Standard deviation = $\sqrt{\frac{\sum(x-x_1)^2}{n-1}}$

Permutation = $\frac{n!}{(n-r)!}$

Combination = $\frac{n!}{r!(n-r)!}$

Conditional probability = $P(A\ B) = \frac{P(A \cap B)}{P(B)}$

Multiplicity of law of probability = $P(A \cap B) = p(A) \cdot P(B\ A)\ P(B) \cdot (P\ A\ B)$

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

Bayes Theorem = $P(A\ B) = \frac{(P(A\ B)\ P(B))}{P(A)}$

Discrete random variables $E[y] = y \in Y \sum y\, p(y)$

Variance = $V[y] = E[(y-\mu)^2]$

Standard deviation = $\sqrt{V[y]}$

Binomial distribution =$p(Y) = {}^{n}_{y}\ p^y q^{n-y}$

Geometric distribution = $q^{y-1}P$

Expected = $E(y) = yP$

Variance = $v(y) = \frac{1-p}{p^2}$

Hyper Geometric distribution $p(y) = \frac{\binom{R}{y}\binom{n-R}{n-y}}{\binom{N}{n}}$

Expected = $\frac{nR}{n}$

Variance = $n\left(\frac{r}{N}\right)\left(\frac{(N-r)}{N}\right)$

Poison distribution = $\frac{\lambda^y}{y!^e} - \lambda$

Expected = λ

Variance = λ

Density function = $E(y) = \int_{-\infty}^{\infty} y\, f(y) dy$

Variance = $V(Y) = E[(y - \mu)^2]$