






# Statistics Calculations Menu ( SUM )



The SUM menu does calculations using a series of samples stored in a list of values and frequencies. The list can be entered or edited directly in the calculator or using the **List Editor View**. The list itself is different from the original HP-19BII, because it has a frequency entry for each data value. By default, the frequency of each data sample is set to 1, but you can enter any positive integer up to 999.

Once a list is entered, it can be named and saved for further use.

SUM Menu Buttons	
	Shows the list calculation menu to perform many statistical calculations: summaries, correlation, curve fitting, forecasting, etc.
	Shows the <b>List Editor View</b> to create a new list (the current list in memory will be lost).
	Shows the <b>List Editor View</b> to edit the current list.
	Shows a table view to Load a previously saved list.
	Saves the current list asking for a name for it.

# List Editor View

#	Value	Freq.
#1	1,400.00	1
#2	920.00	1
#3	1,100.00	1
#4	2,265.00	1
#5	2,890.00	1
#6	2,200.00	1

Carrier 6:46 AM

**Add** 7 8 9 ←

**Delete** 4 5 6 +/-

**Insert** 1 2 3 E

**Clear** 0 • **INPUT**

**Cancel** **Done**

Data sample value.

Data value frequency.

Data item index.

Selected data sample.

Add a new data sample at the end of the list.

Remove the current selected data sample.

Inserts a new data entry at selected index.

Clears to zero the current selected data item.

Enters the current edited value into the list.

Close the view and discard all changes.

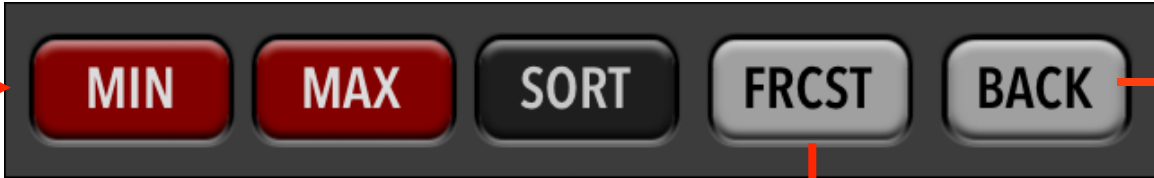
Enters the list and close the editor view.

# CALC Menu

SUM-CALC primary menu



SUM-CALC secondary menu



FRSC- primary menu



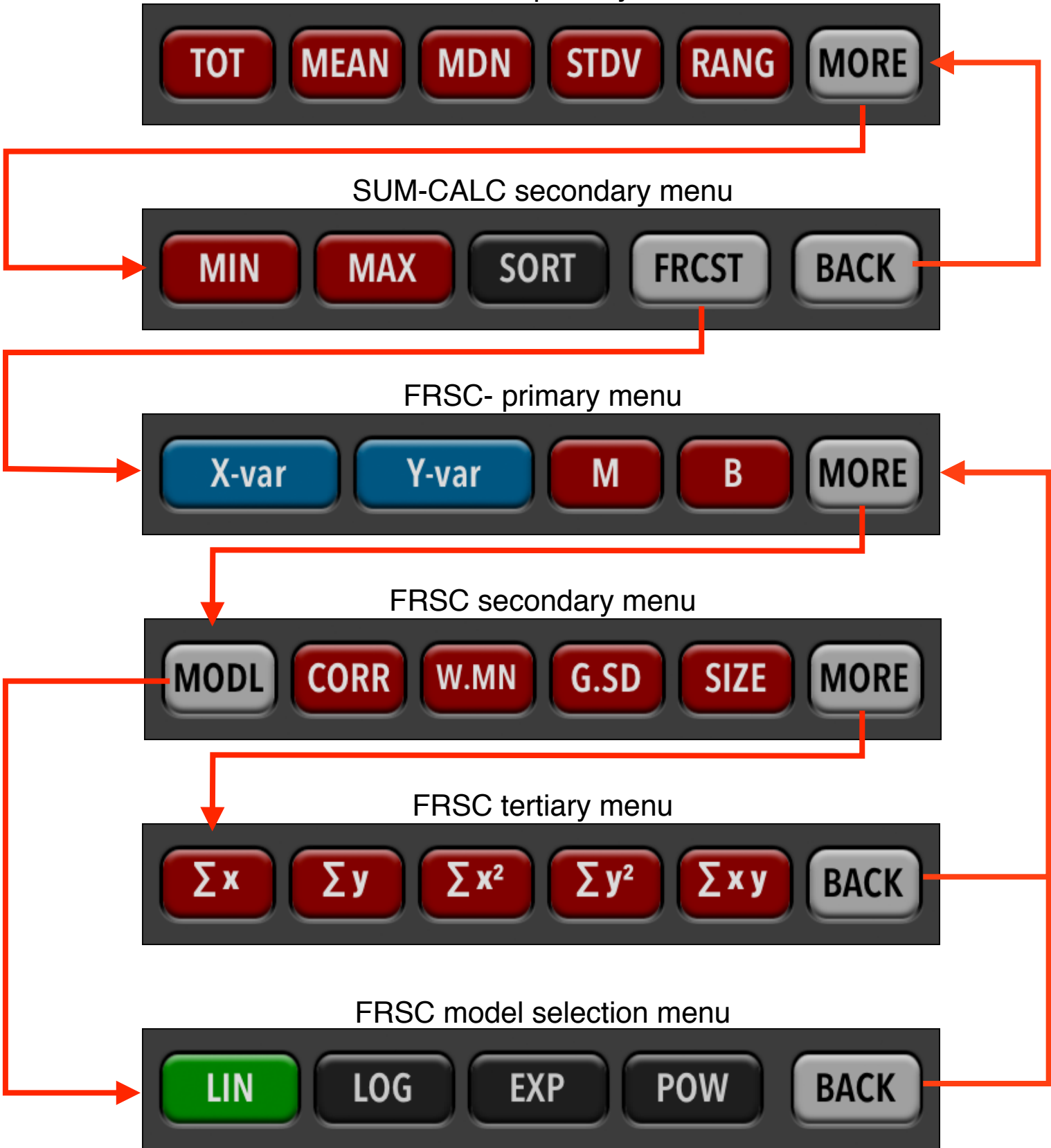
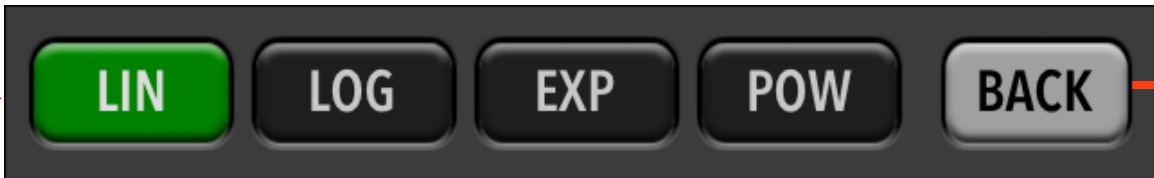
FRSC secondary menu














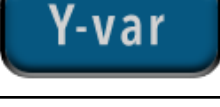

FRSC tertiary menu

















FRSC model selection menu



## SUM - CALC Menu Buttons

	Calculates the Total sum of the current data list.
	Calculates the arithmetic Mean of the current data list.
	Calculates the Median of the current data list.
	Calculates the Standard Deviation of the current data list.
	Calculates the Range (Max - Min) of the current data list.
	Calculates the Minimum value in the current data list.
	Calculates the Maximum value in the current data list.
	Sorts the current data list in ascending order.
	Shows the Curve Fitting and Forecasting menu. First shows a list to assign a previously saved data list to the X and Y variables.
	Stores or calculates the X-var value. When is calculated, the selected regression model is used.
	Stores or calculates the Y-var value. When is calculated, the selected regression model is used.
	Calculates the “M” parameter of selected regression model.
	Calculates the “B” parameter of selected regression model.

## SUM - CALC Menu Buttons

	Shows the regression model selection menu.
	Calculates the Correlation coefficient of the selected regression model.
	Calculates the Weighted Mean of the X-values using the Y-values as weights (or frequencies).
	Calculates the Standard Deviation of the X-values occurring with the specified Y-values frequencies.
	Calculates the number of items in each list
	Calculates the sum total of the X values.
	Calculates the sum total of the Y values.
	Calculates the sum of the squares of the X values.
	Calculates the sum of the squares of the Y values.
	Calculates the sum of the products of the X and Y values.
	Sets the Linear regression model: $Y = B + M \cdot X$
	Sets the Logarithmic regression model: $Y = B + M \cdot \ln(X)$
	Sets the Exponential regression model: $Y = B \cdot e^{M \cdot X}$
	Sets the Power regression model: $Y = B \cdot X^M$



### Example: Curve Fitting.








RLM advertises on a local radio station. For the past six weeks, the manager has kept records of the number of minutes of advertising that were purchased, and the sales for that week. The data is as follows:















Week	Minutes	Sales
1	2	\$1,400
2	1	\$920
3	3	\$1,100
4	5	\$2,265
5	5	\$2,890
6	4	\$2,200

RLM wants to know whether there is a linear relationship between the amount of radio advertising and the weekly sales. If a strong relationship exists, what amount of sales should be expected for a 7 minutes of advertising?, and to have \$3,000 in sales, how many minutes should advertise?.











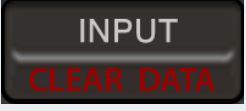
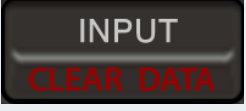









### Solution:

First,   and input the “minutes” list using whether “Input” key the list editor view:









	Using “Input” key	Using List Editor
2	 	  2
1	 	 1

Using "Input" key		Using List Editor	
3	 	 3	
5	 	 5	
5	 	 5	
4		 4  	
Touch  and Type "Minutes" and save the list.			

Second,   and input the "sales" list:

Using "Input" key		Using List Editor	
1400	 	  1400	
920	 	 920	
1100	 	 1100	
2265	 	 2265	
2890	 	 2890	
2200		 2200  	
Touch  and Type "Sales" and save the list.			

Now, proceed to calculations...

Keystroke	Description
	Shows the CALC secondary menu.
	Touch FRCST to enter in the Forecasting primary menu. Select the “Minutes” list for the X-variable and the “Sales” list for the Y-variable.
<p style="text-align: center;">Now the FRCST primary menu should look like this:</p> 	
	Shows the FRCST secondary menu.
	Shows the regression model selection menu.
	Select the Linear Model because has the best $R^2$ factor.
<p>7</p> 	Stores the number of minutes to forecast sales. <b>minutes = 7.00</b>
	Calculates the forecasted expected sales. <b>sales = 3,357.38</b>