Cumulative Binomial Probabilities (n=20)

	0.1	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**
0	0.1216	0.0115	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.3917	0.0692	0.0076	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.6769	0.2061	0.0355	0.0036	0.0002	0.0000	0.0000	0.0000	0.0000
3	0.8670	0.4114	0.1071	0.0160	0.0013	0.0000	0.0000	0.0000	0.0000
4	0.9568	0.6296	0.2375	0.0510	0.0059	0.0003	0.0000	0.0000	0.0000
5	0.9887	0.8042	0.4164	0.1256	0.0207	0.0016	0.0000	0.0000	0.0000
6	0.9976	0.9133	0.6080	0.2500	0.0577	0.0065	0.0003	0.0000	0.0000
7	0.9996	0.9679	0.7723	0.4159	0.1316	0.0210	0.0013	0.0000	0.0000
8	0.9999	0.9900	0.8867	0.5956	0.2517	0.0565	0.0051	0.0001	0.0000
9	1.0000	0.9974	0.9520	0.7553	0.4119	0.1275	0.0171	0.0006	0.0000
10	1.0000	0.9994	0.9829	0.8725	0.5881	0.2447	0.0480	0.0026	0.0000
11	1.0000	0.9999	0.9949	0.9435	0.7483	0.4044	0.1133	0.0100	0.0001
12	1.0000	1.0000	0.9987	0.9790	0.8684	0.5841	0.2277	0.0321	0.0004
13	1.0000	1.0000	0.9997	0.9935	0.9423	0.7500	0.3920	0.0867	0.0024
14	1.0000	1.0000	1.0000	0.9984	0.9793	0.8744	0.5836	0.1958	0.0113
15	1.0000	1.0000	1.0000	0.9997	0.9941	0.9490	0.7625	0.3704	0.0432
16	1.0000	1.0000	1.0000	1.0000	0.9987	0.9840	0.8929	0.5886	0.1330
17	1.0000	1.0000	1.0000	1.0000	0.9998	0.9964	0.9645	0.7939	0.3231
18	1.0000	1.0000	1.0000	1.0000	1.0000	0.9995	0.9924	0.9308	0.6083
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9992	0.9885	0.8784
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Right Body Table for the Standard Normal Distribution

	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998
3.5	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998
3.6	0.4998	0.4998	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.7	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.8	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.9	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000

Right tail critical values for the t-distribution

df	0.2	0.1	0.05	0.025	0.02	0.01	0.005
1	1.376	3.078	6.314	12.706	15.895	31.821	63.657
2	1.061	1.886	2.920	4.303	4.849	6.965	9.925
3	0.978	1.638	2.353	3.182	3.482	4.541	5.841
4	0.941	1.533	2.132	2.776	2.999	3.747	4.604
5	0.920	1.476	2.015	2.571	2.757	3.365	4.032
6	0.906	1.440	1.943	2.447	2.612	3.143	3.707
7	0.896	1.415	1.895	2.365	2.517	2.998	3.499
8	0.889	1.397	1.860	2.306	2.449	2.896	3.355
9	0.883	1.383	1.833	2.262	2.398	2.821	3.250
10	0.879	1.372	1.812	2.228	2.359	2.764	3.169
11	0.876	1.363	1.796	2.201	2.328	2.718	3.106
12	0.873	1.356	1.782	2.179	2.303	2.681	3.055
13	0.870	1.350	1.771	2.160	2.282	2.650	3.012
14	0.868	1.345	1.761	2.145	2.264	2.624	2.977
15	0.866	1.341	1.753	2.131	2.249	2.602	2.947
16	0.865	1.337	1.746	2.120	2.235	2.583	2.921
17	0.863	1.333	1.740	2.110	2.224	2.567	2.898
18	0.862	1.330	1.734	2.101	2.214	2.552	2.878
19	0.861	1.328	1.729	2.093	2.205	2.539	2.861
20	0.860	1.325	1.725	2.086	2.197	2.528	2.845
21	0.859	1.323	1.721	2.080	2.189	2.518	2.831
22	0.858	1.321	1.717	2.074	2.183	2.508	2.819
23	0.858	1.319	1.714	2.069	2.177	2.500	2.807
24	0.857	1.318	1.711	2.064	2.172	2.492	2.797
25	0.856	1.316	1.708	2.060	2.167	2.485	2.787
26	0.856	1.315	1.706	2.056	2.162	2.479	2.779
27	0.855	1.314	1.703	2.052	2.158	2.473	2.771
28	0.855	1.313	1.701	2.048	2.154	2.467	2.763
29	0.854	1.311	1.699	2.045	2.150	2.462	2.756
30	0.854	1.310	1.697	2.042	2.147	2.457	2.750
31	0.853	1.309	1.696	2.040	2.144	2.453	2.744
32	0.853	1.309	1.694	2.037	2.141	2.449	2.738
33	0.853	1.308	1.692	2.035	2.138	2.445	2.733
34	0.852	1.307	1.691	2.032	2.136	2.441	2.728
35	0.852	1.306	1.690	2.030	2.133	2.438	2.724
36	0.852	1.306	1.688	2.028	2.131	2.434	2.719
∞	0.842	1.282	1.645	1.96	2.054	2.326	2.576

$$E(X) = \mu = \sum_{all\ x} x \cdot p(x)$$

$$Var(X) = \sigma^2 = \sum_{all\ x} (x - \mu)^2 \cdot p(x).$$

$$p(x) = \binom{n}{x} \cdot p^x \cdot q^{(n-x)},$$

$$\mu = n \cdot p$$

$$\sigma^2 = n \cdot p \cdot q$$

$$p(y) = \frac{\binom{r}{y} \cdot \binom{N-r}{n-y}}{\binom{N}{n}} = \frac{{}_rC_y \cdot {}_{N-r}C_{n-y}}{{}_NC_n}$$

$$z = \frac{b - \mu}{\sigma}$$

P(A ∪ B)=P(A) + P(B) –P(A ∩ B)

P(A ∩ B)=$P(A \mid B) \cdot P(B)$

$$t = \frac{\bar{x} - \mu_o}{s/\sqrt{n}}$$

$$z = \frac{\bar{x} - \mu_0}{\sigma/\sqrt{n}}$$

$$\sqrt{\frac{p \cdot (1-p)}{n}}$$

$$\sigma_{\bar{x}} = \sigma/\sqrt{n}$$

$$\bar{x} - z_{\alpha/2} \cdot \sigma/\sqrt{n} \le \mu \le \bar{x} + z_{\alpha/2} \cdot \sigma/\sqrt{n}.$$

$$\bar{x} - z_{\alpha/2} \cdot s/\sqrt{n} \le \mu \le \bar{x} + z_{\alpha/2} \cdot s/\sqrt{n}$$, n>30

$$\hat{p} - z\alpha_{/2} \cdot \sqrt{\frac{\hat{p} \cdot (1-\hat{p})}{n}} \le p \le \hat{p} + z\alpha_{/2} \cdot \sqrt{\frac{\hat{p} \cdot (1-\hat{p})}{n}}$$

$$\bar{x} - t_{n-1,\alpha/2} \cdot \frac{s}{\sqrt{n}} \le \mu \le \bar{x} + t_{n-1,\alpha/2} \cdot \frac{s}{\sqrt{n}}.$$

$$\frac{\hat{p}-p_0}{\sqrt{\frac{p_0\cdot(1-p_0)}{n}}}$$

$$\hat{\beta}_j \pm t_{\alpha/2,n-k-1} \cdot s_{\hat{\beta}_j},$$

df= n-k-1

$$t = \frac{\hat{\beta}_j}{s_{\hat{\beta}_j}}$$

$$\bar{y}_1 - \bar{y}_2 \pm z_{\alpha/2} \cdot \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}},$$

$$\bar{y}_1 - \bar{y}_2 \pm t_{\alpha/2,df} \cdot \sqrt{S_P^2 \cdot (\frac{1}{n_1} + \frac{1}{n_2})}, \quad \text{df} = n_1 + n_2 - 2$$

$$\mu_d: \bar{d} \pm t_{\frac{\alpha}{2},n-1} \cdot \frac{s_d}{\sqrt{n}}$$

$$TS = z = \frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\hat{p}\cdot\hat{q}(\frac{1}{n_1}+\frac{1}{n_2})}}. \ \hat{p} = \frac{x_1+x_2}{n_1+n_2}$$

Test Statistics: $Z = \frac{\bar{x}-\mu_0}{\sigma/\sqrt{n}}$, $Z=\frac{\hat{p}-p_0}{\sqrt{\frac{p_0\cdot(1-p_0)}{n}}}$, $T=\frac{\bar{x}-\mu_0}{s/\sqrt{n}}$, $T = \frac{\bar{y}_1-\bar{y}_2-D_0}{\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}}$, $T = \frac{\bar{d}-D_0}{s_d/\sqrt{n}}$, $TS = \frac{\bar{y}_1-\bar{y}_s-D_0}{\sqrt{S_P^2\cdot(\frac{1}{n_1}+\frac{1}{n_2})}}$

Pooled Estimate: $S_P^2 = \frac{(n_1-1)\cdot s_1^2+(n_2-1)\cdot s_2^2}{n_1+n_2-2}$ $\hat{p} = \frac{x_1+x_2}{n_1+n_2}$