Numerical Characteristics of Random Variables

NOTE: The means and variances for each distribution are found in Matlab Help $->$ Documentation $->$ Statistics and Machine Learning Toolbox $->$ Probability Distributions $->$ Discrete (or Continuous) Distributions $->$ function "stat", with the Matlab name of the distribution in front of it (which may be under "more"). E.g., for the binomial distribution, go to binostat, at the end it says "The mean of the binomial distribution with parameters n and p is np. The variance is npq, where $q = 1 - p$.", for normal, normstat, ... Same for all the other distributions.

The means and variances of the following distributions (fill in the table):

Distribution	**Notation**	**Mean** $E(X)$	**Variance** $V(X)$
discrete uniform	$U(m)$	$\frac{m+1}{2}$	$\frac{m^2-1}{12}$
binomial	$B(n,p)$	np	npq
hypergeometric	$H(N,n_1,n)$	$\frac{nn_1}{N}$	$\frac{nn_1(N-n_1)(N-n)}{N^2(N-1)}$
Poisson	$P(\lambda)$	λ	λ
Pascal	$NB(n,p)$	$\frac{nq}{p}$	$\frac{nq}{p^2}$
geometric	$G(p)$	$\frac{q}{p}$	$\frac{q}{p^2}$
uniform	$U(a,b)$	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$
normal	$N(\mu,\sigma)$	μ	σ^2
gamma	$Ga(a,b)$	ab	ab^2
exponential	$Exp(\lambda)$	$\frac{1}{\lambda}$	$\frac{1}{\lambda^2}$
beta	$\beta(a,b)$	$\frac{a}{a+b}$	$\frac{ab}{(a+b+1)(a+b)^2}$
Student	$T(n)$	0	$\frac{n}{n-2},\ n>2$
chi squared	$\chi^2(n)$	n	$2n$
Fisher	$F(m,n)$	$\frac{n}{n-2},\ n>2$	$\frac{2n^2(m+n-2)}{m(n-2)^2(n-4)},\ n>4$