MA16020 TI-**30X**a Calculator Tips

Calculator Memory

Your calculator has 3 memories (**M1**, **M2**, and **M3**), each one can store one number.

- To store the displayed number in a memory, press the $\boxed{\textsf{STO}}$ key, then either **1**, **2**, or **3**.

- To recall the value that is being stored in a memory, use the recall button $\boxed{\textsf{RCL}}$, then **1**, **2**, or **3** (you do not need to use the $\boxed{\textsf{=}}$ key).

- Turning your calculator off and on does not erase the contents of the memories (except in some solar models). To clear the value being stored in a memory, press **0** $\boxed{\textsf{STO}}$ followed by **1**, **2**, or **3**. When a value is being stored in memory 2, you will see **M2** in the upper left hand corner of the screen, if this memory is cleared, the **M2** will disappear.

  Examples:

  ⋆ To store 4π in **M1**, use:
  4 $\boxed{\times}$ $\boxed{\pi}$ $\boxed{\textsf{=}}$ $\boxed{\textsf{STO}}$ **1**; you will now have 12.56637061 stored in **M1**.

  ⋆ Then, to compute $(2.5^2 - 1)\sqrt{4\pi}$, you can use:
  2.5 $\boxed{\textsf{x}^2}$ $\boxed{-}$ **1** $\boxed{\textsf{=}}$ $\boxed{\times}$ $\boxed{\textsf{RCL}}$ **1** $\boxed{\sqrt{\textsf{x}}}$ $\boxed{\textsf{=}}$ 18.61076543

  ⋆ To clear out the value being stored in **M1**, use **0** $\boxed{\textsf{STO}}$ **1**.

Decimals, fractions, and mixed numbers

- To enter a fraction or a mixed number into the calculator, use the $\boxed{\textsf{a}^{\textsf{b/c}}}$ key.

- To toggle between a mixed number and an improper fraction, use $\boxed{\textsf{2nd}}$ $\overset{\textsf{d/c}}{\boxed{\textsf{a}^{\textsf{b/c}}}}$.

- To toggle between a decimal and a fraction (or mixed number), use $\boxed{\textsf{2nd}}$ $\overset{\textsf{F◂▸D}}{\boxed{\longleftarrow}}$.
  The calculator cannot convert every decimal to a fraction, and this only works if the denominator is less than 1000.

You do not need to use the $\boxed{\textsf{=}}$ key after any of those operations.

Examples:

  ⋆ To compute $\frac{1}{5} + 2\frac{1}{3}$, you can use: **1** $\boxed{\textsf{a}^{\textsf{b/c}}}$ **5** $\boxed{+}$ **2** $\boxed{\textsf{a}^{\textsf{b/c}}}$ **1** $\boxed{\textsf{a}^{\textsf{b/c}}}$ **3** $\boxed{\textsf{=}}$

  ⋆ To convert the result $2\frac{8}{15}$ to an improper fraction, use $\boxed{\textsf{2nd}}$ $\overset{\textsf{d/c}}{\boxed{\textsf{a}^{\textsf{b/c}}}}$.

  ⋆ To convert the result $\frac{38}{15}$ to decimal, use $\boxed{\textsf{2nd}}$ $\overset{\textsf{F◂▸D}}{\boxed{\longleftarrow}}$. Using $\boxed{\textsf{2nd}}$ $\overset{\textsf{F◂▸D}}{\boxed{\longleftarrow}}$ again will convert it back to a fraction.

Logarithms

- To find a natural logarithm (base e), use the ⎡LN⎤ key. No need to press ⎡=⎤ .
  Likewise, for common logarithms (base **10**), use ⎡LOG⎤ .
  The calculator will display an error if you try an illegal operation, like **ln(−2)**, or **log 0**.

    ⋆ To compute **log 89 – ln 7** use: **89** ⎡LOG⎤ ⎡−⎤ **7** ⎡LN⎤ ⎡=⎤ 0.003479858

Exponentials, Powers and Roots

- To compute the exponential e^x, use ⎡2nd⎤ ⎡LN⎤ (e^x) . You do not need to use ⎡=⎤ .

  Likewise, to find powers of 10, use ⎡2nd⎤ ⎡LOG⎤ (10^x) .

- To raise any base to a power, use the ⎡y^x⎤ key.
  The calculator will display an error if you try an illegal operation, like $(−2)^{1/3}$, or $0^{−2}$.

- To find any root of a number, use ⎡2nd⎤ ⎡y^x⎤ ($\sqrt[x]{y}$) . You must enter the radicand first.

Note that some powers and roots have a dedicated key:

$$x^2: \boxed{x^2} \ , \ x^3: \boxed{2nd} \ \boxed{1}^{(x^3)} \ , \ \sqrt{x}: \boxed{\sqrt{x}} \ , \ \sqrt[3]{x}: \boxed{2nd} \ \boxed{0}^{(\sqrt[3]{x})} \ , \ x^{-1}: \boxed{1/x}$$

Examples:

  ⋆ To compute $e^7 − 10^{3.04}$ use: **7** ⎡2nd⎤ ⎡LN⎤ (e^x) ⎡−⎤ **3.04** ⎡2nd⎤ ⎡LOG⎤ (10^x) ⎡=⎤ 0.154962285

  ⋆ 2^8 is entered using: **2** ⎡y^x⎤ **8** ⎡=⎤ 256

  ⋆ $(−3)^5$ is entered as: **3** ⎡+↺−⎤ ⎡y^x⎤ **5** ⎡=⎤ -243 or ⎡(⎤ ⎡−⎤ **3** ⎡)⎤ ⎡y^x⎤ **5** ⎡=⎤

  ⋆ $\sqrt[4]{5}$ is computed using: **5** ⎡2nd⎤ ⎡y^x⎤ ($\sqrt[x]{y}$) **4** ⎡=⎤ 1.495348781
  or with powers: **5** ⎡y^x⎤ ⎡(⎤ 1 ⎡÷⎤ 4 ⎡)⎤ ⎡=⎤ , or even as: **5** ⎡y^x⎤ 4 ⎡1/x⎤ ⎡=⎤

Other Hints

- You should only approximate when the directions in LonCapa say to do so. If the problem does not ask you to approximate, then you should enter the exact answer.

- When computing trigonometric function, most of the time you want your calculator set to radians. Press ⎡DRG⎤ until **RAD** appears on the screen. If you turn your calculator off and on, it will reset to **DEG**.

- The factorial function is on top of the **3**: ⎡3⎤ ($x!$) . To find **6!**=720, use: **6** ⎡2nd⎤ ⎡3⎤ ($x!$) .

- The ⎡←⎤ key allows you to delete the last number digit by digit, without having to reenter all of it again. For example, finding 249543540÷15577 we made a mistake entering the second number: **249543540** ⎡÷⎤ **11577** ⎡←⎤ ⎡←⎤ ⎡←⎤ ⎡←⎤ **5577** ⎡=⎤ 16020.