

## TI Technology Guide for Humidity makes air feel even hotter

### TI-83 Plus and TI-84 Plus Families

(There is mention of the TI-73 family in the SE/TE activity)

#### Storing Numbers as Variables, Using Scientific Notation, and Evaluating Formulas

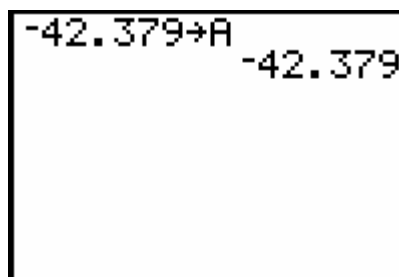
##### Storing Numbers as Variables

The formula to calculate the Apparent Temperature is long and cumbersome. Storing values as variables will simplify the use of the formula for repeated calculations. Press

$\boxed{2\text{nd}}\boxed{[\text{QUIT}]}$  to return to the home screen and to clear the home screen press  $\boxed{[\text{CLEAR}]}$ .

Press  $\boxed{(-)}\boxed{42.379}\boxed{[\text{STO}]\blacktriangleright}\boxed{[\text{ALPHA}]\text{A}}\boxed{[\text{ENTER}]}$

Continue this procedure for the values given for the letters B through D.



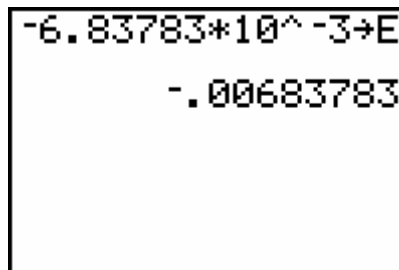
The calculator screen displays the input  $-42.379 \rightarrow A$  and the result  $-42.379$ .

##### Using scientific notation

The remaining values are written in scientific notation and may be entered by different methods. The first method will use the  $\boxed{[ ]}$  key to show that a number is written in exponential form.

While on a blank home screen press

$\boxed{[-]}\boxed{6.83783}\boxed{[\times]}\boxed{10}\boxed{[ ]}\boxed{(-)}\boxed{3}\boxed{[\text{STO}]\blacktriangleright}\boxed{[\text{ALPHA}]\text{E}}\boxed{[\text{ENTER}]}$

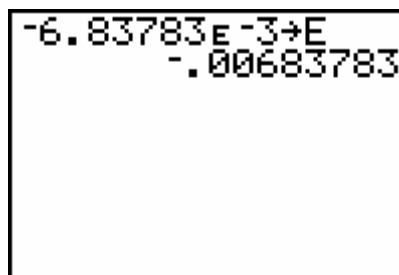


The calculator screen displays the input  $-6.83783 * 10^{-3} \rightarrow E$  and the result  $-.00683783$ .

A second way to enter a number in scientific notation is as follows. While on the home screen press  $\boxed{[\text{CLEAR}]}$ .

Press  $\boxed{(-)}\boxed{6.83783}\boxed{2\text{nd}}\boxed{[EE]}\boxed{(-)}\boxed{3}\boxed{[\text{STO}]\blacktriangleright}\boxed{[\text{ALPHA}]\text{E}}\boxed{[\text{ENTER}]}$

Continue using either procedure for the remaining values given for letters F through I.

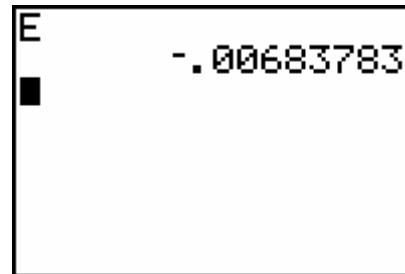


The calculator screen displays the input  $-6.83783E^{-3} \rightarrow E$  and the result  $-.00683783$ .

## TI Technology Guide for Humidity makes air feel even hotter

### TI-83 Plus and TI-84 Plus Families

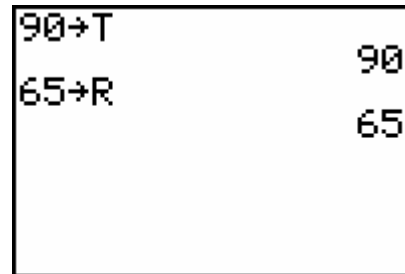
To display the value of a variable, enter the variable on a blank line on the home screen and press **ENTER**.



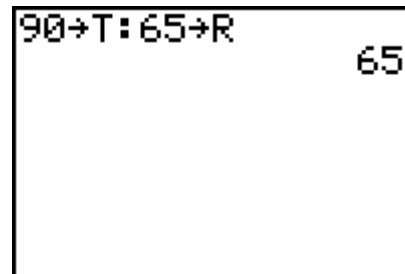
Store the air temperature as T and the relative humidity as R.

Enter 90 **STO** **ALPHA** T **ENTER**

Enter 65 **STO** **ALPHA** R **ENTER**



Another way to enter these two values is by pressing 90 **STO** **ALPHA** T **2nd** [:] 65 **STO** **ALPHA** R **ENTER**

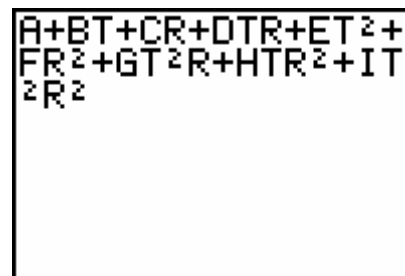


Both values are saved to the appropriate variable at the same time.

### **Evaluating Formulas**

Now enter the formula to calculate the heat index, which is also referred to as the apparent temperature, on the home screen. Press **ALPHA** A **+** **ALPHA** B **ALPHA** T **+** **ALPHA** C **ALPHA** R **+** **ALPHA** D **ALPHA** T **ALPHA** R **+** **ALPHA** E **ALPHA** T **x<sup>2</sup>** **+** ...finish the remaining parts of the heat index formula.

Press **ENTER** to evaluate the Heat Index for an air temperature of 90°F and relative humidity of 65%.



## TI Technology Guide for Humidity makes air feel even hotter

### TI-83 Plus and TI-84 Plus Families

You can recall the last entry, which is the formula for the heat index, if given different temperature and relative humidity. Store the new values for T and R on the home screen.

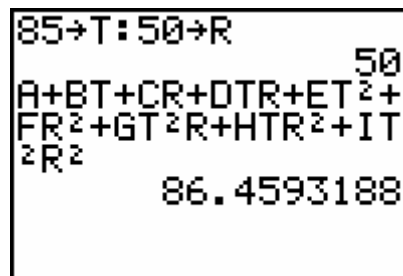
Press  $\boxed{2nd}$   $\boxed{ENTER}$  and continue pressing  $\boxed{2nd}$   $\boxed{ENTER}$  until the last entry, the formula you used earlier, appears on the home screen.

Press  $\boxed{ENTER}$  to evaluate for the new T and R values.

Remember that once a value is stored as a variable the value is assigned to that variable until it is changed.



85→T:50→R  
50  
A+BT+CR+DTR+ET<sup>2</sup>+  
FR<sup>2</sup>+GT<sup>2</sup>R+HTR<sup>2</sup>+IT<sup>2</sup>R<sup>2</sup>■



85→T:50→R  
50  
A+BT+CR+DTR+ET<sup>2</sup>+  
FR<sup>2</sup>+GT<sup>2</sup>R+HTR<sup>2</sup>+IT<sup>2</sup>R<sup>2</sup>  
86.4593188