Statistical Tables

The following page contains statistical tables for the normal, t and chi-squared distributions.

An alternative to tables is to use R.

For example to find the probability that a $N(0,1)$ is less than 1.282 use: `pnorm(1.282)`

```
> pnorm(1.282)
[1] 0.9000787
```

and to calculate the corresponding probability for a t_5 distribution

```
> pt(1.282, df = 5)
[1] 0.871967
```

and for a χ_6^2 distribution

```
> pchisq(1.282, df = 6)
[1] 0.02735904
```

That is, the R functions `pnorm()`, `pt()`, `pchisq()` are the cdfs of these distributions. Of course for the t and χ^2 distributions the number of degrees of freedom need to be given using the `df` argument as above.

Quantiles can also be obtained using R.

For example to find the 0.99 quantile of $N(0,1)$ use: `qnorm(0.99)`

```
> qnorm(0.99)
[1] 2.326348
```

and to verify this is right

```
> pnorm(2.326)
[1] 0.9899907
```

Similarly to find the 0.99 quantile of the t_5 and χ_6^2 distributions

```
> qt(0.99, df = 5)
[1] 3.36493
> qchisq(0.99, df = 6)
[1] 16.81189
```

Statistical tables

The pth quantiles of the $N(0,1)$, t_r and χ_r^2 distributions are tabulated below, for a range of values of p and r.

For example, when $X \sim N(0,1)$ the value tabulated is the value x_p such that $P(X \leqslant x_p) = p$.

Quantiles of the $N(0,1)$ distribution

p	0.9	0.95	0.975	0.99	0.995
x_p	1.282	1.645	1.960	2.326	2.576

Quantiles of the t_r distribution

			p		
r	0.9	0.95	0.975	0.99	0.995
1	3.08	6.31	12.71	31.82	63.66
2	1.89	2.92	4.30	6.96	9.93
3	1.64	2.35	3.18	4.54	5.84
4	1.53	2.13	2.78	3.75	4.60
5	1.48	2.02	2.57	3.37	4.03
6	1.44	1.94	2.45	3.14	3.71
7	1.42	1.90	2.37	3.00	3.50
8	1.40	1.86	2.31	2.90	3.35
9	1.38	1.83	2.26	2.82	3.25
10	1.37	1.81	2.23	2.76	3.17
11	1.36	1.80	2.20	2.72	3.11
12	1.36	1.78	2.18	2.68	3.06
13	1.35	1.77	2.16	2.65	3.01
14	1.34	1.76	2.14	2.62	2.98
15	1.34	1.75	2.13	2.60	2.95
16	1.34	1.75	2.12	2.58	2.92
17	1.33	1.74	2.11	2.57	2.90
18	1.33	1.73	2.10	2.55	2.88
19	1.33	1.73	2.09	2.54	2.86
20	1.32	1.73	2.09	2.53	2.85
21	1.32	1.72	2.08	2.52	2.83
22	1.32	1.72	2.07	2.51	2.82
23	1.32	1.71	2.07	2.50	2.81
24	1.32	1.71	2.06	2.49	2.80
25	1.32	1.71	2.06	2.48	2.79
26	1.31	1.71	2.06	2.48	2.78
27	1.31	1.70	2.05	2.47	2.77
28	1.31	1.70	2.05	2.47	2.76
29	1.31	1.70	2.04	2.46	2.76
30	1.31	1.70	2.04	2.46	2.75

Quantiles of the χ_r^2 distribution

			p		
r	0.9	0.95	0.975	0.99	0.995
1	2.71	3.84	5.02	6.63	7.88
2	4.61	5.99	7.38	9.21	10.60
3	6.25	7.82	9.35	11.35	12.84
4	7.78	9.49	11.14	13.28	14.86
5	9.24	11.07	12.83	15.09	16.75
6	10.64	12.59	14.45	16.81	18.55
7	12.02	14.07	16.01	18.48	20.28
8	13.36	15.51	17.54	20.09	21.95
9	14.68	16.92	19.02	21.67	23.59
10	15.99	18.31	20.48	23.21	25.19
11	17.27	19.68	21.92	24.73	26.76
12	18.55	21.03	23.34	26.22	28.30
13	19.81	22.36	24.74	27.69	29.82
14	21.06	23.68	26.12	29.14	31.32
15	22.31	25.00	27.49	30.58	32.80
16	23.54	26.30	28.84	32.00	34.27
17	24.77	27.59	30.19	33.41	35.72
18	25.99	28.87	31.53	34.80	37.16
19	27.20	30.14	32.85	36.19	38.58
20	28.41	31.41	34.17	37.57	40.00
21	29.61	32.67	35.48	38.93	41.40
22	30.81	33.92	36.78	40.29	42.80
23	32.01	35.17	38.08	41.64	44.18
24	33.20	36.41	39.36	42.98	45.56
25	34.38	37.65	40.65	44.31	46.93
26	35.56	38.88	41.92	45.64	48.29
27	36.74	40.11	43.20	46.96	49.65
28	37.92	41.34	44.46	48.28	50.99
29	39.09	42.56	45.72	49.59	52.34
30	40.26	43.77	46.98	50.89	53.67