

Real-Valued Random Variable Expectation

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

Suppose $f: X \to \mathbf{R}$ is a random variable on a probability space (X, \mathcal{A}, P) . We denote the expectation of f by $\mathbf{E}f$, so that

$$\mathbf{E}f:=\int fdP.$$

