

UNIVERSITY OF ILLINOIS AT CHICAGO  
Mechanical Engineering

**IE 446**  
**Problem Set #6**

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Due: 3 Mar 2000

Reading: Montgomery, Chapter 5.

1. Montgomery 5-6.
2. Rework Montgomery 5-6 using the  $S$  chart. If the  $\bar{x}$  chart will be different, you must rework it also. Please do all of (a)–(e); if the answer will be exactly the same as for the  $R$  chart, you may simply note that.
3. Montgomery 5-10.
4. Rework Montgomery 5-10 using the  $S$  chart. Instead of

$$\sum_{i=1}^{50} R_i = 250$$

you may use

$$\sum_{i=1}^{50} S_i = 80$$

Does it make much difference which chart you use? Do you think it is reasonable to assume that a process could have this  $\sum R_i$  and  $\sum S_i$ ? Why or why not?