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HP 12C Clearing, Editing and Correcting

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Clearing the Display

As you know, the display is a window, a special register that lets you see at least part of the **X** register behind it. The **X** register, of course, is the all-important bottom register of the stack, through which all your numerical entry, copying and recalling and arithmetic operations pass. (For more reminders about these basic facts, see also Registers, Storage and Memory and Basic Arithmetic.)

So, can you clear the display without clearing the **X** register? Not really. There is no Clear Display key. You can, of course, reduce the number of digits of the displayed number, and you can clear various annunciators that are appearing in the display (see Display and Operating Modes for more about both of those topics). But you can't reset the display to zero without doing the same to the **X** register. The number in the display is truly a view of the **X** register behind it.

Clearing the X Register

The **X** register is so important that it merits its own clearing key (and a white-lettered one at that). It's the CLX key, just to the left of the ENTER key. And it does exactly what it says: Press CLX and you've just replaced whatever number was in the **X** register with a zero (formatted according to your requested setting: f 2, f 4, whatever—see Display and Operating Modes for more about that).

Just keep in mind that when you clear any register in the HP 12C, you are not emptying that register. You are filling it with a zero—and *zero is a number, too*. If, after pressing CLX, you now press STO or do arithmetic with that 0 in the **X** register, the HP 12C will dutifully follow all your commands, just as if it were working with some other number. (For much more on this and related topics about the stack and how it works, be sure to read Basic Arithmetic, too.)

*But when do you need to clear the **X** register?* ***Hardly ever.*** When you key a new number into the **X** register—either to store or calculate with—the value that was there previously just bumps up to float harmlessly in the **Y** register. Again, if you read Basic Arithmetic, you'll see why this is true.

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Clearing All the Stack Registers

There's a [CLX] key (see above), but there's no CLY, CLZ or CLT key, nor any CLEAR STACK key. So how do you clear all four of the stack registers? (See Registers, Storage and Memory for more discussion on what the Stack registers are.) There are a couple of ways, actually.

Problem: Give two different methods for clearing all four stack registers.

Solution 1: Press [CLX] [ENTER] [ENTER] [ENTER].

Solution 2: Press 0 [ENTER] [ENTER] [ENTER].

The [ENTER] key is twice as big as most keys for a reason: You use it all the time to "bump" a copy of the **X** register up to the **Y** register, so that you can key in another number underneath it. (And what was in the **Y** register goes into **Z** register; what was in **Z** goes into **T**; and what was in **T** is gone for good. There is much more information about [ENTER], the stack and how these registers all work together at Basic Arithmetic, but this is enough to know here.)

So after three such "bump-up's," you've spread copies of the original zero up through all three of the other stack registers. And the HP 12C doesn't care at all how that zero first got to the **X** register. Whether you key in a zero or press [CLX], it's all the same to the calculator.

But when do you need to clear all the stack registers? ***Hardly ever.*** Values from previous calculations just float upward out of your way and are eventually "bumped" from the **T** register—gone for good. (Again, if you read Basic Arithmetic, you'll see why this is true.)

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Clearing the Financial Registers

On occasion, you will want to clear all five financial registers. (See Registers, Storage and Memory for an explanation of the financial registers along with the other storage registers in the HP 12C.)

To do so, you simply press f CLEAR FIN. (That's the gold-lettered function of the x≷y key. See the discussion on The Keyboard for more about the bracketed keyboard notation.) That's all there is to it. Now all five financial registers contain zeroes.

When would you want to do this? It's often to begin some new TVM calculation fresh—typically a calculation where one or more of the four "known" values is zero anyway—e.g. Future Value (FV) in a fully amortized mortgage. In other words, you are using f CLEAR FIN to take the place of keying in a zero "manually" as one of your four known TVM values.

There are a couple of problems with doing this habitually, however.

- You become too accustomed to the routine of clearing the registers, then *keying in just three known values* (relying—soon unconsciously—upon the clearing action to supply the fourth known value: a zero). Then along comes a calculation where, say, FV is *not* zero, but you forget and thereby calculate an incorrect PMT (for example).

  Far better to develop the habit of keying in ("manually") all four knowns—left to right, preferably, so that you don't overlook any of them. (Time Value of Money Basics and Mortgage/ Loan Basics both have much more discussion of such calculations.) And don't forget that you can review the contents of any register via the RCL key, which sends a harmless copy to the **X** register.

- Sometimes you will inadvertently erase the results of a previous calculation that you really need to use. For example, if you've just solved for an interest rate of, say, 8.375%, and you want to use this in a subsequent calculation, it is probably already be sitting right where you want it—in the i register. Using f CLEAR FIN habitually before beginning that subsequent calculation would erase it and force you to key it in again. (And if you then mistakenly key in 8.38 because the display's 2-decimal-place setting rounded your view of the interest rate, you would get an incorrect result.)

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Clearing the Numbered Storage Registers

The only fast way to clear the numbered storage registers is f CLEAR REG. But that also clears the stack and financial registers. f CLEAR REG clears all registers—everything except program memory.

To clear *only* the numbered storage registers, you must store a zero into each one: 0 STO 0 STO 1 STO 2… STO .8, STO .9. (If you can't store into some of the higher numbered registers—if you get **Error 6**—it's means those registers are converted to program memory. See below for more on that.)

When would you want to clear the numbered storage registers? Rarely. As with all other registers, when you use the numbered storage registers, simply store what you need. The act of storage replaces what was there previously. And any registers you're not using can still have irrelevant values —whatever they had before—no harm to your current work. (After all, even when those registers are "clear," they still contain irrelevant numbers: zeroes.)

Clearing the Statistical Registers

The HP 12C uses numbered registers **1** through **6** to accumulate statistical data. To quickly clear these registers (and also the stack registers), press f CLEAR Σ.

When would you want to do this? It is essential whenever you are beginning to key in a new set of data for statistical analysis. You don't want the data accumulated from a previous analysis (or any other numbers that may be leftover in those six registers) to mess up your statistics.

The HP 12C clears the stack, too, and for good reason: Whenever you press Σ+ to accumulate another data point, the values in both the **X** and **Y** registers are accumulated. But if your intent is only to accumulate single-variable (i.e. **X** register) data, and you forget to clear the **Y** register before beginning, you'll botch everything up (either bad results or **Error 2**) and have to start over. So the calculator does you a big favor, clearing the whole stack so that the possibly irrelevant **Y** register contains only zero.

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Clearing Any Specific Register

No prizes for guessing how to do this: Just store a zero into the register in question. For example, suppose you want to clear the **n** register (one of the five financial registers). Just press 0 STO n (or 0 n—see the section on Time Value of Money Basics for more about the storage shortcuts of the financial registers). Or suppose you want to clear register **.2** for some reason. Just press 0 STO .2. You're done. (If you can't store into a numbered register, it's because it's been converted to program memory space. See below.)

To clear a given stack register is a little trickier. You have to clear the **X** register, then use R↓ to move that zero to the correct stack level. (See Basic Arithmetic for more about stack operations.)

When would you want to clear a specific register? Seldom in the numbered registers or stack. But many calculations require a zero value in one or more financial registers—and this is not only for TVM calculations, but also for amortization and discounted cash flow analysis.

Clearing Programs

Programs are just sets of recorded keystrokes. You record them by switching the calculator to program mode (via f P/R), then pressing the keystrokes to be recorded. But the HP 12C has only 8 keystrokes' worth of dedicated program memory. If you need more keystrokes ("steps" or "lines") in a program, the HP 12C begins to convert the numbered storage registers, one at a time, beginning with Register **.9**. Every converted register space can hold 7 program steps. A program of 8 steps or less uses no numbered storage registers; a program with 9-15 steps uses one numbered register (Register **.9**); a program with 16-22 steps uses two numbered registers (Registers **.9** and **.8**); etc., down through Register **7**. (Registers **1**-**6** are preserved for statistics.) Thus, you have a maximum total of 99 program steps possible.

How do you clear program memory—to reclaim all numbered registers for use as storage? *You have to set the calculator to program mode to do so:* Press f P/R so that the **PRGM** annunciator appears in the display. Then press f CLEAR PRGM. Now go back to run mode (press f P/R again). The **PRGM** annunciator will disappear, and now all your numbered registers will be available.

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Clearing the Entire Machine

The HP 12C has Continuous Memory, which preserves your data and programs even when the display is turned off. (In fact, Continuous Memory is preserved—for a short time—even in the absence of any power source. This allows you to change the batteries when necessary.) This means that whatever was in the display—and every other register—when you turned off the calculator will still be there when you turn it back on.

Once in awhile, you may wish to reset the Continuous Memory entirely (i.e. erase all your data and programs and restore all machine settings to their default or "factory" states). If so, turn off the calculator, hold down the − key, then press and release ON. You should see **Pr Error** ("Power Error"), indicating that the power to the circuitry has been discharged so that all your input information is gone—the HP 12C is back to factory conditions.

When would you want to do this? Only if you think your data or programs have been corrupted somehow, or if you think that the machine needs resetting due to some lock-up condition, a physical trauma (dropping or jarring), or an intermittent power fluctuation. Just keep in mind that this procedure completely erases any programs and data (calculations) you had stored in the machine.

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Correcting Mistakes

Mistakes are inevitable when you use any tool, including a calculator like the HP 12C. From time to time, you're going to fumble-finger or transpose digits when keying in a number. Or you're going to forget to enter some important value in a TVM or IRR calculation. Or you're going to accidentally duplicate a data point in a statistical set.

Of course, with any calculation, you can always start over. But that can be a lot of work; some calculations are quite lengthy. So the question here is whether the HP 12C offers you any ways to avoid starting over. Can you recover from certain sorts of errors? Take a look.

First of all, if you're **keying in a number** and you mess up the entry of the digits, you just have to start over. (There's no backspace key on the HP 12C.) Use CLX to do this. Then just key in the number correctly.

But doesn't this zero introduced into the stack by CLX cause a problem if you're in the middle of a longer arithmetic problem and you've got partial results already floating up in the stack? Don't you have to start the whole problem over again in that case?

No. The good thing about CLX is that when it puts a zero in the **X** register, if you then begin to key in a number, that zero is simply *overwritten*. It does not "bump up" in the stack to cause problems among your other intermediate results.

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What if you key in your numbers correctly, but you simply **do the wrong operation**—say, ⊞ instead of ⊟? Maybe this is the culminating operation in a longer chain calculation, and you've just messed up the final step. Can you undo this one step, or do you have to start all over again?

Often you can undo that step.

Notice the blue-lettered function on the ENTER key. Pressing g [LSTX] does a sort of "recall" back to the stack (to the X register), bumping everything else up a level. The value it places in the X register is the value that was there just prior to the most recent operation.

Look at an example….

Do this: Find $\frac{(29^2 + 32.5)}{\sqrt{84} + 16/5}$

Solution: 29 ENTER ⊠ 32.5 ⊞ 84 g $\sqrt{x}$ 16 ENTER 5 ÷ ⊞ ⊠

You get **9,997.22**…. Oops! You didn't want to multiply there at the end—you wanted to divide!

No problem. Press g [LSTX] to get the value that was in the **X** register right before your goof. This was the value of the original problem's denominator: **12.37**

And now that bad result, **9,997.22**, has been bumped up to the **Y** register, so you're all ready to undo the erroneous multiplication with a division: 1/x
That gives you back the numerator of the original problem: **808.50**
Now pressing g [LSTX] again puts the correct denominator back again, and then you're ready for the final division: 1/x There's your correct result: **65.39**

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What if you make an error while **accumulating statistical data**? Do you have to start over, or can you undo the error?

You can undo it, but only *if you can exactly reproduce the error*. Suppose you happen to enter a duplicate or other wrong-valued data point (pressing Σ+ as usual, to accumulate that point). To fix things, you will need to key in that same erroneous data again, but this time pressing g Σ− instead of Σ+. This will remove the offending values from all 6 statistical registers.

If you make a mistake while doing a **TVM calculation**, it's tempting simply to press f CLEAR FIN to wipe the slate clean. But that usually costs you more trouble than necessary, because the erroneous number is probably only one among four known values that you've keyed in. Why re-enter all four when three are probably right? A quick check of the four values, using the RCL key, will usually reveal the problem.

Example: Suppose you're trying to calculate the remaining balance after 5 years on a $150,000 mortgage, at 6%, with monthly payments of $900. You key in everything and solve for FV, and you get –265,120.55.

But that doesn't look right—it's far more than the loan amount.

Solution: Check your known values:

RCL n	(you get **60.00**)	OK;
RCL i	(you get **0.50**)	OK;
RCL PV	(you get **150,000.00**)	OK;
RCL PMT	(you get **900.00**)	

Aha! The PMT should be *negative* if PV is positive.
So just key in the correct PMT value: 900 CHS PMT.

And solve for FV: FV… You get **-139,534.50**. That's more like it.

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What if you make a mistake while using AMORT to analyze the principal and interest paid during a mortgage? Suppose, for example, that you give the wrong number of periods to be amortized in a single calculation.

Just start over. AMORT works forward chronologically through the periods in a loan or mortgage—and with every calculation, it changes the values in the **n** and **PV** registers. There's no good way to undo what's already been done, so you have little choice but to begin the calculation again.

You don't need to re-enter all of the values, actually. The interest rate, i, and the PMT amount should be OK as they are. But you do have to put the correct starting value back into the **PV** register, and a zero into the **n** register. Then you specify (correctly this time) the number of payments to amortize, and off you go.

What if you make a mistake while entering **a cash-flow situation** (in preparation for calculating **NPV** or **IRR**)—say, you enter the wrong groups in the wrong order, or the wrong signs on certain cash flows, or maybe you accidentally skip a cash flow group? Any hope of undoing this?

Not really—just start over. (Technically, there is a way to go in and surgically fix any existing cash-flow group, but it's at least as much trouble—and more fraught with error—than simply beginning again with a clean slate.)