

TEXAS INSTRUMENTS TI-55 II SCIENTIFIC CALCULATOR

QUICK
REFERENCE
GUIDE

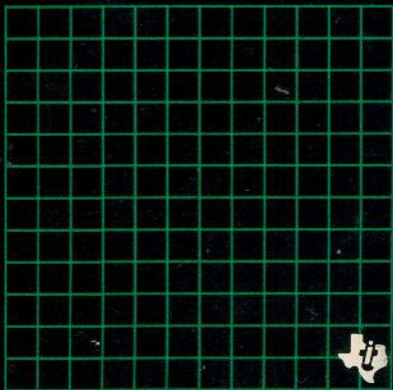


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TI-55 II QUICK REFERENCE GUIDE

Always refer to the *TI-55 II Scientific Calculator Sourcebook*, 2nd Edition, for complete details and examples of calculator operation.

When the calculator is turned on for the first time or when the batteries are removed or replaced, clear the calculator by pressing

ON/C, **2nd** **Part** **8**, **OFF**, **ON/C**, **ON/C**.

2nd **CSR**, **2nd** **Part** **8**, **2nd** **CM**, and **ON/C**. The display shows 0 and the indicators "DEG" and "PROG." The calculator is now in the degree mode and has five user data memories and 24 program steps available.

Keyboard Basics

Most of the calculator keys have symbols printed above them in addition to those on them. The symbols printed above the keys are second functions. To perform one of these functions, press the **2nd** key and then press the key for the function that you wish to perform. Pressing the **2nd** key twice returns the following key to its first function.

The keys in the third and fourth rows have an inverse function. To perform the inverse functions of these keys, press the **INV** key and then the key for the function. When **INV** is pressed before a function key, the calculator executes the inverse of the function indicated by that key. Pressing **INV** twice returns the following key to its non-inverse function.

The inverse function key can be used with the $\boxed{2^{\text{nd}}}$ function key. The keys $\boxed{\text{INV}}$ and $\boxed{2^{\text{nd}}}$ may be used in any order in normal calculations, but must be $\boxed{\text{INV}}$ followed by $\boxed{2^{\text{nd}}}$ in a program.

Display Indicators

The calculator has five indicators which may appear across the bottom of the display.

"DEG" indicates degree mode, "RAD" indicates radian mode, and "GRAD" indicates grad mode. For information on selecting the angular mode, see page 1-25 in the *TI-55 II Scientific Calculator Sourcebook*, 2nd Edition.

"PROG" indicates that there is space in the calculator's memory for a program. To display the current partitioning setting, press $\boxed{2^{\text{nd}}}$ $\boxed{\text{Part}}$ 0.

The current number of available program steps is displayed, followed by a decimal and the current number of data memories. For information on changing the partitioning setting, see page 1-44 in the *TI-55 II Scientific Calculator Sourcebook*, 2nd Edition. "STAT" indicates that the calculator is in statistics mode. The calculator will not accept a program while in the statistics mode. The statistics mode is set when $\boxed{\Sigma+}$ or $\boxed{2^{\text{nd}}}$ $\boxed{\text{Frq}}$ is pressed.

$\boxed{2^{\text{nd}}}$ $\boxed{\text{CSR}}$ clears the statistical registers and "STAT" indicator, and sets the partition to eight user data memories. The calculator must be repartitioned if you wish to enter a program after leaving the statistics mode.

AOSTM Algebraic Operating System

AOSTM algebraic operating system allows entering numbers and combined operations in the same order in which they are written mathematically. Operations are performed in the following descending order of priority:

1. The following are performed immediately: trigonometric, hyperbolic, square, square root, factorial, exponential, reciprocal, conversion, combinations, permutations, percent, and logarithmic keys
2. The percent change key
3. The universal powers and roots keys
4. Multiplication and division keys
5. Addition and subtraction keys
6. The equals key $\boxed{=}$ completes all pending operations

The calculator allows up to four pending operations and 15 open parentheses.

Clearing

The following are the effects of the clearing keys.

$\boxed{ON/C}$ following a digit — clears the display.

$\boxed{ON/C}$ following an operation — clears the display and pending operations.

$\boxed{ON/C}$ $\boxed{ON/C}$ — clears the display and pending operations.

$\boxed{2nd}$ \boxed{CM} — clears the user data memories.

$\boxed{2nd}$ \boxed{CP} — clears the program registers.

$\boxed{2nd}$ \boxed{CSR} — clears the statistical registers and removes STAT from the display.

Display Formats

The internal display register holds calculated results to 11 digits. The value displayed is rounded to eight digits.

EE — Scientific notation allows you to use numbers as small as $\pm 1 \times 10^{-99}$ and as large as $\pm 9.9999999 \times 10^{99}$. Numbers smaller than $\pm 1 \times 10^{-7}$ and larger than $\pm 9.9999999 \times 10^7$ must be entered into the calculator in scientific notation. If calculations exceed these limits, the results are automatically displayed in scientific notation. Leave scientific notation with the **INV** **EE** key.

2nd **Eng** — Numbers expressed in engineering notation are displayed as a mantissa times 10 raised to a power that is a multiple of three. Leave engineering notation with the **INV** **2nd** **Eng** key.

2nd **Fix** *n* — Pressing the fix decimal key directs the calculator to round the display to *n* decimal places. The internal display register still retains the full 11 digit accuracy for use in subsequent calculations. Reset to floating decimal mode with the **INV** **2nd** **Fix**, **2nd** **Fix** 8, or **2nd** **Fix** 9 keys.

Memory Operations

The calculator may have a maximum of eight user data memories, numbered 0 through 7. The number of user data memories is set with the **2nd** **Part** **n** key with *n* the number of user data memories desired. The following keys and operations allow manipulation of the numbers in the user data memories.

2nd **CM** — clears the user data memories.

STO *m* — stores the value shown in the display in user data memory *m*.

RCL *m* — recalls to the display the number in user data memory *m*.

EXC *m* — exchanges the value in the display with the value in user data memory *m*.

The results of calculations may be stored in a user data memory by following a calculation with **STO**, the operation to be performed, and the number of the user data memory in which to store the result. The displayed number and calculations in progress are not affected. The following keys may be used in conjunction with **STO**: **+**, **-**, **X**, **÷**, **y^x**, **INV** **y^x**, and **2nd** **Δ%**.

Powers and Roots

y^x — The universal power key raises any positive number to any power. To use this key:

- Enter the number to be raised to a power ("y")
- Press y^x
- Enter the power ("x")
- Press $=$

$\text{INV } y^x$ — The universal root key takes any root of any positive number. To use this key:

- Enter the number to take the root of ("y")
- Press $\text{INV } y^x$
- Enter the root to be taken ("x")
- Press $=$

Constant Operations

The $\text{2nd } \mathbf{K}$ key stores a number and an operation for use in repetitive calculations. Here is how it works.

- Enter the operation
- Enter the repetitive number m
- Press $\text{2nd } \mathbf{K}$
- Press $=$

From then on

- Enter the number to be operated on
- Press $=$

The $\text{2nd } \mathbf{K}$ feature works with the following keys:

$+$, $-$, \times , \div , y^x , $\text{INV } y^x$, and $\text{2nd } \Delta\%.$

Pressing ON/C after $=$, OFF , any of the above operation keys, or the close parenthesis key removes the automatic constant.

Algebraic Keys

The following keys perform the indicated operations on the number in the display:

- $\boxed{2\text{nd}} \boxed{|x|}$ — Absolute value
- $\boxed{2\text{nd}} \boxed{\text{Sgn}}$ — Signum
- $\boxed{2\text{nd}} \boxed{\text{Intg}}$ — Integer portion
- $\boxed{2\text{nd}} \boxed{\text{Frac}}$ — Fractional portion
- $\boxed{\sqrt{x}}$ — Square root
- $\boxed{2\text{nd}} \boxed{x^2}$ — Square
- $\boxed{2\text{nd}} \boxed{1/x}$ — Reciprocal
- $\boxed{2\text{nd}} \boxed{\%}$ — Percent

Trigonometric Operations

$\boxed{\text{DRG}}$ — Pressing the angular mode key changes from degree mode to radian mode to grad mode and back to degree mode. You may also go through the modes in reverse order by pressing the $\boxed{\text{INV}} \boxed{\text{DRG}}$ key.

$\boxed{2\text{nd}} \boxed{\text{DRG}^-}$ — The angular mode conversion key changes the mode displayed and converts the number in the display to the new units. You may also go through the modes and values in reverse order by pressing the $\boxed{\text{INV}} \boxed{2\text{nd}} \boxed{\text{DRG}^-}$ key.

$\boxed{\sin}$, $\boxed{\cos}$, $\boxed{\tan}$, $\boxed{\text{INV}} \boxed{\sin}$, $\boxed{\text{INV}} \boxed{\cos}$, $\boxed{\text{INV}} \boxed{\tan}$ — The trigonometric keys calculate the sine, cosine, tangent, arcsine, arccosine, and arctangent of the number in the display.

$\boxed{\text{hyp}}$ — Preceding one of the trigonometric keys with the hyperbolic key calculates the hyperbolic function of the number in the display. The keys $\boxed{\text{INV}}$ and $\boxed{\text{hyp}}$ may be used together with either one first.

Factorial, Permutations, and Combinations

The 2^{nd} $\Sigma!$ key calculates and displays the factorial of any integer less than 70. The 2^{nd} nPr key determines the permutations of n items taken r at a time. The 2^{nd} nCr key determines the combinations of n items taken r at a time. To determine permutations and combinations, the values of n and r are entered as $n.r$. For example, to find the combinations of 5 things taken 2 at a time, enter 5.002 and press the 2^{nd} nCr key.

Statistical Keys

When the $\Sigma+$ or 2^{nd} $\Sigma\sigma$ key is pressed, the statistics mode is entered, memories 3 through 7 are cleared, any program is cleared, and STAT is displayed.

The 2^{nd} CSR key returns the calculator to normal calculation mode. The STAT indicator is removed and the calculator is set with eight user data memories with memories 3 through 7 cleared.

The procedures to enter and remove statistical data are shown in the following charts.

SINGLE-VARIABLE DATA ENTRY

1. To Enter Single Occurrence Data Points

- Enter data point
- Press $\Sigma+$
- Repeat for next data point

2. To Remove Single Occurrence Data Points Entered

- Press ON/C $x:y$
- Enter unwanted data point
- Press $2nd$ $\Sigma-$

3. To Enter Multiple Occurrence Data Points

- Enter data point
- Press $2nd$ Frq
- Enter number of repetitions
- Press $\Sigma+$
- Repeat for next data points

4. To Remove Multiple Occurrence Data Points Entered

- Press ON/C $x:y$
- Enter unwanted data point
- Press $2nd$ Frq
- Enter number of repetitions
- Press $2nd$ $\Sigma-$

TWO-VARIABLE DATA ENTRY

1. To Enter Single Occurrence Data Points

- Enter "x" data point
- Press $\boxed{x:y}$
- Enter "y" data point
- Press $\boxed{\Sigma+}$
- Repeat for next data point

2. To Remove Single Occurrence Data Points Entered

- Enter unwanted "x" data point
- Press $\boxed{x:y}$
- Enter unwanted "y" data point
- Press $\boxed{2nd} \boxed{\Sigma-}$

3. To Enter Multiple Occurrence Data Points

- Enter "x" data point
- Press $\boxed{x:y}$
- Enter "y" data point
- Press $\boxed{2nd} \boxed{Frq}$
- Enter number of repetitions
- Press $\boxed{\Sigma+}$
- Repeat for next data points

4. To Remove Multiple Occurrence Data Points Entered

- Enter unwanted "x" data point
- Press $\boxed{x:y}$
- Enter unwanted "y" data point
- Press $\boxed{2nd} \boxed{Frq}$
- Enter number of repetitions
- Press $\boxed{2nd} \boxed{\Sigma-}$

The procedures to obtain statistical data are shown in the following charts.

SINGLE-VARIABLE DATA RESULTS
1. Mean
• Press 2nd Mean
2. Population Standard Deviation
• Press 2nd σ_n
3. Sample Standard Deviation
• Press 2nd σ_{n-1}

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TWO-VARIABLE DATA RESULTS

1. Mean

- "y" data points: Press **2nd** **Mean**
- "x" data points: Press **2nd** **Mean** **x:y**

2. Population Standard Deviation

- "y" data points: Press **2nd** **On**
- "x" data points: Press **2nd** **On** **x:y**

3. Sample Standard Deviation

- "y" data points: Press **2nd** **On-1**
- "x" data points: Press **2nd** **On-1** **x:y**

4. Intercept and Slope

- Press **2nd** **b/a** to obtain the intercept
- Press **2nd** **b/a** **x:y** to obtain the slope

5. One Value Given Another

- Enter the x value and press **2nd** **y** to obtain a "y" value
- Enter the y value and press **2nd** **x** to obtain an "x" value

6. Correlation

- Press **2nd** **Corr**

Conversion Keys

These keys are used to convert from one system to another. To convert in the opposite direction, precede the key with **INV**.

2nd **F \rightarrow C** — Degrees Fahrenheit to degrees Celsius.

2nd **gal \rightarrow l** — U.S. gallons to liters.

2nd **in \rightarrow cm** — Inches to centimeters.

2nd **lb \rightarrow kg** — Pounds to kilograms.

2nd **P \rightarrow R**, **INV** **2nd** **P \rightarrow R** — Polar/rectangular conversions are entered as follows:

Polar to Rectangular

Select the proper mode with **DRG**

Enter the R value

Press **x \rightarrow y**

Enter the θ value

Press **2nd** **P \rightarrow R**

The y-coordinate is displayed

Press **x \rightarrow y**

The x-coordinate is displayed

Rectangular to Polar

Select the proper mode with **DRG**

Enter the x-coordinate

Press **x \rightarrow y**

Enter the y-coordinate

Press **INV** **2nd** **P \rightarrow R**

The θ value is displayed

Press **x \rightarrow y**

The R value is displayed

2nd **DMS \rightarrow D**, **INV** **2nd** **DMS \rightarrow D** — Degrees/minutes/seconds, expressed as DD.MMSSss, are converted to decimal degrees, expressed as DD.ddd-ddd, with the **2nd** **DMS \rightarrow D** key. Conversion from decimal degrees to degrees/minutes/seconds is with the **INV** **2nd** **DMS \rightarrow D** key.

Programming Keys

2nd **Part** m — Before programming, space must be made available in the calculator's memory. The partition key sets the partition to m user data memo-

ries. The remaining space is used for program steps, with eight program steps available for each memory that is not used.

LRN — Pressing the learn key once puts the calculator in the learn mode if any programming steps are available. Pressing **LRN** again returns the calculator to the manual operation mode and restores the display to its original state.

R/S — The run/stop key reverses the status of processing. Pressing **R/S** starts program processing at the current position of the program counter. Pressing **R/S** while a program is running stops the program.

RST — The reset key resets the program counter to step 00, and, when used as a program step, also stops the program so that a value can be displayed. **RST** can be used from the keyboard or as a program instruction. [Calculator Museum](#)

2nd Pause — The pause key, when encountered during program execution, causes the current value of the display register to be displayed for one to two seconds.

2nd CP — Pressing the clear program key while in the learn mode removes the program from program memory so that the calculator is ready for a new program.

SST, **BST** — The singlestep key moves forward one program step. The backstep key moves back one step. The **SST** key can also be used to execute a program, one step at a time, with the result of each step displayed.

2nd Ins, **2nd Del** — In the learn mode, the insert and delete keys allow changing a program by inserting new keystrokes or deleting old ones.

Key Codes

TI-55 II Keyboard Showing Key Code and Function Name

**:	2nd	17:	$1/x$	18:	x^2	*	OFF	15:	ON/C
*	Part	*	R/S	13:	\sqrt{x}	*	Del	20:	Pause
*	LRN	22:	RST	*	SST	*	BST	*	f dx
31:	hyp	37:	Fix	38:	F \cdot C	39:	MS \rightarrow DE	30:	DRG \leftarrow
41:	INV	32:	sin	33:	cos	34:	tan	35:	DRG
*	Σ^-	47:	Eng	48:	gal-l	49:	lb-kg	40:	in-cm
*	Σ^+	42:	EE	43:	log	44:	lnx	45:	y^x
*	Mean	57:	P \leftarrow R	58:	%	59:	$\Delta\%$	*	Corr
61:	STO	52:	$x \div y$	53:	(54:)	55:	\div
*	On-1	67:	x^y	68:	nPr	69:	nCr	*	b/a
71:	RCL	07:	7	08:	8	09:	9	65:	X
*	On	77:	Sgn	78:	Frac	79:	K	*	x'
*	On	04:	4	05:	5	06:	6	75:	-
81:	EXC	87:	x	88:	Intg	89:	CM	*	y'
*	Frg	01:	1	02:	2	03:	3	85:	+
91:	π	00:	0	93:	\cdot	94:	+/-	*	CSR
								95:	=

*: No key code. These keys cannot be put in programs.

** : This key is merged with the following key stroke.

Key Codes in Numeric Order

00: 0	22: RST	45: y^x	69: 2nd nCr
01: 1	30: 2nd DRG	47: 2nd Eng	71: RCL
02: 2	31: hyp	48: 2nd gal-l	75: -
03: 3	32: sin	49: 2nd lb-kg	77: 2nd Sgn
04: 4	33: cos	52: $x \leftrightarrow y$	78: 2nd Frac
05: 5	34: tan	53: i	79: 2nd K
06: 6	35: DRG	54:)	81: EXC
07: 7	37: 2nd Fix	55: \div	85: +
08: 8	38: 2nd F-C	57: 2nd P-R	87: 2nd x
09: 9	39: 2nd DRG	58: 2nd %	88: 2nd Intg
12: R/S	40: 2nd in-cm	59: 2nd $\Delta\%$	89: 2nd CM
13: \sqrt{x}	41: INV	61: STO	91: π
15: ON/C	42: EE	65: X	93: \cdot
17: 2nd \sqrt{x}	43: log	67: 2nd $x!$	94: +/-
18: 2nd x^2	44: Inx	68: 2nd nPr	95: =
20: 2nd Pause			

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Integration

$\int dx$ — The integration key is used in combination with a program to find the definite integral of a function. Integrals are found in the following way:

- Select at least three user data memories using the 2nd **DATA** key
- Put the function to be integrated in program steps followed by **=** and **R/S**, **RST** or the partition
- Leave the learn mode, and enter the lower limit in user data memory 1 and the upper limit in user data memory 2
- Press **$\int dx$** , followed by the number of integration intervals you wish to make between the limits, up to 99
- Press **R/S**

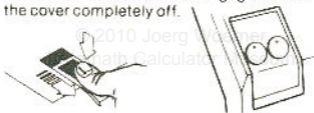
At the end of the integration, the integral is displayed and placed in user data memory 0, and user data memories 1 and 2 both contain the upper limit.

When integrating trigonometric functions on your calculator you must use radians and be in the RAD mode to obtain the answer normally expected.

Battery Information

The calculator uses 2 of any of the following batteries for up to 750 hours of operation: Panasonic LR-44, Ray-O-Vac RW-82, Union Carbide (Eveready) A-76, or the equivalent. For up to 2000 hours of operation, use Mallory 10L14 or D357, Union Carbide (Eveready) 357, Panasonic WL-14, Toshiba G-13, Ray-O-Vac RW-42, or the equivalent.

1. Turn the calculator off. Press down firmly on the battery cover with your thumb as you push the cover in the direction of the arrow. When the cover catch is disengaged, slide the cover completely off.



2. Remove the discharged batteries and install new ones as shown.
3. Replace the battery cover by inserting it into the grooves in each side of the battery opening and sliding it forward. Engage the catch by pressing forward and down on the cover with your thumb until it clicks into place, indicating the cover is securely closed.
4. Press **ON/C**, **2nd** **Part** **8**, **OFF**, **ON/C**, **ON/C**, **2nd** **CSR**, **2nd** **Part** **8**, **2nd** **CM**, and **ON/C**. The display then shows 0 and DEG and the calculator is ready to be used.

CAUTION: Do not incinerate the old batteries.

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