

**MAT 2377C, FALL 2009**  
**Minitab project**  
**Due in class on December 7, 2009**

**Include your outputs, explain carefully your conclusions.**

1. Generate  $n=100$  samples  $(\epsilon_1, \dots, \epsilon_{100})$  from a normal distribution with the mean 0 and the variance  $\sigma^2 = 0.16$ . Let

$$Y_i = \beta_0 + \beta_1 X_i + \epsilon_i, i = 1, 2, \dots, n$$

where  $\beta_0 = 1$  and  $\beta_1 = 2$ . Take  $X_i = i/5, i = 1, 2, \dots, 100$ . Use minitab to generate  $Y_i$ . You can use the following commands to generate  $\epsilon_i, i = 1, 2, \dots, 100$ .

```
MTB>random 100 c2;  
SUBC>norm 0 0.4.  
Now generate  $X_i, i = 1, 2, \dots, 100$ .  
MTB>set c1  
DATA>1:100  
DATA>end  
MTB>let c1=c1/5  
MTB>regress c2 1 c1 c3 c4  
(c3 are fitted values and c4 are residuals).
```

- (i) Estimate  $\beta_0$  and  $\beta_1$ .
  - (ii) Do a complete analysis of this model.
2. Do the following problems from the textbook.  
8.34 (for part (a) use minitab), 8.52, 8.78, 9.20, 9.39, 9.42, 11.41