Read Section 6.3.

Exercises from the textbook:
6.44, 6.48, 6.54, 6.63, 6.74.

Excel Questions:
1. (The interpretation of Confidence Intervals)
   Firstly, let us generate a sample of size 2000 from the normal distribution N(5,10). As before we use the Random Number Generation from the Analysis Tookpak. We place these values as an array in E1:X100. We take each row Ei:Xi as a sample of size 20, and write the sample mean for that sample in cell Ai. Now, we write a 90% confidence interval for $\mu$ in columns B and C. Specifically, for each row, we write the left hand end point and the right-hand end point in cells Bi and Ci respectively. In column D we count whether the interval contains the population mean $\mu = 5$ or not. Write a formula in cell D1 of the form IF(AND( , ), , ) which is 1 if $\mu$ is contained in the interval and 0 otherwise. You may use any standard Excel functions you wish in writing expressions for columns B, C, D. The sum of the values in column D is the number of confidence intervals containing $\mu$.

Printing out your Excel spreadsheet would serve no useful purpose. So instead answer the following in your regular hw.

(a) Write down the expressions you are using for cells B1, C1 and D1 respectively.
(b) Write down the value of the number of confidence intervals containing $\mu$.
(c) Write down what theory says should be the number of confidence intervals.
(d) Note that the number of intervals obtained in part b is a random variable. What is the distribution of this random variable? Make sure to include the values of all parameters.

I have neither given nor received any unauthorized help on this exam and I have conducted myself within the guidelines of the University Honor Code.

Pledge: _________________________________