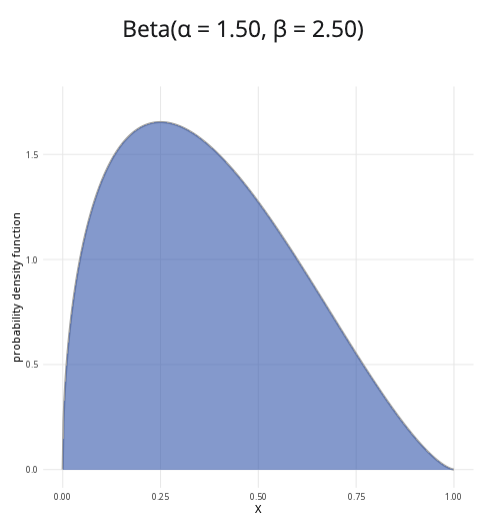
Factsheet: Beta distribution

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Summary

A factsheet about the beta distribution.



An example of the beta distribution with and .

**Where to use:** The beta distribution is used to model the distribution of *probabilities* or proportions. Hence, the random variable .

**Notation:**

**Parameters:** Two positive real numbers , which are shape parameters. These can be specified as follows in terms of and where is the number of Bernoulli trials and is the number of successes:

| Quantity | Value | Notes |
| --- | --- | --- |
| **Mean** |  |  |
| **Variance** |  |  |
| **PDF** |  | is the beta function |
| **CDF** |  | is the regularized incomplete beta function |

**Example:** Cantor’s Confectionery is visited by 10 customers, and 6 of them purchase something from the store. Taking the buying customers as successes and the total visiting customers as number of trials, there would be 6 successes, allowing you to find the following parameters:

Then the distribution of the probabilities of a customer purchasing from Cantor’s Confectionery can be expressed as , meaning the first shape parameter is 7 and the second shape parameter is 5.

# 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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