HP-33E
Quick Reference Card

AUTOMATIC MEMORY STACK

T	0.0000	
Z	0.0000	
Y	0.0000	
X	0.0000	Always displayed.

PRIMARY STORAGE REGISTERS

R_0		
R_1		
R_2		n
R_3		Σx
R_4		Σx^2 **Statistical**
R_5		Σy **Registers**
R_6		Σy^2
R_7		Σxy

| STO | n | Stores x value in R_n. |
| RCL | n | Recalls value from R_n. |

STO − n	x value subtracted from contents of R_n and difference stored in R_n.
STO + n	x value added to contents of R_n and sum stored in R_n.
STO × n	x value multiplied by contents of R_n and product stored in R_n.
STO ÷ n	Contents of R_n divided by x value and quotient stored in R_n.

Programming the HP-33E

PROGRAM MEMORY

When the calculator is switched ON, program memory is filled with GTO 00 instructions (keycode 13 00).

```
00           ◄ Automatic stop instruction.
01-    13 00
02-    13 00
03-    13 00
 ⋮      ⋮
46-    13 00
47-    13 00
48-    13 00
49-    13 00   ◄ 49 lines for your programs.
```

PROGRAM MODE

PRGM |||||| RUN

In program mode, only the following functions are active. All other functions are loaded into program memory when pressed.

$\boxed{\text{GTO}}$ **. n n** sets calculator to line nn of program memory.

$\boxed{\text{SST}}$ Single step. Steps calculator forward one line in program memory.

$\boxed{\text{BST}}$ Back step. Steps calculator back one line in program memory.

$\boxed{\text{f}}$ CLEAR $\boxed{\text{PRGM}}$ Clear program. Clears program memory to all $\boxed{\text{GTO}}$ 00 instructions, sets calculator to line 00.

$\boxed{\text{f}}$ CLEAR $\boxed{\text{PREFIX}}$ Clear prefix. After $\boxed{\text{f}}$, $\boxed{\text{g}}$, $\boxed{\text{STO}}$, $\boxed{\text{RCL}}$, $\boxed{\text{GTO}}$, or $\boxed{\text{GSB}}$ cancels that key.

RUN MODE

PRGM |||||| RUN

Pressed From the Keyboard:

$\boxed{\text{GTO}}$ **. n n** sets the calculator to line nn of program memory.

GTO followed by line number 00-49 causes calculator to go to designated line and stop there.

GSB followed by line number 01-49 causes calculator to go to the line designated and begin execution from that line.

RTN sets calculator to line 00 of program memory.

R/S begins execution from current line of program memory. Stops execution if program is running.

f CLEAR **PRGM** Clear program. Acts same as **RTN** . Does not clear program when in RUN mode.

Some functions that are active in PROGRAM mode operate differently in RUN mode:

SST Single step. Displays line number and keycode of current line of program memory when held down; executes current instruction, displays result, and moves to next line when released. Used for single-step execution of program.

BST Back step. Moves to previous line and displays line number and keycode of that previous line of program memory when **BST** is held down; displays original contents of X-register when released. No instructions are executed.

Executed in a Program:

Function keys may be executed as instructions in a program. Some function keys that are most often used in or are unique to programming applications are shown below:

PAUSE Stops program execution for approximately 1 second, displays contents of X-register, then resumes program execution.

x≠y x=y x>y x≤y x=0 x>0 x<0 x≠0
Conditionals. Each tests value in X-register against 0 or value in Y-register as indicated. If true, calculator executes instruction in next line of program memory. If false, calculator skips one line before resuming execution.

RTN Return. Halts program execution and returns control to the keyboard unless executed as a result of a GSB instruction. In this case, the calculator returns to the line after the GSB instruction and continues execution.

Line 00. If program control goes to line 00, either as a result of a GTO or by incrementing from line 49, calculator stops execution unless in a subroutine. In this case the calculator executes a RTN and continues execution at the line number after the GSB.

[R/S] Run/stop. Stops program execution.

[GTO] Go to. Followed by line numbers 00-49 causes calculator to go to designated line and begin execution there.

[GSB] Go to subroutine. Followed by line numbers 01-49 causes calculator to go to designated line and execute that section of program memory as a subroutine. Subroutines can be nested up to three levels deep.