



hp calculators

HP 12C Display and Operating Modes

What You're Looking at and What it Tells You



[The Numbers You See](#)

[Other Machine Modes and Their Annunciators](#)














 hp calculators


HP 12C Display and Operating Modes

The Numbers You See

As you know, the display is a special register that sits in front of the **X** register as a sort of window to let you look through it. And this display window may be partly closed, showing you only a part of the number in the **X** register. (For more details on registers, see also [Registers, Storage and Memory](#).)





As you may also know, you can select how many decimal places of a number you want to see: You press the  key, then the desired number of places. (For example, to set 3 decimal places, you'd press  3; for 8 places,  8; for no places,  0.) But bear in mind that the display window is rounding only your *view* of the number, not the value itself. The HP 12C carries **10** digits internally on all values, *regardless how many it is showing you*. But you can view these digits at any time.

Try this: First, set 4 decimal places, by pressing  4. Then key in some number with a lot of decimal places, say 1.2345678 (Type .)

At this point, the calculator doesn't know if you've finished typing your entry yet. (Notice that while you're actually keying in a number to the **X** register, the display window "slides open"—regardless of its setting—so that you can see exactly what you're keying in.) So now do something with that number, simply for the sake of this example, to tell the machine that you've finished keying it in. Say, store (copy) it somewhere—doesn't matter where:  1

Now look at the copy left in the **X** register: **1.2346**

Is that right? Is that really what you keyed in (and just stored a copy of)?

Sure it is. The display window has simply closed down to 4 decimal places, as you requested. Doubt it? Press  6.... Now you see more of the true value sitting in the **X** register. And  9 will show you the complete formatted number; or  CLEAR  shows you all the digits without formatting.



 hp calculators

HP 12C Display and Operating Modes


There are couple of other number formats you should know about, too—just in case.

Try this: Key in some large value, say 23,456,789, and press  .

2.345678 07 What is *that*?

That is scientific notation—another way to represent numbers, particularly very large or small values. You would say this number, “2.345678 times ten to the 7th power.” (A very small number would have a negative power—for example, press 1/x to invert that big one.) To restore a normal decimal places setting, just choose the number of places you want, as discussed above.

Keeping the large number from the above example, do one more....

Try this: Turn off the calculator, press and hold the  key, and (while holding down that key) turn the machine back on. What happens? **23.456.789,00**

Answer: Your decimal point will change from a period to a comma (and the thousands/millions/billions separators will become periods)!

Why? What is this? This is “European notation.” In the U.S., the decimal places are separated from the integer portion of a number by a period; and the thousands, millions, billions, etc (every three places to the left) are marked by commas. It’s the reverse in Europe—and much of the world.

Sometimes you may find your machine in this mode without having set it intentionally—a little disconcerting, especially since the procedure to switch it is not a single keystroke. But apparently a power fluctuation or other minor “machine event” can sometimes cause this mode to change “spontaneously,” so don’t blame yourself unduly. In any event, to switch back, just repeat the procedure.



 hp calculators

HP 12C Display and Operating Modes

Other Machine Modes and Their Annunciators

Annunciators are those little messages appearing in the display below the number itself. In fact, you've already seen a couple of them (discussed above): The **f** and **g** annunciators tell you, respectively when the gold or blue shift modes are in effect—i.e. when you've pressed one of those shift keys—so that the next key pressed will operate its gold- or blue-lettered function.

But there are other modes you should know about too—and the HP 12C tells you about these, too, with annunciators of their own.

First, keep an eye out for the **low battery** annunciator. It's a simple asterisk (*) that will appear in the lower left hand corner when your battery is low. That indicates a low battery level. After this signal first appears, you still have some time to change the batteries before the power runs completely out and loses the calculations and/or programs you have stored:

If you're using alkaline batteries, you can run the calculator continuously for at least 2 hours or maintain the memory contents (with the calculator turned off) for at least a month.

If you're using silver-oxide batteries, you can run the calculator continuously for at least 15 minutes or maintain the memory contents (calculator turned off) for at least a week.

Also, whenever you're doing TVM Calculations, be aware of the **payment mode** annunciator, which looks like this: **BEGIN**. This means that the PMT amount in any loan will be applied at the beginning of the corresponding period (a little unusual), rather than at the end (more conventional). To set this mode, you press **9****BEG**. To clear this mode (i.e. revert to the more common **END** mode—where loan payments occur at the end of each period), just press **9****END**.

Be sure to read [Time Value of Money \(TVM\) Basics](#) and [Mortgage/Loan Basics](#) for more about this mode and how it affects your calculations!



 hp calculators

HP 12C Display and Operating Modes

Look also for the **date format mode** annunciator, **D.MY**, whenever you're working with bonds or doing calendar (date) calculations.

In the HP 12C, you must use a single number to represent a date, but as with most formats, there is more than one way to do so. In the United States, a date is typically represented in the order of Month/Day/Year (or Month-Day-Year). But in Europe and elsewhere, the date is usually expressed as Day/Month/Year (or Day-Month-Year).

In the calculator, there are no / or - signs available for the display, so you use a decimal number: **M.DY** (U.S. format) or **D.MY** (European format). For example, the date July 12, 2002 under D.MY format, would be represented as **12.072002**. That same date under M.DY format would be represented as **7.122002**.

To set D.MY mode, you simply press . The **D.MY** annunciator will appear in the lower part of the display. To set M.DY mode, just press . The **D.MY** annunciator will disappear. (There is no M.DY annunciator.)

Of course, no matter which mode the machine is in, if you give it a nonexistent date (for example, February 30, 2003), it will give you an error message (**Error 8**). But be careful! Sometimes the HP 12C won't catch your goof—it can't read your mind, after all. For example, if you were to key in July 12, 2002, under the wrong format, the calculator would understand that to mean December 7, 2002, which is a perfectly valid calendar date that it would then try to use in whatever calculation you happen to be doing.



 hp calculators

HP 12C Display and Operating Modes

Next, a strange little one: the **partial period interest mode** annunciator, which looks like this: **C**
To clear (or set) this mode, you press **STO EEX**.

When set (lit), the **C** signals that in any TVM calculation where you're using a non-integer (non-whole-number) value in the **n** register, the HP 12C will use **C**ontinuous compounding interest for the partial period, rather than straight-line (simple) interest. This mode does not affect any TVM calculation where the value in the **n** register is a whole number.

Here's the story in a nutshell: To remove the mathematical ambiguity inherent in a non-integer (non-whole-number) **n** value, HP has modified the standard TVM formula so that whenever you *key in* a non-integer value for **n**, the HP 12C will interpret this very specifically: The partial period comes at the *beginning* of the timeline (i.e. after PV but before the first whole period), and there is no "partial PMT" associated with this partial period. And you are given a choice as to how you wish the interest to accrue on PV *during that partial period*. The default choice (when no **C** appears) is the more common: straight-line, or simple interest. The **C** mode is for the more unusual: continuously compounding interest.

Finally, there is the program mode annunciator: **PRGM** This appears whenever the HP 12C is in program mode—i.e. whenever the machine is set to "record" your keystrokes for future (automated) repetition. You switch the calculator into (or back out of) program mode via the keystrokes **f P/R**.