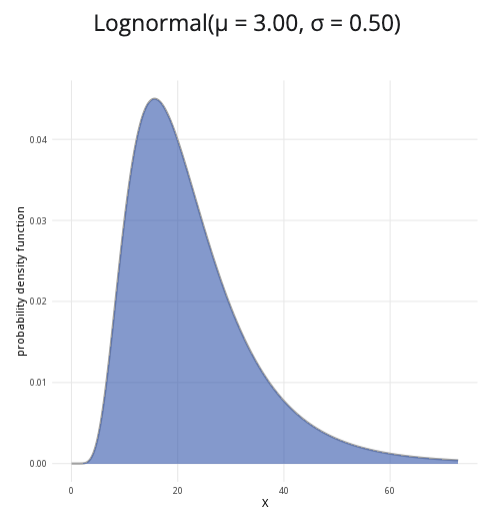
Factsheet: Lognormal distribution

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Summary

A factsheet for the lognormal distribution.



An example of the lognormal distribution with and .

**Where to use:** The lognormal distribution is used to model continuous random variables with values that are both real and non-negative, wherein the logarithms of these variables follow a normal distribution. That is to say, if the random variable is lognormally distributed, then the random variable is normally distributed (where is the natural logarithm).

**Notation:**

**Parameters:** As with the normal distribution, two numbers and where:

* is the expected value of the normally distributed random variable ,
* is the variance of the normally distributed random variable .

| Quantity | Value | Notes |
| --- | --- | --- |
| **Mean** |  |  |
| **Variance** |  |  |
| **PDF** |  |  |
| **CDF** |  | is the error function of |

**Example:** The logarithms of Cantor’s Confectionery’s stock prices follow a normal distribution. The mean of the stock prices’ natural logarithms is , whereas the variance of the stock prices’ natural logarithms is . This can be expressed as , meaning the logarithm of the location parameter is and the logarithm of scale parameter is .

# Further reading

[This interactive element appears in Overview: Probability distributions. Please click this link to go to the guide.](../overviews/o-distributions.qmd)

## Version history

v1.0: initial version created 04/25 by tdhc and Michelle Arnetta as part of a University of St Andrews VIP project.

* v1.1: moved to factsheet form and populated with material from [Overview: Probability distributions](../overviews/o-distributions.qmd) by tdhc.

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