Correlation Calculations on the TI-84

Definition of correlation:

\[ r = \frac{1}{n - 1} \sum_{i=1}^{n} \left( \frac{x_i - \bar{x}}{s_x} \right) \left( \frac{y_i - \bar{y}}{s_y} \right) \]

Alternate formula for correlation:

\[ r = (n - 1)^{-1} s_x^{-1} s_y^{-1} \left( \sum_{i=1}^{n} x_i y_i - n \bar{x} \bar{y} \right) \]

Suppose the x-data is in L1, and the y-data is in L2. To compute the correlation using the alternate formula, first run the “2-Var Stats” command on the TI-84:

2-Var Stats L1,L2

Then input the formula, using the “Statistics..” menu under the “Vars” key to get the variables you need:

\[(n-1)^{-1} * S_x^{-1} * S_y^{-1} * (\sum xy - n\bar{x}\bar{y})\]

(Note: the \( \sum xy \) variable is under the “∑” submenu of the “Statistics..” menu.)

Press “Enter” now, and the correlation coefficient \( r \) will be calculated!