

**Table 2** Probability Function of the Binomial Distribution

The table shows the probability of  $x$  successes in  $n$  independent trials, each with probability of success  $P$ . For example, the probability of four successes in eight independent trials, each with probability of success .35, is .1875.

$n$	$x$	$P$									
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.50
1	0	.9500	.9000	.8500	.8000	.7500	.7000	.6500	.6000	.5500	.5000
	1	.0500	.1000	.1500	.2000	.2500	.3000	.3500	.4000	.4500	.5000
2	0	.9025	.8100	.7225	.6400	.5625	.4900	.4225	.3600	.3025	.2500
	1	.0950	.1800	.2550	.3200	.3750	.4200	.4550	.4800	.4950	.5000
	2	.0025	.0100	.0225	.0400	.0625	.0900	.1225	.1600	.2025	.2500
3	0	.8574	.7290	.6141	.5120	.4219	.3430	.2746	.2160	.1664	.1250
	1	.1354	.2430	.3251	.3840	.4219	.4410	.4436	.4320	.4084	.3750
	2	.0071	.0270	.0574	.0960	.1406	.1890	.2389	.2880	.3341	.3750
	3	.0001	.0010	.0034	.0080	.0156	.0270	.0429	.0640	.0911	.1250
4	0	.8145	.6561	.5220	.4096	.3164	.2401	.1785	.1296	.0915	.0625
	1	.1715	.2916	.3685	.4096	.4219	.4116	.3845	.3456	.2995	.2500
	2	.0135	.0486	.0975	.1536	.2109	.2646	.3105	.3456	.3675	.3750
	3	.0005	.0036	.0115	.0256	.0469	.0756	.1115	.1536	.2005	.2500
	4	.0000	.0001	.0005	.0016	.0039	.0081	.0150	.0256	.0410	.0625
5	0	.7738	.5905	.4437	.3277	.2373	.1681	.1160	.0778	.0503	.0312
	1	.2036	.3280	.3915	.4096	.3955	.3602	.3124	.2592	.2059	.1562
	2	.0214	.0729	.1382	.2048	.2637	.3087	.3364	.3456	.3369	.3125
	3	.0011	.0081	.0244	.0512	.0879	.1323	.1811	.2304	.2757	.3125
	4	.0000	.0004	.0022	.0064	.0146	.0284	.0488	.0768	.1128	.1562
	5	.0000	.0000	.0001	.0003	.0010	.0024	.0053	.0102	.0185	.0312
6	0	.7351	.5314	.3771	.2621	.1780	.1176	.0754	.0467	.0277	.0156
	1	.2321	.3543	.3993	.3932	.3560	.3025	.2437	.1866	.1359	.0938
	2	.0305	.0984	.1762	.2458	.2966	.3241	.3280	.3110	.2780	.2344
	3	.0021	.0146	.0415	.0819	.1318	.1852	.2355	.2765	.3032	.3125
	4	.0001	.0012	.0055	.0154	.0330	.0595	.0951	.1382	.1861	.2344
	5	.0000	.0001	.0004	.0015	.0044	.0102	.0205	.0369	.0609	.0938
	6	.0000	.0000	.0000	.0001	.0002	.0007	.0018	.0041	.0083	.0156
7	0	.6983	.4783	.3206	.2097	.1335	.0824	.0490	.0280	.0152	.0078
	1	.2573	.3720	.3960	.3670	.3115	.2471	.1848	.1306	.0872	.0547
	2	.0406	.1240	.2097	.2753	.3115	.3177	.2985	.2613	.2140	.1641
	3	.0036	.0230	.0617	.1147	.1730	.2269	.2679	.2903	.2918	.2734
	4	.0002	.0026	.0109	.0287	.0577	.0972	.1442	.1935	.2388	.2734
	5	.0000	.0002	.0012	.0043	.0115	.0250	.0466	.0774	.1172	.1641
	6	.0000	.0000	.0001	.0004	.0013	.0036	.0084	.0172	.0320	.0547
	7	.0000	.0000	.0000	.0000	.0001	.0002	.0006	.0016	.0037	.0078
8	0	.6634	.4305	.2725	.1678	.1001	.0576	.0319	.0168	.0084	.0039
	1	.2793	.3826	.3847	.3355	.2670	.1977	.1373	.0896	.0548	.0312
	2	.0515	.1488	.2376	.2936	.3115	.2965	.2587	.2090	.1569	.1094
	3	.0054	.0331	.0839	.1468	.2076	.2541	.2786	.2787	.2568	.2188
	4	.0004	.0046	.0185	.0459	.0865	.1361	.1875	.2322	.2627	.2734
	5	.0000	.0004	.0026	.0092	.0231	.0467	.0808	.1239	.1719	.2188
	6	.0000	.0000	.0002	.0011	.0038	.0100	.0217	.0413	.0703	.1094
	7	.0000	.0000	.0000	.0001	.0004	.0012	.0033	.0079	.0164	.0312
	8	.0000	.0000	.0000	.0000	.0000	.0001	.0002	.0007	.0017	.0039
9	0	.6302	.3874	.2316	.1342	.0751	.0404	.0207	.0101	.0046	.0020
	1	.2985	.3874	.3679	.3020	.2253	.1556	.1004	.0605	.0339	.0176
	2	.0629	.1722	.2597	.3020	.3003	.2668	.2162	.1612	.1110	.0703
	3	.0077	.0446	.1069	.1762	.2336	.2668	.2716	.2508	.2119	.1641
	4	.0006	.0074	.0283	.0661	.1168	.1715	.2194	.2508	.2600	.2461
	5	.0000	.0008	.0050	.0165	.0389	.0735	.1181	.1672	.2128	.2461
	6	.0000	.0001	.0006	.0028	.0087	.0210	.0424	.0743	.1160	.1641
	7	.0000	.0000	.0000	.0003	.0012	.0039	.0098	.0212	.0407	.0703

**Table 2** Probability Function of the Binomial Distribution Continued

n	x	P									
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.50
10	8	.0000	.0000	.0000	.0000	.0001	.0004	.0013	.0035	.0083	.0176
	9	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0003	.0008	.0020
	0	.5987	.3487	.1969	.1074	.0563	.0282	.0135	.0060	.0025	.0010
	1	.3151	.3874	.3474	.2684	.1877	.1211	.0725	.0403	.0207	.0098
	2	.0746	.1937	.2759	.3020	.2816	.2335	.1757	.1209	.0763	.0439
	3	.0105	.0574	.1298	.2013	.2503	.2668	.2522	.2150	.1665	.1172
	4	.0010	.0112	.0401	.0881	.1460	.2001	.2377	.2508	.2384	.2051
	5	.0001	.0015	.0085	.0264	.0584	.1029	.1536	.2007	.2340	.2461
	6	.0000	.0001	.0012	.0055	.0162	.0368	.0689	.1115	.1596	.2051
	7	.0000	.0000	.0001	.0008	.0031	.0090	.0212	.0425	.0746	.1172
8	.0000	.0000	.0000	.0001	.0004	.0014	.0043	.0106	.0226	.0439	
9	.0000	.0000	.0000	.0000	.0000	.0001	.0004	.0016	.0042	.0098	
10	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0003	.0010	
11	0	.5688	.3138	.1673	.0859	.0422	.0198	.0088	.0036	.0014	.0005
	1	.3293	.3835	.3248	.2362	.1549	.0932	.0518	.0266	.0125	.0054
	2	.0867	.2131	.2866	.2953	.2581	.1998	.1395	.0887	.0513	.0269
	3	.0137	.0710	.1517	.2215	.2581	.2568	.2254	.1774	.1259	.0806
	4	.0014	.0158	.0536	.1107	.1721	.2201	.2428	.2365	.2060	.1611
	5	.0001	.0025	.0132	.0388	.0803	.1321	.1830	.2207	.2360	.2256
	6	.0000	.0003	.0023	.0097	.0268	.0566	.0985	.1471	.1931	.2256
	7	.0000	.0000	.0003	.0017	.0064	.0173	.0379	.0701	.1128	.1611
	8	.0000	.0000	.0000	.0002	.0011	.0037	.0102	.0234	.0462	.0806
	9	.0000	.0000	.0000	.0000	.0001	.0005	.0018	.0052	.0126	.0269
	10	.0000	.0000	.0000	.0000	.0000	.0000	.0002	.0007	.0021	.0054
11	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0002	.0005	
12	0	.5404	.2824	.1422	.0687	.0317	.0138	.0057	.0022	.0008	.0002
	1	.3413	.3766	.3012	.2062	.1267	.0712	.0368	.0174	.0075	.0029
	2	.0988	.2301	.2924	.2835	.2323	.1678	.1088	.0639	.0339	.0161
	3	.0173	.0852	.1720	.2362	.2581	.2397	.1954	.1419	.0923	.0537
	4	.0021	.0213	.0683	.1329	.1936	.2311	.2367	.2128	.1700	.1208
	5	.0002	.0038	.0193	.0532	.1032	.1585	.2039	.2270	.2225	.1934
	6	.0000	.0005	.0040	.0155	.0401	.0792	.1281	.1766	.2124	.2256
	7	.0000	.0000	.0006	.0033	.0015	.0291	.0591	.1009	.1489	.1934
	8	.0000	.0000	.0001	.0005	.0024	.0078	.0199	.0420	.0762	.1208
	9	.0000	.0000	.0000	.0001	.0004	.0015	.0048	.0125	.0277	.0537
	10	.0000	.0000	.0000	.0000	.0000	.0002	.0008	.0025	.0068	.0161
	11	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0003	.0010	.0029
12	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0002	
13	0	.5133	.2542	.1209	.0550	.0238	.0097	.0037	.0013	.0004	.0001
	1	.3512	.3672	.2774	.1787	.1029	.0540	.0259	.0113	.0045	.0016
	2	.1109	.2448	.2937	.2680	.2059	.1388	.0836	.0453	.0220	.0095
	3	.0214	.0997	.1900	.2457	.2517	.2181	.1651	.1107	.0660	.0349
	4	.0028	.0277	.0838	.1535	.2097	.2337	.2222	.1845	.1350	.0873
	5	.0003	.0055	.0266	.0691	.1258	.1803	.2154	.2214	.1989	.1571
	6	.0000	.0008	.0063	.0230	.0559	.1030	.1546	.1968	.2169	.2095
	7	.0000	.0001	.0011	.0058	.0186	.0442	.0833	.1312	.1775	.2095
	8	.0000	.0000	.0001	.0011	.0047	.0142	.0336	.0656	.1089	.1571
	9	.0000	.0000	.0000	.0001	.0009	.0034	.0101	.0243	.0495	.0873
	10	.0000	.0000	.0000	.0000	.0001	.0006	.0022	.0065	.0162	.0349
	11	.0000	.0000	.0000	.0000	.0000	.0001	.0003	.0012	.0036	.0095
	12	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0005	.0016
13	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	
14	0	.4877	.2288	.1028	.0440	.0178	.0068	.0024	.0008	.0002	.0001
	1	.3593	.3559	.2539	.1539	.0832	.0407	.0181	.0073	.0027	.0009
	2	.1229	.2570	.2912	.2501	.1802	.1134	.0634	.0317	.0141	.0056

**Table 2** Probability Function of the Binomial Distribution Continued

n	x	P									
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.50
15	3	.0259	.1142	.2056	.2501	.2402	.1943	.1366	.0845	.0462	.0222
	4	.0037	.0348	.0998	.1720	.2202	.2290	.2022	.1549	.1040	.0611
	5	.0004	.0078	.0352	.0860	.1468	.1963	.2178	.2066	.1701	.1222
	6	.0000	.0013	.0093	.0322	.0734	.1262	.1759	.2066	.2088	.1833
	7	.0000	.0002	.0019	.0092	.0280	.0618	.1082	.1574	.1952	.2095
	8	.0000	.0000	.0003	.0020	.0082	.0232	.0510	.0918	.1398	.1833
	9	.0000	.0000	.0000	.0003	.0018	.0066	.0183	.0408	.0762	.1222
	10	.0000	.0000	.0000	.0000	.0003	.0014	.0049	.0136	.0312	.0611
	11	.0000	.0000	.0000	.0000	.0000	.0002	.0010	.0033	.0093	.0222
	12	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0005	.0019	.0056
	13	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0002	.0009
	14	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001
	0	.4633	.2059	.0874	.0352	.0134	.0047	.0016	.0005	.0001	.0000
	1	.3658	.3432	.2312	.1319	.0668	.0305	.0126	.0047	.0016	.0005
	2	.1348	.2669	.2856	.2309	.1559	.0916	.0476	.0219	.0090	.0032
3	.0307	.1285	.2184	.2501	.2252	.1700	.1110	.0634	.0318	.0139	
4	.0049	.0428	.1156	.1876	.2252	.2186	.1792	.1268	.0780	.0417	
5	.0006	.0105	.0449	.1032	.1651	.2061	.2123	.1859	.1404	.0916	
6	.0000	.0019	.0132	.0430	.0917	.1472	.1906	.2066	.1914	.1527	
7	.0000	.0003	.0030	.0138	.0393	.0811	.1319	.1771	.2013	.1964	
8	.0000	.0000	.0005	.0035	.0131	.0348	.0710	.1181	.1647	.1964	
9	.0000	.0000	.0001	.0007	.0034	.0116	.0298	.0612	.1048	.1527	
10	.0000	.0000	.0000	.0001	.0007	.0030	.0096	.0245	.0515	.0916	
11	.0000	.0000	.0000	.0000	.0001	.0006	.0024	.0074	.0191	.0417	
12	.0000	.0000	.0000	.0000	.0000	.0001	.0004	.0016	.0052	.0139	
13	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0003	.0010	.0032	
14	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0005	
15	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	
16	0	.4401	.1853	.0743	.0281	.0100	.0033	.0010	.0003	.0001	.0000
	1	.3706	.3294	.2097	.1126	.0535	.0228	.0087	.0030	.0009	.0002
	2	.1463	.2745	.2775	.2111	.1336	.0732	.0353	.0150	.0056	.0018
	3	.0359	.1423	.2285	.2463	.2079	.1465	.0888	.0468	.0215	.0085
	4	.0061	.0514	.1311	.2001	.2552	.2040	.1553	.1014	.0572	.0278
	5	.0008	.0137	.0555	.1201	.1802	.2099	.2008	.1623	.1123	.0667
	6	.0001	.0028	.0180	.0550	.1101	.1649	.1982	.1983	.1684	.1222
	7	.0000	.0004	.0045	.0197	.0524	.1010	.1524	.1889	.1969	.1746
	8	.0000	.0001	.0009	.0055	.0197	.0487	.0923	.1417	.1812	.1964
	9	.0000	.0000	.0001	.0012	.0058	.0185	.0442	.0840	.1318	.1746
	10	.0000	.0000	.0000	.0002	.0014	.0056	.0167	.0392	.0755	.1222
	11	.0000	.0000	.0000	.0000	.0002	.0013	.0049	.0142	.0337	.0667
12	.0000	.0000	.0000	.0000	.0000	.0002	.0011	.0040	.0115	.0278	
13	.0000	.0000	.0000	.0000	.0000	.0000	.0002	.0008	.0029	.0085	
14	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0005	.0018	
15	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0002	
16	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	
17	0	.4181	.1668	.0631	.0225	.0075	.0023	.0007	.0002	.0000	.0000
	1	.3741	.3150	.1893	.0957	.0426	.0169	.0060	.0019	.0005	.0001
	2	.1575	.2800	.2673	.1914	.1136	.0581	.0260	.0102	.0035	.0010
	3	.0415	.1556	.2359	.2393	.1893	.1245	.0701	.0341	.0144	.0052
	4	.0076	.0605	.1457	.2093	.2209	.1868	.1320	.0796	.0411	.0182
	5	.0010	.0175	.0668	.1361	.1914	.2081	.1849	.1379	.0875	.0472
	6	.0001	.0039	.0236	.0680	.1276	.1784	.1991	.1839	.1432	.0944
	7	.0000	.0007	.0065	.0267	.0668	.1201	.1685	.1927	.1841	.1484
	8	.0000	.0001	.0014	.0084	.0279	.0644	.1134	.1606	.1883	.1855
	9	.0000	.0000	.0003	.0021	.0093	.0276	.0611	.1070	.1540	.1855

**Table 2** Probability Function of the Binomial Distribution Continued

n	x	P									
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.50
10		.0000	.0000	.0000	.0004	.0025	.0095	.0263	.0571	.1008	.1484
11		.0000	.0000	.0000	.0001	.0005	.0026	.0090	.0242	.0525	.0944
12		.0000	.0000	.0000	.0000	.0001	.0006	.0024	.0081	.0215	.0472
13		.0000	.0000	.0000	.0000	.0000	.0001	.0005	.0021	.0068	.0182
14		.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0004	.0016	.0052
15		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0003	.0010
16		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001
17		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
18	0	.3972	.1501	.0536	.0180	.0056	.0016	.0004	.0001	.0000	.0000
	1	.3763	.3002	.1704	.0811	.0338	.0126	.0042	.0012	.0003	.0001
	2	.1683	.2835	.2556	.1723	.0958	.0458	.0190	.0069	.0022	.0006
	3	.0473	.1680	.2406	.2297	.1704	.1046	.0547	.0246	.0095	.0031
	4	.0093	.0700	.1592	.2153	.2130	.1681	.1104	.0614	.0291	.0117
	5	.0014	.0218	.0787	.1507	.1988	.2017	.1664	.1146	.0666	.0327
	6	.0002	.0052	.0301	.0816	.1436	.1873	.1941	.1655	.1181	.0708
	7	.0000	.0010	.0091	.0350	.0820	.1376	.1792	.1892	.1657	.1214
	8	.0000	.0002	.0022	.0120	.0376	.0811	.1327	.1734	.1864	.1669
	9	.0000	.0000	.0004	.0033	.0139	.0386	.0794	.1284	.1694	.1855
	10	.0000	.0000	.0001	.0008	.0042	.0149	.0385	.0771	.1248	.1669
	11	.0000	.0000	.0000	.0001	.0010	.0046	.0151	.0374	.0742	.1214
	12	.0000	.0000	.0000	.0000	.0002	.0012	.0047	.0145	.0354	.0708
	13	.0000	.0000	.0000	.0000	.0000	.0002	.0012	.0044	.0134	.0327
	14	.0000	.0000	.0000	.0000	.0000	.0000	.0002	.0011	.0039	.0117
	15	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0002	.0009	.0031
	16	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0006
	17	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001
	18	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
19	0	.3774	.1351	.0456	.0144	.0042	.0011	.0003	.0001	.0000	.0000
	1	.3774	.2852	.1529	.0685	.0268	.0093	.0029	.0008	.0002	.0000
	2	.1787	.2852	.2428	.1540	.0803	.0358	.0138	.0046	.0013	.0003
	3	.0533	.1796	.2428	.2182	.1517	.0869	.0422	.0175	.0062	.0018
	4	.0112	.0798	.1714	.2182	.2023	.1419	.0909	.0467	.0203	.0074
	5	.0018	.0266	.0907	.1636	.2023	.1916	.1468	.0933	.0497	.0222
	6	.0002	.0069	.0374	.0955	.1574	.1916	.1844	.1451	.0949	.0518
	7	.0000	.0014	.0122	.0443	.0974	.1525	.1844	.1797	.1443	.0961
	8	.0000	.0002	.0032	.0166	.0487	.0981	.1489	.1797	.1771	.1442
	9	.0000	.0000	.0007	.0051	.0198	.0514	.0980	.1464	.1771	.1762
	10	.0000	.0000	.0001	.0013	.0066	.0220	.0528	.0976	.1449	.1762
	11	.0000	.0000	.0000	.0003	.0018	.0077	.0233	.0532	.0970	.1442
	12	.0000	.0000	.0000	.0000	.0004	.0022	.0083	.0237	.0529	.0961
	13	.0000	.0000	.0000	.0000	.0000	.0005	.0024	.0085	.0233	.0518
	14	.0000	.0000	.0000	.0000	.0000	.0001	.0006	.0024	.0082	.0222
	15	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0005	.0022	.0074
	16	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0005	.0018
	17	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0003
	18	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
	19	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
20	0	.3585	.1216	.0388	.0115	.0032	.0008	.0002	.0000	.0000	.0000
	1	.3774	.2702	.1368	.0576	.0211	.0068	.0020	.0005	.0001	.0000
	2	.1887	.2852	.2293	.1369	.0669	.0278	.0100	.0031	.0008	.0002
	3	.0596	.1901	.2428	.2054	.1339	.0716	.0323	.0123	.0040	.0011
	4	.0133	.0898	.1821	.2182	.1897	.1304	.0738	.0350	.0139	.0046
	5	.0022	.0319	.1028	.1746	.2023	.1789	.1272	.0746	.0365	.0148
	6	.0003	.0089	.0454	.1091	.1686	.1916	.1712	.1244	.0746	.0370
	7	.0000	.0020	.0160	.0545	.1124	.1643	.1844	.1659	.1221	.0739
	8	.0000	.0004	.0046	.0222	.0609	.1144	.1614	.1797	.1623	.1201

**Table 2** Probability Function of the Binomial Distribution Continued

n	x	P									
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.50
9		.0000	.0001	.0011	.0074	.0271	.0654	.1158	.1597	.1771	.1602
10		.0000	.0000	.0002	.0020	.0099	.0308	.0686	.1171	.1593	.1762
11		.0000	.0000	.0000	.0005	.0030	.0120	.0336	.0710	.1185	.1602
12		.0000	.0000	.0000	.0001	.0008	.0039	.0136	.0355	.0727	.1201
13		.0000	.0000	.0000	.0000	.0002	.0010	.0045	.0146	.0366	.0739
14		.0000	.0000	.0000	.0000	.0000	.0002	.0012	.0049	.0150	.0370
15		.0000	.0000	.0000	.0000	.0000	.0000	.0003	.0013	.0049	.0148
16		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0003	.0013	.0046
17		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0002	.0011
18		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0002
19		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
20		.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000

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**Table 3** Cumulative Binomial Probabilities

The table shows the probability of  $x$  or fewer successes in  $n$  independent trials each with probability of success  $P$ . For example, the probability of two or less successes in four independent trials, each with probability of success, 0.35 is 0.874.

$n$	$x$	$P$									
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.500
2	0	.902	.81	.722	.64	.562	.49	.422	.36	.302	.25
	1	.998	.99	.978	.96	.937	.91	.877	.84	.797	.75
	2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3	0	.857	.729	.614	.512	.422	.343	.275	.216	.166	.125
	1	.993	.972	.939	.896	.844	.784	.718	.648	.575	.500
	2	1.00	.999	.997	.992	.984	.973	.957	.936	.909	.875
	3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
4	0	.815	.656	.522	.41	.316	.24	.179	.13	.092	.062
	1	.986	.948	.89	.819	.738	.652	.563	.475	.391	.312
	2	1.00	.996	.988	.973	.949	.916	.874	.821	.759	.687
	3	1.00	1.00	.999	.998	.996	.992	.985	.974	.959	.937
	4	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
5	0	.774	.59	.444	.328	.237	.168	.116	.078	.05	.031
	1	.977	.919	.835	.737	.633	.528	.428	.337	.256	.187
	2	.999	.991	.973	.942	.896	.837	.765	.683	.593	.500
	3	1.00	1.00	.998	.993	.984	.969	.946	.913	.869	.812
	4	1.00	1.00	1.00	1.00	.999	.998	.995	.99	.982	.969
	5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
6	0	.735	.531	.377	.262	.178	.118	.075	.047	.028	.016
	1	.967	.886	.776	.655	.534	.42	.319	.233	.164	.109
	2	.998	.984	.953	.901	.831	.744	.647	.544	.442	.344
	3	1.00	.999	.994	.983	.962	.93	.883	.821	.745	.656
	4	1.00	1.00	1.00	.998	.995	.989	.978	.959	.931	.891
	5	1.00	1.00	1.00	1.00	1.00	.999	.998	.996	.992	.984
	6	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
7	0	.698	.478	.321	.21	.133	.082	.049	.028	.015	.008
	1	.956	.85	.717	.577	.445	.329	.234	.159	.102	.062
	2	.996	.974	.926	.852	.756	.647	.532	.42	.316	.227
	3	1.00	.997	.988	.967	.929	.874	.80	.71	.608	.500
	4	1.00	1.00	.999	.995	.987	.971	.944	.904	.847	.773
	5	1.00	1.00	1.00	1.00	.999	.996	.991	.981	.964	.937
	6	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998	.996	.992
	7	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
8	0	.663	.43	.272	.168	.10	.058	.032	.017	.008	.004
	1	.943	.813	.657	.503	.367	.255	.169	.106	.063	.035
	2	.994	.962	.895	.797	.679	.552	.428	.315	.22	.145
	3	1.00	.995	.979	.944	.886	.806	.706	.594	.477	.363
	4	1.00	1.00	.997	.99	.973	.942	.894	.826	.74	.637
	5	1.00	1.00	1.00	.999	.996	.989	.975	.95	.912	.855
	6	1.00	1.00	1.00	1.00	1.00	.999	.996	.991	.982	.965
	7	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998	.996
	8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
9	0	.63	.387	.232	.134	.075	.04	.021	.01	.005	.002
	1	.929	.775	.599	.436	.30	.196	.121	.071	.039	.020
	2	.992	.947	.859	.738	.601	.463	.337	.232	.15	.090
	3	.999	.992	.966	.914	.834	.73	.609	.483	.361	.254
	4	1.00	.999	.994	.98	.951	.901	.828	.733	.621	.500
	5	1.00	1.00	.999	.997	.99	.975	.946	.901	.834	.746
	6	1.00	1.00	1.00	1.00	.999	.996	.989	.975	.95	.910
	7	1.00	1.00	1.00	1.00	1.00	1.00	.999	.996	.991	.980
	8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998
	9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000

**Table 3** Cumulative Binomial Probabilities Continued

n	x	P									
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.500
10	0	.599	.349	.197	.107	.056	.028	.013	.006	.003	.001
	1	.914	.736	.544	.376	.244	.149	.086	.046	.023	.011
	2	.988	.93	.82	.678	.526	.383	.262	.167	.10	.055
	3	.999	.987	.95	.879	.776	.65	.514	.382	.266	.172
	4	1.00	.998	.99	.967	.922	.85	.751	.633	.504	.377
	5	1.00	1.00	.999	.994	.98	.953	.905	.834	.738	.623
	6	1.00	1.00	1.00	.999	.996	.989	.974	.945	.898	.828
	7	1.00	1.00	1.00	1.00	1.00	.998	.995	.988	.973	.945
	8	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998	.995	.989
	9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
11	0	.569	.314	.167	.086	.042	.02	.009	.004	.001	.000
	1	.898	.697	.492	.322	.197	.113	.061	.03	.014	.006
	2	.985	.91	.779	.617	.455	.313	.20	.119	.065	.033
	3	.998	.981	.931	.839	.713	.57	.426	.296	.191	.113
	4	1.00	.997	.984	.95	.885	.79	.668	.533	.397	.274
	5	1.00	1.00	.997	.988	.966	.922	.851	.753	.633	.500
	6	1.00	1.00	1.00	.998	.992	.978	.95	.901	.826	.726
	7	1.00	1.00	1.00	1.00	.999	.996	.988	.971	.939	.887
	8	1.00	1.00	1.00	1.00	1.00	.999	.998	.994	.985	.967
	9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998	.994
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
	11	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
12	0	.54	.282	.142	.069	.032	.014	.006	.002	.001	.000
	1	.882	.659	.443	.275	.158	.085	.042	.02	.008	.003
	2	.98	.889	.736	.558	.391	.253	.151	.083	.042	.019
	3	.998	.974	.908	.795	.649	.493	.347	.225	.134	.073
	4	1.00	.996	.976	.927	.842	.724	.583	.438	.304	.194
	5	1.00	.999	.995	.981	.946	.882	.787	.665	.527	.387
	6	1.00	1.00	.999	.996	.986	.961	.915	.842	.739	.613
	7	1.00	1.00	1.00	.999	.997	.991	.974	.943	.888	.806
	8	1.00	1.00	1.00	1.00	1.00	.998	.994	.985	.964	.927
	9	1.00	1.00	1.00	1.00	1.00	1.00	.999	.997	.992	.981
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.997
	11	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
	12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
13	0	.513	.254	.121	.055	.024	.01	.004	.001	.00	.000
	1	.865	.621	.398	.234	.127	.064	.03	.013	.005	.002
	2	.975	.866	.692	.502	.333	.202	.113	.058	.027	.011
	3	.997	.966	.882	.747	.584	.421	.278	.169	.093	.046
	4	1.00	.994	.966	.901	.794	.654	.501	.353	.228	.133
	5	1.00	.999	.992	.97	.92	.835	.716	.574	.427	.291
	6	1.00	1.00	.999	.993	.976	.938	.871	.771	.644	.50
	7	1.00	1.00	1.00	.999	.994	.982	.954	.902	.821	.709
	8	1.00	1.00	1.00	1.00	.999	.996	.987	.968	.93	.867
	9	1.00	1.00	1.00	1.00	1.00	.999	.997	.992	.98	.954
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.996	.989
	11	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998
	12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
14	0	.488	.229	.103	.044	.018	.007	.002	.001	.00	.000
	1	.847	.585	.357	.198	.101	.047	.021	.008	.003	.001
	2	.97	.842	.648	.448	.281	.161	.084	.04	.017	.006
	3	.996	.956	.853	.698	.521	.355	.22	.124	.063	.029
	4	1.00	.991	.953	.87	.742	.584	.423	.279	.167	.090
	5	1.00	.999	.988	.956	.888	.781	.641	.486	.337	.212

**Table 3** Cumulative Binomial Probabilities Continued

n	x	P									
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.500
6		1.00	1.00	.998	.988	.962	.907	.816	.692	.546	.395
7		1.00	1.00	1.00	.998	.99	.969	.925	.85	.741	.605
8		1.00	1.00	1.00	1.00	.998	.992	.976	.942	.881	.788
9		1.00	1.00	1.00	1.00	1.00	.998	.994	.982	.957	.910
10		1.00	1.00	1.00	1.00	1.00	1.00	.999	.996	.989	.971
11		1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998	.994
12		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999
13		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
15	0	.463	.206	.087	.035	.013	.005	.002	.00	.00	.000
	1	.829	.549	.319	.167	.08	.035	.014	.005	.002	.000
	2	.964	.816	.604	.398	.236	.127	.062	.027	.011	.004
	3	.995	.944	.823	.648	.461	.297	.173	.091	.042	.018
	4	.999	.987	.938	.836	.686	.515	.352	.217	.12	.059
	5	1.00	.998	.983	.939	.852	.722	.564	.403	.261	.151
	6	1.00	1.00	.996	.982	.943	.869	.755	.61	.452	.304
	7	1.00	1.00	.999	.996	.983	.95	.887	.787	.654	.500
	8	1.00	1.00	1.00	.999	.996	.985	.958	.905	.818	.696
	9	1.00	1.00	1.00	1.00	.999	.996	.988	.966	.923	.849
	10	1.00	1.00	1.00	1.00	1.00	.999	.997	.991	.975	.941
	11	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.998	.994	.982
	12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.996
	13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
16	0	.44	.185	.074	.028	.01	.003	.001	.00	.00	.000
	1	.811	.515	.284	.141	.063	.026	.01	.003	.001	.000
	2	.957	.789	.561	.352	.197	.099	.045	.018	.007	.002
	3	.993	.932	.79	.598	.405	.246	.134	.065	.028	.011
	4	.999	.983	.921	.798	.63	.45	.289	.167	.085	.038
	5	1.00	.997	.976	.918	.81	.66	.49	.329	.198	.105
	6	1.00	.999	.994	.973	.92	.825	.688	.527	.366	.227
	7	1.00	1.00	.999	.993	.973	.926	.841	.716	.563	.402
	8	1.00	1.00	1.00	.999	.993	.974	.933	.858	.744	.598
	9	1.00	1.00	1.00	1.00	.998	.993	.977	.942	.876	.773
	10	1.00	1.00	1.00	1.00	1.00	.998	.994	.981	.951	.895
	11	1.00	1.00	1.00	1.00	1.00	1.00	.999	.995	.985	.962
	12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.997	.989
	13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998
	14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000
17	0	.418	.167	.063	.023	.008	.002	.001	.00	.00	.000
	1	.792	.482	.252	.118	.05	.019	.007	.002	.001	.000
	2	.95	.762	.52	.31	.164	.077	.033	.012	.004	.001
	3	.991	.917	.756	.549	.353	.202	.103	.046	.018	.006
	4	.999	.978	.901	.758	.574	.389	.235	.126	.06	.025
	5	1.00	.995	.968	.894	.765	.597	.42	.264	.147	.072
	6	1.00	.999	.992	.962	.893	.775	.619	.448	.29	.166
	7	1.00	1.00	.998	.989	.96	.895	.787	.641	.474	.315
	8	1.00	1.00	1.00	.997	.988	.96	.901	.801	.663	.500
	9	1.00	1.00	1.00	1.00	.997	.987	.962	.908	.817	.685
	10	1.00	1.00	1.00	1.00	.999	.997	.988	.965	.917	.834
	11	1.00	1.00	1.00	1.00	1.00	.999	.997	.989	.97	.928
	12	1.00	1.00	1.00	1.00	1.00	1.00	.999	.997	.991	.975
	13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.998	.994
	14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999
	15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
18	0	.397	.15	.054	.018	.006	.002	.00	.00	.00	.000
	1	.774	.45	.224	.099	.039	.014	.005	.001	.00	.000



**Table 3** Cumulative Binomial Probabilities Continued

n	x	P										
		.05	.10	.15	.20	.25	.30	.35	.40	.45	.500	
19	2	.942	.734	.48	.271	.135	.06	.024	.008	.003	.001	
	3	.989	.902	.72	.501	.306	.165	.078	.033	.012	.004	
	4	.998	.972	.879	.716	.519	.333	.189	.094	.041	.015	
	5	1.00	.994	.958	.867	.717	.534	.355	.209	.108	.048	
	6	1.00	.999	.988	.949	.861	.722	.549	.374	.226	.119	
	7	1.00	1.00	.997	.984	.943	.859	.728	.563	.391	.240	
	8	1.00	1.00	.999	.996	.981	.94	.861	.737	.578	.407	
	9	1.00	1.00	1.00	.999	.995	.979	.94	.865	.747	.593	
	10	1.00	1.00	1.00	1.00	.999	.994	.979	.942	.872	.760	
	11	1.00	1.00	1.00	1.00	1.00	.999	.994	.98	.946	.881	
	12	1.00	1.00	1.00	1.00	1.00	1.00	.999	.994	.982	.952	
	13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.995	.985	
	14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.996	
	15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	
	16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000	
	20	0	.377	.135	.046	.014	.004	.001	.00	.00	.00	.000
		1	.755	.42	.198	.083	.031	.01	.003	.001	.00	.000
2		.933	.705	.441	.237	.111	.046	.017	.005	.002	.000	
3		.987	.885	.684	.455	.263	.133	.059	.023	.008	.002	
4		.998	.965	.856	.673	.465	.282	.15	.07	.028	.010	
5		1.00	.991	.946	.837	.668	.474	.297	.163	.078	.032	
6		1.00	.998	.984	.932	.825	.666	.481	.308	.173	.084	
7		1.00	1.00	.996	.977	.923	.818	.666	.488	.317	.180	
8		1.00	1.00	.999	.993	.971	.916	.815	.667	.494	.324	
9		1.00	1.00	1.00	.998	.991	.967	.913	.814	.671	.500	
10		1.00	1.00	1.00	1.00	.998	.989	.965	.912	.816	.676	
11		1.00	1.00	1.00	1.00	1.00	.997	.989	.965	.913	.820	
12		1.00	1.00	1.00	1.00	1.00	.999	.997	.988	.966	.916	
13		1.00	1.00	1.00	1.00	1.00	1.00	.999	.997	.989	.968	
14		1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.997	.990	
15		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.999	.998	
16		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.000	