

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsPowerPDF**, **StatsInvPowerCDF** and **StatsPowerNoise** functions.

StatsPowerNoise**StatsPowerNoise (b, c)**

The StatsPowerNoise function returns a pseudorandom value from the power distribution function with probability distribution:

$$f(x;b,c) = \frac{c}{x} \left(\frac{x}{b} \right)^c.$$

The random number generator initializes using the system clock when Igor Pro starts. This almost guarantees that you will never repeat a sequence. For repeatable “random” numbers, use SetRandomSeed. The algorithm uses the Mersenne Twister random number generator.

See Also

The **SetRandomSeed** operation.

The **StatsPowerPDF** **StatsInvPowerCDF** and **StatsInvPowerCDF** functions.

Noise Functions on page III-390.

Chapter III-12, **Statistics** for a function and operation overview.

StatsPowerPDF**StatsPowerPDF (x, b, c)**

The StatsPowerPDF function returns the Power Function probability distribution function

$$f(x,b,c) = \frac{|c|}{x} \left(\frac{x}{b} \right)^c,$$

where b is a scale parameter and c is a shape parameter.

For $b,c > 0$, x is drawn from $b \geq x \geq 0$.

For $b>0, c<0$, x is drawn from $x>b$.

For $b<0, c>0$, x is drawn from $-b \leq x \leq 0$.

For $b<0, c<0$, x is drawn from $x<-b$.

Note that for $-1 < c < 0$ the average diverges and the magnitude of a mean calculated from N samples will increase indefinitely with N.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsPowerCDF**, **StatsInvPowerCDF** and **StatsPowerNoise** functions.

StatsQCDF**StatsQCDF (q, r, c, df)**

The StatsQCDF function returns the value of the Q cumulative distribution function for r the number of groups, c the number of treatments, and df the error degrees of freedom ($f=rc(n-1)$ with sample size n).

Details

The Q distribution is the maximum of several Studentized range statistics. For a simple Tukey test, use $r=1$.

References

Copenhaver, M.D., and B.S. Holland, Multiple comparisons of simple effects in the two-way analysis of variance with fixed effects, *Journal of Statistical Computation and Simulation*, 30, 1-15, 1988.