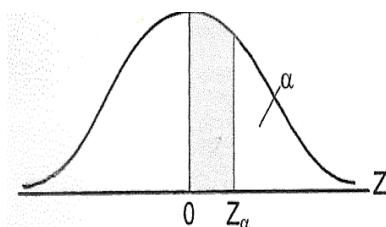


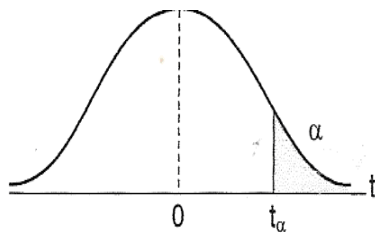
# Tabelas



### DISTRIBUIÇÃO NORMAL: $N(0,1)$

$$P(0 < Z < Z_{\alpha}) = \alpha$$

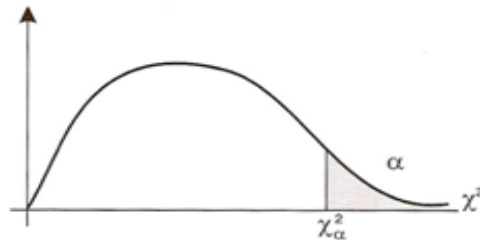
$z_{\alpha}$	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.00000	0.00398	0.00797	0.01196	0.01595	0.01993	0.02392	0.02790	0.03585	0.03585
0.1	0.03982	0.04379	0.04775	0.05171	0.05567	0.05961	0.06355	0.06749	0.07142	0.07534
0.2	0.07926	0.08316	0.08706	0.09095	0.09483	0.09870	0.10256	0.10642	0.11026	0.11409
0.3	0.11791	0.12171	0.12551	0.12930	0.13307	0.13683	0.14057	0.14430	0.14802	0.15173
0.4	0.15542	0.15909	0.16275	0.16640	0.17003	0.17364	0.17724	0.18082	0.18438	0.18793
0.5	0.19146	0.19497	0.19846	0.20194	0.20540	0.20884	0.21226	0.21566	0.21904	0.22240
0.6	0.22574	0.22906	0.23237	0.23565	0.23891	0.24215	0.24537	0.24857	0.25174	0.25490
0.7	0.25803	0.26114	0.26423	0.26730	0.27035	0.27337	0.27637	0.27935	0.28230	0.28523
0.8	0.28814	0.29103	0.29389	0.29673	0.29954	0.30233	0.30510	0.30785	0.31057	0.31326
0.9	0.31594	0.31858	0.32121	0.32381	0.32639	0.32894	0.33147	0.33397	0.33645	0.33891
1.0	0.34134	0.34375	0.34613	0.34849	0.35083	0.35314	0.35542	0.35769	0.35992	0.36214
1.1	0.36433	0.36650	0.36864	0.37076	0.37285	0.37492	0.37697	0.37899	0.38100	0.38297
1.2	0.38493	0.38686	0.38876	0.39065	0.39251	0.39435	0.39616	0.39795	0.39972	0.40147
1.3	0.40319	0.40490	0.40658	0.40824	0.40987	0.41149	0.41308	0.41465	0.41620	0.41773
1.4	0.41924	0.42073	0.42219	0.42364	0.42506	0.42647	0.42785	0.42921	0.43056	0.43188
1.5	0.43319	0.43447	0.43574	0.43699	0.43822	0.43942	0.44062	0.44179	0.44294	0.44408
1.6	0.44520	0.44630	0.44738	0.44844	0.44949	0.45052	0.45154	0.45254	0.45352	0.45448
1.7	0.45543	0.45636	0.45728	0.45818	0.45907	0.45994	0.46079	0.46163	0.46246	0.46327
1.8	0.46407	0.46485	0.46562	0.46637	0.46711	0.46784	0.46855	0.46925	0.46994	0.47062
1.9	0.47128	0.47193	0.47257	0.47319	0.47381	0.47441	0.47500	0.47558	0.47614	0.47670
2.0	0.47725	0.47778	0.47830	0.47882	0.47932	0.47981	0.48030	0.48077	0.48123	0.48169
2.1	0.48213	0.48257	0.48299	0.48341	0.48382	0.48422	0.48461	0.48499	0.48537	0.48573
2.2	0.48609	0.48644	0.48679	0.48712	0.48745	0.48777	0.48808	0.48839	0.48869	0.48898
2.3	0.48927	0.48955	0.48983	0.49009	0.49035	0.49061	0.49086	0.49110	0.49134	0.49157
2.4	0.49180	0.49202	0.49224	0.49245	0.49265	0.49285	0.49305	0.49324	0.49343	0.49361
2.5	0.49379	0.49396	0.49413	0.49429	0.49445	0.49461	0.49476	0.49491	0.49506	0.49520
2.6	0.49533	0.49547	0.49560	0.49573	0.49585	0.49597	0.49609	0.49620	0.49631	0.49642
2.7	0.49653	0.49663	0.49673	0.49683	0.49692	0.49702	0.49711	0.49719	0.49728	0.49736
2.8	0.49744	0.49752	0.49759	0.49767	0.49774	0.49781	0.49788	0.49794	0.49801	0.49807
2.9	0.49813	0.49819	0.49825	0.49830	0.49835	0.49841	0.49846	0.49851	0.49855	0.49860
3.0	0.49865	0.49869	0.49873	0.49877	0.49881	0.49885	0.49889	0.49893	0.49896	0.49899
3.1	0.49903	0.49906	0.49909	0.49912	0.49915	0.49918	0.49921	0.49923	0.49926	0.49928
3.2	0.49931	0.49933	0.49935	0.49938	0.49940	0.49942	0.49944	0.49946	0.49948	0.49949
3.3	0.49951	0.49953	0.49955	0.49956	0.49958	0.49959	0.49961	0.49962	0.49963	0.49965
3.4	0.49966	0.49967	0.49968	0.49969	0.49970	0.49972	0.49973	0.49974	0.49974	0.49975
3.5	0.49976	0.49977	0.49978	0.49979	0.49980	0.49980	0.49981	0.49982	0.49982	0.49983
3.6	0.49984	0.49984	0.49985	0.49985	0.49986	0.49986	0.49987	0.49987	0.49988	0.49988
3.7	0.49989	0.49989	0.49990	0.49990	0.49990	0.49991	0.49991	0.49991	0.49992	0.49992
3.8	0.49992	0.49993	0.49993	0.49993	0.49993	0.49994	0.49994	0.49994	0.49994	0.49995
3.9	0.49995	0.49995	0.49995	0.49995	0.49995	0.49996	0.49996	0.49996	0.49996	0.49996
4.0	0.49996	0.49997	0.49997	0.49997	0.49997	0.49997	0.49997	0.49997	0.49997	0.49997



## DISTRIBUIÇÃO t DE STUDENT

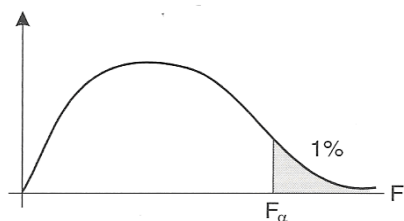
$$P(t > t_{\alpha}) = \alpha$$

$\phi$	$\alpha$					$\phi$
	0,1	0,05	0,025	0,01	0,005	
1	3,0777	6,3137	12,7062	31,8210	63,6559	1
2	1,8856	2,9200	4,3027	6,9645	9,9250	2
3	1,6377	2,3534	3,1824	4,5407	5,8408	3
4	1,5332	2,1318	2,7765	3,7469	4,6041	4
5	1,4759	2,0150	2,5706	3,3649	4,0321	5
6	1,4398	1,9432	2,4469	3,1427	3,7074	6
7	1,4149	1,8946	2,3646	2,9979	3,4995	7
8	1,3968	1,8595	2,3060	2,8965	3,3554	8
9	1,3830	1,8331	2,2622	2,8214	3,2498	9
10	1,3722	1,8125	2,2281	2,7638	3,1693	10
11	1,3634	1,7959	2,2010	2,7181	3,1058	11
12	1,3562	1,7823	2,1788	2,6810	3,0545	12
13	1,3502	1,7709	2,1604	2,6503	3,0123	13
14	1,3450	1,7613	2,1448	2,6245	2,9768	14
15	1,3406	1,7531	2,1315	2,6025	2,9467	15
16	1,3368	1,7459	2,1199	2,5835	2,9208	16
17	1,3334	1,7396	2,1098	2,5669	2,8982	17
18	1,3304	1,7341	2,1009	2,5524	2,8784	18
19	1,3277	1,7291	2,0930	2,5395	2,8609	19
20	1,3253	1,7247	2,0860	2,5280	2,8453	20
21	1,3232	1,7207	2,0796	2,5176	2,8314	21
22	1,3212	1,7171	2,0739	2,5083	2,8188	22
23	1,3195	1,7139	2,0687	2,4999	2,8073	23
24	1,3178	1,7109	2,0639	2,4922	2,7970	24
25	1,3163	1,7081	2,0595	2,4851	2,7874	25
26	1,3150	1,7056	2,0555	2,4786	2,7787	26
27	1,3137	1,7033	2,0518	2,4727	2,7707	27
28	1,3125	1,7011	2,0484	2,4671	2,7633	28
29	1,3114	1,6991	2,0452	2,4620	2,7564	29
30	1,3104	1,6973	2,0423	2,4573	2,7500	30
35	1,3062	1,6896	2,0301	2,4377	2,7238	35
40	1,3031	1,6839	2,0211	2,4233	2,7045	40
45	1,3007	1,6794	2,0141	2,4121	2,6896	45
50	1,2987	1,6759	2,0086	2,4033	2,6778	50
60	1,2958	1,6706	2,0003	2,3901	2,6603	60
70	1,2938	1,6669	1,9944	2,3808	2,6479	70
80	1,2922	1,6641	1,9901	2,3739	2,6387	80
90	1,2910	1,6620	1,9867	2,3685	2,6316	90
100	1,2824	1,6464	1,9623	2,3301	2,5807	100



**DISTRIBUIÇÃO  
QUI QUADRADO**

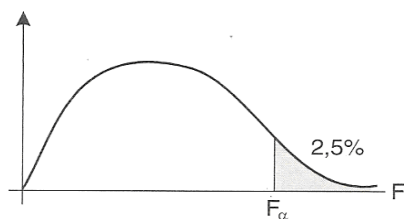
	$\alpha$											
$\phi$	0,995	0,99	0,975	0,95	0,9	0,75	0,25	0,1	0,05	0,025	0,01	0,005
1	0,000	0,000	0,001	0,003	0,015	0,101	1,323	2,705	3,841	5,023	6,634	7,879
2	0,010	0,020	0,050	0,102	0,210	0,575	2,772	4,605	5,991	7,377	9,210	10,596
3	0,071	0,114	0,215	0,351	0,584	1,212	4,108	6,251	7,814	9,348	11,344	12,838
4	0,207	0,297	0,484	0,710	1,063	1,922	5,385	7,779	9,487	11,143	13,276	14,860
5	0,411	0,554	0,831	1,145	1,610	2,674	6,625	9,236	11,070	12,832	15,086	16,749
6	0,675	0,872	1,237	1,635	2,204	3,454	7,840	10,644	12,591	14,449	16,811	18,547
7	0,989	1,239	1,689	2,167	2,833	4,254	9,037	12,017	14,067	16,012	18,475	20,277
8	1,344	1,646	2,179	2,732	3,489	5,070	10,218	13,361	15,507	17,534	20,090	21,954
9	1,734	2,087	2,700	3,325	4,168	5,898	11,388	14,683	16,919	19,022	21,666	23,589
10	2,155	2,558	3,247	3,940	4,865	6,737	12,548	15,987	18,307	20,483	23,209	25,188
11	2,603	3,053	3,815	4,574	5,577	7,584	13,700	17,275	19,675	21,920	24,725	26,756
12	3,073	3,570	4,403	5,226	6,303	8,438	14,845	18,549	21,026	23,336	26,217	28,299
13	3,565	4,106	5,008	5,891	7,041	9,299	15,983	19,811	22,362	24,735	27,688	29,819
14	4,074	4,660	5,628	6,570	7,789	10,165	17,116	21,064	23,684	26,118	29,141	31,319
15	4,600	5,229	6,262	7,260	8,546	11,036	18,245	22,307	24,995	27,488	30,578	32,801
16	5,142	5,812	6,907	7,961	9,312	11,912	19,368	23,541	26,296	28,845	31,999	34,267
17	5,697	6,407	7,564	8,671	10,085	12,791	20,488	24,769	27,587	30,191	33,408	35,718
18	6,264	7,014	8,230	9,390	10,864	13,675	21,604	25,989	28,869	31,526	34,805	37,156
19	6,843	7,632	8,906	10,117	11,650	14,562	22,717	27,203	30,143	32,852	36,190	38,582
20	7,433	8,260	9,590	10,850	12,442	15,451	23,827	28,412	31,410	34,169	37,566	39,996
21	8,033	8,897	10,282	11,591	13,239	16,344	24,934	29,615	32,670	35,478	38,932	41,400
22	8,642	9,542	10,982	12,338	14,041	17,239	26,039	30,813	33,924	36,780	40,289	42,795
23	9,260	10,195	11,688	13,090	14,848	18,137	27,141	32,006	35,172	38,075	41,638	44,181
24	9,886	10,856	12,401	13,848	15,658	19,037	28,241	33,196	36,415	39,364	42,979	45,558
25	10,519	11,524	13,119	14,611	16,473	19,939	29,338	34,381	37,652	40,646	44,314	46,928
26	11,160	12,198	13,843	15,379	17,291	20,843	30,434	35,563	38,885	41,923	45,641	48,289
27	11,807	12,878	14,573	16,151	18,113	21,749	31,528	36,741	40,113	43,194	46,962	49,645
28	12,461	13,564	15,307	16,927	18,939	22,657	32,620	37,915	41,337	44,460	48,278	50,993
29	13,121	14,256	16,047	17,708	19,767	23,566	33,710	39,087	42,556	45,722	49,587	52,335
30	13,786	14,953	16,790	18,492	20,599	24,477	34,799	40,256	43,773	46,979	50,892	53,671
35	17,191	18,508	20,569	22,465	24,796	29,054	40,222	46,058	49,801	53,203	57,342	60,274
40	20,706	22,164	24,433	26,509	29,050	33,660	45,616	51,805	55,758	59,341	63,690	66,766



## DISTRIBUIÇÃO F DE FISHER-SNEDECOR

$$P(F > F_{\alpha}) = 0,01$$

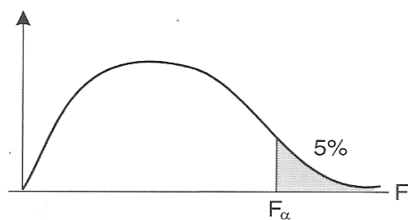
$\phi_2$	$\phi_1$												
	1	2	3	4	5	6	7	8	9	10	11	12	13
1	4052,1	4999,3	5403,5	5624,2	5763,9	5858,9	5928,3	5980,9	6022,4	6055,9	6083,4	6106,6	6125,7
2	98,501	99,000	99,164	99,251	99,302	99,331	99,356	99,375	99,389	99,396	99,407	99,418	99,422
3	34,116	30,816	29,456	28,710	28,237	27,910	27,671	27,489	27,344	27,228	27,132	27,052	26,982
4	21,197	17,999	16,694	15,977	15,521	15,206	14,975	14,798	14,659	14,546	14,452	14,373	14,306
5	16,258	13,274	12,059	11,391	10,967	10,672	10,455	10,289	10,157	10,051	9,962	9,888	9,824
6	13,745	10,924	9,779	9,148	8,745	8,466	8,260	8,101	7,976	7,874	7,789	7,7183	7,657
7	12,246	9,546	8,451	7,846	7,460	7,191	6,992	6,840	6,718	6,620	6,538	6,469	6,410
8	11,258	8,649	7,591	7,006	6,631	6,370	6,177	6,028	5,910	5,814	5,734	5,666	5,608
9	10,561	8,021	6,992	6,422	6,056	5,801	5,612	5,467	5,351	5,256	5,177	5,111	5,054
10	10,044	7,559	6,552	5,994	5,636	5,385	5,200	5,056	4,942	4,849	4,771	4,705	4,649
11	9,646	7,205	6,216	5,668	5,316	5,069	4,886	4,744	4,631	4,539	4,462	4,397	4,341
12	9,330	6,926	5,952	5,411	5,064	4,820	4,639	4,499	4,387	4,296	4,219	4,155	4,099
13	9,073	6,700	5,739	5,205	4,861	4,620	4,441	4,302	4,191	4,100	4,024	3,960	3,905
14	8,861	6,514	5,563	5,035	4,695	4,455	4,277	4,140	4,029	3,939	3,864	3,800	3,745
15	8,683	6,358	5,417	4,893	4,555	4,318	4,141	4,004	3,894	3,804	3,729	3,666	3,611
16	8,530	6,226	5,292	4,772	4,437	4,201	4,025	3,889	3,780	3,690	3,616	3,552	3,498
17	8,399	6,112	5,185	4,668	4,336	4,101	3,926	3,790	3,682	3,593	3,518	3,455	3,400
18	8,285	6,012	5,091	4,579	4,247	4,014	3,840	3,705	3,597	3,508	3,433	3,370	3,316
19	8,185	5,925	5,010	4,500	4,170	3,938	3,765	3,630	3,522	3,433	3,359	3,296	3,242
20	8,096	5,849	4,938	4,430	4,102	3,871	3,698	3,564	3,456	3,368	3,294	3,231	3,176
21	8,016	5,780	4,874	4,368	4,042	3,811	3,639	3,505	3,398	3,309	3,235	3,172	3,118
22	7,945	5,719	4,816	4,313	3,988	3,758	3,586	3,453	3,345	3,257	3,183	3,120	3,066
23	7,881	5,663	4,764	4,263	3,939	3,710	3,539	3,405	3,298	3,210	3,136	3,074	3,019
24	7,822	5,613	4,718	4,218	3,895	3,666	3,495	3,362	3,256	3,168	3,094	3,031	2,977
25	7,769	5,568	4,675	4,177	3,855	3,627	3,456	3,323	3,217	3,129	3,055	2,993	2,938
26	7,721	5,526	4,636	4,140	3,818	3,591	3,421	3,288	3,181	3,094	3,020	2,957	2,903
27	7,676	5,488	4,600	4,105	3,784	3,558	3,388	3,255	3,149	3,061	2,988	2,925	2,871
28	7,635	5,452	4,568	4,074	3,753	3,527	3,358	3,225	3,119	3,032	2,958	2,895	2,841
29	7,597	5,420	4,537	4,044	3,725	3,499	3,330	3,198	3,092	3,004	2,931	2,868	2,814
30	7,562	5,390	4,509	4,017	3,699	3,473	3,304	3,172	3,066	2,979	2,905	2,843	2,789
40	7,314	5,178	4,312	3,828	3,513	3,291	3,123	2,993	2,887	2,800	2,727	2,664	2,610
50	7,170	5,056	4,199	3,719	3,407	3,186	3,020	2,890	2,785	2,698	2,625	2,562	2,508
100	6,89	4,82	3,98	3,51	3,20	2,98	2,82	2,69	2,58	2,51	2,43	2,36	2,31
$\phi_2$	14	15	16	17	18	19	20	25	30	40	50	60	100
1	6143,0	6156,9	6170,0	6181,1	6191,4	6200,7	6208,6	6239,8	6260,3	6286,4	6302,2	6313	6333
2	99,246	99,433	99,436	99,440	99,444	99,447	99,447	99,458	99,466	99,476	99,476	99,48	99,49
3	26,923	26,871	26,826	26,786	26,751	26,719	26,690	26,579	26,504	26,410	26,354	26,32	26,24
4	14,248	14,198	14,154	14,114	14,079	14,048	14,019	13,910	13,837	13,745	13,689	13,65	13,57
5	9,770	9,722	9,680	9,642	9,609	9,579	9,552	9,449	9,379	9,291	9,237	9,20	9,13
6	7,605	7,559	7,518	7,482	7,450	7,421	7,395	7,296	7,228	7,143	7,091	7,06	6,98
7	6,359	6,314	6,275	6,240	6,208	6,180	6,155	6,057	5,992	5,908	5,857	5,82	5,75
8	5,588	5,515	5,476	5,442	5,411	5,384	5,359	5,263	5,198	5,115	5,065	5,03	4,96
9	5,005	4,962	4,924	4,890	4,859	4,832	4,808	4,713	4,648	4,566	4,516	4,48	4,41
10	4,600	4,558	4,520	4,486	4,456	4,429	4,405	4,311	4,246	4,165	4,115	4,08	4,01
11	4,293	4,250	4,213	4,180	4,150	4,123	4,099	4,005	3,941	3,859	3,809	3,78	3,70
12	4,051	4,009	3,972	3,939	3,909	3,882	3,858	3,764	3,700	3,619	3,569	3,54	3,46
13	3,857	3,815	3,778	3,745	3,715	3,688	3,664	3,571	3,507	3,425	3,375	3,34	3,27
14	3,697	3,655	3,618	3,585	3,556	3,529	3,505	3,411	3,347	3,265	3,215	3,18	3,11
15	3,563	3,522	3,485	3,452	3,422	3,396	3,371	3,278	3,214	3,131	3,081	3,05	2,97
16	3,450	3,409	3,372	3,339	3,309	3,282	3,258	3,165	3,100	3,018	2,967	2,93	2,86
17	3,353	3,311	3,274	3,241	3,212	3,185	3,161	3,067	3,003	2,920	2,869	2,83	2,76
18	2,268	3,227	3,190	3,157	3,128	3,101	3,077	2,983	2,918	2,835	2,784	2,75	2,67
19	3,194	3,153	3,116	3,083	3,054	3,027	3,003	2,908	2,844	2,760	2,709	2,67	2,60
20	3,129	3,088	3,051	3,018	2,988	2,962	2,937	2,843	2,778	2,694	2,643	2,61	2,53
21	3,071	3,030	2,993	2,960	2,930	2,903	2,879	2,785	2,720	2,635	2,585	2,55	2,47
22	3,019	2,977	2,941	2,908	2,878	2,851	2,827	2,732	2,667	2,583	2,530	2,50	2,42
23	2,972	2,931	2,894	2,861	2,831	2,804	2,780	2,685	2,620	2,535	2,482	2,45	2,37
24	2,930	2,888	2,851	2,818	2,789	2,762	2,738	2,643	2,577	2,492	2,439	2,40	2,32
25	2,891	2,850	2,813	2,780	2,750	2,723	2,699	2,604	2,538	2,453	2,399	2,36	2,28
26	2,856	2,815	2,778	2,745	2,715	2,688	2,664	2,568	2,502	2,417	2,363	2,33	2,25
27	2,824	2,782	2,745	2,712	2,683	2,656	2,631	2,536	2,469	2,384	2,330	2,29	2,21
28	2,794	2,753	2,716	2,683	2,653	2,626	2,601	2,506	2,439	2,353	2,299	2,26	2,18
29	2,767	2,725	2,688	2,655	2,625	2,598	2,574	2,478	2,411	2,325	2,271	2,23	2,15
30	2,741	2,700	2,663	2,630	2,600	2,573	2,548	2,452	2,386	2,299	2,245	2,21	2,13
40	2,563	2,521	2,484	2,451	2,421	2,393	2,368	2,271	2,203	2,114	2,058	2,02	1,93
50	2,460	2,419	2,381	2,348	2,317	2,290	2,265	2,166	2,097	2,006	1,949	1,91	1,82
100	2,26	2,22	2,18	2,15	2,12	2,09	2,06	1,96	1,89	1,79	1,73	1,66	1,59



## DISTRIBUIÇÃO F DE FISHER-SNEDECOR

$$P(F > F_\alpha) = 0,025$$

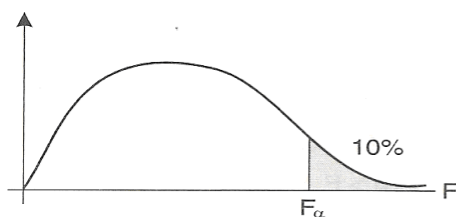
$\phi_2$	1	2	3	4	5	6	$\phi_1$	7	8	9	10	11	12	13
1	647.79	799.48	864.15	899.59	921.83	937.11	948.20	956.64	963.28	968.63	973.03	976.72	979.84	
2	38.506	39.000	39.166	39.248	39.298	39.331	39.356	39.373	39.387	39.398	39.407	39.415	39.421	
3	17.443	16.044	15.439	15.101	14.885	14.735	14.624	14.539	14.473	14.419	14.374	14.337	14.305	
4	12.218	10.649	9.979	9.605	9.365	9.197	9.074	8.980	8.905	8.844	8.794	8.751	8.715	
5	10.007	8.434	7.764	7.388	7.146	6.978	6.853	6.757	6.681	6.619	6.568	6.525	6.488	
6	8.813	7.260	6.599	6.227	5.988	5.820	5.696	5.599	5.523	5.461	5.410	5.366	5.329	
7	8.073	6.545	5.890	5.523	5.285	5.119	4.995	4.899	4.823	4.761	4.709	4.666	4.629	
8	7.571	6.059	5.416	5.053	4.817	4.652	4.529	4.433	4.357	4.296	4.243	4.120	4.162	
9	7.209	5.715	5.078	4.718	4.484	4.320	4.197	4.102	4.026	3.964	3.912	3.868	3.831	
10	6.937	5.456	4.826	4.468	4.236	4.072	3.950	3.855	3.779	3.717	3.665	3.621	3.583	
11	6.724	5.256	4.630	4.275	4.044	3.881	3.759	3.664	3.588	3.526	3.474	3.430	3.392	
12	6.554	5.096	4.474	4.121	3.891	3.728	3.607	3.512	3.436	3.374	3.322	3.277	3.239	
13	6.414	4.965	4.347	3.996	3.767	3.604	3.483	3.388	3.312	3.250	3.198	3.153	3.115	
14	6.298	4.857	4.242	3.892	3.663	3.501	3.380	3.285	3.210	3.147	3.095	3.050	3.012	
15	6.120	4.765	4.153	3.804	3.576	3.415	3.293	3.199	3.123	3.060	3.008	2.963	2.925	
16	6.115	4.687	4.077	3.729	3.502	3.341	3.219	3.125	3.049	2.986	2.934	2.889	2.851	
17	6.042	4.619	4.011	3.665	3.438	3.277	3.156	3.061	2.985	2.922	2.870	2.825	2.786	
18	5.978	4.560	3.954	3.608	3.382	3.221	3.100	3.005	2.929	2.866	2.814	2.769	2.730	
19	5.922	4.508	3.903	3.559	3.333	3.172	3.051	2.956	2.880	2.817	2.765	2.720	2.681	
20	5.872	4.461	3.859	3.515	3.289	3.128	3.007	2.913	2.837	2.774	2.721	2.676	2.637	
21	5.827	4.420	3.819	3.475	3.250	3.090	2.969	2.874	2.798	2.735	2.682	2.637	2.599	
22	5.786	4.383	3.783	3.440	3.215	3.055	2.934	2.839	2.763	2.700	2.647	2.602	2.563	
23	5.750	4.349	3.751	3.408	3.184	3.023	2.902	2.808	2.731	2.668	2.615	2.570	2.531	
24	5.717	4.319	3.721	3.379	3.155	2.995	2.874	2.779	2.703	2.640	2.587	2.541	2.502	
25	5.686	4.291	3.694	3.353	3.129	2.969	2.848	2.753	2.677	2.614	2.560	2.515	2.476	
26	5.657	4.266	3.670	3.329	3.105	2.945	2.824	2.729	2.653	2.590	2.536	2.491	2.452	
27	5.633	4.242	3.647	3.307	3.083	2.923	2.802	2.707	2.631	2.568	2.514	2.469	2.429	
28	5.610	4.221	3.626	3.286	3.063	2.903	2.782	2.687	2.611	2.547	2.494	2.448	2.410	
29	5.588	4.201	3.607	3.267	3.044	2.884	2.763	2.669	2.592	2.529	2.475	2.430	2.390	
30	5.568	4.182	3.589	3.250	3.027	2.867	2.746	2.651	2.575	2.511	2.458	2.412	2.372	
40	5.424	4.051	3.463	3.126	2.904	2.744	2.624	2.529	2.452	2.388	2.334	2.288	2.248	
50	5.340	3.975	3.390	3.054	2.833	2.674	2.553	2.458	2.381	2.317	2.263	2.216	2.176	
100	5.179	3.828	3.250	2.917	2.696	2.537	2.417	2.322	2.244	2.179	2.125	2.077	2.036	
$\phi_2$	14	15	16	17	18	19	20	25	30	40	50	100	$\phi_2$	
1	982.54	984.87	986.91	988.72	990.35	991.80	993.08	998.09	1001.4	1005.6	1008.1	1013.2	1	
2	39.427	39.431	39.436	39.439	3,442	39.446	39.448	39.458	39.465	39.46	39.478	39.488	2	
3	14.277	14.253	14.232	14.213	14.196	14.181	14.167	14.115	14.081	14.04	14.010	13.956	3	
4	8.684	8.657	8.633	8.611	8.59	8.575	8.560	8,501	8,461	8,41	8,381	8,3200	4	
5	6.456	6.428	6.403	6.381	6.362	6.344	6.329	6,268	6,227	6,18	6,144	6,080	5	
6	5.297	5.269	5.244	5.222	5.202	5.184	5.168	5,107	5,065	5,01	4,980	4,915	6	
7	4.596	4.568	4.543	4.521	4.501	4.483	4.467	4,405	4,362	4,31	4,276	4,210	7	
8	4.130	4.101	4.076	4.054	4.034	4.016	3.999	3,937	3,894	3,78	3,806	3,739	8	
9	3.799	3.769	3.744	3.722	3.702	3.683	3.667	3,604	3,560	3,51	3,472	3,403	9	
10	3.550	3.522	3.496	3.474	3.453	3.435	3.419	3,355	3,311	3,26	3,221	3,152	10	
11	3.359	3.330	3.304	3.282	3.261	3.243	3.226	3,162	3,118	3,06	3,027	2,956	11	
12	3.206	3.177	3.152	3.129	3.108	3.090	3.073	3,008	2,963	2,91	2,871	2,800	12	
13	3.082	3.053	3.027	3.004	2.983	2.965	2.948	2,882	2,837	2,78	2,744	2,672	13	
14	2.979	2.949	2.923	2.900	2.880	2.861	2.844	2,778	2,73	2,67	2,638	2,565	14	
15	2.892	2.862	2.836	2.813	2.792	2.773	2.756	2,689	2,644	2,59	2,549	2,474	15	
16	2.817	2.788	2.761	2.738	2.717	2.698	2.681	2,614	2,568	2,51	2,472	2,396	16	
17	2.753	2.723	2.697	2.673	2.652	2.633	2.616	2,548	2,502	2,44	2,405	2,329	17	
18	2.696	2.667	2.640	2.617	2.596	2.576	2.559	2,491	2,445	2,38	2,347	2,269	18	
19	2.647	2.617	2.591	2.567	2.546	2.526	2.509	2,441	2,394	2,33	2,295	2,217	19	
20	2.603	2.573	2.547	2.523	2.501	2.482	2.465	2,396	2,349	2,29	2,249	2,170	20	
21	2.564	2.534	2.507	2.483	2.462	2.442	2.425	2,356	2,308	2,25	2,208	2,128	21	
22	2.529	2.498	2.472	2.448	2.426	2.407	2.389	2,320	2,272	2,21	2,171	2,090	22	
23	2.497	2.467	2.440	2.416	2.394	2.375	2.357	2,287	2,239	2,18	2,137	2,056	23	
24	2.468	2.437	2.411	2.387	2.365	2.345	2.327	2,257	2,209	2,15	2,107	2,024	24	
25	2.441	2.411	2.384	2.360	2.338	2.318	2.301	2,230	2,182	2,12	2,079	1,996	25	
26	2.417	2.387	2.360	2.336	2.314	2.294	2.276	2,205	2,157	2,09	2,053	1,969	26	
27	2.395	2.364	2.337	2.313	2.291	2.271	2.253	2,183	2,133	2,07	2,029	1,945	27	
28	2.374	2.344	2.317	2.292	2.270	2.251	2.232	2,161	2,112	2,05	2,007	1,922	28	
29	2.355	2.325	2.298	2.273	2.251	2.231	2.213	2,142	2,092	2,03	1,987	1,901	29	
30	2.338	2.307	2.280	2.255	2.233	2.213	2.195	2,124	2,074	2,01	1,968	1,882	30	
40	2.213	2.182	2.154	2.129	2.107	2.086	2.068	1,994	1,943	1,88	1,832	1,741	40	
50	2.140	2.109	2.081	2.056	2.033	2.012	1.993	1,919	1,866	1,82	1,752	1,656	50	
100	2.000	1.968	1.939	1.913	1.890	1.868	1.849	1,771	1,715	1,61	1,592	1,483	100	



## DISTRIBUIÇÃO F DE FISHER-SNEDECOR

$$P(F > F_{\alpha}) = 0,05$$

$\phi_2$	1	2	3	4	5	6	$\phi_1$	7	8	9	10	11	12	13
1	161,45	199,50	215,71	224,58	230,16	233,99	236,77	238,88	240,54	241,88	242,98	243,90	244,69	
2	18,513	19,000	19,164	19,247	19,296	19,330	19,353	19,371	19,385	19,396	19,405	19,413	19,419	
3	10,128	9,552	9,277	9,117	9,013	8,941	8,887	8,845	8,812	8,786	8,763	8,745	8,729	
4	7,077	6,944	6,591	6,388	6,256	6,163	6,094	6,041	5,999	5,964	5,936	5,912	5,891	
5	6,608	5,786	5,409	5,192	5,050	4,950	4,876	4,818	4,773	4,735	4,704	4,678	4,655	
6	5,987	5,143	4,757	4,534	4,387	4,284	4,207	4,147	4,099	4,060	4,027	3,999	3,976	
7	5,592	4,737	4,347	4,120	3,972	3,866	3,787	3,726	3,677	3,637	3,603	3,575	3,550	
8	5,318	4,459	4,066	3,838	3,688	3,581	3,501	3,438	3,388	3,347	3,313	3,284	3,259	
9	5,117	4,257	3,863	3,633	3,482	3,374	3,293	3,230	3,179	3,137	3,103	3,073	3,048	
10	4,965	4,103	3,708	3,478	3,326	3,217	3,136	3,072	3,020	2,978	2,943	2,913	2,887	
11	4,844	3,982	3,587	3,357	3,204	3,095	3,012	2,948	2,896	2,854	2,818	2,788	2,761	
12	2,747	3,885	3,490	3,259	3,106	2,996	2,913	2,849	2,796	2,753	2,717	2,687	2,660	
13	4,667	3,806	3,411	3,179	3,025	2,915	2,832	2,767	2,714	2,671	2,635	2,604	2,577	
14	4,600	3,739	3,344	3,112	2,958	2,848	2,764	2,699	2,646	2,602	2,566	2,534	2,507	
15	4,543	3,682	3,287	3,056	2,901	2,791	2,707	2,641	2,588	2,544	2,507	2,475	2,448	
16	4,494	3,634	3,239	3,007	2,852	2,741	2,657	2,591	2,538	2,494	2,456	2,425	2,397	
17	4,451	3,592	3,197	2,965	2,810	2,699	2,614	2,548	2,494	2,450	2,413	2,381	2,353	
18	4,414	3,555	3,160	2,928	2,773	2,661	2,577	2,510	2,456	2,412	2,374	2,342	2,314	
19	4,381	3,522	3,127	2,895	2,740	2,628	2,544	2,477	2,423	2,378	2,340	2,308	2,280	
20	4,351	3,493	3,098	2,866	2,711	2,599	2,514	2,447	2,393	2,348	2,310	2,278	2,250	
21	4,325	3,467	3,073	2,840	2,685	2,573	2,488	2,421	2,366	2,321	2,283	2,250	2,222	
22	4,301	3,443	3,049	2,817	2,661	2,549	2,464	2,397	2,342	2,297	2,259	2,226	2,198	
23	4,279	3,422	3,028	2,796	2,640	2,528	2,442	2,375	2,320	2,275	2,236	2,204	2,175	
24	4,260	3,403	3,009	2,776	2,621	2,508	2,423	2,355	2,300	2,255	2,216	2,183	2,155	
25	4,242	3,385	2,991	2,759	2,603	2,490	2,405	2,337	2,282	2,237	2,198	2,165	2,136	
26	4,225	3,369	2,975	2,743	2,587	2,474	2,388	2,321	2,266	2,220	2,181	2,148	2,119	
27	4,210	3,354	2,960	2,728	2,572	2,459	2,373	2,305	2,250	2,204	2,166	2,132	2,103	
28	4,196	3,340	2,947	2,714	2,558	2,445	2,359	2,291	2,236	2,190	2,151	2,118	2,089	
29	4,183	3,328	2,934	2,701	2,545	2,432	2,346	2,278	2,223	2,177	2,138	2,105	2,076	
30	4,171	3,316	2,922	2,690	2,534	2,421	2,334	2,266	2,211	2,165	2,126	2,092	2,063	
40	4,085	3,232	2,839	2,606	2,450	2,336	2,249	2,180	2,124	2,077	2,038	2,004	1,974	
50	4,034	3,183	2,790	2,557	2,400	2,286	2,199	2,130	2,073	2,026	1,986	1,952	1,921	
100	3,936	3,087	2,696	2,463	2,305	2,191	2,103	2,032	1,975	1,927	1,886	1,850	1,819	
$\phi_2$	14	15	16	17	18	19	20	25	30	40	50	100	$\phi_2$	
1	245,4	245,9	246,5	246,9	247,3	247,7	248,0	249,3	250,1	251,1	251,8	253,0	1	
2	19,424	19,429	19,433	19,437	19,440	19,443	19,446	19,456	19,463	19,471	19,476	19,486	2	
3	8,715	8,703	8,692	8,683	8,675	8,667	8,660	8,634	8,617	8,594	8,581	8,554	3	
4	5,873	5,858	5,844	5,832	5,821	5,811	5,803	5,769	5,746	5,717	5,700	5,664	4	
5	4,636	4,619	4,604	4,590	4,579	4,568	4,558	4,521	4,496	4,464	4,444	4,405	5	
6	3,956	3,938	3,922	3,908	3,896	3,884	3,874	3,835	3,805	3,774	3,754	3,712	6	
7	3,529	3,511	3,494	3,480	3,467	3,455	3,445	3,404	3,376	3,340	3,319	3,275	7	
8	3,237	3,218	3,202	3,187	3,173	3,161	3,150	3,108	3,079	3,043	3,020	2,975	8	
9	3,026	3,006	2,989	2,974	2,960	2,948	2,937	2,893	2,864	2,826	2,803	2,756	9	
10	2,865	2,845	2,828	2,812	2,798	2,785	2,774	2,730	2,700	2,661	2,637	2,588	10	
11	2,739	2,719	2,701	2,685	2,671	2,658	2,646	2,601	2,571	2,531	2,507	2,457	11	
12	2,637	2,617	2,599	2,583	2,568	2,555	2,544	2,498	2,466	2,426	2,401	2,350	12	
13	2,554	2,533	2,515	2,499	2,484	2,471	2,459	2,412	2,380	2,339	2,314	2,261	13	
14	2,484	2,463	2,445	2,428	2,413	2,400	2,388	2,341	2,308	2,266	2,241	2,187	14	
15	2,424	2,403	2,385	2,368	2,353	2,340	2,328	2,280	2,247	2,204	2,178	2,123	15	
16	2,373	2,352	2,334	2,317	2,302	2,288	2,276	2,227	2,194	2,151	2,124	2,069	16	
17	2,329	2,308	2,289	2,272	2,257	2,243	2,230	2,182	2,148	2,104	2,077	2,020	17	
18	2,290	2,269	2,250	2,233	2,217	2,203	2,191	2,141	2,107	2,063	2,035	1,978	18	
19	2,256	2,234	2,215	2,198	2,182	2,168	2,156	2,106	2,071	2,026	1,999	1,940	19	
20	2,225	2,203	2,184	2,167	2,151	2,137	2,124	2,074	2,039	1,994	1,966	1,907	20	
21	2,198	2,176	2,156	2,139	2,123	2,109	2,096	2,045	2,010	1,965	1,936	1,876	21	
22	2,173	2,151	2,131	2,114	2,098	2,084	2,071	2,020	1,984	1,938	1,909	1,849	22	
23	2,150	2,128	2,109	2,091	2,075	2,061	2,048	1,996	1,961	1,914	1,885	1,823	23	
24	2,130	2,108	2,088	2,070	2,054	2,040	2,027	1,975	1,939	1,892	1,863	1,801	24	
25	2,111	2,089	2,069	2,051	2,035	2,021	2,008	1,955	1,919	1,872	1,842	1,779	25	
26	2,094	2,072	2,052	2,034	2,018	2,003	1,990	1,938	1,901	1,853	1,823	1,760	26	
27	2,078	2,056	2,036	2,018	2,002	1,987	1,974	1,921	1,884	1,836	1,806	1,742	27	
28	2,064	2,041	2,021	2,003	1,987	1,972	1,959	1,906	1,869	1,820	1,790	1,725	28	
29	2,050	2,028	2,007	1,989	1,973	1,958	1,945	1,892	1,854	1,806	1,775	1,710	29	
30	2,037	2,015	1,995	1,977	1,960	1,945	1,932	1,878	1,841	1,792	1,761	1,695	30	
40	1,948	1,925	1,904	1,885	1,868	1,853	1,839	1,784	1,744	1,693	1,660	1,589	40	
50	1,895	1,871	1,850	1,831	1,814	1,799	1,784	1,727	1,687	1,634	1,600	1,525	50	
100	1,792	1,768	1,747	1,726	1,708	1,692	1,676	1,616	1,573	1,515	1,477	1,392	100	



## DISTRIBUIÇÃO F DE FISHER-SNEDECOR

$$P(F > F_{\alpha}) = 0,10$$

$\phi_2$	$\phi_1$												
	1	2	3	4	5	6	7	8	9	10	11	12	13
1	39,864	49,500	53,593	55,833	57,240	58,205	58,906	59,439	59,858	60,15	60,473	60,705	60,903
2	8,526	9,000	9,162	9,243	9,293	9,326	9,349	9,369	9,381	9,392	9,401	9,408	9,415
3	5,538	5,462	5,391	5,343	5,309	5,285	5,266	5,252	5,240	5,230	5,222	5,216	5,210
4	4,545	4,325	4,191	4,107	4,051	4,010	3,980	3,955	3,936	3,920	3,907	3,896	3,886
5	4,060	3,782	3,620	3,520	3,453	3,405	3,368	3,339	3,316	3,297	3,282	3,268	3,257
6	3,776	3,463	3,289	3,181	3,108	3,055	3,015	2,983	2,958	2,937	2,920	2,905	2,892
7	3,589	3,257	3,074	2,961	2,883	2,827	2,785	2,752	2,725	2,703	2,684	2,668	2,655
8	3,458	3,113	2,924	2,806	2,726	2,668	2,624	2,589	2,561	2,538	2,519	2,502	2,488
9	3,360	3,006	2,813	2,693	2,611	2,551	2,505	2,469	2,440	2,416	2,396	2,379	2,364
10	3,285	2,925	2,728	2,605	2,522	2,461	2,414	2,377	2,347	2,323	2,302	2,284	2,269
11	3,225	2,860	2,660	2,536	2,451	2,389	2,342	2,304	2,274	2,248	2,227	2,209	2,193
12	3,177	2,807	2,606	2,480	2,394	2,331	2,283	2,245	2,214	2,188	2,166	2,147	2,131
13	3,136	2,763	2,560	2,434	2,347	2,283	2,234	2,195	2,164	2,138	2,116	2,097	2,080
14	3,102	2,727	2,522	2,395	2,307	2,243	2,193	2,154	2,122	2,095	2,073	2,054	2,037
15	3,073	2,695	2,490	2,361	2,273	2,208	2,158	2,119	2,086	2,059	2,037	2,017	2,000
16	3,048	2,668	2,462	2,333	2,244	2,178	2,128	2,088	2,055	2,028	2,005	1,985	1,968
17	3,026	2,645	2,437	2,308	2,218	2,152	2,102	2,061	2,028	2,001	1,978	1,958	1,940
18	3,007	2,624	2,416	2,286	2,196	2,130	2,079	2,038	2,005	1,977	1,954	1,933	1,916
19	2,990	2,606	2,397	2,266	2,176	2,109	2,058	2,017	1,984	1,956	1,932	1,912	1,894
20	2,975	2,589	2,380	2,249	2,158	2,091	2,040	1,999	1,965	1,937	1,913	1,892	1,875
21	2,961	2,575	2,365	2,233	2,142	2,075	2,023	1,982	1,948	1,920	1,896	1,875	1,857
22	2,949	2,561	2,351	2,219	2,128	2,061	2,008	1,967	1,933	1,904	1,880	1,859	1,841
23	2,937	2,549	2,339	2,206	2,115	2,047	1,995	1,953	1,919	1,890	1,866	1,845	1,827
24	2,927	2,538	2,327	2,195	2,103	2,035	1,983	1,941	1,906	1,878	1,853	1,832	1,814
25	2,918	2,528	2,317	2,184	2,092	2,024	1,971	1,929	1,895	1,866	1,842	1,820	1,802
26	2,909	2,519	2,308	2,175	2,082	2,014	1,961	1,919	1,884	1,855	1,830	1,809	1,790
27	2,901	2,511	2,299	2,166	2,073	2,005	1,952	1,909	1,874	1,845	1,820	1,799	1,780
28	2,894	2,503	2,291	2,157	2,065	1,996	1,943	1,900	1,865	1,836	1,811	1,790	1,771
29	2,887	2,496	2,283	2,149	2,057	1,988	1,935	1,892	1,857	1,827	1,802	1,781	1,762
30	2,881	2,489	2,276	2,142	2,049	1,980	1,927	1,884	1,849	1,820	1,794	1,773	1,754
40	2,835	2,440	2,226	2,091	1,997	1,927	1,873	1,829	1,793	1,763	1,737	1,715	1,695
50	2,0809	2,412	2,197	2,061	1,966	1,895	1,841	1,796	1,760	1,729	1,703	1,680	1,660
100	2,756	2,356	2,139	2,002	1,906	1,834	1,778	1,732	1,695	1,927	1,636	1,612	1,592
$\phi_2$	14	15	16	17	18	19	20	25	30	40	50	100	$\phi_2$
1	61,07	61,22	61,35	61,46	61,57	61,66	61,74	62,06	62,27	62,53	62,69	63,01	1
2	9,420	9,425	9,429	9,433	9,436	9,439	9,441	9,451	9,458	9,466	9,471	9,481	2
3	5,205	5,200	5,196	5,193	5,190	5,187	5,185	5,175	5,168	5,160	5,155	5,144	3
4	3,878	3,870	3,864	3,858	3,853	3,849	3,844	3,828	3,817	3,804	3,795	3,778	4
5	3,247	3,238	3,230	3,223	3,217	3,212	3,207	3,17	3,174	3,157	3,147	3,126	5
6	2,881	2,871	2,863	2,855	2,848	2,842	2,836	2,815	2,800	2,781	2,770	2,746	6
7	2,643	2,632	2,623	2,615	2,607	2,601	2,595	2,571	2,556	2,535	2,523	2,497	7
8	2,475	2,464	2,455	2,446	2,438	2,431	2,425	2,400	2,383	2,361	2,348	2,321	8
9	2,351	2,340	2,330	2,321	2,312	2,305	2,298	2,273	2,255	2,232	2,218	2,190	9
10	2,255	2,244	2,233	2,224	2,215	2,208	2,201	2,174	2,155	2,132	2,117	2,087	10
11	2,179	2,167	2,156	2,147	2,138	2,130	2,123	2,095	2,076	2,052	2,036	2,005	11
12	2,117	2,105	2,094	2,084	2,075	2,067	2,060	2,031	2,012	1,986	1,970	1,938	12
13	2,066	2,053	2,042	2,032	2,023	2,015	2,007	1,978	1,958	1,932	1,915	1,882	13
14	1,965	1,972	1,961	1,950	1,941	1,932	1,924	1,894	1,873	1,845	1,828	1,793	14
15	1,985	1,972	1,961	1,950	1,941	1,932	1,924	1,894	1,873	1,845	1,828	1,793	15
16	1,953	1,940	1,928	1,918	1,908	1,899	1,891	1,860	1,839	1,811	1,793	1,757	16
17	1,925	1,912	1,900	1,889	1,879	1,870	1,862	1,831	1,809	1,781	1,763	1,726	17
18	1,900	1,887	1,875	1,864	1,854	1,845	1,837	1,805	1,783	1,754	1,736	1,698	18
19	1,879	1,865	1,852	1,841	1,831	1,822	1,814	1,782	1,759	1,730	1,711	1,673	19
20	1,859	1,845	1,833	1,821	1,811	1,802	1,794	1,761	1,738	1,708	1,690	1,650	20
21	1,841	1,827	1,815	1,803	1,793	1,784	1,776	1,742	1,719	1,689	1,670	1,630	21
22	1,825	1,811	1,798	1,787	1,777	1,768	1,759	1,726	1,702	1,671	1,652	1,611	22
23	1,811	1,796	1,784	1,772	1,762	1,753	1,744	1,710	1,686	1,655	1,636	1,594	23
24	1,797	1,783	1,770	1,759	1,748	1,739	1,730	1,696	1,672	1,641	1,621	1,579	24
25	1,785	1,771	1,758	1,746	1,736	1,726	1,718	1,683	1,659	1,627	1,607	1,565	25
26	1,774	1,760	1,747	1,735	1,724	1,715	1,706	1,671	1,647	1,615	1,595	1,551	26
27	1,764	1,749	1,736	1,724	1,714	1,704	1,700	1,665	1,641	1,603	1,583	1,539	27
28	1,754	1,740	1,726	1,715	1,704	1,694	1,685	1,650	1,625	1,593	1,572	1,528	28
29	1,745	1,731	1,717	1,706	1,695	1,685	1,676	1,641	1,616	1,583	1,562	1,527	29
30	1,737	1,722	1,709	1,697	1,686	1,676	1,667	1,632	1,607	1,573	1,552	1,507	30
40	1,678	1,662	1,649	1,636	1,623	1,615	1,605	1,568	1,541	1,506	1,483	1,434	40
50	1,643	1,627	1,613	1,600	1,588	1,578	1,568	1,529	1,502	1,465	1,441	1,389	50
100	1,573	1,557	1,542	1,528	1,516	1,505	1,494	1,453	1,423	1,382	1,355	1,293	100