




(X,Y) List Statistics Menu



This menu extends the calculator functionality to perform basic statistical calculations over a previously created list, which must be in the form of : sample “X” value and sample “Y” value (a “(X,Y) List”).

<p>[ List ▶]</p> <p> New</p> <p> Edit</p> <p>> Load</p>	<p>Statistics action menu.</p> <p>Shows the “(X,Y) List Editor” to create a new list.</p> <p>Shows the Editor to edit the current selected list.</p> <p>Shows a menu to load an existing “X,Y List”.</p>
[Curve Fitting]	Opens the “ Curve Fitting ” menu.
[Mean]	Calculates the average of the current list.
[St.Dev]	Calculates the standard deviation of the current list.
[Median]	Calculates the median of the current list.
[W.Mean]	Calculates the weighted mean of “X” values with “Y” weights.
[n]	Shows the number samples of the current list.
[Σx]	Calculates the sum of the “X” values.
[Σy]	Calculates the sum of the “Y” values.
[Σx²]	Calculates the sum of the squares of the “X” values.
[Σy²]	Calculates the sum of the squares of the “Y” values.
[Σxy]	Calculates the sum of the product of the “X” and “Y” values.



Example:



For the last six weeks the following data was collected: minutes of advertising purchased in local radio and the corresponding total sales:

Week	Minutes	Sales
1	2	1,400.00
2	1	920.00
3	3	1,100.00
4	5	2,265.00
5	6	2,890.00
6	4	2,200.00

Use the “[\(X,Y\) List Editor](#)” to create the “Minutes-Sales” lists using the above data. Then, calculate all the statistical values included in this menu.

Solution: X,Y-List Creation

[ List ►]  New	Show the “(X,Y) List Editor” to create a new List.
[Add] Type 2 in “X” value [Enter] 1400 in “Y” value [Enter]	Enters the X_1 , Y_1 values.
[Add] Type 1 in “X” value [Enter] 920 in “Y” value [Enter]	Enters the X_2 , Y_2 values.
[Add] Type 3 in “X” value [Enter] 1100 in “Y” value [Enter]	Enters the X_3 , Y_3 values.
[Add] Type 5 in “X” value [Enter] 2265 in “Y” value [Enter]	Enters the X_4 , Y_4 values.
[Add] Type 6 in “X” value [Enter] 2890 in “Y” value [Enter]	Enters the X_5 , Y_5 values.

<p>[Add] Type 4 in “X” value [Enter] 2200 in “Y” value [Enter]</p>	Enters the X_6, Y_6 value.
<p>[ List ►]  Name...</p>	Shows a Name entry form to name the list.
<p>Type “Minutes-Sales” and [Done]</p>	Name the list “Minutes-Sales”
<p>[Save]</p>	Save the list and close the editor view.

Solution: Statistics calculations

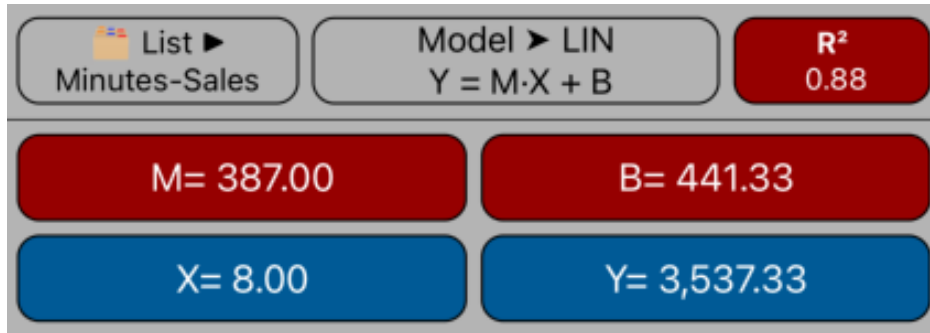
[Mean]	Calculates the mean of the list. X-mean = 3.50 Y-mean = 1,795.83
[St.Dev]	Calculates the standard deviation of the list. X-std = 1.87 Y-std = 773.13
[Median]	Calculates the median of the list. X-median = 3.50 Y-median = 1,800.00
[Min.]	Calculates the lowest values of the list. X-min = 1.00 Y-min = 920.00
[Max.]	Calculates the highest values of the list. X-max = 6.00 Y-max = 2,890.00
[W.Mean]	Calculates the Weighted Mean of the list. W.Mean = 4.13
[Σx]	Calculates the Total of X values. $\Sigma x = 21.00$
[Σy]	Calculates the Total of Y values. $\Sigma y = 10,775.00$
[Σx^2]	Calculates the sum of squares of X values. $\Sigma x^2 = 91.00$
[Σy^2]	Calculates the sum of squares of Y values. $\Sigma y^2 = 22,338,725.00$
[$\Sigma x \cdot y$]	Calculates the Total of X times Y values. $\Sigma xy = 44,485.00$

With the above list:

1. What regression model best fits the data ?
2. With best model, what is the estimated Sales for 8 minutes advertising?
3. How many Minutes are estimated to obtain \$3,000 sales?

Solution:

Touch the **[Curve Fitting]** button to show the “[Curve Fitting](#)” menu.



The menu opens with the default “Linear” regression model calculated with the current X,Y-List (“Minutes-Sales”)

Now we can answer the questions:

[Model ▶] Best Fit	1) Compares the fitting correlation coefficient (R^2) for all the available models and pick the best one (closer to 1). Result: “ Linear ” model with the equation $Y = M \cdot X + B$
8 [X][Y]	2) Enter the 8 minutes advertising and calculates the estimated sales. Result -> Y = 3,537.33
3000 [Y][X]	3) Enters the \$3,000 required sales and calculates the estimated minutes of advertising. Result-> X = 6.61