

Create a Residual Plot

Excel Step-by-Step How-to for Windows and Excel for Mac 2016 (v.16) or later

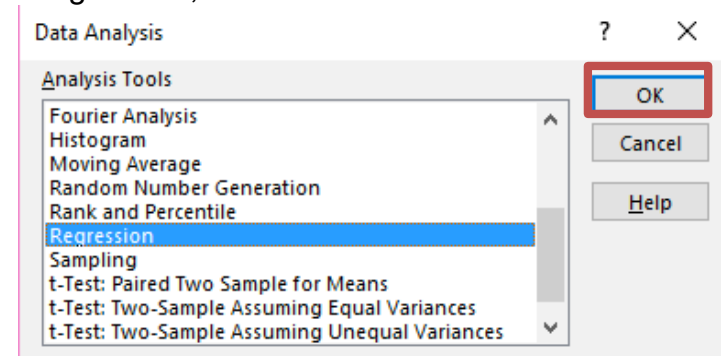
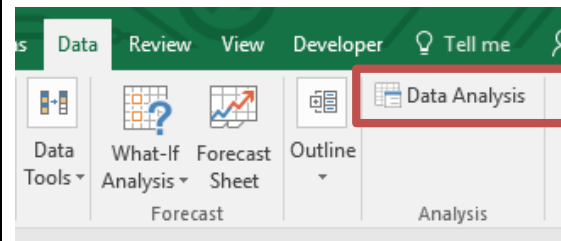
Instructions: Use this guide to generate a residual plot in an Excel spreadsheet. This will be achieved by using the Data Analysis toolkit.

Data requirement: One dependent variable and two or more independent variables, quantitative data

Step	Windows Instructions + Screen Shot																																								
1. Arrange the data so that the first column holds your independent variable and the dependent variables are to the right of it.	<table><tr><th></th><th>A</th><th>B</th><th>C</th><th></th></tr><tr><td>1</td><td>Y</td><td>X1</td><td>X2</td><td></td></tr><tr><td>2</td><td>5045</td><td>9</td><td>66</td><td></td></tr><tr><td>3</td><td>16348</td><td>22</td><td>126</td><td></td></tr><tr><td>4</td><td>4712</td><td>7</td><td>85</td><td></td></tr><tr><td>5</td><td>5092</td><td>14</td><td>21</td><td></td></tr><tr><td>6</td><td>5499</td><td>12</td><td>45</td><td></td></tr><tr><td>7</td><td>10562</td><td>17</td><td>135</td><td></td></tr></table>		A	B	C		1	Y	X1	X2		2	5045	9	66		3	16348	22	126		4	4712	7	85		5	5092	14	21		6	5499	12	45		7	10562	17	135	
	A	B	C																																						
1	Y	X1	X2																																						
2	5045	9	66																																						
3	16348	22	126																																						
4	4712	7	85																																						
5	5092	14	21																																						
6	5499	12	45																																						
7	10562	17	135																																						

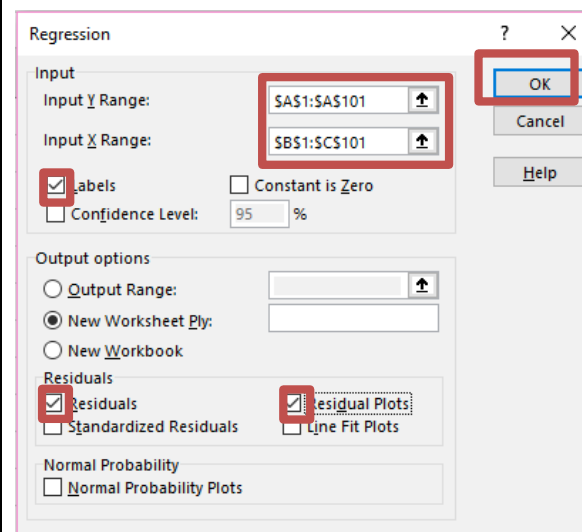
2. Use the Data Analysis toolkit to run a regression on this data.

Navigate to the Data Analysis toolkit, select Regression, and click OK.



3. Select the residual plot options in the Analysis Tool.

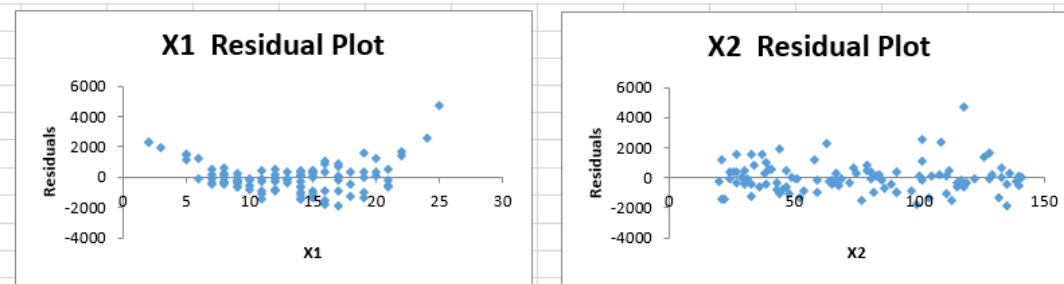
Click in the input box for Input Y Range and select the data for the dependent variable ("Y" in this example). Then click in the input box for the Input X Range and select the data for one or more independent variables. All dependent variables will need to be in adjacent columns to be selected. If you included labels in your range then check the Labels box. Check the Residuals and Residuals Plots boxes. Click OK.



Regression Output

	A	B	C	D	E	F	G	H	I
1	SUMMARY OUTPUT								
2									
3	<i>Regression Statistics</i>								
4	Multiple R	0.952507							
5	R Square	0.90727							
6	Adjusted R Sq	0.905358							
7	Standard Error	1024.968							
8	Observations	100							
9									
10	ANOVA								
11		<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
12	Regression	2	9.97E+08	4.99E+08	474.5248	8.13E-51			
13	Residual	97	1.02E+08	1050559					
14	Total	99	1.1E+09						
15									
16		<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
17	Intercept	-2248.81	357.4137	-6.2919	9.06E-09	-2958.18	-1539.44	-2958.18	-1539.44
18	X1	574.9542	20.58956	27.92456	3.64E-48	534.0897	615.8188	534.0897	615.8188
19	X2	36.27332	2.762302	13.13156	3.04E-23	30.79092	41.75573	30.79092	41.75573
20									

Residual Plots

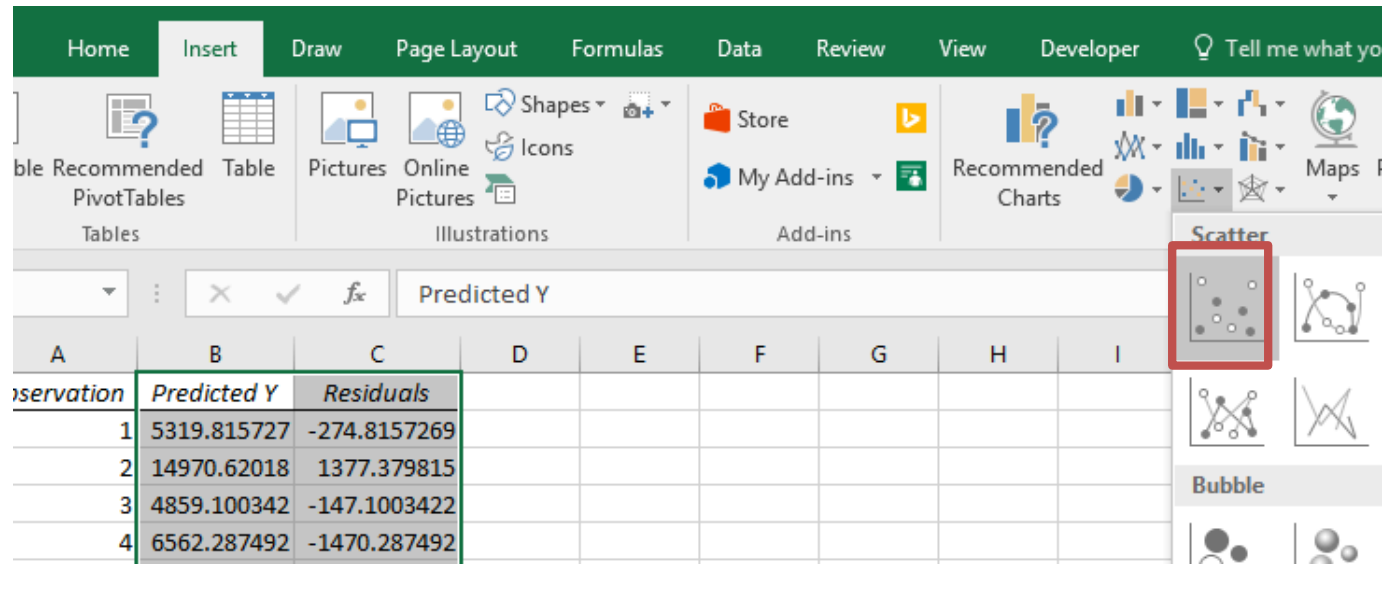


4. Create a composite residual plot.

Copy the residual output from beneath the regression output and paste it into a new sheet.

23	RESIDUAL OUTPUT		
24			
25	<i>Observation</i>	<i>Predicted Y</i>	<i>Residuals</i>
26	1	5319.815727	-274.816
27	2	14970.62018	1377.38
28	3	4859.100342	-147.1

Highlight the Predicted Y and Residuals columns, navigate to the Insert tab and click on the Scatter Plot chart.



The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'Scatter' chart type is highlighted in the 'Charts' group. The worksheet displays a table with the following data:

Observation	Predicted Y	Residuals
1	5319.815727	-274.8157269
2	14970.62018	1377.379815
3	4859.100342	-147.1003422
4	6562.287492	-1470.287492

