

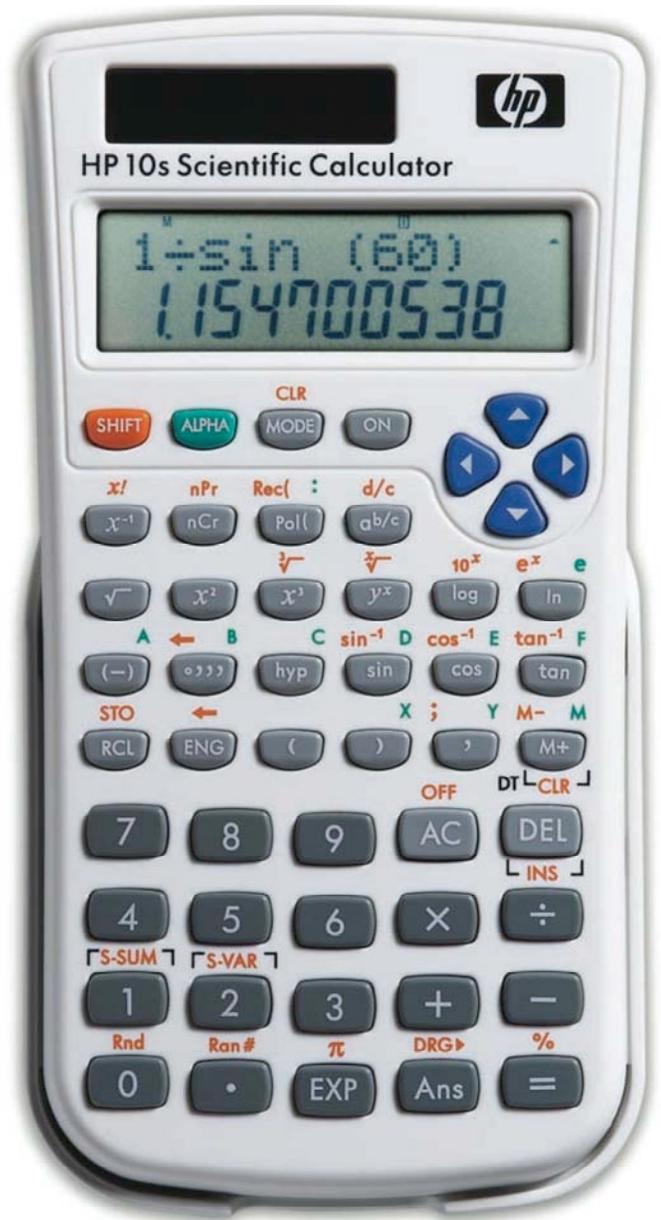


hp calculators

HP 10s Using Variables

The Variables

Practice using variables to Solve Problems



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HP 10s Using Variables

The variables

In addition to the special memory register (M) provided by the HP 10s, in which a number can be stored, there are an additional eight storage locations or variables that can be used in calculations. These are the variables A through F and X and Y.

These variables can be cleared individually by storing a 0 into them ($\text{0} \text{ [SHIFT] [STO] } \underline{\text{C}}$) or by clearing all memories at once ([SHIFT] [CLR] [1]).

Many of these variables have special uses and are not always available for general use, but in some circumstances they can be used to help solve problems.

The list below indicates the variables and any special purposes for which they are used.

<u>Variable</u>	<u>Special use</u>
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A through D	Used in standard deviation and regression modes to hold intermediate and computed values.
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E	Variable E is used by the polar / rectangular conversion functions. E contains a computed x value when the rectangular function is used, and a computed r value when the polar function is used.
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F	Variable F is used by the polar / rectangular conversion functions. F contains a computed y value when the rectangular function is used, and a computed theta value when the polar function is used.
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X and Y	Used in standard deviation and regression modes to hold intermediate and computed values.
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Practice using variables to solve problems

Example 1: Calculate the following operations, and find the sum of the first, second and fourth results. Save the intermediate answers in variables A, B, C, and D: $35 \times \ln 5$, -2×8^5 , $\sqrt[3]{34}$ and $\frac{31}{13^{-3.5}}$

Solution: Press:

$\text{3} \text{ [5]} \text{ [x]} \text{ [ln]} \text{ [5]} \text{ [=]} \text{ [SHIFT] [STO] } \underline{\text{A}}$
 $\text{[-]} \text{ [2]} \text{ [x]} \text{ [8]} \text{ [y^x] [5]} \text{ [=]} \text{ [SHIFT] [STO] } \underline{\text{B}}$
 $\text{[SHIFT] [√]} \text{ [3]} \text{ [4]} \text{ [=]} \text{ [SHIFT] [STO] } \underline{\text{C}}$
 $\text{3} \text{ [1]} \text{ [÷]} \text{ [1]} \text{ [3]} \text{ [y^x] [-]} \text{ [3]} \text{ [·]} \text{ [5]} \text{ [=]} \text{ [SHIFT] [STO] } \underline{\text{D}}$

Press $\text{0} \text{ [+]} \text{ [RCL] } \underline{\text{A}} \text{ [+]} \text{ [RCL] } \underline{\text{B}} \text{ [+]} \text{ [RCL] } \underline{\text{D}} \text{ [=]}$ to display the sum.

Answers: Rounded to two decimal places, the results are 56.33, -65536, 3.24 and 245563.28, respectively. The sum requested is 180083.61

Example 2: Calculate $\frac{(3.1267 + 34^2)^{-3.1267}}{3.1267 + \ln \sqrt{3.1267}}$

Solution: Since 3.1267 appears four times in this expression, we will store it in memory:

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$\boxed{3} \cdot \boxed{1267} \xrightarrow{\text{SHIFT STO}} \text{B}$

which will save us quite a few keystrokes:

$\xrightarrow{\text{RCL}} \text{B} + \boxed{34} \xrightarrow{x^2} = \xrightarrow{y^x} (-) \xrightarrow{\text{RCL}} \text{B}$
 $\div \boxed{(\text{RCL}} \text{B} + \boxed{\ln} \sqrt{\text{RCL}} \text{B} =$

Answer: $7.105079822 \cdot 10^{-11}$

Example 3: Convert the rectangular coordinates (-7.5,13) into polar coordinates.

Solution: The function that we need to use in this example is $\boxed{\text{Pol}}$, which converts the pair of rectangular coordinates (x,y) into the polar coordinates (r, θ).

$\boxed{\text{Pol}} \boxed{(-)} \boxed{7} \cdot \boxed{5} \boxed{,} \boxed{1} \boxed{3} \boxed{)} =$

r is displayed. To view the value of θ simply press $\boxed{\text{RCL}} \text{F}$. Note that θ is expressed in the current angle unit. If you need to view r again, press $\boxed{\text{RCL}} \text{E}$.

Answer: Rounding to four decimal digits, $r = 15.0083$ and $\theta = 119.9816^\circ$