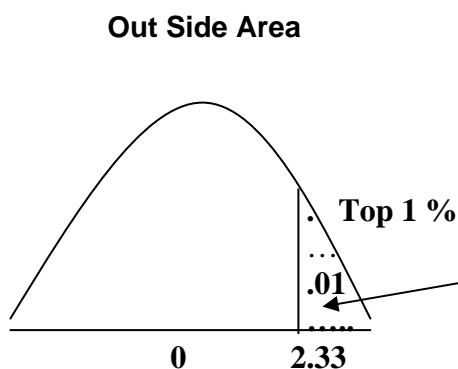


Standard Normal Probabilities										
Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0002
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
-1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
-1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-0.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148
-0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
-0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

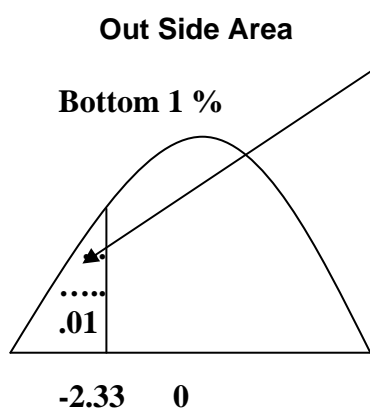
Standard Normal Probabilities										
Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
+0.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
+0.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
+0.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
+0.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
+0.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
+0.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
+0.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
+0.7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
+0.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8079	.8106	.8133
+0.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
+1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
+1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
+1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
+1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
+1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9279	.9292	.9306	.9319
+1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
+1.6	.9452	.9463	.9474	.9484	.9495	.9505	.9515	.9525	.9535	.9545
+1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
+1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9699	.9706
+1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.9767
+2.0	.9773	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
+2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
+2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
+2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
+2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
+2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
+2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
+2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
+2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
+2.9	.9981	.9982	.9983	.9983	.9984	.9984	.9985	.9985	.9986	.9986
+3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990
+3.1	.9990	.9991	.9991	.9991	.9992	.9992	.9992	.9992	.9993	.9993
+3.2	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9995	.9995	.9995
+3.3	.9995	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9996	.9997
+3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998

For Z –values larger than 3.4 use the area 0.9999

Based on Standard Normal Distribution $\mu=0$ and $\sigma=1$



OR

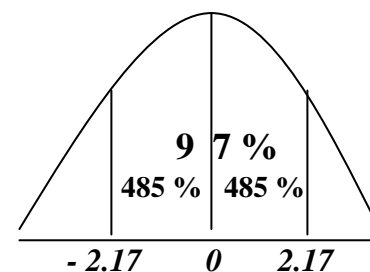


Confidence Level	Out Side Area On left or right Cut-off Point	Z - Value (\pm) Critical Value = $Z_{\alpha/2}$
99%	.005	± 2.5758
98%	.01	± 2.3263
97%	.015	± 2.1701
96%	.02	± 2.0537
95%	.025	± 1.9600
94%	.03	± 1.8808
92%	.04	± 1.7507
90%	.05	± 1.6450
88%	.06	± 1.5548
86%	.07	± 1.4758
84%	.08	± 1.4051
82%	.09	± 1.3408
80%	.10	± 1.2816
78%	.11	± 1.2265
76%	.12	± 1.1750
70%	.15	± 1.0364
60%	.20	± 0.8416
50%	.25	± 0.6749
40%	.30	± 0.5244

How to find the Z -value for different confidence intervals.

Example: Find the Z - value for 97% confidence interval

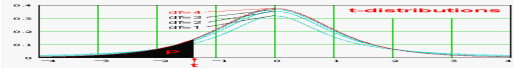
1. Divide $97\% = 0.97$ by 2, $\Rightarrow .97/2 = 0.485$
2. Subtract 0.485 from one $\Rightarrow 1 - 0.485 = .015$
3. Look for area close to 0.015 from **inside** the table (page1).
- 4 **Find its corresponding Z-value (- 2.17)**



OR

TI-83/84 2nd \rightarrow Distr \rightarrow Option 3 **input** (% , 0 , 1)

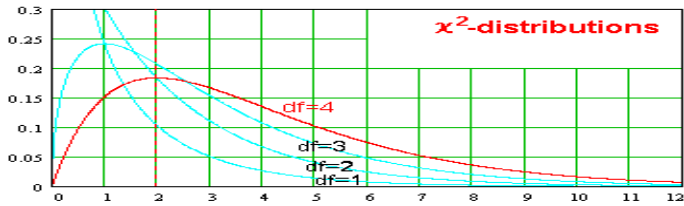
Hint for TI % is the area to the left of the cut off point.



t-Distribution for small sample $n < 30$ and σ Unknown

df = n-1	<----- alpha α ----->							
2-Tailed	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.005
1-Tailed	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.0025
Conf. Lev.	60%	70%	80%	90%	95%	98%	99%	99.5%
1	1.376	1.963	3.078	6.314	12.706	31.821	63.656	127.321
2	1.061	1.386	1.886	2.920	4.303	6.965	9.925	14.089
3	0.978	1.250	1.638	2.353	3.182	4.541	5.841	7.453
4	0.941	1.190	1.533	2.132	2.776	3.747	4.604	5.598
5	0.920	1.156	1.476	2.015	2.571	3.365	4.032	4.773
6	0.906	1.134	1.440	1.943	2.447	3.143	3.707	4.317
7	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.029
8	0.889	1.108	1.397	1.860	2.306	2.896	3.355	3.833
9	0.883	1.100	1.383	1.833	2.262	2.821	3.250	3.690
10	0.879	1.093	1.372	1.812	2.228	2.764	3.169	3.581
11	0.876	1.088	1.363	1.796	2.201	2.718	3.106	3.497
12	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.428
13	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.372
14	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.326
15	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.286
16	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.252
17	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.222
18	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.197
19	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.174
20	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.153
21	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.135
22	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.119
23	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.104
24	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.091
25	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.078
26	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.067
27	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.057
28	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.047
29	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.038
30	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.030
<i>n>30</i> \Rightarrow Z	0.842	1.036	1.282	1.645	1.96	2.326	2.576	2.807
2-T	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.005
1-T	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.0025
Conf. Lev.	60%	70%	80%	90%	95%	98%	99%	99.5%

for $n > 30$
Use the bottom row



For Using Multinomial and Test of Independence

K = Number of groups

df=k-1	Area to the right of Critical Value									
	0.005	0.01	0.025	0.05	0.1	0.9	0.95	0.975	0.99	0.995
1	7.879	6.635	5.024	3.841	2.706	0.016	0.004	0.001	0.000	0.000
2	10.597	9.210	7.378	5.991	4.605	0.211	0.103	0.051	0.020	0.010
3	12.838	11.345	9.348	7.815	6.251	0.584	0.352	0.216	0.115	0.072
4	14.860	13.277	11.143	9.488	7.779	1.064	0.711	0.484	0.297	0.207
5	16.750	15.086	12.833	11.070	9.236	1.610	1.145	0.831	0.554	0.412
6	18.548	16.812	14.449	12.592	10.645	2.204	1.635	1.237	0.872	0.676
7	20.278	18.475	16.013	14.067	12.017	2.833	2.167	1.690	1.239	0.989
8	21.955	20.000	17.535	15.507	13.362	3.49	53.462	2.180	1.646	1.344
9	23.589	21.666	19.023	16.919	14.684	4.168	57.786	2.700	2.088	1.735
10	25.188	44.314	20.483	19.307	15.987	4.865	61.261	3.247	2.558	2.156
11	26.757	24.725	21.920	19.675	17.275	5.578	4.575	3.816	3.053	2.603
12	28.300	26.217	23.337	21.026	18.549	6.304	5.226	4.404	3.571	3.074
13	29.819	27.688	24.736	22.362	19.812	7.042	5.892	5.009	4.107	3.565
14	31.319	29.141	26.119	23.685	21.064	7.790	6.571	5.629	4.660	4.075
15	32.801	30.578	27.488	24.996	22.307	8.547	7.261	6.262	5.229	4.601
16	34.267	32.000	28.845	26.296	23.542	9.312	7.962	6.908	5.812	5.142
17	35.718	33.409	30.191	27.587	24.769	10.085	8.672	7.564	6.408	5.697
18	37.156	34.805	31.526	28.869	25.989	10.865	9.390	8.231	7.015	6.265
19	38.582	36.191	32.852	30.144	27.204	11.651	10.117	8.907	7.633	6.844
20	39.997	37.566	34.170	31.410	28.412	12.443	10.851	9.591	8.260	7.434
21	41.401	38.932	35.479	32.671	29.615	13.240	11.591	10.283	8.897	8.034
22	42.796	40.289	36.781	33.924	30.813	14.041	12.338	10.982	9.542	8.643
23	44.181	41.638	38.076	35.172	32.007	14.848	13.091	11.689	10.196	9.260
24	45.559	42.980	39.364	36.415	33.196	15.659	13.848	12.401	10.856	9.886
25	46.928	44.314	40.646	37.652	34.382	16.473	14.611	13.120	11.524	10.520
26	48.290	45.642	41.923	38.885	35.563	17.292	15.379	13.844	12.198	11.160
27	49.645	46.963	43.195	40.113	36.741	18.114	16.151	14.573	12.879	11.808
28	50.993	48.278	44.461	41.337	37.916	18.939	16.928	15.308	13.565	12.461
29	52.336	49.588	45.722	42.557	39.087	19.768	17.708	16.047	14.256	13.121
30	53.672	50.892	46.979	43.773	40.256	20.599	18.493	16.791	14.953	13.787
40	66.766	63.691	59.342	55.758	51.805	29.051	26.509	24.433	22.164	20.707
50	79.490	76.154	71.420	67.505	63.167	37.689	34.764	32.357	29.707	27.991
60	91.952	88.379	83.298	79.082	74.397	46.459	43.188	40.482	37.485	35.534
70	104.215	100.425	95.023	90.531	85.527	55.329	51.739	48.758	45.442	43.275
80	116.321	112.329	106.629	101.879	96.578	64.278	60.391	57.153	53.540	51.172
90	128.299	124.116	118.136	113.145	107.565	73.291	69.126	65.647	61.754	59.196
100	140.169	135.807	129.561	124.342	118.498	82.358	77.929	74.222	70.065	67.328