

CHEATSHEET
PRODUCTS Inc.

P. O. Box 111368
Pittsburgh, PA 15238

PITTSBURGH
SEP 17 5
PA
1290363
U.S. POSTAGE
E 1.75

FIRST CLASS

DO NOT BEND

7080 SEP 16, 1985
PAYROLL SERVICE PLUS

STARTING:
 1. INSERT LANGUAGE DISK
 2. TURN ON APPLE IIe or (CONTROL + ⌘ + RESET)

APPLE LOGO II

(PRODUCT of APPLE COMPUTER INC)

LEROY'S CHEATSHEET® - Keyboard Overlay for the APPLE IIe

SCREEN EDITOR COMMANDS

EDIT name Enter EDITOR
 ⌘? HELP menu (ESC = EXIT)
 ← LEFT one character
 → RIGHT one character
 ↑ UP one line
 ↓ DOWN one line
 ⌘← LEFT one WORD
 ⌘→ RIGHT one WORD
 ⌘. BEGINNING of LINE
 ⌘. END of LINE
 ⌘↑ TOP of PAGE
 ⌘↓ BOTTOM of PAGE
 ⌘n Move to rel position *n* (1-9)
 DELETE DELETE PREVIOUS character
 CONTROL D DELETE PREVIOUS character
 CONTROL F DELETE CHARACTER
 CONTROL X DELETE LINE
 CONTROL Y DELETE to END of LINE
 CONTROL R RECALL last deleted
 CONTROL O CREATE NEW LINE
 ⌘A EXIT EDITOR
 ⌘ESC EXIT EDITOR (NOT saved)

SCREEN COMMANDS

FS FULL SCREEN (or CONTROL L)
 SS SPLIT SCREEN (or CONTROL S)
 TS TEXT SCREEN (or CONTROL T)
 CT CLEAR TEXT SCREEN (homes cursor)
 CS CLEAR SCREEN (homes turtle)
 CLEAN CLEAR SCREEN
 CURSOR Outputs Cursor Position
 SETCURSOR [*c* *l*] Positions to *column* and *line*
 SETWIDTH *n* Set Screen width (*n* = 40 or 80)
 WIDTH Outputs current screen width

PEN INFORMATION

BG Background color
 PEN State of turtles pen
 PC Pen color
 DOTP [*x y*] TRUE if dot is at *x y*; else FALSE

PEN COMMANDS

PU Pen UP
 PD Pen DOWN
 DOT [*x y*] OUTPUTS DOT at location *x,y*
 FENCE Keeps TURTLE WITHIN SCREEN
 FILL FILLS SHAPE with current color
 PE ERASES LINE
 PX Pen down reversing colors
 SETBG *n* Background color *n*
 SETPC *n* Pen color *n*
 WINDOW Makes turtle field unbounded
 WRAP Makes turtle field wrap around

TURTLE MOVEMENT

HT HIDE TURTLE
 ST SHOW TURTLE
 FD *n* FORWARD *n* STEPS
 BK *n* BACKWARD *n* steps
 RT *n* RIGHT TURN *n* degrees
 LT *n* LEFT TURN *n* degrees
 HOME HOME turtle
 SETX *n* Move HORIZONTALLY to *n*
 SETY *n* Move VERTICALLY to *n*
 XCOR Turtle *x* coordinate
 YCOR Turtle *y* coordinate
 HEADING Turtle direction in degrees
 CS Erase screen and home cursor
 SETPOS (*x y*) Move to point *x y*
 POS Coordinates of turtle
 SHOWNP TRUE if not hidden, else FALSE
 TOWARDS (*x y*) Points turtle toward *x y*

WORKSPACE MANAGEMENT

NODES number of Free nodes
 RECYCLE Performs Garbage Collection
 PO *name* Prints the *named* procedures and variables
 POALL Prints out all procedures and variables
 PON *name* Prints out Name and Value of *named* variables
 PONS Prints Name and Value of every variable
 POPS Prints Out Procedures in workspace
 POT *name* Prints title of *named* procedures
 POTS Prints all title lines
 ERALL Erase all procedures, variables and properties
 ER *name* Erase the *named* procedures
 ERN *name* Erase the *named* variables
 ERNS Erase ALL variables
 BURY *name* Buries listed procedures
 BURYALL Buries all procedures and variables
 BURYNAME *name* Buries listed variables
 UNBURY *name* Unburies the listed procedures
 UNBURYALL Unburies all procedures and variables
 UNBURYNAME *name* Unburies the listed variables

NOTE: The BURY commands protect procedures and variables from commands ERALL, ERPS, POALL, POPS, POTS, and SAVE.

MISCELLANEOUS COMMANDS

.AUXDEPOSIT *loc value* Stores *value* at memory location *loc*
 .AUXEXAMINE *loc* Returns value of memory at location *loc*
 .BLOAD *pathname loc* Loads binary file starting at location *loc*
 .BSAVE *pathname loc n* Saves memory starting at *loc n* bytes long
 .CALL *loc* Calls machine language subroutine at *loc*
 .DEPOSIT *loc value* Stores *values* at memory location *loc*
 .EXAMINE *loc* Returns *value* of memory at location *loc*
 .SCRUNCH Outputs ratio of Vertical step to Horizontal
 .SETSCRUNCH *n* Sets aspect ratio to *n*
 .CONTENTS Lists all objects LOGO knows about
 .QUIT Safe way to exit LOGO (closes all files)

NOTE: AUXDEPOSIT and AUXEXAMINE work in the auxiliary memory bank and not main memory like DEPOSIT and EXAMINE.

PROCEDURE COMMANDS

TO *name* CREATE procedure
 END TERMINATE procedure
name Name of file or variable
 :*name* Value of a variable
 [] List

NAMING

MAKE *name object* Variable *name* = *object*
 NAME *object name* Variable *name* = *object*
 THING *name* Outputs the VALUE of its input
 ED *name* Invoke LOGO EDITOR (Procedures)
 EDN *name* Invoke LOGO EDITOR (Variables)
 LOCAL *name* Make variable LOCAL procedure
 NAMEP *word* TRUE if word exists; else FALSE

CONTROL

GO *word* Go to label
 OP Causes OUTPUT to calling procedure
 REPEAT *n* [...] REPEATS *list...* *n* times
 RUN *list* EXECUTES *a list*
 STOP STOPS current procedure
 WAIT *n* WAIT for *n* 60ths of a second
 CATCH *name proc* Jump to Procedure *proc*
 THROW *name* RETURN to CATCH with *name*
 ERROR Outputs ERROR condition
 LABEL *word* Make *name* a LABEL

CONDITIONALS

IF *exp list1 list2* If *exp* true execute *list1*; else execute *list2*
 TEST Test condition to be TRUE or FALSE
 IFF Execute if FALSE (after TEST)
 IFT Execute if TRUE (after TEST)

DEBUG COMMANDS

STEP *name* Execute Procedure *name* line by line
 TRACE *name* Put Procedure *name* in Trace mode
 UNSTEP *name* Take Procedure *name* out of STEP mode
 UNTRACE *name* Take Procedure *name* out of TRACE mode
 ⌘ESC STOPS whatever is running
 CONTROL W Interrupts whatever is running (any key resumes)
 CONTROL Z Cause running procedure to PAUSE
 PAUSE PAUSE between executions (same as CONTROL Z)
 CO CONTINUE after pause

GENERAL FILE MANAGEMENT

CATALOG Prints names of files in current directory
 CREATEDIR *pathname* Creates subdirectory *pathname*
 EDITFILE *pathname* Loads file into edit buffer
 ERASEFILE *pathname* Erase file from disk
 FILEP *pathname* TRUE if file exists on disk
 LOADHELP *pathname* Loads file into main help screen memory
 ONLINE Outputs name of each disk in drives
 POFIL FILEP onto screen
 PREFIX Outputs current PRODOS prefix
 RENAME *pathname newpathname* Changes name
 SETPREFIX *prefix* Set PRODOS prefix to *prefix*

MANAGING VARIOUS FILES

LOAD *pathname* LOAD FILE into workspace
 SAVE *pathname* SAVES all UNBURIED PROCEDURES and VARIABLES
 SAVEL *name pathname* SAVES the NAMED PROCEDURES and all UNBURIED VARIABLES
 LOADPIC *pathname* LOAD PICTURE FILE
 PRINTPIC *slotntr* PRINT GRAPHICS SCREEN to printer in listed *slotntr*
 SAVEPIC *pathname* SAVE PICTURE FILE
 DRIBBLE *pathname* SEND CHARACTERS FROM SCREEN TO FILE
 NODRIBBLE Turn OFF DRIBBLE
 ALLOPEN LISTS ALL FILES and DEVICES that are OPEN
 CLOSE *file* CLOSES FILE
 CLOSEALL CLOSES ALL open FILES
 FILELEN *pathname* List LENGTH of FILE
 OPEN *file* OPENS FILE
 READER LISTS CURRENT OPEN READ FILE
 READPOS OUTPUT POSITION in current READ FILE
 SETREAD *file* SETS current READER to *file*
 SETREADPOS *n* SETS READ POSITION to *n* in current reader
 SETWRITE *file* SETS current WRITER to *file*
 SETWRITEPOS *n* SETS WRITE POSITION to *n* in current writer
 WRITEPOS OUTPUTS current WRITE POSITION
 WRITER LISTS CURRENT OPEN WRITE FILE

TO FORMAT DISK

1. Make sure LOGO II disk is in drive 1
2. Load "FORMAT"
3. Remove LOGO disk and insert blank disk
4. Enter *slot#* (6); RETURN
5. Enter *drive#* (1); RETURN
6. Enter *volume name*; RETURN
7. ⌘ESC returns to Logo

PRINT DISK FILE TO PRINTER

TO DUMP : *file*
 DRIBBLE 1
 PROFILE : *file*
 NODRIBBLE
 END

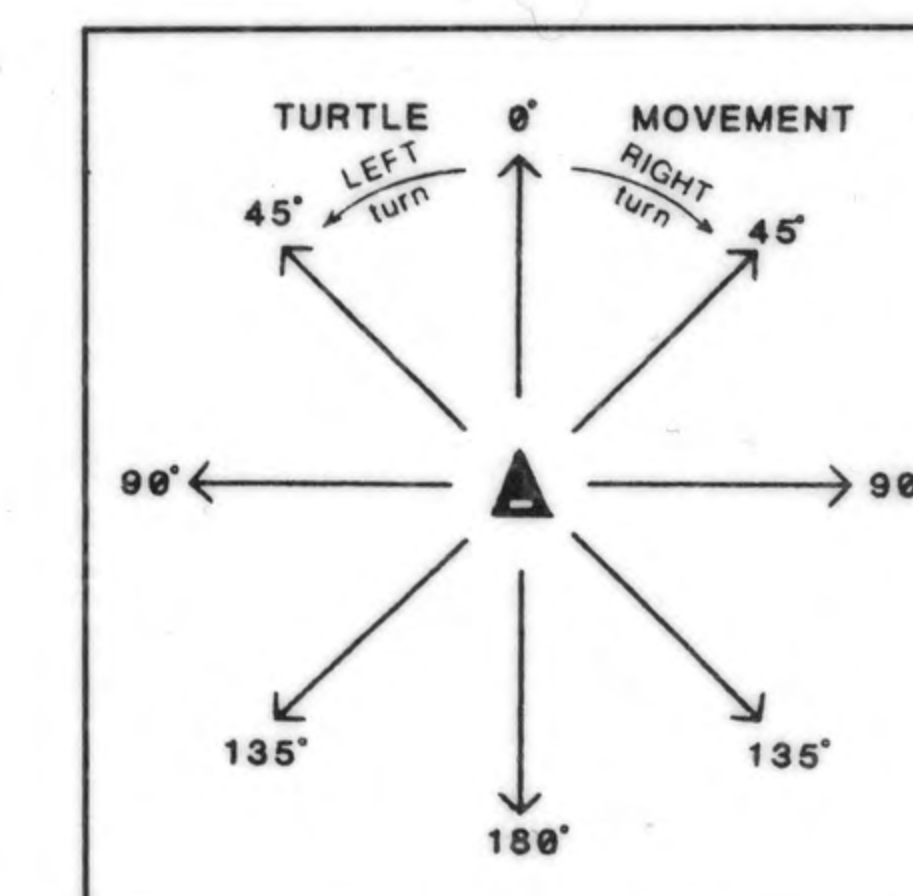
NOTE: To use DUMP "file" also prefix must be set to directory containing file (see "SETPREFIX")

COLORS

0 BLACK
 1 WHITE
 2 GREEN
 3 VIOLET
 4 ORANGE
 5 BLUE
 6 BLACK (Background)
 (for B/W TV)

ARITHMETIC OPERATORS

+ ADDITION
 - SUBTRACTION
 * MULTIPLICATION
 / DIVISION
 > GREATER THAN
 < LESS THAN



ARITHMETIC OPERATIONS

COS *n* COSINE of angle *n*
 REMAINDER *f s* REMAINDER after divide of *f/s*
 RANDOM *n* RANDOM NUMBER (less than *n*)
 ROUND *n* Rounds REAL number
 SIN *n* SINE of angle *n*
 SQRT *n* SQUARE ROOT OF *n*
 ARCTAN *n* Arc Tangent of *n*
 DIFFERENCE *x y* OUTPUT = *x-y*
 FORM *n i p* Outputs *n* in *i* spaces with *p* dec pos
 INT *n* Converts REAL to INTEGER

INTQUOTIENT *x y* INTEGER QUOTIENT of *x/y*
 PRODUCT *x y z ...* PRODUCT of *x*y*z...*
 QUOTIENT *x y* REAL QUOTIENT of *x/y*
 RERANDOM Reproduce Previous RANDOM Sequence
 SUM *x y z ...* SUM of *x+y+z...*

LOGICAL OPERATIONS

AND *x y z ...* TRUE if all inputs are TRUE; else FALSE
 NOT *x* TRUE if all inputs are FALSE; else FALSE
 OR *x y z ...* FALSE if all inputs are FALSE; else TRUE

APPLE® LOGO //

WORDS AND LIST OPERATIONS

=	COMPARES numbers, words, lists
BF <i>obj</i>	All BUT the FIRST characters or element
BL <i>obj</i>	All BUT the LAST characters or element
FIRST <i>obj</i>	FIRST character of word or element of list
FPUT <i>obj list</i>	FIRST INPUT followed by second input
LAST <i>obj</i>	LAST character or element
LIST <i>obj1 obj2 ...</i>	LIST of the inputs
LPUT <i>obj list</i>	LIST of second input followed by FIRST
SE <i>obj1 obj2 ...</i>	SENTENCE combines all inputs into a list
WORD <i>word1 word2 ...</i>	CONNECTS words
ITEM <i>n obj</i>	OUTPUTS <i>n</i> th element of <i>object</i>
MEMBER <i>obj1 obj2</i>	OUTPUTS part of <i>obj1</i> in which <i>obj2</i> is 1st element
PARSE <i>word</i>	OUTPUTS list obtained from parsing word
ASCII <i>character</i>	OUTPUTS ASCII code for <i>character</i>
BEFOREP <i>word1 word2</i>	TRUE if <i>word1</i> comes before <i>word2</i>
CHAR <i>n</i>	OUTPUTS character whose ascii code is <i>n</i>
COUNT <i>obj</i>	OUTPUTS number of elements in <i>obj</i>
EMPTYP <i>obj</i>	TRUE if <i>obj</i> is an empty word or list
EQUALP <i>obj1 obj2</i>	TRUE if object <i>obj1</i> and <i>obj2</i> are equal
LISTP <i>obj</i>	TRUE if <i>obj</i> is a list
MEMBERP <i>obj1 obj2</i>	TRUE if <i>obj1</i> is a member of <i>obj2</i> ; else FALSE
NUMBERP <i>obj</i>	TRUE if <i>obj</i> is a number
WORDP <i>obj</i>	TRUE if <i>obj</i> is a word
LOWERCASE <i>word</i>	OUTPUTS <i>word</i> in lower case letters
UPPERCASE <i>word</i>	OUTPUTS <i>word</i> in uppercase letters

INPUT/OUTPUT

OP <i>object</i>	OUTPUT <i>object</i> from procedure
PR <i>object</i>	Prints <i>object</i> on screen
RC	Read characters from keyboard or file
BUTTONP <i>buttonnbr</i>	TRUE if button on paddle is down
PADDLE <i>paddlenbr</i>	OUTPUTS number between 0-255 (dial rotation)
KEYP	TRUE if character is waiting to be read
RCS <i>n</i>	OUTPUTS first <i>n</i> characters read
RL	Reads line from file and outputs as list
RW	Read word from file
SHOW <i>object</i>	Display <i>object</i> followed by carriage return
TYPE <i>object1 object2 ...</i>	Display objects without carriage return
TOOT <i>freq duration</i>	Generates a tone

PROPERTY COMMANDS

PPROP <i>name prop [obj]</i>	Property of <i>name</i> = <i>object</i>
PPS	Prints property list
PLIST <i>name</i>	Outputs property list of <i>name</i>
GPROP <i>name property</i>	Get property of <i>name</i>
ERPROPS	Erase all properties
REMPROP <i>name property</i>	Remove <i>property</i> from list of <i>name</i>

UNDER PROGRAM CONTROL

COPYDEF <i>name newname</i>	COPY DEFINITION
DEFINE <i>name list</i>	CREATE PROCEDURE <i>name</i> with <i>list</i>
DEFINEDP <i>word</i>	TRUE if <i>word</i> is NAME OF PROCEDURE
PRIMITIVEP <i>name</i>	TRUE if <i>name</i> is a LOGO COMMAND
TEXT <i>name</i>	OUTPUTS DEFINITION of <i>name</i> as list

TOOT FREQUENCY

Note	Frequency, by Octave							
B	62	123	247	494	988	1973	3946	
A#	58	117	233	466	932	1864	3743	
A	55	110	220	440	881	1761	3510	
G#	52	104	208	415	830	1663	3327	
G	49	98	196	392	784	1566	3142	
F#	46	92	185	370	740	1480	2959	
F	44	87	175	349	698	1398	2797	
E	41	82	165	330	659	1319	2637	
D#	39	78	156	311	622	1244	2495	4990
D	37	73	147	294	587	1176	2346	4713
C#	35	69	139	277	554	1109	2213	4426
C	33	65	131	262	523	1047	2095	4172

↑
Middle C

To Start with floppy:
 1) Put your copy of Appleworks into drive 1
 2) Turn on power or press CONTROL ⌘ RESET
 3) Put your copy of AppleWorks Program in drive 1
 4) Press RETURN then enter date and press RETURN

To start with a hard disk:
 From Basic, type —appleworks/aplworks.system
 NOTE: For 'The Sider' hard disk, follow copying directions for profile but change all references to profile to hard1

APPLEWORKS™
 (Product of APPLE COMPUTER INC)

LEROY'S CHEATSHEET® - Keyboard Overlay
 for the APPLE IIe

WORD PROCESSOR

CURSOR MOVEMENT

- ↑ (↑) Cursor UP (DOWN)
- ← (←) Cursor LEFT (RIGHT)
- ↔ (↔) WORD LEFT (RIGHT)
- ↑ (↑) PAGE UP (DOWN)
- ⌘ x JUMP (1=HOME, 9=END, 2-8=within)

FIND/REPLACE

- ⌘ FT text Find text
- ⌘ FC text Find text (with case)
- ⌘ FO xx Find PRINTER OPTION xx
- ⌘ FP n Find PAGE n
- ⌘ FM n Find MARKER n
- ⌘ OSM n SET MARKER n
- ⌘ RT text Replace text
- ⌘ RC text Replace text (with case)

INSERT/DELETE

- ⌘ E INSERT mode ON/OFF
- DELETE DELETE PREVIOUS character
- ⌘ Y DELETE to END of line
- ⌘ D DELETE with CURSOR move
- ⌘ 1 ⌘ D ⌘ 9 DELETE WHOLE document

OUTPUTTING TEXT

- ⌘ H Print screen (HARDCOPY)
- ⌘ P PRINT document
- ESC EXIT from printing

PAGE NUMBERING

- ⌘ OPN ASSIGN page number
- ⌘ OPP PRINT page number
- ⌘ K CALCULATE page number

PAGE AND LINE CONTROL

- ⌘ OSK n Skip n lines
- ⌘ OSS SINGLE SPACE lines
- ⌘ ODS DOUBLE SPACE lines
- ⌘ OTS TRIPLE SPACE lines
- ⌘ OLI Set LINES per INCH
- ⌘ OPL Set PAPER LENGTH
- ⌘ OPW Set PLATEN WIDTH
- ⌘ OGB GROUP lines(beginning)
- ⌘ OGE GROUP lines(end)
- ⌘ ONP NEXT page (forced page)

TEXT ALIGNMENT

- ⌘ OCN CENTER text ON/OFF
- ⌘ OIN n INDENT text by n characters
- ⌘ OJU JUSTIFY to right margin
- ⌘ OJU UNJUSTIFY right margin

MARGIN CONTROLS

- ⌘ OLM n LEFT margin to n
- ⌘ ORM n RIGHT margin to n
- ⌘ OTM n TOP margin to n
- ⌘ OBM n BOTTOM margin to n

HEADERS AND FOOTERS

- ⌘ OHE This line as HEADER
- ⌘ OFO This line as FOOTER

TABS

- TAB FORWARD tab
- ⌘ TAB BACKWARD tab
- ⌘ TS SET tab stop
- ⌘ TC CLEAR tab stop
- ⌘ TR REMOVE all stops

SUPERSCRIP/T/SUBSCRIPT

- ⌘ O+B BEGIN superscript
- ⌘ O+E END superscript
- ⌘ O-B BEGIN subscript
- ⌘ O-E END subscript

MISCELLANEOUS

- ⌘ ? HELP request
- ⌘ SPACE Enter a STICKY SPACE
- ⌘ Z ZOOM (display format)

MULTIPLE RECORDS DISPLAY

SELECTING RECORDS

- Press ⌘ R for SELECT RECORDS
- Choose category for selecting
- Choose a comparison for select
- Choose a connector (if needed)
- Press ESC when finished (starts)
- Type ⌘ R AY to return to ALL RECORDS

FIND RECORDS

- ⌘ F text FIND records with text
- NOTE: Can be used after SELECT RECORDS

ARRANGE (SORT) RECORDS

- Move cursor to category & press ⌘ A
- Select type of sort and press RETURN

NOTE: Arrange can be used after SELECT RECORDS or FIND RECORDS

INSERT/DELETING

- ⌘ E INSERT MODE on/off
- ⌘ I INSERT RECORD at cursor position
- DELETE DELETE CHARACTER (previous)
- ⌘ Y DELETE CHARACTERS to the RIGHT
- ⌘ D DELETE RECORDS (move cursor then RETURN)
- ⌘ Z ⌘ D ⌘ D... DELETE RECORDS (from ZOOM mode)
- ⌘ D ⌘ 9 DELETE RECORDS (ALL except first one)

CHANGE MULTIPLE RECORD LAYOUT
 (press ⌘ L)

- ← (←) PREVIOUS (next) category
- ↔ (↔) DECREASE (INCREASE) category width
- ⌘, (⌘.) SWITCH with PREVIOUS (NEXT) category
- ⌘ D DELETE category
- ⌘ I INSERT previously deleted category

DATABASE

SINGLE RECORDS
 (Press ⌘ Z from Multiple Records)

CURSOR MOVEMENT

- (→) NEXT (previous) character
- TAB (⌘ TAB) NEXT (previous) category
- ↓ (↓) NEXT (previous) record
- ⌘ ↓ (⌘ ↓) NEXT (previous) screen
- ⌘ x JUMP (1=HOME, 9=END, 2-8=within)

EDITING RECORDS

- (→) NEXT (previous) character
- ↓ (↓) NEXT (previous) category
- TAB (⌘ TAB) NEXT (previous) category
- ⌘ ↓ (⌘ ↓) NEXT (previous) record
- ⌘ E INSERT mode ON/OFF
- DELETE DELETE previous character
- ⌘ Y DELETE right characters
- ⌘ D DELETE this record
- ESC EXIT (or recall category data)
- RETURN ENTER data

CHANGE SINGLE RECORD LAYOUT
 (press ⌘ L from Single Records)

- ↔ (↔) Move category LEFT (RIGHT)
- ⌘ ↑ (⌘ ↑) Move category UP (DOWN)
- RETURN Go to NEXT category
- ESC EXIT (finished)

REPORTS
 (press ⌘ P)

CREATE/CHANGE TABLE REPORT

- TAB (⌘ TAB) NEXT (previous) category
- (→) NEXT (previous) category
- ⌘ I INSERT category
- ⌘ D DELETE category
- ⌘, (⌘.) SWITCH category positions
- ⌘ J JUSTIFY category
- ⌘ → (⌘ →) WIDTH increase (decrease)

CREATE/CHANGE LABEL REPORT

- ↔ (↔) MOVE category LEFT (RIGHT)
- ⌘ ↑ (⌘ ↑) MOVE category UP (DOWN)
- ⌘ D DELETE category
- ⌘ I INSERT category or spacing line
- ⌘ J JUSTIFY CATEGORY (displays -)
- ⌘ V PRINT category name and entry

SELECT RECORDS

- ⌘ R SELECT RECORDS
- ⌘ A ARRANGE RECORDS
- ⌘ x JUMP (1=HOME, 9=END, 2-8=within)

FILE NAME (change)

- ⌘ N FILE NAME (change)
- ⌘ O OPTIONS (printer)
- ⌘ H PRINT SCREEN
- ⌘ P PRINT REPORT
- ⌘ T TOTAL COLUMN
- ⌘ G GROUP TOTAL
- ⌘ K DEFINE CALCULATED CATEGORY

SPREADSHEET

CURSOR MOVEMENT

- TAB (⌘ TAB) Cursor LEFT (RIGHT)
- ↑ (↑) Cursor UP (DOWN)
- ← (←) Cursor LEFT (RIGHT)
- ⌘ ↑ (⌘ ↑) SCREEN UP (DOWN)
- ⌘ ← (⌘ ←) SCREEN LEFT (RIGHT)
- ⌘ x JUMP (7=HOME, 9=END, 2-8=within)

EDITING CELL CONTENTS

- ⌘ U ENTER EDIT cell mode
- (←) CURSOR LEFT (RIGHT)
- DELETE DELETE previous character
- ⌘ Y ERASE from cursor to RIGHT
- ⌘ E INSERT/REPLACE switch
- ESC QUIT (changes not saved)
- RETURN EXIT (changes saved)

STANDARD FORMAT

- ⌘ VC Set standard COLUMN WIDTH
- ⌘ VP Set standard PROTECTION
- ⌘ VL LABEL format
- Left justify, Right justify, Center
- ⌘ VV VALUE format
- Fixed, Dollars, Commas, Percent, Appropriate

LAYOUT (CELL FORMAT)

- ⌘ LE Set format for ENTRY
- ⌘ LR Set format for ROWS
- ⌘ LC Set format for COLUMNS
- ⌘ LB Set format for BLOCK of cells

selections: VALUE Fixed, Dollars, Commas, Percent, Appropriate, Standard
 LABELS Left justify, Right justify, Center, Standard
 PROTECTION Labels only, Values only, Nothing, Anything
 COLUMNS Value format, Label format, Column width

INSERT/DELETE

- ⌘ E INSERT/REPLACE character on/off
- ⌘ IRx INSERT x ROWS
- ⌘ ICx INSERT x COLUMNS
- DELETE DELETE previous CHARACTER
- ⌘ DRx DELETE x ROWS
- ⌘ DCx DELETE x COLUMNS
- ⌘ BE BLANK (ERASE) CELLS
- ⌘ BR BLANK (ERASE) ROWS
- ⌘ BC BLANK (ERASE) COLUMNS
- ⌘ BB BLANK (ERASE) BLOCK

RECALCULATION

- ⌘ K START a recalculation
- ⌘ VRFM MANUAL recalculation
- ⌘ VRFA AUTOMATIC recalculation
- ⌘ VROR ROW recalculation
- ⌘ VROC COLUMN recalculation

FUNCTIONS

- @ABS(val) ABSOLUTE VALUE
- @AVG(list) AVERAGE VALUE
- @CHOOSE(val,list) val is index to list
- @COUNT(list) Count non-blank cells
- @ERROR Display ERROR
- @IF(logic val, val1, val2) val1 if TRUE, else val2
- @INT(val) INTEGER
- @LOOKUP(val,list) TABLE LOOKUP
- @MAX(list) Find MAXIMUM value
- @MIN(list) Find MINIMUM value
- @NA Display NA
- @NPV(rate,range) NET PRESENT VALUE
- @SQRT(val) SQUARE ROOT
- @SUM(list) TOTAL list

Symbols used
 < == *
 > >= /
 <> = -
 + ^

MOVING/COPYING RECORDS, CELLS, TEXT

- ⌘ MT Move TO clipboard
- ⌘ MF Move FROM clipboard
- ⌘ MW Move WITHIN document
- ⌘ CT Copy TO clipboard
- ⌘ CF Copy FROM clipboard
- ⌘ CW Copy WITHIN document

FILES

- ⌘ N CHANGE NAME of file
- ⌘ Q SWITCH FILE to another
- ⌘ S SAVE FILE to disk

FIND

- ⌘ FT text Find text
- ⌘ FC corr Find coordinates
- ⌘ FR text REPEAT (find next)

TITLES

- ⌘ TT ROW is title
- ⌘ TL COLUMN is title
- ⌘ TB BOTH row & column

WINDOWS

- ⌘ WS Set window SIDE by SIDE
- ⌘ WT Set window TOP to BOTTOM
- ⌘ WO RESET to ONE window
- ⌘ WS SYNCHRONIZE windows
- ⌘ WU UNSYNCHRONIZE windows
- ⌘ J JUMP to other window

ARRANGE (SORTING)

- ⌘ A SORT rows by column

PRINTING

- ⌘ O PRINTER OPTIONS
- ⌘ H Print SCREEN (hardcopy)
- ⌘ PA Print ALL (whole sheet)
- ⌘ PR Print ROWS only
- ⌘ PC Print COLUMNS only
- ⌘ PB Print a BLOCK only
- SPACE Printing STOP/START
- ESC STOP and exit printing


FOR THE BEGINNER™

(Using DOS 3.3)

To START SYSTEM

1. INSERT DOS 3.3 disk into drive 1
2. TURN ON POWER switch (left rear)
3. Press **CAPS LOCK** ON

To RESTART SYSTEM

1. INSERT DOS 3.3 disk into drive 1
2. Press **CONTROL**  **RESET** (all at once)

To LOAD a PROGRAM

TYPE IN:
LOAD *programname* **RETURN**
RUN **RETURN**

To SAVE a PROGRAM

TYPE IN:
SAVE *programname* **RETURN**

To PRINT a PROGRAM


TYPE IN:
LOAD *programname* **RETURN**
PR#1 **RETURN**
LIST **RETURN**
PR#0 **RETURN**

PROMPT CHARACTERS




-] APPLESOFT BASIC
 - > INTEGER BASIC
 - ? INPUT into a Basic program
- INT** Switch to INTEGER BASIC
FP Switch to APPLESOFT BASIC

EDITING

CHANGING A BASIC INSTRUCTION
(example: **10 PRINT "THIS IS A TEST"**)

1. Type **LIST 10** **RETURN**
2. Press **ESC** then position cursor at the beginning of line number 10
3. Press **ESC** then press  to the character to be changed
4. Type over characters with new characters
5. Move cursor beyond last character of line, then press **RETURN**

DELETING CHARACTERS

1. Type **LIST 10** **RETURN**
2. Press **ESC** then position cursor at beginning of line number 10
3. Press **ESC** then press  beyond FIRST character to be deleted
4. Press **ESC** then press  beyond LAST character to be deleted
5. Press **ESC** then press  beyond LAST character in line, then press **RETURN**


DOS ERROR MESSAGES

DISK FULL	Attempted to store more information on the disk than it can hold
END OF DATA	Attempted to read past the end of a text file
FILE LOCKED	Attempted to use SAVE, BSAVE, WRITE, DELETE or RENAME on a LOCKED file
FILE NOT FOUND	The file requested is not on the disk
FILE TYPE MISMATCH	A DOS command has referenced a file that is not of the required type
I/O ERROR	An error has been detected at the disk drive while attempting to read or write
NO BUFFERS AVAILABLE	Trying to access a file buffer when all are in use
NOT DIRECT COMMAND	Attempted to use APPEND, OPEN, POSITION, READ or WRITE in immediate mode
PROGRAM TOO LARGE	File from disk will not fit in memory
RANGE ERROR	A DOS command parameter is outside its specified range
SYNTAX ERROR	A DOS command has a spelling, punctuation or sequence error
WRITE PROTECTED	Attempted to use WRITE, SAVE or BSAVE on a write-protected disk


SPECIAL KEYS

RETURN ENTERS INFORMATION


CAPS LOCK UPPERCASE letters when DOWN
LOWERCASE letters when UP

 Moves cursor UP


ESC then **@** CLEAR SCREEN

 Moves cursor DOWN

ESC then **E** CLEAR from cursor to END OF LINE

 Moves cursor LEFT

CONTROL + G Sounds BELL

 Moves cursor RIGHT

CONTROL + RESET STOPS a running program

ESC ESCAPE KEY

CONTROL + C STOPS program and displays stopped address

(Used in escape sequences)

(restart by typing **RUN** address)

DISK OPERATING SYSTEM (DOS) COMMANDS

CATALOG	Lists all file names on a disk (drive 1, slot 6)
CATALOG,D2,S4	Lists all file names on a disk (drive 2, slot 4)
INIT HELLO	Formats blank disk (also copies program in memory)
DELETE filename	Deletes file from disk
LOCK filename	Protects file from being deleted or overwritten
UNLOCK filename	Unlocks a locked file
RENAME oldname, newname	Renames a file (don't use an existing name)
VERIFY filename	Verifies is intact
RUN COPYA	Copies complete disk

To INITIALIZE a DISK

TYPE IN:
NEW **RETURN**
**10 PRINT "THIS PROGRAM IS
CREATED BY** **RETURN**
20 PRINT "yournameON date
RETURN
30 END **RETURN**
INIT HELLO **RETURN**

To VIEW a CATALOG

TYPE IN:
CATALOG **RETURN**

To PRINT a CATALOG

TYPE IN:
PR#1 **RETURN**
CATALOG **RETURN**
PR#0 **RETURN**

FILE TYPES

- A** = Apple BASIC
- B** = Machine Language
- I** = Integer BASIC
- T** = TEXT

MATH FUNCTIONS

OPERATION	KEY	EXAMPLE
ADDITION	+	2+3
SUBTRACTION	-	7-5
MULTIPLICATION	*	6*5
DIVISION	/	9/3
EXPONENTIATION	^	5^2

To INSERT DISK

1. Hold disk with label facing up
2. Put disk in so labeled end goes in last
3. Close gate on disk drive (press down)

To REMOVE DISK

1. Make sure disk drive has stopped
2. Push gate to open
3. Pull disk out

NOTE: DO NOT BEND OR TOUCH exposed areas.

Keep disk away from MAGNETS.

LOGO

(product and trademark of Terrapin, Inc.)

STARTING:

1. INSERT LANGUAGE DISK
2. TURN ON APPLE IIe or (CONTROL + ⌘ + RESET)

SCREEN MODES

CONTROL T Text Screen
CONTROL S Split Screen
CONTROL F Full Screen

SCREEN COMMANDS

ND EXIT DRAW MODE (NO DRAW)
DRAW ENTER DRAW MODE
CS CLEAR SCREEN

SCREEN EDITOR COMMANDS

CONTROL D DELETE character
CONTROL X DELETE ALL characters
CONTROL P RETRIEVE previous input

CONTROL O New Line
CONTROL A BEGINNING of LINE
CONTROL E MOVE to end of line

CONTROL Y RECALL last deleted line
CONTROL L CENTER line containing cursor

CONTROL F PAGE FORWARD
CONTROL B PAGE BACK

CONTROL W STEP through list
CONTROL N Same as CRSR DOWN

CONTROL C EXIT EDITOR
CONTROL G EXIT EDITOR and NOT save text

PROCEDURE COMMANDS

TO *name* CREATE procedure
END TERMINATE procedure
ED *name* Enter EDIT MODE for procedure
ER *name* ERASE Procedure
TEXT *name* LISTS procedure
" *name* Name of file or variable
: *name* Value of a Variable
[] List

NAMING

MAKE " *name value* Variable *name* = *value*
THING Outputs the VALUE OF ITS INPUT
THING? TRUE IF ITS INPUT HAS A VALUE

CONTROL

GO *name* Go to label
GOODBYE Clears workspace and restarts LOGO
OP Causes OUTPUT to calling procedure
REPEAT [...] REPEATS list ...
RUN *list* EXECUTES a list
STOP STOPS current procedure
TOPLEVEL STOPS PROGRAM

CONDITIONALS

IF..THEN..ELSE If conditions true THEN is execute otherwise ELSE is executed
IFF Execute if FALSE
IFT Execute if TRUE
ALLOF True if ALL is true
ANYOF True if ANY is true
NOT Opposite condition
TEST Test condition to be TRUE or FALSE (use with IFF and IFT)

TURTLE MOVEMENT

HT HIDE TURTLE
ST SHOW TURTLE
FD *n* FORWARD *n* steps
BK *n* BACKWARD *n* steps
RT *n* RIGHT TURN *n* degrees
LT *n* LEFT TURN *n* degrees
HOME HOME turtle
SETX *n* Move to X loc. *n*
SETY *n* Move to Y loc. *n*
SETXY *x,y* Move to point *x,y*
SETH *n* SET HEADING *n* degrees
XCOR Turtle X coordinate
YCOR Turtle Y coordinate
HEADING Turtle direction in degrees

SHAPE EDITOR COMMANDS

U PEN UP
D PEN DOWN
> DRAW line to the RIGHT
< DRAW line to the LEFT
↑ DRAW line UP
↓ DRAW line DOWN
CONTROL P Same as ↑
CONTROL N Same as ↓
CONTROL C Exit shape editor (define shape)
CONTROL G Exit shape editor (do not define)
ESC Delete previous command

PEN COMMANDS

PC *n* PEN COLOR *n*
BG *n* BACKGROUND color *n*
PU PEN UP
PD PEN DOWN
WRAP SET wrap around
NOWRAP RESET wrap around

TURTLE INFORMATION

TURTLESTATE Prints: RESULT: [a b c d]
a - TRUE = Pen Down, FALSE = Pen Up
b - TRUE = Visible, FALSE = Hidden
c - Background color (see color list)
d - Pen Color (see color list)

CHANGING TURTLE SHAPE

DIRECT Insert UTILITIES DISK and enter:
READ "SHAPE.EDITOR"
SETUP
MAKESHape " *name*
use shape editor commands for shape
SAVEShape " *name* save shape to disk

SETSHAPE: *name* CHANGE TURTLE shape
SETSHAPE 0 RESTORE TURTLE shape
SIZE *n* SIZE of TURTLE (1 - 0)

FROM DISK (previously saved)

AREAD " *name*.AUX
INITSHAPE
SETSHAPE: *name*

PREPARING BLANK DISK

1. Insert LOGO UTILITIES disk
2. Turn on power or (CONTROL + ⌘ + RESET)
3. Type LOAD HELLO RETURN
4. Type INIT HELLO RETURN

FILE OPERATIONS

DOS COMMANDS TO DISK
CATALOG Prints names of files on disk
READ " *name* READ FILE
READPICT " *name* READ PICTURE
SAVE " *name* SAVE FILE
SAVEPICT " *name* SAVE PICTURE
ERASEFILE " *name* ERASE FILE
ERASEPICT " *name* ERASE PICTURE
ERNAME " *name* ERASE NAME
POTS PRINT procedure NAMES
PRINTOUT " *name* PRINTOUT procedure

MISC COMMANDS

; Comment Line
.ASPECT *N* Change vertical scale factor to *N*
.CALL *addr value* Call a machine language subroutine
.CONTENTS Returns list of all known names
.DEPOSIT *addr value* Stores *value* at memory location *addr*
.EXAMINE *addr* Returns value of memory at location *addr*
.GCOLL Forces garbage collection
.NODES Returns number of free nodes

WORDS AND LIST OPERATIONS

= COMPARES numbers, words or lists
BF All BUT THE FIRST characters or element
BL All BUT THE LAST characters or elements
EMPTY? True if INPUT is EMPTY
FIRST FIRST character of word or element of list
FPUT FIRST INPUT followed by second input
LAST LAST character or element
LIST LIST of the inputs
LIST? True if input is a list
LPUT LIST of second input followed by FIRST
SE SENTENCE combines all inputs into a list
WORD CONNECTS words
WORD? True IF INPUT is a WORD

PRINT WORKSPACE PROCEDURES

OUTDEV 1
PRINTOUT ALL
OUTDEV 0

INPUT/OUTPUT

ASCII OUTPUTS NUMBER of ascii character
CLEARTEXT CLEARs TEXT SCREEN and home cursor
CLEARINPUT CLEARs character INPUT BUFFER
CURSOR *c r* POSITIONS CURSOR to column and row input
OP OUTPUT data from procedure
PADDLE *port* Setting of paddle requested
PADDLEBUTTON *port* True if button on requested paddle is pressed
PR Prints input on screen
PRINT 1 Like print but does not terminate with a return
PRINTER Causes print commands to go to printer
RC? True if keyboard character is pending
RC Read LAST CHARACTER
RQ Request waits for input line terminated by return
SETDISK *N* Uses disk of number input (default is 8)
OUTDEV *n* Direct output to device (*slot#*)

MUSIC

TO USE

Place utilities disk in drive
READ "MUSIC"

TONE *n* DURATION of note
TEMPO *n* TEMPO change

PITCH

PLAY [*pitches*][*durations*] Plays list of pitches with durations

SING [*pitches*] Plays list of pitches with same durations

DURATION

SSH *N* Imitates a snare drum with duration *N*

SSHER [*list*] Snare drum with list of durations

TEMPO *N* Change TEMPO without changing duration

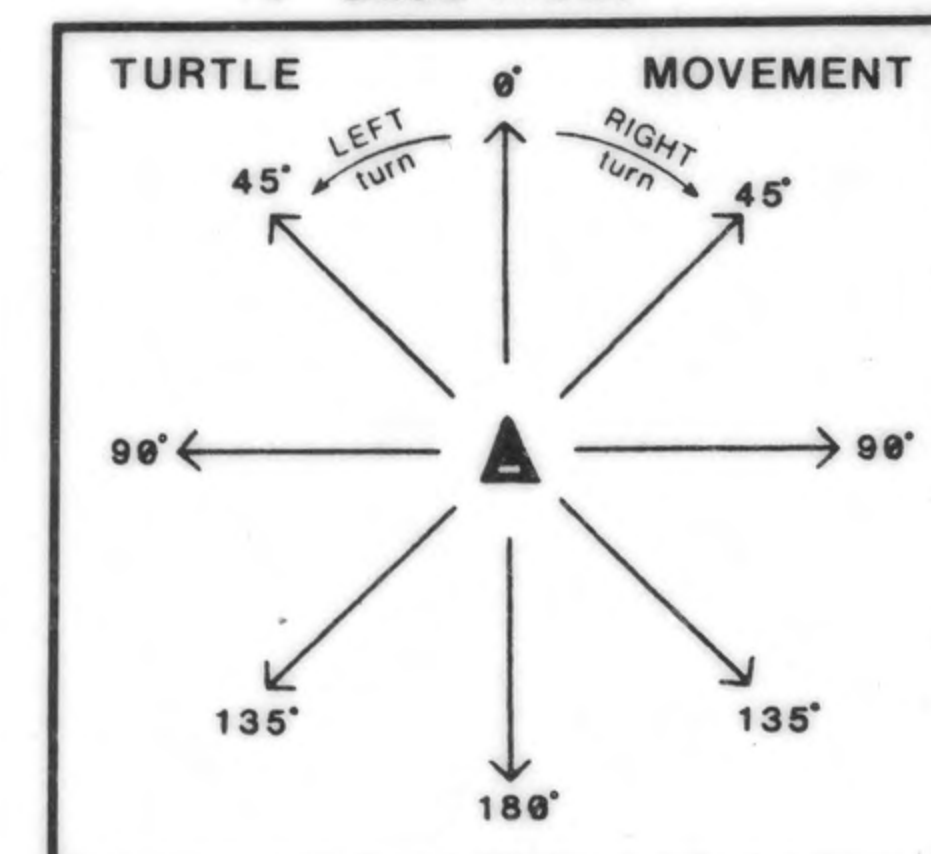
NOTE If R is used in place of a number in pitch list it causes a rest for duration corresponding to that R

COLORS

- 0 BLACK
- 1 WHITE
- 2 GREEN
- 3 VIOLET
- 4 ORANGE
- 5 BLUE
- 6 REVERSE

ARITHMETIC OPERATORS

- + ADDITION
- SUBTRACTION
- * MULTIPLICATION
- / DIVISION
- > GREATER THAN
- < LESS THAN



DEBUG COMMANDS

TRACE Trace ON (press any key to stop/start)
NOTRACE Trace off
PAUSE PAUSE between executions (same as CONTROL Z)
CO CONTINUE after pause

FUCTIONS

ATAN *f s* ARC TANGENT of *f s*
COS *N* COSINE of angle *N*
INTEGER *N* CONVERTS REAL TO INTEGER
NUMBER? *v* True if VARIABLE *v* is NUMBER
QUOTIENT *f s* INTEGER QUOTIENT of *f s*
RANDOM *N* RANDOM NUMBER
RANDOMIZE *N* Set RANDOM SEED to *N*
REMAINDER *f s* REMAINDER after divide of *f s*
ROUND *N* Rounds REAL number
SIN *N* SINE of angle *N*
SQRT *N* SQUARE ROOT of *N*

STARTING:

Insert disk into drive 1
Turn-on power or press CONTROL ⌘ and RESET

MULTIPLAN™
(Product of MICROSOFT CORP)

LEROY'S CHEATSHEET® - Keyboard Overlay
for the APPLE IIe

MOVING WITHIN SPREADSHEET

- ↑ (↑) Move Cursor UP (DOWN)
- ← (←) Move Cursor LEFT (RIGHT)
- CONTROL w Move to NEXT WINDOW
- CONTROL f Move to NEXT UNLOCKED window
- CONTROL q Move to HOME (top left)
- CONTROL z Move to END (bottom right)
- ↑ Scroll UP
- ↓ Scroll DOWN
- Scroll RIGHT
- ← Scroll LEFT
- GOTO Goto to cell (row, column or name)

EDITING CELL CONTENTS

- DELETE Delete previous character
- ⌘ DELETE Delete present character
- ⌘ → Move to CHARACTER RIGHT
- ⌘ ← Move to CHARACTER LEFT
- ⌘ ↓ Move to WORD RIGHT
- ⌘ ↑ Move to WORD LEFT

SELECT AND EXECUTE COMMANDS

- ESC CANCEL (return to menu)
- RETURN EXECUTE COMMAND
- SPACE BAR SELECT NEXT item on menu
- DELETE SELECT PREVIOUS item on menu

PRINTER CODES FOR SETUP

DECIMAL	CODE	KEY
1	SOH	A
2	STX	B
3	ETX	C
4	EOT	D
5	ENQ	E
6	ACK	F
8	BS	H
9	HT	I
10	LF	J
11	VT	K
12	FF	L
13	CR	M
14	SO	N
15	SI	O
16	DLE	P
17	DC1	Q
18	DC2	R
19	DC3	S
20	DC4	T
21	NAK	U
22	SYN	V
23	ETB	W
24	CAN	X
25	EM	Y
26	SUB	:
27	ESC	[
28	FS	<
29	GS]
30	RS	>

NOTE: Precede each code with ^
(see your printer manual)

INSERT Insert rows or columns

DELETE Delete rows or columns

MOVE Move ROWS or COLUMNS to new location

BLANK Blank cells (coordinates or name)

COPY COPY CELLS(S)

- Right — Cell or column to right
- Left — Cell or row to left
- Down — Cell or row to down
- From — From area to area

NAME Defines name

(up to 31 characters)

- — Review next name
- ← — Review previous name
- ↑ — Review first name
- ↓ — Review last name

NOTE: Names are deleted by making them refer to no area

OPTIONS Miscellaneous options

- Recalc — Auto recalculation on/off
- Mute — Audio alarm on/off
- Iteration — Iteration yes/no
- Completion test at: — Address of cell

FORMAT Format commands

- Default — Sets default for all cells
- Cells — Same as cells
- Width — Default width of all cells

- Options — Display commands in values
- Commas — Display commas in values
- Formulas — Display formulas

Width — Cell format definitions

- CELL Format Code:**
- Def — Default
 - Cont — Continuous (into next cell)
 - Exp — Exponential (Scientific notation)
 - Fix — Fixed point (define dec. points)
 - Gen — General (as precise as possible)
 - Int — Integer (rounded)
 - \$ — Dollar (2 decimal places)
 - * — Graph (integer number of*)
 - % — Percent (display as percent)
 - — Leave alone
 - # — Set number of decimal places

- CELL Alignment:**
- Def — Default alignment
 - Ctr — Center cell data
 - Gen — General (text left, #'s right)
 - Left — Left justify
 - Right — Right justify
 - — Leave alone

WINDOWS Window commands

- SPLIT — Horizontal (row window)
Vertical (column window)
Titles (row and column window)
- Border — Add/remove border around window
- Close — Remove window
- Link — Set or break links

PRINT Print spreadsheet to printer

- File — Print to disk file
- Margins — Set margins
- Options
 - area — Area of spreadsheet
 - setup — Printer codes, before printing starts
 - formulas — Print formulas within cells
 - row-column — Enter rows & columns for printed
 - Printer — Starts printing

TRANSFER File commands

- LOAD — LOAD spreadsheet file
- SAVE — SAVE spreadsheet file
- RENAME — RENAME spreadsheet file
- DELETE — DELETE spreadsheet file
- CLEAR — ERASE spreadsheet in memory
- OPTIONS — MODE (file format selection)
 - Normal — Standard Multiplan
 - Symbolic — SYLK format
 - Other — VISICALC format
 - SETUP — Change default data disk

NOTE: Use cursor keys to view and select files

FUNCTIONS

- ABS(n) Absolute value n
- AND(list) True if all list is true
- ATAN(n) Arctangent of n
- AVERAGE(list) Average of list names
- COLUMN() Returns column number if formula
- COS(n) Cosine of angle n
- COUNT(list) Number of number values
- DOLLAR(n) Converts n to \$ format
- EXP(n) e to power n
- FALSE() Returns logic "false"
- FIXED(n,m) Converts value n to fixed
- IF(LOGICAL,m,n) IF LOGICAL true returns m
ELSE returns n
- INDEX(area,s1,s2) Returns value of s1,s2
- INT(n) Integer value <=n
- ISERROR(value) True if value of cell is error msg
- ISNA(value) True if value of cell is "#NA"
- LEN(i) Number of characters in t
- LN(n) Natural Log of n
- LOG10(n) Log to base 10 to n
- LOOKUP(n,table) Returns value from table
- MAX(list) Maximum value in list
- MID(t,n,m) m characters from t to n
- MIN(list) Minimum value from list
- MOD(m,n) Returns remainder of m/n
- NA() Returns #NA value
- NOT(logical) Returns inverse logical value
- NPV(n,list) Net present value of list of values at interest n
- OR(list) Logical TRUE if any is TRUE
- REPT(t,count) Repeats t count times
- ROUND(m,n) Rounds m to n digits after dec
- ROW() Returns number of row
- SIGN(n) Algebraic sign of n (1=+)
- SIN(n) Sine of angle n
- SQRT(n) Square root of n
- STDEV(list) Standard deviation of list values
- SUM(list) Sum of list values
- TAN(n) Tangent of angle n
- TRUE() Returns logical TRUE
- VALUE(t) Returns number value of text t

NOTE: Press "=" or "+" for FORMULAS

MISCELLANEOUS

- QUIT Exits to BASIC
- ? HELP
(can be used at any time)
- ! FORCE
RECALCULATION

LOCK Lock/unlock cells
Cells Lock/unlock cells
Formulas Locks ALL formula cells

XTERN External spreadsheet commands
Copy — Copy cells from another spreadsheet
List — List supporting spreadsheets
Use — Substitute supporting spreadsheet

SORT Sorts by column from row x to row y
< — Descending order
> — Ascending order