ΔΙΑΚΡΙΤΕΣ ΚΑΤΑΝΟΜΕΣ ΜΙΑΣ ΜΕΤΑΒΛΗΤΗΣ

ΚΑΤΑΝΟΜΗ	ΠΑΡΑΜΕΤΡΟΙ	ΣΥΜΒΟΛΙΣΜΟΣ	ΣΥΝΑΡΤΗΣΗ ΠΙΘΑΝΟΤΗΤΑΣ	ΜΕΣΗ ΤΙΜΗ	ΔΙΑΣΠΟΡΑ	ΧΑΡΑΚΤ. ΣΥΝ.
BERNOULLI	$0 \le p \le 1$	B(p)	$p_x = p^x (1-p)^{1-x}$, $x = 0,1$	p	$p(1-p)$	$1-p+pe^{it}$
ΔΙΩΝΥΜΙΚΗ	$n = 1,2,\ldots$ $0 \le p \le 1$	b(n,p)	$p_x = \binom{n}{x} p^x (1-p)^{n-x}$, $x = 0,1,\ldots,n$	np	$np(1-p)$	$\left(1-p+pe^{it}\right)^n$
ΥΠΕΡΓΕΩ-ΜΕΤΡΙΚΗ	$N = 2,3,\ldots$ $K = 1,\ldots,N$ $n = 1,\ldots,N$	-	$p_x = \dfrac{\binom{K}{x}\binom{N-K}{n-x}}{\binom{N}{n}}$, $x = 0,1,\ldots,n$	$\dfrac{nK}{N}$	$\dfrac{nK(N-K)(N-n)}{N^2(N-1)}$	(1)
ΓΕΩΜΕΤΡΙΚΗ	$0 \le p \le 1$	-	$p_x = p(1-p)^{x-1}$, $x = 1,2,\ldots$	$\dfrac{1}{p}$	$\dfrac{1-p}{p^2}$	$\dfrac{pe^{it}}{1-(1-p)e^{it}}$
ΑΡΝΗΤΙΚΗ ΔΙΩΝΥΜΙΚΗ	$n = 1,2,\ldots$ $0 \le p \le 1$	-	$p_x = \binom{x-1}{n-1} p^n (1-p)^{x-n}$, $x = n, n+1,\ldots$	$\dfrac{n}{p}$	$\dfrac{n(1-p)}{p^2}$	$\left\{\dfrac{pe^{it}}{1-(1-p)e^{it}}\right\}^n$
POISSON	$\lambda > 0$	P(λ)	$p_x = e^{-\lambda}\dfrac{\lambda^x}{x!}$, $x = 0,1,\ldots$	λ	λ	$e^{-\lambda(1-e^{it})}$

(1) $$\frac{(-K+n)!(n-N)!\,\text{Hypergeometric2F1}\left[-N,-K,1-K+n-N,e^{it}\right]}{n!}$$

ΣΥΝΕΧΕΙΣ ΚΑΤΑΝΟΜΕΣ ΜΙΑΣ ΜΕΤΑΒΛΗΤΗΣ

(Συνέχεια)

ΚΑΤΑΝΟΜΗ	ΠΑΡΑΜΕΤΡΟΙ	ΣΥΜΒΟ-ΛΙΣΜΟΣ	ΣΥΝΑΡΤΗΣΗ ΠΙΘΑΝΟΤΗΤΑΣ	ΜΕΣΗ ΤΙΜΗ	ΔΙΑΣΠΟΡΑ	ΧΑΡΑΚΤ. ΣΥΝ.
RAYLEIGH	$\delta > 0$	-	$f(x) = \frac{x}{\delta^2}\exp\left\{-\frac{x^2}{2\delta^2}\right\},\ x \geq 0$	$\delta\sqrt{\frac{\pi}{2}}$	$(1-\pi/2)\delta^2$	(2)
CAUCHY	$-\infty < \mu < \infty$ $\delta > 0$	-	$f(x) = \frac{\delta}{\pi\left[\delta^2 + (x-\mu)^2\right]}\quad -\infty < x < \infty$	$\nexists$	$\nexists$	$e^{it\mu - \lvert t\delta\rvert}$
WEIBULL	$\eta, \delta > 0$	-	$f(x) = \frac{\eta}{\delta}\left(\frac{x}{\delta}\right)^{\eta-1}\exp\left\{-\left(\frac{x}{\delta}\right)^{\eta}\right\}\quad x \geq 0$			
t του STUDENT	$\nu = 1,2,\ldots$	St(ν)	$f(t) = \frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\nu}\Gamma\left(\frac{\nu}{2}\right)\Gamma\left(\frac{1}{2}\right)} \cdot \frac{1}{\left(1+\frac{t^2}{\nu}\right)^{(\nu+1)/2}},\ -\infty < t < \infty$	0	$\frac{\nu}{\nu-2}\ (\nu > 2)$	(3)
F του SNEDECOR	$\nu_1, \nu_2 = 1,2,\ldots$	$F(\nu_1, \nu_2)$	$f(x) = \frac{\Gamma\left(\frac{\nu_1+\nu_2}{2}\right)}{\Gamma\left(\frac{\nu_1}{2}\right)\Gamma\left(\frac{\nu_2}{2}\right)} \cdot \frac{x^{(\nu_1/2)-1}}{\left(1+\frac{\nu_1}{\nu_2}x\right)^{(\nu_1+\nu_2)/2}},\ x \geq 0$	$\frac{\nu}{\nu-2}$ $(\nu_2 > 2)$	$\frac{2\nu_2^2(\nu_1+\nu_2-2)}{\nu_1(\nu_2-2)(\nu_2-4)}$ $(\nu_2 > 4)$	(4)

(2) $1 + ie^{-\frac{1}{2}t^2\delta^2}\sqrt{\pi/2}\,t\delta\,\mathrm{Erf}\left[-it\delta/\sqrt{2}, \infty\right]$

(3) $\dfrac{2^{1-\nu/2}\,\nu^{\nu/4}\,\mathrm{Abs}[t]^{\nu/2}\,\mathrm{BesselK}\left[\frac{\nu}{2}, \sqrt{\nu}\,\mathrm{Abs}[t]\right]}{\mathrm{Gamma}\left[\frac{\nu}{2}\right]}$

(4) $\mathrm{Hypergeometric1F1}\left[\nu_1/2, 1-\nu_2/2, -it\nu_2/\nu_1\right]$

ΣΥΝΕΧΕΙΣ ΚΑΤΑΝΟΜΕΣ ΜΙΑΣ ΜΕΤΑΒΛΗΤΗΣ

ΚΑΤΑΝΟΜΗ	ΠΑΡΑΜΕΤΡΟΙ	ΣΥΜΒΟ-ΛΙΣΜΟΣ	ΣΥΝΑΡΤΗΣΗ ΠΙΘΑΝΟΤΗΤΑΣ	ΜΕΣΗ ΤΙΜΗ	ΔΙΑΣΠΟΡΑ	ΧΑΡΑΚΤ. ΣΥΝ.
ΟΜΟΙΟΜΟΡΦΗ	$-\infty < \alpha < \beta < \infty$	$U(\alpha,\beta)$	$f(x)=\frac{1}{\beta-\alpha}, \alpha \le x \le \beta$	$\frac{\alpha+\beta}{2}$	$\frac{(\beta-\alpha)^2}{12}$	$\frac{e^{it\beta}-e^{it\alpha}}{it(\beta-\alpha)}$
ΚΑΝΟΝΙΚΗ (GAUSSIAN)	$-\infty < \mu < \infty$ $\sigma > 0$	$N(\mu,\sigma^2)$	$f(x)=\frac{1}{\sqrt{2\pi}\sigma}\exp\left\{-\frac{1}{2\sigma^2}(x-\mu)^2\right\}$, $-\infty < x < \infty$	μ	σ^2	$\exp\left\{it\mu-\frac{1}{2}t^2\sigma^2\right\}$
ΛΟΓΑΡΙΘΜΙΚΗ	$-\infty < \mu < \infty$ $\sigma > 0$	$LN(\mu,\sigma^2)$	$f(x)=\frac{1}{\sqrt{2\pi}\sigma}x^{-1}\exp\left\{-\frac{1}{2\sigma^2}(\log x-\mu)\right\}$, $x > 0$	$e^{\mu+\sigma^2/2}$	$e^{2\mu+\sigma^2}\left(e^{\sigma^2}-1\right)$	
ΓΑΜΜΑ	$\alpha, p > 0$	$G(\alpha,p)$	$f(x)=\frac{\alpha^p}{\Gamma(p)}x^{p-1}e^{-\alpha x}, x \ge 0$	$\frac{p}{\alpha}$	$\frac{p}{\alpha^2}$	$\left(\frac{\alpha}{\alpha-it}\right)^p$
ΕΚΘΕΤΙΚΗ	$\alpha > 0$	$E(\alpha)$	$f(x)=\alpha e^{-\alpha x}, x \ge 0$	$\frac{1}{\alpha}$	$\frac{1}{\alpha^2}$	$\frac{\alpha}{\alpha-it}$
χ^2	$\nu = 1,2,\ldots$	$\chi^2(\nu)$	$f(x)=\frac{1}{2^{\nu/2}\Gamma(\nu/2)}x^{\nu/2-1}e^{-x/2}, x \ge 0$	ν	2ν	$(1-2it)^{-\nu/2}$
ΒΗΤΑ	$p,q > 0$	$b(p,q)$	$f(x)=\frac{\Gamma(p+q)}{\Gamma(p)\Gamma(q)}x^{p-1}(1-x)^{q-1}$, $0 \le x \le 1$	$\frac{p}{p+q}$	$\frac{pq}{(p+q)^2(p+q+1)}$	$\frac{\Gamma(p+q)}{\Gamma(p)}\sum_{\nu=0}^{\infty}\frac{(it)^\nu\Gamma(p+\nu)}{\Gamma(p+q+\nu)\Gamma(\nu+1)}$

ΠΟΛΥΜΕΤΑΒΛΗΤΕΣ ΚΑΤΑΝΟΜΕΣ

ΚΑΤΑΝΟΜΗ	ΠΑΡΑΜΕΤΡΟΙ	ΣΥΜΒΟ-ΛΙΣΜΟΣ	ΣΥΝΑΡΤΗΣΗ ΠΙΘΑΝΟΤΗΤΑΣ	ΜΕΣΗ ΤΙΜΗ	ΔΙΑΣΠΟΡΑ	ΧΑΡΑΚΤ. ΣΥΝ.
Πολυωνυμική	$n = 1,2,\ldots$ $\nu = 2,3,\ldots$ $0 \le p_j \le 1$ $(j = 1,\ldots,\nu)$ $\left(\sum_1^{\nu} p_j = 1\right)$	$M(\underset{\sim}{p})$	$p_{\underset{\sim}{x}} = \binom{n}{\underset{\sim}{x}} \prod_{j=1}^{\nu} p_j^{x_j}$, $0 \le x_j \le n$ $\left(\sum_1^{\nu} x_j = n\right)$ με $\underset{\sim}{x} = (x_1,\ldots,x_\nu)^T$ και $\binom{n}{\underset{\sim}{x}} = \binom{n}{x_1,\ldots,x_\nu}$	$n\underset{\sim}{p}$	$\sigma_{ii} = np_i(1-p_i)$ $\sigma_{ij} = np_ip_j(i+j)$	$\varphi_{\underset{\sim}{x}}(\underset{\sim}{t}) = \left[\sum_{j=1}^{\nu-1} p_j e^{it_j} + p_\nu\right]^n$
n-διάστατη Κανονική	$\underset{\sim}{\mu} \in \mathbb{R}^n$ $\Sigma = \{\sigma_{ij}\}$ γνησίως θετ. συμ. πίνακας $(n \times n)$	$N(\underset{\sim}{\mu}, \Sigma)$	$f(\underset{\sim}{x}) = \frac{\lvert\Sigma\rvert^{-1/2}}{(2\pi)^{n/2}} \exp\left\{-\frac{1}{2}Q(x)\right\}$, $\underset{\sim}{x} \in \mathbb{R}^n$ $Q(\underset{\sim}{x}) = (\underset{\sim}{x} - \underset{\sim}{\mu})^T \Sigma^{-1} (\underset{\sim}{x} - \underset{\sim}{\mu})$	$\underset{\sim}{\mu}$	σ_{ij} $(i,j = 1,\ldots,n)$	$\varphi_{\underset{\sim}{x}}(\underset{\sim}{t}) = \exp\left\{i\underset{\sim}{t}^T\underset{\sim}{\mu} - \frac{1}{2}\underset{\sim}{t}^T\Sigma\underset{\sim}{t}\right\}$ $\underset{\sim}{t} \in \mathbb{R}^n$

ΠΙΝΑΚΑΣ 1. ΚΑΤΑΝΟΜΗ POISSON

Τιμές του $\sum_{x=X}^{\infty} \frac{e^{-\theta}\theta^x}{x!}$

	θ									
X	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.0952	0.1813	0.2592	0.3297	0.3935	0.4512	0.5034	0.5507	0.5934	0.6321
2	0.0047	0.0175	0.0369	0.0616	0.0902	0.1219	0.1558	0.1912	0.2275	0.2642
3	0.0002	0.0011	0.0036	0.0079	0.0144	0.0231	0.0341	0.0474	0.0629	0.0803
4	0.0000	0.0001	0.0003	0.0008	0.0018	0.0034	0.0058	0.0091	0.0135	0.0190
5	0.0000	0.0000	0.0000	0.0001	0.0002	0.0004	0.0008	0.0014	0.0023	0.0037
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0006
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001

	θ									
X	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.6671	0.6988	0.7275	0.7534	0.7769	0.7981	0.8173	0.8347	0.8504	0.8647
2	0.3010	0.3374	0.3732	0.4082	0.4422	0.4751	0.5068	0.5372	0.5663	0.5940
3	0.0996	0.1205	0.1429	0.1665	0.1912	0.2166	0.2428	0.2694	0.2963	0.3233
4	0.0257	0.0338	0.0431	0.0537	0.0656	0.0788	0.0932	0.1087	0.1253	0.1429
5	0.0054	0.0077	0.0107	0.0143	0.0186	0.0237	0.0296	0.0364	0.0441	0.0527
6	0.0010	0.0015	0.0022	0.0032	0.0045	0.0060	0.0080	0.0104	0.0132	0.0166
7	0.0001	0.0003	0.0004	0.0006	0.0009	0.0013	0.0019	0.0026	0.0034	0.0045
8	0.0000	0.0000	0.0001	0.0001	0.0002	0.0003	0.0004	0.0006	0.0008	0.0011
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0002

	θ									
X	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.8775	0.8892	0.8997	0.9093	0.9179	0.9257	0.9328	0.9392	0.9450	0.9502
2	0.6204	0.6454	0.6691	0.6916	0.7127	0.7326	0.7513	0.7689	0.7854	0.8009
3	0.3504	0.3773	0.4040	0.4303	0.4562	0.4816	0.5064	0.5305	0.5540	0.5768
4	0.1614	0.1806	0.2007	0.2213	0.2424	0.2640	0.2859	0.3081	0.3304	0.3528
5	0.0621	0.0725	0.0838	0.0959	0.1088	0.1226	0.1371	0.1523	0.1682	0.1847
6	0.0204	0.0249	0.0300	0.0357	0.0420	0.0490	0.0567	0.0651	0.0742	0.0839
7	0.0059	0.0075	0.0094	0.0116	0.0142	0.0172	0.0206	0.0244	0.0287	0.0335
8	0.0015	0.0020	0.0026	0.0033	0.0042	0.0053	0.0066	0.0081	0.0099	0.0119
9	0.0003	0.0005	0.0006	0.0009	0.0011	0.0015	0.0019	0.0024	0.0031	0.0038
10	0.0001	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011
11	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002	0.0002	0.0003
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001

ΠΙΝΑΚΑΣ 1 (Συνέχεια)

θ

X	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.9550	0.9592	0.9631	0.9666	0.9698	0.9727	0.9753	0.9776	0.9798	0.9817
2	0.8153	0.8288	0.8414	0.8532	0.8641	0.8743	0.8838	0.8926	0.9008	0.9084
3	0.5988	0.6201	0.6406	0.6603	0.6792	0.6973	0.7146	0.7311	0.7469	0.7619
4	0.3752	0.3975	0.4197	0.4416	0.4634	0.4848	0.5058	0.5265	0.5468	0.5665
5	0.2018	0.2194	0.2374	0.2558	0.2746	0.2936	0.3128	0.3322	0.3516	0.3712
6	0.0943	0.1054	0.1171	0.1295	0.1424	0.1559	0.1699	0.1844	0.1994	0.2149
7	0.0388	0.0446	0.0510	0.0579	0.0653	0.0733	0.0818	0.0909	0.1005	0.1107
8	0.0142	0.0168	0.0198	0.0231	0.0267	0.0308	0.0352	0.0401	0.0454	0.0511
9	0.0047	0.0057	0.0069	0.0083	0.0099	0.0117	0.0137	0.0160	0.0185	0.0214
10	0.0014	0.0018	0.0022	0.0027	0.0033	0.0040	0.0048	0.0058	0.0069	0.0081
11	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0016	0.0019	0.0023	0.0028
12	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009
13	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0003
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001

θ

X	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.9834	0.9850	0.9864	0.9877	0.9889	0.9899	0.9909	0.9918	0.9926	0.9933
2	0.9155	0.9220	0.9281	0.9337	0.9389	0.9437	0.9482	0.9523	0.9561	0.9596
3	0.7762	0.7898	0.8026	0.8149	0.8264	0.8374	0.8477	0.8575	0.8667	0.8753
4	0.5858	0.6046	0.6228	0.6406	0.6577	0.6743	0.6903	0.7058	0.7207	0.7350
5	0.3907	0.4102	0.4296	0.4488	0.4679	0.4868	0.5054	0.5237	0.5418	0.5595
6	0.2307	0.2469	0.2633	0.2801	0.2971	0.3142	0.3316	0.3490	0.3665	0.3840
7	0.1214	0.1325	0.1442	0.1564	0.1689	0.1820	0.1954	0.2092	0.2233	0.2378
8	0.0573	0.0639	0.0710	0.0786	0.0866	0.0951	0.1040	0.1133	0.1231	0.1334
9	0.0245	0.0279	0.0317	0.0358	0.0403	0.0451	0.0503	0.0558	0.0618	0.0681
10	0.0095	0.0111	0.0129	0.0149	0.0171	0.0195	0.0222	0.0251	0.0283	0.0318
11	0.0034	0.0041	0.0048	0.0057	0.0067	0.0078	0.0090	0.0104	0.0120	0.0137
12	0.0011	0.0014	0.0017	0.0020	0.0024	0.0029	0.0034	0.0040	0.0047	0.0055
13	0.0003	0.0004	0.0005	0.0007	0.0008	0.0010	0.0012	0.0014	0.0017	0.0020
14	0.0001	0.0001	0.0002	0.0002	0.0003	0.0003	0.0004	0.0005	0.0006	0.0007
15	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001

θ

X	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.9939	0.9945	0.9950	0.9955	0.9959	0.9963	0.9967	0.9970	0.9973	0.9975
2	0.9628	0.9658	0.9686	0.9711	0.9734	0.9756	0.9776	0.9794	0.9811	0.9826
3	0.8835	0.8912	0.8984	0.9052	0.9116	0.9176	0.9232	0.9285	0.9334	0.9380
4	0.7487	0.7619	0.7746	0.7867	0.7983	0.8094	0.8200	0.8300	0.8396	0.8488
5	0.5769	0.5939	0.6105	0.6267	0.6425	0.6579	0.6728	0.6873	0.7013	0.7149
6	0.4016	0.4191	0.4365	0.4539	0.4711	0.4881	0.5050	0.5217	0.5381	0.5543
7	0.2526	0.2676	0.2829	0.2983	0.3140	0.3297	0.3456	0.3616	0.3776	0.3937
8	0.1440	0.1551	0.1665	0.1783	0.1905	0.2030	0.2159	0.2290	0.2424	0.2560
9	0.0748	0.0819	0.0894	0.0974	0.1056	0.1143	0.1234	0.1328	0.1426	0.1528

ΠΙΝΑΚΑΣ 1 (Συνέχεια)

θ

X	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
10	0.0356	0.0397	0.0441	0.0488	0.0538	0.0591	0.0648	0.0708	0.0772	0.0839
11	0.0156	0.0177	0.0200	0.0225	0.0253	0.0282	0.0314	0.0349	0.0386	0.0426
12	0.0063	0.0073	0.0084	0.0096	0.0110	0.0125	0.0141	0.0160	0.0179	0.0201
13	0.0024	0.0028	0.0033	0.0038	0.0045	0.0051	0.0059	0.0068	0.0078	0.0088
14	0.0008	0.0010	0.0012	0.0014	0.0017	0.0030	0.0023	0.0027	0.0031	0.0036
15	0.0003	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014
16	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0003	0.0004	0.0004	0.0005
17	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001

0

X	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.9978	0.9980	0.9982	0.9983	0.9985	0.9986	0.9988	0.9989	0.9990	0.9991
2	0.9841	0.9854	0.9866	0.9877	0.9887	0.9897	0.9905	0.9913	0.9920	0.9927
3	0.9423	0.9464	0.9502	0.9537	0.9570	0.9600	0.9629	0.9656	0.9680	0.9704
4	0.8575	0.8658	0.8736	0.8811	0.8882	0.8948	0.9012	0.9072	0.9129	0.9182
5	0.7281	0.7408	0.7531	0.7649	0.7763	0.7873	0.7978	0.8080	0.8177	0.8270
6	0.5702	0.5859	0.6012	0.6163	0.6310	0.6453	0.6594	0.6730	0.6863	0.6993
7	0.4098	0.4258	0.4418	0.4577	0.4735	0.4892	0.5047	0.5201	0.5353	0.5503
8	0.2699	0.2840	0.2983	0.3127	0.3272	0.3419	0.3567	0.3715	0.3864	0.4013
9	0.1633	0.1741	0.1852	0.1967	0.2084	0.2204	0.2327	0.2452	0.2580	0.2709
10	0.0910	0.0984	0.1061	0.1142	0.1226	0.1314	0.1404	0.1498	0.1505	0.1695
11	0.0469	0.0514	0.0563	0.0614	0.0688	0.0726	0.0786	0.0849	0.0916	0.0985
12	0.0224	0.0250	0.0277	0.0307	0.0339	0.0373	0.0409	0.0448	0.0490	0.0534
13	0.0100	0.0113	0.0127	0.0143	0.0160	0.0179	0.0199	0.0221	0.0245	0.0270
14	0.0042	0.0048	0.0055	0.0063	0.0071	0.0080	0.0091	0.0102	0.0115	0.0128
15	0.0016	0.0019	0.0022	0.0026	0.0030	0.0034	0.0039	0.0044	0.0050	0.0057
16	0.0006	0.0007	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0021	0.0024
17	0.0002	0.0003	0.0003	0.0004	0.0004	0.0005	0.0006	0.0007	0.0008	0.0010
18	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0003	0.0003	0.0004
19	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

0

X	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.9992	0.9993	0.9993	0.9994	0.9994	0.9995	0.9995	0.9996	0.9996	0.9997
2	0.9933	0.9939	0.9944	0.9949	0.9953	0.9957	0.9961	0.9964	0.9967	0.9970
3	0.9725	0.9745	0.9764	0.9781	0.9797	0.9812	0.9826	0.9839	0.9851	0.9862
4	0.9233	0.9281	0.9326	0.9368	0.9409	0.9446	0.9482	0.9515	0.9547	0.9576
5	0.8359	0.8445	0.8527	0.8605	0.8679	0.8751	0.8819	0.8883	0.8945	0.9004
6	0.7119	0.7241	0.7360	0.7474	0.7586	0.7693	0.7797	0.7897	0.7994	0.8088
7	0.5651	0.5796	0.5940	0.6080	0.6218	0.6354	0.6486	0.6616	0.6743	0.6866
8	0.4162	0.4311	0.4459	0.4607	0.4754	0.4900	0.5044	0.5188	0.5330	0.5470
9	0.2840	0.2973	0.3108	0.3243	0.3380	0.3518	0.3657	0.3796	0.3935	0.4075
10	0.1798	0.1904	0.2012	0.2123	0.2236	0.2351	0.2469	0.2589	0.2710	0.2834
11	0.1058	0.1133	0.1212	0.1293	0.1378	0.1465	0.1555	0.1648	0.1743	0.1841
12	0.0580	0.0629	0.0681	0.0735	0.0792	0.0852	0.0915	0.0980	0.1048	0.1119
13	0.0297	0.0327	0.0358	0.0391	0.0427	0.0464	0.0504	0.0546	0.0591	0.0638
14	0.0143	0.0159	0.0176	0.0195	0.0216	0.0238	0.0261	0.0286	0.0313	0.0342
15	0.0065	0.0073	0.0082	0.0092	0.0103	0.0114	0.0127	0.0141	0.0156	0.0173
16	0.0028	0.0031	0.0036	0.0041	0.0046	0.0052	0.0059	0.0066	0.0074	0.0082
17	0.0011	0.0013	0.0015	0.0017	0.0020	0.0022	0.0026	0.0029	0.0033	0.0037
18	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0014	0.0016
19	0.0002	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004	0.0005	0.0006	0.0006
20	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0003
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001

ΠΙΝΑΚΑΣ 1 (Συνέχεια)

θ

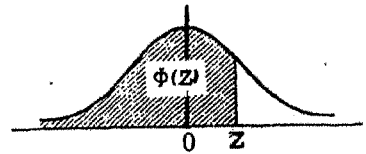
X	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.9997	0.9997	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9999	0.9999
2	0.9972	0.9975	0.9977	0.9979	0.9981	0.9982	0.9984	0.9985	0.9987	0.9988
3	0.9873	0.9882	0.9891	0.9900	0.9907	0.9914	0.9921	0.9927	0.9932	0.9938
4	0.9604	0.9630	0.9654	0.9677	0.9699	0.9719	0.9738	0.9756	0.9772	0.9788
5	0.9060	0.9113	0.9163	0.9211	0.9256	0.9299	0.9340	0.9379	0.9416	0.9450
6	0.8178	0.8264	0.8347	0.8427	0.8504	0.8578	0.8648	0.8716	0.8781	0.8843
7	0.6987	0.7104	0.7219	0.7330	0.7438	0.7543	0.7645	0.7744	0.7840	0.7932
8	0.5609	0.5746	0.5881	0.6013	0.6144	0.6272	0.6398	0.6522	0.6643	0.6761
9	0.4214	0.4353	0.4493	0.4631	0.4769	0.4906	0.5042	0.5177	0.5311	0.5443
10	0.2959	0.3085	0.3212	0.3341	0.3470	0.3600	0.3731	0.3863	0.3994	0.4126
11	0.1942	0.2045	0.2150	0.2257	0.2366	0.2478	0.2591	0.2706	0.2822	0.2940
12	0.1193	0.1269	0.1348	0.1429	0.1513	0.1600	0.1689	0.1780	0.1874	0.1970
13	0.0687	0.0739	0.0793	0.0850	0.0909	0.0971	0.1035	0.1102	0.1171	0.1242
14	0.0372	0.0405	0.0439	0.0476	0.0514	0.0555	0.0597	0.0642	0.0689	0.0739
15	0.0190	0.0209	0.0229	0.0251	0.0274	0.0299	0.0325	0.0353	0.0383	0.0415
16	0.0092	0.0102	0.0113	0.0125	0.0138	0.0152	0.0168	0.0184	0.0202	0.0220
17	0.0042	0.0047	0.0053	0.0059	0.0066	0.0074	0.0082	0.0091	0.0101	0.0111
18	0.0018	0.0021	0.0023	0.0027	0.0030	0.0034	0.0038	0.0043	0.0048	0.0053
19	0.0008	0.0009	0.0010	0.0011	0.0013	0.0015	0.0017	0.0019	0.0022	0.0024
20	0.0003	0.0003	0.0004	0.0005	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011
21	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004
22	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001

θ

X	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000
2	0.9989	0.9990	0.9991	0.9991	0.9992	0.9993	0.9993	0.9994	0.9995	0.9995
3	0.9942	0.9947	0.9951	0.9955	0.9958	0.9962	0.9965	0.9967	0.9970	0.9972
4	0.9802	0.9816	0.9828	0.9840	0.9851	0.9862	0.9871	0.9880	0.9889	0.9897
5	0.9483	0.9514	0.9544	0.9571	0.9597	0.9622	0.9645	0.9667	0.9688	0.9707
6	0.8902	0.8959	0.9014	0.9065	0.9115	0.9162	0.9207	0.9250	0.9290	0.9329
7	0.8022	0.8108	0.8192	0.8273	0.8351	0.8426	0.8498	0.8567	0.8634	0.8699
8	0.6877	0.6990	0.7101	0.7208	0.7313	0.7416	0.7515	0.7612	0.7706	0.7798
9	0.5574	0.5704	0.5832	0.5958	0.6082	0.6204	0.6324	0.6442	0.6558	0.6672
10	0.4258	0.4389	0.4521	0.4651	0.4782	0.4911	0.5040	0.5168	0.5295	0.5421
11	0.3059	0.3180	0.3301	0.3424	0.3547	0.3671	0.3795	0.3920	0.4045	0.4170
12	0.2068	0.2168	0.2270	0.2374	0.2480	0.2588	0.2697	0.2807	0.2919	0.3032
13	0.1316	0.1393	0.1471	0.1552	0.1636	0.1721	0.1809	0.1899	0.1991	0.2084
14	0.0790	0.0844	0.0900	0.0958	0.1019	0.1081	0.1147	0.1214	0.1284	0.1355
15	0.0448	0.0483	0.0529	0.0559	0.0600	0.0643	0.0688	0.0735	0.0784	0.0835
16	0.0240	0.0262	0.0285	0.0309	0.0335	0.0362	0.0391	0.0421	0.0454	0.0487
17	0.0122	0.0135	0.0148	0.0162	0.0177	0.0194	0.0211	0.0230	0.0249	0.0270
18	0.0059	0.0066	0.0073	0.0081	0.0089	0.0098	0.0108	0.0119	0.0130	0.0143
19	0.0027	0.0031	0.0034	0.0038	0.0043	0.0048	0.0053	0.0059	0.0065	0.0072
20	0.0012	0.0014	0.0015	0.0017	0.0020	0.0022	0.0025	0.0028	0.0031	0.0035
21	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0011	0.0013	0.0014	0.0016
22	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0006	0.0007
23	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0003	0.0003
24	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

ΠΙΝΑΚΑΣ 2. ΚΑΝΟΝΙΚΗ ΚΑΤΑΝΟΜΗ

$$\Phi(z)=\frac{1}{\sqrt{2\pi}}\int_{-\infty}^{z} e^{-u^2/2}\,du$$



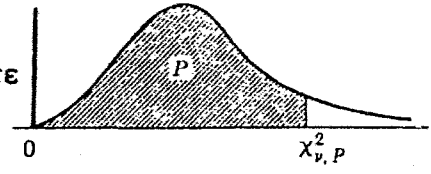
z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.50000	0.50399	0.50798	0.51197	0.51595	0.51994	0.52392	0.52790	0.53188	0.53586
0.1	0.53983	0.54380	0.54776	0.55172	0.55567	0.55962	0.56356	0.56749	0.57142	0.57535
0.2	0.57926	0.58317	0.58706	0.59095	0.59483	0.59871	0.60257	0.60642	0.61026	0.61409
0.3	0.61791	0.62172	0.62552	0.62930	0.63307	0.63683	0.64058	0.64431	0.64803	0.65173
0.4	0.65542	0.65910	0.66276	0.66640	0.67003	0.67364	0.67724	0.68082	0.68439	0.68793
0.5	0.69146	0.69497	0.69847	0.70194	0.70540	0.70884	0.71226	0.71566	0.71904	0.72240
0.6	0.72575	0.72907	0.73237	0.73565	0.73891	0.74215	0.74537	0.74857	0.75175	0.75490
0.7	0.75804	0.76115	0.76424	0.76730	0.77035	0.77337	0.77637	0.77935	0.78230	0.78524
0.8	0.78814	0.79103	0.79389	0.79673	0.79955	0.80234	0.80511	0.80785	0.81057	0.81327
0.9	0.81594	0.81859	0.82121	0.82381	0.82639	0.82894	0.83147	0.83398	0.83646	0.83891
1.0	0.84134	0.84375	0.84614	0.84850	0.85083	0.85314	0.85543	0.85769	0.85993	0.86214
1.1	0.86433	0.86650	0.86864	0.87076	0.87286	0.87493	0.87698	0.87900	0.88100	0.88298
1.2	0.88493	0.88686	0.88877	0.89065	0.89251	0.89435	0.89617	0.89796	0.89973	0.90147
1.3	0.90320	0.90490	0.90658	0.90824	0.90988	0.91149	0.91309	0.91466	0.91621	0.91774
1.4	0.91924	0.92073	0.92220	0.92364	0.92507	0.92647	0.92786	0.92922	0.93056	0.93189
1.5	0.93319	0.93448	0.93574	0.93699	0.93822	0.93943	0.94062	0.94179	0.94295	0.94408
1.6	0.94520	0.94630	0.94738	0.94845	0.94950	0.95053	0.95154	0.95254	0.95352	0.95449
1.7	0.95543	0.95637	0.95728	0.95818	0.95907	0.95994	0.96080	0.96164	0.96246	0.96327
1.8	0.96407	0.96485	0.96562	0.96638	0.96712	0.96784	0.96856	0.96926	0.96995	0.97062
1.9	0.97128	0.97193	0.97257	0.97320	0.97381	0.97441	0.97500	0.97558	0.97615	0.97670

ΠΙΝΑΚΑΣ 2 (Συνέχεια)

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
2.0	0.97725	0.97778	0.97831	0.97882	0.97932	0.97982	0.98030	0.98077	0.98124	0.98169
2.1	0.98214	0.98257	0.98300	0.98341	0.98382	0.98422	0.98461	0.98500	0.98537	0.98574
2.2	0.98610	0.98645	0.98679	0.98713	0.98745	0.98778	0.98809	0.98840	0.98870	0.98899
2.3	0.98928	0.98956	0.98983	0.99010	0.99036	0.99061	0.99086	0.99111	0.99134	0.99158
2.4	0.99180	0.99202	0.99224	0.99245	0.99266	0.99286	0.99305	0.99324	0.99343	0.99361
2.5	0.99379	0.99396	0.99413	0.99430	0.99446	0.99461	0.99477	0.99492	0.99506	0.99520
2.6	0.99534	0.99547	0.99560	0.99573	0.99585	0.99598	0.99609	0.99621	0.99632	0.99643
2.7	0.99653	0.99664	0.99674	0.99683	0.99693	0.99702	0.99711	0.99720	0.99728	0.99736
2.8	0.99744	0.99752	0.99760	0.99767	0.99774	0.99781	0.99788	0.99795	0.99801	0.99807
2.9	0.99813	0.99819	0.99825	0.99831	0.99836	0.99841	0.99846	0.99851	0.99856	0.99861
3.0	0.99865	0.99869	0.99874	0.99878	0.99882	0.99886	0.99889	0.99893	0.99897	0.99900
3.1	0.99903	0.99906	0.99910	0.99913	0.99916	0.99918	0.99921	0.99924	0.99926	0.99929
3.2	0.99931	0.99934	0.99936	0.99938	0.99940	0.99942	0.99944	0.99946	0.99948	0.99950
3.3	0.99952	0.99953	0.99957	0.99957	0.99958	0.99960	0.99961	0.99962	0.99964	0.99965
3.4	0.99966	0.99968	0.99969	0.99970	0.99971	0.99972	0.99973	0.99974	0.99975	0.99976
3.5	0.99977	0.99978	0.99978	0.99979	0.99980	0.99981	0.99981	0.99982	0.99983	0.99983
3.6	0.99984	0.99985	0.99985	0.99986	0.99986	0.99987	0.99987	0.99988	0.99988	0.99989
3.7	0.99989	0.99990	0.99990	0.99990	0.99991	0.99991	0.99992	0.99992	0.99992	0.99992
3.8	0.99993	0.99993	0.99993	0.99994	0.99994	0.99994	0.99994	0.99995	0.99995	0.99995
3.9	0.99995	0.99995	0.99996	0.99996	0.99996	0.99996	0.99996	0.99996	0.99997	0.99997

ΠΙΝΑΚΑΣ 3. ΠΟΣΟΣΤΙΑΙΑ ΣΗΜΕΙΑ ΤΗΣ ΚΑΤΑΝΟΜΗΣ χ^2

Τιμές του $\chi^2_{\nu,P}$ τέτοιες ώστε



$$P = \frac{1}{2^{\nu/2}\Gamma(\nu/2)} \int_0^{\chi^2_{\nu,P}} y^{\nu/2-1} e^{-y/2}\, dy$$

ν \ P	0.005	0.010	0.025	0.050	0.100	0.250	0.500
1	0.00004	0.00016	0.00098	0.00393	0.01579	0.1015	0.4549
2	0.0100	0.0201	0.0506	0.1026	0.2107	0.5754	1.386
3	0.0717	0.1148	0.2158	0.3518	0.5844	1.213	2.366
4	0.2070	0.2971	0.4844	0.7107	1.064	1.923	3.357
5	0.4117	0.5543	0.8312	1.145	1.610	2.675	4.351
6	0.6757	0.8721	1.2373	1.635	2.204	3.455	5.348
7	0.9893	1.239	1.690	2.167	2.833	4.255	6.346
8	1.344	1.646	2.180	2.733	3.490	5.071	7.344
9	1.735	2.088	2.700	3.325	4.168	5.899	8.343
10	2.156	2.558	3.247	3.940	4.865	6.737	9.342
11	2.603	3.053	3.816	4.575	5.578	7.584	10.34
12	3.074	3.571	4.404	5.226	6.304	8.438	11.34
13	3.565	4.107	5.009	5.892	7.041	9.299	12.34
14	4.075	4.660	5.629	6.571	7.790	10.17	13.34
15	4.601	5.229	6.262	7.261	8.547	11.04	14.34
16	5.142	5.812	6.908	7.962	9.312	11.91	15.34
17	5.697	6.408	7.564	8.672	10.09	12.79	16.34
18	6.265	7.015	8.231	9.390	10.86	13.68	17.34
19	6.844	7.633	8.907	10.12	11.65	14.56	18.34
20	7.434	8.260	9.591	10.85	12.44	15.45	19.34
21	8.034	8.897	10.28	11.59	13.24	16.34	20.34
22	8.643	9.542	10.98	12.34	14.04	17.24	21.34
23	9.260	10.20	11.69	13.09	14.85	18.14	22.34
24	9.886	10.86	12.40	13.85	15.66	19.04	23.34
25	10.52	11.52	13.12	14.61	16.47	19.94	24.34
26	11.16	12.20	13.84	15.38	17.29	20.84	25.34
27	11.81	12.88	14.57	16.15	18.11	21.75	26.34
28	12.46	13.56	15.31	16.93	18.94	22.66	27.34
29	13.12	14.26	16.05	17.71	19.77	23.57	28.34
30	13.79	14.95	16.79	18.49	20.60	24.48	29.34
40	20.71	22.16	24.43	26.51	29.05	33.66	39.34
50	27.99	29.71	32.36	34.76	37.69	42.94	49.33
60	35.53	37.48	40.48	43.19	46.46	52.29	59.33
70	43.28	45.44	48.76	51.74	55.33	61.70	69.33
80	51.17	53.54	57.15	60.39	64.28	71.14	79.33
90	59.20	61.75	65.65	69.13	73.29	80.62	89.33
100	67.33	70.06	74.22	77.93	82.36	90.13	99.33

ΠΙΝΑΚΑΣ 3 (Συνέχεια)

ν \ P	0.750	0.900	0.950	0.975	0.990	0.995	0.999
1	1.323	2.706	3.841	5.024	6.635	7.879	10.83
2	2.773	4.605	5.991	7.378	9.210	10.60	13.82
3	4.108	6.251	7.815	9.348	11.34	12.84	16.27
4	5.385	7.779	9.488	11.14	13.28	14.86	18.47
5	6.626	9.236	11.07	12.83	15.09	16.75	20.52
6	7.841	10.64	12.59	14.45	16.81	18.55	22.46
7	9 037	12.02	14.07	16.01	18.48	20.28	24.32
8	10.22	13.36	15.51	17.53	20.09	21.96	26.12
9	11.39	14.68	16.92	19.02	21.67	23.59	27.88
10	12.55	15.99	18.31	20.48	23.21	25.19	29.59
11	13.70	17.28	19.68	21.92	24.72	26.76	31.26
12	14.85	18.55	21.03	23.34	26.22	28.30	32.91
13	15.98	19.81	22.36	24.74	27.69	29.82	34.53
14	17.12	21.06	23.68	26.12	29.14	31.32	36.12
15	18.25	22.31	25.00	27.49	30.58	32.80	37.70
16	19.37	23.54	26.30	28.85	32.00	34.27	39.25
17	20.49	24.77	27.59	30.19	33.41	35.72	40.79
18	21.60	25.99	28.87	31.53	34.81	37.16	42.31
19	22.72	27.20	30.14	32.85	36.19	38.58	43.82
20	23.83	28.41	31.41	34.17	37.57	40.00	45.32
21	24.93	29.62	32.67	35.48	38.93	41.40	46.80
22	26.04	30.81	33.92	36.78	40.29	42.80	48.27
23	27.14	32.01	35.17	38.08	41.64	44.18	49.73
24	28.24	33.20	36.42	39.36	42.98	45.56	51.18
25	29.34	34.38	37.65	40.65	44.31	46.93	52.62
26	30.43	35.56	38.89	41.92	45.64	48.29	54.05
27	31.53	36.74	40.11	43.19	46.96	49.64	55.48
28	32.62	37.92	41.34	44.46	48.28	50.99	56.89
29	33.71	39.09	42.56	45.72	49.59	52.34	58.30
30	34.80	40.26	43.77	46.98	50.89	53.67	59.70
40	45.62	51.80	55.76	59.34	63.69	66.77	73.40
50	56.33	63.17	67.50	71.42	76.15	79.49	86.66
60	66.98	74.40	79.08	83.30	88.38	91.95	99.61
70	77.58	85.53	90.53	95.02	100.4	104.2	112.3
80	88.13	96.58	101.9	106.6	112.3	116.3	124.8
90	98.65	107.6	113.1	118.1	124.1	128.3	137.2
100	109.1	118.5	124.3	129.6	135.8	140.2	149.4