AS1: Assignment 1, ANOVA

RESEARCH SCENARIO:

- A randomized study was conducted comparing the effects of repetition on recall. Conditions included the following number of repetitions per list of words: 5 times, 10 times, 15 times, and 20 times.

- What is (are) the factor(s) in this study? Number of repetitions per list of words

- How many levels (if any) does (do) the factor(s) have? 4

(c) What is the dependent variable? Recall

- What is the research design? Between-subjects random assignment to more than 2 groups

- What is the appropriate hypothesis test to analyze these data? F

- In which source of variance would you expect the treatment effect? Variance between

Below is an SPSS ANOVA: Based on these results, please answer a-f

ANOVA

VAR00001

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.267	2	8.133		.007
Within Groups	37.100	27	1.374		
Total	53.367	29			

Multiple Comparisons

Dependent Variable: VAR00001
Bonferroni

(I) VAR00002	(J) VAR00002	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-1.00000	.52423	.201	-2.3381	.3381
	3.00	-1.80000*	.52423	.006	-3.1381	-.4619
2.00	1.00	1.00000	.52423	.201	-.3381	2.3381
	3.00	-.80000	.52423	.416	-2.1381	.5381
3.00	1.00	1.80000*	.52423	.006	.4619	3.1381
	2.00	.80000	.52423	.416	-.5381	2.1381

- What is the value of the variance between? 8.133

- What is the value of the variance within? 1.374

- What is the F value (I know it is not there, calculate it): F= 5.919

- Please write the statistical statement for the above SPSS ANOVA results:

  Answer: F(2,27)=5.919 p=.007

(e) Is your F test significant?   Yes ___x___   No_____

(f) If yes, please note where the significance is found:

The data indicate a significant difference between the group that recited 5 times, and the group that recited 15 times. However, there is no statistically significant difference between group 1 and 2, 2 and 3, or 3 and 4, F(2,27)=5.919, p=.007

RESEARCH SCENARIO 2:
A researcher hypothesizes that exam performance is affected by the amount of time that a student reviews the quiz material immediately prior to the quiz. He randomizes his sample of n=30 participants to a 10 minutes condition, a 20 minutes condition, and a 30 minutes condition, after which all students take the quiz. The data are below:

10 m	20 m	30 m
86	94	92
78	91	91
55	82	68
88	15	65
77	85	78
65	72	81
60	78	83

64	74	69
72	70	74
84	83	83

l. What is the factor in this study? Amount of time studying quiz material

2. What is the dependent variable in this study? Exam perfromance

3. What is the research hypothesis?
There will be at least one significant difference among the means.

4. What is the null hypothesis?
There will be no significant difference among the means

5. What is the name of the research design?
Between-subjects random assignment to more than 2 groups

- Run the appropriate SPSS test and cut and paste your SPSS results here:
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ANOVA

- VAR00001
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	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	161.667	2	80.833	.338	.716
Within Groups	6453.700	27	239.026		
Total	6615.367	29			

Multiple Comparisons

Dependent Variable: VAR00001

Scheffe

(I) VAR00002	(J) VAR00002	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-1.50000	6.91413	.977	-19.4078	16.4078
	3.00	-5.50000	6.91413	.731	-23.4078	12.4078
2.00	1.00	1.50000	6.91413	.977	-16.4078	19.4078
	3.00	-4.00000	6.91413	.847	-21.9078	13.9078
3.00	1.00	5.50000	6.91413	.731	-12.4078	23.4078

- 2.00

- 4.00000
- 6.91413
- .847
- -13.9078
- 21.9078

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7. Based on your SPSS results, what is MS between? 80.833

8. Based on your SPSS results, what is MS within? 239.026

9. What is the F value? f= .338

10. Please write the "statistical statement" for your SPSS analysis:

Answer: f(2,27)= 0.338 p=.716

11. Were your results significant?   Yes _____   No ____x____

12. If yes, which groups showed a statistical difference?

_____
_____
_____
_____
_____
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