

Real Probability Densities

Why

We want to talk about probability on the set of outcomes which is the real numbers.

Definition

A probability density or probability density function is a real-valued function on the reals which is nonnegative and normalized. A real-valued function on the reals is normalized if it integrates to 1.

Notation

Let $f : \mathbb{R} \to \mathbb{R}$ with $f \ge 0$ and $\int f = 1$. Then f is a probability density.

