where the scale parameter *b*>0 and the shape parameter is *a*.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsLogisticCDF** and **StatsInvLogisticCDF** functions.

StatsLogNormalCDF

StatsLogNormalCDF(*x*, σ [, θ, μ])

The StatsLogNormalCDF function returns the lognormal cumulative distribution function

$$F(x;\sigma,\theta,\mu) = \frac{1}{\sigma\sqrt{2\pi}}\int_0^x \frac{1}{t-\theta}\exp\left\{-\left[\ln\left(\frac{t-\theta}{\mu}\right)\right]^2 \Big/ 2\sigma^2\right\}dt,$$

for $x > \theta$ and $\sigma, \mu > 0$. The standard lognormal distribution is for $\theta=0$ and $\mu=1$, which are the optional parameter defaults.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsLogNormalPDF** and **StatsInvLogNormalCDF** functions.

StatsLogNormalPDF

StatsLogNormalPDF(*x*, σ [, θ, μ])

The StatsLogNormalPDF function returns the lognormal probability distribution function

$$f(x;\sigma,\theta,\mu) = \frac{1}{\sigma\sqrt{2\pi}}\frac{1}{x-\theta}\exp\left\{-\left[\ln\left(\frac{x-\theta}{\mu}\right)\right]^2 \Big/ 2\sigma^2\right\},$$

for $x > \theta$ and $\sigma, \mu > 0$, where θ is the location parameter, μ is the scale parameter and, σ is the shape parameter. The standard lognormal distribution is for $\theta=0$ and $\mu=1$, which are the optional parameter defaults.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsLogNormalCDF** and **StatsInvLogNormalCDF** functions.

Reference

The expression for the PDF follows the NIST definition at: https://www.itl.nist.gov/div898/handbook/eda/section3/eda3669.htm. Note that alternate definitions use μ differently.

StatsMaxwellCDF

StatsMaxwellCDF(*x*, *k*)

The StatsMaxwellCDF function returns the Maxwell cumulative distribution function

$$F(x;k) = gammp\left(\frac{3}{2}, \frac{kx^2}{2}\right), \qquad x > 0.$$

where **gammp** is the regularized incomplete gamma function.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsMaxwellPDF** and **StatsInvMaxwellCDF** functions.