

**Dystrybuenta  $\Phi(x)$  rozkładu standardowego normalnego  $N(0,1)$**

x	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.00	0.500000	0.503989	0.507978	0.511967	0.515953	0.519939	0.523922	0.527903	0.531881	0.535856
0.10	0.539828	0.543795	0.547758	0.551717	0.555670	0.559618	0.563559	0.567495	0.571424	0.575345
0.20	0.579260	0.583166	0.587064	0.590954	0.594835	0.598706	0.602568	0.606420	0.610261	0.614092
0.30	0.617911	0.621720	0.625516	0.629300	0.633072	0.636831	0.640576	0.644309	0.648027	0.651732
0.40	0.655422	0.659097	0.662757	0.666402	0.670031	0.673645	0.677242	0.680822	0.684386	0.687933
0.50	0.691462	0.694974	0.698468	0.701944	0.705401	0.708840	0.712260	0.715661	0.719043	0.722405
0.60	0.725747	0.729069	0.732371	0.735653	0.738914	0.742154	0.745373	0.748571	0.751748	0.754903
0.70	0.758036	0.761148	0.764238	0.767305	0.770350	0.773373	0.776373	0.779350	0.782305	0.785236
0.80	0.788145	0.791030	0.793892	0.796731	0.799546	0.802337	0.805105	0.807850	0.810570	0.813267
0.90	0.815940	0.818589	0.821214	0.823814	0.826391	0.828944	0.831472	0.833977	0.836457	0.838913
1.00	0.841345	0.843752	0.846136	0.848495	0.850830	0.853141	0.855428	0.857690	0.859929	0.862143
1.10	0.864334	0.866500	0.868643	0.870762	0.872857	0.874928	0.876976	0.878999	0.881000	0.882977
1.20	0.884930	0.886861	0.888768	0.890651	0.892512	0.894350	0.896165	0.897958	0.899727	0.901475
1.30	0.903199	0.904902	0.906582	0.908241	0.909877	0.911492	0.913085	0.914657	0.916207	0.917736
1.40	0.919243	0.920730	0.922196	0.923641	0.925066	0.926471	0.927855	0.929219	0.930563	0.931888
1.50	0.933193	0.934478	0.935744	0.936992	0.938220	0.939429	0.940620	0.941792	0.942947	0.944083
1.60	0.945201	0.946301	0.947384	0.948449	0.949497	0.950529	0.951543	0.952540	0.953521	0.954486
1.70	0.955435	0.956367	0.957284	0.958185	0.959071	0.959941	0.960796	0.961636	0.962462	0.963273
1.80	0.964070	0.964852	0.965621	0.966375	0.967116	0.967843	0.968557	0.969258	0.969946	0.970621
1.90	0.971283	0.971933	0.972571	0.973197	0.973810	0.974412	0.975002	0.975581	0.976148	0.976705
2.00	0.977250	0.977784	0.978308	0.978822	0.979325	0.979818	0.980301	0.980774	0.981237	0.981691
2.10	0.982136	0.982571	0.982997	0.983414	0.983823	0.984222	0.984614	0.984997	0.985371	0.985738
2.20	0.986097	0.986447	0.986791	0.987126	0.987455	0.987776	0.988089	0.988396	0.988696	0.988989
2.30	0.989276	0.989556	0.989830	0.990097	0.990358	0.990613	0.990863	0.991106	0.991344	0.991576
2.40	0.991802	0.992024	0.992240	0.992451	0.992656	0.992857	0.993053	0.993244	0.993431	0.993613
2.50	0.993790	0.993963	0.994132	0.994297	0.994457	0.994614	0.994766	0.994915	0.995060	0.995201
2.60	0.995339	0.995473	0.995604	0.995731	0.995855	0.995975	0.996093	0.996207	0.996319	0.996427
2.70	0.996533	0.996636	0.996736	0.996833	0.996928	0.997020	0.997110	0.997197	0.997282	0.997365
2.80	0.997445	0.997523	0.997599	0.997673	0.997744	0.997814	0.997882	0.997948	0.998012	0.998074
2.90	0.998134	0.998193	0.998250	0.998305	0.998359	0.998411	0.998462	0.998511	0.998559	0.998605
3.00	0.998650	0.998694	0.998736	0.998777	0.998817	0.998856	0.998893	0.998930	0.998965	0.998999
3.10	0.999032	0.999065	0.999096	0.999126	0.999155	0.999184	0.999211	0.999238	0.999264	0.999289
3.20	0.999313	0.999336	0.999359	0.999381	0.999402	0.999423	0.999443	0.999462	0.999481	0.999499
3.30	0.999517	0.999534	0.999550	0.999566	0.999581	0.999596	0.999610	0.999624	0.999638	0.999651
3.40	0.999663	0.999675	0.999687	0.999698	0.999709	0.999720	0.999730	0.999749	0.999749	0.999758

**Kwantyle  $z_\alpha$  rozkładu standardowego normalnego  $N(0,1)$**

$\alpha$	0.000	0.010	0.020	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.090	0.095
0.5	0.00000	0.02507	0.05015	0.07527	0.10043	0.12566	0.15097	0.17637	0.18912	0.20189	0.22754	0.24043
0.6	0.25335	0.27932	0.30548	0.33185	0.35846	0.38532	0.41246	0.43991	0.45376	0.46770	0.49585	0.51007
0.7	0.52440	0.55338	0.58284	0.61281	0.64335	0.67449	0.70630	0.73885	0.75541	0.77219	0.80642	0.82389
0.8	0.84162	0.87790	0.91537	0.95417	0.99446	1.03643	1.08032	1.12639	1.15035	1.17499	1.22653	1.25356
0.9	1.28155	1.34075	1.40507	1.47579	1.55477	1.64485	1.75069	1.88079	1.95996	2.05375	2.32634	2.57582

**Kwantyle rozkładu t-Studenta**

n	$\alpha$	0.900	0.950	0.975	0.990	0.995
1		3.0777	6.3138	12.706	31.821	63.657
2		1.8856	2.9200	4.3027	4.5407	5.8409
3		1.6377	2.3534	3.1824	4.5407	5.8409
4		1.5332	2.1318	2.7764	3.7469	4.6041
5		1.4759	2.0150	2.5706	3.3649	4.0321
6		1.4398	1.9432	2.4469	3.1427	3.7074
7		1.4149	1.8946	2.3646	2.9980	3.4995
8		1.3968	1.8595	2.3060	2.8965	3.3554
9		1.3830	1.8331	2.2622	2.8214	3.2498
10		1.3722	1.8125	2.2281	2.7638	3.1693
11		1.3634	1.7959	2.2010	2.7181	3.1058
12		1.3562	1.7823	2.1788	2.6810	3.0545
13		1.3502	1.7709	2.1604	2.6503	3.0123
14		1.3450	1.7613	2.1448	2.6245	2.9768
15		1.3406	1.7531	2.1314	2.6025	2.9467
16		1.3368	1.7459	2.1199	2.5835	2.9208
17		1.3334	1.7396	2.1098	2.5669	2.8982
18		1.3304	1.7341	2.1009	2.5524	2.8784
19		1.3277	1.7291	2.0930	2.5395	2.8609
20		1.3253	1.7247	2.0860	2.5280	2.8453
21		1.3232	1.7207	2.0796	2.5176	2.8314
22		1.3212	1.7171	2.0739	2.5083	2.8188
23		1.3195	1.7139	2.0687	2.4999	2.8073
24		1.3178	1.7109	2.0639	2.4922	2.7969
25		1.3163	1.7081	2.0595	2.4851	2.7874
26		1.3150	1.7056	2.0555	2.4786	2.7787
27		1.3137	1.7033	2.0518	2.4727	2.7707
28		1.3125	1.7011	2.0484	2.4671	2.7633
29		1.3114	1.6991	2.0452	2.4620	2.7564
30		1.3104	1.6973	2.0423	2.4573	2.7500
31		1.3095	1.6955	2.0395	2.4528	2.7440
32		1.3086	1.6939	2.0369	2.4487	2.7385
33		1.3077	1.6924	2.0345	2.4448	2.7333
34		1.3070	1.6909	2.0322	2.4411	2.7284
35		1.3062	1.6896	2.0301	2.4377	2.7238
36		1.3055	1.6883	2.0281	2.4345	2.7195
37		1.3049	1.6871	2.0262	2.4314	2.7154
38		1.3042	1.6860	2.0244	2.4286	2.7116
39		1.3036	1.6849	2.0227	2.4258	2.7079
40		1.3031	1.6839	2.0211	2.4233	2.7045

Kwantyle rozkładu chi-kwadrat

n	$\alpha$	0.005	0.010	0.025	0.050	0.100	0.900	0.950	0.975	0.990	0.995
1	0.0000	0.0002	0.0010	0.0039	0.0099	0.0203	2.7055	3.8415	5.0239	6.6349	7.8795
2	0.0100	0.0201	0.0506	0.1026	0.2107	0.5974	4.6052	5.9915	7.3778	9.2103	10.5966
3	0.0717	0.1148	0.2158	0.3518	0.5844	1.2128	6.2514	7.8147	9.3484	11.3449	12.8382
4	0.2070	0.2971	0.4844	0.7107	1.0636	1.9281	7.7794	9.4877	11.1433	13.2767	14.8603
5	0.4117	0.5543	0.8312	1.1455	1.6103	2.3421	9.2364	11.0705	12.8325	15.0863	16.7496
6	0.6757	0.8721	1.2373	1.6354	2.2041	3.0008	10.6446	12.5916	14.4494	16.8119	18.5476
7	0.9893	1.2390	1.6899	2.1674	2.8331	3.5991	12.0170	14.0671	16.0128	18.4753	20.2777
8	1.3444	1.6465	2.1797	2.7326	3.4895	4.3482	13.3616	15.5073	17.5345	20.0902	21.9550
9	1.7349	2.0879	2.7004	3.3251	4.1682	5.0214	14.6837	16.9190	19.0228	21.6660	23.5894
10	2.1559	2.5582	3.2470	3.9403	4.8652	5.7905	15.9872	18.3070	20.4832	23.2093	25.1882
11	2.6032	3.0535	3.8158	4.5748	5.5778	6.5814	17.2750	19.6751	21.9201	24.7250	26.7568
12	3.0738	3.5706	4.4038	5.2260	6.3038	7.3668	18.5493	21.0261	23.3367	26.2170	28.2995
13	3.5650	4.1069	5.0088	5.8919	7.0415	8.1901	19.8119	22.3620	24.7356	27.6882	29.8195
14	4.0747	4.6604	5.6287	6.5706	7.7895	9.0371	21.0641	23.6848	26.1189	29.1412	31.3193
15	4.6009	5.2294	6.2621	7.2609	8.5468	9.9448	22.3071	24.9958	27.4884	30.5779	32.8013
16	5.1422	5.8122	6.9077	7.9617	9.3122	10.8454	23.5418	26.2962	28.8454	31.9999	34.2672
17	5.6972	6.4078	7.5642	8.6718	10.0852	11.7799	24.7690	27.5871	30.1910	33.4087	35.7185
18	6.2648	7.0149	8.2308	9.3905	10.8649	12.0170	25.9894	28.8693	31.5264	34.8053	37.1565
19	6.8440	7.6327	8.9065	10.1170	11.6509	12.8017	27.2036	30.1435	32.8523	36.1909	38.5823
20	7.4338	8.2604	9.5907	10.8508	12.4426	13.5913	28.4120	31.4104	34.1696	37.5662	39.9968
21	8.0337	8.8972	10.2829	11.5913	13.2396	14.4225	29.6151	32.6706	35.4789	38.9322	41.4011
22	8.6427	9.5425	10.9823	12.3380	14.0415	15.2743	30.8133	33.9244	36.7807	40.2894	42.7957
23	9.2604	10.1957	11.6886	13.0905	14.8480	16.1472	32.0069	35.1725	38.0756	41.6384	44.1813
24	9.8862	10.8564	12.4012	13.8484	15.6587	17.0591	33.1962	36.4150	39.3641	42.9798	45.5586
25	10.5197	11.5240	13.1197	14.6114	16.4734	17.9993	34.3816	37.6525	40.6465	44.3141	46.9279
26	11.1602	12.1981	13.8439	15.3792	17.2919	18.9647	35.5632	38.8851	41.9232	45.6417	48.2899
27	11.8076	12.8785	14.5734	16.1514	18.1139	19.9541	36.7412	40.1133	43.1945	46.9629	49.6449
28	12.4613	13.5647	15.3079	16.9279	18.9392	20.9663	37.9159	41.3371	44.4608	48.2782	50.9934
29	13.1211	14.2565	16.0471	17.7084	19.7677	21.9999	39.0875	42.5570	45.7223	49.5879	52.3356
30	13.7867	14.9535	16.7908	18.4927	20.5992	23.0436	40.2560	43.7730	46.9792	50.8922	53.6720
31	14.4578	15.6555	17.5387	19.2806	21.4336	24.0979	41.4217	44.9853	48.2319	52.1914	55.0020
32	15.1340	16.3622	18.2908	20.0719	22.2706	25.1726	42.5847	46.1943	49.4804	53.4858	56.3281
33	15.8153	17.0735	19.0467	20.8665	23.1102	26.2673	43.7452	47.3999	50.7251	54.7755	57.6484
34	16.5013	17.7891	19.8063	21.6643	23.9523	27.3813	44.9031	48.6024	51.9660	56.0609	58.9639
35	17.1918	18.5089	20.5694	22.4650	24.7967	28.5344	46.0588	49.8018	53.2033	57.3421	60.2748
36	17.8867	19.2327	21.3359	23.2686	25.6433	29.7077	47.2122	50.9985	54.4373	58.6192	61.5812
37	18.5858	19.9602	22.1056	24.0749	26.4921	30.8903	48.3634	52.1923	55.6680	59.8932	62.8833
38	19.2889	20.6914	22.8785	24.8839	27.3430	32.0827	49.5127	53.3835	56.8955	61.1621	64.1814
39	19.9959	21.4262	23.6543	25.6954	28.1958	33.2848	50.6598	54.5722	58.1201	62.4281	65.4767
40	20.7065	22.1643	24.4330	26.5093	29.0505	34.4963	51.8051	55.7585	59.3417	63.6907	66.7673

Kwantyle rozkładu F-Snedecora rzędu 0.95/0.99

$\begin{matrix} n_1 \\ \backslash n_2 \end{matrix}$	1	2	3	4	5	6	7	8	9
1	161,4 4052	199,5 4999	215,7 5404	224,6 5624	230,2 5764	234,0 5859	236,8 5928	238,9 5981	240,5 6022
2	18,513 98,502	19,000 99,000	19,164 99,164	19,247 99,251	19,296 99,302	19,329 99,331	19,353 99,357	19,371 99,375	19,385 99,390
3	10,128 34,116	9,552 30,816	9,277 29,457	9,117 28,710	9,013 28,237	8,941 27,911	8,887 27,671	8,845 27,489	8,812 27,345
4	7,709 21,198	6,944 18,000	6,591 16,694	6,388 15,977	6,256 15,522	6,163 15,207	6,094 14,976	6,041 14,799	5,999 14,659
5	6,608 16,258	5,786 13,274	5,409 12,060	5,192 11,392	5,050 10,967	4,950 10,672	4,876 10,456	4,818 10,289	4,772 10,158
6	5,987 13,745	5,143 10,925	4,757 9,780	4,534 9,148	4,387 8,746	4,284 8,466	4,207 8,260	4,147 8,102	4,099 7,976
7	5,591 12,246	4,737 9,547	4,347 8,451	4,120 7,847	3,972 7,460	3,866 7,191	3,787 6,993	3,726 6,840	3,677 6,719
8	5,318 11,259	4,459 8,649	4,066 7,591	3,838 7,006	3,688 6,632	3,581 6,371	3,500 6,178	3,438 6,029	3,388 5,911
9	5,117 10,562	4,256 8,022	3,863 6,992	3,633 6,422	3,482 6,057	3,374 5,802	3,293 5,613	3,230 5,467	3,179 5,351
10	4,965 10,044	4,103 7,559	3,708 6,552	3,478 5,994	3,326 5,636	3,217 5,386	3,135 5,200	3,072 5,057	3,020 4,942
12	4,747 9,330	3,885 6,927	3,490 5,953	3,259 5,412	3,106 5,064	2,996 4,821	2,913 4,640	2,849 4,499	2,796 4,388
15	4,543 8,683	3,682 6,359	3,287 5,417	3,056 4,893	2,901 4,556	2,790 4,318	2,707 4,142	2,641 4,004	2,588 3,895
20	4,351 8,096	3,493 5,849	3,098 4,938	2,866 4,431	2,711 4,103	2,599 3,871	2,514 3,699	2,447 3,564	2,393 3,457

$\begin{matrix} n_1 \\ \backslash n_2 \end{matrix}$	10	12	15	20
1	241,9 6056	243,9 6107	245,9 6157	248,0 6209
2	19,40 99,40	19,41 99,42	19,43 99,43	19,45 99,45
3	8,785 27,23	8,745 27,05	8,703 26,87	8,660 26,69
4	5,964 14,55	5,912 14,37	5,858 14,20	5,803 14,02
5	4,735 10,051	4,678 9,888	4,619 9,722	4,558 9,553
6	4,060 7,874	4,000 7,718	3,938 7,559	3,874 7,396
7	3,637 6,620	3,575 6,469	3,511 6,314	3,445 6,155
8	3,347 5,814	3,284 5,667	3,218 5,515	3,150 5,359
9	3,137 5,257	3,073 5,111	3,006 4,962	2,936 4,808
10	2,978 4,849	2,913 4,706	2,845 4,558	2,774 4,405
12	2,753 4,296	2,687 4,155	2,617 4,010	2,544 3,858
15	2,544 3,805	2,475 3,666	2,403 3,522	2,328 3,372
20	2,348 3,368	2,278 3,231	2,203 3,088	2,124 2,938