Permutations:

Combinations:

Conditional Probability of A:

Two events A and B are independent:

The Multiplicative law:

If independent:

The Additive law:

If A and B are mutually exclusive and ,

If A is an event, then:

Binomial Distribution:

Binomial random variable based on n trials and success probability p:

Geometric Distribution:

Negative binomial probability distribution:

Y is a random variable with a negative binomial distribution:

Hypergeometric probability distribution:

Y is a random variable with a hypergeometric distribution: