





# Two (X,N) Lists Curve Fitting Worksheet

 <b>X-List ▶</b> Minutes	 <b>Y-List ▶</b> Sales	<b>Model ▶ LIN</b> $Y = M \cdot X + B$
<b>M</b> 387.00	<b>B</b> 441.33	<b>R<sup>2</sup></b> 0.94
<b>X: Minutes</b> 6.61		<b>Y: Sales</b> 3,000.00

This menu allows you to perform curve-fitting regressions with two previously created lists, which must be in the form of : sample value and its frequency ( a “(X,N) List”).



[  <b>X-List ▶</b> ]	Select a previously created (X,N) List for the ‘X’ variable.
[  <b>Y-List ▶</b> ]	Select a previously created (X,N) List for the ‘Y’ variable.
[ <b>Model ▶</b> ]	Select the regression model to use (Linear, Logarithmic, Exponential, Power, Exponent or Inverse) or find the model that best fit the data.
[ <b>M</b> ]	Calculates the ‘M’ coefficient for the selected regression model.
[ <b>B</b> ]	Calculates the ‘B’ coefficient for the selected regression model.
[ <b>R<sup>2</sup></b> ]	Calculates correlation coefficient for the selected regression model.
[ <b>X</b> ]	Stores the ‘X’ value or calculates it for a given ‘Y’ value using the current regression model.
[ <b>Y</b> ]	Stores the ‘Y’ value or calculates it for a given ‘X’ value using the current regression model.
If any other key is pressed before one of the <b>Blue</b> keys, the displayed number is stored in the corresponding variable. Otherwise, the variable is calculated.	

## Example:

Using the “Minutes” and “Sales” lists created in the menu document “**Two (X,N) Lists Statistics**”, calculate:

- 1) What regression model best fits the data?
- 2) What is the best estimated sales for a 8 minutes of advertising?.
- 3) What is the best estimate of minutes to obtain \$3,000.0 sales?.

## Solution:

[  X-List ►] “Minutes”	Select the “Minutes” list for ‘X’ variable.
[  Y-List ►] “Sales”	Select the “Sales” list for ‘Y’ variable.
[ Model ►] LIN [ R <sup>2</sup> ]	Select the “Linear” model => <b>R<sup>2</sup> = 0.94</b>
[ Model ►] LOG [ R <sup>2</sup> ]	Select the “Logarithm” model => <b>R<sup>2</sup> = 0.87</b>
[ Model ►] EXP [ R <sup>2</sup> ]	Select the “Exponential” model => <b>R<sup>2</sup> = 0.93</b>
[ Model ►] POW [ R <sup>2</sup> ]	Select the “Power” model => <b>R<sup>2</sup> = 0.89</b>
[ Model ►] EXX [ R <sup>2</sup> ]	Select the “Exponent” model => <b>R<sup>2</sup> = 0.93</b>
[ Model ►] INV [ R <sup>2</sup> ]	Select the “Inverse” model => <b>R<sup>2</sup> = 0.77</b>
[ Model ►] Best Fit	1) The best model is the <b>Linear</b> because it has the higher <b>R<sup>2</sup></b> . ( <b>Sales = 387.00 * Minutes + 441.33</b> ) Alternatively, you can answer this question in a more direct way selecting the “ <b>Best Fit</b> ” option of the [ Model ►] button.
8 [ X ][ Y ]	2) For 8 minutes of advertising, the estimated sales = <b>3,537.33</b>
3000 [ Y ][ X ]	3) For 3,000 of sales you should contract <b>6.61</b> minutes.