

Distribučná funkcia normovaného normálneho rozdelenia  $N(\mu = 0, \sigma^2 = 1)$

$$\Phi(z) = \int_{-\infty}^z \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}} dz$$

$z$	$\Phi(z)$	$z$	$\Phi(z)$	$z$	$\Phi(z)$	$z$	$\Phi(z)$	$z$	$\Phi(z)$	$z$	$\Phi(z)$	$z$	$\Phi(z)$
0.00	0.5000	0.50	0.6915	1.00	0.8413	1.50	0.9332	2.00	0.9772	2.50	0.9938	3.50	0.99977
0.01	0.5040	0.51	0.6950	1.01	0.8438	1.51	0.9345	2.01	0.9778	2.52	0.9941	3.52	0.99978
0.02	0.5080	0.52	0.6985	1.02	0.8461	1.52	0.9357	2.02	0.9783	2.54	0.9945	3.54	0.99980
0.03	0.5120	0.53	0.7019	1.03	0.8485	1.53	0.9370	2.03	0.9788	2.56	0.9948	3.56	0.99981
0.04	0.5160	0.54	0.7054	1.04	0.8508	1.54	0.9382	2.04	0.9793	2.58	0.9951	3.58	0.99983
0.05	0.5199	0.55	0.7088	1.05	0.8531	1.55	0.9394	2.05	0.9798	2.60	0.9953	3.60	0.99984
0.06	0.5239	0.56	0.7123	1.06	0.8554	1.56	0.9406	2.06	0.9803	2.62	0.9956	3.62	0.99985
0.07	0.5279	0.57	0.7157	1.07	0.8577	1.57	0.9418	2.07	0.9808	2.64	0.9959	3.64	0.99986
0.08	0.5319	0.58	0.7190	1.08	0.8599	1.58	0.9429	2.08	0.9812	2.66	0.9961	3.66	0.99987
0.09	0.5359	0.59	0.7224	1.09	0.8621	1.59	0.9441	2.09	0.9817	2.68	0.9963	3.68	0.99988
0.10	0.5398	0.60	0.7257	1.10	0.8643	1.60	0.9452	2.10	0.9821	2.70	0.9965	3.70	0.99989
0.11	0.5438	0.61	0.7291	1.11	0.8665	1.61	0.9463	2.11	0.9826	2.72	0.9967	3.72	0.99990
0.12	0.5478	0.62	0.7324	1.12	0.8686	1.62	0.9474	2.12	0.9830	2.74	0.9969	3.74	0.99991
0.13	0.5517	0.63	0.7357	1.13	0.8708	1.63	0.9484	2.13	0.9834	2.76	0.9971	3.76	0.99992
0.14	0.5557	0.64	0.7389	1.14	0.8729	1.64	0.9495	2.14	0.9838	2.78	0.9973	3.78	0.99992
0.15	0.5596	0.65	0.7422	1.15	0.8749	1.65	0.9505	2.15	0.9842	2.80	0.9974	3.80	0.99993
0.16	0.5636	0.66	0.7454	1.16	0.8770	1.66	0.9515	2.16	0.9846	2.82	0.9976	3.82	0.99993
0.17	0.5675	0.67	0.7486	1.17	0.8790	1.67	0.9525	2.17	0.9850	2.84	0.9977	3.84	0.99994
0.18	0.5714	0.68	0.7517	1.18	0.8810	1.68	0.9535	2.18	0.9854	2.86	0.9979	3.86	0.99994
0.19	0.5753	0.69	0.7549	1.19	0.8830	1.69	0.9545	2.19	0.9857	2.88	0.9980	3.88	0.99995
0.20	0.5793	0.70	0.7580	1.20	0.8849	1.70	0.9554	2.20	0.9861	2.90	0.9981	3.90	0.99995
0.21	0.5832	0.71	0.7611	1.21	0.8869	1.71	0.9564	2.21	0.9864	2.92	0.9982	3.92	0.99996
0.22	0.5871	0.72	0.7642	1.22	0.8888	1.72	0.9573	2.22	0.9868	2.94	0.9984	3.94	0.99996
0.23	0.5910	0.73	0.7673	1.23	0.8907	1.73	0.9582	2.23	0.9871	2.96	0.9985	3.96	0.99996
0.24	0.5948	0.74	0.7704	1.24	0.8925	1.74	0.9591	2.24	0.9875	2.98	0.9986	3.98	0.99997
0.25	0.5987	0.75	0.7734	1.25	0.8944	1.75	0.9599	2.25	0.9878	3.00	0.9987	4.00	0.99997
0.26	0.6026	0.76	0.7764	1.26	0.8962	1.76	0.9608	2.26	0.9881	3.02	0.9987	4.02	0.99997
0.27	0.6064	0.77	0.7794	1.27	0.8980	1.77	0.9616	2.27	0.9884	3.04	0.9988	4.04	0.99997
0.28	0.6103	0.78	0.7823	1.28	0.8997	1.78	0.9625	2.28	0.9887	3.06	0.9989	4.06	0.99998
0.29	0.6141	0.79	0.7852	1.29	0.9015	1.79	0.9633	2.29	0.9890	3.08	0.9990	4.08	0.99998
0.30	0.6179	0.80	0.7881	1.30	0.9032	1.80	0.9641	2.30	0.9893	3.10	0.9990	4.10	0.99998
0.31	0.6217	0.81	0.7910	1.31	0.9049	1.81	0.9649	2.31	0.9896	3.12	0.9991	4.12	0.99998
0.32	0.6255	0.82	0.7939	1.32	0.9066	1.82	0.9656	2.32	0.9898	3.14	0.9992	4.14	0.99998
0.33	0.6293	0.83	0.7967	1.33	0.9082	1.83	0.9664	2.33	0.9901	3.16	0.9992	4.16	0.99998
0.34	0.6331	0.84	0.7995	1.34	0.9099	1.84	0.9671	2.34	0.9904	3.18	0.9993	4.18	0.99999
0.35	0.6368	0.85	0.8023	1.35	0.9115	1.85	0.9678	2.35	0.9906	3.20	0.9993	4.20	0.99999
0.36	0.6406	0.86	0.8051	1.36	0.9131	1.86	0.9686	2.36	0.9909	3.22	0.9994	4.22	0.99999
0.37	0.6443	0.87	0.8078	1.37	0.9147	1.87	0.9693	2.37	0.9911	3.24	0.9994	4.24	0.99999
0.38	0.6480	0.88	0.8106	1.38	0.9162	1.88	0.9699	2.38	0.9913	3.26	0.9994	4.26	0.99999
0.39	0.6517	0.89	0.8133	1.39	0.9177	1.89	0.9706	2.39	0.9916	3.28	0.9995	4.28	0.99999
0.40	0.6554	0.90	0.8159	1.40	0.9192	1.90	0.9713	2.40	0.9918	3.30	0.9995	4.30	0.99999
0.41	0.6591	0.91	0.8186	1.41	0.9207	1.91	0.9719	2.41	0.9920	3.32	0.9995	4.32	0.99999
0.42	0.6628	0.92	0.8212	1.42	0.9222	1.92	0.9726	2.42	0.9922	3.34	0.9996	4.34	0.99999
0.43	0.6664	0.93	0.8238	1.43	0.9236	1.93	0.9732	2.43	0.9925	3.36	0.9996	4.36	0.99999
0.44	0.6700	0.94	0.8264	1.44	0.9251	1.94	0.9738	2.44	0.9927	3.38	0.9996	4.38	0.99999
0.45	0.6736	0.95	0.8289	1.45	0.9265	1.95	0.9744	2.45	0.9929	3.40	0.9997	4.40	0.99999
0.46	0.6772	0.96	0.8315	1.46	0.9279	1.96	0.9750	2.46	0.9931	3.42	0.9997	4.42	1.00000
0.47	0.6808	0.97	0.8340	1.47	0.9292	1.97	0.9756	2.47	0.9932	3.44	0.9997	4.44	1.00000
0.48	0.6844	0.98	0.8365	1.48	0.9306	1.98	0.9761	2.48	0.9934	3.46	0.9997	4.46	1.00000
0.49	0.6879	0.99	0.8389	1.49	0.9319	1.99	0.9767	2.49	0.9936	3.48	0.9997	4.48	1.00000

$$\Phi(-z) = 1 - \Phi(z)$$

Pre distribučnú funkciu náhodnej premennej  $X \sim N(\mu, \sigma^2)$ , platí  $F(x) = \Phi\left(\frac{x-\mu}{\sigma}\right)$

Kvantily  $\chi^2$  - rozdelenia :  $F_\nu(\chi_p^2)=p$

$\nu \cdot \cdot \cdot p$	$\chi_{0.01}^2$	$\chi_{0.025}^2$	$\chi_{0.05}^2$	$\chi_{0.1}^2$	$\chi_{0.5}^2$	$\chi_{0.9}^2$	$\chi_{0.95}^2$	$\chi_{0.975}^2$	$\chi_{0.99}^2$	$\chi_{0.999}^2$
1	0.0002	0.001	0.004	0.016	0.455	2.71	3.84	5.02	6.63	10.83
2	0.020	0.051	0.103	0.211	1.39	4.61	5.99	7.38	9.21	13.82
3	0.115	0.216	0.352	0.584	2.37	6.25	7.81	9.35	11.34	16.27
4	0.297	0.484	0.711	1.06	3.36	7.78	9.49	11.14	13.28	18.47
5	0.554	0.831	1.15	1.61	4.35	9.24	11.07	12.83	15.09	20.51
6	0.872	1.24	1.64	2.20	5.35	10.64	12.59	14.45	16.81	22.46
7	1.24	1.69	2.17	2.83	6.35	12.02	14.07	16.01	18.48	24.32
8	1.65	2.18	2.73	3.49	7.34	13.36	15.51	17.53	20.09	26.12
9	2.09	2.70	3.33	4.17	8.34	14.68	16.92	19.02	21.67	27.88
10	2.56	3.25	3.94	4.87	9.34	15.99	18.31	20.48	23.21	29.59
11	3.05	3.82	4.57	5.58	10.34	17.28	19.68	21.92	24.73	31.26
12	3.57	4.40	5.23	6.30	11.34	18.55	21.03	23.34	26.22	32.91
13	4.11	5.01	5.89	7.04	12.34	19.81	22.36	24.74	27.69	34.53
14	4.66	5.63	6.57	7.79	13.34	21.06	23.68	26.12	29.14	36.12
15	5.23	6.26	7.26	8.55	14.34	22.31	25.00	27.49	30.58	37.70
16	5.81	6.91	7.96	9.31	15.34	23.54	26.30	28.85	32.00	39.25
17	6.41	7.56	8.67	10.09	16.34	24.77	27.59	30.19	33.41	40.79
18	7.01	8.23	9.39	10.86	17.34	25.99	28.87	31.53	34.81	42.31
19	7.63	8.91	10.12	11.65	18.34	27.20	30.14	32.85	36.19	43.82
20	8.26	9.59	10.85	12.44	19.34	28.41	31.41	34.17	37.57	45.31
22	9.54	10.98	12.34	14.04	21.34	30.81	33.92	36.78	40.29	48.27
24	10.86	12.40	13.85	15.66	23.34	33.20	36.42	39.36	42.98	51.18
26	12.20	13.84	15.38	17.29	25.34	35.56	38.89	41.92	45.64	54.05
28	13.56	15.31	16.93	18.94	27.34	37.92	41.34	44.46	48.28	56.89
30	14.95	16.79	18.49	20.60	29.34	40.26	43.77	46.98	50.89	59.70
32	16.36	18.29	20.07	22.27	31.34	42.58	46.19	49.48	53.49	62.49
34	17.79	19.81	21.66	23.95	33.34	44.90	48.60	51.97	56.06	65.25
36	19.23	21.34	23.27	25.64	35.34	47.21	51.00	54.44	58.62	67.98
38	20.69	22.88	24.88	27.34	37.34	49.51	53.38	56.90	61.16	70.70
40	22.16	24.43	26.51	29.05	39.34	51.81	55.76	59.34	63.69	73.40
42	23.65	26.00	28.14	30.77	41.34	54.09	58.12	61.78	66.21	76.08
44	25.15	27.57	29.79	32.49	43.34	56.37	60.48	64.20	68.71	78.75
46	26.66	29.16	31.44	34.22	45.34	58.64	62.83	66.62	71.20	81.40
48	28.18	30.75	33.10	35.95	47.34	60.91	65.17	69.02	73.68	84.04
50	29.71	32.36	34.76	37.69	49.33	63.17	67.50	71.42	76.15	86.66
60	37.48	40.48	43.19	46.46	59.33	74.40	79.08	83.30	88.38	99.61
70	45.44	48.76	51.74	55.33	69.33	85.53	90.53	95.02	100.43	112.32
80	53.54	57.15	60.39	64.28	79.33	96.58	101.88	106.63	112.33	124.84
90	61.75	65.65	69.13	73.29	89.33	107.57	113.15	118.14	124.12	137.21
100	70.06	74.22	77.93	82.36	99.33	118.50	124.34	129.56	135.81	149.45

Pre veľké  $\nu$  platí  $\chi_p^2 \approx \frac{1}{2}(\sqrt{2\nu - 1} + z_p)^2$ , kde  $z_p$  sú kvantily normovaného normálneho rozdelenia.

Kvantily  $t_p$  Studentovho rozdelenia:  $F_\nu(t_p)=p$

$\nu \cdot \cdot \cdot p$	$t_{0,6}$	$t_{0,65}$	$t_{0,7}$	$t_{0,75}$	$t_{0,8}$	$t_{0,85}$	$t_{0,9}$	$t_{0,925}$	$t_{0,95}$	$t_{0,975}$	$t_{0,99}$	$t_{0,995}$
1	0.3249	0.5095	0.7265	1.0000	1.3764	1.9626	3.0777	4.1653	6.3137	12.7062	31.8210	63.6559
2	0.2887	0.4447	0.6172	0.8165	1.0607	1.3862	1.8856	2.2819	2.9200	4.3027	6.9645	9.9250
3	0.2767	0.4242	0.5844	0.7649	0.9785	1.2498	1.6377	1.9243	2.3534	3.1824	4.5407	5.8408
4	0.2707	0.4142	0.5686	0.7407	0.9410	1.1896	1.5332	1.7782	2.1318	2.7765	3.7469	4.6041
5	0.2672	0.4082	0.5594	0.7267	0.9195	1.1558	1.4759	1.6994	2.0150	2.5706	3.3649	4.0321
6	0.2648	0.4043	0.5534	0.7176	0.9057	1.1342	1.4398	1.6502	1.9432	2.4469	3.1427	3.7074
7	0.2632	0.4015	0.5491	0.7111	0.8960	1.1192	1.4149	1.6166	1.8946	2.3646	2.9979	3.4995
8	0.2619	0.3995	0.5459	0.7064	0.8889	1.1081	1.3968	1.5922	1.8595	2.3060	2.8965	3.3554
9	0.2610	0.3979	0.5435	0.7027	0.8834	1.0997	1.3830	1.5737	1.8331	2.2622	2.8214	3.2498
10	0.2602	0.3966	0.5415	0.6998	0.8791	1.0931	1.3722	1.5592	1.8125	2.2281	2.7638	3.1693
11	0.2596	0.3956	0.5399	0.6974	0.8755	1.0877	1.3634	1.5476	1.7959	2.2010	2.7181	3.1058
12	0.2590	0.3947	0.5386	0.6955	0.8726	1.0832	1.3562	1.5380	1.7823	2.1788	2.6810	3.0545
13	0.2586	0.3940	0.5375	0.6938	0.8702	1.0795	1.3502	1.5299	1.7709	2.1604	2.6503	3.0123
14	0.2582	0.3933	0.5366	0.6924	0.8681	1.0763	1.3450	1.5231	1.7613	2.1448	2.6245	2.9768
15	0.2579	0.3928	0.5357	0.6912	0.8662	1.0735	1.3406	1.5172	1.7531	2.1315	2.6025	2.9467
16	0.2576	0.3923	0.5350	0.6901	0.8647	1.0711	1.3368	1.5121	1.7459	2.1199	2.5835	2.9208
17	0.2573	0.3919	0.5344	0.6892	0.8633	1.0690	1.3334	1.5077	1.7396	2.1098	2.5669	2.8982
18	0.2571	0.3915	0.5338	0.6884	0.8620	1.0672	1.3304	1.5037	1.7341	2.1009	2.5524	2.8784
19	0.2569	0.3912	0.5333	0.6876	0.8610	1.0655	1.3277	1.5002	1.7291	2.0930	2.5395	2.8609
20	0.2567	0.3909	0.5329	0.6870	0.8600	1.0640	1.3253	1.4970	1.7247	2.0860	2.5280	2.8453
22	0.2564	0.3904	0.5321	0.6858	0.8583	1.0614	1.3212	1.4916	1.7171	2.0739	2.5083	2.8188
24	0.2562	0.3900	0.5314	0.6848	0.8569	1.0593	1.3178	1.4871	1.7109	2.0639	2.4922	2.7970
26	0.2560	0.3896	0.5309	0.6840	0.8557	1.0575	1.3150	1.4834	1.7056	2.0555	2.4786	2.7787
28	0.2558	0.3893	0.5304	0.6834	0.8546	1.0560	1.3125	1.4801	1.7011	2.0484	2.4671	2.7633
30	0.2556	0.3890	0.5300	0.6828	0.8538	1.0547	1.3104	1.4774	1.6973	2.0423	2.4573	2.7500
35	0.2553	0.3885	0.5292	0.6816	0.8520	1.0520	1.3062	1.4718	1.6896	2.0301	2.4377	2.7238
40	0.2550	0.3881	0.5286	0.6807	0.8507	1.0500	1.3031	1.4677	1.6839	2.0211	2.4233	2.7045
45	0.2549	0.3878	0.5281	0.6800	0.8497	1.0485	1.3007	1.4645	1.6794	2.0141	2.4121	2.6896
50	0.2547	0.3875	0.5278	0.6794	0.8489	1.0473	1.2987	1.4620	1.6759	2.0086	2.4033	2.6778
75	0.2542	0.3868	0.5266	0.6778	0.8464	1.0436	1.2929	1.4544	1.6654	1.9921	2.3771	2.6430
100	0.2540	0.3864	0.5261	0.6770	0.8452	1.0418	1.2901	1.4507	1.6602	1.9840	2.3642	2.6259
500	0.2535	0.3855	0.5247	0.6750	0.8423	1.0375	1.2832	1.4417	1.6479	1.9647	2.3338	2.5857
1000	0.2534	0.3854	0.5246	0.6747	0.8420	1.0370	1.2824	1.4406	1.6464	1.9623	2.3301	2.5807

$$t_p(\nu) = -t_{1-p}(\nu)$$

Pre veľké  $\nu$  platí  $t_p(\nu) = z_p$ .