TD 8 : Proba

$\mathbb{E}(X) = \sum_k k\, P(X=k)$, $k \in X(\Omega)$

$X \sim \mathcal{B}(p)$ $\quad \mathbb{E}(X) = p$ $\quad Var(X) = p(1-p)$

$X \sim \mathcal{B}(n,p)$. $\mathbb{E}(X) = np$, $Var(X) = np(1-p)$

$X \sim \mathcal{G}(p)$. $\mathbb{E}(X) = \frac{1}{p}$. $Var(X) = \frac{1-p}{p^2}$.

$X \sim \mathcal{P}(\alpha)$, $\mathbb{E}(X) = Var(X) = \alpha$

$X \sim \mathcal{E}(\theta)$ $\quad \mathbb{E}(X) = \frac{1}{\theta}$. $Var(X) = \frac{1}{\theta^2}$

$X \sim \mathcal{N}(\mu, \sigma)$ $\quad \mathbb{E}(X) = \mu$, $Var(X) = \sigma^2$

$X \sim G(p) \rightarrow \mathbb{P}(X=k) = (1-p)^{k-1} p$, $k \in \mathbb{N}$