

# Package ‘truncnorm’

March 20, 2023

**Version** 1.0-9

**Title** Truncated Normal Distribution

**Description** Density, probability, quantile and random number generation functions for the truncated normal distribution.

**URL** <https://github.com/olafmersmann/truncnorm>

**BugReports** <https://github.com/olafmersmann/truncnorm/issues>

**Depends** R (>= 3.4.0)

**Suggests** testthat

**License** GPL (>= 2)

**Encoding** UTF-8

**NeedsCompilation** yes

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**Repository** CRAN

**Date/Publication** 2023-03-20 21:40:02 UTC

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truncnorm

*The Truncated Normal Distribution***Description**

Density, distribution function, quantile function, random generation and expected value function for the truncated normal distribution with mean equal to 'mean' and standard deviation equal to 'sd'.

**Usage**

```
dtruncnorm(x, a=-Inf, b=Inf, mean = 0, sd = 1)
ptruncnorm(q, a=-Inf, b=Inf, mean = 0, sd = 1)
qtruncnorm(p, a=-Inf, b=Inf, mean = 0, sd = 1)
rtruncnorm(n, a=-Inf, b=Inf, mean = 0, sd = 1)
etruncnorm(a=-Inf, b=Inf, mean=0, sd=1)
vtruncnorm(a=-Inf, b=Inf, mean=0, sd=1)
```

**Arguments**

x, q	vector of quantiles.
p	vector of probabilities.
n	number of observations. If 'length(n) > 1', the length is taken to be the number required.
a	vector of lower bounds. These may be -Inf
b	vector of upper bounds. These may be Inf
mean	vector of means.
sd	vector of standard deviations.

**Details**

If mean or sd are not specified they assume the default values of 0 and 1, respectively. The values of a, b, mean and sd are recycled as needed.

The numerical arguments other than n are recycled to the length of the result.

**Value**

'dtruncnorm' gives the density, 'ptruncnorm' gives the distribution function, 'qtruncnorm' gives the quantile function, 'rtruncnorm' generates random deviates, 'etruncnorm' gives the expected value and 'vtruncnorm' the variance of the distribution.

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## References

The accept-reject sampler follows the description given in

Geweke, J. (1991). *Efficient simulation from the multivariate normal and student-t distributions subject to linear constraints*. In *Computing Science and Statistics: Proceedings of the 23rd Symposium on the Interface*, Ed. E. Keramidas and S. Kaufman, pp. 571-8. Fairfax Station, VA: Interface Foundation of North America.

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