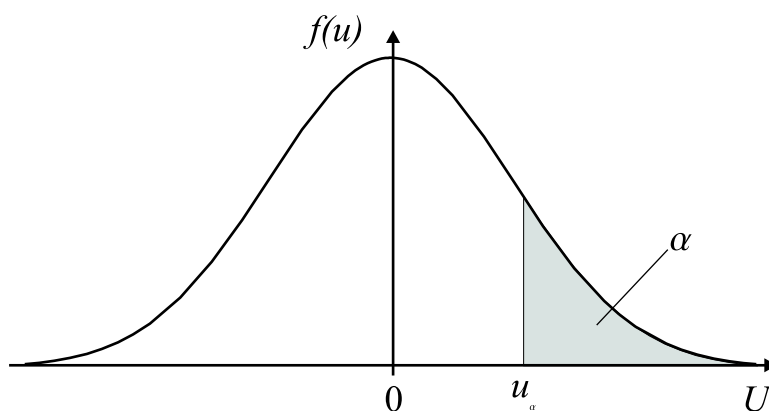


$$\Phi(u) = P(U \leq u) \text{ dla } u \geq 0$$

	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.50000	0.50398	0.50797	0.51196	0.51595	0.51993	0.52392	0.52790	0.53188	0.53585
0.1	0.53982	0.54379	0.54775	0.55171	0.55567	0.55961	0.56355	0.56749	0.57142	0.57534
0.2	0.57925	0.58316	0.58706	0.59095	0.59483	0.59870	0.60256	0.60641	0.61026	0.61409
0.3	0.61791	0.62171	0.62551	0.62930	0.63307	0.63683	0.64057	0.64430	0.64802	0.65173
0.4	0.65542	0.65909	0.66275	0.66640	0.67003	0.67364	0.67724	0.68082	0.68438	0.68793
0.5	0.69146	0.69497	0.69846	0.70194	0.70540	0.70884	0.71226	0.71566	0.71904	0.72240
0.6	0.72574	0.72906	0.73237	0.73565	0.73891	0.74215	0.74537	0.74857	0.75174	0.75490
0.7	0.75803	0.76114	0.76423	0.76730	0.77035	0.77337	0.77637	0.77935	0.78230	0.78523
0.8	0.78814	0.79102	0.79389	0.79673	0.79954	0.80233	0.80510	0.80784	0.81057	0.81326
0.9	0.81593	0.81858	0.82121	0.82381	0.82639	0.82894	0.83147	0.83397	0.83645	0.83891
1.0	0.84134	0.84375	0.84613	0.84849	0.85083	0.85314	0.85542	0.85769	0.85992	0.86214
1.1	0.86433	0.86650	0.86864	0.87076	0.87285	0.87492	0.87697	0.87899	0.88099	0.88297
1.2	0.88493	0.88686	0.88876	0.89065	0.89251	0.89435	0.89616	0.89795	0.89972	0.90147
1.3	0.90319	0.90490	0.90658	0.90824	0.90987	0.91149	0.91308	0.91465	0.91620	0.91773
1.4	0.91924	0.92073	0.92219	0.92364	0.92506	0.92647	0.92785	0.92921	0.93056	0.93188
1.5	0.93319	0.93447	0.93574	0.93699	0.93821	0.93942	0.94062	0.94179	0.94294	0.94408
1.6	0.94520	0.94630	0.94738	0.94844	0.94949	0.95052	0.95154	0.95254	0.95352	0.95448
1.7	0.95543	0.95636	0.95728	0.95818	0.95907	0.95994	0.96079	0.96163	0.96246	0.96327
1.8	0.96406	0.96485	0.96562	0.96637	0.96711	0.96784	0.96855	0.96925	0.96994	0.97062
1.9	0.97128	0.97193	0.97257	0.97319	0.97381	0.97441	0.97500	0.97558	0.97614	0.97670
2.0	0.97724	0.97778	0.97830	0.97882	0.97932	0.97981	0.98030	0.98077	0.98123	0.98169
2.1	0.98213	0.98257	0.98299	0.98341	0.98382	0.98422	0.98461	0.98499	0.98537	0.98573
2.2	0.98609	0.98644	0.98679	0.98712	0.98745	0.98777	0.98808	0.98839	0.98869	0.98898
2.3	0.98927	0.98955	0.98982	0.99009	0.99035	0.99061	0.99086	0.99110	0.99134	0.99157
2.4	0.99180	0.99202	0.99223	0.99245	0.99265	0.99285	0.99305	0.99324	0.99343	0.99361
2.5	0.99379	0.99396	0.99413	0.99429	0.99445	0.99461	0.99476	0.99491	0.99505	0.99520
2.6	0.99533	0.99547	0.99560	0.99573	0.99585	0.99597	0.99609	0.99620	0.99631	0.99642
2.7	0.99653	0.99663	0.99673	0.99683	0.99692	0.99702	0.99710	0.99719	0.99728	0.99736
2.8	0.99744	0.99752	0.99759	0.99767	0.99774	0.99781	0.99788	0.99794	0.99801	0.99807
2.9	0.99813	0.99819	0.99824	0.99830	0.99835	0.99841	0.99846	0.99851	0.99855	0.99860
3.0	0.99865	0.99869	0.99873	0.99877	0.99881	0.99885	0.99889	0.99892	0.99896	0.99899
3.1	0.99903	0.99906	0.99909	0.99912	0.99915	0.99918	0.99921	0.99923	0.99926	0.99928
3.2	0.99931	0.99933	0.99935	0.99938	0.99940	0.99942	0.99944	0.99946	0.99948	0.99949
3.3	0.99951	0.99953	0.99954	0.99956	0.99958	0.99959	0.99961	0.99962	0.99963	0.99965
3.4	0.99966	0.99967	0.99968	0.99969	0.99970	0.99971	0.99972	0.99973	0.99974	0.99975
3.5	0.99976	0.99977	0.99978	0.99979	0.99979	0.99980	0.99981	0.99982	0.99982	0.99983

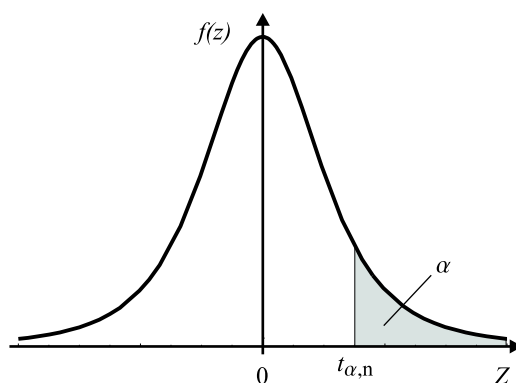
Tablica wartości krytycznych rozkładu normalnego $U \sim N(0, 1)$



$$P(U \geq u_\alpha) = \alpha$$

α	u_α	α	u_α	α	u_α
0.005	2.57582	0.175	0.93458	0.345	0.39885
0.010	2.32634	0.180	0.91536	0.350	0.38532
0.015	2.17009	0.185	0.89647	0.355	0.37185
0.020	2.05374	0.190	0.87789	0.360	0.35845
0.025	1.95996	0.195	0.85961	0.365	0.34512
0.030	1.88079	0.200	0.84162	0.370	0.33185
0.035	1.81191	0.205	0.82389	0.375	0.31863
0.040	1.75068	0.210	0.80642	0.380	0.30548
0.045	1.69539	0.215	0.78919	0.385	0.29237
0.049	1.64485	0.220	0.77219	0.390	0.27931
0.055	1.59819	0.225	0.75541	0.395	0.26631
0.060	1.55477	0.230	0.73884	0.400	0.25334
0.065	1.51410	0.235	0.72247	0.405	0.24042
0.070	1.47579	0.240	0.70630	0.410	0.22754
0.075	1.43953	0.245	0.69030	0.415	0.21470
0.080	1.40507	0.250	0.67448	0.420	0.20189
0.085	1.37220	0.255	0.65883	0.425	0.18911
0.090	1.34075	0.260	0.64334	0.430	0.17637
0.095	1.31057	0.265	0.62800	0.435	0.16365
0.100	1.28155	0.270	0.61281	0.440	0.15096
0.105	1.25356	0.275	0.59776	0.445	0.13830
0.110	1.22652	0.280	0.58284	0.450	0.12566
0.115	1.20035	0.285	0.56805	0.455	0.11303
0.120	1.17498	0.290	0.55338	0.460	0.10043
0.125	1.15034	0.295	0.53883	0.465	0.08784
0.130	1.12639	0.300	0.52440	0.470	0.07526
0.135	1.10306	0.305	0.51007	0.475	0.06270
0.140	1.08031	0.310	0.49585	0.480	0.05015
0.145	1.05812	0.315	0.48172	0.485	0.03760
0.150	1.03643	0.320	0.46769	0.490	0.02506
0.155	1.01522	0.325	0.45376	0.495	0.01253
0.160	0.99445	0.330	0.43991	0.500	0.00000
0.165	0.97411	0.335	0.42614		
0.170	0.95416	0.340	0.41246		

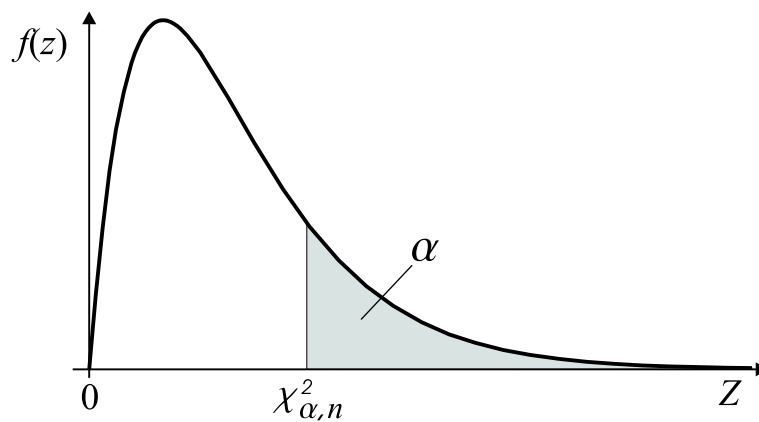
⁰obliczenia wykonane przy użyciu Mathematica 4.1



$$P(Z \geq t_{\alpha,n}) = \alpha$$

$n \backslash \alpha$	0.001	0.002	0.005	0.025	0.01	0.05	0.1
1	318.30883	159.15284	63.65674	12.70620	31.82051	6.31375	3.07768
2	22.32712	15.76391	9.92484	4.30265	6.96455	2.91998	1.88561
3	10.21453	8.05261	5.84090	3.18244	4.54070	2.35336	1.63774
4	7.17318	5.95137	4.60409	2.77644	3.74694	2.13184	1.53320
5	5.89342	5.03024	4.03214	2.57058	3.36492	2.01504	1.47588
6	5.20762	4.52412	3.70742	2.44691	3.14266	1.94318	1.43975
7	4.78528	4.20712	3.49948	2.36462	2.99795	1.89457	1.41492
8	4.50079	3.99095	3.35538	2.30600	2.89645	1.85954	1.39681
9	4.29680	3.83451	3.24983	2.26215	2.82143	1.83311	1.38302
10	4.14370	3.71623	3.16927	2.22813	2.76376	1.81246	1.37218
11	4.02470	3.62376	3.10580	2.20098	2.71807	1.79588	1.36343
12	3.92963	3.54954	3.05453	2.17881	2.68099	1.78228	1.35621
13	3.85198	3.48867	3.01227	2.16036	2.65030	1.77093	1.35017
14	3.78739	3.43786	2.97684	2.14478	2.62449	1.76131	1.34503
15	3.73283	3.39482	2.94671	2.13144	2.60248	1.75305	1.34060
16	3.68615	3.35791	2.92078	2.11990	2.58348	1.74588	1.33675
17	3.64576	3.32589	2.89823	2.10981	2.56693	1.73960	1.33337
18	3.61048	3.29787	2.87844	2.10092	2.55237	1.73406	1.33039
19	3.57940	3.27314	2.86093	2.09302	2.53948	1.72913	1.32772
20	3.55180	3.25116	2.84533	2.08596	2.52797	1.72471	1.32534
21	3.52715	3.23148	2.83135	2.07961	2.51764	1.72074	1.32318
22	3.50499	3.21378	2.81875	2.07387	2.50832	1.71714	1.32123
23	3.48496	3.19776	2.80733	2.06865	2.49986	1.71387	1.31946
24	3.46677	3.18319	2.79693	2.06389	2.49215	1.71088	1.31783
25	3.45018	3.16990	2.78743	2.05953	2.48510	1.70814	1.31634
26	3.43499	3.15771	2.77871	2.05552	2.47862	1.70561	1.31497
27	3.42103	3.14650	2.77068	2.05183	2.47265	1.70328	1.31370
28	3.40815	3.13615	2.76326	2.04840	2.46714	1.70113	1.31252
29	3.39624	3.12657	2.75638	2.04522	2.46202	1.69912	1.31143
30	3.38518	3.11768	2.74999	2.04227	2.45726	1.69726	1.31041
31	3.37489	3.10940	2.74404	2.03951	2.45282	1.69551	1.30946
32	3.36530	3.10167	2.73848	2.03693	2.44867	1.69388	1.30857
33	3.35633	3.09444	2.73327	2.03451	2.44479	1.69236	1.30773
34	3.34793	3.08766	2.72839	2.03224	2.44114	1.69092	1.30695
35	3.34004	3.08130	2.72380	2.03010	2.43772	1.68957	1.30621
36	3.33262	3.07531	2.71948	2.02809	2.43449	1.68829	1.30551
37	3.32563	3.06966	2.71540	2.02619	2.43144	1.68709	1.30485
38	3.31902	3.06433	2.71155	2.02439	2.42856	1.68595	1.30423
39	3.31278	3.05928	2.70791	2.02269	2.42584	1.68487	1.30363
40	3.30687	3.05451	2.70445	2.02107	2.42325	1.68385	1.30307

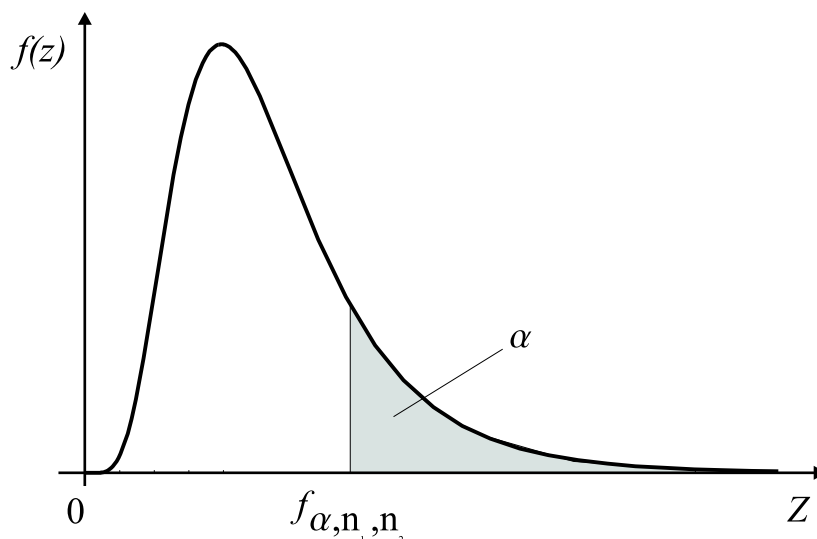
Tablica wartości krytycznych rozkładu chi-kwadrat $Z \sim \chi_n^2$



$$P(Z \geq \chi_{\alpha,n}^2) = \alpha$$

$n \setminus \alpha$	0.01	0.025	0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	0.99
1	6.63	5.02	3.84	2.70	1.64	1.07	0.70	0.45	0.27	0.14	0.06	0.01	0.00	0.00	0.00
2	9.21	7.37	5.99	4.60	3.21	2.40	1.83	1.38	1.02	0.71	0.44	0.21	0.10	0.04	0.02
3	11.34	9.34	7.81	6.25	4.64	3.66	2.94	2.36	1.86	1.42	1.00	0.58	0.35	0.18	0.11
4	13.27	11.14	9.48	7.77	5.98	4.87	4.04	3.35	2.75	2.19	1.64	1.06	0.71	0.42	0.29
5	15.08	12.83	11.07	9.23	7.28	6.06	5.13	4.35	3.65	2.99	2.34	1.61	1.14	0.75	0.55
6	16.81	14.44	12.59	10.64	8.55	7.23	6.21	5.34	4.57	3.82	3.07	2.20	1.63	1.13	0.87
7	18.47	16.01	14.06	12.01	9.80	8.38	7.28	6.34	5.49	4.67	3.82	2.83	2.16	1.56	1.23
8	20.09	17.53	15.50	13.36	11.03	9.52	8.35	7.34	6.42	5.52	4.59	3.48	2.73	2.03	1.64
9	21.66	19.02	16.91	14.68	12.24	10.65	9.41	8.34	7.35	6.39	5.38	4.16	3.32	2.53	2.08
10	23.20	20.48	18.30	15.98	13.44	11.78	10.47	9.34	8.29	7.26	6.17	4.86	3.94	3.05	2.55
11	24.72	21.92	19.67	17.27	14.63	12.89	11.52	10.34	9.23	8.14	6.98	5.57	4.57	3.60	3.05
12	26.21	23.33	21.02	18.54	15.81	14.01	12.58	11.34	10.18	9.03	7.80	6.30	5.22	4.17	3.57
13	27.68	24.73	22.36	19.81	16.98	15.11	13.63	12.33	11.12	9.92	8.63	7.04	5.89	4.76	4.10
14	29.14	26.11	23.68	21.06	18.15	16.22	14.68	13.33	12.07	10.82	9.46	7.78	6.57	5.36	4.66
15	30.57	27.48	24.99	22.30	19.31	17.32	15.73	14.33	13.02	11.72	10.30	8.54	7.26	5.98	5.22
16	31.99	28.84	26.29	23.54	20.46	18.41	16.77	15.33	13.98	12.62	11.15	9.31	7.96	6.61	5.81
17	33.40	30.19	27.58	24.76	21.61	19.51	17.82	16.33	14.93	13.53	12.00	10.08	8.67	7.25	6.40
18	34.80	31.52	28.86	25.98	22.75	20.60	18.86	17.33	15.89	14.43	12.85	10.86	9.39	7.90	7.01
19	36.19	32.85	30.14	27.20	23.90	21.68	19.91	18.33	16.85	15.35	13.71	11.65	10.11	8.56	7.63
20	37.56	34.16	31.41	28.41	25.03	22.77	20.95	19.33	17.80	16.26	14.57	12.44	10.85	9.23	8.26
21	38.93	35.47	32.67	29.61	26.17	23.85	21.99	20.33	18.76	17.18	15.44	13.23	11.59	9.91	8.89
22	40.28	36.78	33.92	30.81	27.30	24.93	23.03	21.33	19.72	18.10	16.31	14.04	12.33	10.60	9.54
23	41.63	38.07	35.17	32.00	28.42	26.01	24.06	22.33	20.69	19.02	17.18	14.84	13.09	11.29	10.19
24	42.97	39.36	36.41	33.19	29.55	27.09	25.10	23.33	21.65	19.94	18.06	15.65	13.84	11.99	10.85
25	44.31	40.64	37.65	34.38	30.67	28.17	26.14	24.33	22.61	20.86	18.93	16.47	14.61	12.69	11.52
26	45.64	41.92	38.88	35.56	31.79	29.24	27.17	25.33	23.57	21.79	19.82	17.29	15.37	13.40	12.19
27	46.96	43.19	40.11	36.74	32.91	30.31	28.21	26.33	24.54	22.71	20.70	18.11	16.15	14.12	12.87
28	48.27	44.46	41.33	37.91	34.02	31.39	29.24	27.33	25.50	23.64	21.58	18.93	16.92	14.84	13.56
29	49.58	45.72	42.55	39.08	35.13	32.46	30.28	28.33	26.47	24.57	22.47	19.76	17.70	15.57	14.25
30	50.89	46.97	43.77	40.25	36.25	33.53	31.31	29.33	27.44	25.50	23.36	20.59	18.49	16.30	14.95
31	52.19	48.23	44.98	41.42	37.35	34.59	32.34	30.33	28.40	26.43	24.25	21.43	19.28	17.04	15.65
32	53.48	49.48	46.19	42.58	38.46	35.66	33.38	31.33	29.37	27.37	25.14	22.27	20.07	17.78	16.36
33	54.77	50.72	47.39	43.74	39.57	36.73	34.41	32.33	30.34	28.30	26.04	23.11	20.86	18.52	17.07
34	56.06	51.96	48.60	44.90	40.67	37.79	35.44	33.33	31.31	29.24	26.93	23.95	21.66	19.27	17.78
35	57.34	53.20	49.80	46.05	41.77	38.85	36.47	34.33	32.28	30.17	27.83	24.79	22.46	20.02	18.50
36	58.61	54.43	50.99	47.21	42.87	39.92	37.50	35.33	33.25	31.11	28.73	25.64	23.26	20.78	19.23
37	59.89	55.66	52.19	48.36	43.97	40.98	38.53	36.33	34.22	32.05	29.63	26.49	24.07	21.54	19.96
38	61.16	56.89	53.38	49.51	45.07	42.04	39.56	37.33	35.19	32.99	30.53	27.34	24.88	22.30	20.69
39	62.42	58.12	54.57	50.65	46.17	43.10	40.59	38.33	36.16	33.93	31.44	28.19	25.69	23.06	21.42
40	63.69	59.34	55.75	51.80	47.26	44.16	41.62	39.33	37.13	34.87	32.34	29.05	26.50	23.83	22.16

⁰obliczenia wykonane przy użyciu Mathematica 4.1



$$P(Z \geq f_{\alpha, n_1, n_2}) = \alpha$$

$\frac{n_2}{n_1}$	1	2	4	6	8	10	12	24	1000
1	161.447	199.499	224.583	233.986	238.882	241.881	243.906	249.051	254.186
2	18.512	18.999	19.246	19.329	19.370	19.395	19.412	19.454	19.494
3	10.127	9.552	9.117	8.940	8.845	8.785	8.744	8.638	8.529
4	7.708	6.944	6.388	6.163	6.041	5.964	5.911	5.774	5.631
5	6.607	5.786	5.192	4.950	4.818	4.735	4.677	4.527	4.369
6	5.987	5.143	4.533	4.283	4.146	4.059	3.999	3.841	3.673
7	5.591	4.737	4.120	3.865	3.725	3.636	3.574	3.410	3.234
8	5.317	4.458	3.837	3.580	3.438	3.347	3.283	3.115	2.932
9	5.117	4.256	3.633	3.373	3.229	3.137	3.072	2.900	2.711
10	4.964	4.102	3.478	3.217	3.071	2.978	2.912	2.737	2.543
11	4.844	3.982	3.356	3.094	2.947	2.853	2.787	2.608	2.409
12	4.747	3.885	3.259	2.996	2.848	2.753	2.686	2.505	2.301
13	4.667	3.805	3.179	2.915	2.766	2.671	2.603	2.420	2.212
14	4.600	3.738	3.112	2.847	2.698	2.602	2.534	2.348	2.136
15	4.543	3.682	3.055	2.790	2.640	2.543	2.475	2.287	2.071
16	4.493	3.633	3.006	2.741	2.591	2.493	2.424	2.235	2.015
17	4.451	3.591	2.964	2.698	2.547	2.449	2.380	2.189	1.966
18	4.413	3.554	2.927	2.661	2.510	2.411	2.342	2.149	1.923
19	4.380	3.521	2.895	2.628	2.476	2.377	2.307	2.114	1.884
20	4.351	3.492	2.866	2.598	2.447	2.347	2.277	2.082	1.849
25	4.241	3.385	2.758	2.490	2.337	2.236	2.164	1.964	1.718
30	4.170	3.315	2.689	2.420	2.266	2.164	2.092	1.887	1.629
40	4.084	3.231	2.605	2.335	2.180	2.077	2.003	1.792	1.517
60	4.001	3.150	2.525	2.254	2.096	1.992	1.917	1.700	1.399
100	3.936	3.087	2.462	2.190	2.032	1.926	1.850	1.626	1.295
200	3.888	3.041	2.416	2.144	1.984	1.878	1.800	1.571	1.205
500	3.860	3.013	2.389	2.116	1.956	1.849	1.771	1.539	1.137
1000	3.850	3.004	2.380	2.107	1.947	1.840	1.761	1.528	1.109