# ARITHMETIC AND LOGICAL **OPERATORS**

Operations with larger precedence numbers are performed first, unless overridden by parentheses. Operations with equal precedence are performed leftto-right.

Operator	Meaning	Precedence /
. ^	Exponentiation	7
+	Positive	6
_	Negative	6
*	Multiplication	5
/	Division	5
+	Addition	4
_	Subtraction	4
=	Equals	3
<	Less than	3
< =	Less than or equal	- 3
>	Greater than	3
>=	Greater than or equal	3
<>	Not equal	3
#NOT#	Logical not	2
#AND#	Logical and	1
#OR#	Logical or	1



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# 1-2-3 COMMANDS

# /Worksheet Commands

Global Overall worksheet settings
Format Number/Formula display
Label-Prefix Alignment of labels

Column-Width 1-72 characters

 Recalculation
 Formula recalculation procedures

 Protection
 Enable/Disable cell protection

 Default
 Standards for printing, current disk

Insert Create empty rows/columns

Delete Eliminate rows/columns

Column-Width I-72 characters

Erase Erase worksheet and settings
Titles Freeze rows/columns onscreen
Window Split/Unsplit display window

Status Display global settings

# /Range Commands

Erase

Format Number/Formula display Label-Prefix Alignment of labels

Erase cell entries

Name Maintain set of names for ranges
Justify Adjust width of label "paragraph"
Protect Disallow changes to cells

Disallow changes to cells (if Protection Enabled)

Unprotect Allow changes to cells

Input Restrict pointer to unprotected cells

# /Copy Command

Copy entries to new location(s)

# /Move Command

Move entries to new location

# /File Commands

Retrieve Restore data from worksheet file

Save Store entire worksheet in worksheet file
Combine Incorporate (part of) worksheet file into

current worksheet:

methods: Copy, Add, Subtract

use Entire-File or Named-Range only
Xtract Store range of entrics in worksheet file:

save Formulas or current Values only

Erase one or more 1-2-3 datafiles

List names of 1-2-3 datafiles, report disk space

# (/File Commands, cont.)

Import Incorporate print file into worksheet:

treat lines as Text or as Numbers and

quoted text

Directory Change current directory assignment

# /Print Commands

Printer vs. File Direct output to printer or print file

Range Range to be printed
Line Advance printer one line
Page Advance to top of next page

Options Page formatting

Header, Footer Set page header/footer line
Margins Left, Right, Top, Bottom

Borders Graft extra columns/rows to print Range

Setup Set printer-control characters

Page-Length Set number of lines

Other As-Displayed vs. Cell Formulas:

Printing of formula texts
Unformatted vs. Formatted:

Suppress headers, footers, page breaks

Clear Cancel print settings

Align Reset line-number counter to 1
Go Print the selected range

# /Graph Commands

Type Select graph type X A B C D E F Set graph data ranges

Reset Cancel graph settings View Display graph

Save Save graph image in graph file ( PIC)

Options

Name

Legend Enter graph legends (A-F)

Format Set method of displaying Line and XY data:

Lines, Symbols, Both, Neither Enter title text: axes, graph

Titles Enter title text: axes, graph
Grid Overlay with horizontal/vertical lines

Scale Set/Format numeric axis scales

Color v. P 64V Maritan display method (solor has no

Color vs. B&W Monitor display method (color has no effect)
Data-Labels Range of entries to label data points

Maintain set of names for groups of graph

settings:

Create, Use, Delete, Reset

# (1-2-3 Commands, cont.)

# /Data Commands

Fill Enter number series in a range

Table Tabulate formula values as Input entries vary

Sort Sort data records Data-Range Set range to sort

Primary-Key Set first column to sort on

Secondary-Key Set second ("tiebreaker") column to sort on

Reset Cancel sort settings

Go Perform the sort

Query Select data records from a database

Input Range containing database Criterion Range containing record-selection criteria

Output Range to receive copies of records

Find Highlight selected records

(Input, Criterion ranges required) Extract

Make (partial) copies of selected records (Input, Criterion, Output ranges required)

Unique Make (partial) copies of selected records-

no duplicate copies

(Input, Criterion, Output ranges required)

Delete selected records

(Input, Criterion ranges required) Reset Cancel query settings

Distribution Calculate frequency distribution

# /Ouit Command

Delete

End 1-2-3 session (Be sure to save your work first!)

# **FUNCTION KEYS**

fl: Help Display Help screens-press [Esc] to return to

Ready Mode P. Edit

Switch to/from Edit Mode for current entry f3: Name (Point Mode only) Display menu of range names

f4: Abs (Point Mode only) Make/Unmake cell addresses

"absolute" f5: GoTo

Move cell pointer to a particular cell f6: Window (Split-screen only) Move cell pointer to other

f7: Ouery Repeat most recent Data Query operation 18: Table Repeat most recent Data Table operation

f9: Cale Ready Mode: Recalculate worksheet ([Shift]-[f1])

Value and Edit Modes: Convert formula to its

current value

fi2: Scroll Lock

([Shift]-[f4])

fi0: Graph Draw graph according to most recent

([Shift]-[f2]) graphing specifications

Change meaning of arrow keys-when ON, keys

move the window over the worksheet

# PRINTGRAPH COMMANDS

Select Select graphs to print Options Formatting options Color Colors for parts of graphs:

Grid Gridwork and text ABCDEF Data range (A-F):

Available colors displayed

Font Type fonts: 1 Font for first line 2

Font for rest of graph (if omitted, Font 1 used)

Size Size and placement of graph Full vs. Half One or two graphs per page Manual Adjust size settings manually: Left, Top Margin

Width, Height Overall dimensions

Rotation Clockwise rotation of image Pause Pause between printing graphs **E**ject Page eject between printing graphs Go Print the selected graphs

Configure Configure PrintGraph to system hardware

Files

Drives to search for data files **P**ictures Drive to search for Picture (graph) files

Fonts Drive to search for Font files

Device Graphies printer Page Default page size Length Default page length Width Default page width

Interface Interface for graphics device: two parallel, two serial

Save Record configuration in GRAPH.CNF

Reset Resets "unsaved" configuration settings to default Align

Make current paper position "top of form"

Advance paper to top of next page Page Ouit

End PrintGraph program

# LABEL ALIGNMENTS

Labels are aligned according to their label-prefix characters. You cannot assign a label format to a cell itself, only to its label entry.

l aho	i-Prefix	

## Alignment

'(apostrophe)	The 'prefix left-aligns.
"(double-quote)	The " prefix right-aligns.
A(caret)	The A prefix centers.
\ (backslash)	+=+=+=+=+=+=

(entering \ += creates a repeating label)

/Worksheet Global Label-Prefix: Sets global label-prefix, which 1-2-3 automatically adds to any label entered without a prefix.

/Range Label-Prefix: Changes the label-prefix for all labels in a range.

Long Labels: If a label is too long to fit in its cell, 1-2-3 left-aligns it and borrows space from empty cells to the right, in order to display as much of the label as possible.

# INDICATING CELL RANGES

1. Type addresses of two opposite corner cells.

D5. .F48 HI.AI7 J97. . . AI

[Break]

(use one or more "." characters to separate addresses)

2. Expand the cell pointer to cover the range.



<b>F F</b>		
◀	Move 1 cell left	
<b>&gt;</b>	Move 1 cell right	
[BackTab]	Move 1 page left	
[Tab]	Move 1 page right	
<b>&gt;</b>	Move to upper left corner	
[Select] arrow-key	Move in indicated direction to boundary	
•	between empty block and non-empty block	
[Select] >	Move to lower right corner of active area	
f6 [Window]	(Split-screen only) Jump to current cell in other window	
[Esc]	Unexpand pointer and return to anchor cell	
[Backspace]	Unexpand pointer and return to current cell	
[Period]	If not anchored: Anchor pointer on the cell If anchored: Shift free cell to next corner of	

# (Indicating Cell Ranges, cont.)

- 3. Use a range name that you have previously created.
- In a formula: Type a range name.
- At a command prompt: Type a range name or Press f3 [Name] to display a menu of all range names, then select one.

Range names up to 15 characters long (uppercase and lowercase letters equivalent) are created, altered, and deleted with the /Range Name command. Do not create range names that are the same as cell addresses (e.g. C47). Avoid using spaces and arithmetic operator characters in range names.

# NUMERIC DISPLAY FORMATS

Each cell has a numeric display format that is independent of the cell's contents. In an empty worksheet, all cells have the General format.

/Worksheet Global Format: Sets global numeric format, which 1-2-3 uses for all cells not processed with a /Range Format command.

/Range Format: Changes the numeric format of all cells in a range. The /Range Format Reset command returns the cells to using the global numeric format.

General	34.007	-689.123	
	(as many decimal places as needed)		
Fixed	34.01	-689.12	
Scientific	3.40E+01	-6.89E + 02	
Currency	\$34.01	(\$689.12)	
(Comma)	34.01	(689.12)	
+/-	****	****	
	(horizontal bar graph: asterisks inc value is too large)	licate	
	+++		
	These cells display 3.45 and -5.21		
Percent	3400.70%	-68912.30%	
Date-I	03-Feb-00	****	
Date-2	03-Feb	****	
Date-3	Feb-00	****	
	(In Date formats, the number indicates "serial number" of date [1=01-Jan-1900 to 73049=31-Dec-2099]. Asterisks show that negative numbers are meaningless as dates.)		
Text	34.007	-689.123	
	(Numbers are displayed in General format.		
	Formula text appears instead of value.)		

## Notes:

- Fixed, Scientific, Currency, (Comma), Percent formats: You may specify any number of decimal places between 0 and 15. The examples above all show 2 decimal places.
- 2. In General format, 1-2-3 automatically displays very large and very small numbers in scientific format.

Cancel operation - return to Ready Mode

# @ FUNCTIONS

# Mathematical Functions

@ABS(x) Absolute value of x @ACOS(x) Arc cosine

@ASIN(x) Arc sine

2-quadrant are tangent @ATAN(x) @ATAN2(x,v) 4-quadrant are tangent of v/x

@COS(x) Cosine @EXP(x)Exponential @INT(x) Integer part @LN(x) Log base e Log base 10 @LOG(x)

@MOD(x,y)x mod v

 $\pi = 3.141592653589794$ @PI Random number between 0 and 1 @RAND

@ROUND(x,n)Round number x to n decimal places

@SIN(x)@SORT(x) Square root

@TAN(x) Tangent

# **Logical Functions**

When determining the truth value of a formula, 1-2-3 considers any non-zero value to be TRUE. Only 0 itself is FALSE.

@FALSE 0 (FALSE) @TRUE 1 (TRUE)

x if cond is TRUE (non-zero) @IF(cond,x,y)

y if cond is FALSE (zero) I (TRUE) if x = NA

@ISNA(x) + (TRUE) if x = ERR@ISERR(x)

# **Special Functions**

@NA NA (not available) ERR (error) @ERR @CHOOSE $(x,v\theta,vI,...,vN)$ Select value

@HLOOKUP(x,range,offset) Table lookup with index row @VLOOKUP(x,range,offset) Table lookup with index column

# Financial Functions

Internal rate of return @IRR(guess,range) Net present value @NPV(x,range) Future value @FV(pmt.int.term) Present value @PV(pmt,int,term) @PMT(prn,int,term) Payment

# **Date Functions**

These functions generate the serial numbers by which 1-2-3 identifies days, from 1=01-Jan-1900 to 73049=31-Dec-2099. Use any of the three "date" numeric display formats to make numbers appear in date form (e.g. 30-Apr-84).

@DATE(yr,mth,day) Number (1..73049) of specified day @DAY(yr,mth,day) Day (1..31) of specified day @MONTH(yr,mth,day) Month (1..12) of specified day @YEAR(vr.mth.day) Year (0...199) of specified day @TODAY Today's number

(e.g. Nov 11, 1983 = 30631)

# **Database Statistical Functions**

These counterparts to the statistical functions operate on particular fields of records selected from a database. The selection process is exactly the same as with the /Data Query command:

@Dxxxx(inp\_range,col\_offset, crit\_range)

- The inp\_range argument identifies the Input range the database itself.
- The crit\_range argument identifies the Criterion range.

Together, these two ranges determine a set of selected records.

 The col\_offset argument identifies the field (column) of the selected records to be used in the statistical analysis (leftmost field = 0).

@DCOUNT Field count @DSUM Field sum @DAVG Field average @DMIN Field minimum @DMAX Field maximum

@DSTD Field standard deviation ("N" method)

@DVAR Field variance ("N" method)

Note: Blank cells in a range are ignored. Label entries are equivalent to the number zero

# Statistical Functions

@COUNT(list) Number of argument values

@SUM(list) Sum of values @AVG(list) Average value @MIN(list) Minimum value @MAX(list) Maximum value

> @STD(list) Standard deviation ("N" method)

@VAR(list) Variance ("N" method)

list: any number of arguments, separated by commas. Use any type of argument: number, formula, cell address, range specification, or range name.

Note: Blank cells in a range are ignored. Label entries are equivalent to the number zero

# KEYBOARD MACROS-NAMES FOR SPECIAL KEYS

(uppercase and lowercase letters equivalent)

# Control and Editing Keys

(Return) key

[Esc] key {Esc} {BS} [Backspace] key

{Del} [-Charl or [DEL] keys

Pause to accept keystrokes until [Return] is pressed {?}

# Pointer-Movement Keys

{Up} {Down} {Left} {Right} {Home} {End} {PgUp} {PgDn}

# **Function Keys**

{Edit}	f2	{GoTo}	f5	{Table}	f8
{Name}	f3	{Window}	f6	{Calc}	f9
{Abs}	f4	{Query}	17	{Graph}	fЮ

# The /X Commands

Call /XClocation -

Continue reading keystrokes at location (cell address, range, or range name). When a /XR command is encountered, return to the point just beyond the /XC location ~ command.

Return /XR

(Must follow /XC command) Return to reading keystrokes just after the corresponding /XC location ~ command

/XGlocation ~

Continue reading keystrokes at location (cell address, range, or range name). No "return" is possible

/XIcondition ~ ... If-Then

If the condition is TRUE (i.e. has a non-zero value), continue reading keystrokes in the same cell. If the condition is FALSE (i.e. zero), continue

reading keystrokes in the cell below. Process a Menu /XMlocation ~

Allow user to make a menu choice, and branch on the choice. 1-2-3 constructs the menu from the menu range whose upper left corner is location (cell address, range, or range name).

Label Entry /XLstring ~ location ~ Number Entry /XNstring ~ location ~

Display the specified string as a prompt in the control panel, accept an entry from the keyboard, and store the result as a left-justified label (/XL) or as a number (/XN) at location.

/XO

Ouit

End macro execution and return to Ready mode.

# **ENTRY-EDITING KEYS**

# Value Mode and Label Mode

[Backspace] Erase character preceding cursor

[Esc] Erase entire entry f2 [Edit] Switch to Edit Mode 19 [Calc] Convert formula to its value

Erase entire entry

# Edit Mode

[Break]

[Backspace] Erase character preceding cursor

[-Char] or [DEL] Erase character at cursor [Esc] Erase entire entry [Break] Erase entire entry

f2 [Edit] Return to Value or Label Mode f9 [Calc] Convert formula to its value Move I character left

Move I character right [BackTab] Move 5 characters left [Tab] Move 5 characters right Move to first character

[Select] Move to last character

# NAMES FOR 1-2-3 DATA FILES

Names assigned to 1-2-3 worksheet, print, and graph (picture) files may be at most eight characters long, and must consist of these characters only:

A B .. Z a b .. z 0 1 .. 9 \_\_ (underscore)

GoTo

- 1. Uppercase and lowercase letters are equivalent.
  - 2. Don't try to enter a filename extension. 1-2-3 automatically uses these extensions:

WKS worksheet file

.PRN print (text) file

.PIC graph (picture) file

3. To specify a file that is not stored on the current disk, use a disk prefix:

C:SALESFIG B:JAN\_JUN

Specifying a disk prefix causes 1-2-3 to use the directory that was most recently made current on that disk.