Homework 11 Due on May 4

§13.2: 2, 4, 12, 13.

§13.2: The F Test for a Randomized Block Design

Question 13.2.2 The following table shows the audience shares of the three major networks' evening news broadcasts in four major cities as reported by Arbitron. Test at the $\alpha = 0.10$ level of significance the null hypothesis that viewing levels for news are the same for ABC, CBS, and NBC.

City	ABC	CBS	NBC
A	19.7	16.1	18.2
B	18.6	15.8	17.9
C	19.1	14.6	15.3
D	17.9	17.1	18.0

Question 13.2.4 The number of new building permits can be a good indicator of the strength of a region's economic growth. The following table gives percentage increases over a four-year period for three geographical areas. Analyze the data. Let $\alpha = 0.05$. What are your conclusions?

Year	Eastern	North Central	Southwest
2000	1.1	0.1	0.9
2001	1.3	0.8	1.0
2002	2.9	1.1	1.4
2003	3.5	1.3	1.5

Question 13.2.12 Differentiate the function

$$L = \sum_{i=1}^{b} \sum_{j=1}^{k} (y_{ij} - \beta_i - \mu_j)^2$$

with respect to all bk parameters and calculate the least squares estimates or the β_i's and μ_j's

Question 13.2.13 True of false and explain:

(a) $\sum_{i=1}^{b} \overline{Y}_{i\cdot} = \sum_{j=1}^{k} \overline{Y}_{\cdot j}$.

(b) Either MSTR or MSB or both are greater than or equal to MSE.