// order **does** matter

// order **doesn’t** matter

// k = # of groups, = # in group k

If mutually exclusive then:

assuming that

**Random Variable:**

// only if sum is finite

where

// use combination

// p = prob success, q = 1-p, n = # trials, y = # success

**Geometric Distribution:**

// p = prob success, q = 1-p, n = # trials, y = # success

**Hypergeometric Distribution:**

// first half is selection of type 1, second half is type 2

// total number of items

// N = total items, r = type 1, N-r = type 2, n selected

// selected w/out replacement

**Poisson Distribution:**

// = # success (k) / units of time (n)

**Tchebysheff’s / Chebyshev’s Theorem:**

// = SD, = mean, k = number within range / SD

**Cumulative Distribution Function (CDF):**

// starts at 0, ends at 1, non-decreasing

**Probability Density Function (PDF):**

// no -negative, integrated to 1

// to be pdf, and

**Expected for Continuous Random Variables:**

**Theorem 4.4, Expected for Function:**

**Theorem 4.5**

**Variance of Continuous Random Variables:**