

Discrete Distributions

Mathematics

The standard count distributions with their means and variances.

Use these when what varies is a count.

Distribution	Mean	Variance
Bernoulli(p)	p	$p(1 - p)$
Binomial(n, p)	np	$np(1 - p)$
Geometric(p)	$1/p$	$(1 - p)/p^2$
Poisson(λ)	λ	λ
Uniform on 1 to n	$(n + 1)/2$	$(n^2 - 1)/12$
Negative binomial(r, p)	r/p	$r(1 - p)/p^2$

Poisson is the limit of Binomial with n large, p small and np fixed at λ . Its mean equals its variance, which is a testable claim.