Infinity Softworks

# powerOne™ Graph
powerOne™ Scientific

For the Palm Computing® Platform

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Getting Started

This section helps you get started using your powerOne™ Graph or powerOne™ Scientific calculators.

Using This Manual

This manual is designed for both powerOne Graph and powerOne Scientific. Both applications function the same except powerOne Scientific does not contain graphing capabilities.

Setting the Default Calculator

To set a powerOne product as the default calculator, enter the application and choose the powerOne button in the upper, left-hand corner of the main calculator display. From the list, select powerOne Prefs and check the "Use Button" checkbox.

The Palm Device

This manual references certain objects of the Palm® device itself:

Application button

Menu button

Power button

Calculator button
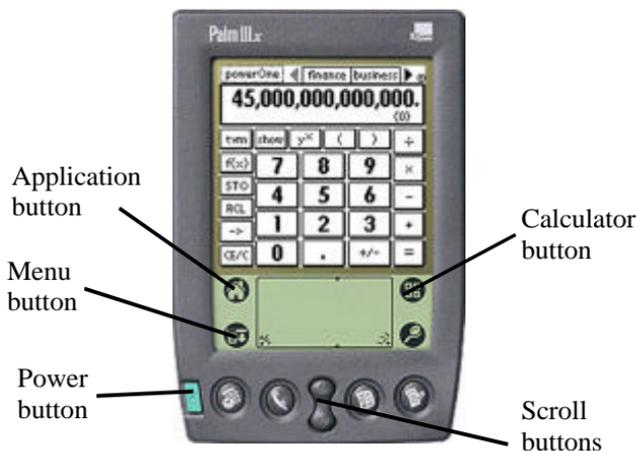
Scroll buttons

In addition, this manual will refer to scroll arrows, scroll buttons, and scroll bars. Scroll arrows appear in the lower, right-hand corner of the screen or in the pop-up list. Scroll bars appear next to the data to be scrolled. And scroll buttons are shown in the graphic above.

The powerOne™ Display

This section discusses the main calculator's display. The display is broken into five sections: the navigation bar across the top, the view window, the function bar, the keypad and the menu.
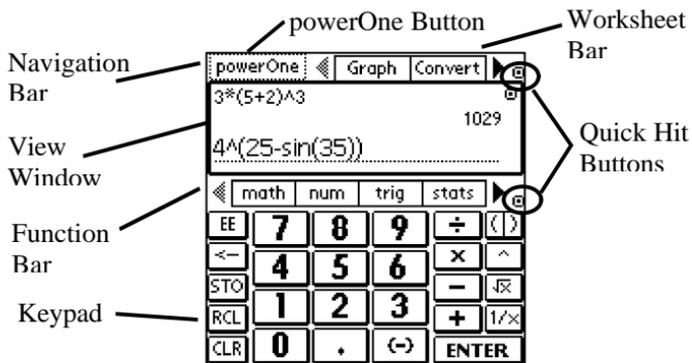
Each section is outlined below.

Navigation Bar

The **navigation bar** is used to move quickly to worksheets contained within the application, or gain access to information and settings. The **powerOne button**, on the left-hand side of the

navigation bar, offers access to online help, product information, and application preferences. The **worksheet bar**, on the right-hand side of the navigation bar, offers quick access to worksheets within the application. Tapping the arrows left or right scrolls more worksheets into view while tapping the **worksheet quick-hit button** displays all available worksheets at one time.

View Window

The **view window** has three components: the **entry field**, the **history list**, and the **history quick-hit button**. Some worksheets also use the view window for entering functions (for instance, graphing uses the view window to enter function and parametric equations). The entry field functions like a standard PalmOS® text field. To enter information, first make sure the cursor is blinking at the entry (or insertion) point, then tap a keypad button or enter Graffiti® characters. This field does scroll. If the field is more than one line, a scroll bar will appear for the currently selected entry field.

The history list displays the last entry in the entry field as well as the answer or error message associated with that entry. Tapping the history quick hit button will display the last four entry and answer combinations in a pop-up window. Selecting an item from the history list or from the history pop-up window will insert the text into the entry line at the insertion point.

The powerOne™ Display

Function Bar

The **function bar** includes advanced mathematical functions for use within both powerOne Graph and powerOne Scientific. These functions are broken into eight sub-groups: **math**, **number** (num), **trigonometric** (trig), **statistics** (stats), **constants** (const), **boolean** (bool), **developer** (dev), and **memory** (mem). Tapping the arrows left or right scrolls into view more functions while tapping the **function quick-hit button** displays all available functions at one time.

Keypad

The **keypad** is a series of buttons that allow for rapid entry of numbers and commonly used mathematical functions. The left side (top to bottom) consists of buttons to enter an exponent for exponential notation, backspace over a character or highlighted set, store to memory, recall from memory, and clear the current equation. In the center, the number pad includes 0 through 9, the decimal separator (whether a decimal point or comma as dictated by the system Preferences setting. See your handheld manual), and a negative sign. On the right is the standard mathematical function divide, multiply, subtract, and add, commonly used functions to insert left and right parentheses, power (^), square root and reciprocal (1/x). To evaluate a function (get the answer), select Enter.

Menus

The **menus** are accessed by choosing the menu button to the lower, left-hand corner of the Graffiti input area. Standard PalmOS edit choices, Graffiti help, and powerOne Preferences and application information can be accessed from here.

The Edit menu:

Function	Shortcut	Comments
Undo	/U	Undo the last Graffiti entry
Cut	/X	Cut the selected text to the clipboard
Copy	/C	Copy the selected text to the clipboard
Paste	/P	Paste the text from the clipboard to the entry field (at the cursor position)
Select All	/S	Select the entire entry field
Keyboard	/K	Display the pop-up keyboard
Graffiti	/G	Help with Graffiti keystrokes

The Options menu:

Function	Shortcut	Comments
Preferences	/R	Display the calculator preferences. Also reached from the powerOne button
About…		Display company information. Also reached from the powerOne button

The powerOne™ Display

Performing Arithmetic

The main calculator of powerOne Graph and powerOne Scientific serve as an algebraic calculator. Equations are entered in full in the entry field using either Graffiti characters or entries from the keypad and function lists. Once the entire equation is entered, selecting enter evaluates the equation and returns an answer.

Basic mathematical functions can be entered from the keypad. As well functions can be entered by selecting them from the function bar or using Graffiti to enter characters.

Entering Numbers (0-9; ./,; −; ←; CLR)

To enter a number, tap the corresponding keypad button (0-9, decimal point, or sign).

To enter -356.96, for instance, do the following:

Key	Display	Comments
CLR	0	Tap once clears the entry field
(−)	-	Negative sign
3	-3	
5	-35	
6	-356	
. or ,	-356.	Depends on the number format
9	-356.9	
6	-356.96	

The **decimal point** can either be displayed as a period or as a comma. This depends on the number format mode used. See your handheld device owner's manual for more details.

The following are number entry functions:

Operation	Example	Comments
Number	0-9	Number pad items
Decimal point	. or ,	Depends on the number format
Sign (–)	–	
Exponent (EE)	E	Exponential notation

To enter a number in **exponential notation** enter the mantissa then enter the exponent.

For example, to enter -1.29E-54 do the following:

Key	Display	Comments
CLR	0	Tap once to clear the entry field
(–)	-	
1.29	-1.29	
EE	-1.29E	
(–)	-1.29E-	
54	1.29E-54	

The **backspace** (←) button allows for editing of numbers as they are entered. Tapping this button removes the entry before the cursor. If a series of entries is highlighted and then the backspace is selected, the entire highlighted entry is removed.

Tapping the **clear** (CLR) button clears the contents of the currently selected entry field.

Basic Mathematics

powerOne Scientific and powerOne Graph are used in algebraic entry mode. In algebraic entry mode, an entire equation is entered and then it is evaluated. Basic math functions reside within the keypad along the right-hand side.

If we wanted to perform 27 + 3 x 8.5:

Key	Display	Comments
CLR	0	Tap once to clear the entry field
27	27	
+	27+	
3	27+3	
x	27+3*	
8.5	27+3*8.5	
Enter	52.5	

The number of decimal places displayed depends on the preference. See the section on Preferences for more information.

Notice that powerOne Graph and powerOne Scientific both multiply before adding. These two calculators follow the rules for order of operations. See the section on parentheses to change the order of operation, or see the Appendix for a list of these rules.

The following are basic math examples:

Operation	Example	Keystroke	Answer
Addition	8 + 3	8 [+] 3 [ENTER]	11
Subtraction	8 – 3	8 [–] 3 [ENTER]	5
Multiplication	8 x 3	8 [x] 3 [ENTER]	24
Division	8 ÷ 3	8 [÷] 3 [ENTER]	2.66…7
Power	3^4	3 [^] 4 [ENTER]	81
Square Root	$\sqrt{8}$	[√x] 8 [ )] [ENTER]	2.828…
Reciprocal	1/5	[1/x] 5 [ENTER]	0.2

Advanced Mathematics

Both powerOne Graph and powerOne Scientific contain advanced math functions within the function bar (just below the view window). These functions are split into eight subgroups (from left to right when scrolling): general math functions (math), number (num), trigonometric (trig), statistics (stats), constants (const), boolean (bool), developer (dev), and memory (mem).

Math Functions (math)
The following are advanced math functions within the **math** function list:

Function	Display	Comments
Percent	%	Alters a number to a percentage or performs percent multiplication
Natural Log	ln	

Anti-Log	exp	Often shown as exp(x) or e^x
Logarithm	log	
X-Squared	x^2	
Power of 10	10^x	
cube root		Often displayed as $\sqrt[3]{x}$
xth root		Often displayed as $\sqrt[n]{x}$

Examples are as follows:

Operation	Example	Keystroke	Answer
Percent	8%	8 [%] [ENTER]	0.08
	15%5	15 [%] 5 [ENTER]	0.75
Natural Log	ln(1.2)	[ln] 1.2 [ )] [ENTER]	0.182…
Anti-log	e^3 or exp(3)	[exp] 3 [ )] [ENTER]	20.08…
Logarithm	log(23)	[log] 23 [ )] [ENTER]	1.361…
X-Squared	3^2	3 [x^2] [ENTER]	9
Power of 10	10^5	[10^x] 5 [ENTER]	100000
Cube Root	$\sqrt[3]{25}$	25 [cube root] [ENTER]	2.924…
Xth Root	$\sqrt[8]{25}$	25 [xth root] 8 [ )] [ENTER]	1.495…

Number Functions (num)

The following are number functions within the **num** function list:

Function	Display	Comments
Exp Notation	EE	Display and enter large numbers
Absolute Value	abs	

Integer Portion	int	Returns the integer portion of a number (no rounding)	
Integer Divide	div	Performs integer division	
Modular Divide	mod	Returns the remainder	

Examples are as follows:

Operation	Example	Keystroke	Answer
Exp Notation	8E4	8 [EE] 4 [ENTER]	8000
Absolute Value	abs(-3)	[abs] -3 [ )] [ENTER]	3
Integer Portion	int(2.25)	[int] 2.25 [ )] [ENTER]	2
Integer Divide	3 div 2	3 [div] 2 [ENTER]	1
Modular Divide	8 mod 3	8 [mod] 3 [ENTER]	2

Trigonometric Functions (trig)

The following are trigonometric functions within the **trig** function list:

Function	Display	Comments
Sine	sin	
Cosine	cos	
Tangent	tan	
Arc-sine	asin	Often referred to as anti or inverse
Arc -cosine	acos	Often referred to as anti or inverse
Arc -tangent	atan	Often referred to as anti or inverse
Hyperbolic sine	sinh	
Hyberolic cosine	cosh	

Hyperbolic tangent	tanh
Arc-hyperbolic sine	asinh
Arc-hyperbolic cosine	acosh
Arc-hyperbolic tangent	atanh

The answer can be calculated in either radians or degrees. See the section on powerOne Preferences for information on changing the mode.

Examples are as follows:

Operation	Example	Keystroke	Ans
Sine	sin(15)	[sin] 15 [ )] [ENTER]	0.6502
Cosine	cos(15)	[cos] 15 [ )] [ENTER]	-0.759
Tangent	tan(15)	[tan] 15 [ )] [ENTER]	-0.855
Arc-sine	asin(.5)	[asin] 0.5 [ )] [ENTER]	0.5235
Arc-cosine	acos(.5)	[acos] .5 [ )] [ENTER]	1.0471
Arc-tangent	atan(.5)	[atan] 0.5 [ )] [ENTER]	0.4636
Hyperbolic sine	sinh(1.5)	[sinh] 1.5 [ )] [ENTER]	2.1292
Hyberolic cosine	cosh(1.5)	[cosh] 1.5 [ )] [ENTER]	2.3524
Hyperbolic tangent	tanh(1.5)	[tanh] 1.5 [ )] [ENTER]	0.9051
Arc-hyperbolic sine	asinh(15)	[asinh] 15 [ )] [ENTER]	3.4023

Arc-hyperbolic cosine	acosh(15)	[acosh] 15 [ )] [ENTER]	3.4000
Arc-hyperbolic tangent	atanh(.25)	[atanh] .25 [ )] [ENTER]	0.2554

Statistics Functions (stats)

The following are statistics functions within the **stat** function list:

Function	Display	Comments
Permutations	nPr	
Combinations	nCr	
Factorial	x!	Whole numbers only
Random Number	random	Returns a random whole number that include 0 and the number itself

Examples are as follows:

Operation	Example	Keystroke	Answer
Permutations	8 nPr 3	8 [nPr] 3 [ENTER]	336
Combinations	8 nCr 3	8 [nCr] 3 [ENTER]	56
Factorial	15!	15 [x!] [ENTER]	1.307…
Random Num.	rand(52)	[random] 52 [ )] [ENTER]	

Constants (const)

The following are constants built into the powerOne products:

Function	Display	Comments
PI ($\prod$)	pi	pi = 3.14159265359
Exponential	e	e = 2.71828182846
Avogadro's Number	NA	NA = 6.02214199E23
Coulumb	k	k = 8,987,551,787.37
Elem. Charge	ec	ec = 1.60217646E-19
Univ. Gas	R	R = 8.314472
Gravity Constant	G	G = 6.67259E-11
Gravity Acc	g	g = 9.80665
Electron Mass	Me	Me = 9.10938188E-31
Proton Mass	Mp	1.67262158E-27
Neutron Mass	Mn	1.67492716E-27
Speed of Light	c	299,792,458

Since powerOne Graph and powerOne Scientific allow changes to
all constants and variables, these pre-defined constants can be
altered by redefining their values (see the section on Memory for
more information). The changes to these constants will only
persist as long as you are in the application. In other words, these
functions will reset to their original values each time you enter the
calculator.

Boolean Functions (bool)

The following are boolean functions for comparing two values or equations. These will return true and false:

Function	Display	Comments
Equals	==	True if expression one equals expression two
Not Equal	<>	True if expression one does not equal expression two
Less Than	<	True if expression one is less than expression two
Greater Than	>	True if expression one is greater than expression two
Less Than or Equal To	<=	True if expression one is less than or equal to expression two
Greater Than or Equal To	>=	True if expression one is greater than or equal to expression two
And	and	Returns true if expression one and expression two are true
Or	or	Returns true if either expression one or expression two are true

Examples are as follows:

Operation	Example	Keystroke	Answer
Equals	8 == 3	8 [==] 3 [ENTER]	False
Not Equal	8 <> 3	8 [<>] 3 [ENTER]	True
Less Than	8 < 3	8 [<] 3 [ENTER]	False
Greater Than	8 > 3	8 [>] 3 [ENTER]	True

Less Than or Equal To	8 <= 3	8 [<=] 3 [ENTER]	False
Greater Than or Equal To	8 >= 3	8 [>=] 3 [ENTER]	True
And	(8==3) and (5==5)	[( ] 8 [==] 3 [ )] [and] [( ] 5 [==] 5 [ )]	False
Or	(8==3) or (5==5)	[( ] 8 [==] 3 [ )] [or] [( ] 5 [==] 5 [ )]	True

Developer Functions (dev)

The following are functions pertinent to base conversion and bit-wise operators:

Function	**Display**	**Comments**
Binary Not	~	Inverses each bit
Binary And	&	Compares each bit: if both are 1, outputs as 1 otherwise 0
Binary Or	|	Compares each bit: if either is 1, outputs as 1 otherwise 0
Bit-wise Left	<<	Shifts the bits left
Bit-wise Right	>>	Shifts the bits right
Binary	0x b	Set the number to binary
Hexadecimal	0x h	Set the number to hex
Octal	0x o	Set the number to octal
To Binary	→b	Convert the number to binary
To Hexadecimal	→h	Convert the number to hex
To Octal	→o	Convert the number to octal

To Decimal	→d	Convert the number to decimal

Examples are as follows:

Operation	Example	Keystroke	Answer
Not	~1100b	[~] [binary] 1100 [ENTER]	-13
And	1100b & 0101b	[binary] 1100 [move cursor to end] [&] [binary] 0101 [ENTER]	4
Or	1100b | 0101b	[binary] 1100 [move cursor to end] [|] [binary] 0101 [ENTER]	13
Bitwise Left	0x110b<<1 (in binary)	[binary] 110 [move cursor to end] [<<] 1 [to bin] [ENTER]	0x1100b
Bitwise Right	0x110b>>1 (in binary)	[binary] 110 [move cursor to end] [>>] 1 [to bin] [ENTER]	0x11b
Binary	Set 110 to binary	[binary] 110 [move cursor to end]	0x110b
Hexadecimal	Set 4A to hex	[hex] 4A [move cursor to end]	0x4Ah
Octal	Set 52 to octal	[octal] 52 [move cursor to end]	0x52o

To Binary	53 to bin	53 [to binary] [ENTER]	0x11010 1b
To Hexadecimal	53 to hex	53 [to hex] [ENTER]	0x35h
To Octal	53 to oct	53 [to octal] [ENTER]	0x65o
To Decimal	4Ah to dec	[hex] 4A [move cursor to end] [to dec] [ENTER]	74

Memory Functions (mem)

The following operators store variables to memory as either
constants or functions. See the section on memory for more
information:

Function	**Display**	**Comments**
Store Equation	:=	Stores an equation with the given variable name
Store Constant	=	Stores a constant with the given variable name

The store equation function, while displaying only the answer
when evaluating, stores an equation in memory. The store constant
function stores only the answer.

These functions are used when variables within a given equation
change. Instead of entering the equation with a changed variable
every time, you can store the equation and constant for re-use.

For example, a recurring equation may be defined as 3x+4 where x
changes. Compute this variable for both x equals 5 and 15:

Key	Display	Comments
CLR		
x = 5	x [=] 5 [ENTER]	5 is now stored at variable x
y := 3x+4	y [:=] 3x [+] 4 [ENTER]	3x+4 is now stored in variable y and the output is 19 (3*5+4)
x = 15	x = 15 [ENTER]	15 is now stored at variable x
y	y [ENTER]	49 is the output (3*15+4)

Parentheses

powerOne Graph and Scientific use the rules for **order of
operation** when calculating (see the appendix for those rules).
Functions like multiplication and division are performed before
addition and subtraction. The example $3 + 4 \times 5$ in powerOne
Graph or powerOne Scientific will equal 23 (since multiplication is
performed before addition, 4 x 5 is calculated first, then 3 is added
to the value). By using parentheses, the order of operations can be
changed. For instance, placing parentheses around $3 + 4$, so the
example now reads $(3 + 4) \times 5$, causes the answer to equal 35. The

calculator evaluates 3 + 4 before multiplying by 5 because of the parentheses.

Parentheses are also used with functions such as natural log (ln). This tells the calculator what value to use in calculating the function. For example, a computation could be ln(9) or ln(3+4+2), both of which would return the same answer of 2.1972.

Memory

powerOne Scientific and powerOne Graph have three kinds of memory: storage memory, system clipboard and variables.

Storage Memory

powerOne Scientific and powerOne Graph have ten (10) memory locations for quick storage of functions or values. To **store** a function or value to memory, choose the button labeled "STO" and select one of the ten (0 through 9) memory locations from the pop-up list. To **recall** a storage memory location, choose the button labeled "RCL" and select one of the ten memory locations from the pop-up list. These calculators show the contents of the ten memory locations for easy viewing.

The content to store is based on the current entry field. If there is nothing in the field, the calculator chooses the last calculated answer from the history list. If there is something in the field, it chooses the contents of that field (in the form that it appears).

System Clipboard

The Edit Menu in the main calculator contains the standard controls for using the system clipboard. This allows the powerOne line of calculators to interface with other applications and provides an additional storage location when within the application.

Function	Shortcut	Comments
Cut	/X	Cuts the selected text to the clipboard
Copy	/C	Copies the selected text to the clipboard
Paste	/P	Pastes the text from the clipboard to the entry field at the cursor position

To move information to the clipboard, first highlight the text to cut or copy before selecting a menu item. To insert text from the clipboard, place the insertion point at the desired location before selecting paste from the menu.

Variables

powerOne Graph and powerOne Scientific allow the creation and storage of variables to memory. These variables can either be individual values (constants) or functions.

To store a variable to memory, enter the function or constant in the entry field then select store (STO) and finally "New Variable…". In the New Variable dialog, choose the kind of value to store (whether a function or a constant value) and enter the name of the variable using Graffiti characters. When saving a constant, the

calculator will attempt to evaluate the answer first and then store
the answer. When saving a function, the calculator will save the
function as written before evaluating.

For example, a recurring equation may be defined as 3x+4 where x
changes. Compute this variable for both x equals 5 and 15:

Key	Display	Comments
CLR		
5	5	
STO	Pop-up list	
New Variable…		
Select Constant and enter 'x' as the name. Choose Save.		
3x+4	3x [+] 4	
STO	Pop-up list	
New Variable…		
Select Function and enter 'y' as the name. Choose Save.		History shows a value of 19 when x = 5
15	15	
New Variable…		
Select Constant and enter 'x' as the name. Choose Save.		Saving x again will overwrite the existing data
y	y [ENTER]	49 is the output (3*15+4)

To learn an alternative method for storing variables, see Memory Functions under Advanced Mathematics.

Note: often multiple variables are used in equations. An example may be n * x + 15. In this case, a separator must be used to distinguish between the two variables. A separator may be a space, a multiplication sign, or parentheses. If the equation is entered as "nx + 15" instead, powerOne Graph and powerOne Scientific will interpret it as one variable, "nx", not one variable as "n" and a second as "x".

powerOne Scientific and powerOne Graph give fast access to the list of variables as well. From the store (STO) or recall (RCL) pop-up lists, choose "More Variables…". To work with a variable, select the variable from the list and choose "Use this variable" to recall the variable to the entry field or choose "Delete this variable" to remove it completely from the application's memory (using the variable does not remove it from memory).

It is recommended that variable names contain letters and underscore (_) characters only.

History List

The history list displays the last entry from the entry field as well as the answer or error message associated with that entry. Tapping the history quick hit button will display the last four entry and answer combinations in a pop-up window. Selecting an item from

the history list or from the history pop-up window will insert the
text into the entry line at the insertion point.

Preferences

The Preferences screen sets preferences for the main calculator. Reach the preferences screen by selecting powerOne Prefs from the powerOne button or choose Preferences from the Options menu.

powerOne Scientific and powerOne Graph have three preferences:
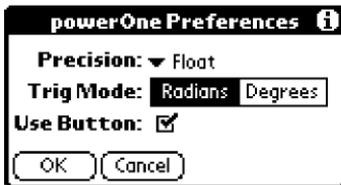
- Precision: the number of decimal digits in the answer. Float or 0 through 11 can be chosen. Float is the default and means that powerOne will display as many places as possible, or scientific notation.
- Trig Mode: calculates trigonometric functions as either radians or degrees.
- Use Button: checking this box changes the on-screen calculator button (to the upper, right-hand corner of the Graffiti input area) to powerOne.

Note that some of the worksheets also have preferences. These preferences are detailed in their respective sections.

Using the Worksheets

powerOne Scientific and powerOne Graph use worksheets to perform advanced computations. This section details general use. See the section on each worksheet for details on that specific computation. Finally, see the appendix for information on errors.

Accessing the Worksheets

To access a worksheet, choose it from the worksheet bar in the top, right-hand corner of the screen or select the worksheet quick hit button. Each worksheet is divided into categories. In powerOne Graph, there are five categories (Graph, Convert, Stats, Calendar and Business) while there are four in powerOne Scientific (Graph is not available). A description of each general worksheet is listed below.

Graphing Worksheets (Graph: powerOne Graph only)
- **Enter Equat**: a wizard for entering either a function or parametric equation for graphing. This uses the view window and main calculator for entry.
- **Equations**: worksheet that shows the list of saved equations for graphing. Controls for editing, deleting and graphing are also in this worksheet.
- **Window**: graph display settings.
- **Graph**: graph display and evaluation worksheet. Can perform trace, evaluation, and zoom features within this worksheet.

- **Preferences**: preferences for graphing.

Conversion Worksheets (Convert)
- **Area**: area conversions
- **Length**: length conversions
- **Mass**: mass conversions
- **Temperature**: temperature conversions
- **Volume**: volume conversions

Statistics Worksheets (Stats)
- **Stats**: worksheet performs both one-variable and two-variable statistics, including four different regression models.

Calendar Worksheets (Calendar)
- **Date**: worksheet performs date computations using both 30/360 and actual year methods.
- **Time**: worksheet performs time computations, including adding two times, difference between times, and display in both standard time and decimal formats.

Business Worksheets (Business)
- **Markup**: worksheet performs markup, markdown and margin computations.
- **Perc Change**: worksheet performs percent change computations over single or multiple periods.
- **Sales Tax**: worksheet performs sales tax computations.

- **Tip**: worksheet performs tip computations.

Worksheet Structure

Excluding the graphing worksheets, all other worksheets are similar in nature:

- Each worksheet has a **clear** button which sets the data back to its original state.
- To exit the worksheet, select **done**.
- Most worksheets contain a menu with two options: about the powerOne calculator with contact information, and access to the worksheet **preferences**. The worksheets maintain their own decimal place setting – this is set in the worksheet preferences.

Some of the graphing worksheets, by their nature, function differently. Often, **save** and **cancel** buttons are used instead of done buttons. These worksheets also use a "**Go**" button for advanced navigation between the graphing worksheets. Finally, the graphing worksheets use their own preferences.

The computation display for each worksheet is also similar. For most worksheets, the data is set in column form:

Label column — Compute column — Variable column

powerOne Calendar – Date
Method: ▼ Actual
Date 1: **Sat 1/1/00**   CPT
Date 2: **Sat 8/12/00**   CPT
Difference: **224.00**   CPT
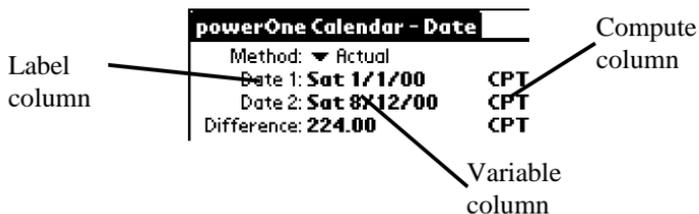
To enter a value, tap on the label or value column and enter it in the entry screen. To compute a value, tap the "CPT" label next to the data to compute.

The statistics worksheet is slightly different:

Data #1 column — Number column — Scroll bar — Data #2 column

powerOne Stat
#	x	Occurrences
0	4,500.00	3.00
1	850.00	1.00
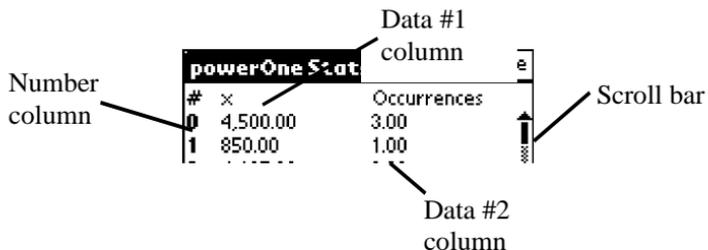
Since these worksheets require data and computations, the top half of the worksheet allows for data entry (as shown in the picture) while the bottom half allows for computations. To enter a data

point, select a location from data column 1 or 2. To **insert**, **remove**, or **clear** a data point, select the column number and a list choice. There are 30 total data sets (numbered 0 through 29). Use the scroll bar to move up and down (the scroll buttons are inactive in these worksheets). Additionally, the calculations for these worksheets may also have a scroll bar, which list additional computations.

For the graphing worksheets, entering equations uses the main calculator. To choose equations to graph, go to the Equations worksheet and check the equations to graph. Finally, choose Graph to graph the equations and perform analysis.

Entering Data

In the graphing worksheets, data is entered using the main calculator keypad or by entering data through the Graffiti input area.

In the other worksheets, data is entered using the input screen, date selector or time selector, depending on the type of data requested. The date and time selectors are standard to the Palm Computing platform, used in applications such as the datebook and to do list. The input screen is native to the powerOne line of calculators.

Input Screen
The input screen is used to enter values in the worksheets. The basic math functions available in the main calculator are also

available in the input screen. The input screen, however, functions
as a standard (as opposed to algebraic) entry calculator.

When a value is selected, that value appears in the input screen.
The keyed function buttons work similar to those in the main
calculator. Additionally, the f(x) button displays a list of
additional math functions. Finally, a menu is available.

To exit the input screen, tap **save** to store the view window's value
for worksheet calculations or tap **cancel** ("Cancl") to disregard the
value. Some variables cannot be saved. In this case, the
worksheet disregards the value whether save or cancel is selected.
Remember, the computations done in the worksheet itself are
automatically saved for further use within the input screen. Save
and cancel are specifically used for saving to the worksheet itself.

Graphing

These worksheets allow for creation and graphing of equations.
To access the graphing worksheets, choose Graph from the
worksheet bar.

Overview

Graphing an equation on any
handheld calculator requires a
couple of steps. powerOne
Graph offers equation creation
and graphing in a step-by-step
wizard to make repeated use
easier.
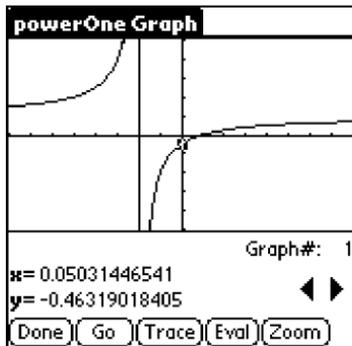
Equation creation and
graphing is split into five core functions: entering an equation,
choosing the equations to graph, setting the graph window
coordinates, setting the graph preferences, and graphing.

Equations can either be function or parametric. Function equations
rely on one dependent (y) and one independent (x) variable. It is
graphed by plotting the y variable that correlates with the x value.
Parametric equations have two dependent variables (x and y) that
both rely on the same independent variable (t). These equations
are graphed by plotting the (x, y) point.

Quick Start

This is a step-by-step example on how to graph an equation. In this case we want to graph the function $(x + 1) / (x - 2)$.

Step 1. Enter an equation
To enter an equation, select **Enter Equat** from the Graph worksheet category. The wizard will begin by asking which type of graph to enter: function or parametric. For this example, choose **Function**.

Notice that the view window altered. Instead of the history list and entry field, a new entry field appeared defined as "y(x)=" along with save and cancel buttons. Also notice that a "x,t" button appeared instead of the EE button along the left-hand side of the display. To enter an equation, make sure the cursor is blinking in the y(x) entry field and enter $(x + 1) / (x - 2)$ as follows:

Key	Display	Comments
(	(	
x,t	(x	powerOne determines whether it needs x or t automatically
+	(x+	
1	(x+1	
)	(x+1)	

÷	(x+1) /	Divide
(	(x+1) / (	
x,t	(x+1) / (x	
−	(x+1) / (x−	
2	(x+1) / (x−2	
)	(x+1) / (x−2)	

After entering, choose **Save**.

Step 2. List Equations
Choosing save displays the next graphing wizard. Choose the
second **Go** button (Go to the equations worksheet).

powerOne Graph has the ability to store and graph multiple
equations at the same time. To control which equations to graph,
make sure a check appears in the checkbox to the left of the
equation. Make sure the equation (x+1) / (x−2) is checked.

Step 3. Graph
Now choose the **Graph** button in the equations screen. You
should see the graph display. Choose **Done** to return to the main
calculator or choose **Go** to go to a different graphing function.

Entering Equations

Entering equations (Enter Equat in the graph category) starts a
wizard that makes entry and graphing easier.

The first display asks which type of equation to graph. The
decision changes the view window of the main calculator.
Choosing **function** changes the view window to show a y(x) entry
field, along with save and cancel buttons. Choosing **parametric**
changes the view window to show both an x(t) and y(t) entry field.
Entering the equations and selecting save will store the equation in
memory.

Notice that the EE
(exponential notation) button
along the left-hand side of the
keypad also disappears and is
replaced with a button labeled
"x,t". This button makes
entering the appropriate
variable easier. powerOne
automatically handles whether
x or t should be used.
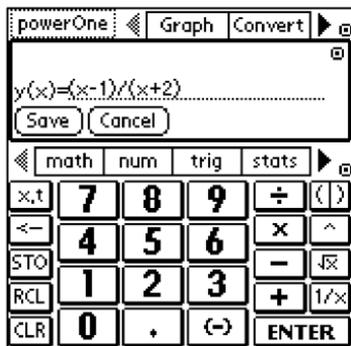
Once save is selected, a second display asks what to do next. This
makes entering a new graph, navigating to the equations
worksheet, or graphing easier.

Equations Worksheet

The equations worksheet contains a list of all entered graphs,
whether function or parametric. The display shows (from left to

right) the equation number, followed by the graphing checkbox, and finally the equation itself. powerOne Graph can graph multiple equations at the same time. Those equations that are checked will display in the graph worksheet.

At the bottom of the display are three buttons:

- **Done**: returns to the main calculator.
- **Go**: shows a list of other graphing worksheets for fast navigation.
- **Graph**: goes to the graph worksheet.
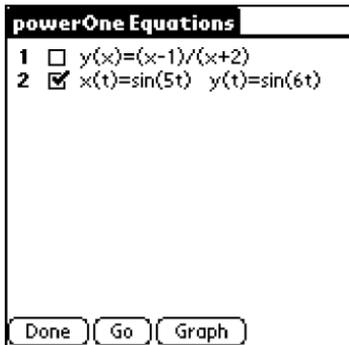
From this screen, editing and deleting equations is also possible. To edit or delete an equation, select the equation and choose from the pop-up list. Editing returns the equation to the entry view within the main calculator. Delete removes the equation from the list.

Window Settings

The window settings are used to define the graph window coordinates. The nine variables are defined as follows:

- **X Min**: the minimum on the x-axis (horizontal, far left edge of the graph window).
- **X Max**: the maximum on the x-axis (horizontal, far right edge of the graph window).
- **Y Max**: the maximum on the y-axis (vertical, top edge of the graph window).

powerOne Graph Window ⓘ
X Min: -8
X Max: 8
Y Min: -5
Y Max: 5
X Scale: 1
Y Scale: 1
T Min: 0
T Max: 6.28318530718
T Step: 0.09817477042
(OK) (Cancel)

- **Y Min**: the minimum on the y-axis (vertical, bottom edge of the graph window).
- **X Scale**: determines the tick intervals on the x-axis.
- **Y Scale**: determines the tick intervals on the y-axis.
- **T Min, T Max, T Step**: determine which values are used to plot parametric equations.
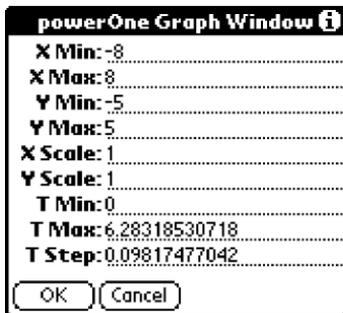
Choose **Save** to save the settings or **Cancel** to throw the changes away.

Graph Preferences

The graph preferences define additional graph settings. The following preferences are available:

Graph Preferences ⓘ
Trig Mode: Radians Degrees
Show Axis: ☑
Zoom Scale: 2
(OK) (Cancel)
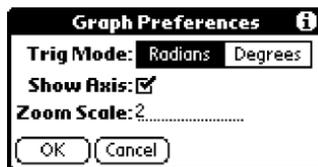
- **Trig Mode**: the graphing worksheets can evaluate trigonometric functions in either degrees or radians.
- **Show Axis**: check this box to show the axis; uncheck this box to hide the axis.
- **Zoom Scale**: the ratio to jump when zooming in or out in the graph worksheet

Graph Worksheet

The graph worksheet is the screen where graphing and equation evaluation occur. The screen is split into two sections. The top portion of the screen is the actual graph window. The bottom portion of the screen is established for navigation and evaluation. The following buttons are visible:

- **Done**: returns to the main calculator.
- **Go**: shows a list of other graphing worksheets for fast navigation.
- **Trace**: puts the graph into trace mode. See its section below for more details.
- **Eval**: puts the graph into evaluation mode. See its section below for more details.
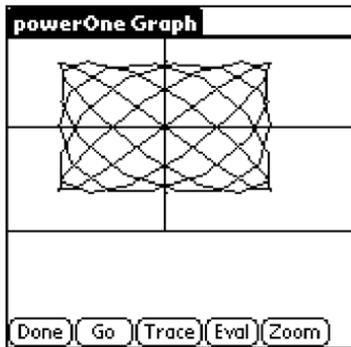
- **Zoom**: shows a list of zoom choices. See its section for more details.

Trace Mode

To enter trace mode, choose the **trace** button. Trace mode displays x and y coordinates for the current cursor location on the graph. To move the cursor left and right, either select a point within the graph to display or use the left and right on-screen scroll arrows. If multiple equations are showing, use the up and down scroll buttons to move between the graphed equations. Notice that the graph number, which correlates to the graph number in the equations worksheet, is displayed above the left and right scroll arrows.

Evaluation Mode

To enter evaluation mode, choose the **eval** button. Evaluation mode allows entry of the independent variable to derive an answer for the dependent one(s). For function graphs, entering a x-value will display a y-value. For parametric graphs, entering a t-value will yield both an x- and y-point. If multiple equations are showing, use the up and down scroll buttons to move between the graphed equations. Notice that the graph number, which correlates to the graph number in the equations worksheet, is displayed in the top, right-hand corner of the evaluation window.

Zoom Mode

To choose a zoom mode, select the **zoom** button. powerOne
Graph allows five different zoom modes:

- **In**: zooms in the Preference's zoom scale times.
- **Out**: zooms out the Preference's zoom scale times.
- **Box**: zooms to the outlined boxed setting.
- **Default**: zooms to the default settings.
- **Square**: attempts to adjust the x and y maximum and
  minimum so the change of x is the same as the change of y.
  This will make the graph of a circle look like a circle.

To zoom in or out, choose one so "Zoom In" or "Zoom Out"
appears in the status area, then select a location on the screen.
powerOne will attempt to place the selected location in the center
of the new display. These modes stay on until another mode is
selected. In other words, selecting the display multiple times will
continue zooming in or out at the selected location.

To zoom box, choose it so "Zoom Box" appears in the status area.
Then, starting from the top, left-hand corner and dragging to the
bottom, right-hand corner, create a box on the display around the
graph area to display in more detail. powerOne will change the
graph display to be the drawn area. Note that this mode stays on
until another mode is selected. In other words, selecting a new box
multiple times will continue to alter the graph.

All other zoom functions happen immediately on selection.

Statistics

This worksheet analyzes statistical data sets, both one and two-variable. To get to the statistics worksheet, choose Stats from the worksheet bar and then Stats from the pop-up list.

The Display

Select a statistics computation method from the pop-up list in the top, right-hand corner. To perform one-variable statistics, select that choice. Linear, natural log, exponential, and power are two-variable regression methods.

To perform a statistics problem, data must be entered. The top section of the worksheet is for data entry while the bottom section is for computations. From left to right, the columns are:

- **Number (#)**: the statistics number, 0 through 29.
- **x**: the statistic's x-value.
- **Occurrences or y**: the number of occurrences or the statistic's y-value. Occurrences are for one-variable statistics. Each one-variable statistic can occur a maximum of 99 times. Y is for two-variable statistics.

For more on data entry, see Using the Worksheets.

Calculations

powerOne Graph and powerOne Scientific will calculate statistical data items based on five method. For two-variable statistics, regression models include linear, exponential, natural log, and power. The fifth is one-variable.

To calculate the main statistics, select "CPT" on the top calculation line. In addition, entering a value for X' or Y' and selecting "CPT" next to the other will calculate it.

An explanation of each variable follows:

Label	Explanation	One-Var
Occ	Number of items	Yes
Mean X	Mean of x values	Yes
Sx	Sample standard deviation of x	Yes
Sigma X	Population standard deviation of x	Yes
Sum X	Sum of x	Yes
Sum X^2	Sum of x-squared	Yes
Mean Y	Mean of y values	No
SY	Sample standard deviation of y	No
Sigma Y	Population standard deviation of y	No
Sum Y	Sum of y	No
Sum Y^2	Sum of y-squared	No
A	Regression y-intercept	No

B	Regression slope	No
R	Regression correlation coefficient	No
X'	Predicted x-value	No
Y'	Predicted y-value	No

Regression Models

powerOne Graph and powerOne Scientific use four different regression models for determining the best fit for curves and forecasting. The X value is considered the independent variable while the Y variable is dependent. The formulas used are as follows:

Model	Formula	Restrictions
Linear	$Y = a + b * X$	None
Logarithmic	$Y = a + b * \ln(X)$	All X values > 0
Exponential	$Y = a * b^X$	All Y values > 0
Power	$Y = a * X^b$	All X and Y values > 0

The results are calculated using the following values:

- **Linear**: uses X and Y
- **Logarithmic**: uses $\ln(X)$ and Y
- **Exponential**: uses X and $\ln(Y)$
- **Power**: uses $\ln(X)$ and $\ln(Y)$

In addition, the **correlation coefficient r** measures the closeness of the fit. The closer r is to 1 or –1 the better the fit. The closer r is to 0, the worse the fit.

Statistics

Examples

Two-Variable Statistics: Your company has five sales offices around the world and is thinking of adding a sixth. The president of the company wants to know if there is a correlation between the number of salespersons at a branch and the volume of sales per month. What volume of sales can be expected at the new branch if it has 10 sales people?

Site	Number Sales People	Sales per month ($)
1	8	200,000
2	13	237,250
3	15	397,500
4	18	427,590
5	12	242,820

Key	Entry	Comments
Clear…		Sets the display to its default values
Linear		Set the calculation method in the top, right-hand corner
$Stat_0 - X$	8	
$Stat_0 - Y$	200,000	
$Stat_1 - X$	13	
$Stat_1 - Y$	237,250	

Stat$_2$– X	15
Stat$_2$ – Y	397,500
Stat$_3$ – X	18
Stat$_3$ – Y	427,590
Stat$_4$ – X	12
Stat$_4$ – Y	242,820

To calculate, select "CPT" on the top line of the computations. This must be done first. Then, enter 10 for X' and compute Y'. Sales can be expected to be approximately \$219,916.79. The number of salespersons seems to affect revenue. This is known because the correlation coefficient (R) is 0.91 (the closer to 1 or –1 the better).

One-Variable Statistics: A set of data points is gathered and you need to calculate the mean. The data points are as follows:

Data Point	Occurrences
100	1
125	3
95	2
115	1

Key	Entry	Comments
Clear…		Sets the display to its default values
One Variables		Set the calculation method in the top right-hand corner

$Stat_0 - X$	100
$Stat_0 - Occ$	1
$Stat_1 - X$	125
$Stat_1 - Occ$	3
$Stat_2 - X$	95
$Stat_2 - Occ$	2
$Stat_3 - X$	115
$Stat_3 - Occ$	1

To calculate, select "CPT" on the top line of the computations.
The mean of x is 111.43.

Statistics

Calendar

Calendar computations in powerOne Graph and powerOne Scientific include both date and time computations.

Date Calculations

Both powerOne Graph and powerOne Scientific compute date with the actual or 30/360 day-count method.

The actual date method assumes a standard calendar year. The 30/360 method assumes there are 30 days in a month and 360 days in a year.

- **Method**: the calculation method: actual or 30/360.
- **Date 1**: the date to compute from.
- **Date 2**: the date to compute to.
- **Difference**: the difference in number of days.

Time Calculations

Display is in either standard or decimal format. Standard format is
the localized time format set in the Palm's Prefs screen. An
example may be 11:05. The decimal format shows variables in
decimal format with minutes displayed as a fraction of an hour.
An example may be 11.08.

- **Display**: the display format: standard or fraction.
- **Time 1**: the beginning time set in increments of 5 minutes.
- **Time 2**: the ending time set in increments of 5 minutes.
- **Difference**: the difference between the two times. In this case, am/pm setting is important.
- **Sum**: the sum of the two times. In this case, am/pm is ignored.

```
┌─────────────────────────────────┐
│ powerOne Calendar - Time        │
│    Display: ▼ Standard          │
│    Time 1: 1:10 pm              │
│    Time 2: 2:45 pm             │
│ Difference: 1:35            CPT │
│       Sum: 3:55             CPT │
│                                 │
│                                 │
│                                 │
│ (Clear...) (Done)               │
└─────────────────────────────────┘
```
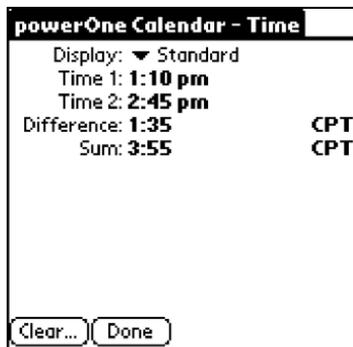
The difference computation takes the difference between two
times. For example, the difference between 11:00am and 12:30pm
is 1 hour, 30 minutes (1:30) or 1.50 hours. In this case, the setting
for am/pm (or 24 hour time) matters.

For sum, the am/pm setting no longer matters. For example, the time 1:00 and 2:30 are treated as 1 hour and 2-1/2 hours for a sum of 3 hours, 30 minutes (or 3.50 hours). In addition, 12am is treated as 0 hours for fraction of an hour computations (12:05am plus 12:10am will equal 15 minutes).

Examples

Date: Go to the Calendar $\rightarrow$ Date worksheet to compute this problem. Vacation begins on October 15, 2000. Today is August 18, 2000. How many actual days until vacation?

Key	Entry	Comments
Clear…		Sets the display to its default values
Method	Actual	
Date 1	8/18/99	Enter August 18, 1999
Date 2	10/15/99	Enter October 15, 1999

Compute the difference in days by selecting "CPT" on the same line. There are 58 days until vacation.

Time Difference: Go to the Calendar $\rightarrow$ Time worksheet to compute this problem. When billing time, the project began at 12:15pm and commenced at 4:50pm. If you bill at $30 per hour, how much did you make?

Key	Entry	Comments
Clear…		Sets the display to its default values
Display	Standard	

Time 1	12:15pm
Time 2	4:50pm

Compute the difference by selecting "CPT" on the same line. This project took 4 hours and 35 minutes. To calculate, recall the difference into the input screen, where it is displayed as a fraction, and multiply by 30. You made $137.50 for your work.

Time Sum: Go to the Calendar → Time worksheet to compute this problem. Your company pays for driving time. If you drove 3:15 hours and 5 hours, how much time did you spend driving?

Key	Entry	Comments
Clear…		Sets the display to its default values
Display	Standard	
Time 1	3:15	Ignore am/pm
Time 2	5:00	Ignore am/pm

Compute the sum by selecting "CPT" on the same line. You spent 8 hours, 15 minutes driving.

Conversions

powerOne Graph and powerOne Scientific handles five kinds of
unit conversions: **area**, **length**, **mass**, **volume** and **temperature**.

Each screen appears the same
with only a variation in the
units to convert.

- **Type #1**: the unit type to
  convert from.
- **Amount #1**: the amount
  of the first type.
- **Type #2**: the unit type to
  convert to.
- **Amount #2**: the amount
  of the second type,
  calculated.

```
┌─ powerOne Conv - Area ──────┐
│   Type #1: ▼ Yards²         │
│ Amount #1: 125.00           │
│   Type #2: ▼ Centimeters²   │
│ Amount #2: 1,045,159.20  CPT│
│                             │
│                             │
│                             │
│                             │
│ (Clear...)( Done )          │
└─────────────────────────────┘
```

Examples

Length: Choose Length from the Convert worksheet category to
compute this problem. The instructions say to measure off 25
meters but you don't have a metric measure. How many feet is
this?

Key	Entry	Comments
Clear…		Sets the display to its default values

Type #1	Meters	Choose from pop-up list
Amount #1	25	
Type #2	Feet	

Compute the amount of feet by selecting "CPT" on the Amount #2 line. There are 82.02 feet in 25 meters.

Business Computations

In powerOne Graph and powerOne Scientific, a series of business computations exist. Included are worksheets to perform **markup**, **percent change**, **sales tax**, and **tip** computations.

Markup

This worksheet performs **markup**, **discount (markdown)** and **profit margin** computations:

```
powerOne Markup
   Method: ▼ Discount
Orig. Price: 29.95
Percent%: 25.00          CPT
New Price: 22.46         CPT




[Clear...] [Done]
```

- **Method**: whether you are computing a markup, discount, or margin. Markup and discount are calculated as a percentage of the original price; margin as a percentage of the new price.
- **Orig Price**: the original price of the product.
- **Percent%**: the percentage to markup or discount expressed as a percent.
- **New Price**: the new price of the product after the market or discount.

Percent Change

This worksheet performs percentage change computations with either one or more compounding periods:

- **Old**: the old value.
- **New**: the new value.
- **Change%**: the percentage changed. For example, an 8.125% change would be entered as "8.125". A positive value represents an increase while a negative one represents a decrease.
- **Periods**: the number of periods.

Sales Tax

The sales tax worksheet computes tax before or after sales tax, or the tax rate itself:

- **Before Tax**: the amount before taxes.
- **Tax Rate%**: the tax rate as a percentage.
- **After Tax**: the amount after taxes.

Tip

The tip calculator computes tip, total bills, and performs bill splitting functions:

- **Bill**: the bill amount before tip.
- **Tip%**: the tip percentage chosen from the pop-up list.
- **Tip Amount**: the tip amount.
- **Total**: the total amount including the tip.
- **#People**: the number of people paying for the meal.
- **Ttl/Person**: the total per person, split evenly among the people paying for the meal.

The tip computation calculates from the top, down. In other words, to calculate the tip amount, it will first attempt to use Bill, then Total, and finally Ttl/Person to calculate. It knows to use a value when the variable is not zero. If Bill is 0, for example, it will use Total.

Examples

Percent Change: To perform this computation, choose Percent
Change from the Business category on the main calculator's
worksheet bar. Over 4 years, the price of gasoline increased from
$1.03 to $1.48. What is the yearly change in price?

Key	Entry	Comments
Clear…		Sets the display to its default values
Old	1.03	
New	1.48	
Periods	4	

Compute the percent change by selecting "CPT" on the Change%
line. The price of gasoline has increased 9.49% per year.

Sales Tax: To perform this computation, choose Sales Tax from
the Business category on the main calculator's worksheet bar. The
local tax rate is 5.5% You have a maximum of $70 to spend on
clothing. What is the maximum amount of clothing you can
purchase and still have enough to pay for the tax?

Key	Entry	Comments
Clear…		Sets the display to its default values
Tax Rate%	5.5	
After Tax	70	

Business Computations

Compute the before tax amount by selecting "CPT" on the same
line. You can have a maximum of $66.35 worth of clothing.

Discount: To perform this computation, choose Markup from the
Business category on the main calculator's worksheet bar. The
clothing is sold at a 25% discount. What is the current price if the
original price is $29.99?

Key	Entry	Comments
Clear…		Sets the display to its default values
Method	Discount	
Orig Price	29.99	
Percent%	25	

Compute the price by selecting "CPT" on the same line. The
selling price is $22.49.

Margin: To perform this computation, choose Markup from the
Business category on the main calculator's worksheet bar. The
clothing was bought for $19.99 and sold for $22.49. What is the
profit margin percentage?

Key	Entry	Comments
Clear…		Sets the display to its default values
Method	Margin	
Orig Price	19.99	

New Price	22.49

Compute the Percent% by selecting "CPT" on the same line. The profit margin is 11.126%.

Tip: To perform this computation, choose Tip from the Business category on the main calculator's worksheet bar. At a team business lunch, your four person team (including you) goes out. The total bill is $45. With a 15% tip, what should each person contribute?

Key	Entry	Comments
Clear…		Sets the display to its default values
Bill	45	
Tip%	15	

Compute the total per person (Ttl/Person) by selecting "CPT" on the same line. Each person should contribute $12.94.

Tip: To perform this computation, continue from the example above. Instead of each person chipping in, the company will pay the entire bill. What is the tip and the total bill?

Compute the tip amount by selecting "CPT" on the same line. The tip comes to $6.75. Compute the total bill by selecting "CPT" on its line. The total bill is $51.75.

Appendix

The appendix contains additional information pertinent to the use
of powerOne Graph and powerOne Scientific.

Order of Operations

Both powerOne Graph and powerOne Scientific perform
mathematics based on the rules for order of operations. The
following chart outlines precedence:

Order #	Function
1	Negative (-x)
2	Factorial (4!)
3	Powers and roots
4	Functions that precede an argument (ln, sin)
5	Permutations (nPr) and combinations (nCr)
6	Multiplication and division
7	Addition and subtraction
8	Relationship functions (>, <=)
9	Logic or boolean functions (or, and)

Within any priority level, order is established from left to right and
calculations within parentheses are always calculated first.

Graffiti

The input screen supports Graffiti entry. To learn how to draw
each character, see your Palm device user manual.

Character	Function	Character	Function
0	Zero	\<back\>	Backspace
		\<space\>	Backspace
1	One	c	C/CE
2	Two	+	Add
3	Three	–	Subtract
4	Four	x	Multiply
5	Five	/	Divide
6	Six	=	Equals
7	Seven	e	Enter
8	Eight	(	Lt Paren
9	Nine	)	Rt Paren
. ,	Decimal Pt	s	Store
p	Sign	r	Recall
n	Exponent		

Note that the Graffiti shift indicator is in the input screen's view
window. Also, certain characters are not allowed. These
keystrokes and their accompanying shift indicator are ignored. For
instance, capital letters are not supported so the Graffiti shift
indicator for shift or caps lock is not displayed.

Error Cases

Error messages appear when calculations cannot be successfully
completed. This section documents the cases where error
messages occur:

Mathematical Errors
- Overflow or underflow occurs in the calculation.
- Divide by 0.
- Reciprocal when $x = 0$.
- Square root when $x < 0$.
- Power when $y = 0$ and $x <= 0$ or $y < 0$ and x is not an integer.
- Factorial when $x < 0$, $x > 169$, or if x is not an integer.
- Natural log when $x <= 0$.
- Permutations when $n < 0$, $r < 0$, or r or n is not an integer.
- Combinations when $n < 0$, $r < 0$, or r or n is not an integer.
- Used too many levels of parentheses.

Worksheets
- General math errors.

Statistics
- All x- or y-values are the same.
- R errors if Standard or Sample Deviation is an error.

Calendar: Date

- Calculating a date when difference is greater than allowed, reports the maximum date or the same date.

Markup: Markup and Discount
- Calculating markup when cost = 0.
- Calculating cost when markup is –100.

Markup: Margin
- Calculating markup when price = 0.
- Calculating price when markup is 100.

Contacting Infinity Softworks

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The powerOne calculators do not support system find functionality.

Appendix