



Measure theory - Part 1

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X set

$P(X)$ power set X

Example:

$$X = \{a, b\}$$

$$P(X) = \{\emptyset, X, \{a\}, \{b\}\}$$

Definition:

$A \subseteq P(X)$ is.

Length: $b-a$
 ↑
 different notions
 of length

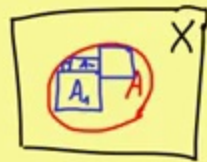
Definition:

$\mathcal{A} \subseteq \mathcal{P}(X)$ is called a σ -algebra:

(a) $\emptyset, X \in \mathcal{A}$

(b) $A \in \mathcal{A} \Rightarrow A^c := X \setminus A \in \mathcal{A}$

(c) $A_i \in \mathcal{A}, i \in \mathbb{N} \Rightarrow \bigcup_{i=1}^{\infty} A_i \in \mathcal{A}$



$A \in \mathcal{A}$ is called a \mathcal{A} -measurable set.

Example: (1)

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