

B Binomialverteilung

Tabelliert sind die Werte der Verteilungsfunktion

$$F(x) = P(X \leq x) = \sum_{k=0}^x P(X = k).$$

Ablesebeispiel: $X \sim B(8; 0.1)$ $F(2) = 0.9619$

Funktionswerte für $\pi > 0.5$:

$$X \sim B(n; \pi) \implies Y = n - X \sim B(n, 1 - \pi)$$

Approximation der Binomialverteilung durch die Normalverteilung mit Stetigkeitskorrektur: Falls $n\pi$ und $n(1 - \pi)$ groß genug sind (Faustregel: $n\pi \geq 5$ und $n(1 - \pi) \geq 5$), gilt

$$P(X \leq x) = B(x|n, \pi) \approx \Phi\left(\frac{x + 0.5 - n\pi}{\sqrt{n\pi(1 - \pi)}}\right).$$

Approximation der Binomialverteilung durch die Poisson-Verteilung: Falls n groß und π nahe bei null ist (Faustregel: $n > 30$ und $\pi \leq 0.05$), gilt

$$B(n, \pi) \stackrel{a}{\sim} Po(\lambda = n\pi).$$

$\pi = 0.05$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.9500	0.9025	0.8574	0.8145	0.7738	0.7351	0.6983	0.6634	0.6302	0.5987
1	1.0000	0.9975	0.9928	0.9860	0.9774	0.9672	0.9556	0.9428	0.9288	0.9139
2	.	1.0000	0.9999	0.9995	0.9988	0.9978	0.9962	0.9942	0.9916	0.9885
3	.	.	1.0000	1.0000	1.0000	0.9999	0.9998	0.9996	0.9994	0.9990
4	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999
5	.	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.05$	$n = 11$	$n = 12$	$n = 13$	$n = 14$	$n = 15$	$n = 16$	$n = 17$	$n = 18$	$n = 19$	$n = 20$
$x \leq 0$	0.5688	0.5404	0.5133	0.4877	0.4633	0.4401	0.4181	0.3972	0.3774	0.3585
1	0.8981	0.8816	0.8646	0.8470	0.8290	0.8108	0.7922	0.7735	0.7547	0.7358
2	0.9848	0.9804	0.9755	0.9699	0.9638	0.9571	0.9497	0.9419	0.9335	0.9245
3	0.9984	0.9978	0.9969	0.9958	0.9945	0.9930	0.9912	0.9891	0.9868	0.9841
4	0.9999	0.9998	0.9997	0.9996	0.9994	0.9991	0.9988	0.9985	0.9980	0.9974
5	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9999	0.9998	0.9998	0.9997
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.05$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.3406	0.3235	0.3074	0.2920	0.2774	0.2635	0.2503	0.2378	0.2259	0.2146
1	0.7170	0.6982	0.6794	0.6608	0.6424	0.6241	0.6061	0.5883	0.5708	0.5535
2	0.9151	0.9052	0.8948	0.8841	0.8729	0.8614	0.8495	0.8373	0.8249	0.8122
3	0.9811	0.9778	0.9742	0.9702	0.9659	0.9613	0.9563	0.9509	0.9452	0.9392
4	0.9968	0.9960	0.9951	0.9940	0.9928	0.9915	0.9900	0.9883	0.9864	0.9844
5	0.9996	0.9994	0.9992	0.9990	0.9988	0.9985	0.9981	0.9977	0.9973	0.9967

$\pi = 0.05$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
6	1.0000	0.9999	0.9999	0.9999	0.9998	0.9998	0.9997	0.9996	0.9995	0.9994
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.1$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.9000	0.8100	0.7290	0.6561	0.5905	0.5314	0.4783	0.4305	0.3874	0.3487
1	1.0000	0.9900	0.9720	0.9477	0.9185	0.8857	0.8503	0.8131	0.7748	0.7361
2	.	1.0000	0.9990	0.9963	0.9914	0.9842	0.9743	0.9619	0.9470	0.9298
3	.	.	1.0000	0.9999	0.9995	0.9987	0.9973	0.9950	0.9917	0.9872
4	.	.	.	1.0000	1.0000	0.9999	0.9998	0.9996	0.9991	0.9984
5	.	.	.	.	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999
6	.	.	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.1$	$n = 11$	$n = 12$	$n = 13$	$n = 14$	$n = 15$	$n = 16$	$n = 17$	$n = 18$	$n = 19$	$n = 20$
$x \leq 0$	0.3138	0.2824	0.2542	0.2288	0.2059	0.1853	0.1668	0.1501	0.1351	0.1216
1	0.6974	0.6590	0.6213	0.5846	0.5490	0.5147	0.4818	0.4503	0.4203	0.3917
2	0.9104	0.8891	0.8661	0.8416	0.8159	0.7892	0.7618	0.7338	0.7054	0.6769
3	0.9815	0.9744	0.9658	0.9559	0.9444	0.9316	0.9174	0.9018	0.8850	0.8670
4	0.9972	0.9957	0.9935	0.9908	0.9873	0.9830	0.9779	0.9718	0.9648	0.9568
5	0.9997	0.9995	0.9991	0.9985	0.9978	0.9967	0.9953	0.9936	0.9914	0.9887
6	1.0000	0.9999	0.9999	0.9998	0.9997	0.9995	0.9992	0.9988	0.9983	0.9976
7	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9998	0.9997	0.9996
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.1$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.1094	0.0985	0.0886	0.0798	0.0718	0.0646	0.0581	0.0523	0.0471	0.0424
1	0.3647	0.3392	0.3151	0.2925	0.2712	0.2513	0.2326	0.2152	0.1989	0.1837
2	0.6484	0.6200	0.5920	0.5643	0.5371	0.5105	0.4846	0.4594	0.4350	0.4114
3	0.8480	0.8281	0.8073	0.7857	0.7636	0.7409	0.7179	0.6946	0.6710	0.6474
4	0.9478	0.9379	0.9269	0.9149	0.9020	0.8882	0.8734	0.8579	0.8416	0.8245
5	0.9856	0.9818	0.9774	0.9723	0.9666	0.9601	0.9529	0.9450	0.9363	0.9268
6	0.9967	0.9956	0.9942	0.9925	0.9905	0.9881	0.9853	0.9821	0.9784	0.9742
7	0.9994	0.9991	0.9988	0.9983	0.9977	0.9970	0.9961	0.9950	0.9938	0.9922
8	0.9999	0.9999	0.9998	0.9997	0.9995	0.9994	0.9991	0.9988	0.9984	0.9980
9	1.0000	1.0000	1.0000	0.9999	0.9999	0.9999	0.9998	0.9998	0.9997	0.9995
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.15$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.8500	0.7225	0.6141	0.5220	0.4437	0.3771	0.3206	0.2725	0.2316	0.1969
1	1.0000	0.9775	0.9393	0.8905	0.8352	0.7765	0.7166	0.6572	0.5995	0.5443
2	.	1.0000	0.9966	0.9880	0.9734	0.9527	0.9262	0.8948	0.8591	0.8202
3	.	.	1.0000	0.9995	0.9978	0.9941	0.9879	0.9786	0.9661	0.9500
4	.	.	.	1.0000	0.9999	0.9996	0.9988	0.9971	0.9944	0.9901
5	.	.	.	.	1.0000	1.0000	0.9999	0.9998	0.9994	0.9986
6	.	.	.	.	.	1.0000	1.0000	1.0000	1.0000	0.9999
7	.	.	.	.	.	.	1.0000	1.0000	1.0000	1.0000

$\pi = 0.2$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.0092	0.0074	0.0059	0.0047	0.0038	0.0030	0.0024	0.0019	0.0015	0.0012
1	0.0576	0.0480	0.0398	0.0331	0.0274	0.0227	0.0187	0.0155	0.0128	0.0105
2	0.1787	0.1545	0.1332	0.1145	0.0982	0.0841	0.0718	0.0612	0.0520	0.0442
3	0.3704	0.3320	0.2965	0.2639	0.2340	0.2068	0.1823	0.1602	0.1404	0.1227
4	0.5860	0.5429	0.5007	0.4599	0.4207	0.3833	0.3480	0.3149	0.2839	0.2552
5	0.7693	0.7326	0.6947	0.6559	0.6167	0.5775	0.5387	0.5005	0.4634	0.4275
6	0.8915	0.8670	0.8402	0.8111	0.7800	0.7474	0.7134	0.6784	0.6429	0.6070
7	0.9569	0.9439	0.9285	0.9108	0.8909	0.8687	0.8444	0.8182	0.7903	0.7608
8	0.9856	0.9799	0.9727	0.9638	0.9532	0.9408	0.9263	0.9100	0.8916	0.8713
9	0.9959	0.9939	0.9911	0.9874	0.9827	0.9768	0.9696	0.9609	0.9507	0.9389
10	0.9990	0.9984	0.9975	0.9962	0.9944	0.9921	0.9890	0.9851	0.9803	0.9744
11	0.9998	0.9997	0.9994	0.9990	0.9985	0.9977	0.9965	0.9950	0.9931	0.9905
12	1.0000	0.9999	0.9999	0.9998	0.9996	0.9994	0.9990	0.9985	0.9978	0.9969
13	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9998	0.9996	0.9994	0.9991
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9998
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.25$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.7500	0.5625	0.4219	0.3164	0.2373	0.1780	0.1335	0.1001	0.0751	0.0563
1	1.0000	0.9375	0.8438	0.7383	0.6328	0.5339	0.4449	0.3671	0.3003	0.2440
2	.	1.0000	0.9844	0.9492	0.8965	0.8306	0.7564	0.6785	0.6007	0.5256
3	.	.	1.0000	0.9961	0.9844	0.9624	0.9294	0.8862	0.8343	0.7759
4	.	.	.	1.0000	0.9990	0.9954	0.9871	0.9727	0.9511	0.9219
5	.	.	.	.	1.0000	0.9998	0.9987	0.9958	0.9900	0.9803
6	.	.	.	.	.	1.0000	0.9999	0.9996	0.9987	0.9965
7	.	.	.	.	.	.	1.0000	1.0000	0.9999	0.9996
8	.	.	.	.	.	.	.	1.0000	1.0000	1.0000

$\pi = 0.25$	$n = 11$	$n = 12$	$n = 13$	$n = 14$	$n = 15$	$n = 16$	$n = 17$	$n = 18$	$n = 19$	$n = 20$
$x \leq 0$	0.0422	0.0317	0.0238	0.0178	0.0134	0.0100	0.0075	0.0056	0.0042	0.0032
1	0.1971	0.1584	0.1267	0.1010	0.0802	0.0635	0.0501	0.0395	0.0310	0.0243
2	0.4552	0.3907	0.3326	0.2811	0.2361	0.1971	0.1637	0.1353	0.1113	0.0913
3	0.7133	0.6488	0.5843	0.5213	0.4613	0.4050	0.3530	0.3057	0.2631	0.2252
4	0.8854	0.8424	0.7940	0.7415	0.6865	0.6302	0.5739	0.5187	0.4654	0.4148
5	0.9657	0.9456	0.9198	0.8883	0.8516	0.8103	0.7653	0.7175	0.6678	0.6172
6	0.9924	0.9857	0.9757	0.9617	0.9434	0.9204	0.8929	0.8610	0.8251	0.7858
7	0.9988	0.9972	0.9944	0.9897	0.9827	0.9729	0.9598	0.9431	0.9225	0.8982
8	0.9999	0.9996	0.9990	0.9978	0.9958	0.9925	0.9876	0.9807	0.9713	0.9591
9	1.0000	1.0000	0.9999	0.9997	0.9992	0.9984	0.9969	0.9946	0.9911	0.9861
10	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9994	0.9988	0.9977	0.9961
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9995	0.9991
12	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998
13	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.25$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.0024	0.0018	0.0013	0.0010	0.0008	0.0006	0.0004	0.0003	0.0002	0.0002
1	0.0190	0.0149	0.0116	0.0090	0.0070	0.0055	0.0042	0.0033	0.0025	0.0020
2	0.0745	0.0606	0.0492	0.0398	0.0321	0.0258	0.0207	0.0166	0.0133	0.0106
3	0.1917	0.1624	0.1370	0.1150	0.0962	0.0802	0.0666	0.0551	0.0455	0.0374
4	0.3674	0.3235	0.2832	0.2466	0.2137	0.1844	0.1583	0.1354	0.1153	0.0979
5	0.5666	0.5168	0.4685	0.4222	0.3783	0.3371	0.2989	0.2638	0.2317	0.2026
6	0.7436	0.6994	0.6537	0.6074	0.5611	0.5154	0.4708	0.4279	0.3868	0.3481
7	0.8701	0.8385	0.8037	0.7662	0.7265	0.6852	0.6427	0.5997	0.5568	0.5143
8	0.9439	0.9254	0.9037	0.8787	0.8506	0.8195	0.7859	0.7501	0.7125	0.6736

$\pi = 0.25$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
9	0.9794	0.9705	0.9592	0.9453	0.9287	0.9091	0.8867	0.8615	0.8337	0.8034
10	0.9936	0.9900	0.9851	0.9787	0.9703	0.9599	0.9472	0.9321	0.9145	0.8943
11	0.9983	0.9971	0.9954	0.9928	0.9893	0.9845	0.9784	0.9706	0.9610	0.9493
12	0.9996	0.9993	0.9988	0.9979	0.9966	0.9948	0.9922	0.9888	0.9842	0.9784
13	0.9999	0.9999	0.9997	0.9995	0.9991	0.9985	0.9976	0.9962	0.9944	0.9918
14	1.0000	1.0000	0.9999	0.9999	0.9998	0.9996	0.9993	0.9989	0.9982	0.9973
15	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9997	0.9995	0.9992
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9998
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.3$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.7000	0.4900	0.3430	0.2401	0.1681	0.1176	0.0824	0.0576	0.0404	0.0282
1	1.0000	0.9100	0.7840	0.6517	0.5282	0.4202	0.3294	0.2553	0.1960	0.1493
2	.	1.0000	0.9730	0.9163	0.8369	0.7443	0.6471	0.5518	0.4628	0.3828
3	.	.	1.0000	0.9919	0.9692	0.9295	0.8740	0.8059	0.7297	0.6496
4	.	.	.	1.0000	0.9976	0.9891	0.9712	0.9420	0.9012	0.8497
5	1.0000	0.9993	0.9962	0.9887	0.9747	0.9527
6	1.0000	0.9998	0.9987	0.9957	0.9894
7	1.0000	0.9999	0.9996	0.9984
8	1.0000	1.0000	0.9999
9	1.0000	1.0000

$\pi = 0.3$	$n = 11$	$n = 12$	$n = 13$	$n = 14$	$n = 15$	$n = 16$	$n = 17$	$n = 18$	$n = 19$	$n = 20$
$x \leq 0$	0.0198	0.0138	0.0097	0.0068	0.0047	0.0033	0.0023	0.0016	0.0011	0.0008
1	0.1130	0.0850	0.0637	0.0475	0.0353	0.0261	0.0193	0.0142	0.0104	0.0076
2	0.3127	0.2528	0.2025	0.1608	0.1268	0.0994	0.0774	0.0600	0.0462	0.0355
3	0.5696	0.4925	0.4206	0.3552	0.2969	0.2459	0.2019	0.1646	0.1332	0.1071
4	0.7897	0.7237	0.6543	0.5842	0.5155	0.4499	0.3887	0.3327	0.2822	0.2375
5	0.9218	0.8822	0.8346	0.7805	0.7216	0.6598	0.5968	0.5344	0.4739	0.4164
6	0.9784	0.9614	0.9376	0.9067	0.8689	0.8247	0.7752	0.7217	0.6655	0.6080
7	0.9957	0.9905	0.9818	0.9685	0.9500	0.9256	0.8954	0.8593	0.8180	0.7723
8	0.9994	0.9983	0.9960	0.9917	0.9848	0.9743	0.9597	0.9404	0.9161	0.8867
9	1.0000	0.9998	0.9993	0.9983	0.9963	0.9929	0.9873	0.9790	0.9674	0.9520
10	1.0000	1.0000	0.9999	0.9998	0.9993	0.9984	0.9968	0.9939	0.9895	0.9829
11	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9993	0.9986	0.9972	0.9949
12	.	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9997	0.9994	0.9987
13	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997
14	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.3$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.0006	0.0004	0.0003	0.0002	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
1	0.0056	0.0041	0.0030	0.0022	0.0016	0.0011	0.0008	0.0006	0.0004	0.0003
2	0.0271	0.0207	0.0157	0.0119	0.0090	0.0067	0.0051	0.0038	0.0028	0.0021
3	0.0856	0.0681	0.0538	0.0424	0.0332	0.0260	0.0202	0.0157	0.0121	0.0093
4	0.1984	0.1645	0.1356	0.1111	0.0905	0.0733	0.0591	0.0474	0.0379	0.0302
5	0.3627	0.3134	0.2688	0.2288	0.1935	0.1626	0.1358	0.1128	0.0932	0.0766
6	0.5505	0.4942	0.4399	0.3886	0.3407	0.2965	0.2563	0.2202	0.1880	0.1595
7	0.7230	0.6713	0.6181	0.5647	0.5118	0.4605	0.4113	0.3648	0.3214	0.2814
8	0.8523	0.8135	0.7709	0.7250	0.6769	0.6274	0.5773	0.5275	0.4787	0.4315
9	0.9324	0.9084	0.8799	0.8472	0.8106	0.7705	0.7276	0.6825	0.6360	0.5888
10	0.9736	0.9613	0.9454	0.9258	0.9022	0.8747	0.8434	0.8087	0.7708	0.7304
11	0.9913	0.9860	0.9786	0.9686	0.9558	0.9397	0.9202	0.8972	0.8706	0.8407
12	0.9976	0.9957	0.9928	0.9885	0.9825	0.9745	0.9641	0.9509	0.9348	0.9155

$\pi = 0.3$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
13	0.9994	0.9989	0.9979	0.9964	0.9940	0.9906	0.9857	0.9792	0.9707	0.9599
14	0.9999	0.9998	0.9995	0.9990	0.9982	0.9970	0.9950	0.9923	0.9883	0.9831
15	1.0000	1.0000	0.9999	0.9998	0.9995	0.9991	0.9985	0.9975	0.9959	0.9936
16	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9996	0.9993	0.9987	0.9979
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9997	0.9994
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.35$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.6500	0.4225	0.2746	0.1785	0.1160	0.0754	0.0490	0.0319	0.0207	0.0135
1	1.0000	0.8775	0.7183	0.5630	0.4284	0.3191	0.2338	0.1691	0.1211	0.0860
2	.	1.0000	0.9571	0.8735	0.7648	0.6471	0.5323	0.4278	0.3373	0.2616
3	.	.	1.0000	0.9850	0.9460	0.8826	0.8002	0.7064	0.6089	0.5138
4	.	.	.	1.0000	0.9947	0.9777	0.9444	0.8939	0.8283	0.7515
5	1.0000	0.9982	0.9910	0.9747	0.9464	0.9051
6	1.0000	0.9994	0.9964	0.9888	0.9740
7	1.0000	0.9998	0.9986	0.9952
8	1.0000	0.9999	0.9995
9	1.0000	1.0000

$\pi = 0.35$	$n = 11$	$n = 12$	$n = 13$	$n = 14$	$n = 15$	$n = 16$	$n = 17$	$n = 18$	$n = 19$	$n = 20$
$x \leq 0$	0.0088	0.0057	0.0037	0.0024	0.0016	0.0010	0.0007	0.0004	0.0003	0.0002
1	0.0606	0.0424	0.0296	0.0205	0.0142	0.0098	0.0067	0.0046	0.0031	0.0021
2	0.2001	0.1513	0.1132	0.0839	0.0617	0.0451	0.0327	0.0236	0.0170	0.0121
3	0.4256	0.3467	0.2783	0.2205	0.1727	0.1339	0.1028	0.0783	0.0591	0.0444
4	0.6683	0.5833	0.5005	0.4227	0.3519	0.2892	0.2348	0.1886	0.1500	0.1182
5	0.8513	0.7873	0.7159	0.6405	0.5643	0.4900	0.4197	0.3550	0.2968	0.2454
6	0.9499	0.9154	0.8705	0.8164	0.7548	0.6881	0.6188	0.5491	0.4812	0.4166
7	0.9878	0.9745	0.9538	0.9247	0.8868	0.8406	0.7872	0.7283	0.6656	0.6010
8	0.9980	0.9944	0.9874	0.9757	0.9578	0.9329	0.9006	0.8609	0.8145	0.7624
9	0.9998	0.9992	0.9975	0.9940	0.9876	0.9771	0.9617	0.9403	0.9125	0.8782
10	1.0000	0.9999	0.9997	0.9989	0.9972	0.9938	0.9880	0.9788	0.9653	0.9468
11	1.0000	1.0000	1.0000	0.9999	0.9995	0.9987	0.9970	0.9938	0.9886	0.9804
12	.	1.0000	1.0000	1.0000	0.9999	0.9998	0.9994	0.9986	0.9969	0.9940
13	.	.	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9993	0.9985
14	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997
15	.	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.35$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0014	0.0010	0.0007	0.0005	0.0003	0.0002	0.0001	0.0001	0.0001	0.0000
2	0.0086	0.0061	0.0043	0.0030	0.0021	0.0015	0.0010	0.0007	0.0005	0.0003
3	0.0331	0.0245	0.0181	0.0133	0.0097	0.0070	0.0051	0.0037	0.0026	0.0019
4	0.0924	0.0716	0.0551	0.0422	0.0320	0.0242	0.0182	0.0136	0.0101	0.0075
5	0.2009	0.1629	0.1309	0.1044	0.0826	0.0649	0.0507	0.0393	0.0303	0.0233
6	0.3567	0.3022	0.2534	0.2106	0.1734	0.1416	0.1148	0.0923	0.0738	0.0586
7	0.5365	0.4736	0.4136	0.3575	0.3061	0.2596	0.2183	0.1821	0.1507	0.1238
8	0.7059	0.6466	0.5860	0.5257	0.4668	0.4106	0.3577	0.3089	0.2645	0.2247
9	0.8377	0.7916	0.7408	0.6866	0.6303	0.5731	0.5162	0.4607	0.4076	0.3575
10	0.9228	0.8930	0.8575	0.8167	0.7712	0.7219	0.6698	0.6160	0.5617	0.5078
11	0.9687	0.9526	0.9318	0.9058	0.8746	0.8384	0.7976	0.7529	0.7050	0.6548
12	0.9892	0.9820	0.9717	0.9577	0.9396	0.9168	0.8894	0.8572	0.8207	0.7802
13	0.9969	0.9942	0.9900	0.9836	0.9745	0.9623	0.9464	0.9264	0.9022	0.8737
14	0.9993	0.9984	0.9970	0.9945	0.9907	0.9850	0.9771	0.9663	0.9524	0.9348

$\pi = 0.35$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
15	0.9999	0.9997	0.9992	0.9984	0.9971	0.9948	0.9914	0.9864	0.9794	0.9699
16	1.0000	0.9999	0.9998	0.9996	0.9992	0.9985	0.9972	0.9952	0.9921	0.9876
17	1.0000	1.0000	1.0000	0.9999	0.9998	0.9996	0.9992	0.9985	0.9973	0.9955
18	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9996	0.9992	0.9986
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9996
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.4$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.6000	0.3600	0.2160	0.1296	0.0778	0.0467	0.0280	0.0168	0.0101	0.0060
1	1.0000	0.8400	0.6480	0.4752	0.3370	0.2333	0.1586	0.1064	0.0705	0.0464
2	.	1.0000	0.9360	0.8208	0.6826	0.5443	0.4199	0.3154	0.2318	0.1673
3	.	.	1.0000	0.9744	0.9130	0.8208	0.7102	0.5941	0.4826	0.3823
4	.	.	.	1.0000	0.9898	0.9590	0.9037	0.8263	0.7334	0.6331
5	1.0000	0.9959	0.9812	0.9502	0.9006	0.8338
6	1.0000	0.9984	0.9915	0.9750	0.9452
7	1.0000	0.9993	0.9962	0.9877
8	1.0000	0.9997	0.9983
9	1.0000	0.9999
10	1.0000

$\pi = 0.4$	$n = 11$	$n = 12$	$n = 13$	$n = 14$	$n = 15$	$n = 16$	$n = 17$	$n = 18$	$n = 19$	$n = 20$
$x \leq 0$	0.0036	0.0022	0.0013	0.0008	0.0005	0.0003	0.0002	0.0001	0.0001	0.0000
1	0.0302	0.0196	0.0126	0.0081	0.0052	0.0033	0.0021	0.0013	0.0008	0.0005
2	0.1189	0.0834	0.0579	0.0398	0.0271	0.0183	0.0123	0.0082	0.0055	0.0036
3	0.2963	0.2253	0.1686	0.1243	0.0905	0.0651	0.0464	0.0328	0.0230	0.0160
4	0.5328	0.4382	0.3530	0.2793	0.2173	0.1666	0.1260	0.0942	0.0696	0.0510
5	0.7535	0.6652	0.5744	0.4859	0.4032	0.3288	0.2639	0.2088	0.1629	0.1256
6	0.9006	0.8418	0.7712	0.6925	0.6098	0.5272	0.4478	0.3743	0.3081	0.2500
7	0.9707	0.9427	0.9023	0.8499	0.7869	0.7161	0.6405	0.5634	0.4878	0.4159
8	0.9941	0.9847	0.9679	0.9417	0.9050	0.8577	0.8011	0.7368	0.6675	0.5956
9	0.9993	0.9972	0.9922	0.9825	0.9662	0.9417	0.9081	0.8653	0.8139	0.7553
10	1.0000	0.9997	0.9987	0.9961	0.9907	0.9809	0.9652	0.9424	0.9115	0.8725
11	1.0000	1.0000	0.9999	0.9994	0.9981	0.9951	0.9894	0.9797	0.9648	0.9435
12	.	1.0000	1.0000	0.9999	0.9997	0.9991	0.9975	0.9942	0.9884	0.9790
13	.	.	1.0000	1.0000	1.0000	0.9999	0.9995	0.9987	0.9969	0.9935
14	.	.	.	1.0000	1.0000	1.0000	0.9999	0.9998	0.9994	0.9984
15	.	.	.	.	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997
16	.	.	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.4$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0003	0.0002	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0024	0.0016	0.0010	0.0007	0.0004	0.0003	0.0002	0.0001	0.0001	0.0000
3	0.0110	0.0076	0.0052	0.0035	0.0024	0.0016	0.0011	0.0007	0.0005	0.0003
4	0.0370	0.0266	0.0190	0.0134	0.0095	0.0066	0.0046	0.0032	0.0022	0.0015
5	0.0957	0.0722	0.0540	0.0400	0.0294	0.0214	0.0155	0.0111	0.0080	0.0057
6	0.2002	0.1584	0.1240	0.0960	0.0736	0.0559	0.0421	0.0315	0.0233	0.0172
7	0.3495	0.2898	0.2373	0.1919	0.1536	0.1216	0.0953	0.0740	0.0570	0.0435
8	0.5237	0.4540	0.3884	0.3279	0.2735	0.2255	0.1839	0.1485	0.1187	0.0940
9	0.6914	0.6244	0.5562	0.4891	0.4246	0.3642	0.3087	0.2588	0.2147	0.1763
10	0.8256	0.7720	0.7129	0.6502	0.5858	0.5213	0.4585	0.3986	0.3427	0.2915
11	0.9151	0.8793	0.8364	0.7870	0.7323	0.6737	0.6127	0.5510	0.4900	0.4311
12	0.9648	0.9449	0.9187	0.8857	0.8462	0.8007	0.7499	0.6950	0.6374	0.5785
13	0.9877	0.9785	0.9651	0.9465	0.9222	0.8918	0.8553	0.8132	0.7659	0.7145

$\pi = 0.4$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
14	0.9964	0.9930	0.9872	0.9783	0.9656	0.9482	0.9257	0.8975	0.8638	0.8246
15	0.9992	0.9981	0.9960	0.9925	0.9868	0.9783	0.9663	0.9501	0.9290	0.9029
16	0.9998	0.9996	0.9990	0.9978	0.9957	0.9921	0.9866	0.9785	0.9671	0.9519
17	1.0000	0.9999	0.9998	0.9995	0.9988	0.9975	0.9954	0.9919	0.9865	0.9788
18	1.0000	1.0000	1.0000	0.9999	0.9997	0.9993	0.9986	0.9973	0.9951	0.9917
19	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9997	0.9992	0.9985	0.9971
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9996	0.9991
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998
22	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.45$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.5500	0.3025	0.1664	0.0915	0.0503	0.0277	0.0152	0.0084	0.0046	0.0025
1	1.0000	0.7975	0.5748	0.3910	0.2562	0.1636	0.1024	0.0632	0.0385	0.0233
2	.	1.0000	0.9089	0.7585	0.5931	0.4415	0.3164	0.2201	0.1495	0.0996
3	.	.	1.0000	0.9590	0.8688	0.7447	0.6083	0.4770	0.3614	0.2660
4	.	.	.	1.0000	0.9815	0.9308	0.8471	0.7396	0.6214	0.5044
5	1.0000	0.9917	0.9643	0.9115	0.8342	0.7384
6	1.0000	0.9963	0.9819	0.9502	0.8980
7	1.0000	0.9983	0.9909	0.9726
8	1.0000	0.9992	0.9955
9	1.0000	0.9997
10	1.0000

$\pi = 0.45$	$n = 11$	$n = 12$	$n = 13$	$n = 14$	$n = 15$	$n = 16$	$n = 17$	$n = 18$	$n = 19$	$n = 20$
$x \leq 0$	0.0014	0.0008	0.0004	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
1	0.0139	0.0083	0.0049	0.0029	0.0017	0.0010	0.0006	0.0003	0.0002	0.0001
2	0.0652	0.0421	0.0269	0.0170	0.0107	0.0066	0.0041	0.0025	0.0015	0.0009
3	0.1911	0.1345	0.0929	0.0632	0.0424	0.0281	0.0184	0.0120	0.0077	0.0049
4	0.3971	0.3044	0.2279	0.1672	0.1204	0.0853	0.0596	0.0411	0.0280	0.0189
5	0.6331	0.5269	0.4268	0.3373	0.2608	0.1976	0.1471	0.1077	0.0777	0.0553
6	0.8262	0.7393	0.6437	0.5461	0.4522	0.3660	0.2902	0.2258	0.1727	0.1299
7	0.9390	0.8883	0.8212	0.7414	0.6535	0.5629	0.4743	0.3915	0.3169	0.2520
8	0.9852	0.9644	0.9302	0.8811	0.8182	0.7441	0.6626	0.5778	0.4940	0.4143
9	0.9978	0.9921	0.9797	0.9574	0.9231	0.8759	0.8166	0.7473	0.6710	0.5914
10	0.9998	0.9989	0.9959	0.9886	0.9745	0.9514	0.9174	0.8720	0.8159	0.7507
11	1.0000	0.9999	0.9995	0.9978	0.9937	0.9851	0.9699	0.9463	0.9129	0.8692
12	.	1.0000	1.0000	0.9997	0.9989	0.9965	0.9914	0.9817	0.9658	0.9420
13	.	.	1.0000	1.0000	0.9999	0.9994	0.9981	0.9951	0.9891	0.9786
14	.	.	.	1.0000	1.0000	0.9999	0.9997	0.9990	0.9972	0.9936
15	.	.	.	.	1.0000	1.0000	1.0000	0.9999	0.9995	0.9985
16	.	.	.	.	.	1.0000	1.0000	1.0000	0.9999	0.9997
17	.	.	.	.	.	.	1.0000	1.0000	1.0000	1.0000

$\pi = 0.45$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0006	0.0003	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0031	0.0020	0.0012	0.0008	0.0005	0.0003	0.0002	0.0001	0.0001	0.0000
4	0.0126	0.0083	0.0055	0.0036	0.0023	0.0015	0.0009	0.0006	0.0004	0.0002
5	0.0389	0.0271	0.0186	0.0127	0.0086	0.0058	0.0038	0.0025	0.0017	0.0011
6	0.0964	0.0705	0.0510	0.0364	0.0258	0.0180	0.0125	0.0086	0.0059	0.0040
7	0.1971	0.1518	0.1152	0.0863	0.0639	0.0467	0.0338	0.0242	0.0172	0.0121
8	0.3413	0.2764	0.2203	0.1730	0.1340	0.1024	0.0774	0.0578	0.0427	0.0312
9	0.5117	0.4350	0.3636	0.2991	0.2424	0.1936	0.1526	0.1187	0.0913	0.0694

$\pi = 0.45$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
10	0.6790	0.6037	0.5278	0.4539	0.3843	0.3204	0.2633	0.2135	0.1708	0.1350
11	0.8159	0.7543	0.6865	0.6151	0.5426	0.4713	0.4034	0.3404	0.2833	0.2327
12	0.9092	0.8672	0.8164	0.7580	0.6937	0.6257	0.5562	0.4875	0.4213	0.3592
13	0.9621	0.9383	0.9063	0.8659	0.8173	0.7617	0.7005	0.6356	0.5689	0.5025
14	0.9868	0.9757	0.9589	0.9352	0.9040	0.8650	0.8185	0.7654	0.7070	0.6448
15	0.9963	0.9920	0.9847	0.9731	0.9560	0.9326	0.9022	0.8645	0.8199	0.7691
16	0.9992	0.9979	0.9952	0.9905	0.9826	0.9707	0.9536	0.9304	0.9008	0.8644
17	0.9999	0.9995	0.9988	0.9972	0.9942	0.9890	0.9807	0.9685	0.9514	0.9286
18	1.0000	0.9999	0.9998	0.9993	0.9984	0.9965	0.9931	0.9875	0.9790	0.9666
19	1.0000	1.0000	1.0000	0.9999	0.9996	0.9991	0.9979	0.9957	0.9920	0.9862
20	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9995	0.9988	0.9974	0.9950
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9993	0.9984
22	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998	0.9996
23	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999
24	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\pi = 0.5$	$n = 1$	$n = 2$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10$
$x \leq 0$	0.5000	0.2500	0.1250	0.0625	0.0313	0.0156	0.0078	0.0039	0.0020	0.0010
1	1.0000	0.7500	0.5000	0.3125	0.1875	0.1094	0.0625	0.0352	0.0195	0.0107
2	.	1.0000	0.8750	0.6875	0.5000	0.3438	0.2266	0.1445	0.0898	0.0547
3	.	.	1.0000	0.9375	0.8125	0.6562	0.5000	0.3633	0.2539	0.1719
4	.	.	.	1.0000	0.9688	0.8906	0.7734	0.6367	0.5000	0.3770
5	1.0000	0.9844	0.9375	0.8555	0.7461	0.6230
6	1.0000	0.9922	0.9648	0.9102	0.8281
7	1.0000	0.9961	0.9805	0.9453
8	1.0000	0.9980	0.9893
9	1.0000	0.9990
10	1.0000

$\pi = 0.5$	$n = 11$	$n = 12$	$n = 13$	$n = 14$	$n = 15$	$n = 16$	$n = 17$	$n = 18$	$n = 19$	$n = 20$
$x \leq 0$	0.0005	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0059	0.0032	0.0017	0.0009	0.0005	0.0003	0.0001	0.0001	0.0000	0.0000
2	0.0327	0.0193	0.0112	0.0065	0.0037	0.0021	0.0012	0.0007	0.0004	0.0002
3	0.1133	0.0730	0.0461	0.0287	0.0176	0.0106	0.0064	0.0038	0.0022	0.0013
4	0.2744	0.1938	0.1334	0.0898	0.0592	0.0384	0.0245	0.0154	0.0096	0.0059
5	0.5000	0.3872	0.2905	0.2120	0.1509	0.1051	0.0717	0.0481	0.0318	0.0207
6	0.7256	0.6128	0.5000	0.3953	0.3036	0.2272	0.1662	0.1189	0.0835	0.0577
7	0.8867	0.8062	0.7095	0.6047	0.5000	0.4018	0.3145	0.2403	0.1796	0.1316
8	0.9673	0.9270	0.8666	0.7880	0.6964	0.5982	0.5000	0.4073	0.3238	0.2517
9	0.9941	0.9807	0.9539	0.9102	0.8491	0.7728	0.6855	0.5927	0.5000	0.4119
10	0.9995	0.9968	0.9888	0.9713	0.9408	0.8949	0.8338	0.7597	0.6762	0.5881
11	1.0000	0.9998	0.9983	0.9935	0.9824	0.9616	0.9283	0.8811	0.8204	0.7483
12	.	1.0000	0.9999	0.9991	0.9963	0.9894	0.9755	0.9519	0.9165	0.8684
13	.	.	1.0000	0.9999	0.9995	0.9979	0.9936	0.9846	0.9682	0.9423
14	.	.	.	1.0000	1.0000	0.9997	0.9988	0.9962	0.9904	0.9793
15	.	.	.	.	1.0000	1.0000	0.9999	0.9993	0.9978	0.9941
16	.	.	.	.	.	1.0000	1.0000	0.9999	0.9996	0.9987
17	.	.	.	.	.	.	1.0000	1.0000	1.0000	0.9998
18	.	.	.	.	.	.	.	1.0000	1.0000	1.0000

$\pi = 0.5$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
$x \leq 0$	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0007	0.0004	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000

$\pi = 0.5$	$n = 21$	$n = 22$	$n = 23$	$n = 24$	$n = 25$	$n = 26$	$n = 27$	$n = 28$	$n = 29$	$n = 30$
4	0.0036	0.0022	0.0013	0.0008	0.0005	0.0003	0.0002	0.0001	0.0001	0.0000
5	0.0133	0.0085	0.0053	0.0033	0.0020	0.0012	0.0008	0.0005	0.0003	0.0002
6	0.0392	0.0262	0.0173	0.0113	0.0073	0.0047	0.0030	0.0019	0.0012	0.0007
7	0.0946	0.0669	0.0466	0.0320	0.0216	0.0145	0.0096	0.0063	0.0041	0.0026
8	0.1917	0.1431	0.1050	0.0758	0.0539	0.0378	0.0261	0.0178	0.0121	0.0081
9	0.3318	0.2617	0.2024	0.1537	0.1148	0.0843	0.0610	0.0436	0.0307	0.0214
10	0.5000	0.4159	0.3388	0.2706	0.2122	0.1635	0.1239	0.0925	0.0680	0.0494
11	0.6682	0.5841	0.5000	0.4194	0.3450	0.2786	0.2210	0.1725	0.1325	0.1002
12	0.8083	0.7383	0.6612	0.5806	0.5000	0.4225	0.3506	0.2858	0.2291	0.1808
13	0.9054	0.8569	0.7976	0.7294	0.6550	0.5775	0.5000	0.4253	0.3555	0.2923
14	0.9608	0.9331	0.8950	0.8463	0.7878	0.7214	0.6494	0.5747	0.5000	0.4278
15	0.9867	0.9738	0.9534	0.9242	0.8852	0.8365	0.7790	0.7142	0.6445	0.5722
16	0.9964	0.9915	0.9827	0.9680	0.9461	0.9157	0.8761	0.8275	0.7709	0.7077
17	0.9993	0.9978	0.9947	0.9887	0.9784	0.9622	0.9390	0.9075	0.8675	0.8192
18	0.9999	0.9996	0.9987	0.9967	0.9927	0.9855	0.9739	0.9564	0.9320	0.8998
19	1.0000	0.9999	0.9998	0.9992	0.9980	0.9953	0.9904	0.9822	0.9693	0.9506
20	1.0000	1.0000	1.0000	0.9999	0.9995	0.9988	0.9970	0.9937	0.9879	0.9786
21	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9992	0.9981	0.9959	0.9919
22	.	1.0000	1.0000	1.0000	1.0000	1.0000	0.9998	0.9995	0.9988	0.9974
23	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9997	0.9993
24	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9998
25	.	.	.	.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

C χ^2 -Verteilung

Tabelliert sind die Quantile für n Freiheitsgrade. Für das Quantil $\chi^2_{1-\alpha}(n)$ gilt $F(\chi^2_{1-\alpha}(n)) = 1 - \alpha$. Links vom Quantil $\chi^2_{1-\alpha}(n)$ liegt die Wahrscheinlichkeitsmasse $1 - \alpha$.

Ablesebeispiel: $\chi^2_{0,95}(10) = 18.307$

Approximation für $n > 30$: $\chi^2_{\alpha}(n) \approx \frac{1}{2}(z_{\alpha} + \sqrt{2n-1})^2$
 (z_{α} ist das α -Quantil der Standardnormalverteilung)

n	0.01	0.025	0.05	0.1	0.5	0.9	0.95	0.975	0.99
1	0.0002	0.0010	0.0039	0.0158	0.4549	2.7055	3.8415	5.0239	6.6349
2	0.0201	0.0506	0.1026	0.2107	1.3863	4.6052	5.9915	7.3778	9.2103
3	0.1148	0.2158	0.3518	0.5844	2.3660	6.2514	7.8147	9.3484	11.345
4	0.2971	0.4844	0.7107	1.0636	3.3567	7.7794	9.4877	11.143	13.277
5	0.5543	0.8312	1.1455	1.6103	4.3515	9.2364	11.070	12.833	15.086
6	0.8721	1.2373	1.6354	2.2041	5.3481	10.645	12.592	14.449	16.812
7	1.2390	1.6899	2.1674	2.8331	6.3458	12.017	14.067	16.013	18.475
8	1.6465	2.1797	2.7326	3.4895	7.3441	13.362	15.507	17.535	20.090
9	2.0879	2.7004	3.3251	4.1682	8.3428	14.684	16.919	19.023	21.666
10	2.5582	3.2470	3.9403	4.8652	9.3418	15.987	18.307	20.483	23.209
11	3.0535	3.8157	4.5748	5.5778	10.341	17.275	19.675	21.920	24.725
12	3.5706	4.4038	5.2260	6.3038	11.340	18.549	21.026	23.337	26.217
13	4.1069	5.0088	5.8919	7.0415	12.340	19.812	22.362	24.736	27.688
14	4.6604	5.6287	6.5706	7.7895	13.339	21.064	23.685	26.119	29.141
15	5.2293	6.2621	7.2609	8.5468	14.339	22.307	24.996	27.488	30.578
16	5.8122	6.9077	7.9616	9.3122	15.338	23.542	26.296	28.845	32.000
17	6.4078	7.5642	8.6718	10.085	16.338	24.769	27.587	30.191	33.409
18	7.0149	8.2307	9.3905	10.865	17.338	25.989	28.869	31.526	34.805
19	7.6327	8.9065	10.117	11.651	18.338	27.204	30.144	32.852	36.191
20	8.2604	9.5908	10.851	12.443	19.337	28.412	31.410	34.170	37.566
21	8.8972	10.283	11.591	13.240	20.337	29.615	32.671	35.479	38.932
22	9.5425	10.982	12.338	14.041	21.337	30.813	33.924	36.781	40.289