## Random number generators

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Updated: 25/03/2020

| | Matlab | Python* | Mathematica |
|---|---|---|---|
| $\mathcal{U}[0,1]$ | `rand()` | `random()` | `RandomReal[]` |
| | | `rand()` | `RandomVariate[UniformDistribution[]]` |
| | | `random_sample()` | |
| | | `ranf()` | |
| | | `uniform(a,b,n)` | |
| $\mathcal{N}(0,1)$ | `randn()` | `randn()` | `RandomVariate[NormalDistribution[]]` |
| | | `standard_normal()` | |
| $\mathcal{N}(\mu,\sigma^2)$ | `normrnd(`$\mu,\sigma$`)` | `normal(`$\mu,\sigma$`)` | `RandomVariate[NormalDistribution[`$\mu,\sigma$`]]` |
| Uniform integers | `randi(b,n)` | `randint(a,b,n,dtype)` | `RandomInteger[a,b]` |
| Exp($\lambda$) | `exprnd(`$\lambda$`)` | `exponential(`$1/\lambda$`)` | `RandomVariate[ExponentialDistribution[`$\lambda$`]]` |
| Bern($p$) | `binornd(1,p)` | `binomial(1,p)` | `RandomVariate[BernoulliDistribution[p]]` |
| Bin($n$, $p$) | `binornd(n,p)` | `binomial(n,p)` | `RandomVariate[BinomialDistribution[n,p]]` |
| Poisson($\lambda$) | `poissrnd(`$\lambda$`)` | `poisson(`$\lambda$`))` | `RandomVariate[PoissonDistribution[`$\lambda$`]]` |
| Cauchy($a,b$) | | `standard_cauchy()` | `RandomVariate[CauchyDistribution[a,b]]` |
| Choices | `randsample(n,k)**` | `choice(a,n)` | `RandomChoice[list]` |
| Permutations | `randsample(n,n)**` | `shuffle(a)` | `RandomSample[list]**` |
| | | `permutation(a)` | |

* Part of the `numpy.random` package
** Without replacement
Python package `scipy.stats` has definition of many random variables with mean, variance, skewness, kurtosis, etc., as well as various methods to draw the pdf, cdf, etc.