

**Unit 1: Program Basics**

**Skill Builder 2: Arguments and Expressions**

In this second lesson for Unit 1, you will learn about sending arguments into a program and displaying results of expressions.

**Objectives:**

- Use arguments in a program
- Use expressions in **Disp** statements

**Why does a program name have parentheses?**

The parentheses after a program name are always required, and they allow a program to accept *arguments* or *initial values*. There are two forms of arguments: the *formal* arguments which are always variables within the parentheses when viewing the Program Editor and the *actual* arguments which are values, defined variables, or expressions that are entered into the parentheses when running the program on the Calculator app.

Define **hypotenuse(a, b)**

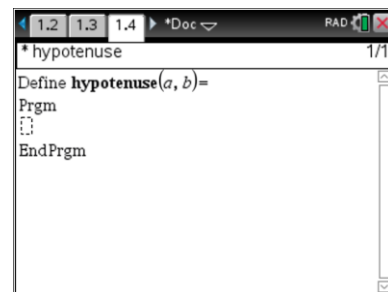
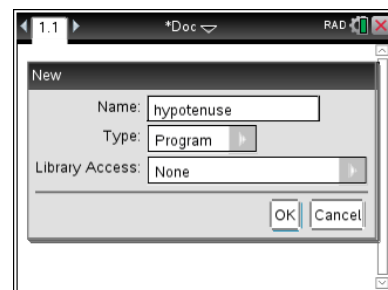
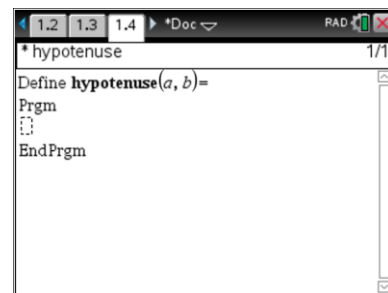
*a* and *b* are formal arguments (or parameters) that will receive values when the program runs.

Let's write a program that uses arguments to compute the length of the hypotenuse of a right triangle.

1. If you are continuing work in a document, you can insert a page by pressing **ctrl+doc**, and selecting **Add Program Editor > New....**

Alternatively, start a new document by pressing , and selecting **New Document**. Select **Add Program Editor > New....**

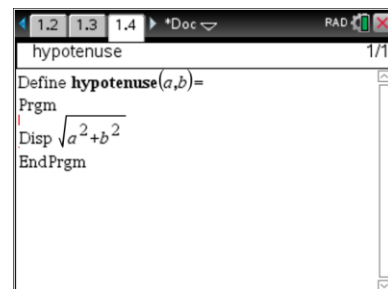
2. Name the program **hypotenuse**, and select **OK** or press **enter**.
3. In the Program Editor, press the up arrow to move inside the parentheses after the program name. Type the formal arguments **a, b** (note the comma) inside the parentheses. Then, move the cursor into the **Prgm...EndPrgm** block by pressing the down arrow.



**The Code**

In this program, one statement is used to display the value of the hypotenuse of a right triangle whose leg lengths are the arguments to the program.

4. Enter **Disp  $\sqrt{a^2 + b^2}$**  by selecting **menu > I/O > Disp** and then typing the expression.
5. 'Check Syntax & Store' the program by selecting **menu > Check Syntax & Store > Check Syntax & Store** (or use the shortcut **ctrl+B**).



### Run the Program

6. Press **ctrl+R** to prepare to run the program. *Before pressing enter*, type two values separated by a comma inside the parentheses provided. These values are used by the arguments  $a$  and  $b$  in the program. Then press **enter**. Be sure to use values for which you know the answer to test that the program is working properly.

You can also use expressions in place of numbers, such as:

**hypotenuse(2\*7, 9-5)**

7. To run the program again, press **var**, and select the program name. Type two values, and press **enter**. Alternatively, arrow up to highlight the program name and the values in parentheses, press **enter** to paste to the command line, edit the values in the parentheses, and press **enter** to run the program.
8. Test your program thoroughly with various values as arguments. Do any values cause errors?
9. Save your document by pressing **ctrl+S**.

