Distribution	PMF/PDF and Support	Expected Value	Variance	MGF
Bernoulli $\text{Bern}(p)$	$P(X=1)=p$ $P(X=0)=q=1-p$	p	pq	$q+pe^t$
Binomial $\text{Bin}(n,p)$	$P(X=k)=\binom{n}{k}p^k q^{n-k}$ $k\in\{0,1,2,\dots n\}$	np	npq	$(q+pe^t)^n$
Geometric $\text{Geom}(p)$	$P(X=k)=(1-p)^k\, p$	$\dfrac{1-p}{p}$	$\dfrac{1-p}{p^2}$	
Negative Binomial $\text{NBin}(r,p)$	$P(X=n)=\binom{r+n-1}{r-1}p^r q^n$ $n\in\{0,1,2,\dots\}$	rq/p	rq/p^2	$(\frac{p}{1-qe^t})^r,\ qe^t<1$
Hypergeometric $\text{HGeom}(w,b,n)$	$P(X=k)=\binom{w}{k}\binom{b}{n-k}/\binom{w+b}{n}$ $k\in\{0,1,2,\dots,n\}$	$\mu=\frac{nw}{b+w}$	$\left(\frac{w+b-n}{w+b-1}\right)n\frac{\mu}{n}(1-\frac{\mu}{n})$	messy
Poisson $\text{Pois}(\lambda)$	$P(X=k)=\frac{e^{-\lambda}\lambda^k}{k!}$ $k\in\{0,1,2,\dots\}$	λ	λ	$e^{\lambda(e^t-1)}$
Uniform $\text{Unif}(a,b)$	$f(x)=\frac{1}{b-a}$ $x\in(a,b)$	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$	$\frac{e^{tb}-e^{ta}}{t(b-a)}$
Normal $\mathcal{N}(\mu,\sigma^2)$	$f(x)=\frac{1}{\sigma\sqrt{2\pi}}e^{-(x-\mu)^2/(2\sigma^2)}$ $x\in(-\infty,\infty)$	μ	σ^2	$e^{t\mu+\frac{\sigma^2 t^2}{2}}$
Exponential $\text{Expo}(\lambda)$	$f(x)=\lambda e^{-\lambda x}$ $x\in(0,\infty)$	$\frac{1}{\lambda}$	$\frac{1}{\lambda^2}$	$\frac{\lambda}{\lambda-t},\ t<\lambda$
Gamma $\text{Gamma}(a,b)$	$f(x)=\frac{1}{\Gamma(a)}(bx)^a e^{-bx}\frac{1}{x}$ $x\in(0,\infty)$	$\frac{a}{b}$	$\frac{a}{b^2}$	$\left(\frac{b}{b-t}\right)^a,\ t<b$
Beta $\text{Beta}(a,b)$	$f(x)=\frac{\Gamma(a+b)}{\Gamma(a)\Gamma(b)}x^{a-1}(1-x)^{b-1}$ $x\in(0,1)$	$\mu=\frac{a}{a+b}$	$\frac{\mu(1-\mu)}{(a+b+1)}$	messy
Log-Normal $\mathcal{LN}(\mu,\sigma^2)$	$\frac{1}{x\sigma\sqrt{2\pi}}e^{-(\log x-\mu)^2/(2\sigma^2)}$ $x\in(0,\infty)$	$\theta=e^{\mu+\sigma^2/2}$	$\theta^2(e^{\sigma^2}-1)$	doesn't exist
Chi-Square χ_n^2	$\frac{1}{2^{n/2}\Gamma(n/2)}x^{n/2-1}e^{-x/2}$ $x\in(0,\infty)$	n	$2n$	$(1-2t)^{-n/2},\ t<1/2$
Student-t t_n	$\frac{\Gamma((n+1)/2)}{\sqrt{n\pi}\,\Gamma(n/2)}(1+x^2/n)^{-(n+1)/2}$ $x\in(-\infty,\infty)$	0 if $n>1$	$\frac{n}{n-2}$ if $n>2$	doesn't exist