ST 518 Homework 8

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1 Problem 1

An experiment randomizes seeds from `t = 10` plants from an F2 generation of soybeans to `N = 30` homogeneous plots. The percentage protein content is measured in the seds from the plants produced in each plot with results below and in the file **"protein-content.dat"**.

First we are going to read in the data.

```
library(tidyverse)
(protein <- read_table("protein-content.dat"))
```

```
## # A tibble: 10 x 4
##    Plant Plot1 Plot2 Plot3
##    <dbl> <dbl> <dbl> <dbl>
##  1     1  42.4  41    39.6
##  2     2  28.6  36.3  42.2
##  3     3  43.2  42.1  40.2
##  4     4  40.8  41    38.9
##  5     5  41    38.3  41.1
##  6     6  39.4  39.5  37.2
##  7     7  39.6  40.4  38.9
##  8     8  38.1  38.3  37.9
##  9     9  35.9  36.1  35.6
## 10    10  39.6  39.9  39.7
```

Consider a random effects model for these protein contents: $Y_{ij} = \mu + T_i + E_{ij}$.

1.1 Part A

Give all distributional assumptions and limits on indices/subscripts i and j.