

$$E(X^2) - [E(X)]^2 = E(X^2) - \mu^2$$

The followings are for ? distribution:

$$f(x) = \binom{n}{x} p^x (1-p)^{n-x}$$

$$E(X) = np$$

$$Var(X) = np(1-p)$$

$$\binom{n}{x} = \frac{n!}{x!(n-x)!}$$

The following is for ? distribution:

$$f(x) = \frac{\mu^x e^{-\mu}}{x!}$$

The following is for ? distribution:

$$f(x) = \begin{cases} \frac{1}{b-a} & \text{for } a \leq x \leq b \\ 0 & \text{otherwise,} \end{cases}$$

The following is for ? distribution:

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\frac{(x-\mu)^2}{\sigma^2}}$$

The following is for ? distribution:

$$f(z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}z^2}$$