

I. Táblázat. A $\Phi_{0,1}$ normális eloszlás

A táblázatban a

$$\bar{\Phi}(x) = \Phi_{0,1}((x, \infty)) = \frac{1}{\sqrt{2\pi}} \int_x^{\infty} e^{-t^2/2} dt.$$

értékek szerepelnek.

I. táblázat

x	0	1	2	3	4
0,0	0,5000	0,4960	0,4920	0,4880	0,4840
0,1	,4602	,4562	,4522	,4483	,4443
0,2	,4207	,4168	,4129	,4090	,4052
0,3	,3821	,3783	,3745	,3707	,3669
0,4	,3446	,3409	,3372	,3336	,3300
0,5	,3085	,3050	,3115	,2981	,2946
0,6	,2743	,2709	,2676	,2643	,2611
0,7	,2420	,2389	,2358	,2327	,2297
0,8	,2119	,2090	,2061	,2033	,2005
0,9	,1841	,1814	,1788	,1762	,1736
1,0	,1587	,1562	,1539	,1515	,1492
1,1	,1357	,1335	,1314	,1292	,1271
1,2	,1151	,1131	,1112	,1093	,1075
1,3	,0968	,0951	,0934	,0918	,0901
1,4	,0808	,0793	,0778	,0764	,0749
1,5	,0668	,0655	,0643	,0630	,0618
1,6	,0548	,0537	,0526	,0516	,0505
1,7	,0446	,0436	,0427	,0418	,0409
1,8	,0359	,0351	,0344	,0336	,0329
1,9	,0288	,0281	,0274	,0268	,0262
2,0	,0228	,0222	,0217	,0212	,0207
2,1	,0179	,0174	,0170	,0166	,0162
2,2	,0139	,0136	,0132	,0129	,0125
2,3	,0107	,0104	,0102	,0099	,0096
2,4	,0082	,0080	,0078	,0075	,0073
2,5	,0062	,0060	,0059	,0057	,0055
2,6	,0047	,0045	,0044	,0043	,0041
2,7	,0035	,0034	,0033	,0032	,0031
2,8	,0026	,0025	,0024	,0023	,0023
2,9	,0019	,0018	,0018	,0017	,0016
$x =$	3,0	3,1	3,2	3,3	3,4
$\bar{\Phi}(x) =$	0,0013	0,0010	0,0007	0,0005	0,0003

I. táblázat (folytatás)

x	5	6	7	8	9
0,0	0,4810	0,4761	0,4721	0,4681	0,4641
0,1	,4404	,4364	,4325	,4286	,4247
0,2	,4013	,3974	,3936	,3897	,3859
0,3	,3634	,3594	,3557	,3520	,3483
0,4	,3264	,3228	,3192	,3156	,3121
0,5	,2912	,2877	,2843	,2810	,2776
0,6	,2578	,2546	,2514	,2483	,2451
0,7	,2266	,2236	,2206	,2177	,2148
0,8	,1977	,1949	,1922	,1894	,1867
0,9	,1711	,1685	,1660	,1635	,1611
1,0	,1469	,1446	,1423	,1401	,1379
1,1	,1251	,1230	,1210	,1190	,1170
1,2	,1056	,1038	,1020	,1003	,0985
1,3	,0885	,0869	,0853	,0838	,0823
1,4	,0735	,0721	,0708	,0694	,0681
1,5	,0606	,0594	,0582	,0571	,0559
1,6	,0495	,0485	,0475	,0465	,0455
1,7	,0401	,0392	,0384	,0375	,0367
1,8	,0322	,0314	,0307	,0301	,0294
1,9	,0256	,0250	,0244	,0239	,0233
2,0	,0202	,0197	,0192	,0188	,0183
2,1	,0158	,0154	,0150	,0146	,0143
2,2	,0122	,0119	,0116	,0113	,0110
2,3	,0094	,0091	,0089	,0087	,0084
2,4	,0071	,0069	,0068	,0066	,0064
2,5	,0054	,0052	,0051	,0049	,0048
2,6	,0040	,0039	,0038	,0037	,0036
2,7	,0030	,0029	,0028	,0027	,0026
2,8	,0022	,0021	,0021	,0020	,0019
2,9	,0016	,0015	,0015	,0014	,0014
$x =$	3,5	3,6	3,7	3,8	3,9
$\bar{\Phi}(x) =$	0,0002	0,0002	0,0001	0,0001	0,0000

II. Táblázat. A normális eloszlás kvantilisei

A táblázatban azok a λ_ε értékek szerepelnek, amelyekre

$$\bar{\Phi}(\lambda_\varepsilon) = \Phi_{0,1}((\lambda, \varepsilon)) = \varepsilon.$$

II. táblázat

100ε	λ_ε	100ε	λ_ε	100ε	λ_ε
50	0,0000	20	0,8416	0,5	2,5758
45	0,1257	15	1,0364	0,1	3,0902
40	0,2533	10	1,2816	0,05	3,2905
35	0,3853	5	1,6449	0,01	3,7190
30	0,5244	2,5	1,9600	0,005	3,8906
25	0,6745	1	2,3263		

III. Táblázat. A $H_k \chi^2$ -eloszlás

A táblázatban a

$$H_k(x) = H_k((x, \infty)) = \frac{1}{2^{k/2} \Gamma(k/2)} \int_x^{\infty} t^{k/2-1} e^{-t/2} dt$$

értékek szerepelnek (lásd 2.2. pont), $1 \leq k \leq 20$ esetén. Nagy k értékek esetén a

$$(1) \quad H_k(x) \approx \bar{\Phi}(\sqrt{2x} - \sqrt{2k-1}) \equiv \tilde{H}_k(x)$$

közelítést lehet használni (lásd 2.2. pont, I. Táblázat).

A táblázat utolsó oszlopa a $\tilde{H}_k(x)$ értékeket tartalmazza $k = 20$ esetén. Összehasonlítva ezt az előző oszloppal, meg lehet becsülni az (1) közelítés pontosságát. k növekedtével a hiba csökken.

III. táblázat

$x \backslash k$	1	2	3	4	5
0,1	0,7518	0,9512	0,9918	0,9988	0,9998
,2	,6547	,9048	,9776	,9953	,9991
,4	,5271	,8187	,9402	,9825	,9953
,6	,3486	,7408	,8964	,9631	,9880
,8	,3711	,6703	,8495	,9385	,9770
1,0	,3173	,6065	,8013	,9098	,9626
,5	,2207	,4724	,6823	,8266	,9131
2	,1573	,3679	,5725	,7358	,8492
3	,0833	,2231	,3916	,5578	,7000
4	,0455	,1353	,2615	,4060	,5494
5	,0254	,0821	,1718	,2873	,4159
6	,0134	,0498	,1116	,1992	,3062
7	,0082	,0302	,0719	,1359	,2206
8	,0047	,0183	,0460	,0916	,1562
9	,0027	,0111	,0293	,0611	,1091
10	,0016	,0067	,0186	,0404	,0752
11	,0009	,0041	,0017	,0266	,0514
12	,0005	,0025	,0074	,0174	,0348
13	,0003	,0015	,0046	,0113	,0234
14	,0002	,0009	,0029	,0073	,0156
15	,0001	,0006	,0018	,0047	,0104
16	,0001	,0003	,0011	,0030	,0068
17		,0002	,0007	,0019	,0045
18		,0001	,0004	,0012	,0030
19		,0001	,0003	,0008	,0019
20		,0001	,0002	,0001	,0013
21			,0001	,0003	,0008
22			,0001	,0002	,0005
23				,0001	,0003
24				,0001	,0002
25				,0001	,0001

III. táblázat (folytatás)

$x \backslash k$	6	7	8	9	10
0,5	0,9978	0,9995	0,9999	1,0000	1,0000
1,0	,9856	,9948	,9983	0,9994	0,9998
,5	,9595	,9823	,9927	,9972	,9989
2,0	,9197	,9598	,9810	,9915	,9963
,5	,8685	,9271	,9617	,9809	,9909
3	,8089	,8850	,9344	,9643	,9814
4	,6767	,7798	,8571	,9114	,9474
5	,5438	,6600	,7576	,8343	,8912
6	,4232	,5398	,6472	,7399	,8153
7	,3204	,4284	,5366	,6371	,7254
8	,2381	,3326	,4335	,5342	,6288
9	,1736	,2527	,3423	,4373	,5321
10	,1246	,1886	,2650	,3505	,4405
11	,0884	,1386	,2017	,2757	,3575
12	,0620	,1006	,1512	,2133	,2851
13	,0430	,0721	,1119	,1626	,2237
14	,0296	,0512	,0818	,1223	,1730
15	,0203	,0360	,0592	,0909	,1321
16	,0138	,0251	,0424	,0669	,0996
17	,0093	,0174	,0301	,0487	,0744
18	,0062	,0120	,0212	,0352	,0550
19	,0042	,0082	,0149	,0252	,0403
20	,0028	,0056	,0103	,0179	,0293
21	,0018	,0038	,0072	,0127	,0211
22	,0012	,0025	,0049	,0084	,0151
23	,0008	,0017	,0034	,0062	,0108
24	,0005	,0011	,0023	,0043	,0076
25	,0003	,0008	,0016	,0032	,0054
26	,0002	,0005	,0011	,0020	,0037
27	,0002	,0004	,0007	,0014	,0026
28	,0001	,0002	,0004	,0010	,0018
29	,0001	,0002	,0003	,0007	,0013
30		,0001	,0002	,0004	,0009

III. táblázat (folytatás)

$x \backslash k$	11	12	13	14	15
2	0,9985	0,9994	0,9998	0,9999	1,0000
3	,9907	,9955	,9979	,9991	0,9996
4	,9699	,9834	,9912	,9955	,9977
5	,9312	,9580	,9752	,9858	,9921
6	,8734	,9161	,9462	,9665	,9798
7	,7991	,8576	,9022	,9347	,9577
8	,7133	,7852	,8436	,8893	,9238
9	,6219	,7029	,7729	,8311	,8775
10	,5304	,6160	,6939	,7622	,8197
12	,3636	,4457	,5276	,6063	,6790
14	,2330	,3007	,3738	,4497	,5255
16	,1411	,1912	,2491	,3134	,3821
18	,0816	,1152	,1575	,2068	,2627
20	,0453	,0671	,0952	,1301	,1719
21	,0334	,0504	,0729	,1016	,1368
22	,0244	,0375	,0554	,0786	,1078
23	,0177	,0277	,0417	,0603	,0841
24	,0127	,0203	,0311	,0458	,0651
25	,0091	,0148	,0231	,0346	,0499
26	,0065	,0107	,0170	,0259	,0380
27	,0046	,0077	,0124	,0193	,0287
28	,0032	,0055	,0091	,0142	,0216
29	,0023	,0039	,0066	,0105	,0161
30	,0016	,0028	,0047	,0076	,0119
31	,0011	,0020	,0034	,0055	,0088
32	,0008	,0014	,0024	,0040	,0064
33	,0005	,0010	,0017	,0029	,0047
34	,0004	,0007	,0012	,0021	,0034
35	,0003	,0005	,0009	,0015	,0025
36	,0002	,0003	,0006	,0010	,0018
37	,0001	,0002	,0004	,0007	,0013
38	,0001	,0002	,0003	,0005	,0009
39	,0001	,0001	,0002	,0004	,0006
40		,0001	,0001	,0003	,0005

III. táblázat (folytatás)

$x \backslash k$	16	17	18	19	20	$\tilde{H}_{20}(x)$
4	0,9989	0,9995	0,9998	0,9999	1,0000	0,9997
5	,9958	,9978	,9989	,9994	,9997	,9990
6	,9881	,9932	,9962	,9979	,9989	,9973
7	,9733	,9836	,9901	,9942	,9967	,9938
8	,9489	,9666	,9786	,9867	,9919	,9876
9	,9134	,9403	,9597	,9735	,9829	,9774
10	,8666	,9036	,9319	,9530	,9682	,9619
12	,7440	,8001	,8472	,8856	,9151	,9109
14	,5987	,6671	,7291	,7837	,8305	,8298
16	,4530	,5238	,5926	,6573	,7155	,7218
18	,3239	,3888	,4557	,5224	,5874	,5968
20	,2202	,2742	,3328	,3946	,4579	,4683
22	,1432	,1847	,2320	,2843	,2305	,3489
24	,0895	,1194	,1550	,1962	,2424	,2472
26	,0540	,0745	,0998	,1302	,1658	,1670
28	,0316	,0449	,0621	,0834	,1094	,1078
30	,0180	,0264	,0375	,0618	,0699	,0667
31	,0135	,0200	,0288	,0404	,0552	,0517
32	,0100	,0151	,0220	,0313	,0433	,0396
33	,0074	,0113	,0167	,0240	,0337	,0301
34	,0054	,0084	,0126	,0184	,0261	,0227
35	,0040	,0052	,0095	,0140	,0201	,0169
36	,0029	,0046	,0071	,0106	,0154	,0125
37	,0021	,0034	,0052	,0080	,0117	,0092
38	,0015	,0025	,0039	,0059	,0089	,0067
39	,0011	,0018	,0029	,0044	,0067	,0048
40	,0008	,0013	,0021	,0033	,0050	,0035
41	,0006	,0009	,0015	,0024	,0037	,0025
42	,0004	,0007	,0011	,0018	,0028	,0017
43	,0003	,0005	,0008	,0013	,0020	,0012
44	,0002	,0003	,0006	,0009	,0015	,0010
45	,0001	,0002	,0004	,0007	,0011	,0006

IV. Táblázat. A T_k Student-eloszlás

A táblázatban a

$$T_k(x) = \mathbf{T}_k((x, \infty)) = \frac{\Gamma((k+1)/2)}{\sqrt{2\pi}\Gamma(k/2)} \int_x^{\infty} (1+t^2/k)^{-(k+1)/2} dt$$

értékek szerepelnek $1 \leq k \leq 20$ esetén. Nagy k értékekre a

$$(2) \quad T_k(x) \approx \bar{\Phi}(x) = \Phi_{0,1}((x, \infty))$$

közelítést lehet használni (lásd 2.2. pont, I. táblázat). A (2) közelítés pontosságát $k=20$ esetén a táblázat utolsó oszlopának és az I. táblázat értékeinek összehasonlításával lehet megbecsülni.

IV. táblázat

$x \backslash k$	1	2	3	4	5
0,0	0,5000	0,5000	0,5000	0,5000	0,5000
5	,3524	,3333	,3257	,3217	,3191
1,0	,2400	,2113	,1955	,1869	,1816
2	,2211	,1765	,1581	,1482	,1419
4	,1974	,1482	,1280	,1170	,1102
6	,1778	,1253	,1039	,0924	,0852
8	,1614	,1068	,0848	,0731	,0659
2,0	,1476	,0917	,0697	,0581	,0510
2	,1358	,0794	,0576	,0463	,0395
4	,1257	,0692	,0479	,0300	,0241
6	,1169	,0679	,0402	,0300	,0241
8	,1092	,0537	,0339	,0244	,0190
3,0	,1024	,0477	,0282	,0200	,0150
2	,0964	,0427	,0247	,0165	,0120
4	,0910	,0383	,0212	,0136	,0096
6	,0862	,0346	,0184	,0114	,0078
8	,0819	,0314	,0160	,0095	,0063
4,0	,0780	,0286	,0140	,0081	,0052
2	,0744	,0261	,0123	,0068	,0045

IV. táblázat (folytatás)

$x \backslash k$	1	2	3	4	5
4	0,0711	0,0240	0,0109	0,0058	0,035
6	,0681	,0221	,0097	,0050	,0029
8	,0654	,0204	,0086	,0043	,0024
5,0	,0628	,0199	,0077	,0037	,0020
2	,0605	,0175	,0069	,0033	,0017
4	,0583	,0163	,0062	,0028	,0015
6	,0562	,0152	,0056	,0025	,0012
8	,0543	,0142	,0051	,0022	,0011
6,0	,0526	,0133	,0046	,0019	,0009
2	,0509	,0125	,0042	,0017	,0008
4	,0493	,0118	,0039	,0015	,0007
6	,0479	,0111	,0035	,0014	,0006
8	,0465	,0105	,0033	,0012	,0005
7,0	,0452	,0099	,0030	,0011	,0005
2	,0439	,0094	,0028	,0010	,0004
4	,0428	,0089	,0025	,0009	,0004
6	,0416	,0086	,0024	,0008	,0003
8	,0406	,0080	,0022	,0007	,0003
8,0	,0396	,0076	,0020	,0007	,0002

IV. táblázat (folytatás)

$x \backslash k$	6	7	8	9	10
0,0	0,5000	0,5000	0,5000	0,5000	0,5000
5	,3174	,3162	,3153	,3145	,3139
1,0	,1780	,1753	,1733	,1717	,1704
2	,1377	,1346	,1322	,1304	,1289
4	,1055	,1021	,0995	,0975	,0959
6	,0804	,0768	,0741	,0720	,0703
8	,0610	,0574	,0548	,0527	,0510
2,0	,0462	,0428	,0403	,0383	,0367
2	,0350	,0319	,0295	,0277	,0262
4	,0266	,0237	,0216	,0199	,0186
6	,0203	,0177	,0158	,0144	,0132
8	,0156	,0132	,0116	,0104	,0094
3,0	,0120	,0100	,0085	,0075	,0067
2	,0093	,0075	,0063	,0054	,0047
4	,0072	,0057	,0047	,0039	,0034
6	,0057	,0044	,0035	,0029	,0024
8	,0045	,0034	,0026	,0022	,0017
4,0	,0035	,0026	,0020	,0015	,0013
2	,0028	,0020	,0015	,0012	,0009
4	,0023	,0016	,0011	,0009	,0007
6	,0018	,0012	,0009	,0006	,0005
8	,0015	,0010	,0007	,0005	,0004
5,0	,0012	,0008	,0005	,0004	,0003

IV. táblázat (folytatás)

$x \backslash k$	11	12	13	14	15
0,0	0,5000	0,5000	0,5000	0,5000	0,5000
5	,3135	,3131	,3127	,3124	,3112
1,0	,1694	,1685	,1678	,1671	,1666
2	,1277	,1266	,1258	,1250	,1244
4	,0956	,0934	,0925	,0916	,0909
6	,0689	,0678	,0668	,0660	,0652
8	,0496	,0485	,0475	,0467	,0460
2,0	,0354	,0343	,0334	,0326	,0320
2	,0250	,0241	,0232	,0225	,0219
4	,0176	,0168	,0160	,0154	,0149
6	,0123	,0116	,0110	,0105	,0100
8	,0086	,0080	,0075	,0071	,0067
3,0	,0060	,0055	,0051	,0048	,0045
2	,0042	,0038	,0035	,0032	,0030
4	,0030	,0026	,0024	,0022	,0020
6	,0021	,0018	,0016	,0014	,0013
8	,0015	,0013	,0011	,0010	,0009
4,0	,0010	,0009	,0008	,0007	,0006

IV. táblázat (folytatás)

$x \backslash k$	16	17	18	19	20
0,0	0,5000	0,5000	0,5000	0,5000	0,5000
5	,3119	,3117	,3116	,3114	,3113
1,0	,1661	,1657	,1653	,1649	,1646
4	,0903	,0898	,0893	,0888	,0884
6	,0646	,0640	,0635	,0630	,0626
8	,0454	,0448	,0443	,0439	,0435
2,0	,0314	,0309	,0304	,0300	,0296
2	,0214	,0210	,0205	,0202	,0199
4	,0145	,0141	,0137	,0134	,0131
6	,0097	,0093	,0090	,0082	,0086
8	,0064	,0061	,0059	,0057	,0055
3,0	,0042	,0040	,0038	,0037	,0035
2	,0028	,0026	,0025	,0024	,0022
4	,0018	,0017	,0016	,0015	,0014
6	,0012	,0011	,0010	,0009	,0009
8	,0008	,0007	,0007	,0006	,0006
4,0	,0005	,0005	,0004	,0004	,0003