

STAT 509 Test 1 Formulas

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

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

$$P(A|B) = \frac{P(A)P(B|A)}{P(A)P(B|A) + P(\bar{A})P(B|\bar{A})}$$

$$\mu = \sum y P(y) \quad \sigma^2 = \sum (y - \mu)^2 P(y) = [\sum y^2 P(y)] - \mu^2$$

$$P(y) = \binom{n}{y} p^y q^{n-y} \quad np \quad npq$$

$$P(y) = \frac{\binom{r}{y} \binom{N-r}{n-y}}{\binom{N}{n}} \quad n \frac{r}{N}$$

$$P(y) = \frac{\lambda^y e^{-\lambda}}{y!} \quad P(y) = \frac{(\lambda t)^y e^{-\lambda t}}{y!}$$

$$\frac{a+b}{2} \quad \frac{(b-a)^2}{12} \quad f(y) = \lambda e^{-\lambda y}, \quad F(y) = 1 - e^{-\lambda y}$$
$$P(Y > y) = e^{-\lambda y}$$

$$S^2 = \frac{\sum_{i=1}^n (y_i - \bar{y})^2}{n-1} \quad \bar{y} = \frac{1}{n} \sum_{i=1}^n y_i$$

$$\mu = E(Y) = \int y f(y) dy$$