

Name	Notation	Range	Mean μ	Variance σ^2	pdf/pdf.m	Range	Mean μ	Variance σ^2	pdf/pdf.m	Range	Mean μ	Variance σ^2	pdf/pdf.m
Beta	$Be(\alpha, \beta)$	$x \in (0, 1)$	$\frac{\alpha + \beta - 1}{\alpha}$	$\frac{(\alpha + \beta)^2 (\alpha + \beta + 1)}{\alpha \beta}$	$f(x) = \frac{\Gamma(\alpha)\Gamma(\beta)}{\Gamma(\alpha + \beta)} x^{\alpha-1} (1-x)^{\beta-1}$	$x \in [0, 1]$	$\mu = \frac{\alpha}{\alpha + \beta}$	$\sigma^2 = \frac{\alpha \beta}{(\alpha + \beta)^2 (\alpha + \beta + 1)}$	$f(x) = \frac{\Gamma(\alpha)}{\Gamma(\alpha + \beta)} x^{\alpha-1} (1-x)^{\beta-1}$	$x \in [0, 1]$	$\mu = \frac{\alpha}{\alpha + \beta}$	$\sigma^2 = \frac{\alpha \beta}{(\alpha + \beta)^2 (\alpha + \beta + 1)}$	$f(x) = \frac{\Gamma(\alpha)}{\Gamma(\alpha + \beta)} x^{\alpha-1} (1-x)^{\beta-1}$
Binomial	$Bi(n, p)$	$x \in 0, \dots, n$	np	$(1-p)p^n$	$f(x) = \binom{n}{x} p^x (1-p)^{n-x}$	$x \in \mathbb{Z}^+$	$\mu = np$	$\sigma^2 = np(1-p)$	$f(x) = \binom{n}{x} p^x (1-p)^{n-x}$	$x \in 0, \dots, n$	$\mu = np$	$\sigma^2 = np(1-p)$	$f(x) = \binom{n}{x} p^x (1-p)^{n-x}$
ExponentiaL	$Ex(\lambda)$	$x \in \mathbb{R}^+$	$1/\lambda$	$1/\lambda^2$	$f(x) = \lambda e^{-\lambda x}$	$x \in \mathbb{R}^+$	$\mu = 1/\lambda$	$\sigma^2 = 1/\lambda^2$	$f(x) = \lambda e^{-\lambda x}$	$x \in \mathbb{R}^+$	$\mu = 1/\lambda$	$\sigma^2 = 1/\lambda^2$	$f(x) = \lambda e^{-\lambda x}$
Gamma	$Ga(\alpha, \lambda)$	$x \in \mathbb{R}^+$	λ/α	λ/α^2	$f(x) = \frac{\lambda^\alpha}{\Gamma(\alpha)} x^{\alpha-1} e^{-\lambda x}$	$x \in \mathbb{R}^+$	$\mu = \lambda/\alpha$	$\sigma^2 = \lambda/\alpha^2$	$f(x) = \frac{\lambda^\alpha}{\Gamma(\alpha)} x^{\alpha-1} e^{-\lambda x}$	$x \in \mathbb{R}^+$	$\mu = \lambda/\alpha$	$\sigma^2 = \lambda/\alpha^2$	$f(x) = \frac{\lambda^\alpha}{\Gamma(\alpha)} x^{\alpha-1} e^{-\lambda x}$
Geometric	$Ge(p)$	$x \in \mathbb{Z}^+$	d/b	d/b	$f(x) = p(1-p)^{x-1}$	$x \in \mathbb{Z}^+$	$\mu = d/b$	$\sigma^2 = d/b$	$f(x) = p(1-p)^{x-1}$	$x \in \mathbb{Z}^+$	$\mu = d/b$	$\sigma^2 = d/b$	$f(x) = p(1-p)^{x-1}$
HyperGeometric	$HG(n, A, B)$	$x \in 0, \dots, u$	uD	$\frac{u!}{(u-N)!N!} \frac{(A+u-1)!}{(A-u)!} \frac{(B+N-1)!}{(B-u)!}$	$f(x) = \frac{\binom{u}{x} \binom{A+u-1}{u-x} \binom{B+N-1}{u-x}}{\binom{A+B+N-1}{u}}$	$x \in \mathbb{Z}^+$	$\mu = uD$	$\sigma^2 = uD(1-uD)$	$f(x) = \frac{\binom{u}{x} \binom{A+u-1}{u-x} \binom{B+N-1}{u-x}}{\binom{A+B+N-1}{u}}$	$x \in \mathbb{Z}^+$	$\mu = uD$	$\sigma^2 = uD(1-uD)$	$f(x) = \frac{\binom{u}{x} \binom{A+u-1}{u-x} \binom{B+N-1}{u-x}}{\binom{A+B+N-1}{u}}$
Logistic	$Lo(\mu, \sigma_2)$	$x \in \mathbb{R}$	$e^{x-\mu}/[e^{x-\mu} + e^{\mu-x}]$	$1/(e^{\mu-x} + e^{x-\mu})$	$f(x) = \frac{e^{\mu-x}}{1 + e^{\mu-x}}$	$x \in \mathbb{R}$	μ	σ_2	$f(x) = \frac{e^{\mu-x}}{1 + e^{\mu-x}}$	$x \in \mathbb{R}$	μ	σ_2	$f(x) = \frac{e^{\mu-x}}{1 + e^{\mu-x}}$
LogNormal	$LN(\mu, \sigma_2)$	$x \in \mathbb{R}$	$e^{(x-\mu)/\sigma_2}/[e^{(x-\mu)/\sigma_2} + e^{(\mu-x)/\sigma_2}]$	$\sqrt{2\pi}\sigma e^{-(x-\mu)^2/2\sigma^2}$	$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-(x-\mu)^2/2\sigma^2}$	$x \in \mathbb{Z}^+$	μ	σ_2	$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-(x-\mu)^2/2\sigma^2}$	$x \in \mathbb{Z}^+$	μ	σ_2	$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-(x-\mu)^2/2\sigma^2}$
Negative Binomial	$NB(a, p)$	$x \in \mathbb{Z}^+$	$a(b-a)/a$	$a(b-a)/a$	$f(x) = \binom{x}{a-b} (1-p)^{a-b} p^x$	$x \in \mathbb{Z}^+$	$\mu = a(b-a)/a$	$\sigma^2 = a(b-a)/a$	$f(x) = \binom{x}{a-b} (1-p)^{a-b} p^x$	$x \in \mathbb{Z}^+$	$\mu = a(b-a)/a$	$\sigma^2 = a(b-a)/a$	$f(x) = \binom{x}{a-b} (1-p)^{a-b} p^x$
Normal	$No(\mu, \sigma_2)$	$x \in \mathbb{R}$	$\sqrt{2\pi}\sigma e^{-(x-\mu)^2/2\sigma^2}$	$1/(2\sigma\sqrt{\pi}) e^{-(x-\mu)^2/2\sigma^2}$	$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-(x-\mu)^2/2\sigma^2}$	$x \in \mathbb{R}$	μ	σ_2	$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-(x-\mu)^2/2\sigma^2}$	$x \in \mathbb{R}$	μ	σ_2	$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-(x-\mu)^2/2\sigma^2}$
Pareto	$Pa(\alpha, \beta)$	$x \in (a, \infty)$	$\beta a / x^{\beta-1}$	$\beta a / x^{\beta-1}$	$f(x) = \beta a / x^{\beta-1}$	$x \in \mathbb{R}^+$	α	β	$f(x) = \beta a / x^{\beta-1}$	$x \in \mathbb{R}^+$	α	β	$f(x) = \beta a / x^{\beta-1}$
Poisson	$Po(\lambda)$	$x \in \mathbb{Z}^+$	$\lambda e^{-\lambda} / x!$	$\lambda e^{-\lambda} / x!$	$f(x) = \frac{\lambda^x e^{-\lambda}}{x!}$	$x \in \mathbb{R}^+$	λ	λ	$f(x) = \frac{\lambda^x e^{-\lambda}}{x!}$	$x \in \mathbb{R}^+$	λ	λ	$f(x) = \frac{\lambda^x e^{-\lambda}}{x!}$
Snedecor F	$F(\nu_1, \nu_2)$	$x \in \mathbb{R}^+$	$\frac{\nu_1}{\nu_1 + \nu_2} x^{\frac{\nu_1}{2}} (1-x^{\frac{\nu_1}{2}})^{\frac{\nu_2}{2}}$	$\frac{\nu_1}{\nu_1 + \nu_2} x^{\frac{\nu_1}{2}} (1-x^{\frac{\nu_1}{2}})^{\frac{\nu_2}{2}}$	$f(x) = \frac{\Gamma(\frac{\nu_1}{2})}{\Gamma(\frac{\nu_1 + \nu_2}{2})} x^{\frac{\nu_1}{2}} (1-x^{\frac{\nu_1}{2}})^{\frac{\nu_2}{2}}$	$x \in \mathbb{R}^+$	ν_2	ν_1	$f(x) = \frac{\Gamma(\frac{\nu_1}{2})}{\Gamma(\frac{\nu_1 + \nu_2}{2})} x^{\frac{\nu_1}{2}} (1-x^{\frac{\nu_1}{2}})^{\frac{\nu_2}{2}}$	$x \in \mathbb{R}^+$	ν_2	ν_1	$f(x) = \frac{\Gamma(\frac{\nu_1}{2})}{\Gamma(\frac{\nu_1 + \nu_2}{2})} x^{\frac{\nu_1}{2}} (1-x^{\frac{\nu_1}{2}})^{\frac{\nu_2}{2}}$
Student t	$t(\nu)$	$x \in \mathbb{R}$	$\frac{\Gamma(\frac{\nu+1}{2})}{\Gamma(\frac{\nu}{2})} x^{\frac{\nu-1}{2}} (1+x^2)^{-\frac{\nu+1}{2}}$	$\frac{\Gamma(\frac{\nu+1}{2})}{\Gamma(\frac{\nu}{2})} x^{\frac{\nu-1}{2}} (1+x^2)^{-\frac{\nu+1}{2}}$	$f(x) = \frac{\Gamma(\frac{\nu}{2})}{\Gamma(\frac{\nu+1}{2})} x^{\frac{\nu-1}{2}} (1+x^2)^{-\frac{\nu+1}{2}}$	$x \in \mathbb{R}$	ν	ν	$f(x) = \frac{\Gamma(\frac{\nu}{2})}{\Gamma(\frac{\nu+1}{2})} x^{\frac{\nu-1}{2}} (1+x^2)^{-\frac{\nu+1}{2}}$	$x \in \mathbb{R}$	ν	ν	$f(x) = \frac{\Gamma(\frac{\nu}{2})}{\Gamma(\frac{\nu+1}{2})} x^{\frac{\nu-1}{2}} (1+x^2)^{-\frac{\nu+1}{2}}$
Uniform	$Un(a, b)$	$x \in [a, b]$	$(b-a)/(b-a)$	$(b-a)/(b-a)$	$f(x) = \frac{1}{b-a}$	$x \in [a, b]$	a	b	$f(x) = \frac{1}{b-a}$	$x \in [a, b]$	a	b	$f(x) = \frac{1}{b-a}$