Homework # 8, Stat 526

1. Consider an experiment to compare five methods for predicting the shear strength for steel girders. Each of the five methods are used to predict the strength of each of the seven girders. This is a complete randomized block design, where each girder forms a block. No interaction is considered.

   (a) Fit a mixed effects model. Write down the model and report the estimates (with REML method). Test whether five methods are different by both the F-table and likelihood-ratio method; write down the null and alternative hypotheses; report your conclusion. Test whether there is a girder effect; write down the null and alternative hypotheses; report your conclusion.

   (b) Fit a fixed effects model. Write down the model; test whether five methods are different; test whether there is a girder effect.

   (c) Compare the results from (a) and (b).

2. Problem 10.3 in the text book.

3. Problem 10.4 in the text book.