Homework 2

1. Assume you have a CRD with a treatments and 1 control so that \( N = \sum_{i=1}^{a+1} n_i \). Assume you are interested in the contrasts \( \tau_i - \tau_{a+1}, i = 1, \ldots, a \) and hence interested in minimizing \( \sum_{i=1}^{a} V(\bar{Y}_i - \bar{Y}_{a+1}) \). Simplify the expression as a function of \( \sigma^2 \); which values of \( n_i \) minimize this expression?

2. Problem 3-37–use equation (3-48) as your model for the normal equations (Estimability).

3. Problem 4-16a (RCBD and missing values)

4. Analyze the data from Problem 4-1 in SAS by entering missing values for chemical type 2 and bolt 3 and chemical type 4 and bolt 4. Compare your results from this analysis to analysis with the complete data and analysis when the two missing values are imputed. (RCBD and missing values)

5. Problem 4-19 (Latin Square Analysis)