

Texas Instruments

TI-30



TEXAS INSTRUMENTS

BELGIE - BELGIQUE
Avenue Edouard Lacomble, 21
1040 - Bruxelles Brussel
Tel. (2) 733 96 23

DEUTSCHLAND
Haggertystrasse 1
8050 - Freising
Tel. (08 161) 7411

FRANCE
La Boursidière
Route Nationale 186
92350 - Le Plessis Robinson
Tel. (16 1) 630 23 43

NORGE
Ryensvingen 15
Oslo 6
Tel. (02) 68 94 85

SUOMI FINLAND
Dagmarinkatu 14
P.O. Box 917
00100 - Helsinki 10
Tel. (90) 40 83 00

CANADA
41 Shelley Road
Richmond Hill, Ontario
Tel. (416) 889 73 73

ENGLAND
Manton Lane, Bedford
MK 41 7PU
Tel. (0234) 67466

ITALIA
Via Luigi Mancinelli, 65
00199 - Roma
Tel. (06) 831 22 93
839 47 92

OSTERREICH
Marxergasse 10
1030 - Wien
Tel. (0222) 72 41 86

SVERIGE
Box 14066
S-104 40 Stockholm
Tel. (08) 63 34 16
63 34 46

DANMARK
Mariehøvedvej 40E
2730 Herlev
Tel. (02) 91 74 00

ESPAÑA
Carretera Antigua a Barcelona,
KM. 23.100
Apartado de Correos 98
Torrejón de Ardoz - Madrid
Tel. 675 53 00
675 53 50

NETHERLAND
Laan van de
Helende Meesters, 421
Amstelveen
Tel. (020) 473391

PORTUGAL
2650 Rua Eng.
Frederico Ulrich
Morreira Da Maia
Douro
Tel. (02) 9481003

SCHWEIZ - SUISSE
Aargauerstrasse 250
CH 8048 - Zürich
Tel. (01) 64 34 55/56



TI-30 for students: an economical and powerful calculator from Texas Instruments

DISPLAY DESCRIPTION

The diagram shows five examples of the 8-digit display:

- Example 1:** -931.68021. Labels: floating minus sign, integer, decimal point, decimal, exponent.
- Example 2:** -3.6089-32. Labels: floating minus sign, mantissa, exponent sign, mantissa.
- Example 3:** -2.8. Labels: integer, decimal.
- Example 4:** Error. Label: Error.
- Example 5:** A sequence of arrows representing the automatic turn-off feature.

● ACCURACY AND ROUNDING

While the display has a capacity of 8 digits, the internal calculating capacity of the TI-30 is 11 digits. The result within the calculator is automatically rounded to 8 digits for display purposes only (5 digits for scientific notation). 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 or when an improper mathematical operation is requested. When this occurs, further entries from the keyboard are not accepted until the machine is cleared.

● ECONOMICAL AUTOMATIC TURN-OFF FEATURE

The TI-30 display will automatically turn off after a brief period of time if no new keyboard entries are made (typically 25 to 50 seconds). A travelling decimal remains in the display to indicate that the calculator still retains the current calculation.

TEXAS INSTRUMENTS' ALGEBRAIC OPERATING SYSTEM (AOS)

● WHAT IS AOS?

This is a unique system found in TI's new advanced calculators enabling the calculator to store numbers and functions as they are entered left to right . . . and automatically executes 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: $2 + 3 \times (4 + \frac{5}{6} + 7)$ is entered as it is written:

$$2 \text{ [+] } 3 \text{ [X] } (\text{ [(] } 4 \text{ [+] } 5 \text{ [÷] } 6 \text{ [+] } 7 \text{ [)] } = 37.5$$

The power of AOS can be "measured" with two parameters:

- The number of possible nested parentheses.
Example: $(2+3) \times (4+5)$ 1 level
 $5 + (8/(9 - (2/3)))$ 3 levels
The TI-30 can accept 15 levels of nested parentheses
- 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: $2 + \frac{3}{4}$ involves 2 pending operations: as shown in Figure 1.

On top of the operands, the calculator remembers automatically the operators, THE USER DOES NOT HAVE TO . . .

The TI-30 can accept 4 pending operations

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

The following key sequence: $2 \text{ [+] } 3 \text{ [X] } (\text{ [(] } 4 \text{ [+] } 5 \text{ [÷] } 6 \text{ [+] } 7 \text{ [)] } =$ will load the internal processing registers as shown in Figure 2.

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

AOS PUTS THE USER IN A POSITION TO KEY IN HIS PROBLEM WITHOUT CHANGING ANY SEQUENCE IN IT.

THE TI-30 IS PART OF THE SOLUTION, NOT OF THE PROBLEM . . .

Examples:

- Sum of products and product of sums

$$2 \times 3 + 4 \times 5 = 26$$

$$(2 + 3) \times (4 + 5) = 45$$

$$2 \text{ [X] } 3 \text{ [+] } 4 \text{ [X] } 5 \text{ [=] } 26$$

$$(\text{ [(] } 2 \text{ [+] } 3 \text{ [)] } \text{ [X] } (\text{ [(] } 4 \text{ [+] } 5 \text{ [)] } \text{ [=] } 45$$

- Triangle of Pythagoras

$$a = \sqrt{3^2 + 4^2} = 5$$

$$3 \text{ [x^2] } + 4 \text{ [x^2] } = \text{[sqrt] } 5$$

- $\frac{4 \times (5 + 9)}{(7 - 4)^{(2 + 3)}}$

$$4 \text{ [X] } (\text{ [(] } 5 \text{ [+] } 9 \text{ [)] } \text{ [÷] } (\text{ [(] } 7 \text{ [-] } 4 \text{ [)] } \text{ [y^x] } (\text{ [(] } 2 \text{ [+] } 3 \text{ [)] } \text{ [=] } 0.23045268$$

- $e^{(7.5 + \ln 1.4)}$

$$(\text{ [(] } 7.5 \text{ [+] } 1.4 \text{ [ln x] } \text{ [)] } \text{ [INV] } \text{ [ln x] } = 2531.2594$$

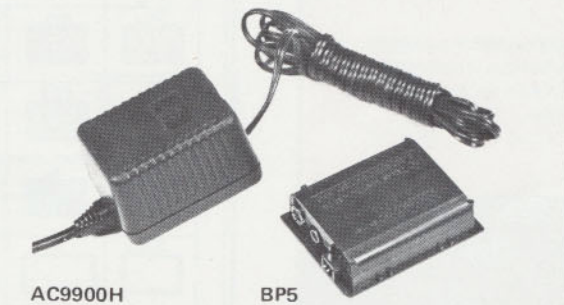
- Evaluate $a^2 + ab + b^2$ $a = 2$ $b = 5$

$$2 \text{ [STO] } \text{ [x^2] } + 5 \text{ [X] } \text{ [EXC] } + \text{ [RCL] } \text{ [x^2] } = 39$$

● POWER SOURCE

Battery saver. To increase the battery life, 1) the displayed number is turned off but still memorized (after 30 seconds). 2) the calculator is switched off after 10 minutes.

Rechargeable pack RK2 (option). The TI-30 can be fitted with a rechargeable battery. Recharging is very quick (3 hours) and easy with the charger supplied.



● SPECIFICATIONS

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

Electronics: Texas Instruments manufactured MOS/LSI integrated circuit.

Calculations: Add, subtract, multiply, divide, percent, parentheses, constant, roots, powers, reciprocals, logarithms (natural and common), trigonometric functions with degree, grad or radian measurements, and π . Memory for storage and recall of numbers with sum to memory and memory/display exchange.

Power source: One 9-volt alkaline or zinc-chloride battery, (not included with calculator).

Optional accessories: Rechargeable kit (RK-2) to convert calculator from disposable battery power source to a rechargeable AC adapter. Optional carrying cases are available.

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

Weight: Approximately 120 grams (4.2 ounces) without battery.

Included: Calculator, owner's manual.

● LIMITED WARRANTY

The Texas Instruments TI-30 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.

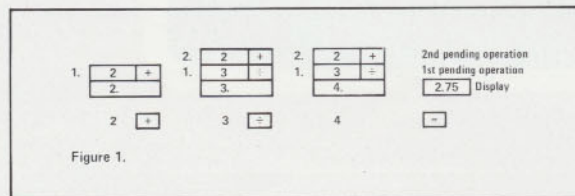


Figure 1.

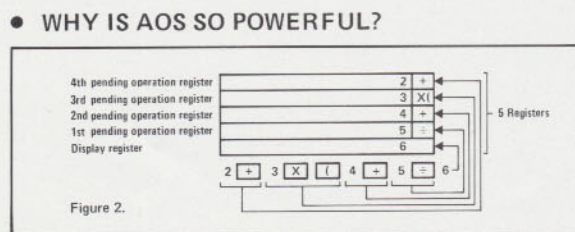


Figure 2.

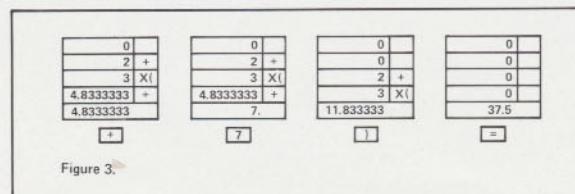


Figure 3.

KEY FEATURES

- Algebraic operating system
- All slide rule functions
- Battery saver
- Electronic angle mode selector
- Exponential shift
- Electronic switch
- Optional rechargeable pack

Special functions. Calculate the reciprocal, the square or the square root of a displayed number.

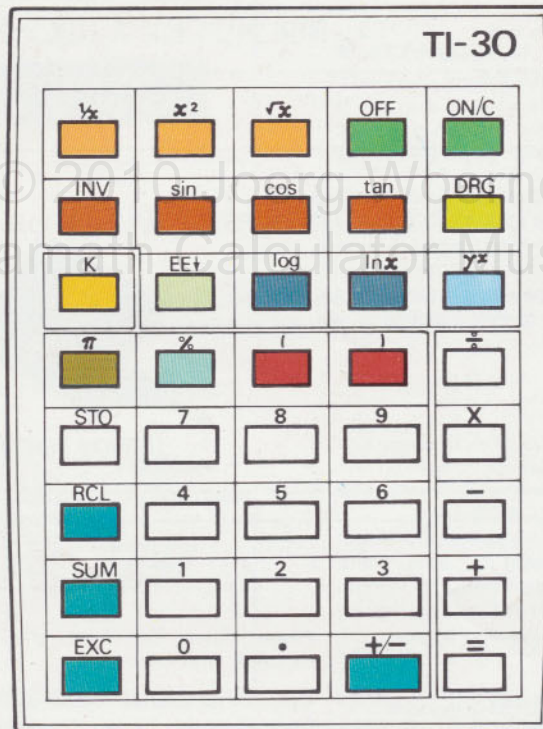
Trigonometric functions. Sine, cosine, tangent and inverses through **INV** key.

Programmable constant. Memorizes a constant factor in six operating modes (+, -, x, ÷, y^x , $\sqrt[y]{x}$).

π (Pi). Permanently programmed in the TI-30 to 11 digits (3.1415926536) and displayed rounded to 8. (3.1415927).

Exponential shift. Shift the exponent up or down in scientific notation, providing direct reading in the desired units (kilos, mils...).

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



Parentheses. To put AOS at your fingertips.

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.

Electronic angle mode selector. Selects the unit for angular measurement. The unit selected is indicated in the left corner of the display. (\square deg, \square rad \square grads)

Logarithmic functions. Calculates the common and natural logarithm. Calculates 10^x and e^x through the **INV** key.

Powers and roots. To raise any positive number to any power. Calculates roots through the **INV** key.

Change sign. Allows entry of negative numbers and/or changes the sign of the displayed result.

Percent. For easy tax, discount and percentage calculations.