

Analysis of Variance: Within Groups ANOVA

Assignment.

Heiman, Chapter 14, page 393

Terms you should know.

Repeated Measures
.....
.....

Partitioning Variability
.....
.....

Between Treatments
Variability
.....
.....

Within Treatments Variability
.....
.....

Between Subjects
Variability
.....
.....

Error Variability
.....
.....

Sum of Squares

Total Sum of Squares
.....
.....

Between Treatments
Sum of Squares
.....
.....

Within Treatments
Sum of Squares
.....
.....

Between
Subjects Sum
of Squares
.....
.....

Sum of
Squares Error
.....

Formulas and Symbols You Should Know.

df_{Total}
.....
.....

$df_{between\ treatments}$
.....
.....

$df_{within\ treatments}$
.....
.....

$df_{between\ subjects}$
.....
.....

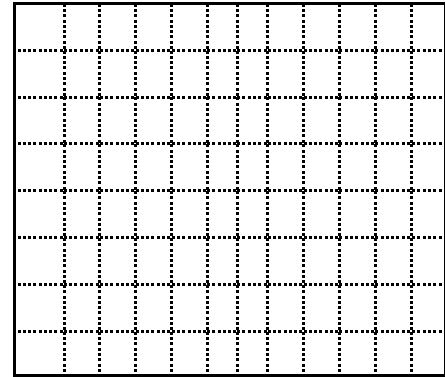
df_{error}
.....
.....

Homework #13: Calculations You Should Master

Name: _____ (This is my work, and my work alone.)

1. Sue Krose wanted to determine if sweet coffee had an influence on how steady a surgeon's hand was when performing an operation. Sue realized that the amount of caffeine in the coffee might have an impact on the results so she designed a study in which people got low, medium, or strong coffee. The dependent variable was a measure of steadiness. A higher score on this measure means the person's hand was less steady. Sue recruited five surgeons to participate in her study. Each participated in all three treatment levels. The following table is a summary of her results. Plot the results in the following table, complete the summary table, compute F, and answer the questions.

	Low Caffeine	Medium Caffeine	Strong Caffeine
	0	0	6
	1	3	5
	0	1	5
	4	5	9
	0	1	5
Sum	5	10	30
Mean			



Source	SS	df	MS	F
Between treatments	70			
Within treatments				
Between subjects	36			
Error				
Total	110			

- a. Is the F significant?
- b. What do you conclude about the difference between treatments? Were all of the treatment levels effective?
- c. If the F is significant, what is the effect size? What does this figure mean?