

# HHC 2024

## The Texas Instruments Mid-Range Classic Calculators

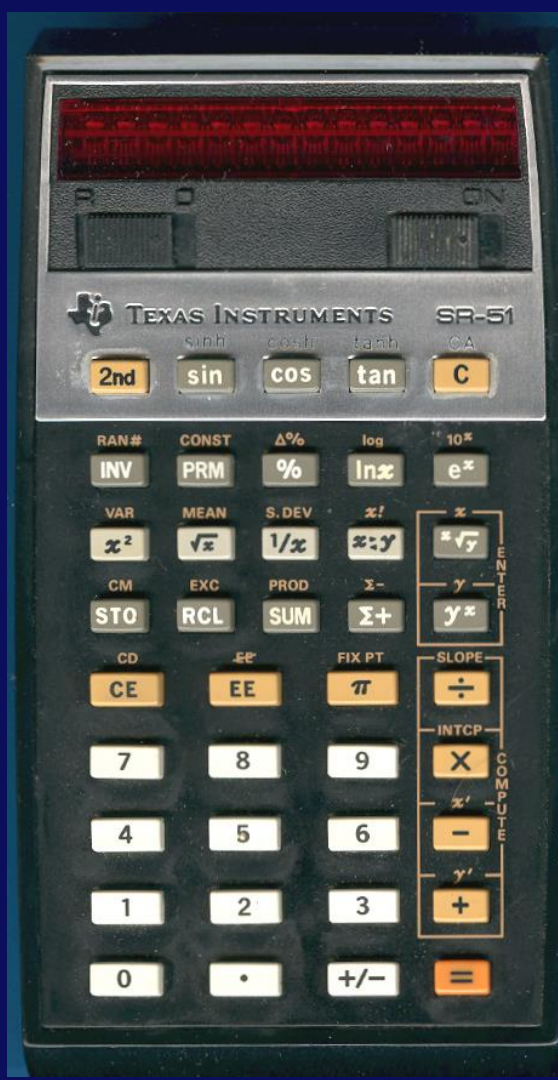
(Yes, more TI calculators !)

(Thanks for [datamath.org](https://datamath.org) for some pictures)

September 21-22, 2024

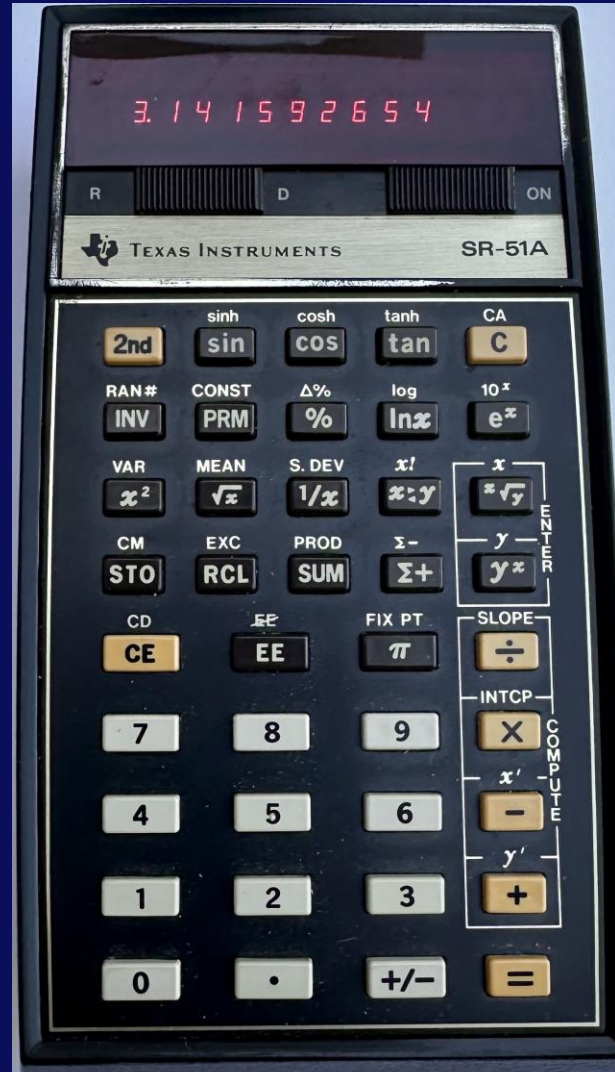
# HHC 2024 – TI Mid-Range Machines SR-51

- The TI Mid-Range Machines all begin with the SR-51 introduced in January 1975.
- From a pre-programmed perspective, this machine packed quite a punch.
- Trigonometry, hyperbolics, linear regression, mean, variance and standard deviation, factorial and permutations, random number generator and 20 built-in conversions – some of which may never have been built into another machine:
- Voltage ratio to decibels, acres to square feet, and mils to microns.



## HHC 2024 –TI Mid-Range Machines SR-51A

- The SR-51 was replaced within a year with the SR-51A in an industrial design more consistent with the family of machines being offered.
- From here, the line-up split into two directions: Programmability with the codenamed SR-51P which became the SR-56 and a more modest preprogrammed line.
- But they had a problem.

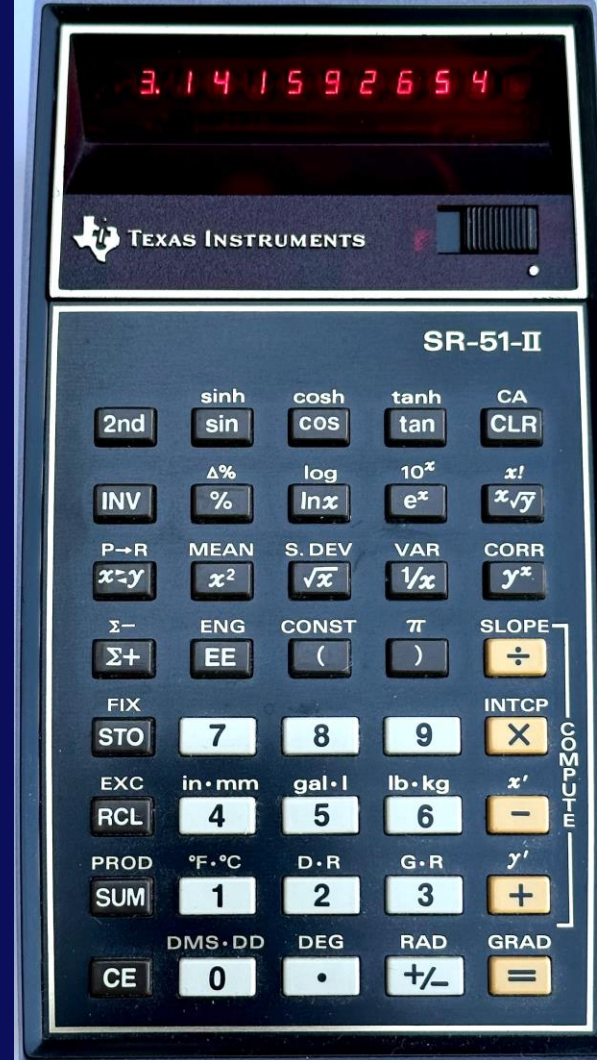


# HHC 2024 – TI Mid-Range Machines

- TI wanted to split the product line into two paths: a high end and a mid-range.
- The SR-56 route along with the SR-52 led to the high-end programmable calculators, the TI-58 and TI-59.
- TI wanted a lower-cost programmable model based on the SR-51A, named the TI-55, but it would be based on a one-chip design, which was not ready yet.
- So TI modified the SR-51A with in the next cost-down industrial design and came out with an interim model until the TI-55 was ready.

## HHC 2024 – TI Mid-Range Machines – SR-51-II

- This was basically a cheaper SR-51A.
- Introduced in 1976, the new industrial design involved several changes.
- Gone was the BP-1A battery pack.
- Gone was the 10+2 LED display.
- Gone was the Degrees – Radians switch.
- The new model also lost several functions: Random number generator, permutations, 13 of the 20 conversions built into the SR-51A were also dropped.
- But several new features were added.





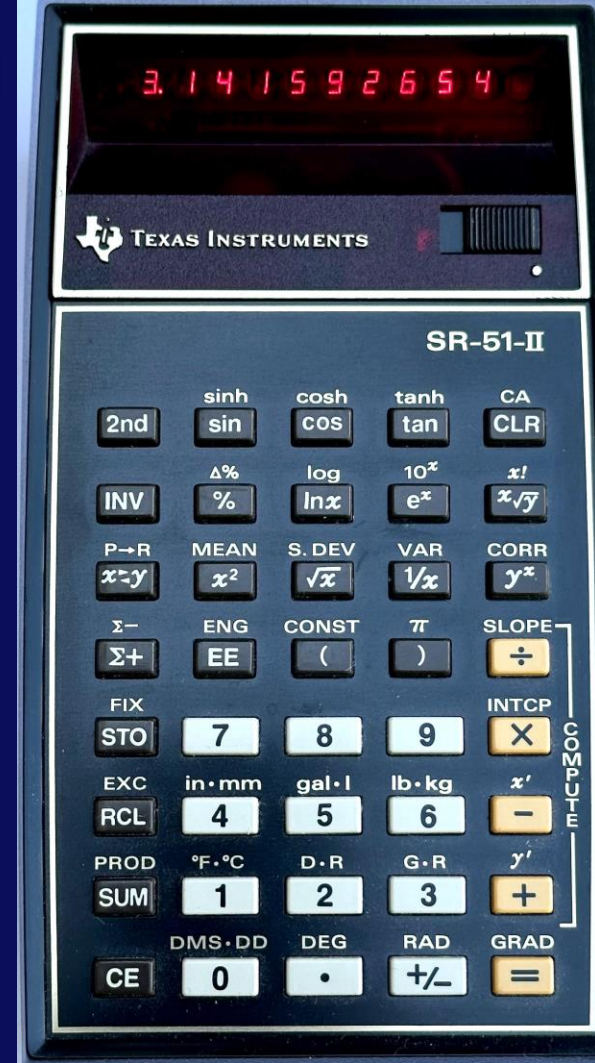
## HHC 2024 – TI Mid-Range Machines – SR-51-II

New features: Grads mode and correlation was an added stats function and Engineering Notation. 3 data memories.

As mentioned, the display was 10 or 8+2, but each digit was bigger.

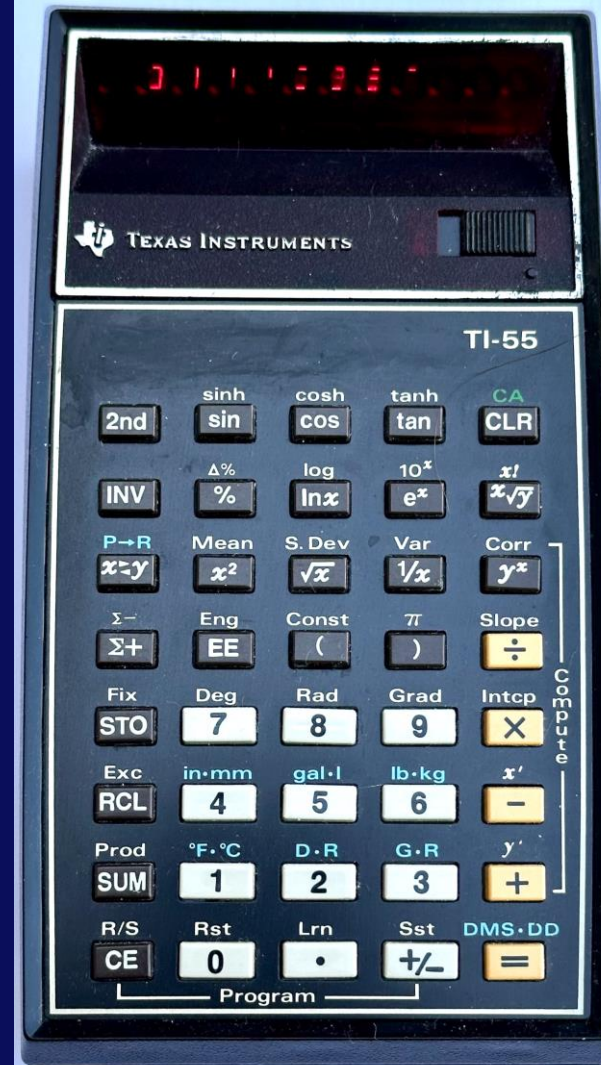
Biggest addition was the Algebraic Operating System. Parentheses and 5 pending operations were available.

This model was sold for about a year. First ad was 9/26/76 at \$67.95. Last ad 5/6/78 at \$48.95. Cheapest was \$39.83 on 2/9/78.



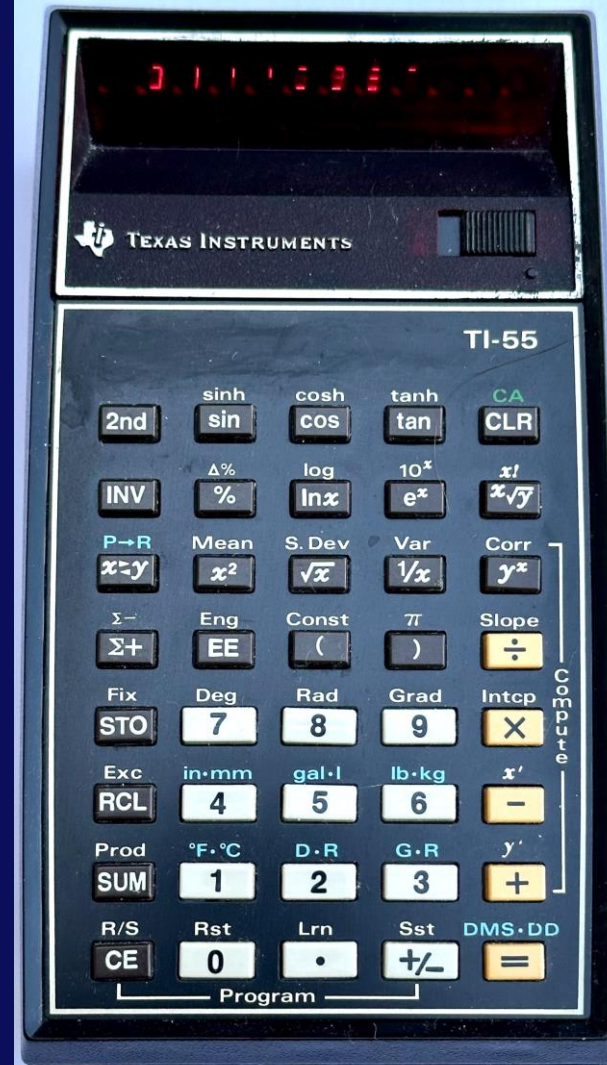
# HHC 2024 – TI Mid-Range Machines – TI-55

- The model that was TI's goal, adding limited programming to the SR-51-II.
- The TI-55 was introduced in 1977 at roughly the same time as the TI-57/58/59 and had every single SR-51-II function with an added 32 steps of programming.
- It also increased data memories to 10.
- This model was sold for 6 years.
- Some functions were moved around and a few functions were printed in blue for an obscure reason, but this model was cheap! First ad 4/15/78 at \$54.95.



## HHC 2024 – TI Mid-Range Machines – TI-55

- Programming was very limited.
- 32 steps. LRN, SST, R/S and RST.
- That's it.
- Better than nothing at all, but really useful perhaps only for evaluating a function or repeated calculation.
- Last ad was 12/27/81 at \$28.87.
- Note: In Europe, the TI-55 was sold as the TI-51-III.





## HHC 2024 – TI Mid-Range Machines – TI-55-II

TI came out with the LCD TI-55-II, but this used such an awful keyboard that TI would routinely replace this model with its successor, no questions asked.

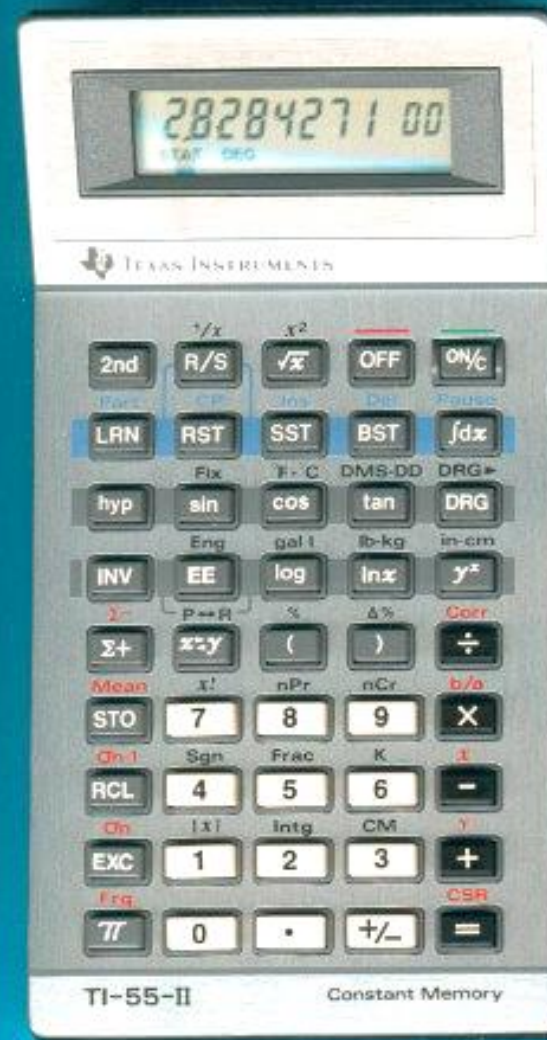
It would produce double entries or no entries, depending on its mood.

Note the very odd **RED** shift color?

Yes, that's the same keyboard in the cancelled TI-88.

No functional changes other than sample standard deviation.

It is so bad, I threw my machine away.

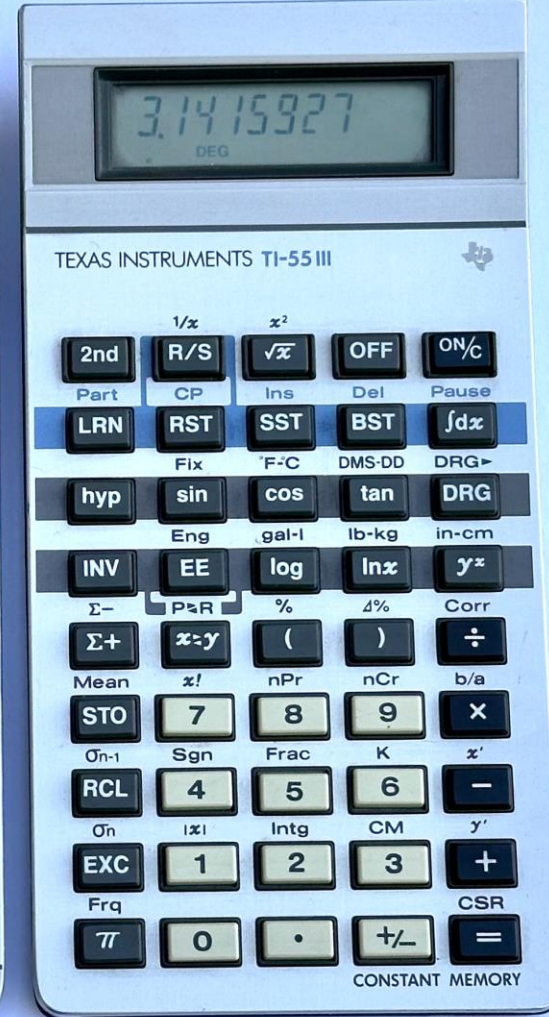
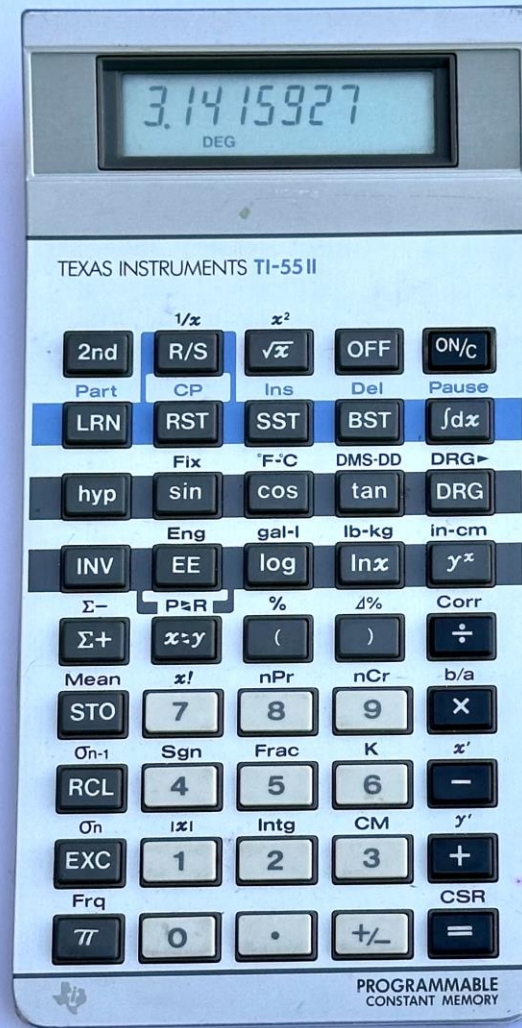


## HHC 2024 – TI Mid-Range

These were the TI-55-II successors.

Humorously, the first of the replacements kept the same model number.

TI realized this would taint the model with the problems of the previous one, so they changed it to TI-55-III.



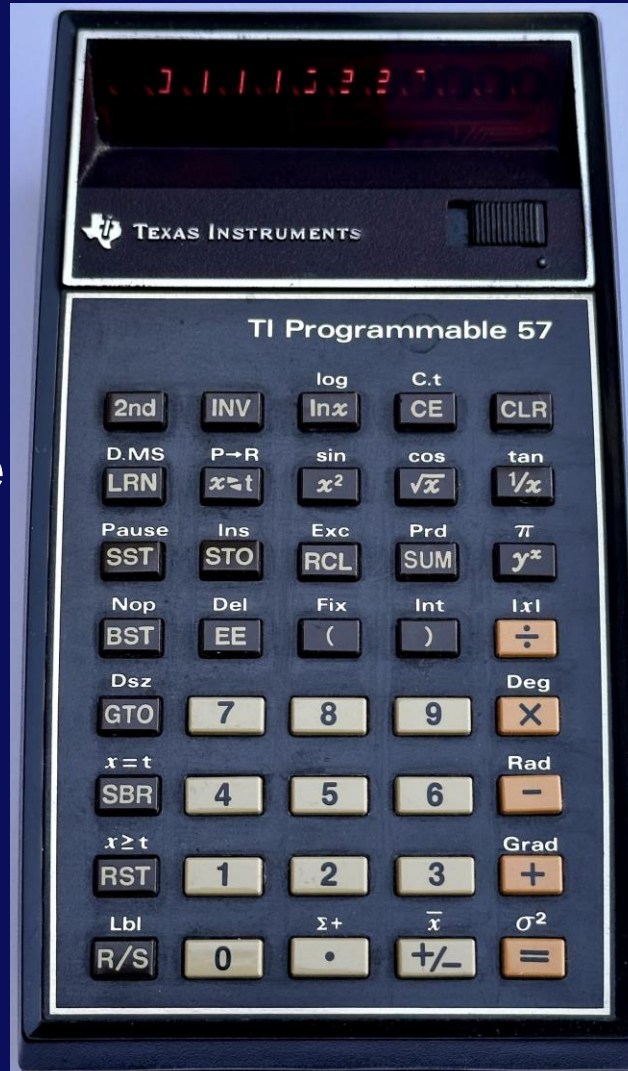
## HHC 2024 – TI Mid-Range Machines – TI-57

TI introduced the TI-57 as the low-cost successor to the SR-56 on 5/24/77.

Sales brochure: “The key to its value is a remarkable advance in integrated circuit technology – a single MOS/LSI chip with the equivalent capacity of 30,000 transistors.”

This model had 50 fully-merged steps and 8 data memories.

The display was 8+2 and fairly dim. The initial units used the same battery pack as the SR-51-II but later changed to the same pack as the TI-55.



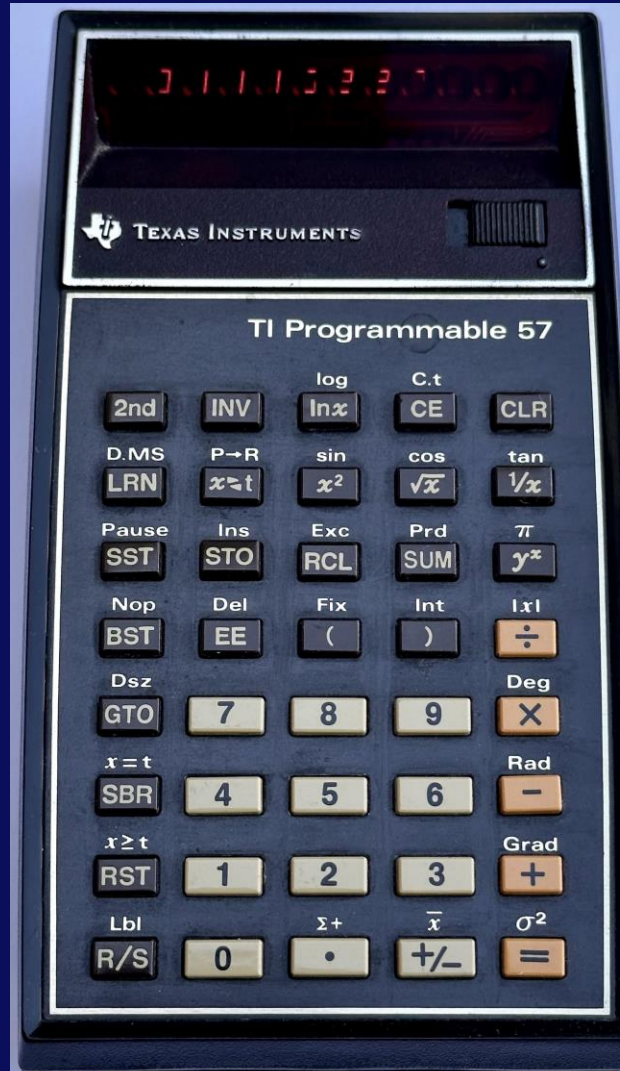


## HHC 2024 – TI Mid-Range Machines – TI-57

Each program step could store up to 4 keypresses. INV 2<sup>ND</sup> PROD 1 would enter one step and divide memory 1 by the displayed value.

Keying in an average complexity 50 step program from the TI-57 to the TI-58C will usually take about 80 steps on the TI-58C.

If you multiply the 8 memories by 8 bytes each and add the 50 bytes of program memory, this machine has 114 total bytes available.

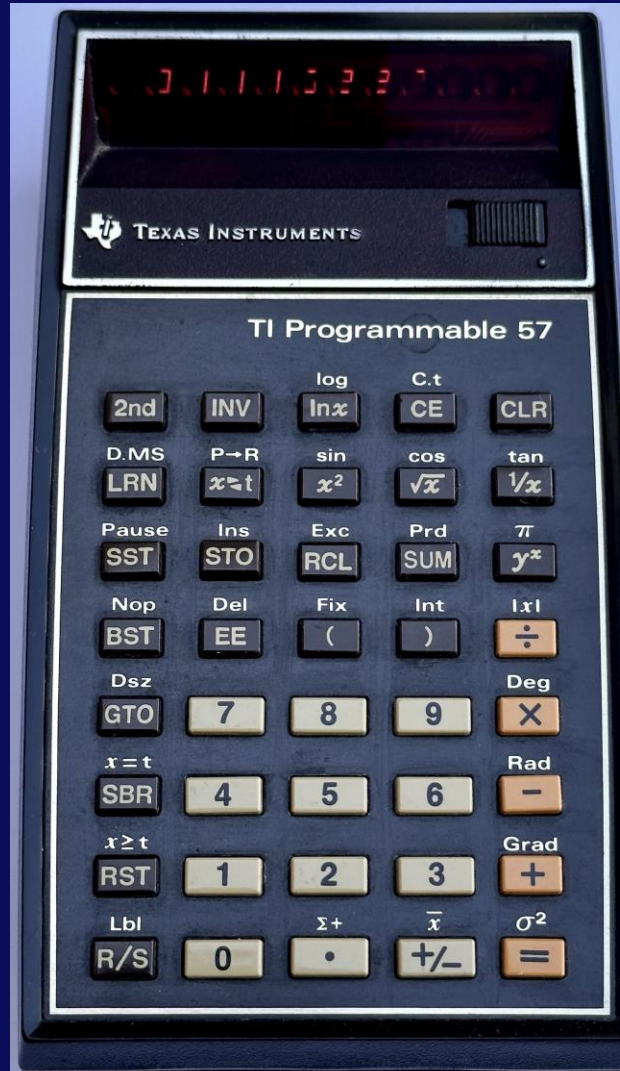




# HHC 2024 – TI Mid-Range Machines – TI-57

Math functions available: trigonometry and inverses in DRG. P/R and DD/DMS conversions and inverses. Mean and variance for X and Y data, logs and antilogs, storage arithmetic.

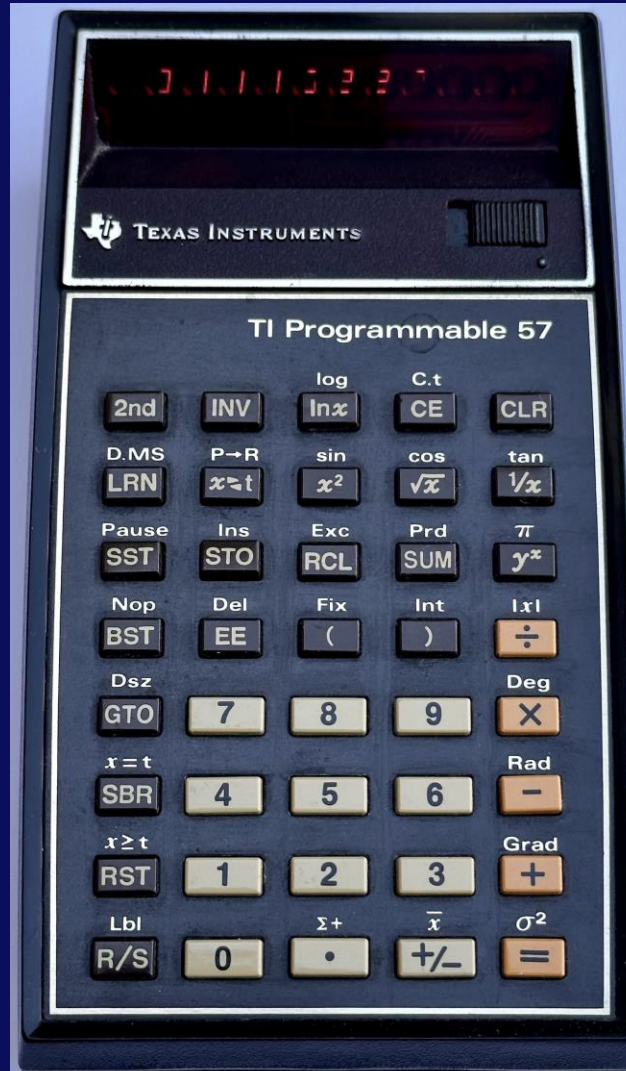
Programmable functions included: Ten labels 0-9, Subroutines, Integer/Fraction, Absolute value, Pause, NOP, 4 conditional tests against the “t” register, insert/delete step, DSZ and INV DSZ looping, and two levels of subroutines.



# HHC 2024 – TI Mid-Range Machines – TI-57

Although the TI-57 has 8 memory registers, there are limitations:

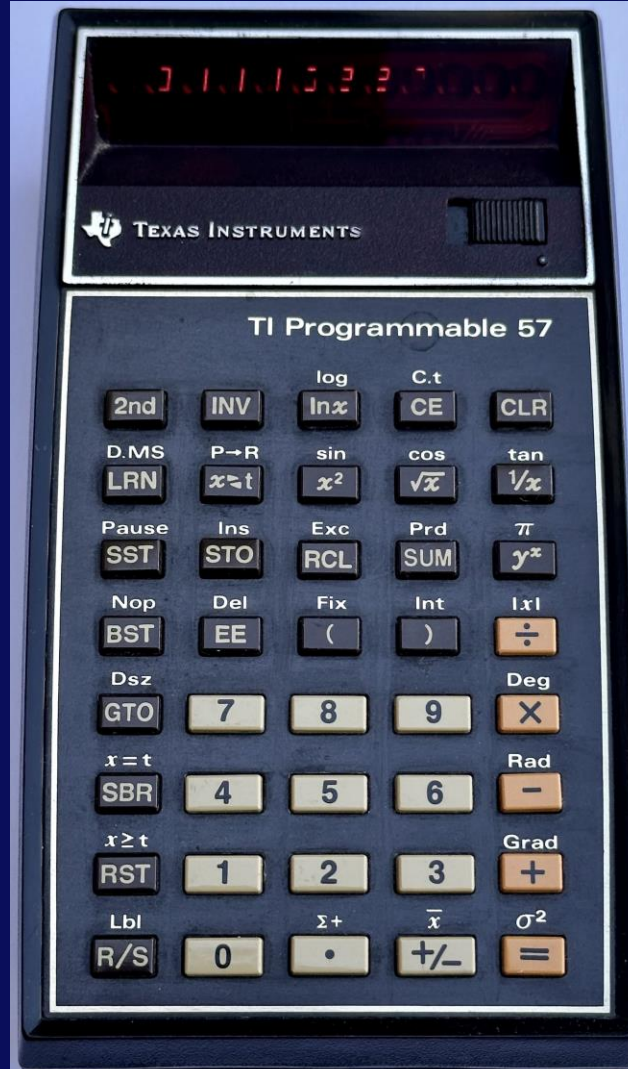
- When evaluating an expression having 3 or 4 pending operations, memories 5 and 6 are used to hold the expression values.
- Memory 7 is actually where the value in the t register is stored. So  $X \leftrightarrow t$  is 2nd Exc 7.
- Note: this means memories 0 - 4 are relatively reliably available.
- DSZ operations always use memory 0.
- Statistical functions use memories 0, 1, 2, 3, 4, 5 and 7.



- Using the last 2 program steps, you can turn your TI-57 into a TI-57C:

- **The unit is on but the display is off. Uses less power than the TI-58C does when off.**

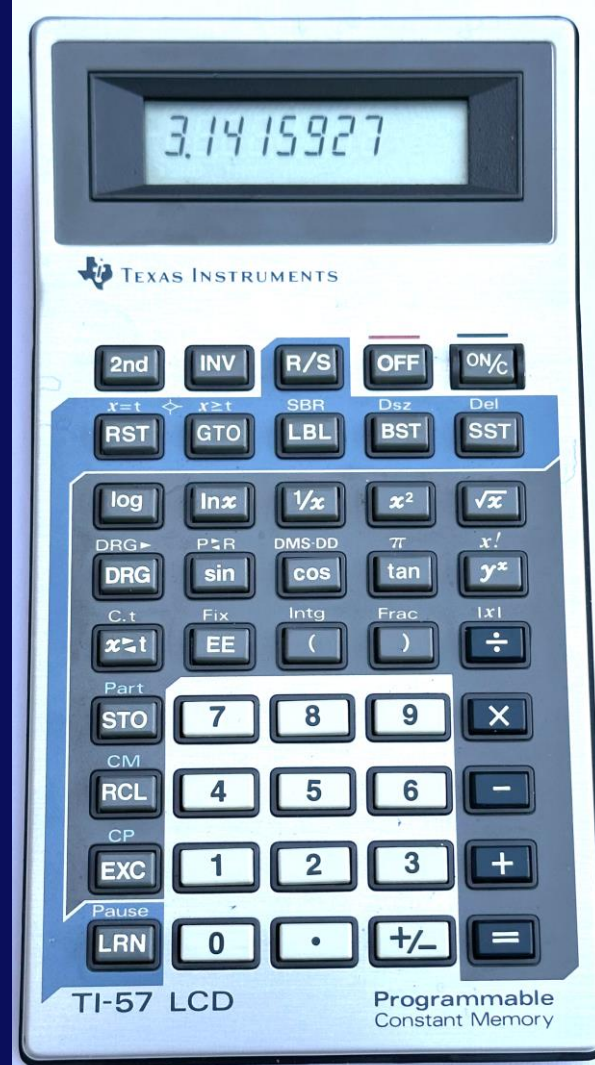
- One other note: This machine is pretty SLOW. The program + 1 = RST performs 280 additions in 60 seconds compared to 480 on the HP-25.





## HHC 2024 – TI Mid-Range Machines – TI-57 LCD

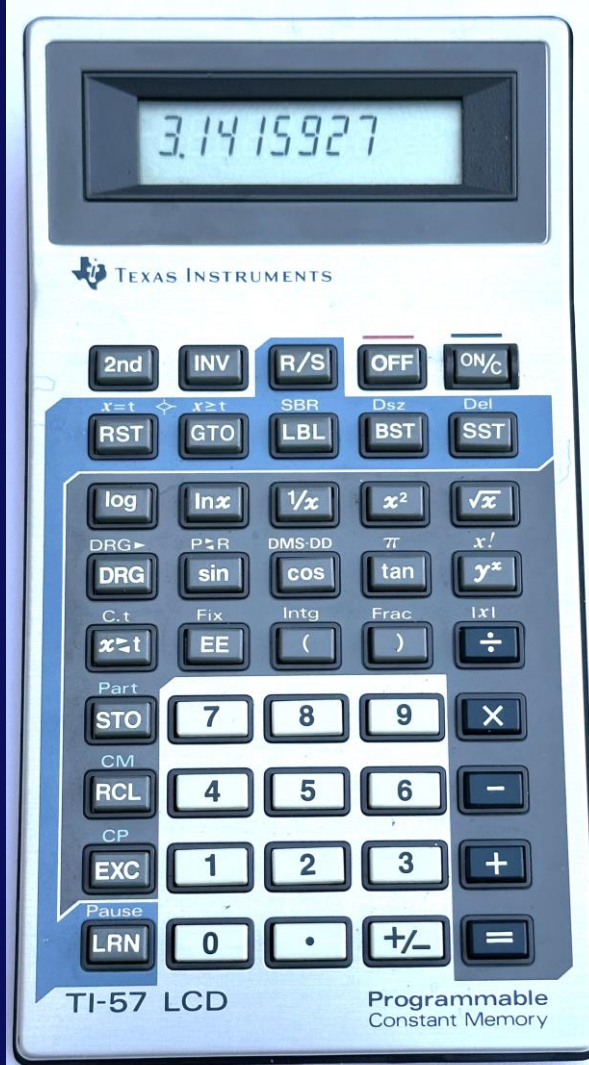
- Of course, TI came out with LCD versions of the TI-57.
- The TI-57-LCD This model was introduced in 1982 and certainly was one of the more garish-looking units ever made. Reminds me of the HP-33S.
- It might be mistaken for a Space 1999 TV show prop.
- Overall memory capacity compared to the original TI-57 was down about 50%.





## HHC 2024 – TI Mid-Range Machines – TI-57-LCD

- Where the original TI-57 had 50 program steps and 8 memories, the TI-57 LCD has 49 steps with one memory or 8 memories with no program steps. Memories traded off for program steps at the rate of 7 steps per register.
- Compared to the original TI-57, this model added: factorial and clear program as well as the incredibly useful ability to directly partition such limited program memory from the keyboard!
- It also dropped the mean and variance.



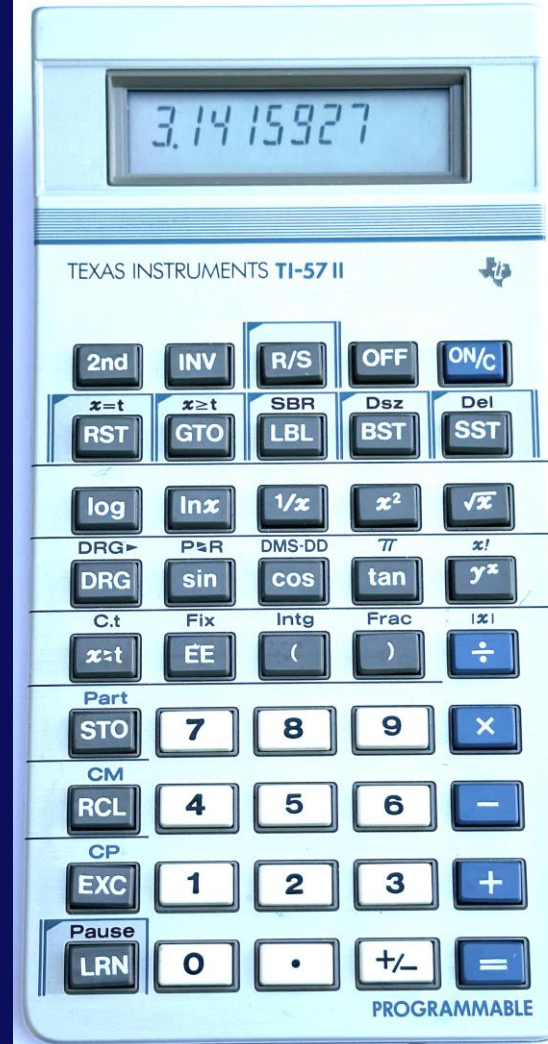
## HHC 2024 – TI Mid-Range Machines – TI-57-II

This model was introduced in 1986 and updated the TI-57-LCD model with a reliable keyboard and got rid of the garish color scheme.

Functions were the same as the TI-57-LCD.

Same physical industrial design as the TI-55-III.

It's quite light and easy to carry.



## HHC 2024 – TI Mid-Range Machines

- So, which model of these should you add to your collection?
- First, obtain an SR-51A and an SR-56.
- These deserve a spot somewhere.
- Then out of these, the original TI-57 has the prestige of being introduced with the TI-58/59 and is a quite respectable model in its own right.
- Programs exist that compute the first 58 digits of  $e$  and the exact factorial of 52. Pretty amazing in such limited space.
- The SR-51-II or TI-55 are honorable mentions.
- Avoid the others. Questions ?

AND NOW BACK TO  
OUR REGULARLY  
SCHEDULED **RPN**  
PROGRAMMING