$$P(A|B) = \frac{P(A \cap B)}{P(B)} \tag{1}$$

$$B(n,p) = \binom{n}{x} p^x (1-p)^{n-x} = \frac{n!}{x!(n-x)!} p^x (1-p)^{n-x} \tag{2}$$

$$P(\lambda) = e^{-\lambda} \frac{\lambda^x}{x!} \tag{3}$$