

Theory recap 2.10.24

Recall from last week that

Take-away

- (Ω, \mathcal{A}, P) with $P : \mathcal{A} \rightarrow [0, 1]$ and $P(\Omega) = 1$
- $X : \Omega \rightarrow F$ countable, with $\{X = x\} \in \mathcal{A}$ for all $x \in F$
- $\mu : F \rightarrow [0, 1]$ such that $\mu(x) = P\{X = x\}$

In this section when we say “ X is a RV” we mean “ $X : \Omega \rightarrow F \subset \mathbb{R}$ is a discrete random variable with real values.”

- A RV is *integrable* if $\sum_{x \in F} |x| P(X = x) < +\infty$, and in this case its *expected value* $\mathbb{E}(X)$ is the real number

$$\mathbb{E}(X) := \sum_{x \in F} x P(X = x).$$

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