



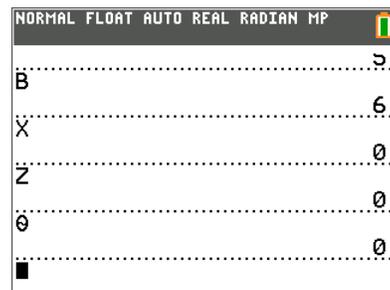
In the first lesson for Unit 2 you will learn about the **Prompt** statement to make your programs interactive, using variables to hold numeric values, evaluating and storing results of mathematical expressions, and using **Disp** and **Output** statements to show the results of stored computations.

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.



Teacher Tip: There are many types of variables in a TI-84 Plus. Among them are real and complex, lists, matrices, Y-vars (the graphing functions of all types) programs, apps, appvars, strings, pictures (PICs), and on the TI-84 Plus CE, background Images. This lesson deals only with the *real* variables (which can also store *complex* values). For the list of variable types look at the Mem Mgmt/Del section of the [MEM] menu.

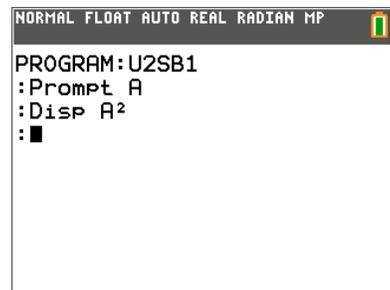
The Prompt Statement

- 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 **A²**; type **A** then the x^2 key.
5. Quit the editor and run the program.
6. After the "A=?" prompt, type any number.





10 Minutes of Code

TI-84 PLUS FAMILY

- The program displays the square of that number and ends.

Entering Multiple Values with Prompt

- Edit the program from above.
- Add **,B** to the **Prompt** statement.
- Change the **Disp** statement so that it displays the sum **A+B**
- 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**).

UNIT 2: SKILL BUILDER 1

TEACHER NOTES

```
NORMAL FLOAT AUTO REAL RDIAN MP
prgmU2SB1
A=?13
169
Done
```

```
NORMAL FLOAT AUTO a+b RADIAN MP
PROGRAM:U2SB1
:Prompt A,B
:Disp A+B
:
```

```
NORMAL FLOAT AUTO a+b RADIAN MP
prgmU2SB1
A=?5
B=?6
11
Done
```

```
NORMAL FLOAT AUTO a+b RADIAN MP
prgmSDPQ
A=?13
B=?7
```

```
NORMAL FLOAT AUTO a+b RADIAN MP
A=13
B=7
SUM=20
```



Teacher Tip: Suggest trying other mathematical expressions in the **Disp** statement. We'll get into storing (assigning) values to variables later in this unit (see Unit 2, Skill Builder 3).

Remember that the TI-84 Plus (non-color) screen has 16 characters per line and 8 lines, so the choice of Output positions may vary. The TI-84 Plus C and CE (color) screens have 26 characters per line and 10 lines.