Formulário

$$P(X=x)=\binom{n}{x}p^x(1-p)^{n-x},\ x=0,1,...,n;\quad E(X)=np,\quad V(X)=np(1-p)$$

$$P(X=x)=\frac{e^{-\lambda}\lambda^x}{x!},\ x=0,1,...;\quad E(X)=V(X)=\lambda$$

$$P(X=x)=p(1-p)^{x-1},\ x=1,2,...;\ F_X(x)=1-(1-p)^{\lfloor x\rfloor},x\geq 1;\quad E(X)=\frac{1}{p}\quad V(X)=\frac{1-p}{p^2}$$

$$f_X(x)=\frac{1}{b-a},\ a\leq x\leq b;\quad E(X)=\frac{b+a}{2}\quad V(X)=\frac{(b-a)^2}{12}$$

$$f_X(x)=\lambda e^{-\lambda x},\ x\geq 0\quad E(X)=\frac{1}{\lambda}\quad V(X)=\frac{1}{\lambda^2}$$

$$f_X(x)=\frac{1}{\sqrt{2\pi\sigma^2}}\exp\left\{-\frac{(x-\mu)^2}{2\sigma^2}\right\},\ x\in\mathbb{R}\quad E(X)=\mu\quad V(X)=\sigma^2$$

$$f_X(x)=\lambda e^{-\lambda x}\frac{(\lambda x)^{n-1}}{(n-1)!},x\geq 0,\quad E(X)=\frac{n}{\lambda},\quad V(X)=\frac{n}{\lambda^2}$$

$\{N(t),t\geq 0\}\sim PP(\lambda);N(t)\sim Poisson(\lambda t);T_n\sim Exp(\lambda);N(t)\geq n\Leftrightarrow S_n\leq t;$
$N(s)|N(t)=n\sim Bin(n,s/t)$

$\{B(t),t\geq 0\}\sim$ MB standard $;B(t)\sim\mathcal{N}(0,t);P(T_m\leq t,B(t)\leq w)=P(B(t)\geq 2m-w),w\leq m,m>0$

$$B(s)|B(t)=x_0\sim\mathcal{N}\left(\frac{sx_0}{t},\frac{s(t-s)}{t}\right);P(T_a<T_{-b})=\frac{b}{a+b},a>0,b>0$$

$$X_i\underset{i.i.d}{\sim}X;\bar{X}=\frac{1}{n}\sum_{i=0}^{n}X_i;S_n=\sum_{i=1}^{n}X_i;\bar{X}\sim\mathcal{N}\left(E(X),\frac{V(X)}{n}\right);S_n\sim\mathcal{N}\left(nE(X),nV(X)\right)$$

$$X\geq 0,P(X\geq a)\leq\frac{1}{a}E(X);\quad P(|X-\mu|\geq k)\leq\frac{\sigma^2}{k^2},k>0$$