Math 431, Assignment #11

(due 5/10/01)

1. Chapter 7, problem 32. Use TWO different methods:
   (a) Use the formula $\mathrm{Cov}(X, Y) = E(XY) - E(X)E(Y)$.
   (b) Define Z_i to be the number of rolls that show an i, for i going from 1 to 6. Compute $\mathrm{Var}(Z_1 + \ldots + Z_6)$ in two different ways, and compare the answers. (Hint #1: Is $Z_1 + \ldots + Z_6$ really random? Hint #2: By symmetry, $\mathrm{Cov}(Z_i, Z_j)$ takes on only two values as i and j vary: one value if i and j are equal, and a different value if i and j are distinct.)
2. Chapter 7, problem 41.
3. Chapter 7, problem 46.
4. Chapter 7, problem 49.
5. Chapter 7, problem 59.
6. Chapter 7, problem 60.
7. Chapter 7, problem 61.
8. Chapter 7, theoretical exercise 19.
9. Chapter 7, theoretical exercise 22.
10. Chapter 7, theoretical exercise 35.

Each problem is worth 10 points. Additionally, you can get up to 5 bonus points for making a good estimate of your raw score.