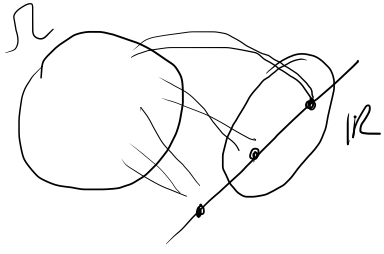
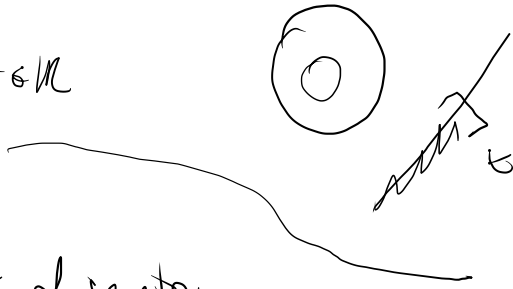
$X : \Omega \to \mathbb{R}$ t.c. $\{\omega \in \Omega : X(\omega) \in t\} \in \mathcal{A} \quad \forall t \in \mathbb{R}$



$X$ è discreta se $S_X$ è discreto

$$P(X \in B) = \sum_{x_i \in S_X \cap B} P(X = x_i) = \sum_{x_i \in S_X \cap B} p_X(x_i) \qquad B \subset \mathbb{R}$$

$P(X = x) = 0$ se $x \notin S_X$

$p_X : \mathbb{R} \to [0,1] \qquad p_X(x) = P(X = x)$

$X$ t.c. $P_X(0) = \frac{1}{2}$ $P_X(-1) = \frac{1}{4}$ $P_X(2) = \frac{1}{8}$ $P_X(3) = \frac{1}{8}$

$S_X = \{-1, 0, 2, 3\}$ $P(X \geq 1) = ?$

- $B = [1, +\infty)$ $S_X \cap B = \{2, 3\}$ $P(X \geq 1) = \underbrace{P(X=2)}_{=P_X(2)} + \underbrace{P(X=3)}_{=P_X(3)} = \frac{1}{8} + \frac{1}{8} = \frac{1}{4}$

- $P(|X| \geq \frac{1}{2}) = ?$

$B = (-\infty, \frac{1}{2}] \cup [\frac{1}{2}, \infty)$ $S_X \cap B = \{-1, 2, 3\}$

$P(|X| \geq \frac{1}{2}) = P_X(-1) + P_X(2) + P_X(3) = \frac{1}{4} + \frac{1}{8} + \frac{1}{8} = \frac{1}{2}$

$X = \#$ successi in 4 prove

$S_X \in \{0, 1, 2, 3, 4\}$

$P(\text{almeno due successi}) = ?$

$P(X \geq 2) = p_X(2) + p_X(3) + p_X(4)$