Definition (Measure) Given a measurable space (S, Σ), a measure is a function $\mu : \sigma \to [0, \infty]$ such that for every countable I and for every family $\{A_i \in \Sigma\}_{i \in I}$, if $\forall i, j \in I.\ A_i \cap A_j = \emptyset$, then

$$\mu(\bigcup_{i \in I} A_i) = \Sigma_{i \in I} \mu(A_i)$$

Definition (Probability measure) A probability measure is like a measure (the elements of Σ are called *events*) with the difference that $\mu : \sigma \to [0, 1]$ and that we additionally require

$$\mu(S) = 1$$

Proposition $\mu(\bar{A}) = 1 - \mu(A)$