LGN: siano $X_1, \dots, X_n$ v.a. i.i.d. con $E(X_1) = \mu$ e $var(X_1) = \sigma^2$ finita. Allora: $\frac{1}{n}\sum_{i=1}^{n} X_i \xrightarrow{p} \mu$

$$\hat{\Theta} = \frac{1}{n}\sum_{i=1}^{n} g(X_i) \xrightarrow{p} E(g(X)) = \Theta$$

$$X \sim Bi(n,p), P(X=k) = \binom{n}{k} p^k (1-p)^{n-k}$$
$$E(X) = np$$
$$E(X^2) = n(n-1)p^2 + np$$
$$Var(x) = E(x^2) - E(x)^2 = np(1-p)$$
$$\binom{n}{k} = \frac{n!}{k!(n-k)!}$$

$$Y \sim Pois(\lambda) = \frac{\lambda^k}{k!} e^{-\lambda}$$
$$E(Y) = Var(Y) = \lambda$$

$$X \sim N(\mu, \sigma^2)$$
$$E(X) = \mu$$
$$P(a < X < b) = P(X < b) - P(X < a)$$
$$P(X > a) = 1 - P(X \leq a) = 1 - \phi\left(\frac{X-\mu}{\sigma}\right)$$

$$E(xy) = E(x)E(y) \iff x \perp\!\!\!\perp y$$
$$Var(x) = E(x^2) - E(x)^2$$
$$Var(ax+b) = a^2 Var(x)$$
$$Var(x,y) = Var(x) + Var(y) - Cov(x,y)$$
$$Cov(x,y) = E(xy) - E(x)E(y)$$