10/13/2003 MA385 Intro. to Probability Name:_____
Dr. Lunsford Quiz 4 (20 Points Total)

You may use the front flap of your textbook for this quiz.

I. Consider the random variable X with the discrete uniform distribution (see the front flap of your text). Show that the variance of X is $\frac{m^2-1}{12}$. You may need the following formulas:

$\text{var}(X) = E[(X-\mu)^2]$, $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$, $\sum_{k=1}^{n} k^2 = \frac{n(n+1)(2n+1)}{6}$. (7 points)

II. Let X be a random variable such that $E[X+3] = 7$ and $E[(X+3)^2] = 100$. Find the mean and variance of X. Neatly show all of your work and clearly indicate your answers. (7 points)

III. A committee of six people is to be formed from ten women and eight men. Let the random variable X be the number of women on the committee. How is X distributed (you should give the name of the distribution, the values of all relevant parameters, and the formula for the p.m.f.)? How many women will be chosen for the committee on average? (6 points)