probability measure on $(\mathbb{R}, \mathcal{B})$,

$P^X : \mathcal{B} \to [0,1]$

correspondence theorem

commulative distribution function,

$F : \mathbb{R} \to [0,1]$

$P^X \ll \lambda$, σ-finite:

$f = \frac{\mathrm{d}P^X}{\mathrm{d}\lambda}$, Radon-Nikodym

P^X discrete (means?):

$f(x) = P^X(\{x\})$

continuous:

$P^X(A) = \int_A f \,\mathrm{d}\lambda$

discrete:

$P^X(A) = \sum_{x \in A} f(x)$

X continuous:

probability density function

$f : \mathbb{R} \to [0, \infty)$

X discrete:

probability mass funciton

$f : \mathbb{R} \to [0,1]$