Unit 3: Conditional Statements | **Skill Builder 1: Conditions and the If… Statement**

In this first lesson for Unit 3 you will learn about conditions and the introduction to the **If** statements available in TI Basic.

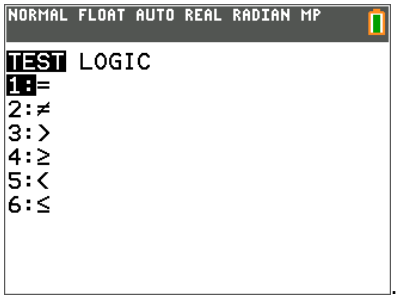
Objectives:

- Learn about conditions.
- Use the 'simple' **If**… statement to conditionally process another statement.

If…Then statements are used to process a block of statements only when a *condition* is true or false. Before visiting the **If…Then** collection of statements, let's get an idea of just what a *condition* is.

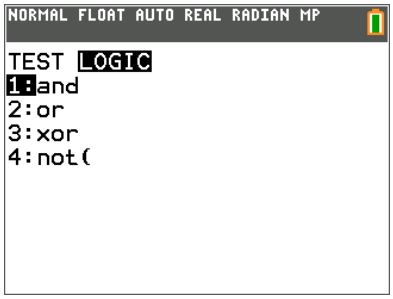
Conditions and the [TEST] Menu

Conditions are expressions that evaluate to 'true' or 'false'. Such expressions are either true or false; they cannot be both or neither. The relational operators and the logical operators are both found on the [TEST] menu ([2nd] [MATH]).The TEST menu contains the **relational operators.** The LOGIC menu contains the **logical operators.** The **=** sign is used to form a condition, not an assignment.



Examples of some conditions:

3>5 **XY>0** **X=5 or Y=5**
X+4>X **B^2-4AC=0** **X/2=int(X/2)**
XøY **X>0 and Y>0** **not(X>0)**

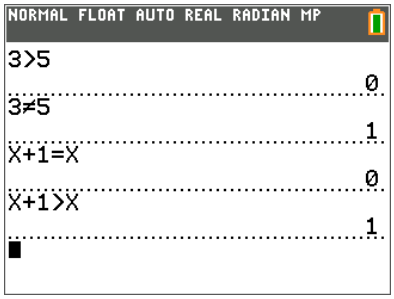


Conditions on the HOME Screen

You can enter conditions right on the HOME screen to see how they are computed.

Observe that 1 stands for *true* and 0 stands for *false.*

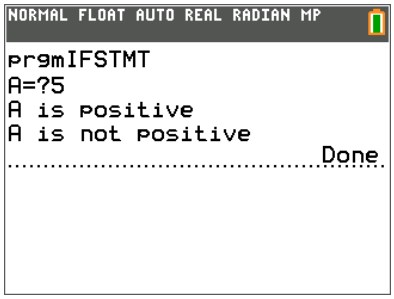
Note: when you use a variable in a condition the calculator evaluates it using the current value stored in the variable.



Programming with the 'Simple' If… Statement

Try this program:

:Prompt A
:If A>0 [**If** is in the [PRGM] CTL menu. **'>'** is in the [TEST] menu]
:Disp "A IS POSITIVE"
:Disp "A IS NOT POSITIVE"



Run the program several times entering both positive and non-positive numbers and observe the output. What can you learn?

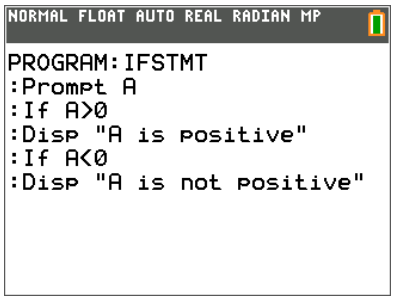
When the condition A>0 is true, the statement that follows **If** is executed, otherwise it is simply skipped. But the statement that displays "A IS NOT POSITIVE" is always executed, which is not correct! See the screen at the right. We'll fix this soon.

This 'simple' **If…** is a concise way of skipping **one** statement based on a condition (when it is FALSE).

Editing the If… Statement

Let's correct the program above by adding another **If…**

1. Place the cursor on the second **Disp.**
2. Press ï and press [ENTER] to insert a blank line.
3. On that blank line add **If A<0.**



Quit and run the program several times using both positive and negative numbers and 0, too!

Does your program work correctly in all cases? If, not, try to fix the problem.