Appendix A Formula Sheet

$P[notA] = 1 - P[A]$

$P[AorB] = P[A] + P[B] - P[AandB]$

with equally likely outcomes $P[A] = \dfrac{\text{the number of outcomes in } A}{\text{the number of outcomes in } \mathcal{S}}$

$P[A \mid B] = \dfrac{P[AandB]}{P[B]}$

$P[AandB] = P[A \mid B] \cdot P[B]$

$R_{\mathrm{S}} = r_1 \cdot r_2 \cdot r_3 \cdot \cdots \cdot r_k$

$R_{\mathrm{P}} = 1 - (1 - r_1)(1 - r_2)(1 - r_3) \cdots (1 - r_k)$

$k \approx \dfrac{\ln(1 - R_{\mathrm{P}})}{\ln(1 - r)}$

$P_{n,r} = n(n-1)(n-2)\cdots(n-r+1) = \dfrac{n!}{(n-r)!}$

$\dbinom{n}{r} = \dfrac{n!}{r!\,(n-r)!}$

$$F(t) = \int_0^t f(x)\,dx$$
$$f(t) = \frac{d}{dt}F(t)$$
$$S(t) = 1 - F(t)$$
$$h(t) = \frac{f(t)}{S(t)}$$
$$S(t) = \exp\left(-\int_0^t h(x)\,dx\right)$$
$$f(t) = h(t)\exp\left(-\int_0^t h(x)\,dx\right)$$

$f_{\boldsymbol{\Theta}}(\mathbf{y})$

$L(\boldsymbol{\Theta}) = \ln\left(f_{\boldsymbol{\Theta}}(\mathbf{y})\right)$

$L(\boldsymbol{\Theta}) = \ln\left(f_{\boldsymbol{\Theta}}^{(1)}(\mathbf{y}_1)\right) + \ln\left(f_{\boldsymbol{\Theta}}^{(2)}(\mathbf{y}_2)\right)$

$L^* = \max\limits_{\boldsymbol{\Theta}} L(\boldsymbol{\Theta})$

$\{\boldsymbol{\Theta} \mid L(\boldsymbol{\Theta}) > L^* - c\}$

$c = \frac{1}{2}U$