

HOMEWORK ASSIGNMENT 2

Assigned: September 20, 2005

Due: September 27 or 29, 2005

10 Points – 1 point each day late

A) Complete the following questions using the values from problem 1.20 (**Copier maintenance** problem from your textbook). Some parts of this homework may have to be done by hand, but I would encourage you to use SAS (or other package) as much as possible.

1) Problem 2.24; parts a, b, & c.

2.24. Refer to **Calculator maintenance** Problem 1.20.

- a. Set up the basic ANOVA table in the format of Table 2.2. Which elements of your table are additive? Also set up the ANOVA table in the format of Table 2.3. How do the two tables differ?
- b. Conduct an F test to determine whether or not there is a linear association between time spent and number of machines serviced; use $\alpha = .10$. State the alternatives, decision rule, and conclusion.
- c. By how much, relatively, is the total variation in number of minutes spent on a call reduced when the number of machines serviced is introduced into the analysis? Is this a relatively small or large reduction? What is the name of this measure?

2) Question 3.8 is intended for the "Robbery problem". DO NOT do this problem. However answer parts a-d of question 3.8 using your "Copier maintenance" problem. SAS should provide most of what you need!

- a) Get "Copier maintenance" stem-and-leaf. Does this plot indicate any potential problems?
- b) Get "Copier maintenance" box plot. Does this plot indicate any potential problems?
- c) Get "Copier maintenance" residual plot. Does this plot indicate any potential problems?
- d) Obtain a test of the residuals for normality. State if the residuals depart significantly from normality.
- e) Get "Copier maintenance" normal probability plot. What does the normal probability plot show?

3) Conduct a test of lack of fit for the Copier maintenance example. Indicate if the simple linear regression provides an adequate fit to the data.

4) Conduct a Box-Cox examination for potential transformation of this problem.