

Dirac Delta Function

沈威宇

January 7, 2025

Contents

1	Dirac Delta Function	1
---	--------------------------------	---

1 Dirac Delta Function

Dirac δ function: $\delta(x)$

$$\delta(x) = \begin{cases} \infty, & x = 0, \\ 0, & x \neq 0. \end{cases}$$

$$\forall \epsilon > 0 : \int_{a-\epsilon}^{a+\epsilon} f(x) \delta(x-a) \, dx = f(a).$$

$$\int_{0^-}^{0^+} \delta(x) \, dx = \frac{1}{2}.$$

$$\int_{-\infty}^{\infty} \delta(x) \, dx = 1.$$