SOME FORMULAS

$$E(X)=\sum_{all\ x} x\cdot f_X(x) \qquad E(X)=\int_{-\infty}^{\infty} x\cdot f_X(x)dx \qquad E(X)=np$$

$$E(X)=\frac{a+b}{2} \qquad E(X)=\alpha \qquad E(\bar{X})=\mu_X \qquad \bar{x}=\frac{\sum_{i=1}^{n} x_i}{n}$$

$$V(X)=\sum_{all\ x}\left(x-\mu_X\right)^2 f_X(x) \qquad V(X)=\int_{-\infty}^{\infty}\left(x-\mu_X\right)^2 f_X(x)dx \qquad V(X)=np(1-p)$$

$$V(X)=\frac{(b-a)^2}{12} \qquad V(X)=\alpha^2 \qquad V(\bar{X})=\frac{V(X)}{n} \qquad s^2=\frac{\sum_{i=1}^{n}\left(x_i-\bar{x}\right)^2}{n-1}$$

$$f_X(x)=\begin{cases}0 & x<0\\ \frac{1}{\alpha}e^{-\frac{x}{\alpha}} & x\geq 0\end{cases} \qquad F_X(x)=\begin{cases}0 & x<0\\ 1-e^{-\frac{x}{\alpha}} & x\geq 0\end{cases}$$

$$f_X(x)=\begin{cases}0 & x<a\\ \frac{1}{b-a} & a\leq x\leq b\\ 0 & x>b\end{cases} \qquad F_X(x)=\begin{cases}0 & x<a\\ \frac{x-a}{b-a} & a\leq x\leq b\\ 1 & x>b\end{cases}$$

$$f_X(x)=\frac{1}{\sigma\sqrt{2\pi}}e^{-0.5\left(\frac{x-\mu}{\sigma}\right)^2} \qquad S=\frac{X-\mu_X}{\sigma_X}$$

$$\bar{x}-\sqrt{\frac{s^2}{n}}\cdot z_o\leq \mu_X \leq \bar{x}+\sqrt{\frac{s^2}{n}}\cdot z_o$$