

As always, the Skidmore Honor Code is in effect. Read each question carefully and answer it completely. Show all your work! Remember to think of the point value of a question as you respond (1 point = 1 minute). Good Luck! Have a great weekend.

1. Below is a set of data, followed by a repeated measures ANOVA on the data.

	a_1	a_2	a_3
3	6	9	
4	5	5	
6	7	8	
2	5	9	
5	7	10	
4	5	8	

ANOVA Table for A

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Subject	5	15.333	3.067				
Category for A	2	52.333	26.167	18.256	.0005	36.512	.998
Category for A * Subject	10	14.333	1.433				

Means Table for A

Effect: Category for A

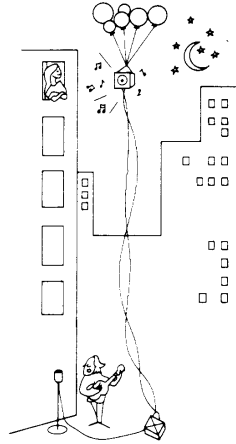
	Count	Mean	Std. Dev.	Std. Err.
a1	6	4.000	1.414	.577
a2	6	5.833	.983	.401
a3	6	8.167	1.722	.703

Suppose that these same data had been analyzed using an independent groups ANOVA, instead of the repeated measures ANOVA. What would the source table have looked like, had the analysis been conducted with an independent groups ANOVA? [5 pts]

2. People with agoraphobia are so filled with anxiety about being in public places that they seldom leave their homes. Knowing this is a difficult disorder to treat, a researcher tries a long-term treatment. A sample of individuals suffering agoraphobia report how often they have ventured out of the house in the past month. Then they receive relaxation training and are introduced to trips away from the house at gradually increasing durations. After two months of treatment, participants report the number of trips out of the house they made in the past 30 days. The data are seen below. Analyze the data to determine the effectiveness of the treatment. [15 pts]

Participant	Before Treatment	After Treatment
A	0	4
B	0	0
C	3	14
D	3	23
E	2	9
F	0	8
G	0	6
$\Sigma X (T)$	8	64
ΣX^2	22	922
SS	12.86	336.86
\bar{X}	1.14	9.14

3. There were five conditions in the Bransford & Johnson (1972) memory study (as compared to the two conditions we used in lab). These conditions are: Complete-context picture before passage; Complete-context picture after passage; Partial-context picture before passage; Hearing passage once without picture; and Hearing passage twice without picture. Below is the Complete-context picture (as a recall cue for you).



Suppose that the results for this study had turned out as seen below. Complete the source table and then analyze the study as completely as you can. [15 pts]

ANOVA Table for Recall

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Condition		301			<.0001	453.375	1.000
Residual		46					

Means Table for Recall
Effect: Condition

	Count	Mean	Std. Dev.	Std. Err.
Complete-after	15	2.933	.704	.182
Complete-before	15	7.667	1.113	.287
No pic - Hear twice	15	2.400	.737	.190
No pic-Hear once	15	2.267	.704	.182
Partial-before	15	4.133	.743	.192

4. Generally speaking, what does a post hoc test (such as Tukey's HSD) do for you? You should know, of course, that it allows you to compare two means to determine if they are drawn from populations with different means. But you could test such a hypothesis with a t-test or an ANOVA. So, what does a post hoc test do for you *beyond* allowing you to test for the difference between two conditions? [5 pts]

5. Hypothesis testing is essential to the research enterprise in psychology. Briefly define Type I Error, Type II Error, and power. Then, tell me as many ways as you can to increase the power of a study. [5 pts]

6. Briefly explain why it is essential to develop an error term (MS_{Error}) for the repeated measures design that includes only variability due to random factors? [5 pts]