

1. Insert the missing entries into each of the following summary tables for 2 x 2 factorial ANOVAs:

Table 1a:

Variance Source	SS	df	MS	F
Between-Total	60.000		--	--
A	3.000			
B			7.000	
A x B			50.000	
Within	144.000	36		--
Total			--	--

Table 1b:

Variance Source	SS	df	MS	F
Between-Total		3	--	--
A	200.000		200.000	
B				1.000
A x B	200.000			
Within			10.000	--
Total	1370.000	99	--	--

An investigator tested the relationship between perceived task difficulty and time limits on task performance. Twenty students worked on the same verbal analogy task, but half of the students were told that the task was of low difficulty, and the other half were told that that the task was of high difficulty. Half of the students in each of those two groups were given only five minutes to complete the task and the other half of the students in each difficulty level group were given unlimited time. Thus, there were four independent groups. Scores on the task could range from 0 to 10, with higher values indicating better task performance. The data are presented to the right.

	Low Difficulty	High Difficulty
	X	X
	9	6
	8	7
<b>No Time Limit</b>	10	5
	7	8
	6	4
	7	2
	6	3
<b>Time Limit</b>	4	4
	8	3
	5	3

**Chapter 22 Homework**

**Name:** \_\_\_\_\_

1. Expressed in terms of  $\mu$ , what are all of the null and alternate hypotheses for this example?
2. What is the mean for each of the four groups and what is the mean for each level of each independent variable (be sure to use proper labeling)?
3. Calculate each sums of squares, and list in the table below. Determine each degrees of freedom and list them in the table below. Calculate each mean square and each F-Ratio and list them in the table below.

<b>Variance Source</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F</b>
Between-Total			--	--
A				
B				
A x B				
Within				--
Total			--	--

4. List the critical F-Value for rejecting  $H_0$  at  $\alpha = .05$
5. Based on each obtained F-Value, what decisions should be made with respect to each pair of null and alternate hypotheses? What should the investigator conclude with respect to the relationship between task difficulty, time limits, and task performance?
6. On the back or on another sheet, neatly draw a bar graph of the means.
7. Compute each eta-squared value. Does the observed value represent a weak, moderate, or strong effect?