Formulas for Probability and Statistics

Sample Variance:

Population Variance:

Standard Deviation Sample:

Standard Deviation Population:

**Multiplicative law of probability**

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If A and B are independent, then

**Additive law of probability**

If A and B mutually exclusive

**Independence:**

Otherwise, they are dependent.

Conditional Probability of event A, given B

**Combination:**

**Permutation:**

**Bayes’ Theorem:**

**Permutations for Discrete Random Variables:**

**Variance of random Variable Y**

**Standard Deviation of Y**

**Probability Mass Function for Binomial Distribution**

Expected Value:

Variance:

**Geometric Probability Distribution**

Expected Value:

Variance:

**Hypergeometric Probability Distribution**

Expected Value:

Variance:

**Negative Binomial Distribution**

Expected Value:

Variance: