

## Changing Cash Flow Entries:

To change a  $CF_j$  value, key in the new number and press **[STO]** **j** or **[STO]** **.j** to store new value in  $R_j$  or  $R_{.j}$ .

To change the  $j^{\text{th}}$   $N_j$  value, press **j** **[n]** new number **[g]** **[N<sub>j</sub>]**.

Remember to reset **[n]** to the number of  $CF_j$  entries (excluding  $CF_0$ ), after you review or change cash flows.

## PROGRAMMING THE HP-38E

In *program* mode, only the following functions are active and cannot be recorded:

**[g]** **[P/R]**, **[g]** **[GTO]** .00 through .99, **[g]** **[SST]**, **[g]** **[BST]**, **[g]** **[CLP]**, and **[g]** **[MEM]**.

**[g]** **[GTO]** .00 through .99 sets calculator to that line of program memory. When a *decimal point* is pressed before the line number is specified, the **[GTO]** instruction is *not recorded*.

**[g]** **[CLP]** clears program memory to all **[g]** **[GTO]** 00 instructions, sets calculator to line 00, and relocates 20 storage registers and eight program lines to calculator memory.

**[g]** **[MEM]** specifies number of program lines (P- ) and number of storage registers (r- ) available within current memory allocation.

**[X<Y]** **[X=0]** Conditionals. Tests value in X-register against value in Y-register or 0 as

indicated. If true, calculator executes instruction in next line of program memory. If false, calculator skips one line before resuming execution.

## ERROR MESSAGES

**Error 0:** Improper operation involving zero.

**Error 1:** Storage register overflow.

**Error 2:** Improper data in statistical registers.

**Error 3:** Amortization; wrong input to X-register, or IRR; input best guess, press **[RCL]** **[g]** **[R/S]**.

**Error 4:** Improper memory address.

**Error 5:** Compound interest; bad input.

**Error 6:** Discounted cash flow analysis; improper input.

**Error 7:** IRR; no solution exists.

**Error 8:** Calendar; improper input.

**Error 9:** Failed self-check (**[STO]** **[ENTER+]**).

**Pr Error:** Continuous Memory cleared by power failure. (HP-38C only).



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# HP-38E/38C Quick Reference Card

## THE MEMORY

### Automatic Memory Stack

<b>T</b>	0.00	Top
<b>Z</b>	0.00	
<b>Y</b>	0.00	
<b>X</b>	0.00	Always displayed
<b>LAST X</b>	0.00	

### Financial Registers


n	i	PV	PMT	FV
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Storage Registers

$R_0$	<input type="text"/>	$R_{.0}$	<input type="text"/>
$R_1$	n	$R_{.1}$	<input type="text"/>
$R_2$	$\Sigma x$	$R_{.2}$	<input type="text"/>
$R_3$	$\Sigma x^2$	$R_{.3}$	<input type="text"/>
$R_4$	$\Sigma y$	$R_{.4}$	<input type="text"/>
$R_5$	$\Sigma y^2$	$R_{.5}$	<input type="text"/>
$R_6$	$\Sigma xy$	$R_{.6}$	<input type="text"/>
$R_7$	<input type="text"/>	$R_{.7}$	<input type="text"/>
$R_8$	<input type="text"/>	$R_{.8}$	<input type="text"/>
$R_9$	<input type="text"/>	$R_{.9}$	<input type="text"/>

### Program Memory

00	09
01	10
02	11
03	.
04	.
05	.
06	97
07	98
08	99

 The calculator automatically converts one storage register into seven lines of programming, one at a time as you need them, beginning with  $R_9$  and ending with  $R_7$ .

**[STO]**  $j$  or **[STO]**  $.j$  stores  $x$  value in  $R_j$  or  $R_{.j}$ .

**[RCL]**  $j$  or **[RCL]**  $.j$  recalls value from  $R_j$  or  $R_{.j}$ .

**[STO]** **[+]**  $j$ , **[STO]** **[-]**  $j$ , **[STO]** **[x]**  $j$ , **[STO]** **[÷]**  $j$ :  $x$  value is added to, subtracted from, multiplied by, or divided into the contents of  $R_j$ , and the result is placed in  $R_j$ . Storage registers  $R_0$  through  $R_6$  are reserved for storage register arithmetic.

**[f]** **CLEAR** **[ALL]** clears all registers to 0.00. Leaves program memory unchanged.

## SUMMATIONS

**[f]** **CLEAR** **[Σ]** clears statistical registers  $R_1$  through  $R_6$  to 0.00.

**[f]** **[Σ+]** stores accumulations of numbers in the X- and Y-registers in storage registers  $R_1$  through  $R_6$ .

**[g]** **[Σ-]** subtracts same entries from accumulations.

## FINANCIAL INTEREST CALCULATIONS

**[f]** **CLEAR** **[FIN]** clears financial registers to 0.00.

**[RCL]** followed by a financial key (**[n]**, **[i]**, **[PV]**, **[PMT]**, **[FV]**) recalls that value into the display.

### Rules to Remember:

1. Given four of the financial values, you can solve for the fifth. Unspecified values maintain a value of zero or last value entered after clearing. Remember, **[n]** and **[i]** must correspond to the same time frame.
2. *The cash flow sign convention: Cash received is positive, cash paid out is negative.*
3. Whenever payments **[PMT]** are involved, be sure to set the payment switch

D.MY BEGIN  M.DY END.

## SIMPLE INTEREST

Store number of days in **[n]**, annual interest rate in **[i]**, and principal in **[PV]**. Pressing **[f]** **[INT]** returns:

- $INT_{360}$  to X-register.
- Principal to Y-register; press **[x2y]**.
- $INT_{365}$  to Z-register; press **[g]** **[R+]** **[x2y]**.

## AMORTIZATION

Input **[i]**, **[PV]**, and **[PMT]**. Then key in number of periods to be amortized and press **[f]** **[AMORT]**. Returns:

- Accumulated interest to X-register.
- Principal portion of payments to Y-register; press **[x2y]**.
- Remaining balance to **[PV]** register.
- Number of periods amortized to **[n]** register.

## DISCOUNTED CASH FLOW ANALYSIS

**[g]** **[CF<sub>0</sub>]** stores initial investment in  $R_0$  and sets **[n]** register to zero.

**[g]** **[CF<sub>1</sub>]** stores  $CF_1$  thru  $CF_9$  in  $R_1$  thru  $R_9$ ,  $CF_{10}$  thru  $CF_{19}$  in  $R_{.0}$  thru  $R_{.9}$ . Increments **[n]** by one.

**[g]** **[N<sub>i</sub>]** stores number of times (up to 99) each cash flow occurs.

### Reviewing Cash Flows:

1. Individual cash flows.
  - a. **[RCL]** **[g]** **[CF<sub>j</sub>]** recalls  $CF_j$  entries in opposite order.
  - b. **[RCL]**  $j$  or **[RCL]**  $.j$  recalls cash flow stored in  $R_j$  or  $R_{.j}$ .
2. Groups of cash flows.
  - a. **[RCL]** **[g]** **[N<sub>i</sub>]** **[RCL]** **[g]** **[CF<sub>j</sub>]** recalls entries in opposite order.
  - b.  $j$  **[n]** **[RCL]** **[g]** **[CF<sub>j</sub>]** recalls the  $j^{th}$  cash flow.
  - c.  $j$  **[n]** **[RCL]** **[g]** **[N<sub>i</sub>]** recalls the  $j^{th}$   $N_j$  value.

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