INFINITY
S O F T W O R K S

powerOne® Graph

Version 4

Quick Start Guide

http://www.infinitysw.com/graph

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Getting Started

Installing on a Windows Computer System

CD-ROM

Insert the CD into the CD-ROM drive. On a Windows computer, the start-up screen should run automatically. If it does not start automatically, double-click on "My Computer", double-click on the CD-ROM drive (often the drive labeled "D") and double-click on "Setup.exe". This will run the Set-Up window.

To install a version that runs on your handheld computer using the Palm OS operating system, choose "Install powerOne Graph". Follow the on-screen directions to complete the installation process. Once the installer is finished, you will need to synchronize your Palm OS handheld to complete installation.

Electronic Download

Run the installer by double-clicking the icon from the location you saved it and following the on-screen directions. Once the installer is finished, you will need to synchronize your Palm OS handheld to complete installation.

Installing on a Macintosh Computer System

CD-ROM

Insert the CD into the CD-ROM drive. On a Macintosh computer, the CD's icon will appear. Double-click to open the CD-ROM, double-click on the "Install Folder", double click "Palm OS" folder, then double-click each of the files ending in ".prc" and ".pdb". This will run the Palm OS Install Tool. Close the Tool and synchronize your device to complete installation.

Electronic Download

Extract the file using StuffIt Expander. Open the folder and in the Palm folder, double-click each application. This will run the Palm OS Install Tool and set each application for installation. When finished, select "Done" and synchronize your handheld to complete the installation.

Getting Help

On Windows computer systems the installer typically installs the manual under the Windows Start menu: Programs→powerOne Graph for Handhelds→powerOne Graph Manual. On Macintosh computer systems, it is available from the CD-ROM or extracted archive.

The manual is also available on the CD-ROM and at Infinity Softworks' web site in Adobe Acrobat Reader format:

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

If you do not have Adobe Acrobat Reader on your computer, installation is available from the CD-ROM or from Adobe's web site:

http://www.adobe.com

In addition, Infinity Softworks' web site offers answers to common questions and technical support. Visit:

http://www.infinitysw.com/graph
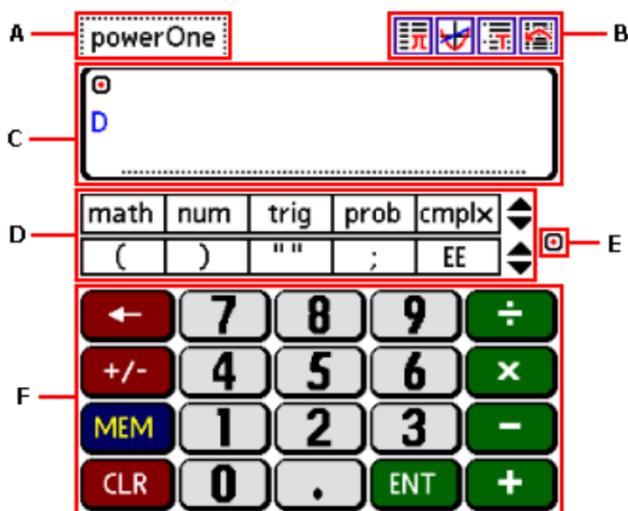
Calculator

The calculator is the center of the product. The view window (C) is where equations are entered and calculated. Functions can either be found on the keypad (F) or the function bar/button (D/E).

The buttons above the view window speed navigation. The powerOne button (A) offers a list of common options such as access to preferences and the calculation log. The navigation icons (B) take you to My Data for entering data, My Graphs for graphing and plotting, and My Templates for working with calculation templates. More detail is provided below.

A. powerOne Button

Tap this button for the following options:

- **Copy**: copy contents of view window to the system clipboard.

- **Paste**: paste the system clipboard to the view window.

- **Calculation Log**: log of calculations similar to a tape. The last 20 calculations are stored (or 10 equation/answer combinations for algebraic input mode).

- **Preferences**: calculator settings and preferences.

- **Skins**: change the user interface of the calculator (colors and layout).

- **My Data**: location to see all calculator data including constants, macros, and variables. Can also create new data, whether constants, macros, variables, tables or matrices.

- **My Graphs**: location to see all graph equations, create new equations, set window coordinates and graph.

- **My Templates**: location to see all templates, whether created or pre-installed.

- **About powerOne**: information about the software.

B. Navigation Icons

- **Data Button**: (left-most button) displays My Data. This is where data is viewed or created, whether variable, macro, constant table or matrix.

- **Graph Button**: displays My Graphs. See the Graphing section for more information.

- **Template Button**: displays list of available templates similar to My Templates.

- **Last Template Button**: (right most button, if visible) select to go to the previously used template (only visible when a template has been visited).

C. View Window & Input Mode

There are 4 input mode options. These change the view window and how calculations are performed:

- **Algebraic**: used primarily with scientific calculators. EX: 27 + 3 ENT returns 30. This mode follows common order of operation rules for function precedence.

- **RPN**: RPN is the input mode familiar to many HP calculator users. It is a post-fix notation. EX: 27 ENT 3 + returns 30.

- **Order of Operations**: standard calculator mode where only the last entered value or calculation is displayed. EX: 27 + 3 = returns 30. This mode follows common order of operation rules for function precedence.

- **Chain**: common to financial calculators, this mode displays only the last entered value or calculation in the view window. EX: 27 + 3 = returns 30. Chain ignores order of operations rules.

D. Function Bar

Consists of 8 lines, each with 5 buttons. Selecting one performs the associated function. Scroll up and down to see other functions. Buttons can access a function, can display a list of functions or can be associated with a template. These buttons are programmable and can be set in the Preferences screen.

E. Function Button

Select this button to display a list of function categories. Select a function category to access a mathematical function.

F. Keypad

- **0-9**: numbers 0 through 9.

- **decimal separator**: separate the whole and decimal portions of the number. Entered as a period or comma depending on the system setting for number display format.

- **+/–/x/÷**: basic mathematics functions.

- **ENT or equals**: enter key to evaluate the equation (algebraic input mode), push a value on the stack (RPN input mode), or complete a calculation (order of operations and chain input modes).

- **CE/C**: clears the currently entered value when tapped once and all values (entire calculation or history depending on the input mode) when tapped a second time.

- **MEM**: select to access store, recall or clear memory location functionality.

- **+/–**: select to change the sign or insert a negative sign depending on the input mode.

- **←**: deletes the highlighted area, space before the input cursor, or last entered value depending on the input mode.

Graphing

Accessing

Access My Graphs, the central location for graphing, by either selecting the "My Graphs" button (top of the calculator, second from the left) or by selecting "powerOne" then "My Graphs".

Graphs, My Graphs & Window Coordinates

My Graphs shows a list of all created graphs, plus offers navigation to create new graphs, set the window coordinates and graph the selected equations / data sets. There are 5 graph options:

- **Function** [y(x)]: define dependent variable y in relation to an independent variable x.

- **Polar** [r(t)]: define dependent variable r (radius) in relation to an independent variable t (theta), where r,t represents a polar coordinate.

- **Parametric** [x(t)]: define dependent variable x and y based on a third independent variable t.

- **Sequence** [u(n)]: define dependent variable u, v and w in sequential relation to independent variable n.

- **Plotting**: plot individual data points in a table. Available types are scatter plots, bar graphs, histograms, box plots, modified box plots, and normal probability curves.

Each graph maintains its own window coordinates. These are accessed via the Window button in My Graphs or Go→Window in the Graph display. Range settings and preferences are associated with individual graphs and are available under the Prefs tab in New/Edit Graphs.

Analysis Modes

There are 14 analysis modes available:

Type	Selection*	y(x)	x(t)	r(t)	u(n)	Plots
Hide	None	x	x	x	x	x
Trace/Eval	Drag	x	x	x	x	x
Y Intercept	None	x				
Roots	Box	x				
Intersection	Box	x**				
Derivative	Drag	x	x	x		
Integral	Box	x				
Inflection	Box	x				
Minimum	Box	x				
Maximum	Box	x				
Distance	Points	x				
Arc	Points	x				
Tangent	Drag	x				
Regression	None					x***
Data Crop	Box					x

* Selection describes how to select the information to analyze:

- **None**: no selection required.

- **Drag**: when analyzing function graphs click down on the graph and drag the cursor. For other graph types, use the on-screen scroll arrows to move left or right.

- **Points**: click down on the display to select the first point, drag to the second point and release.

- **Box**: click down in the top, left-hand corner, drag to the lower, right-hand corner, and release.

** Available when two or more function equations are drawn.

*** Regression curves are function graphs. When a regression curve is drawn, all function analysis modes are also available.

Zooming

There are 9 zoom modes:

- **Default:** returns to the default window setting.

- **Previous:** returns to the previous window setting.

- **Center:** repositions the screen so the selected point becomes the center of the display. Select a point in the graph window to reposition.

- **In:** zooms in on the selected point on the screen. Zoom In zooms "Zoom Scale" times as set in the Window Settings. Select a point in the graph window to reposition.

- **Out:** zooms out on the selected point on the screen. Zoom Out zooms "Zoom Scale" times as set in the Window Settings screen. Select a point in the graph window to reposition.

- **Box:** zooms to the specified area of the display. Draw a box by clicking in the top, left-hand corner, dragging to the lower, right-hand corner and releasing.

- **Square:** attempts to adjust the x and y maximum and minimum so the change of x is the same as the change of y.

- **Best Fit:** calculates the best fit and changes the window coordinates appropriately. Best Fit takes all graphs into consideration.

- **Stats:** calculates the best fit for data graphs only, changing the window coordinates appropriately. This zoom mode ignores other graphs drawn at the same time, focusing only on the data graph.

Example

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] ['x'] [x^2].

   - multiplication symbol is in the lower, right-hand corner to the left of divide. This is optional: implicit multiplication is supported.

   - 'x' is in the top, left-hand corner of the keypad next to f(x).

   - x^2 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

7. Only those graphs with checkmarks are graphed. Make sure only "y(x) = 2*x^2" is checked.

8. Select the "Graph" button at the bottom of My Graphs. The Graph display should be visible with the parabola drawn on the screen.
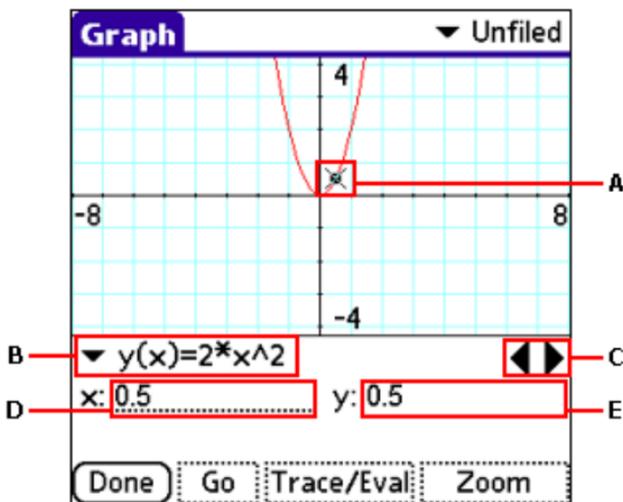
Trace and Evaluate

9. Select "Analysis" at bottom of the Graph display.

10. 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.

11. To trace, drag the cross hairs to another location or choose the left and right scroll arrows [C].

12. 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*

13. Select "Zoom In" at the bottom of the Graph display.

14. Choose "Zoom Box". The Zoom buttons changes to Zoom Box.

15. 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.

Templates

Access a template by either selecting the Templates button (top of the calculator, third from the left) or by selecting "powerOne" then "My Templates". If the Template button is selected, open the appropriate category and select a template to access. If My Templates is selected, open a category, select the appropriate template and choose "Use" from the list.

Template Layout
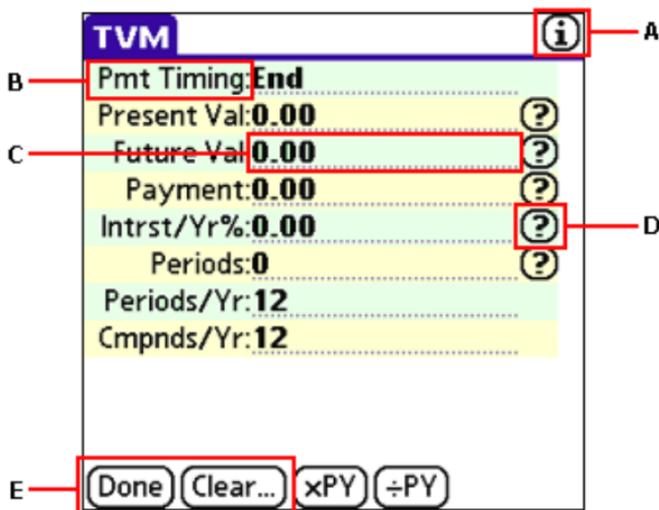
A. Template Notes: select this button to display notes about the template. Notes generally describe the template's use, a

description of each variable and any special template instructions.

B. **Variable Label:** describes the variable's contents. Generally, the label is only a text description, but sometimes labels can be selected. Labels that can be selected are surrounded by a dotted border and exist for one of two reasons:

- Select a Table: some templates require a table and offer the ability to use any table, including those already created using My Data.

- Change the Data View: some variables can be entered or viewed in multiple ways. In this case, select the variable's label to enter and calculate the same data item a different way.

C. **Variable Data:** the value or data for the variable. To enter data, select its value and enter it. The data can be entered if it is underlined; otherwise it can only be calculated.

D. **Calculate "?":** indicates that the variable can be calculated. Select it to perform the calculation.

E. **Buttons:** while there may be more than two buttons, these two exist in every template:

- Done or OK: exits the template.

- Clear or C: clears the contents of the template. This reverts the data to its defaults.

Entering Data

There are 5 variable data types currently available. Variable data appears in the middle column of the template and can be selected and edited if it is underlined (otherwise it can only be calculated). Each variable data type is discussed here:

1. **Numbers**: entered using the pop-up calculator. To enter a number:

- select the variable's data.

- enter the number with the keypad or use the calculator to compute it.

- select the "✓" (save button) to return to the template and save the number or choose "x" (cancel button) to return to the template without saving.

2. **Lists**: show a set of defined options. To choose an item from a list:

   - select the variable to display a list of options.

   - choose an option from the list, scrolling if necessary.

3. **Tables**: (sets of data) come in two types. The first type is available for use in any template, while graphing or for calculation in the main calculator. It is considered global. The second type is available only to the selected template. This type is considered local. Global tables always have a dotted box around the variable's label.

   To choose a global table for use in the template:

   - select the variable's label.

   - Next to table, choose "None Selected" then a table name or, to create a new table, select "New".

   - Once a table is selected, Column appears. Choose a column number or range of numbers if applicable.

   - Select "OK" to save the table selection or "Cancel" to delete any new selection.

   If more than one table is required, often a template will guess at the additional tables. To change that guess, follow the same process for the additional templates.

   To edit local or global table data:

- select the variable.

- enter data into the table by selecting each cell and entering data with the same pop-up calculator used with Numbers described above.

- select "OK" to save the data or "Cancel" to delete those changes. If the table is global, any changes are saved with the global table as well as with the template's copy.

4. **Dates**: entered using a selector similar to other applications. On Palm OS handhelds, however, the year can be changed directly and in the range 1900 to 3000. To choose a date:

- select the variable.

- choose a year.

- choose a month.

- choose a day.

5. **Times**: entered using a selector similar to other applications. To choose a time:

- select the variable.

- choose the hour by highlighting it and using the up/down scroll arrows.

- choose minutes by selecting each box in turn and using the up/down scroll arrows.

- choose am or pm (if not 24 hour time).

- select "OK" to save the data or "Cancel" to throw out those changes.

Example

This is example demonstrates how to use a template. 4 colleagues go to dinner and spend $78.45. How much is paid for the tip and total bill with a 20% tip? How much was the tip? If

the bill were split evenly, what does each colleague have to pay?
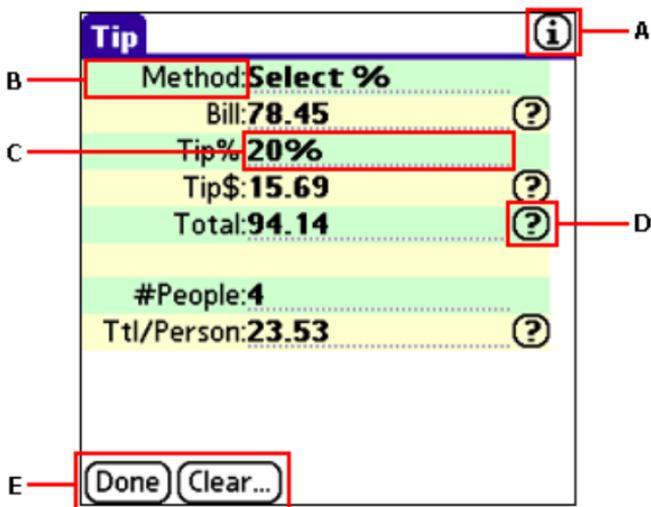
Go to the Tip Template

1. Launch the software. The main calculator should be visible.

2. Select the Template button. The Template button is third from the left across the top of the main calculator. The Template List should be visible.

3. Open the Business category by selecting its name.

4. Open the Tip template by selecting its name. The Tip template should be visible.

Calculate Tip Amount and Total Bill

5. Enter $78.45 for the bill.

   - select 0.00 next to Bill.

   - enter 78.45 in the pop-up calculator using the keypad.

- select the save ("✓") button.

6. Enter a 20% tip.

    - select 15% next to Tip.

    - choose 20% from the list.

7. Calculate the tip amount.

    - select the "?" button on the same line as Tip$.

    - the tip amount is $15.69.

8. Calculate the total bill.

    - select the "?" button on the same line as Total.

    - the total bill is $94.14.

Split the Bill

9. Enter 4 for the number of people.

    - select 1 next to #People.

    - enter 4 in the pop-up calculator using the keypad.

    - select the save ("✓") button.

10. Calculate the total per person.

    - select the "?" button on the same line as Ttl/Person.

    - the total per person is $23.53.

Sharing & Add-Ons

Exporting, Importing & Beaming

- **To Export or Beam**: go to Export Options, select the export or beam function and follow the on-screen directions.

- **To Import**: go to Import Options, select the import function and follow the on-screen directions.

Data, Graphs, Skins & Templates

- **Data**: export/beam by selecting a data item in My Data. Import by selecting the "Import" button in My Data. Import or export/beam table and matrix data by selecting the menu in the appropriate viewer.

- **Graphs**: import or export/beam by selecting the menu in My Graphs.

- **Skins**: skins change the calculator interface and are available from Infinity Softworks' web site. Skins import automatically.

- **Templates**: export/beam by selecting the menu within the template or by selecting the template in My Templates. Import by selecting the menu within the template or by selecting the "Import" button in My Templates.

Plug-Ins & Add-Ons

Additional plug-ins (e.g., communicate with probes, spreadsheets and word processors) and add-on skins and templates can be found at:

http://www.infinitysw.com/graph

Online Support: http://www.infinitysw.com/graph
Contacting Infinity: http://www.infinitysw.com/contact

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