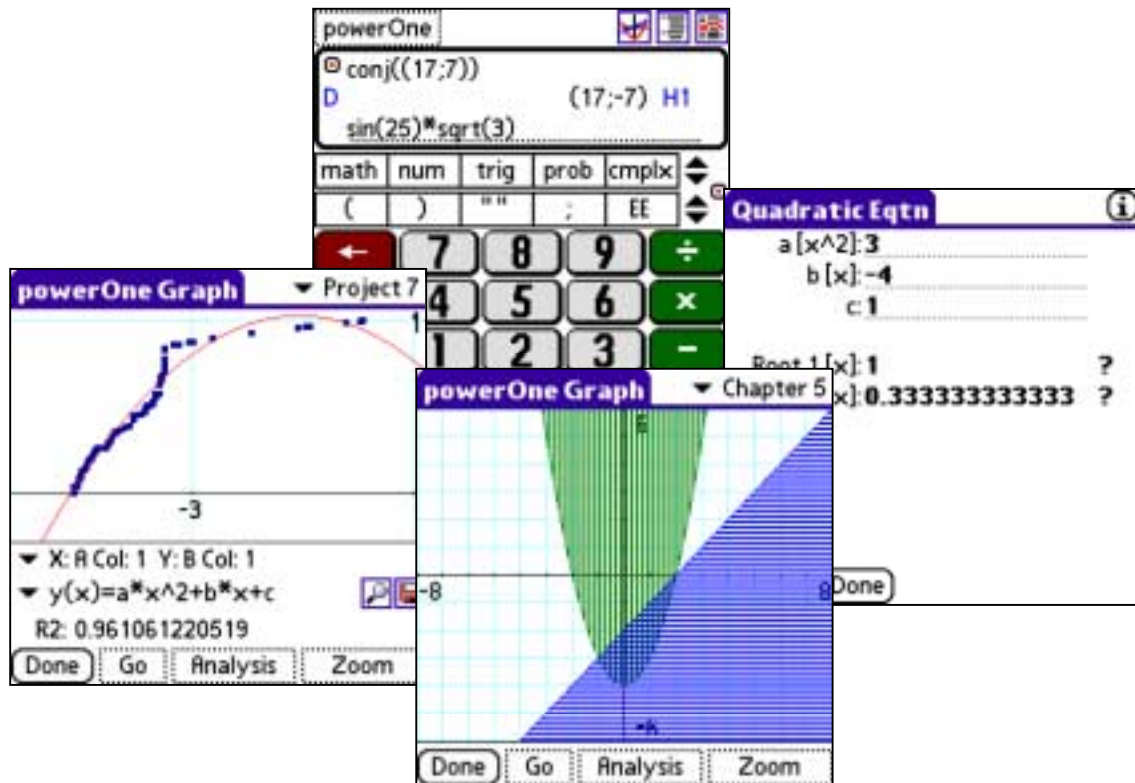


Learning About powerOne™ Graph v4

Prepared by Infinity Softworks

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Why powerOne Graph?

powerOne Graph graphing-scientific calculator has similar functionality to the popular TI-83 calculator used in almost all high schools and many middle schools and colleges. Infinity Softworks has focused on ease-of-use, making it possible to focus on key concepts instead of keystrokes.

powerOne Graph has a suggested Retail Price of only US\$59.99, half the list price of a TI-83 calculator. Education pricing and volume purchases can reduce this price significantly. When combined with a Palm OS handheld device, students gain the power of a handheld computer in every classroom without losing their calculator.

How much does powerOne Graph cost?

When bought by an individual, powerOne Graph is US\$59.99 and can be purchased by calling Infinity Softworks at 800-811-8071 or by visiting our web site:

<http://www.infinitysw.com>

Volume pricing is also available. Please contact Infinity Softworks directly or an associated volume reseller such as AlphaSmart (<http://www.alphasmart.com>), Scantron (<http://www.scantron.com>) or K-12 Handhelds (<http://www.k12handhelds.com>).

Infinity Softworks offers a 75% discount for educators and school administrators. For US\$15.00, school professionals can purchase a personal evaluation copy. Infinity Softworks reserves the right to ask evaluators for product feedback and/or assistance in writing case studies about how powerOne Graph is used in the classroom. For more details, visit <http://www.infinitysw.com/educator>.

Who is Infinity Softworks?

Infinity Softworks has been the premier developer of calculator and analysis software for mobile professionals and students since 1997 and has a reputation for high-quality, high-function software. We are dedicated to education. The Infinity Softworks product line includes the powerOne line of calculators with versions for graphing, scientific, and financial calculations, and calculator versions for specific markets such as commercial real estate. We have bundled entry-level calculators with Palm, Handspring and Sony devices for the past four years.

Leading industry publications and reviewers have recognized Infinity Softworks' graphing and financial software. In 2002, Infinity Softworks' powerOne Graph received a Technology & Learning Magazine Award for Excellence. In addition, Infinity Softworks' software has won awards from leading handheld computer publications such PalmPower Magazine and Handheld Computing Magazine.

Which devices does powerOne Graph support?

powerOne Graph runs on any Palm OS device that has operating system version 3.1 or later. The only Palm OS devices not supported are the original Pilot 1000 and 5000, the PalmPilot Personal and Professional and the Palm III. The Infinity Softworks line of calculators supports all currently marketed Palm OS devices.

powerOne Graph supports low resolution displays (160x160), high resolution displays (320 x 320), long format displays (320 x 480) and AlphaSmart Dana's wider screen (160 x 520).

What are the differences between powerOne Graph v4 and a TI-83?

Functionally, powerOne Graph is more advanced than the TI-83. Beyond the TI-83, powerOne Graph includes the following:

- Color graphing to enhance learning.
- Improved methods for fitting regression models.
- Advanced math functions not available in the TI-83.
- An innovative template format for equation solving for algebra and scientific investigation.
- Technology for moving data, graphs and templates between handhelds, desktop software and third-party applications such as word processors, scientific probes and spreadsheets.
- A variety of conversion, date and time, and business calculations.

While functionally powerOne Graph is more advanced, there are two core areas that are handled differently. One is programming. While powerOne Graph does not offer a programming language per-say, it does offer template creation, which requires programming level controls. In addition, there are compilers developed specifically for the Palm OS for programming languages including BASIC, C and Java. The second is implicit multiplication. powerOne Graph requires multiplication to be explicitly designated.

How do I demonstrate powerOne Graph in the classroom?

There are several options for demonstrating powerOne Graph. One is to use the Palm OS Emulator or Simulator running on a desktop or laptop computer to demonstrate the software (<http://www.palmsource.com>). A second option is to use a video display technology such as an Elmo projector (<http://www.elmoussa.com>). The best option is the use of presentation software (i.e., PowerPoint and Mirror) running on the handheld and connected to an overhead projector. This technology is available from Margi Systems (<http://www.margi.com>) and Mobility Electronics (<http://www.mobilityelectronics.com>).

How do I obtain a demonstration version of powerOne Graph?

Infinity Softworks offers a fully functioning, 30-day trial version at:

<http://www.infinitysoftworks.com/products/demos.html>

Can I use powerOne Graph on the SAT, ACT, AP or regional examinations?

Today, it is unclear whether powerOne Graph can be used on state or national exams. However, for SAT and ACT exams, only a simple four-feature calculator is required. Check with test administrators to make sure calculators are allowed.

What do people think of powerOne Graph?

"There is a change happening in schools. Teachers spend as much time teaching technology as they do teaching lessons. In each classroom, a different technology is used: calculators for math and business, probes for science discovery, computers to type essays, paper forms to take tests. By consolidating these technologies onto a single, multi-purpose device, teachers can focus once again on teaching. Infinity Softworks' [software] brings math, business and science classes a step closer to using these multi-purpose Palm computers." – Mike Lorion, VP Education, Palm Inc.

"Our Technology Department has long realized the power of a PDA in the classroom, but we have struggled to find graphing calculator software that is functionally comparable to the TI-83 device. powerOne Graph is it! Thanks to the graphing software, we are introducing PDA's to our high school students." – Lorin Somerlot, Technology Coordinator, New Albany High School in Ohio.

“powerOne Graph has the features needed for all years of college level math and science classes, yet it is easier to use than other calculators I’ve used.” – Dr. John Lattanzio, Astrophysics Professor, Monash University.

“I’ve always thought it was silly to grab my TI-83 whenever I had to do ‘real’ math; now I use powerOne Graph with my Palm device.” – Andy Fundinger, Student, Stevens Institute of Technology.

“According to Bruce Gustin [a master teacher at Terra Linda High School in San Rafael, CA], schools that adopt handheld technology will find the addition of the graphing calculator in secondary math and science education to be an easy decision. He encourages teachers who currently use graphing calculators such as the TI-83 to consider the use of a handheld with an onboard graphing calculator like powerOne Graph. The powerOne Graph application has played a major role in the success of this project.” – excerpt from *The Power of ONE*, a case study featuring Terra Linda High School’s integration of handheld computers into its math classes by Tom Schmeltzer.

powerOne Graph received the 2002 Award of Excellence from Technology & Learning Magazine. “T&L’s Awards of Excellence is one of the only awards programs in which K-12 classroom educators and technology coordinators participate in an extensive on-site judging process that takes place over the course of several weeks. Curriculum products, school management tools, and professional development offerings are all evaluated for their instructional design, appropriateness of content, creative use of computer technology, and suitability for the classroom.” – Kristin Kennedy, Senior Editor, Technology & Learning Magazine.

"This is a 'must have' application for anyone who wants the best possible calculator. Look out HP and TI!" – Larry Felix, parent and engineer, who purchased copies for his teenage children.

How do I graph an equation in powerOne Graph?

This example will graph the function equation $y = 2x^2$, representing the solution as a shaded region. After graphing, we will then evaluate a point on the equation and zoom in to take a closer look.

Create a New Graph



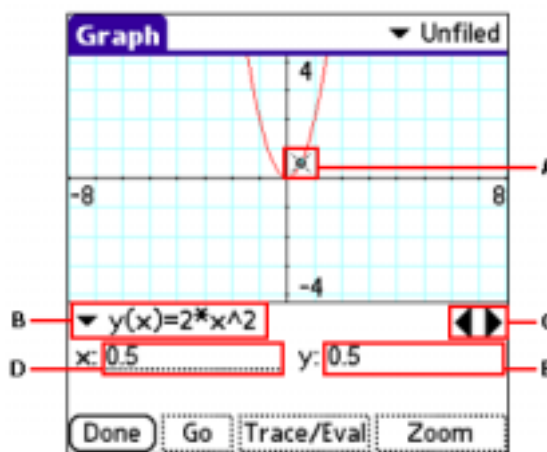
1. Launch the software. The main calculator should be visible.
2. Select the Graph button (B) or choose "powerOne" (A) then "My Graphs".
3. Select "New" from the bottom of My Graphs. New Graph should be visible.
4. Select "Function" from the pop-up list.
5. Enter "2 * x ^ 2" (without quotes) on the entry line. On the keypad, enter [2] [x] ['] [x²].
 - multiplication symbol is in the lower, right-hand corner to the left of divide. There is no implicit multiplication.
 - 'x' is in the top, left-hand corner of the keypad, next to f(x).
 - x² is to the right of 'x'.
6. Select "OK" at the bottom of the screen to save the graph. My Graphs should be visible.

Graph the Equation

- Only those graphs with checkmarks are graphed. Make sure only " $y(x) = 2*x^2$ " is checked.
- Select the "Graph" button at the bottom of My Graphs. The Graph display should be visible with the parabola drawn on the screen.

Trace and Evaluate

- Select "Analysis" at bottom of the Graph display.
- Choose "Trace/Eval" from the list.
 - 25% of the screen is clipped to accommodate the analysis area, 12.5% at both the top and bottom.
 - "Trace/Eval" displays instead of "Analysis" on the button.
 - cross hairs [A in the picture] draw at the currently evaluated point.
 - the current equation [B] is displayed. This is the equation being analyzed. If there is more than one equation drawn at the same time, choose the equation and select another graph to analyze.
 - the 'x' value [D] and 'y' value [E] show the point designated by the cross hair's location.
- To trace, drag the cross hairs to another location or choose the left and right scroll arrows [C].
- To evaluate, select 0 next to 'x' [D], enter 1 in the pop-up calculator, and select the checkmark to save.
 - when underlined, values can be changed (like 'x' here). When not underlined, the value can be selected but it cannot be changed (like 'y' here).
 - the cross hairs [A] move to the new evaluated position.
 - 'y' [E] is the analyzed value and (x, y) matches the same point as the cross hairs. In this case, y is 2.



Adjust the Display with Zoom Box

We will perform a box zoom. This is a feature that takes a long time to do on a TI calculator and demonstrates the power of the touch screen.

- Select "Zoom In" at the bottom of the Graph display.
- Choose "Zoom Box". The Zoom buttons changes to Zoom Box.
- Draw a box around the new display area.
 - In the top, left-hand corner of the new area, click down on the screen.
 - Drag to the lower, right-hand corner of the new area.
 - Release. The window zooms in on that area.

Learn More

Here are some additional equations to try graphing. Don't forget to uncheck the equations you don't want to show in the Equations worksheet.

- Function equation: $y(x) = \sin(x)$
 - Display a table of data for the equation by selecting the equation in My Graphs and choose "Table..." from the list.
- Function equation: $y(x) = 10*\sin(2*x)/(5*x)$
 - Note that powerOne Graph cannot perform implicit multiplication. Always use the multiplication symbol between two numbers. It does not know how to differentiate the variable '2x' from $2 * x$.

- b. This equation is a great one to demonstrate the analysis function "Integral". Enter -8 for "l" (lower bound) and 8 for "u" (upper bound) and select the "j" button (it takes a second). The value is the area under the curve.
3. Parametric equation: $x(t) = \sin(5*t)$; $y(t) = \sin(6*t)$
 - a. This draws a box on the screen. Use "Zoom Box" to take a closer look.
4. Polar equation: $r(t) = .2 * t$
 - a. To draw this so it fills the entire draw area, change the range variables. When creating the equation, choose the Prefs tab and change T Max to 100 by clicking on the variable and entering it in the pop-up calculator.
5. Data table
 - a. Go to the Equations screen by either selecting "Graph" then "Equations" on the template bar if in the main calculator or by selecting "Go" then "Equations" in the graph window.
 - b. Select the equation you would like to see the data table for and choose "View Table..." from the pop-up list.

The manual for powerOne Graph has additional examples. It can be found at:

<http://www.infinitysw.com/support/manuals.html>

How can I get answers to additional questions?

Infinity Softworks' web site has answers to many questions:

Product Overview:	http://www.infinitysw.com/graph
Education Section:	http://www.infinitysw.com/education
Product Support/Common Questions:	http://www.infinitysw.com/support/poweronegraph.html
Contacting Infinity Softworks:	http://www.infinitysw.com/contact