Analysis of Variance and Post-hoc

1. Perform a 2 x 2 factorial analysis of variance on the data below. Is there a significant main effect for A, a significant main effect for B, a significant A x B interaction? Use alpha = .05. Report your results in a summary table.

		Factor B	
		B1	B2
		9	7
	A1	7	8
		7	5
Factor A		5	4
		6	3
	A2	6	3
		4	4
		4	2

2. Perform a 3 x 2 factorial analysis of variance on the data below using alpha = .05. Report your results in a summary table. Report, in APA format, whether any significant main effects or interactions emerged.

		Factor B		
		B1	B2	B3
		1	4	8
	A1	3	3	6
		1	3	8
Factor A		4	6	10
		8	1	1
	A2	6	6	3
		6	8	1
		8	1	4

3. Calculate a repeated-measures analysis of variance on the data below representing the number of driving errors across 3 trials. Participants were tested with a blood alcohol level of 0.0, a blood alcohol level of .08, and a blood alcohol level of .16. The same subjects participated in all 3 groups. Use alpha = .05.

level = 0.0	level = .08	level = .16
0	1	2
2	5	5
1	2	6
5	4	9
2	8	8

4. Below are the means and n's for 3 treatment groups along with the anova summary table. Conduct a Tukey's post-hoc test to determine which groups differ significantly from one another.

	treatment	
1	2	3
M = 1	M = 5	M = 3
n = 4	n = 4	n = 4

summary table

Source	**df**	**SS**	**MS**	**F**
between	2	32	16	4.0
within	9	36	4	
total	11	68		

5. Use the data below to calculate the following:
(1) conduct a oneway anova on the data and provide a summary table. Is there a significant difference between the four groups. Use alpha = .05.
(2) If appropriate, conduct a Tukey's post-hoc test to determine which groups differ significantly from one another using alpha = .05.

group 1	group2	group3	group4
4	0	3	0
6	2	1	2
2	2	2	1
4	0	2	1

summary table

Source	**df**	**SS**	**MS**	**F**
between	3	24	8	6.0
within	12	16	1.33	
total	15	40		

6. Here is data involving the time (in seconds) that infants will look at a stimulus that is presented to them. The same stimulus is presented to each infant on three occasions. Conduct a repeated measures anova to determine if the length of time spent gazing at an object changes across trials.

infant	time 1	time 2	time 3
A	112	81	20
B	97	35	42
C	82	58	27
D	104	70	39
E	78	51	46