



Integrable Function Space

1 Why

We have seen that the linear combination of integrable functions is integrable. Thus, the integrable functions are a vector space.

2 Definition

2.1 Notation

Let (X, \mathcal{A}, μ) be a measure space. Let R denote the set of real numbers and let C denote the set of complex numbers. We denote set the real-valued integrable functions on X by $\mathcal{L}^1(X, \mathcal{A}, \mu, R)$. We denote set the complex-valued integrable functions on X by $\mathcal{L}^1(X, \mathcal{A}, \mu, C)$. When the field is irrelevant, we denote them by $\mathcal{L}^1(X, \mathcal{A}, \mu)$.