Texas Instruments
TI-41

TI-41 for those who buy, sell, borrow or loan money; for business people and for financiers

DISPLAY DESCRIPTION

- 9 3 1 . 6 8 0 2 1

integer — decimal point — decimal
floating minus sign
mantissa

- 3 . 6 0 8 9 - 3 2

integer — decimal — exponent sign
floating minus sign
floating minus sign — mantissa
exponent

. - 2 . 8

integer — decimal

Error
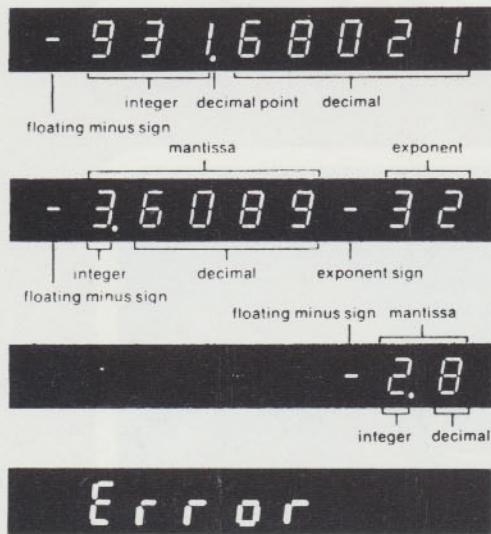
• ACCURACY AND ROUNDING

While the display has a capacity of 8 digits, the internal calculating capacity of the TI-41 is 11 digits. The result within the calculator is automatically rounded to 8 digits for display purposes only. Very large or very small answers will be displayed in scientific notation with 5 digit mantissa and 2 digit exponent.

The 5/4 rounding system adds one to the least significant displayed digit if the next non-displayed number is five or more (i.e. round up). When the digit is less than five, the calculator rounds down. As the calculator is capable of working internally with 11 digits, numbers with 9 to 11 digits may be entered by summing two numbers (389182 + .70636 = 389182.71).

The calculator simply completes the operation and uses the 11 digit result for further calculations.

• MINUS SIGN

Any negative number displays a minus sign *immediately to the left of the number,* the way negative numbers are ordinarily written.

• ERROR INDICATION

The display shows the word "Error" when the limits of the calculator are violated (overflow, underflow), or when an improper mathematical operation is requested. When this occurs, further entries from the keyboard are not accepted until the machine is cleared.

### • WHAT IS THE USE OF PARENTHESES?

They allow the calculator to store numbers and functions as they are entered left to right . . . and automatically execute the problem according to the rules of algebra — just as it is taught in schools. In other words, *you key in your problem as it is written:*

Example: $2 + \left(3 \times \left(4 + \left(\frac{5}{6}\right) + 7\right)\right)$ is entered as it is written: 2 [+] [(] 3 [X] [(] 4 [+] [(] 5 [÷] 6 [)] + 7 [)] [)] [=] 37.5

• HOW DO THEY WORK?

Figure 1.
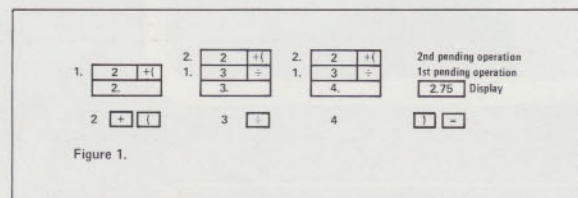
• WHY ARE THEY SO USEFUL?

Figure 2.
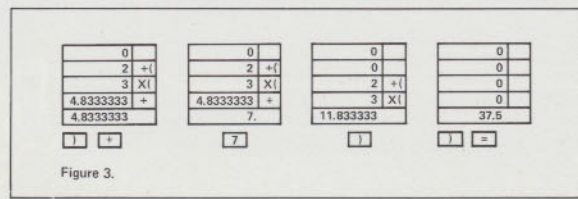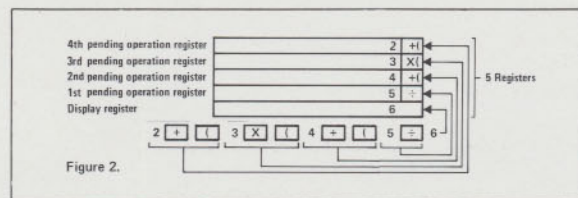
Their power can be "measured" with two parameters:

1. The number of possible nested parentheses.
   Example: (2+3) x (4+5)   1 level
   5 + (8/(9 − (2/3)))   3 levels
   The TI-41 can accept 15 levels of nested parentheses.

2. The number of possible pending operations: This is the maximum number of operations which can be left unprocessed *in* the calculator stacked-up together with data.

Example: $2 + \left(\frac{3}{4}\right)$ involves 2 pending operations: as shown in Figure 1

The TI-41 can accept 4 pending operations.

Let's have again the example shown at the beginning: $2 + \left(3 \times \left(4 + \left(\frac{5}{6}\right) + 7\right)\right)$

The following key sequence:

2 [+] [(] 3 [X] [(] 4 [+] [(] 5 [÷] 6

will load the internal processing registers as shown in Figure 2.

Then the next key sequence: [)] [+] 7 [)] [)] [=] will process the calculations as shown in Figure 3.

Figure 3.

PARENTHESES PUT THE USER IN A POSITION TO KEY IN HIS PROBLEM WITHOUT CHANGING ANY SEQUENCE IN IT'

THE TI-41 IS PART OF THE SOLUTION, NOT OF THE PROBLEM . . .

EXAMPLES

SELLING PRICE CALCULATION

What should be your selling price if your cost is 120 and your desired profit margin is 35%?

120 [CST] 35 [MAR]   [2ND] [SEL]   184.61538
input variables   compute result

BUYING PRICE CALCULATION

For competitive reasons, the above selling price must not exceed 180, what must be your buying price, if you still want to main 35% profit?

180 [SEL]   [2ND] [CST]   117
Only change   Compute
One variable   result

(35% was memorised from 1st example)

ANNUAL INTEREST CALCULATION

A house has a selling price of 250,000. You can buy it over 15 years with a monthly payment of 3150. What is the annual interest rate?

250000 [PV]   15 [X] 12 [=]   180 [N]   3150 [PMT]
Price of the house   Total number of periods   Payment per period

[2ND] [i%]   1.0766885 Interest per period (month)

[X] 12 [=]   12.920262 Annual interest

MONTHLY PAYMENT CALCULATION

If, now, you only want to pay the house over 10 years, how much should you pay monthly?

10 [X] 12 [=] 120 [N]
Only change the number of periods.

[2ND] [PMT] 3721.02
New Monthly Payment

(250,000 and 12.92% were memorised from previous example)

LINEAR REGRESSION + FORECASTING

Your company turnover has been as follows:
Year 1 : 1250, year 2 : 1375, year 3 : 1430.
If this trend is maintained, what turnover can be predicted in year 5?

[2ND] [LR]   1250 [Σ+]   1375 [Σ+]   1430 [Σ+]
Initialize linear   Enter Year 1   Enter Year 2   Enter Year 3
regression

4 [2ND] [y']   1621.6667

• SPECIFICATIONS

Display: 8-digit, light-emitting diodes. Decimal, negative sign, financial mode, error indication "Error".

Electronics: Texas Instruments manufactured MOS/LSI integrated circuit.

Calculations: Add, subtract, multiply, divide, percent, delta percent, parentheses, roots, powers, reciprocals, natural logarithms and exponential, Cost, Sell, Margin %, periods, interest, payment, present value, future value, linear regression (ordinary annuity or compound Interest). Memory for storage and recall of numbers with sum to memory and memory/display exchange.

Power Source: Rechargeable electronic battery pack that can be recharged many times with AC9900H/UK adapter/charger.

Size: 13.9 x 7.2 x 3.4cm (5.47 x 2.83 x 1.35 inches).

Weight: Approximately 170 grams (6 ounces).

Included: Calculator, owner's manual, charger/adapter.

• LIMITED WARRANTY

The Texas Instruments TI-41 electronic calculator is warranted (to the original purchaser) for a period of one year from the original purchase date. Warranty covers defective materials and workmanship on return to a TI Service Centre together with proof-of-purchase date.

Due to the difficulty of photographing calculator readouts, display represented in this brochure are simulated.

Texas Instruments reserves the right to make changes in materials and specifications without notice.

KEY FEATURES

- Financial functions and basic slide rule functions with memory
- Profitability Calculations (Cost, Sell, Margin)
- Interest Calculations (5 functions)
- Linear regression
- Parameter memorisation
- Electronic switch
- Rechargeable battery with Charger/Adapter

Special Functions: To calculate the reciprocal, the square or the square root of a displayed number.

Logarithmic functions: To calculate the natural logarithm. Calculates e^x through the 2ND key.
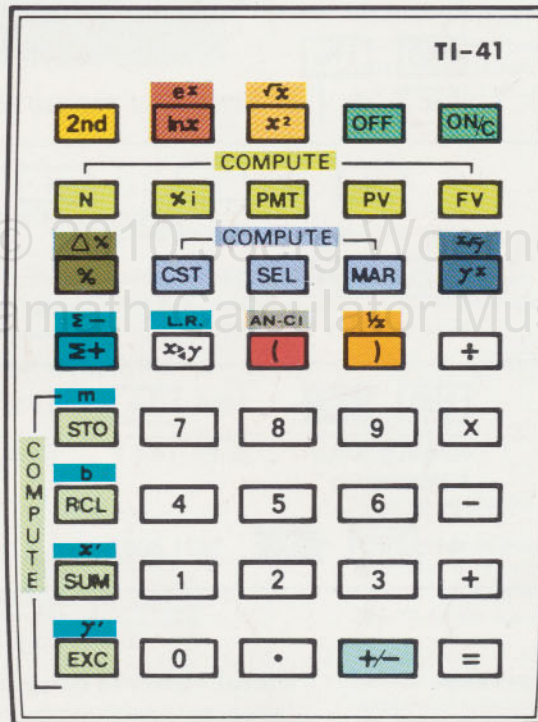
Second Function Key: Both for dual purpose keys and result computation in financial functions and linear regression (COMPUTE mode).

Percent and variation in percent (delta percent). For easy tax, discount and percentage calculations, and to compute percentage difference between two numbers.

Full flexible memory: 4 keys to store data, recall, add to memory contents, exchange memory and display.

Linear regression for trend analysis
- Initialisation
- Data entry or removal
- Slope and intercept of best fit straight line
- To calculate respectively x or y from y or x in the display on the best fit line (forecasting).

Electronic switch: The ON/C key switches the calculator on, the OFF key switches it off.

The ON/C key acts as a clear key once the calculator is on.

Financial functions: number of periods, interest %, payment per period, present value, future value with parameter memorisation.

Powers and roots: To raise any positive number to any power or calculate roots. Calculates roots through the 2ND key.

Managerial functions: cost, sell, margin with parameter memorisation.

Annuity-Compound Interest key. Select proper mode to solve ordinary annuity or compound interest problems.

Change sign: To operate with negative numbers and/or change the sign of the displayed result.

Data Memorizing: On top of the memory capability, the TI-41 can memorize data when performing financial functions. You enter the variables you know, you compute the factor you want to know. Then, to examine the effect of changing one variable, you enter that variable only and recompute; all other variables will remain unchanged from first calculation.

Parentheses: to allow you to enter the most complex problems in a straightforward manner.