

Here's how we do it:

1. Switch to RUN mode.
2. Press **GTO** **A** to return the pointer to **LBL** **A**.
3. Switch back to W/PRGM mode.
4. Press **SST** once to position the pointer at the step being deleted. The display should show code 03.
5. Press **9** **DEL** to delete the unwanted step. You should see keycode 11 displayed.
6. Press **2** to insert the new step.
7. Press **SST** nine times to position the pointer at the second of the two consecutive steps to be deleted. The display should show keycode 81.
8. Press **9** **DEL** to delete the \div key. The pointer backs up to display 03.
9. Press **9** **DEL** to delete the **3** key. The display should show keycode 71.
10. Now switch back to RUN mode to run the program.

Run the program by keying in a value for r and pressing **A**.

Example. Calculate the area of a sphere with $r = 25$.

Press **See Displayed**

25 **A** **7853.98**

For additional practice, try changing this program back again so that it calculates the volume of a sphere.

Branching

Although program execution is normally sequential, with one step executed after another, the calculator has the ability to jump (branch) to any labelled section of a program and continue execution there.

Labels

A label consists of the **LBL** key and a digit key (**0** thru **9**) or a program control key (**A** thru **E**). Any or all of these 15 unique labels can be used in a program, although only program control key labels (**LBL** **A** thru **LBL** **E**) can mark a section of program that can subsequently be executed directly from the keyboard.

Direct Branching

A direct branch in a program consists of the **GTO** key and a digit key (**0** thru **9**) or a program control key (**A** thru **E**). Each such direct branch should be paired with a corresponding label somewhere within the program. If there is no corresponding label, the calculator will continue execution at the top of memory. When the calculator executes a direct branch, the program pointer searches downward in memory for the label from the **GTO**, not from the top of memory. Program execution continues at the corresponding label. For example, **GTO** **3** branches the program pointer to **LBL** **3** and program execution continues there. Remember that **GTO** **3** produces the same result from the keyboard, except that program execution does not continue.

Writing a Program with a Direct Branch. Direct branching is commonly used when two or several functions have a common section. Let's write a program to illustrate this. Suppose you needed to write programs for two similar equations:

$$y = \frac{\sin x}{3(\sin x)^2 + 2} \qquad y = \frac{\cos x}{3(\cos x)^2 + 2}$$

You could, easily enough, write a separate program for each and control one with the **A** key and the other with the **B** key.