10/28/2004 MA371 Intro. To Prob. & Stats. Name:_____
Dr. Lunsford Quiz 4 (20 Points Total)

Suppose the discrete random variable X has probability mass function (p.m.f.) given by $f(x) = \frac{4-x}{6}, x = 1, 2, 3$. Use this information to answer the following questions.

(a) Draw a bar graph of the p.m.f. of X. Clearly label your axes. (3 points)

(b) Find the probability that X is at most two. Clearly write this probability in terms of the random variable. Also show how you use the p.m.f. to compute this probability. (3 points)

(c) Find the mean of the distribution for X. Clearly show all work including what formula you are using (and how you are plugging into that formula) for this computation. (4 points)

(d) Find $E\left[X^2\right]$. Clearly show all of your work. (3 points)

(e) Find the standard deviation of the distribution for X. Clearly show all work including what formula you are using (and how you are plugging into that formula) for this computation. (4 points)

(f) Suppose we define a new random variable Y by $Y = -2X + 7$. Find the mean and variance of Y. Clearly indicate your answers. (3 points)