How can I plot ANOVA cell means in SPSS?

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ANOVA (Analysis of Variance) is a statistical method used to compare the means of three or more groups. In order to visualize the results of ANOVA, SPSS (Statistical Package for the Social Sciences) provides a feature to plot the cell means. This allows for a graphical representation of the differences between the means of each group, making it easier to interpret the results. To plot ANOVA cell means in SPSS, one can use the "Explore" or "Chart Builder" options, depending on the version of SPSS being used. This will generate a graph showing the mean values of each group, along with error bars representing the variability. This feature is helpful in identifying significant differences between the groups and can be used to further analyze the data.

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Let's read in an example dataset, crf24, adapted from Kirk (1968, First Edition).

get file 'c:https://stats.idre.ucla.edu/wp-content/uploads/2016/02/crf24.sav'.

First, let's look at a table of the cells means to see what variables are in the data set. A and B may be considered independent variables, and y the dependent variable.

MEANS TABLES=y by a by b.

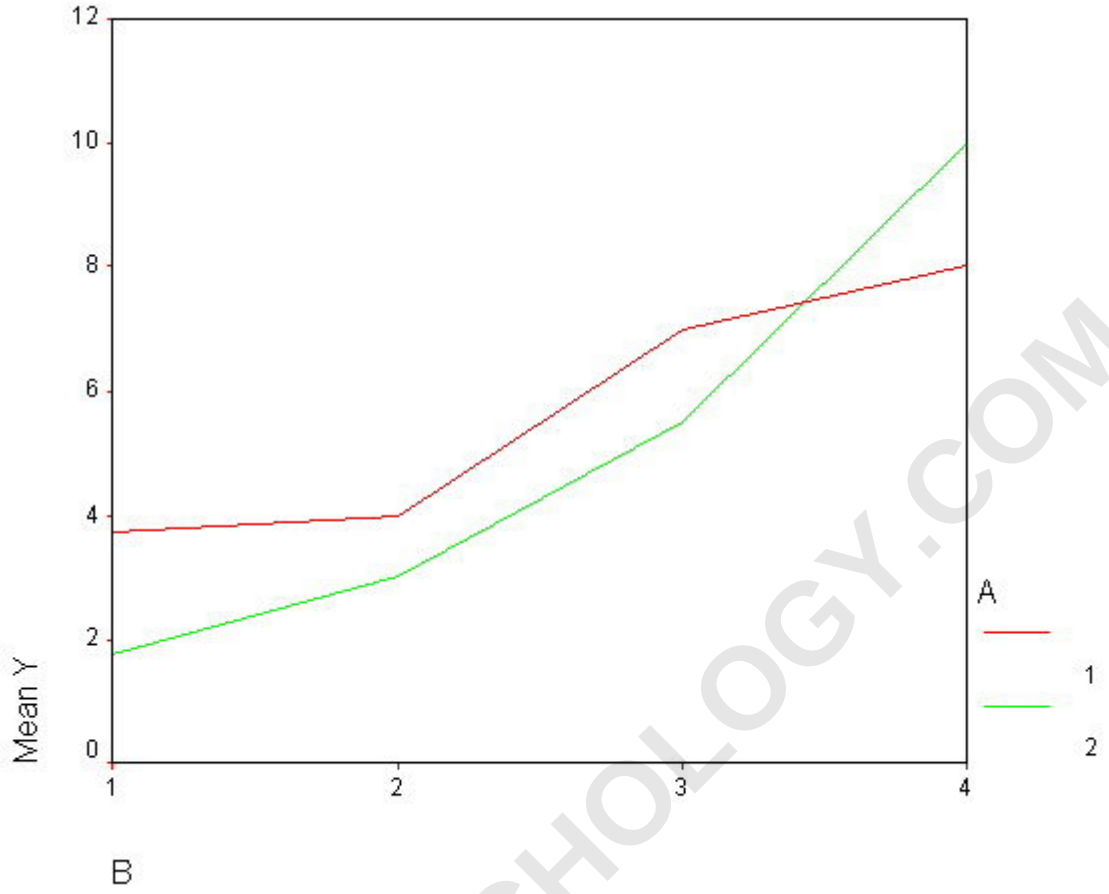
	Cases					
Included	Excluded	Total				
N	Percent	N	Percent	N	Percent	

Y * A * B	32	100.0%	0	.0%	32	100.0%

A	B	Mean	N	Std. Deviation
1	**1**	3.75	4	1.500
2	4.00	4	.816	
3	7.00	4	.816	
4	8.00	4	.816	
Total	5.69	16	2.120	
2	**1**	1.75	4	.500
2	3.00	4	.816	
3	5.50	4	.577	
4	10.00	4	.816	
Total	5.06	16	3.316	
Total	**1**	2.75	8	1.488
2	3.50	8	.926	
3	6.25	8	1.035	
4	9.00	8	1.309	
Total	5.38	32	2.756	

Now, let's plot the cell means.

```
graph
/line(multiple) mean(y) by b by a.
```



If you would like the means marked by a symbol, double click on the graph,

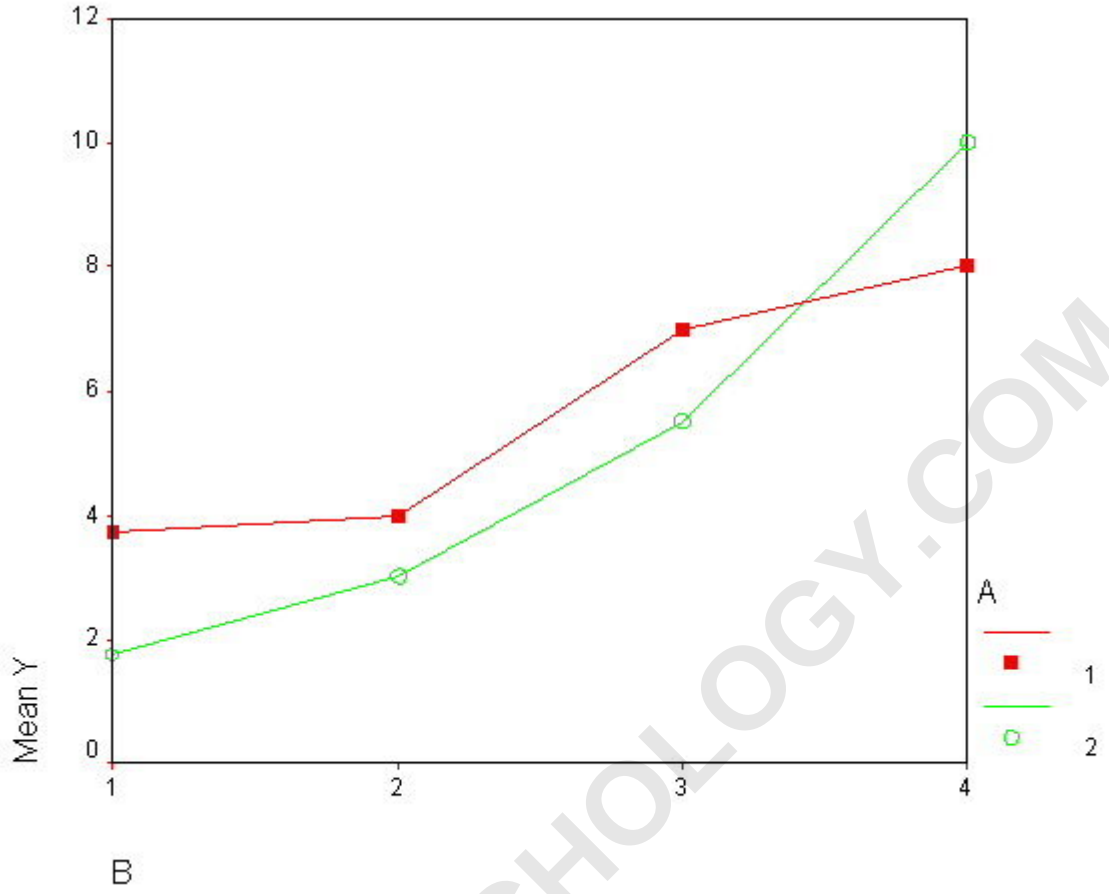
select "format", select "interpolation", and select "straight". Make sure that the "display markers" box is checked. Click on "apply", then "close" and then close the

chart editor. If you would like to change the markers, double click on the graph (again), select select "format", then "marker", and then

select the marker and the size that you would like. If you

would like to have different markers
for the different groups, double click on the graph, double click on the legend on the
right that labels the groups, and select (i.e., single click on) the group whose symbol
(i.e., marker) you would like to change. Next, select "format", "marker",
and then select the marker and the size that you would like. Click on
"apply", then "close" and then close the chart editor.

graph
/line(multiple) mean(y) by b by a.



You can also obtain this graph by using the glm command. Note
that the first variable listed in the parentheses after profile will appear on the x-axis. The second variable listed will indicate the "grouping" variable.

```
glm y by a b
/plot = profile(b*a).
```

	N	
A	**1**	16

2	16	
B	**1**	8
2	8	
3	8	
4	8	

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	217.000(a)	7	31.000	40.216	.000
Intercept	924.500	1	924.500	1199.351	.000
A	3.125	1	3.125	4.054	.055
B	194.500	3	64.833	84.108	.000
A * B	19.375	3	6.458	8.378	.001
Error	18.500	24	.771		
Total	1160.000	32			
Corrected Total	235.500	31			
a R Squared = .921 (Adjusted R Squared = .899)