Statistics 394, Problem Set 9

Wellner; 3/1/2000

Reading:	Kelly, Chapter 6, Sections 6.1-6.4.
Optional Web Reading:	Section II.B.2,5,6 The Sample Mean and the Law of Large Numbers; The Central Limit Theorem; Special Properties of Normal Samples http://www.math.uah.edu/stat/sample/index.html .
Due:	Wednesday, March 8, 2000.

1. K, 4.3, # 4, page 269.
2. K, 4.3, # 14, page 269.
3. K, 4.3, # 18, page 269.
4. K, Supplementary Exercises, Chapter 4, # 8, page 299
5. K, Supplementary Exercises, Chapter 4, # 9, page 299
6. K, 6.2, # 4, page 359.
7. K, 6.2, # 5, page 359.
8. K, 6.2, # 6, page 359.
9. K, 6.3, # 4, page 370; plus do part (c) another way.
10. Bonus Problem 1 (and Practice Problem for the Final Exam (Highly Recommended): K, 6.4, # 7 and # 8, page 382.
11. Bonus Problem 2. Under "Statistics; Random Samples" at the virtual labortories web site, **http://www.math.uah.edu/stat/sample/index.html**, go to the **sample mean experiment**.
    A. Look at the experiment for the normal distribution with $\mu = 0$, $d = \sigma = 1$, and $n = 4$. Describe what you see and explain it. Change μ to 5 and n to 16. Describe what you see (the blue curves) and explain it.
    B. Run the normal experiment with stop frequency 100, $\mu = 0$, $d = \sigma = 1$, and $n = 4$. Describe what you see (the red curves) and explain it.
    C. Look at the binomial part of the experiment with stop frequency 100, $m = 2$, $p = .75$, and $n = 4$. Explain what you see (the blue bars).
    D. Run the binomial part of the experiment with stop frequency 100, $m = 2$, $p = .75$, and $n = 4$ and explain what you see (the red bars).