

Beberapa Fungsi Distribusi Variabel Random Diskret

Distribusi	Fungsi densitas peluang	Mean	Variansi	MGF $M_x(t)$
Binomial $X \sim BIN(n, p)$ $0 < p < 1; q = 1 - p$	$f(x) = \binom{n}{x} p^x q^{n-x};$ $x = 0, 1, 2, \dots, n$	np	npq	$(pe^t + q)^n$
Bernoulli $X \sim BIN(1, p)$ $0 < p < 1; q = 1 - p$	$f(x) = p^x q^{1-x}; x = 0, 1$	p	pq	$(pe^t + q)$
Negatif Binomial $X \sim NB(r, p)$ $0 < p < 1; r = 1, 2, \dots$	$f(x) = \binom{n-1}{r-1} p^r q^{x-r}$ $x = r, r+1, \dots$	$\frac{r}{p}$	$\frac{rq}{p^2}$	$\left(\frac{pe^t}{1 - qe^t}\right)^r$
Geometric $X \sim GEO(p)$ $0 < p$ $0 < p < 1; q = 1 - p$	$f(x) = pq^{x-1}$ $x = 1, 2, \dots$	$\frac{1}{p}$	$\frac{q}{p^2}$	$\frac{pe^t}{1 - qe^t}$
Hypergeometric $X \sim HYP(n, M, N)$ $n = 1, 2, \dots, N$ $M = 0, 1, \dots, N$	$f(x) = \frac{\binom{M}{x} \binom{N-M}{n-x}}{\binom{N}{n}}$ $x = 0, 1, \dots, n$	$\frac{nM}{N}$	$\frac{nM}{N} \left(1 - \frac{M}{N}\right) \left(\frac{N-n}{N-1}\right)$	-
Poisson $X \sim POI(\mu)$ $\mu > 0$	$f(x) = \frac{e^{-\mu} \mu^x}{x!}; x = 0, 1, \dots$	μ	μ	$e^{\mu(e^t - 1)}$
Diskret Uniform $X \sim DU(N)$ $N = 1, 2, \dots$	$f(x) = \frac{1}{N}; x = 1, 2, \dots, N$	$\frac{N+1}{2}$	$\frac{N^2 - 1}{12}$	$\frac{1}{N} \frac{e^t - e^{(N+1)t}}{1 - e^t}$