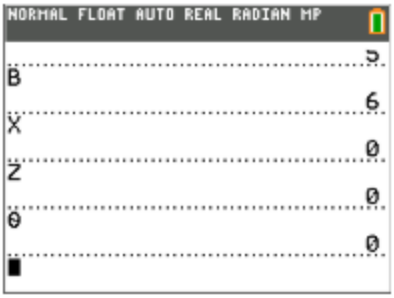
Unit 2: Using Variables and Expressions | **Skill Builder 1: Prompting for a variable**

In the first lesson for Unit 2 you will learn about the **Prompt** statement to make your programs interactive, using variables to hold numeric values, evaluating and storing results of mathematical expressions, and using **Disp** and **Output** statements to show the results of stored computations.

Objectives:

- Use the TI Basic **Prompt** statement to assign a value to a variable.
- Know the difference between mathematical variables and computer variables.
- Perform calculations within **Disp** statements.
- Use **Output** statements to produce meaningful, readable results.

Real Variables

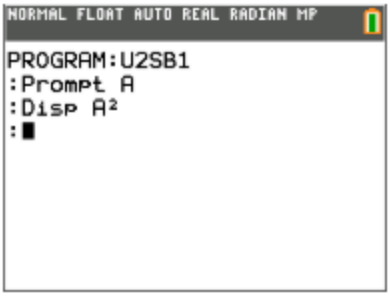


- The TI-84 Plus has 27 built-in variables that are used to store numeric values.
- The values can be *real* (decimal) numbers or *complex* numbers.
- The variable names are the letters **A** through **Z** and the letter **θ** ('theta').
- All variables contain a value. If a value is not assigned then the default value is 0 (zero).
- The values remain stored even when the calculator is turned off.
- If RAM is reset then all the values are set to 0.
- The HOME screen at the right shows some variables (on the left) and their *current* values (on the right). Yours may differ.

The Prompt Statement

- The **Prompt** statement is followed by one or more variable names that ask the user to enter a value for a variable.
- It is called '**Prompt**' because when you run the program, it displays the name of the variable and a question mark.

Programming with Prompt



1. Start a new program.
2. For first statement of the program use the **Prompt** statement found in the [PRGM] I/O menu.
3. After the **Prompt** command type the name of the variable you want your program to use. In this program we will use the letter **A**.
4. Use the **Disp** statement to display the square $\mathbf{A}^2$; type **A** then the [x^2] key.
5. Quit the editor and run the program.
6. After the "A=?" prompt, type any number.
7. The program displays the square of that number and ends.

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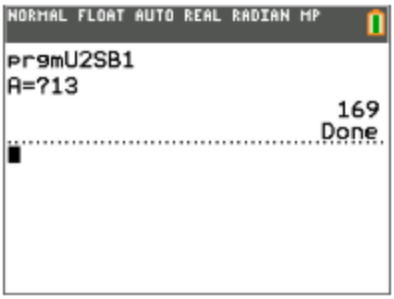
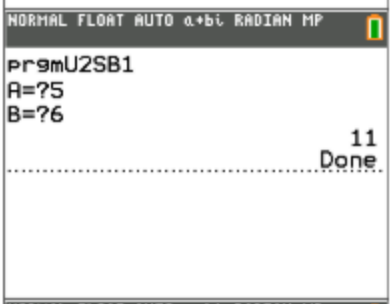


Entering Multiple Values with Prompt

1. Edit the program from above.
2. Add **,B** to the **Prompt** statement.
3. Change the **Disp** statement so that it displays the sum **A+B**
4. Run the program again.

Notice the two prompts? The **Prompt** statement asks for a value for each variable separately.



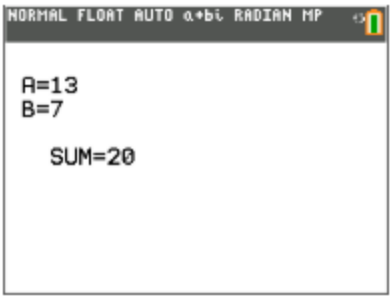
This is a very simple, efficient program requiring only two statements, but these two statements are doing a lot of work!

Using Output(Instead of Disp

Recall that you can improve the output of programs using **Output(** rather than **Disp** to show the original values entered *and* the results *properly labeled.* Just put the calculation right in the Output statement. You try it.

Example: **Output(5,7,A+B)** show the value of A+B on line 5 beginning in column 7.

- To the right are two screens of a running program, one showing the **Prompt** section and one showing the **Output** section. Can you do better?
- Remember to include **Pause** and **ClrHome** statements at the right moments in the program to keep the screen neat.



You cannot output two items with one **Output** statement. The message "SUM=" and the sum **A+B** must be output using separate statements. Screen position is important!

Note: you'll find the "=" ('equals' sign) on the Test menu (2nd MATH).