TEXAS INSTRUMENTS

TI-30XS MultiView™ and TI-30XB MultiView™ Scientific Calculator Guidebook

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Getting Started

Examples

Each section is followed by instructions for keystroke examples that demonstrate the TI-30XS MultiView™ and TI-30XB MultiView™ functions. All references in this manual will refer to the TI-30XS MultiView, but are also applicable for the TI-30XB MultiView™.

Examples assume all default settings, as shown in the Modes section.

For more activities and examples, see the TI-30XS MultiView™ Teacher Guide available at education.ti.com/guides.

Switching the Calculator On and Off

`on` turns on the TI-30XS MultiView™ calculator. `2nd` `[off]` turns it off. The display is cleared, but the history, settings, and memory are retained.

The APD™ (Automatic Power Down™) feature turns off the TI-30XS MultiView™ calculator automatically if no key is pressed for about 5 minutes. Press `on` after APD. The display, pending operations, settings, and memory are retained.

Display Contrast

The brightness and contrast of the display can depend on room lighting, battery freshness, and viewing angle.

To adjust the contrast:

1. Press and release the `2nd` key.
2. Press `+` (to darken the screen) or `-` (to lighten the screen).

Home Screen

On the Home screen, you can enter mathematical expressions and functions, along with other instructions. The answers are displayed on the Home screen. The TI-30XS MultiView™ screen can display a maximum of four lines with a maximum of 16 characters per line. For entries and expressions of more than 16 characters, you can scroll left and right ($\langle$ and $\rangle$) to view the entire entry or expression.

In the MathPrint™ mode, you can enter up to four levels of consecutive nested functions and expressions, which include fractions, square roots, exponents with ^, $\sqrt[x]{y}$, e^x, and 10^x.

When you calculate an entry on the Home screen, depending upon space, the answer is displayed either directly to the right of the entry or on the right side of the next line.

Special indicators may display on the screen to provide additional information concerning functions or results.

| Indicator	Definition
2nd	2nd function.
HYP	Hyperbolic function.
FIX	Fixed-decimal setting. (See Modes section.)
SCI, ENG	Scientific or engineering notation. (See Modes section.)
DEG, RAD, GRAD	Angle mode (degrees, radians, or gradians). (See Modes section.)
K	Constant feature is on.
L1, L2, L3	Displays above the lists in data editor.
⧗	The TI-30XS MultiView™ calculator is performing an operation.
↑↓	An entry is stored in memory before and/or after the active screen. Press ⊙ and ⊙ to scroll.
◂ ▸	An entry or menu displays beyond 16 digits. Press ⓪ or ⓪ to scroll.

2nd Functions

2nd

Most keys can perform two functions. The primary function is indicated on the key and the secondary function is displayed above it. Press 2nd to activate the secondary function of a given key. Notice that **2nd** appears as an indicator on the screen. To cancel it before entering data, press 2nd again. For example, 2nd [√] 25 enter calculates the square root of 25 and returns the result, 5.

Modes

mode

Use mode to choose modes. Press ⊙ ⊙ ⓪ ⓪ to choose a mode, and enter to select it. Press clear or 2nd [quit] to return to the Home screen and perform your work using the chosen mode settings.

Default mode settings are shown highlighted.
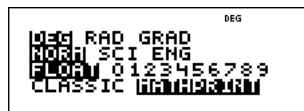
DEG RAD GRAD Sets the angle mode to degrees, radians, or gradians.

NORM SCI ENG Sets the numeric notation mode. Numeric notation modes affect only the display of results, and not the accuracy of the values stored in the unit, which remain maximal.

NORM displays results with digits to the left and right of the decimal, as in 123456.78.

SCI expresses numbers with one digit to the left of the decimal and the appropriate power of 10, as in $1.2345678*10^5$ (which is the same as 123456.78).

Note: In some restricted environments (for example function table, data editor, and the 2nd [recall] menu), the TI-30XS MultiView™ calculator may display **E** instead of $*10^n$.

ENG displays results as a number from 1 to 999 times 10 to an integer power. The integer power is always a multiple of 3.

Note: ×10ⁿ is a shortcut key to enter a number in scientific notation format. The result displays in the numeric notation format set in mode.

FLOAT 0123456789 Sets the decimal notation mode.

FLOAT (floating decimal point) displays up to 10 digits, plus the sign and decimal.
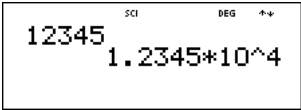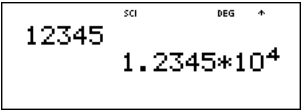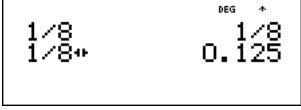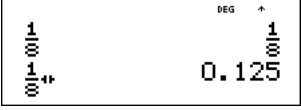
0123456789 (fixed decimal point) specifies the number of digits (0 through 9) to display to the right of the decimal.

CLASSIC MATHPRINT

CLASSIC mode displays inputs and outputs in a single line.

MATHPRINT mode displays most inputs and outputs in textbook format.

Examples of Classic and MathPrint modes

Classic mode	MathPrint mode
Sci	Sci

12345
    1.2345*10^4
	12345
	    1.2345*10⁴

Float mode and answer toggle key.	Float mode and answer toggle key.
1/8 1/8 1/8⊷ 0.125	1/8 1/8⊷ 0.125
Fix 2	Fix 2 and answer toggle key.

Classic mode	MathPrint mode
FIX DEG ↑ 2π 6.28	FIX DEG ↑ 2π 2π↯ $\dfrac{2\pi}{6.28}$
Un/d	Un/d
DEG ↑↓ 4⌐5/9 41/9	DEG ↑↓ $4\frac{5}{9}$ $\dfrac{41}{9}$
Exponent example	Exponent example
DEG ↑ 2^5 32	DEG ↑ 2^5 32
Square root example	Square root example
DEG ↑ √(2) 1.414213562	DEG ↑ $\sqrt{2}$ $\sqrt{2}$↯ 1.414213562 $\sqrt{2}$
Cube root example	Cube root example
DEG ↑↓ 3 ×√64 4	DEG ↑↓ $^3\sqrt{64}$ 4

Menus

Certain keys display menus: [prb], [2nd] [angle], [data], [2nd] [stat], [2nd] [reset], [2nd] [recall], and [2nd] [clear var]. Some keys may display more than one menu.

Press ⊙ and ⊙ to scroll and select a menu item, or press the corresponding number next to the menu item. To return to the previous screen without selecting the item, press [clear]. To exit a menu or application and return to the Home screen, press [2nd] [quit].

The menu chart shows the menu keys and the menus they display.

prb			2nd [angle]	
PRB	**RAND**	**DMS**	**R ◀ ▶ P**	
1: nPr	1: rand	1: °	1: R ▶ Pr(	
2: nCr	2: randint(	2: ′	2: R ▶ Pθ(	
3: !		3: ″	3: P ▶ Rx(	
		4: r	4: P ▶ Ry(	
		5: g		
		6: ▶ DMS		

data data

Press once to display the Data editor screen. Press again to display the menu.

CLEAR	**FORMULA**
1: Clear L1	1: Add/Edit Frmla
2: Clear L2	2: Clear L1 Frmla
3: Clear L3	3: Clear L2 Frmla
4: Clear ALL	4: Clear L3 Frmla
	5: Clear ALL

Press data while you are in the Add/Edit Formula option of the FORMULA menu to display this menu:

Ls
1: L1
2: L2
3: L3

2nd [stat]

STATS
1: 1-Var Stats
2: 2-Var Stats
3: StatVars*

* This menu option displays after you calculate 1-var or 2-var stats:

StatVars
1: n
2: $\bar{x}$
3: Sx
Etc. See Statistics for a full list of values.

[2nd] [reset]	[2nd] [recall]	[2nd] [clear var]
Reset	**Recall Var**	**Clear Var**
1: No	1: x =	1: Yes
2: Yes	2: y =	2: No
	3: z =	
	4: t =	
	5: a =	
	6: b =	
	7: c =	

Scrolling

$\odot$ $\odot$ $\ominus$ $\ominus$

Press $\odot$ or $\odot$ to place the cursor horizontally over the expression entered. Press [2nd] $\odot$ or [2nd] $\odot$ to move the cursor directly to the beginning or end of the expression.

After an expression is evaluated, use $\ominus$ and $\ominus$ to scroll through previous entries, which are stored in the TI-30XS MultiView™ calculator's memory. You can reuse a previous entry by pressing enter to paste it on the bottom line, and then evaluating a new expression.

Examples

Scroll	**1** [+] **1** enter	1+1 DEG ↑ 2
	2 [+] **2** enter	1+1 DEG ↑ 2+2 2 4
	3 [+] **3** enter	1+1 ↑ 2+2 2 3+3 4 6
	4 [+] **4** enter	1+1 DEG ↑ 2+2 2 3+3 4 4+4 6 8
	$\ominus$ $\ominus$ $\ominus$ $\ominus$ enter	2+2 DEG ↑↓ 3+3 4 4+4 6 3+3■ 8

| | ⊞ **2** enter | ```
                    DEG  ▲▼
2+2               4
3+3               6
4+4               8
3+3+2             8
``` |

Answer Toggle

◄►

Press the ◄► key to toggle the display result between fraction and decimal answers, exact square root and decimal, and exact pi and decimal.

Example

| Answer toggle | 2nd [√⁻] **8** enter | ```
              DEG  ▲▼
√8          2√2
``` |
|---|---|---|
| | ◄► | ```
              DEG  ▲▼
√8          2√2
2√2◄►
      2.828427125
``` |

Last Answer

2nd [ans]

The most recently calculated result is stored to the variable **Ans**. **Ans** is retained in memory, even after the TI-30XS MultiView™ calculator is turned off. To recall the value of **Ans**:

• Press 2nd [ans] (**Ans** displays on the screen), or

• Press any operations key (⊞, ⊟, and so forth) as the first part of an entry. **Ans** and the operator are both displayed.

Example

| **Ans** | **3** ⊠ **3** enter | ```
            DEG  ▲▼
3*3         9
``` |
|---|---|---|
| | ⊠ **3** enter | ```
            DEG  ▲▼
3*3         9
ans*3      27
``` |

| 3 [2nd] [x√⁻] [2nd] [ans] [enter] | ```
                        DEG  ↑↓
3*3
                         9
ans*3
                        27
³√ans
                         3
``` |

Order of Operations

The TI-30XS MultiView™ calculator uses Equation Operating System (EOS™) to evaluate expressions. Within a priority level, EOS evaluates functions from left to right and in the following order.

1st	Expressions inside parentheses.
2nd	Functions that need a **)** and precede the argument, such as **sin**, **log**, and all **R ◀ ▶ P** menu items.
3rd	Fractions.
4th	Functions that are entered after the argument, such as **x**^{2} and angle unit modifiers.

5th	Exponentiation (**^**) and roots ($^x\sqrt{}$).
	
	Note: In Classic mode, exponentiation using the ⌃ key is evaluated from left to right. The expression 2^3^2 is evaluated as (2^3)^2, with a result of 64.
	
	`2^3^2` `        DEG  ↑↓` `64`
	
	In MathPrint™ mode, exponentiation using the ⌃ key is evaluated from right to left. The expression 2^3^2 is evaluated as 2^(3^2), with a result of 512.
	
	`2³²` `        DEG  ↑↓` `512`
	
	The TI-30XS MultiView™ calculator evaluates expressions entered with [x²] and [x⁻¹] from left to right in both Classic and MathPrint modes. Pressing 3 [x²] [x²] is calculated as $(3^2)^2 = 81$.

6th	Negation (⁻).
7th	Permutations (**nPr**) and combinations (**nCr**).
8th	Multiplication, implied multiplication, division.
9th	Addition and subtraction.

10th	Conversions (**n/d** ◀ ▶ **Un/d**, **F** ◀ ▶ **D**, ▶**DMS**).
11th	enter completes all operations and closes all open parentheses.

Examples

+ × ÷ ⁻	**60** ⊞ **5** ⊠ ⊟ **12** enter	60+5* -12 DEG ↑↓ **0**
(−)	**1** ⊞ ⊟ **8** ⊞ **12** enter	1+ -8+12 DEG ↑↓ **5**
	2nd [√⁻] **9** ⊞ **6** enter	√9+16 DEG ↑↓ **5**
( )	**4** ⊠ ⦅ **2** ⊞ **3** ⦆ enter	4*(2+3) DEG ↑↓ **20**
	4 ⦅ **2** ⊞ **3** ⦆ enter	4(2+3) DEG ↑↓ **20**
^ and ˣ√	**2nd** [√⁻] **3** ⌃ **2** ⊙ ⊞ **4** ⌃ **2** enter	√3²+4² DEG ↑↓ **5**

Clearing and Correcting

clear	Clears an error message.
	Clears characters on entry line.
	Moves the cursor to last entry in history once display is clear.
	Backs up one screen in applications.
delete	Deletes the character at the cursor.
2nd [insert]	Inserts a character at the cursor.
2nd [clear var]	Clears variables **x**, **y**, **z**, **t**, **a**, **b**, and **c**.
2nd [reset] **2**	Resets the TI-30XS MultiView™ calculator. Returns unit to default settings; clears memory

	variables, pending operations, all entries in history, and statistical data; clears the constant feature, K, and **Ans**.

Memory and Stored Variables

x_{abc}^{yzt} sto▸   2nd [recall]   2nd [clear var]

The TI-30XS MultiView™ calculator has 7 memory variables—**x**, **y**, **z**, **t**, **a**, **b**, and **c**. You can store a real number or an expression that results in a real number to a memory variable.

sto▸ lets you store values to variables. Press sto▸ to store a variable, and press x_{abc}^{yzt} to select the variable to store. Press enter to store the value in the selected variable. If this variable already has a value, that value is replaced by the new one.

x_{abc}^{yzt} accesses the menu of variables. Press this key multiple times to choose **x**, **y**, **z**, **t**, **a**, **b**, or **c**. You can also use x_{abc}^{yzt} to recall the stored values for these variables. The name of the variable is inserted into the current entry, but the value assigned to the variable is used to evaluate the expression.

2nd [recall] recalls the values of variables. Press 2nd [recall] to display a menu of variables and their stored values. Select the variable you want to recall and press enter. The value assigned to the variable is inserted into the current entry and used to evaluate the expression.

2nd [clear var] clears variable values. Press 2nd [clear var] and select **1: Yes** to clear all variable values.

Examples

Clear Var	2nd [clear var] 1	 **C**lear Var **1:**Yes 2:No
Store	15 sto▸ x_{abc}^{yzt}	15→x
	enter	15→x 15
Recall	2nd [recall]	Recall Var **1:**x=15 2: y=0 3↓z=0

	enter x^2 enter	DEG $15 \rightarrow x$ 15 15^2 225
	sto ► $x_{abc}^{y z t}$ $x_{abc}^{y z t}$	DEG $15 \rightarrow x$ 15 15^2 225 Ans→y
	enter	DEG $15 \rightarrow x$ 15 15^2 225 Ans→y 225
	$x_{abc}^{y z t}$ $x_{abc}^{y z t}$	DEG 15^2 225 Ans→y 225 y
	enter ÷ 4 enter	DEG Ans→y 225 y 225 Ans÷4 56.25

▤ Problem

In a gravel quarry, two new excavations have been opened. The first one measures 350 meters by 560 meters, the second one measures 340 meters by 610 meters. What volume of gravel does the company need to extract from each excavation to reach a depth of 150 meters? To reach 210 meters? Display the results in engineering notation.

mode ⊙ ◑ ◑ enter clear **350** × **560** sto ► $x_{abc}^{y z t}$ enter	ENG DEG $350 * 560 \rightarrow x$ $196 * 10^3$

340 × **610** sto ► $x_{abc}^{y z t}$ $x_{abc}^{y z t}$ enter	ENG DEG
	     $196 * 10^3$
	 $340 * 610 \rightarrow y$
	     $207.4 * 10^3$

150 × 2nd [recall]	ENG DEG **Recall Var** **1:** x=196ᴇ3 2: y=207.4ᴇ3 3↓z=0ᴇ0

enter enter	ENG DEG ↑↓ $207.4*10^3$ 150*196000 $29.4*10^6$
210 × **2nd** [recall] enter enter	ENG DEG ↑↓ $29.4*10^6$ 210*196000 $41.16*10^6$
150 × x_{abc}^{yzt} x_{abc}^{yzt} enter	ENG DEG ↑↓ 210*196000 $41.16*10^6$ 150*y $31.11*10^6$
210 × x_{abc}^{yzt} x_{abc}^{yzt} enter	ENG DEG ↑↓ 150*y $31.11*10^6$ 210*y $43.554*10^6$

For the first excavation: The company needs to extract 29.4 million cubic meters to reach a depth of 150 meters, and to extract 41.16 million cubic meters to reach a depth of 210 meters.

For the second excavation: The company needs to extract 31.11 million cubic meters to reach a depth of 150 meters, and to extract 43.554 million cubic meters to reach a depth of 210 meters.

Math Functions

Fractions

⬚/⬚   2nd [U⬚/⬚]   2nd [f◄►d]   2nd [⬚/⬚◄►U⬚/⬚]

In the MathPrint™ mode, fractions with ⬚/⬚ can include operation keys (+, ×, etc.) and most function keys (x², 2nd [%], etc.).

In Classic mode, fractions with ⬚/⬚ do not allow operation keys, functions, or complex fractions in the numerator or denominator.

Note: In Classic mode, data editor, and table, use ÷ to perform complex division problems.

Calculations using fractions can display fraction or decimal results, depending on input.

The TI-30XS MultiView™ calculator defaults output to improper fractions. Results are automatically simplified.

- ⬚/⬚ enters a simple fraction. Pressing ⬚/⬚ before or after a number can result in different behavior. Entering a number before pressing ⬚/⬚ makes that number the numerator.

  To enter fractions with operators or radicals, press ⬚/⬚ before you enter a number (in MathPrint™ mode only).

  In MathPrint mode, press ⊙ between the entry of the numerator and the denominator.

  In Classic mode, press ⬚/⬚ between the entry of the numerator and the denominator.

- To paste a previous entry in the denominator, place the cursor in the denominator, press 2nd ⊙ to scroll to the desired entry, and then press **enter** to paste the entry to the denominator.

- To paste a previous entry in the numerator or unit, place the cursor in the numerator or unit, press ⊙ or 2nd ⊙ to scroll to the desired entry, and then press **enter** to paste the entry to the numerator or unit.

- 2nd [U⬚/⬚] enters a mixed number. Press 2nd [U⬚/⬚] between the entry of the unit and the numerator.

- 2nd [⬚/⬚◄►U⬚/⬚] converts between mixed numbers and simple fraction form.

- 2nd [f◄►d] converts results between fractions and decimals.

Examples Classic mode

n/d, Un/d	3 ⬚/⬚ 4 + 1 2nd [U⬚/⬚] 7 ⬚/⬚ 12 **enter**	3/4+1␣7/12 7/3

n/d ◀▶ Un/d	**9** ⬚ **2** **2nd** [◀▶Uⁿ/d] **enter**	9/2▶%↔U% 4⌴1/2
F ◀▶ D	**4** **2nd** [Uⁿ/d] **1** ⬚ **2** **2nd** [f◀▶d] **enter**	4⌴1/2▶F↔D 4.5

Examples MathPrint™ mode

n/d, Un/d	⬚ **3** ⊝ **4** ▷ ⊞ **1** **2nd** [Uⁿ/d] **7** ⊝ **12** **enter**	$\frac{3}{4}+1\frac{7}{12}$ $\frac{7}{3}$
n/d ◀▶ Un/d	**9** ⬚ **2** ▷ **2nd** [◀▶Uⁿ/d] **enter**	$\frac{9}{2}$▶%↔U% $4\frac{1}{2}$
F ◀▶ D	**4** **2nd** [Uⁿ/d] **1** ⊝ **2** ▷ **2nd** [f◀▶d] **enter**	$4\frac{1}{2}$▶F↔D 4.5
Examples (MathPrint™ mode only)	⬚ **1.2** ⊞ **1.3** ⊝ **4** **enter**	$\frac{1.2+1.3}{4}$ 0.625
(MathPrint™ mode only)	⬚ ⊟ **5** ⊞ **2nd** [√] **5** [x²] ⊟ **4** ⟮ **1** ⟯ ⟮ **6** ⟯ ⊝ **2** ⟮ **1** ⟯ **enter**	$\frac{-5+\sqrt{5^2-4(1)(6)}}{2(1)}$ -2

Percentages

2nd [%]   **2nd** [▶%]

To perform a calculation involving a percentage, press **2nd** [%] after entering the value of the percentage.

To express a value as a percentage, press **2nd** [▶%] after the value.

Example

2 [2nd] [%] [×] 150 enter	
| | ```
DEG    ↑
2%*150          3
``` |

1 [n/d] 5 [▷] [2nd] [▶%] enter	
| | ```
DEG    ↑
             20%
1/5▶%
``` |

📖 Problem

A mining company extracts 5000 tons of ore with a concentration of metal of 3% and 7300 tons with a concentration of 2.3%. On the basis of these two extraction figures, what is the total quantity of metal obtained?

If one ton of metal is worth 280 dollars, what is the total value of the metal extracted?

3 [2nd] [%] [×] 5000 enter	
| | ```
DEG    ↑
3%*5000       150
``` |

[+] 2.3 [2nd] [%] [×] 7300 enter	
| | ```
DEG    ↑
3%*5000       150
Ans+2.3%*7300
            317.9
``` |

[×] 280 enter	
| | ```
DEG    ↑
3%*5000       150
Ans+2.3%*7300
            317.9
Ans*280     89012
``` |

The two extractions represent a total of 317.9 tons of metal for a total value of 89012 dollars.

$x10^n$ Key

[×10ⁿ]

Press [×10ⁿ] to enter a number in scientific notation format. Use parentheses to compute the correct order of operation.

[mode] [⌄] [▷] enter	
| | ```
              SCI      DEG
DEG RAD GRAD
NORM SCI ENG
FLOAT 0123456789
CLASSIC MATHPRINT
``` |

Keys	Display
$\frac{n}{d}$ 2 [×10ⁿ] 3 ⊙ 4 [×10ⁿ] 5 ▷ ▷ ◀▶ enter	SCI DEG $\frac{2 \times 10^3}{4 \times 10^5}$ 5×10^{-3}
clear (2 [×10ⁿ] 3 ▷) ÷ (4 [×10ⁿ] 5 ▷) enter	SCI DEG $(2*10^3) \div (4*10^5)$ $5*10^{-3}$

Powers, Roots and Inverses

x^2	Calculates the square of a value. The TI-30XS MultiView™ calculator evaluates expressions entered with x^2 and x^{-1} from left to right in both Classic and MathPrint™ modes.
$\wedge$	Raises a value to the power indicated. If you insert an expression as the exponent, you must place it between parentheses.
[2nd] [√]	Calculates the square root of a positive value.
[2nd] [$x\sqrt{\ }$]	Calculates the *n*th root of any positive value and any odd integer root of a negative value.
x^{-1}	Gives the inverse of a value: $1/x$. The TI-30XS MultiView™ calculator evaluates expressions entered with x^2 and x^{-1} from left to right in both Classic and MathPrint™ modes.

Examples

Keys	Display
5 $\wedge$ 2 ▷ + 4 $\wedge$ (2 + 1) enter	DEG $5^2 + 4^{(2+1)}$ 89
10 $\wedge$ [(−)] 2 enter	10^{-2} $\frac{1}{100}$
[2nd] [√] 49 enter	DEG $\sqrt{49}$ 7
[2nd] [√] 3 $\wedge$ 2 ▷ + 2 $\wedge$ 4 enter	DEG $\sqrt{3^2 + 2^4}$ 5

6 [2nd] [x√−] 64 [enter]	 $^{6}\sqrt{64}$ DEG 2

2 [x⁻¹] [enter]	2^{-1} DEG $\frac{1}{2}$

Pi

[π]

π = 3.141592653590 for calculations.

π = 3.141592654 for display.

Example

π	2 [×] [π] [enter]	DEG $2*\pi$ 2π
	◄►	DEG $2*\pi$ 2π 2π· 6.283185307

🖩 Problem

What is the area of a circle if the radius is 12 cm?

Reminder: $A = \pi r^2$.

[π] [×] 12 [^] 2 [enter]	DEG $\pi*12^2$ 144π
◄►	DEG $\pi*12^2$ 144π 144π· 452.3893421

The area of the circle is 144 π square cm. The area of the circle is approximately 452.4 square cm when rounded to one decimal place.

Angle Menu

2nd [angle]

2nd [angle] displays the choice of two submenus that enable you to specify the angle unit modifier as degrees (°), minutes ('), seconds ("); radian (r); gradian (g), or convert units using ▸**DMS**. You can also convert between rectangular coordinate form (R) and polar coordinate form (P). (See Rectangular to Polar for more information.)

Choose an angle mode from the mode screen. You can choose from DEG (default), RAD, or GRAD. Entries are interpreted and results displayed according to the angle mode setting without needing to enter an angle unit modifier.

Examples

RAD	mode ⟩ enter	![DEG RAD GRAD / NORM SCI ENG / FLOAT 0123456789 / CLASSIC MATHPRINT]
	clear sin 30 2nd [angle]	![DMS R▸P / 1:° / 2:' / 3↓"]
	4) enter	$\sin(30°)$ $\frac{1}{2}$
DEG	mode enter	![DEG RAD GRAD / NORM SCI ENG / FLOAT 0123456789 / CLASSIC MATHPRINT]
	clear 2 π 2nd [angle] 4 enter	$\sin(30°)$ $\frac{1}{2}$ $2π^r$ 360
▸DMS	1.5 2nd [angle] 6 enter	$\sin(30°)$ $\frac{1}{2}$ $2π^r$ 360 1.5▸DMS 1°30'0"

🔲 *Problem*

Two adjacent angles measure 12° 31′ 45″ and 26° 54′ 38″. respectively. Add the two angles and display the result in DMS format. Round the results to two decimal places.

| `clear` `mode` ⊙ ⊙ ◊ ◊ ◊ `enter` `mode` | ```
        FIX           DEG
DEG RAD GRAD
NORM SCI ENG
FLOAT 0123456789
CLASSIC MATHPRINT
``` |
| `clear` **12** `2nd` `[angle]` | ```
                    RAD
DMS R↔P
1:°
2:'
3↓"
``` |
| **1**<br>**31** `2nd` `[angle]` **2**<br>**45** `2nd` `[angle]` **3**<br>`+` **26** `2nd` `[angle]` **1**<br>**54** `2nd` `[angle]` **2**<br>**38** `2nd` `[angle]` **3** `enter` | ```
    FIX        DEG    ↑↓
12°31'45"+26°54▶
                39.44
``` |
| `2nd` `[angle]` **6** `enter` | ```
    FIX        DEG    ↑↓
12°31'45"+26°54▶
                39.44
39.43972222221▶▶
            39°26'23"
``` |

The result is 39 degrees, 26 minutes and 23 seconds.

📖 *Problem*

It is known that $30° = \pi / 6$ radians. In the default mode, degrees, find the sine of $30°$. Then set the calculator to radian mode and calculate the sine of $\pi / 6$ radians.

Note: Press `clear` to clear the screen between problems.

| `clear` `sin` **30** `)` `enter` | ```
    FIX              ↑
sin(30)
              1
              ─
              2
``` |
| `mode` ◊ `enter` `clear` `sin` `π` `n/d` **6** ◊<br>`)` `enter` | ```
    FIX           RAD ↑
sin(30)
              1
              ─
              2
sin(π/6)
              1
              ─
              2
``` |

Retain radian mode on the calculator and calculate the sine of $30°$. Change the calculator to degree mode and find the sine of $\pi / 6$ radians.

| `sin` **30** `2nd` `[angle]` `enter` `)` `enter` | ```
                    RAD ↑
sin(π/6)
              1
              ─
              2
sin(30°)
              1
              ─
              2
``` |

mode enter clear		
sin π ⁿ/d 6 ▷ 2nd [angle]		DEG ↑
) enter	$\sin(30°)$	$\frac{1}{2}$
	$\sin\left(\frac{\pi}{6}r\right)$	$\frac{1}{2}$

Rectangular to Polar

2nd [angle]

2nd [angle] displays a menu to convert rectangular coordinates (*x,y*) to polar coordinates (r,θ) or vice versa. Set Angle mode, as necessary, before starting calculations.

Example

Convert polar coordinates (r,θ)=(5,30) into rectangular coordinates. Then convert rectangular coordinates
(*x,y*) = (3,4) into polar coordinates. Round the results to one decimal place.

R▶P	clear mode	FIX DEG
	⊙ ⊙ ▷ ▷ enter	DEG RAD GRAD
		NORM SCI ENG
		FLOAT 0123456789
		CLASSIC MATHPRINT
	clear 2nd [angle] ▷ 3	FIX DEG ↑
	5 2nd [,] 30) enter	P▶Rx(5,30) 4.3
	2nd [angle] ▷ 4	P▶Ry(5,30) 2.5
	5 2nd [,] 30) enter	
	2nd [angle] ▷ 1	FIX DEG ↑
	3 2nd [,] 4) enter	P▶Rx(5,30) 4.3
	2nd [angle] ▷ 2	P▶Ry(5,30) 2.5
	3 2nd [,] 4) enter	R▶Pr(3,4) 5.0
		R▶Pθ(3,4) 53.1

Converting (r,θ) = (5,30) gives (*x,y*) = (4.3,2.5) and converting
(*x,y*) = (3,4) gives (r,θ) = (5.0,53.1).

Trigonometry

sin cos tan   2nd [sin⁻¹] [cos⁻¹] [tan⁻¹]

Enter trigonometric functions (sin, cos, tan, $\sin^{-1}$, $\cos^{-1}$, $\tan^{-1}$), just as you would write them. Set the desired Angle mode before starting trigonometric calculations.

Example

tan	mode ⌄ ⌄ enter clear tan 45 ⟩ enter	DEG ↑ tan(45) 1
tan⁻¹	2nd [tan⁻¹] 1 ⟩ enter	DEG ↑ tan⁻¹(1) 45
cos	5 × cos 60 ⟩ enter	DEG ↑↓ 5*cos(60) $\frac{5}{2}$

Degree Mode

Example Radian Mode

tan	mode ⟩ enter clear tan π $\frac{n}{d}$ 4 ⟩ ⟩ enter	DEG ↑ tan$\left(\frac{\pi}{4}\right)$ 1
tan⁻¹	2nd [tan⁻¹] 1 ⟩ enter	RAD ↑↓ tan⁻¹(1) 0.785398163
	◂▸	RAD ↑↓ 0.785398163 0.7853981633975↤ $\frac{\pi}{4}$
cos	5 × cos π $\frac{n}{d}$ 4 ⟩ ⟩ enter	RAD ↑ $\frac{\pi}{4}$↤ 0.785398163 5*cos$\left(\frac{\pi}{4}\right)$ $\frac{5\sqrt{2}}{2}$
	◂▸	RAD ↑ $\frac{5\sqrt{2}}{2}$↤ 3.535533906

📖 *Problem*

Find angle **A** of the right triangle below. Then calculate angle **B** and the length of the hypotenuse c. Lengths are in meters. Round results to one decimal place.

Reminder:

$\tan \mathbf{A} = \dfrac{7}{3}$ therefore $m\angle\mathbf{A} = \tan^{-1}\left(\dfrac{7}{3}\right)$

$m\angle\mathbf{A} + m\angle\mathbf{B} + 90° = 180°$
therefore $m\angle\mathbf{B} = 90° - m\angle\mathbf{A}$

$c = \sqrt{3^2+7^2}$

mode ⊙ ⊙ ⊙ ⊙ enter	
clear 2nd [tan⁻¹] 7 ⅜ 3 ⊙ ⊙ enter	
90 − 2nd [ans] enter	
2nd [√] 3 x² + 7 x² enter	
◀▶	

To one decimal place, the measure of angle **A** is 66.8°, the measure of angle **B** is 23.2°, and the length of the hypotenuse is 7.6 meters.

Hyperbolics

2nd [hyp]

2nd [hyp] displays the **HYP** indicator and accesses the hyperbolic function of the next trigonometry key that you press. Angle modes do not affect hyperbolic calculations.

Example

HYP	[2nd] [hyp] [sin] **5** [)] [+] **2** enter	sinh(5)+2 DEG ↑ 76.20321058
	[⌃] [⌃] enter [◁] [◁] [◁] [◁] [◁] [2nd] [hyp] [2nd] [sin⁻¹] enter	sinh(5)+2 DEG ↑↓ 76.20321058 sinh⁻¹(5)+2 4.312438341

Logarithm and Exponential Functions

[log]　　[ln]　　[2nd] [10ˣ]　　[2nd] [eˣ]

[log] yields the common logarithm of a number.

[ln] yields the logarithm of a number to the base e ($e \approx 2.718281828459$).

[2nd] [10ˣ] raises 10 to the power you specify.

[2nd] [eˣ] raises e to the power you specify.

Examples

LOG	[log] **1** [)] enter	log(1) DEG ↑ 0
LN	[ln] **5** [)] [×] **2** enter	log(1) DEG ↑↓ 0 ln(5)*2 3.218875825
10ˣ	[2nd] [10ˣ] [log] **2** [)] enter [log] [2nd] [10ˣ] **5** [▷] [)] enter	⌐⌐⌐⌐⌐/⌐⌐ DEG ↑↓ 3.218875825 10^log(2) 2 log(10⁵) 5
eˣ	[2nd] [eˣ] **.5** enter	e^.5 DEG ↑↓ 1.648721271

Statistics

[2nd] [stat]　　[data]

[2nd] [stat] displays a menu with the following options:

• **1-Var Stats** analyzes statistical data from 1 data set with 1 measured variable, *x*.

- **2-Var Stats** analyzes paired data from 2 data sets with 2 measured variables—*x*, the independent variable, and *y*, the dependent variable.

- **StatVars** displays a secondary menu of statistical variables. The StatVars menu only appears after you have calculated 1-Var or 2-Var stats. Use $\odot$ and $\odot$ to locate the desired variable, and press **enter** to select it.

Variables	Definition
n	Number of *x* or (*x,y*) data points.
$\overline{\mathbf{x}}$ or $\overline{\mathbf{y}}$	Mean of all *x* or *y* values.
Sx or **Sy**	Sample standard deviation of *x* or *y*.
σx or **σy**	Population standard deviation of *x* or *y*.
Σx or **Σy**	Sum of all *x* or *y* values.
Σx² or **Σy²**	Sum of all x^2 or y^2 values.
Σxy	Sum of (*x...y*) for all xy pairs.
a	Linear regression slope.
b	Linear regression *y*-intercept.
r	Correlation coefficient.
x′ (2-Var)	Uses *a* and *b* to calculate predicted *x* value when you input a *y* value.
y′ (2-Var)	Uses *a* and *b* to calculate predicted *y* value when you input an *x* value.
MinX	Minimum of *x* values.
Q1 (1-Var)	Median of the elements between MinX and Med (1st quartile).
Med	Median of all data points.
Q3 (1-Var)	Median of the elements between Med and MaxX (3rd quartile).
MaxX	Maximum of x values.

To define statistical data points:

1. Enter data in L1, L2, or L3. (See Data editor.)

   Note: Non-integer frequency elements are valid. This is useful when entering frequencies expressed as percentages or parts that add up to 1. However, the sample standard deviation, Sx, is undefined for non-integer frequencies, and Sx = Error is displayed for that value. All other statistics are displayed.

2. Press $\boxed{\text{2nd}}$ $\boxed{\text{stat}}$. Select **1-Var** or **2-Var** and press **enter**.

3. Select L1, L2, or L3, and the frequency.

4. Press **enter** to display the menu of variables.

5. To clear data, press $\boxed{\text{data}}$ $\boxed{\text{data}}$, select a list to clear, and press **enter**.

Examples

1-Var: Find the mean of {45, 55, 55, 55}

| Clear all data | `data` `data` ⊙ ⊙ ⊙ | ```
                    DEG
CLEAR FORMULA
2↑Clear L2
3:Clear L3
4:Clear ALL
``` |
|---|---|---|
| Data | `enter` **45** ⊙ **55** ⊙ **55** ⊙ **55** `enter` | ```
□        □2       □DEG    ↑
55
55
55
━━━━━━━      │        │
L1(5)=
``` |
| Stat | `2nd` `[stat]` **1** | ```
                    DEG
STATS
1:1-Var Stats
2:2-Var Stats
``` |
| | ⊙ ⊙ | ```
                    DEG
1-VAR STATS
DATA: L1 L2 L3
FRQ: ONE L1 L2 L3
              CALC
``` |
| | `enter` | ```
                    DEG
1-Var:L1,One
1:n=4
2:x̄=52.5
3↓Sx=5
``` |
| Stat Var | **2** `enter` | ```
                 DEG   ↑
x̄              52.5
``` |
| | ⊠ **2** `enter` | ```
                 DEG   ↑
x̄              52.5
Ans*2           105
``` |

2-Var: Data: (45,30); (55,25). Find: x′(45)

| Clear all data | `data` `data` ⊙ ⊙ ⊙ | ```
                    DEG
CLEAR FORMULA
2↑Clear L2
3:Clear L3
4:Clear ALL
``` |
|---|---|---|
| Data | `enter` **45** ⊙ **55** ⊙ ⊙ **30** ⊙ **25** ⊙ | ```
□        □2       □DEG    ↑
45       30       ──────
55       25
──────   ━━━━━━━
L2(3)=
``` |

Stat	2nd [stat] 2 (Your screen may not show **3:StatVars** if you did not previously perform a calculation.)	 DEG **STATS** 1:1-Var Stats **2:**2-Var Stats 3:StatVars
	⊙ ⊙	DEG 2-VAR STATS xDATA: **L1** L2 L3 yDATA: L1 **L2** L3 CALC
	enter 2nd [quit] 2nd [stat] 3 ⊙ ⊙ ⊙ ⊙ ⊙ ⊙	DEG **2-Var:L1,L2** G↑x' H:y' I↓minX=45
	enter **45** [)] enter	DEG ↑↓ x'(45) 15

📖 *Problem*

For his last four tests, Anthony obtained the following scores. Tests 2 and 4 were given a weight of 0.5, and tests 1 and 3 were given a weight of 1.

Test No.	1	2	3	4
Score	12	13	10	11
Coefficient	1	0.5	1	0.5

1. Find Anthony's average grade (weighted average).

2. What does the value of *n* given by the calculator represent? What does the value of Σx given by the calculator represent?

   Reminder: The weighed average is

   $$\frac{\Sigma x}{n} = \frac{(12)(1)+(13)(0.5)+(10)(1)+(11)(0.5)}{1+0.5+1+0.5}$$

3. The teacher gave Anthony 4 more points on test 4 due to a grading error. Find Anthony's new average grade.

data data **4** data ▷ **5**	DEG **CLEAR** FORMULA 2↑Clear L2 3:Clear L3 **4:**Clear ALL

	``` DEG CLEAR FORMULA 3↑Clear L2 Frmla 4:Clear L3 Frmla 5:Clear ALL ```
12 ⊙ 13 ⊙ 10 ⊙ 11 ⊙ ⓘ 1 ⊙ .5 ⊙ 1 ⊙ .5 ⊙	``` L1 L2 L3 DEG ↑ 13 0.5 10 1 11 0.5 ------ L2(5)= ```
2nd [stat] 1 (Your screen may not show **3:StatVars** if you did not previously perform a calculation.)	``` DEG STATS 1:1-Var Stats 2:2-Var Stats 3:StatVars ```
⊙ ⓘ ⓘ enter	``` DEG 1-VAR STATS DATA: L1 L2 L3 FRQ: ONE L1 L2 L3 CALC ```
enter	``` DEG 1-Var:L1,L2 1:n=3 2:x̄=11.33333333 3↓Sx=Error ```

Anthony has an average ($\bar{x}$) of 11.33 (to the nearest hundredth).

On the calculator, n represents the total sum of the weights.

    $n = 1 + 0.5 + 1 + 0.5$

Σx represents the weighted sum of his scores.

    $(12)(1) + (13)(0.5) + (10)(1) + (11)(0.5) = 34$

Change Anthony's last score from 11 to 15.

[data] ⊙ ⊙ ⊙ 15 ⊙	``` L1 L2 L3 DEG ↑ 13 0.5 10 1 15 0.5 ------ L1(5)= ```
2nd [stat] 1 ⊙ ⊙ enter	``` DEG 1-Var:L1,L2 1:n=3 2:x̄=12 3↓Sx=Error ```

If the teacher adds 4 points to Test 4, Anthony's average grade is 12.

🔢 *Problem*

The table below gives the results of a braking test.

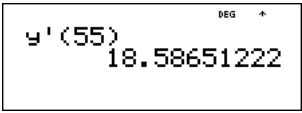
Test No.	1	2	3	4
Speed (kph)	33	49	65	79
Braking distance (m)	5.30	14.45	20.21	38.45

Use the relationship between speed and braking distance to estimate the braking distance required for a vehicle traveling at 55 kph.

A hand-drawn scatter plot of these data points suggest a linear relationship. The TI-30XS MultiView™ calculator uses the least squares method to find the line of best fit, $y'=ax'+b$, for data entered in lists.

[data] [data] **4**	**CLEAR** FORMULA 2↑Clear L2 3:Clear L3 4▪Clear ALL `DEG`
33 ⊝ **49** ⊝ **65** ⊝ **79** ⊝ ⊙ **5.3** ⊝ **14.45** ⊝ **20.21** ⊝ **38.45** ⊝	L1 L2 L3 49 | 14.45 65 | 20.21 79 | 38.45 <u>L2(5)=</u>
[2nd] [stat] **2**	**STATS** 1:1-Var Stats 2▪2-Var Stats
⊝ ⊝	2-VAR STATS xDATA: **L1** L2 L3 yDATA: L1 **L2** L3 CALC
[enter]	2-Var:**L1,L2** `DEG` 1▪n=4 2:x̄=56.5 3↓Sx=19.89137166
Press ⊝ to view a and b.	2-Var:**L1,L2** `DEG` C↑Σxy=5234.15 D:a=0.677325190 E▪b=-18.6663732

This line of best fit, $y'=0.67732519x'-18.66637321$ models the linear trend of the data.

Press ⊝ until y' is highlighted.	2-Var:**L1,L2** F↑r=0.963411717 G:x' H▪y'

| enter **55** ⟩ enter |
`y'(55)`
        `18.58651222`   `DEG` ↑ |

The linear model gives an estimated braking distance of 18.59 meters for a vehicle traveling at 55 kph.

Probability

prb

This key displays two menus: PRB and RAND.

PRB contains the following options:

nPr	Calculates the number of possible permutations of *n* items taken *r* at a time, given *n* and *r*. The order of objects is important, as in a race.
nCr	Calculates the number of possible combinations of *n* items taken *r* at a time, given *n* and *r*. The order of objects is not important, as in a hand of cards.
!	A factorial is the product of the positive integers from 1 to *n*. *n* must be a positive whole number ≤ 69.

RAND contains the following options:

rand	Generates a random real number between 0 and 1. To control a sequence of random numbers, store an integer (seed value) ≥ 0 to rand. The seed value changes randomly every time a random number is generated.
randint(	Generates a random integer between 2 integers, *A* and *B*, where $A \leq randint \leq B$. Separate the 2 integers with a comma.

Examples

nPr	**8**	`8`■ ↑

	prb **1**	`PRB RAND`
		`1:nPr`
		`2:nCr`
		`3:!`

	3 enter	8 nPr 3 ↑ 336
nCr	52 prb 2 5 enter	52 nCr 5 ↑ 2598960
!	4 prb 3 enter	4! ↑ 24
STO ▶ rand	5 sto▶ prb ▷	PRB **RAND** **1:**rand 2:randint(
	1 enter	5→rand ↑ 5

Rand	prb ▷ 1 enter	5→rand ↑
		         5
		rand
		    0.000093165

Randint(	prb ▷ 2
	3 2nd [,] 5) enter
		5→rand ↑
		         5
		rand
		    0.000093165
		randint(3,5) 5

🗒 *Problem*

An ice cream store advertises that it makes 25 flavors of home made ice cream. You like to order three different flavors in a dish. How many combinations of ice cream can you test over a very hot summer?

25	25 ↑
prb 2	25 nCr ↑

3 enter

```
25 nCr 3      2300
```

You can choose from 2300 dishes with different combinations of flavors! If a long hot summer is about 90 days long, you will need to eat about 25 ice cream dishes each day!

Math Tools

Data Editor and List Formulas

[data]

[data] lets you enter data in up to 3 lists. Each list can contain up to 42 items. Press [2nd] ⊙ to go to the top of a list, and [2nd] ⊙ to go to the bottom of a list.

List formulas accept all calculator functions.

Numeric notation, decimal notation, and angle modes affect the display of an element (except fractional elements).

Example

L1	[data] 1 [n/d] 4 ⊙ 2 [n/d] 4 ⊙ 3 [n/d] 4 ⊙ 4[n/d] 4 enter	
Formula	⟨⟩ [data] ⟨⟩	
	enter	
	[data] enter [2nd] [f◄►d]	
	enter	

Notice L2 is calculated per the formula you entered, and L2(1)= in the author line is highlighted to indicate the list is the result of a formula.

🗒 *Problem*

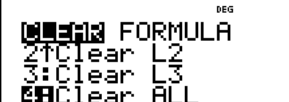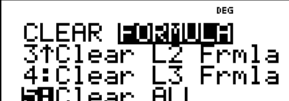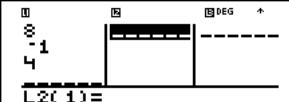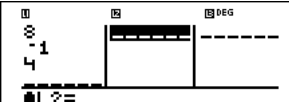On a November day, a weather report on the Internet listed the following temperatures.
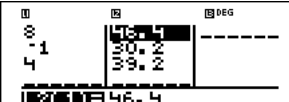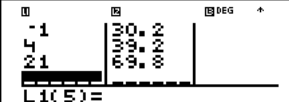
   Paris, France 8°C

   Moscow, Russia -1°C

   Montreal, Canada 4°C

Convert these temperatures from degrees Celsius to degrees Fahrenheit.

Reminder: F = $\frac{9}{5}$ C + 32

[data] [data] **4** [data] ⓓ **5**	CLEAR FORMULA 2↑Clear L2 3:Clear L3 4▪Clear ALL CLEAR FORMULA 3↑Clear L2 Frmla 4:Clear L3 Frmla 5▪Clear ALL
8 ⊖ [(-)] **1** ⊖ **4** ⊖ ⓓ	8 ⁻1 4 L2(1)=
[data] ⓓ **1**	8 ⁻1 4 ●L2=
9 ⊡ **5** ⊠ [data] **1** ⊞ **32**	8 ⁻1 4 ●L2=9/5×L1+32∎
[enter]	8 46.4 ⁻1 30.2 4 39.2 L2(1)=46.4

If Sydney, Australia is 21°C, find the temperature in degrees Fahrenheit.

ⓓ ⊖ ⊖ ⊖ **21** [enter]	⁻1 30.2 4 39.2 21 69.8 L1(5)=

Function Table

[table]

The function table allows you to display a defined function in a tabular form. To set up a function table:

1. Press [table].
2. Enter a function and press [enter]. Functions allow up to one level of fractions.
3. Select the table start, table step, auto, or ask-x options and press [enter].

The table is displayed using the specified values.

Start	Specifies the starting value for the independent variable, x.
Step	Specifies the incremental value for the independent variable, x. The step can be positive or negative, but cannot be zero.
Auto	The TI-30XS MultiView™ calculator automatically generates a series of values based on table start and table step.
Ask-x	Lets you build a table manually by entering specific values for the independent variable, x.

📖 Problem

Find the vertex of the parabola, $y = x(36 - x)$ using a table of values.

Reminder: The vertex of the parabola is the point on the line of symmetry of the parabola.

[table] x_{abc}^{yzt} [(] **36** [−] x_{abc}^{yzt} [)] [enter]	y=x(36-x)
	Start=0 Step=1 **Auto** Ask-x OK
[clear] **15** [⌄] [clear] **3** [⌄] [⌄] [enter]	Start=15 Step=3 **Auto** Ask-x OK
	x | y 15 | 315 18 | 324 21 | 315 x=15

After searching close to $x = 18$, the point (18, 324) appears to be the vertex of the parabola since it appears to be the turning point of the set of points of this function. To search closer to $x = 18$, change the Step value to see points closer to (18, 324).

📖 Problem

A charity collected \$3,600 to help support a local food kitchen. \$450 will be given to the food kitchen every month until the funds run out. How many months will the charity support the kitchen?

Reminder: If x = months and y = money left, then $y = 3600 - 450x$.

| [table] **3600** [−] **450** $\boxed{x_{abc}^{yzt}}$ | $y=3600-450x$ |

| [enter] **0** ⊝ **1** ⊝ ⓘ [enter] ⊝ [enter] | Start=0
Step=1
Auto **ASK-x**
OK |

| Input guesses [enter] | x   y
2   2700
7   450
8   0
x=8 |

The support of $450 per month will last for 8 months since $y(8) = 3600 - 450(8) = 0$ as shown in the table of values.

Constant

[2nd] [K]

[2nd] [K] turns Constant feature on and lets you define a constant.

To store an operation to **K** and recall it:

1. Press [2nd] [K].
2. Enter any combination of numbers, operators, and/or values, up to 44 characters.
3. Press [enter] to save the operation. **K** displays in the indicator line.
4. Each subsequent time you press [enter], the TI-30XS MultiView™ calculator recalls the stored operation and applies it to the last answer or the current entry.

Press [2nd] [K] again to turn Constant feature off.

Examples

K	[2nd] [K]	K=
	[×] **2** [+] **3** [enter]	K=*2+3
	4 [enter]	4*2+3 11

	6 enter	


```
                    K           DEG    ↑
          4*2+3                  11
          6*2+3                  15
```

Reset K	2nd [K] 2nd [K] clear x^2 enter	

```
            K                   DEG
          K=²
```

	5 enter	

```
            K                   DEG   ↑↓
          5²                     25
```

	20 enter	

```
            K                   DEG   ↑↓
          5²                     25
          20²                    400
```

Turn off K	2nd [K] 1 + 1 enter	

```
                            DEG   ↑↓
          5²                     25
          20²                    400
          1+1                    2
```

📖 *Problem*

Given the linear function $y = 5x - 2$, calculate y for the following values of x: -5; -1.

2nd [K] × 5 − 2 enter	

```
            K                   DEG
          K=*5-2
```

(−) 5 enter	

```
            K                   DEG   ↑
          -5*5-2                -27
```

(−) 1 enter	

```
            K                   DEG   ↑
          -5*5-2                -27
          -1*5-2                -7
```

2nd [K]	

```
                            DEG   ↑
          -5*5-2                -27
          -1*5-2                -7
```

Reference Information

Errors

When the TI-30XS MultiView™ calculator detects an error, it returns an error message with the type of error.

To correct the error, note the error type and determine the cause of the error. If you cannot recognize the error, use the following list, which describes error messages in detail.

Press `clear` to clear the error message. The previous screen is displayed with the cursor at or near the error location. Correct the expression.

ARGUMENT — A function does not have the correct number of arguments.

DIVIDE BY 0 — You attempted to divide by 0. In statistics, n = 1.

DOMAIN — You specified an argument to a function outside the valid range. For example:

- For $x\sqrt{y}$: x = 0 or $y < 0$ and x is not an odd integer.
- For y^x: y and x = 0; $y < 0$ and x is not an integer.
- For $\sqrt{x}$: $x < 0$.
- For **LOG** or **LN**: $x \leq 0$.
- For **TAN**: x = 90°, -90°, 270°, -270°, 450°, etc., and equivalent for radian mode.
- For **SIN**$^{-1}$ or **COS**$^{-1}$: $|x| > 1$.
- For **nCr** or **nPr**: n or r are not integers ≥ 0.
- For x!: x is not an integer between 0 and 69.

EQUATION LENGTH ERROR — An entry exceeds the digit limits (80 for stat entries or 47 for constant entries); for example, combining an entry with a constant that exceeds the limit.

FRQ DOMAIN — FRQ value (in **1-Var** stats) < 0 or > 99.

OVERFLOW — You attempted to enter, or you have calculated, a number that is beyond the range of the calculator.

STAT — Attempting to calculate 1-var or 2-var stats with no defined data points, or attempting to calculate 2-var stats when the data lists are not of equal length.

DIM MISMATCH — Attempting to create a formula when the lists are not of equal length.

FORMULA — The formula does not contain a list name (L1, L2, or L3), or the formula for a list contains its own list name. For example, a formula for L1 contains L1.

SYNTAX — The command contains a syntax error: entering more than 23 pending operations or 8 pending values; or having misplaced functions, arguments, parentheses, or commas. If using $\frac{\square}{\square}$, try using $\div$.

INVALID FUNCTION — Invalid function entered in the function table.

MEMORY LIMIT — The calculation contains too many pending operations (more than 23). If using the constant feature (K), you attempted to enter more than four levels of nested functions using fractions, square roots, exponents with ^, $\sqrt[x]{y}$, e^x, and 10^x.

LOW BATTERY — Replace the battery.

Note: This message displays briefly and then disappears. Pressing clear does not clear this message.

Battery Information

Battery precautions

- Do not leave batteries within the reach of children.

- Do not mix new and used batteries. Do not mix brands (or types within brands) of batteries.

- Do not mix rechargeable and non-rechargeable batteries.

- Install batteries according to polarity (+ and -) diagrams.

- Do not place non-rechargeable batteries in a battery recharger.

- Properly dispose of used batteries immediately.

- Do not incinerate or dismantle batteries.

- Seek Medical Advice immediately if a cell or battery has been swallowed. (In the USA, contact the National Capital Poison Center at 1-800-222-1222.)

Battery disposal

Do not mutilate, puncture, or dispose of batteries in fire. The batteries can burst or explode, releasing hazardous chemicals. Discard used batteries according to local regulations.

How to remove or replace the battery

The TI-30XS MultiView™ calculator uses one 3 volt CR2032 lithium battery.

Remove the protective cover and turn the TI-30XS MultiView™ calculator face downwards.

- With a small screwdriver, remove the screws from the back of the case.

- From the bottom, carefully separate the front from the back. **Be careful** not to damage any of the internal parts.

- With a small screwdriver (if required), remove the battery.

- To replace the battery, check the polarity (+ and -) and slide in a new battery. Press firmly to snap the new battery into place.

Important: When replacing the battery, avoid any contact with the other components of the TI-30XS MultiView™ calculator.

Dispose of the dead battery immediately and in accordance with local regulations.

Per CA Regulation 22 CCR 67384.4, the following applies to the button cell battery in this unit:

Perchlorate Material - Special handling may apply.

See www.dtsc.ca.gov/hazardouswaste/perchlorate

In Case of Difficulty

Review instructions to be certain calculations were performed properly.

Check the battery to ensure that it is fresh and properly installed.

Change the battery when:

- $\boxed{\text{on}}$ does not turn the unit on, or
- The screen goes blank, or
- You get unexpected results.

General Information

Online Help

education.ti.com/eguide

Select your country for more product information.

Contact TI Support

education.ti.com/ti-cares

Select your country for technical and other support resources.

Service and Warranty Information

education.ti.com/warranty

Select your country for information about the length and terms of the warranty or about product service.

Limited Warranty. This warranty does not affect your statutory rights.

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