STAT 302 **Assignment #4** **Fall 2007**

Due: October 8, 2007

1. Problem 10.3
2. Problem 10.9
3. Problem 10.14
4. Vitamin D intoxication may be linked to excessive consumption of dairy products. The following data reflect measurements of calcium (mmol/l) in patients who have vitamin D intoxication.

   2.92 3.84 2.37 2.99 2.67 3.17 3.74 3.44 3.54 2.98 3.04 2.45 3.65

   a. Formally state and test the hypothesis that the intoxicated population mean is greater than the normal population mean of 2.43 mmol/l. What is your p-value and conclusion?
   b. Based on part (a), what type of error might you be making? How could you control the size of that error?
   c. What size sample would you need to take if you wanted an α=.05 test of the null hypothesis in part (c) to reject the null with probability 0.80 if the true mean was 2.6, assuming the sample variance is a reasonable estimate of the true population variance?