

Chapter 21 Homework

Name: _____

1. Insert the missing entries into each of the following summary tables for oneway ANOVAs:

Table 1a:

Variance Source	SS	df	MS	F
Between		2		10.000
Within			4.000	--
Total	128.000		--	--

Table 1b:

Variance Source	SS	df	MS	F
Between		6	5125.000	
Within	2500.000	25		--
Total			--	--

Table 1c:

Variance Source	SS	df	MS	F
Between	2.000		2.000	
Within				--
Total	309.524	99	--	--

An investigator tested the relationship between task difficulty and task performance. Eighteen students worked on the identical verbal analogy task, but six students were told that the task was of low difficulty, six were told that the task was of high difficulty, and six were not told anything about task difficulty. Scores could range from 0 to 10, with higher values indicating better task performance. The data follow:

Low Difficulty	High Difficulty	No Information
X	X	X
8	4	4
7	1	5
5	2	5
8	4	6
9	6	8
7	3	6

1. Expressed in terms of μ , what are the *null* and *alternate* hypotheses for this example?

H_0 :

H_A :

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- 2. How many degrees of freedom between groups and within groups are there? What is the critical F-Value for rejecting H_0 at $\alpha = .01$?
- 3. What is the mean for each of the three groups? What is the grand mean?
- 4. Calculate the sums of squares total, between groups, and within groups and list them in the table below. Determine the degrees of freedom total, within groups, and between groups and list them in the table below. Calculate the mean squares within groups and between groups and the F-Ratio. List them in the table below.

Variance Source	SS	df	MS	F
Between				
Within				--
Total			--	--

5. Based on your obtained F-Value, what decisions should you make with respect to the null and alternate hypotheses? What should the investigator conclude with respect to the relationship between task difficulty and task performance?

6. Calculate the value of Tukey's Honestly Significant Difference and then use that to determine which pairs of means are significantly different from each other. (Remember to find the value of 'q')

7. Compute the value of eta-squared. Does the observed value represent a weak, moderate, or strong effect?