Distributions

Name	pdf	μ	σ^2	MGF
Discrete Uniform	$\frac{1}{k}$	$\sum x_i \cdot \frac{1}{k}$	$\sum (x_i - \mu)^2 \cdot \frac{1}{k}$	**
Bernoulli	$\theta^x (1-\theta)^{1-x}$	θ	$\theta(1-\theta)$	$1 - \theta + \theta \mathrm{e}^t$
Binomial	$\binom{n}{x} \theta^x (1-\theta)^{n-x}$	$n\theta$	$n\theta(1-\theta)$	$\left[1 + \theta(\mathrm{e}^t - 1)\right]^n$
Negative Binomial	$\binom{x-1}{k-1} \theta^k (1-\theta)^{x-k}$	$\frac{k}{\theta}$	$\frac{k}{\theta}\left(\frac{1}{\theta} - 1\right)$	$\left(\frac{\theta \mathrm{e}^t}{1 + (1-\theta)\mathrm{e}^t}\right)^k$
Geometric	$\theta(1-\theta)^{x-1}$	$\frac{1}{\theta}$	$\frac{1-\theta}{\theta^2}$	$\frac{\theta \mathrm{e}^t}{1 - (1-\theta)\mathrm{e}^t}$
Hyper-geometric	$\frac{\binom{M}{x}\binom{N-M}{n-x}}{\binom{N}{n}}$	$n\frac{M}{N}$	$\frac{nM(N-M)(N-n)}{N^2(N-1)}$	**
Poisson	$\frac{\lambda^x \mathrm{e}^{-\lambda}}{x!}$	λ	λ	$\mathrm{e}^{\lambda(\mathrm{e}^t - 1)}$
Uniform	$1/(\beta - \alpha)$	$(\alpha + \beta)/2$	$\frac{1}{12}(\beta - \alpha)^2$	$\frac{\mathrm{e}^{t\beta} - \mathrm{e}^{t\alpha}}{t(\beta - \alpha)}$
Gamma	$\frac{1}{\beta^\alpha \Gamma(\alpha)} x^{\alpha-1} \mathrm{e}^{-x/\beta}$	$\alpha\beta$	$\alpha\beta^2$	$(1 - \beta t)^{-\alpha}$
Exponential	$\frac{1}{\theta} \mathrm{e}^{-x/\theta}$	θ	θ^2	$\frac{1}{1 - \theta t}$
Normal	$\frac{1}{\sigma\sqrt{2\pi}} \mathrm{e}^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$	μ	σ^2	$\mathrm{e}^{\mu t + \frac{1}{2}\sigma^2 t^2}$

**: Formulas exist[1] but aren't terribly useful.

[1]See JSTOR, "On an Alternative Expression for the Hypergeometric Moment Generating Function" K. G. Janardan The American Statistician, Vol. 27, No. 5 (Dec., 1973), p. 242