

## Critical Values of Student's $t$ Distribution

Degrees of freedom $\nu$	0.750	0.800	0.850	0.900	0.950	0.980	0.990	Confidence $c$ Two tails $\alpha$ One tail $\alpha/2$
	0.250	0.200	0.150	0.100	0.0500	0.0200	0.0100	
	0.125	0.100	0.0750	0.0500	0.0250	0.0100	0.00500	
1	2.414	3.078	4.165	6.314	12.71	31.82	63.66	
2	1.604	1.886	2.282	2.920	4.303	6.965	9.925	
3	1.423	1.638	1.924	2.353	3.182	4.541	5.841	
4	1.344	1.533	1.778	2.132	2.776	3.747	4.604	
5	1.301	1.476	1.699	2.015	2.571	3.365	4.032	
6	1.273	1.440	1.650	1.943	2.447	3.143	3.707	
7	1.254	1.415	1.617	1.895	2.365	2.998	3.499	
8	1.240	1.397	1.592	1.860	2.306	2.896	3.355	
9	1.230	1.383	1.574	1.833	2.262	2.821	3.250	
10	1.221	1.372	1.559	1.812	2.228	2.764	3.169	
11	1.214	1.363	1.548	1.796	2.201	2.718	3.106	
12	1.209	1.356	1.538	1.782	2.179	2.681	3.055	
13	1.204	1.350	1.530	1.771	2.160	2.650	3.012	
14	1.200	1.345	1.523	1.761	2.145	2.624	2.977	
15	1.197	1.341	1.517	1.753	2.131	2.602	2.947	
16	1.194	1.337	1.512	1.746	2.120	2.583	2.921	
17	1.191	1.333	1.508	1.740	2.110	2.567	2.898	
18	1.189	1.330	1.504	1.734	2.101	2.552	2.878	
19	1.187	1.328	1.500	1.729	2.093	2.539	2.861	
20	1.185	1.325	1.497	1.725	2.086	2.528	2.845	
21	1.183	1.323	1.494	1.721	2.080	2.518	2.831	
22	1.182	1.321	1.492	1.717	2.074	2.508	2.819	
23	1.180	1.319	1.489	1.714	2.069	2.500	2.807	
24	1.179	1.318	1.487	1.711	2.064	2.492	2.797	
25	1.178	1.316	1.485	1.708	2.060	2.485	2.787	
26	1.177	1.315	1.483	1.706	2.056	2.479	2.779	
27	1.176	1.314	1.482	1.703	2.052	2.473	2.771	
28	1.175	1.313	1.480	1.701	2.048	2.467	2.763	
29	1.174	1.311	1.479	1.699	2.045	2.462	2.756	
30	1.173	1.310	1.477	1.697	2.042	2.457	2.750	
35	1.170	1.306	1.472	1.690	2.030	2.438	2.724	
40	1.167	1.303	1.468	1.684	2.021	2.423	2.704	
45	1.165	1.301	1.465	1.679	2.014	2.412	2.690	
50	1.164	1.299	1.462	1.676	2.009	2.403	2.678	
55	1.163	1.297	1.460	1.673	2.004	2.396	2.668	
60	1.162	1.296	1.458	1.671	2.000	2.390	2.660	
70	1.160	1.294	1.456	1.667	1.994	2.381	2.648	
80	1.159	1.292	1.453	1.664	1.990	2.374	2.639	
90	1.158	1.291	1.452	1.662	1.987	2.368	2.632	
100	1.157	1.290	1.451	1.660	1.984	2.364	2.626	
120	1.156	1.289	1.449	1.658	1.980	2.358	2.617	
200	1.154	1.286	1.445	1.653	1.972	2.345	2.601	
500	1.152	1.283	1.442	1.648	1.965	2.334	2.586	
1000	1.151	1.282	1.441	1.646	1.962	2.330	2.581	
$\infty$	1.150	1.282	1.440	1.645	1.960	2.326	2.580	