

UNIVERSITY OF ILLINOIS AT CHICAGO
Mechanical Engineering

IE 446
Problem Set #7

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Due: 10 Mar 2000

Reading: Montgomery, Chapter 5.

1. Consider the sample data from Montgomery 5-2. Test the hypothesis that the data are normally distributed, using $\alpha = 0.05$. What is the P -value for this test? In other words, what is the smallest value of α for which you can decide that the data are *not* normally distributed?

Note that the text gives no procedure for testing goodness-of-fit hypotheses analytically. Use your notes, or another text (if you refer to another text, be sure to include the name of the text).

2. Montgomery 5-42.
3. Montgomery 5-44.
4. You are designing a control chart for a process. You want the test to detect a $1\text{-}\sigma$ shift in the process mean on the first sample following the shift at least 60% of the time. What sample size n should you choose?

What would your answer be if you wished to detect the shift on either the first or second sample at least 60% of the time?

I want to see your work/derivations/code for this problem. An answer alone is not enough.

5. Montgomery 5-46.