

**STAT 400 SUMMER II 2001 (PROFESSOR GREEN)
SOLUTIONS TO ASSIGNED PROBLEMS DUE JULY 25**

28. The mean is 2.06, the variance is .9364, and the standard deviation is .9677.

32.

- (a) Since $1^2 = 1$ and $0^2 = 0$, X^2 is the same variable as X , and therefore $E(X^2) = p$
- (b) It follows that $V(X) = p - p^2 = p(1 - p)$.
- (c) p .

34. The revenue is twice the number of copies sold; the profit is twice the number of copies sold minus the number of copies ordered. With three copies, the pmf for the number of copies sold tops out at $p(3) = .8$. It follows that the expected number of copies sold is 2.73 and the expected profit is \$2.26. With four copies, the pmf for the number of copies sold tops out at $p(4) = .6$, the expected value is 3.33 and the expected profit is \$2.66. It follows that it is preferable to order four copies.

36. $E(X) = \frac{n+1}{2}$; $E(X^2) = \frac{(n+1)(2n+1)}{6}$. It follows that $V(X) = \frac{n^2-1}{12}$.

38. $E(X) = 2.3$, and $V(X) = .81$ The number of pounds remaining will be $100 - 5X$. This will have mean $100 - 5E(X) = 88.5$, and the same variance as $5X$, which in turn is $25V(X) = 20.25$.