



Definition

The *expectation* (or *expected value*) of a real-valued random variable defined on a probability space is its integral with respect to the probability measure. The expectation of a random variable is also called its *mean*.

Notation

Let (X, \mathcal{A}, μ) be a probability space and $f : X \rightarrow \mathbf{R}$ be a random variable. We denote the expectation of f by $\mathbf{E}f$, defined:

$$\mathbf{E}f = \int f d\mu.$$

