Universidad de San Carlos de Guatemala
Facultad de Ingeniería
Área de Estadística
Coordinación

FORMULARIO DE ESTADÍSTICA 2

DISTRIBUCIONES MUESTRALES

1.	$Z = \frac{\bar{x} - \mu}{\sigma_{\bar{x}}}$
2.	$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$
3.	$t = \frac{\bar{x}-\mu}{S/\sqrt{n}}$; V = n-1
4.	$Z = \frac{\bar{p} - P}{\sigma_{\bar{p}}}$
5.	$\sigma_{\bar{p}} = \sqrt{P(1-P)/n}$
6.	$\mathcal{X}^2 = \frac{(n-1)S^2}{\sigma^2}$; V = n-1
7.	$z = \frac{(\overline{X_1} - \overline{X_2}) - d_o}{\sqrt{\frac{\sigma_1^{\,2}}{n_1} + \frac{\sigma_2^{\,2}}{n_2}}}$
8.	$t = \frac{(x_1 - x_2) - d_o}{Sp\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$ $\quad s^2 p = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^{\,2}}{n_1 + n_2 - 2}$ $V = n_1 + n_2 - 2$
9.	$t = \frac{(\overline{X_1} - \overline{X_2}) - d_o}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$ $\quad V = \frac{(S_1^2/n_1 + S_2^2/n_2)^2}{\frac{(S_1^2/n_1)^2}{n_1 - 1} + \frac{(S_2^2/n_2)^2}{n_2 - 1}}$
10.	$F = \frac{S_1^2/\sigma_1^2}{S_2^2/\sigma_2^2} = \frac{S_1^2\sigma_2^2}{S_2^2\sigma_1^2}$

ESTIMACION

11.	$\bar{X} \pm z_{\alpha/2}\sigma_{\bar{x}}$
12.	$\bar{X} \pm \frac{t_{\alpha/2}S}{\sqrt{n}}$; V = n-1
13.	$\bar{p} \pm z_{\alpha/2}\sqrt{\bar{p}(1-\bar{p})/n}$
14.	$\frac{(n-1)s^2}{\chi^2_{\alpha/2}} \leq \sigma^2 \leq \frac{(n-1)s^2}{\chi^2_{1-\alpha/2}}$; $V = n-1$
15.	$n = \left(\frac{z_{\alpha/2}\sigma}{E}\right)^2$
16.	$n = \bar{p}(1-\bar{p})\left(\frac{z_{\alpha/2}}{E}\right)^2$

PRUEBAS DE HIPÓTESIS

17.	μ, σ conocida o n≥30: $Z = \frac{\bar{x}-\mu}{\sigma_{\bar{x}}}$
18.	μ, σ desconocida y n<30: $t = \frac{\bar{x}-\mu}{S/\sqrt{n}}$; $V = n-1$
19.	P: $Z = \frac{\bar{p}-P}{\sigma_{\bar{p}}}$
20.	σ^2: $\mathcal{X}^2 = \frac{(n-1)S^2}{\sigma^2}$; V = n-1
21.	(μ1 - μ2), σ^1 y σ^2 conocidas: $z = \frac{(\overline{X_1} - \overline{X_2}) - d_o}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$
22.	(μ1 - μ2), ($\sigma^1 = \sigma^2$) desconocidas: $t = \frac{(x_1 - x_2) - d_o}{Sp\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$ $s^2 p = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$, $V = n_1 + n_2 - 2$
23.	(μ1 - μ2), ($\sigma^1 \neq \sigma^2$) desconocidas: $t = \frac{(\overline{X_1} - \overline{X_2}) - d_o}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$ $V = \frac{(S_1^2/n_1 + S_2^2/n_2)^2}{\frac{(S_1^2/n_1)^2}{n_1 - 1} + \frac{(S_2^2/n_2)^2}{n_2 - 1}}$

24.	$(P_1 - P_2) = 0$: $Z = \dfrac{\overline{p}_1 - \overline{p}_2}{\sqrt{\overline{p}(1-\overline{p})\left[\dfrac{1}{n_1} + \dfrac{1}{n_2}\right]}}$; $\overline{p} = \dfrac{n_1\overline{p}_1 + n_2\overline{p_2}}{n_1 + n_2}$
25.	$(P_1 - P_2) \neq 0$: $Z = \dfrac{\overline{p}_1 - \overline{p}_2 - d_o}{\sqrt{\dfrac{\overline{p}_1(1-\overline{p}_1)}{n_1} + \dfrac{\overline{p}_2(1-\overline{p}2)}{n_2}}}$
26.	Datos pareados: $t = \dfrac{\bar{d} - d_0}{S_d / \sqrt{n}}$; $\bar{d} = \sum d_i / n$; $s_d = \sqrt{\dfrac{\sum d_i^2 - (\sum d_i)^2 / n}{n-1}}$
27.	σ_1^2/σ_2^2 : $F = \frac{S_1^2}{S_2^2}$; $V_1 = n_1 - 1$; $V_2 = n_2 - 1$
28.	Pruebas especiales $\mathcal{X}^2$: $\mathcal{X}^2 = \sum_{i=1}^{k} \dfrac{(O_i - e_i)^2}{e_i}$

ANÁLISIS DE VARIANZA

DISEÑO COMPLETAMENTE ALEATORIZADO, IGUALDAD DE OBSERVACIONES

29.	$SST = \sum_{i=1}^{K}\sum_{j=1}^{n}(Y_{ij} - \bar{Y}..)^2 = \sum_{i=1}^{K}\sum_{j=1}^{n} Y^2ij - \dfrac{T^2..}{nK}$
30.	$SSA = n\sum_{i=1}^{K}(\bar{Y}_i - \bar{Y}..)^2 = \dfrac{\sum_{i=1}^{K} T_{i.}^2}{n} - \dfrac{T^2..}{nK}$
31.	$SSE = \sum_{i=1}^{K}\sum_{j=1}^{n}(Y_{ij} - \bar{Y}_{i.})^2 = SST - SSA$

Fuente de variación	Suma de cuadrados	Grados de libertad	Cuadrados medios	Calculada
Tratamientos	SSA	k-1	$S_1^2 = \dfrac{SSA}{(k-1)}$	$F = \frac{S_1^2}{S^2}$
Error	SSE	k(n-1)	$S^2 = \dfrac{SSE}{k(n-1)}$	
Total	SST	nk-1		

DISEÑO COMPLETAMENTE ALEATORIZADO, DESIGUALDAD DE OBSERVACIONES

32.	$SST = \sum_{i=1}^{K}\sum_{j=1}^{n}(Y_{ij} - \bar{Y}..)^2 = \sum_{i=1}^{K}\sum_{j=1}^{n}Y^2ij - \frac{T^2}{N}$
33.	$SSA = \sum_{i=1}^{K} n_i(\bar{Y}_i - \bar{Y}..)^2 = \frac{\sum_{i=1}^{K}T_{i.}^2}{n} - \frac{T^2..}{N}$
34.	$SSE = SST - SSA$

Fuente de variación	Suma de cuadrados	Grados de libertad	Cuadrados medios	Calculada
Tratamientos	SSA	k-1	$S_1^2 = \frac{SSA}{(K-1)}$	$F = \frac{S_1^2}{S^2}$
Error	SSE	N-k	$S^2 = \frac{SSE}{N-k}$	
Total	SST	N – 1		

DISEÑO DE BLOQUES COMPLETAMENTE ALEATORIOS

35.	$SST = \sum_{i=1}^{K}\sum_{j=1}^{n}(Y_{ij} - \bar{Y}..)^2 = \sum_{i=1}^{K}\sum_{j=1}^{n}Y^2ij - \frac{T^2..}{bK}$
36.	$SSA = b\sum_{i=1}^{K}(\bar{Y}_i - \bar{Y}..)^2 = \frac{\sum_{i=1}^{K}T_{i.}^2}{n} - \frac{T^2..}{bk}$
37.	$SSB = k\sum_{j=1}^{b}(\bar{Y}_j - \bar{Y}..)^2 = \frac{\sum_{j=1}^{b}T_{j.}^2}{K} - \frac{T^2..}{bK}$
38.	$SSE = SST - SSA - SSB$

Fuente de variación	Suma de cuadrados	Grados de libertad	Cuadrados medios	Calculada
Tratamientos	SSA	k-1	$S_1^2 = \frac{SSA}{(k-1)}$	$F_1 = \frac{S_1^2}{S^2}$
Bloques	SSB	b-1	$S_2^2 = \frac{SSB}{(b-1)}$	$F_2 = \frac{S_2^2}{S^2}$
Error	SSE	(k-1)(b-1)	$S^2 = \frac{SSE}{(b-1)(k-1)}$	
Total	SST	N-1		

39.	$\mu(Y) = \beta_0 + \beta_1 X_1 + ... + \beta_k X_k$, *con n observaciones*
40.	$\hat{\beta} = (X'X)^{-1} X'Y$
41.	$S^2 = \dfrac{SCE}{n-K-1}$
42.	$SCE = Y'Y - \beta'(X'Y)$
43.	$V(\hat{\beta}_i) = C_{ij}\sigma^2$
44.	$Cov(\hat{\beta}_i, \hat{\beta}_j) = C_{ij}\sigma^2$
45.	$\sigma^2 (X'X)^{-1} = \begin{vmatrix} v(\hat{\beta}_0) & Cov(\hat{\beta}_0, \hat{\beta}_1) & .. & Cov(\hat{\beta}_0, \hat{\beta}_K) \\ Cov(\hat{\beta}_1, \hat{\beta}_0) & v(\hat{\beta}_1) & .. & Cov(\hat{\beta}_1, \hat{\beta}_K) \\ . & . & .. & . \\ Cov(\hat{\beta}_K, \hat{\beta}_1) & Cov(\hat{\beta}_K, \hat{\beta}_1) & .. & v(\hat{\beta}_K) \end{vmatrix}$
46.	$r^2 = \dfrac{\hat{\beta}'(X'Y) - n\bar{Y}^2}{Y'Y - n\bar{Y}^2}$
47.	*Intervalo de confianza para β:* $\hat{\beta}_i \pm t_{(\alpha/2, n-k-1)} \sqrt{V(\hat{\beta}_i)}$
48.	*Intervalo de confianza para Y:* $\hat{Y} \pm t_{\alpha/2, n-K-1)} S \sqrt{a'(X'X)^{-1} a}$
49.	*Intervalo de predicción para Y:* $\hat{Y} \pm t_{\alpha/2, n-K-1)} S \sqrt{1 + a'(X'X)^{-1} a}$
50.	*Prueba de hipótesis:* $t = \dfrac{\hat{\beta}_i - \beta_{i0}}{\sqrt{V(\hat{\beta}_i)}}$

AREAS BAJO LA CURVA NORMAL

Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.50000	0.49601	0.49202	0.48803	0.48405	0.48006	0.47608	0.47210	0.46812	0.46414
-0.1	0.46017	0.45620	0.45224	0.44828	0.44433	0.44038	0.43644	0.43251	0.42858	0.42465
-0.2	0.42074	0.41683	0.41294	0.40905	0.40517	0.40129	0.39743	0.39358	0.38974	0.38591
-0.3	0.38209	0.37828	0.37448	0.37070	0.36693	0.36317	0.35942	0.35569	0.35197	0.34827
-0.4	0.34458	0.34090	0.33724	0.33360	0.32997	0.32636	0.32276	0.31918	0.31561	0.31207
-0.5	0.30854	0.30503	0.30153	0.29806	0.29460	0.29116	0.28774	0.28434	0.28096	0.27760
-0.6	0.27425	0.27093	0.26763	0.26435	0.26109	0.25785	0.25463	0.25143	0.24825	0.24510
-0.7	0.24196	0.23885	0.23576	0.23270	0.22965	0.22663	0.22363	0.22065	0.21770	0.21476
-0.8	0.21186	0.20897	0.20611	0.20327	0.20045	0.19766	0.19489	0.19215	0.18943	0.18673
-0.9	0.18406	0.18141	0.17879	0.17619	0.17361	0.17106	0.16853	0.16602	0.16354	0.16109
-1.0	0.15866	0.15625	0.15386	0.15151	0.14917	0.14686	0.14457	0.14231	0.14007	0.13786
-1.1	0.13567	0.13350	0.13136	0.12924	0.12714	0.12507	0.12302	0.12100	0.11900	0.11702
-1.2	0.11507	0.11314	0.11123	0.10935	0.10749	0.10565	0.10383	0.10204	0.10027	0.09853
-1.3	0.09680	0.09510	0.09342	0.09176	0.09012	0.08851	0.08691	0.08534	0.08379	0.08226
-1.4	0.08076	0.07927	0.07780	0.07636	0.07493	0.07353	0.07215	0.07078	0.06944	0.06811
-1.5	0.06681	0.06552	0.06426	0.06301	0.06178	0.06057	0.05938	0.05821	0.05705	0.05592
-1.6	0.05480	0.05370	0.05262	0.05155	0.05050	0.04947	0.04846	0.04746	0.04648	0.04551
-1.7	0.04457	0.04363	0.04272	0.04182	0.04093	0.04006	0.03920	0.03836	0.03754	0.03673
-1.8	0.03593	0.03515	0.03438	0.03362	0.03288	0.03216	0.03144	0.03074	0.03005	0.02938
-1.9	0.02872	0.02807	0.02743	0.02680	0.02619	0.02559	0.02500	0.02442	0.02385	0.02330
-2.0	0.02275	0.02222	0.02169	0.02118	0.02068	0.02018	0.01970	0.01923	0.01876	0.01831
-2.1	0.01786	0.01743	0.01700	0.01659	0.01618	0.01578	0.01539	0.01500	0.01463	0.01426
-2.2	0.01390	0.01355	0.01321	0.01287	0.01255	0.01222	0.01191	0.01160	0.01130	0.01101
-2.3	0.01072	0.01044	0.01017	0.00990	0.00964	0.00939	0.00914	0.00889	0.00866	0.00842
-2.4	0.00820	0.00798	0.00776	0.00755	0.00734	0.00714	0.00695	0.00676	0.00657	0.00639
-2.5	0.00621	0.00604	0.00587	0.00570	0.00554	0.00539	0.00523	0.00508	0.00494	0.00480
-2.6	0.00466	0.00453	0.00440	0.00427	0.00415	0.00402	0.00391	0.00379	0.00368	0.00357
-2.7	0.00347	0.00336	0.00326	0.00317	0.00307	0.00298	0.00289	0.00280	0.00272	0.00264
-2.8	0.00256	0.00248	0.00240	0.00233	0.00226	0.00219	0.00212	0.00205	0.00199	0.00193
-2.9	0.00187	0.00181	0.00175	0.00169	0.00164	0.00159	0.00154	0.00149	0.00144	0.00139
-3.0	0.00135	0.00131	0.00126	0.00122	0.00118	0.00114	0.00111	0.00107	0.00104	0.00100
-3.1	0.00097	0.00094	0.00090	0.00087	0.00084	0.00082	0.00079	0.00076	0.00074	0.00071
-3.2	0.00069	0.00066	0.00064	0.00062	0.00060	0.00058	0.00056	0.00054	0.00052	0.00050
-3.3	0.00048	0.00047	0.00045	0.00043	0.00042	0.00040	0.00039	0.00038	0.00036	0.00035
-3.4	0.00034	0.00032	0.00031	0.00030	0.00029	0.00028	0.00027	0.00026	0.00025	0.00024
-3.5	0.00023	0.00022	0.00022	0.00021	0.00020	0.00019	0.00019	0.00018	0.00017	0.00017
-3.6	0.00016	0.00015	0.00015	0.00014	0.00014	0.00013	0.00013	0.00012	0.00012	0.00011
-3.7	0.00011	0.00010	0.00010	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008
-3.8	0.00007	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00005	0.00005	0.00005
-3.9	0.00005	0.00005	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00003	0.00003
-4.0	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002

AREAS BAJO LA CURVA NORMAL

Z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.50000	0.50399	0.50798	0.51197	0.51595	0.51994	0.52392	0.52790	0.53188	0.53586
0.1	0.53983	0.54380	0.54776	0.55172	0.55567	0.55962	0.56356	0.56749	0.57142	0.57535
0.2	0.57926	0.58317	0.58706	0.59095	0.59483	0.59871	0.60257	0.60642	0.61026	0.61409
0.3	0.61791	0.62172	0.62552	0.62930	0.63307	0.63683	0.64058	0.64431	0.64803	0.65173
0.4	0.65542	0.65910	0.66276	0.66640	0.67003	0.67364	0.67724	0.68082	0.68439	0.68793
0.5	0.69146	0.69497	0.69847	0.70194	0.70540	0.70884	0.71226	0.71566	0.71904	0.72240
0.6	0.72575	0.72907	0.73237	0.73565	0.73891	0.74215	0.74537	0.74857	0.75175	0.75490
0.7	0.75804	0.76115	0.76424	0.76730	0.77035	0.77337	0.77637	0.77935	0.78230	0.78524
0.8	0.78814	0.79103	0.79389	0.79673	0.79955	0.80234	0.80511	0.80785	0.81057	0.81327
0.9	0.81594	0.81859	0.82121	0.82381	0.82639	0.82894	0.83147	0.83398	0.83646	0.83891
1.0	0.84134	0.84375	0.84614	0.84849	0.85083	0.85314	0.85543	0.85769	0.85993	0.86214
1.1	0.86433	0.86650	0.86864	0.87076	0.87286	0.87493	0.87698	0.87900	0.88100	0.88298
1.2	0.88493	0.88686	0.88877	0.89065	0.89251	0.89435	0.89617	0.89796	0.89973	0.90147
1.3	0.90320	0.90490	0.90658	0.90824	0.90988	0.91149	0.91309	0.91466	0.91621	0.91774
1.4	0.91924	0.92073	0.92220	0.92364	0.92507	0.92647	0.92785	0.92922	0.93056	0.93189
1.5	0.93319	0.93448	0.93574	0.93699	0.93822	0.93943	0.94062	0.94179	0.94295	0.94408
1.6	0.94520	0.94630	0.94738	0.94845	0.94950	0.95053	0.95154	0.95254	0.95352	0.95449
1.7	0.95543	0.95637	0.95728	0.95818	0.95907	0.95994	0.96080	0.96164	0.96246	0.96327
1.8	0.96407	0.96485	0.96562	0.96638	0.96712	0.96784	0.96856	0.96926	0.96995	0.97062
1.9	0.97128	0.97193	0.97257	0.97320	0.97381	0.97441	0.97500	0.97558	0.97615	0.97670
2.0	0.97725	0.97778	0.97831	0.97882	0.97932	0.97982	0.98030	0.98077	0.98124	0.98169
2.1	0.98214	0.98257	0.98300	0.98341	0.98382	0.98422	0.98461	0.98500	0.98537	0.98574
2.2	0.98610	0.98645	0.98679	0.98713	0.98745	0.98778	0.98809	0.98840	0.98870	0.98899
2.3	0.98928	0.98956	0.98983	0.99010	0.99036	0.99061	0.99086	0.99111	0.99134	0.99158
2.4	0.99180	0.99202	0.99224	0.99245	0.99266	0.99286	0.99305	0.99324	0.99343	0.99361
2.5	0.99379	0.99396	0.99413	0.99430	0.99446	0.99461	0.99477	0.99492	0.99506	0.99520
2.6	0.99534	0.99547	0.99560	0.99573	0.99585	0.99598	0.99609	0.99621	0.99632	0.99643
2.7	0.99653	0.99664	0.99674	0.99683	0.99693	0.99702	0.99711	0.99720	0.99728	0.99736
2.8	0.99744	0.99752	0.99760	0.99767	0.99774	0.99781	0.99788	0.99795	0.99801	0.99807
2.9	0.99813	0.99819	0.99825	0.99831	0.99836	0.99841	0.99846	0.99851	0.99856	0.99861
3.0	0.99865	0.99869	0.99874	0.99878	0.99882	0.99886	0.99889	0.99893	0.99896	0.99900
3.1	0.99903	0.99906	0.99910	0.99913	0.99916	0.99918	0.99921	0.99924	0.99926	0.99929
3.2	0.99931	0.99934	0.99936	0.99938	0.99940	0.99942	0.99944	0.99946	0.99948	0.99950
3.3	0.99952	0.99953	0.99955	0.99957	0.99958	0.99960	0.99961	0.99962	0.99964	0.99965
3.4	0.99966	0.99968	0.99969	0.99970	0.99971	0.99972	0.99973	0.99974	0.99975	0.99976
3.5	0.99977	0.99978	0.99978	0.99979	0.99980	0.99981	0.99981	0.99982	0.99983	0.99983
3.6	0.99984	0.99985	0.99985	0.99986	0.99986	0.99987	0.99987	0.99988	0.99988	0.99989
3.7	0.99989	0.99990	0.99990	0.99990	0.99991	0.99991	0.99992	0.99992	0.99992	0.99992
3.8	0.99993	0.99993	0.99993	0.99994	0.99994	0.99994	0.99994	0.99995	0.99995	0.99995
3.9	0.99995	0.99995	0.99996	0.99996	0.99996	0.99996	0.99996	0.99996	0.99997	0.99997
4.0	0.99997	0.99997	0.99997	0.99997	0.99997	0.99997	0.99998	0.99998	0.99998	0.99998

TABLA T-STUDENT

	α							
v	**0.45**	**0.4**	**0.35**	**0.3**	**0.25**	**0.2**	**0.15**	**0.1**
1	0.15840	0.32490	0.50950	0.72650	1.00000	1.37640	1.96260	3.07770
2	0.14210	0.28870	0.44470	0.61720	0.81650	1.06070	1.38620	1.88560
3	0.13660	0.27670	0.42420	0.58440	0.76490	0.97850	1.24980	1.63770
4	0.13380	0.27070	0.41420	0.56860	0.74070	0.94100	1.18960	1.53320
5	0.13220	0.26720	0.40820	0.55940	0.72670	0.91950	1.15580	1.47590
6	0.13110	0.26480	0.40430	0.55340	0.71760	0.90570	1.13420	1.43980
7	0.13030	0.26320	0.40150	0.54910	0.71110	0.89600	1.11920	1.41490
8	0.12970	0.26190	0.39950	0.54590	0.70640	0.88890	1.10810	1.39680
9	0.12930	0.26100	0.39790	0.54350	0.70270	0.88340	1.09970	1.38300
10	0.12890	0.26020	0.39660	0.54150	0.69980	0.87910	1.09310	1.37220
11	0.12860	0.25960	0.39560	0.53990	0.69740	0.87550	1.08770	1.36340
12	0.12830	0.25900	0.39470	0.53860	0.69550	0.87260	1.08320	1.35620
13	0.12810	0.25860	0.39400	0.53750	0.69380	0.87020	1.07950	1.35020
14	0.12800	0.25820	0.39330	0.53660	0.69240	0.86810	1.07630	1.34500
15	0.12780	0.25790	0.39280	0.53570	0.69120	0.86620	1.07350	1.34060
16	0.12770	0.25760	0.39230	0.53500	0.69010	0.86470	1.07110	1.33680
17	0.12760	0.25730	0.39190	0.53440	0.68920	0.86330	1.06900	1.33340
18	0.12740	0.25710	0.39150	0.53380	0.68840	0.86200	1.06720	1.33040
19	0.12740	0.25690	0.39120	0.53330	0.68760	0.86100	1.06550	1.32770
20	0.12730	0.25670	0.39090	0.53290	0.68700	0.86000	1.06400	1.32530
21	0.12720	0.25660	0.39060	0.53250	0.68640	0.85910	1.06270	1.32320
22	0.12710	0.25640	0.39040	0.53210	0.68580	0.85830	1.06140	1.32120
23	0.12710	0.25630	0.39020	0.53170	0.68530	0.85750	1.06030	1.31950
24	0.12700	0.25620	0.39000	0.53140	0.68480	0.85690	1.05930	1.31780
25	0.12690	0.25610	0.38980	0.53120	0.68440	0.85620	1.05840	1.31630
26	0.12690	0.25600	0.38960	0.53090	0.68400	0.85570	1.05750	1.31500
27	0.12680	0.25590	0.38940	0.53060	0.68370	0.85510	1.05670	1.31370
28	0.12680	0.25580	0.38930	0.53040	0.68340	0.85460	1.05600	1.31250
29	0.12680	0.25570	0.38920	0.53020	0.68300	0.85420	1.05530	1.31140
30	0.12670	0.25560	0.38900	0.53000	0.68280	0.85380	1.05470	1.31040
32	0.12670	0.25550	0.38880	0.52970	0.68220	0.85300	1.05350	1.30860
34	0.12660	0.25530	0.38860	0.52940	0.68180	0.85230	1.05250	1.30700
36	0.12660	0.25520	0.38840	0.52910	0.68140	0.85170	1.05160	1.30550
38	0.12650	0.25510	0.38820	0.52880	0.68100	0.85120	1.05080	1.30420
40	0.12650	0.25500	0.38810	0.52860	0.68070	0.85070	1.05000	1.30310
45	0.12640	0.25490	0.38780	0.52810	0.68000	0.84970	1.04850	1.30070
50	0.12630	0.25470	0.38750	0.52780	0.67940	0.84890	1.04730	1.29870
60	0.12620	0.25450	0.38720	0.52720	0.67860	0.84770	1.04550	1.29580
90	0.12600	0.25410	0.38660	0.52630	0.67720	0.84560	1.04240	1.29100
120	0.12590	0.25390	0.38620	0.52580	0.67650	0.84460	1.04090	1.28860
∞	0.12570	0.25330	0.38530	0.52440	0.67450	0.84160	1.03640	1.28160

TABLA T-STUDENT

	α							
v	**0.05**	**0.025**	**0.0125**	**0.01**	**0.005**	**0.0025**	**0.001**	**0.0005**
1	6.3137	12.7062	25.4519	31.8210	63.6559	127.3211	318.2888	636.5776
2	2.9200	4.3027	6.2054	6.9645	9.9250	14.0892	22.3285	31.5998
3	2.3534	3.1824	4.1765	4.5407	5.8408	7.4532	10.2143	12.9244
4	2.1318	2.7765	3.4954	3.7469	4.6041	5.5975	7.1729	8.6101
5	2.0150	2.5706	3.1634	3.3649	4.0321	4.7733	5.8935	6.8685
6	1.9432	2.4469	2.9687	3.1427	3.7074	4.3168	5.2075	5.9587
7	1.8946	2.3646	2.8412	2.9979	3.4995	4.0294	4.7853	5.4081
8	1.8595	2.3060	2.7515	2.8965	3.3554	3.8325	4.5008	5.0414
9	1.8331	2.2622	2.6850	2.8214	3.2498	3.6896	4.2969	4.7809
10	1.8125	2.2281	2.6338	2.7638	3.1693	3.5814	4.1437	4.5868
11	1.7959	2.2010	2.5931	2.7181	3.1058	3.4966	4.0248	4.4369
12	1.7823	2.1788	2.5600	2.6810	3.0545	3.4284	3.9296	4.3178
13	1.7709	2.1604	2.5326	2.6503	3.0123	3.3725	3.8520	4.2209
14	1.7613	2.1448	2.5096	2.6245	2.9768	3.3257	3.7874	4.1403
15	1.7531	2.1315	2.4899	2.6025	2.9467	3.2860	3.7329	4.0728
16	1.7459	2.1199	2.4729	2.5835	2.9208	3.2520	3.6861	4.0149
17	1.7396	2.1098	2.4581	2.5669	2.8982	3.2224	3.6458	3.9651
18	1.7341	2.1009	2.4450	2.5524	2.8784	3.1966	3.6105	3.9217
19	1.7291	2.0930	2.4334	2.5395	2.8609	3.1737	3.5793	3.8833
20	1.7247	2.0860	2.4231	2.5280	2.8453	3.1534	3.5518	3.8496
21	1.7207	2.0796	2.4138	2.5176	2.8314	3.1352	3.5271	3.8193
22	1.7171	2.0739	2.4055	2.5083	2.8188	3.1188	3.5050	3.7922
23	1.7139	2.0687	2.3979	2.4999	2.8073	3.1040	3.4850	3.7676
24	1.7109	2.0639	2.3910	2.4922	2.7970	3.0905	3.4668	3.7454
25	1.7081	2.0595	2.3846	2.4851	2.7874	3.0782	3.4502	3.7251
26	1.7056	2.0555	2.3788	2.4786	2.7787	3.0669	3.4350	3.7067
27	1.7033	2.0518	2.3734	2.4727	2.7707	3.0565	3.4210	3.6895
28	1.7011	2.0484	2.3685	2.4671	2.7633	3.0470	3.4082	3.6739
29	1.6991	2.0452	2.3638	2.4620	2.7564	3.0380	3.3963	3.6595
30	1.6973	2.0423	2.3596	2.4573	2.7500	3.0298	3.3852	3.6460
32	1.6939	2.0369	2.3518	2.4487	2.7385	3.0149	3.3653	3.6218
34	1.6909	2.0322	2.3451	2.4411	2.7284	3.0020	3.3480	3.6007
36	1.6883	2.0281	2.3391	2.4345	2.7195	2.9905	3.3326	3.5821
38	1.6860	2.0244	2.3337	2.4286	2.7116	2.9803	3.3190	3.5657
40	1.6839	2.0211	2.3289	2.4233	2.7045	2.9712	3.3069	3.5510
45	1.6794	2.0141	2.3189	2.4121	2.6896	2.9521	3.2815	3.5203
50	1.6759	2.0086	2.3109	2.4033	2.6778	2.9370	3.2614	3.4960
60	1.6706	2.0003	2.2990	2.3901	2.6603	2.9146	3.2317	3.4602
90	1.6620	1.9867	2.2795	2.3685	2.6316	2.8779	3.1832	3.4019
120	1.6576	1.9799	2.2699	2.3578	2.6174	2.8599	3.1595	3.3734
∞	1.6449	1.9600	2.2414	2.3264	2.5758	2.8070	3.0902	3.2905

TABLA CHI-CUADRADO

g.l.	0.995	0.99	0.975	0.95	0.90	0.10	0.05	0.025	0.01	0.005
1	---	---	0.001	0.004	0.016	2.706	3.841	5.024	6.635	7.879
2	0.010	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210	10.597
3	0.072	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345	12.838
4	0.207	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277	14.860
5	0.412	0.554	0.831	1.145	1.610	9.236	11.070	12.833	15.086	16.750
6	0.676	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812	18.548
7	0.989	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475	20.278
8	1.344	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090	21.955
9	1.735	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666	23.589
10	2.156	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209	25.188
11	2.603	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725	26.757
12	3.074	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217	28.300
13	3.565	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688	29.819
14	4.075	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141	31.319
15	4.601	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578	32.801
16	5.142	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000	34.267
17	5.697	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409	35.718
18	6.265	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805	37.156
19	6.844	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191	38.582
20	7.434	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566	39.997
21	8.034	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932	41.401
22	8.643	9.542	10.982	12.338	14.041	30.813	33.924	36.781	40.289	42.796
23	9.260	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638	44.181
24	9.886	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980	45.559
25	10.520	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314	46.928
26	11.160	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642	48.290
27	11.808	12.879	14.573	16.151	18.114	36.741	40.113	43.195	46.963	49.645
28	12.461	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278	50.993
29	13.121	14.256	16.047	17.708	19.768	39.087	42.557	45.722	49.588	52.336
30	13.787	14.953	16.791	18.493	20.599	40.256	43.773	46.979	50.892	53.672
40	20.707	22.164	24.433	26.509	29.051	51.805	55.758	59.342	63.691	66.766
50	27.991	29.707	32.357	34.764	37.689	63.167	67.505	71.420	76.154	79.490
60	35.534	37.485	40.482	43.188	46.459	74.397	79.082	83.298	88.379	91.952
70	43.275	45.442	48.758	51.739	55.329	85.527	90.531	95.023	100.425	104.215
80	51.172	53.540	57.153	60.391	64.278	96.578	101.879	106.629	112.329	116.321
90	59.196	61.754	65.647	69.126	73.291	107.565	113.145	118.136	124.116	128.299
100	67.328	70.065	74.222	77.929	82.358	118.498	124.342	129.561	135.807	140.169

Valores críticos de la distribución F de Fisher

α = 0.01

	V_1																		
V_2	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	inf
1	4052.18	4999.34	5403.53	5624.26	5763.96	5858.95	5928.33	5980.95	6022.40	6055.93	6106.68	6156.97	6208.66	6234.27	6260.35	6286.43	6312.97	6339.51	6365.59
2	98.50	99.00	99.16	99.25	99.30	99.33	99.36	99.38	99.39	99.40	99.42	99.43	99.45	99.46	99.47	99.48	99.48	99.49	99.50
3	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.34	27.23	27.05	26.87	26.69	26.60	26.50	26.41	26.32	26.22	26.13
4	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66	14.55	14.37	14.20	14.02	13.93	13.84	13.75	13.65	13.56	13.46
5	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16	10.05	9.89	9.72	9.55	9.47	9.38	9.29	9.20	9.11	9.02
6	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.72	7.56	7.40	7.31	7.23	7.14	7.06	6.97	6.88
7	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.47	6.31	6.16	6.07	5.99	5.91	5.82	5.74	5.65
8	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.67	5.52	5.36	5.28	5.20	5.12	5.03	4.95	4.86
9	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	5.11	4.96	4.81	4.73	4.65	4.57	4.48	4.40	4.31
10	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.71	4.56	4.41	4.33	4.25	4.17	4.08	4.00	3.91
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.40	4.25	4.10	4.02	3.94	3.86	3.78	3.69	3.60
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.16	4.01	3.86	3.78	3.70	3.62	3.54	3.45	3.36
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.96	3.82	3.66	3.59	3.51	3.43	3.34	3.25	3.17
14	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03	3.94	3.80	3.66	3.51	3.43	3.35	3.27	3.18	3.09	3.01
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.67	3.52	3.37	3.29	3.21	3.13	3.05	2.96	2.87
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.55	3.41	3.26	3.18	3.10	3.02	2.93	2.84	2.75
17	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.46	3.31	3.16	3.08	3.00	2.92	2.83	2.75	2.65
18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.37	3.23	3.08	3.00	2.92	2.84	2.75	2.66	2.57
19	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.30	3.15	3.00	2.92	2.84	2.76	2.67	2.58	2.49
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.23	3.09	2.94	2.86	2.78	2.69	2.61	2.52	2.42
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.17	3.03	2.88	2.80	2.72	2.64	2.55	2.46	2.36
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.12	2.98	2.83	2.75	2.67	2.58	2.50	2.40	2.31
23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.07	2.93	2.78	2.70	2.62	2.54	2.45	2.35	2.26
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.03	2.89	2.74	2.66	2.58	2.49	2.40	2.31	2.21
25	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22	3.13	2.99	2.85	2.70	2.62	2.54	2.45	2.36	2.27	2.17
26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18	3.09	2.96	2.81	2.66	2.58	2.50	2.42	2.33	2.23	2.13
27	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.15	3.06	2.93	2.78	2.63	2.55	2.47	2.38	2.29	2.20	2.10
28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12	3.03	2.90	2.75	2.60	2.52	2.44	2.35	2.26	2.17	2.07
29	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.09	3.00	2.87	2.73	2.57	2.49	2.41	2.33	2.23	2.14	2.04
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.84	2.70	2.55	2.47	2.39	2.30	2.21	2.11	2.01
31	7.53	5.36	4.48	3.99	3.67	3.45	3.28	3.15	3.04	2.96	2.82	2.68	2.52	2.45	2.36	2.27	2.18	2.09	1.98
32	7.50	5.34	4.46	3.97	3.65	3.43	3.26	3.13	3.02	2.93	2.80	2.65	2.50	2.42	2.34	2.25	2.16	2.06	1.96
33	7.47	5.31	4.44	3.95	3.63	3.41	3.24	3.11	3.00	2.91	2.78	2.63	2.48	2.40	2.32	2.23	2.14	2.04	1.93
34	7.44	5.29	4.42	3.93	3.61	3.39	3.22	3.09	2.98	2.89	2.76	2.61	2.46	2.38	2.30	2.21	2.12	2.02	1.91
35	7.42	5.27	4.40	3.91	3.59	3.37	3.20	3.07	2.96	2.88	2.74	2.60	2.44	2.36	2.28	2.19	2.10	2.00	1.89
36	7.40	5.25	4.38	3.89	3.57	3.35	3.18	3.05	2.95	2.86	2.72	2.58	2.43	2.35	2.26	2.18	2.08	1.98	1.87
37	7.37	5.23	4.36	3.87	3.56	3.33	3.17	3.04	2.93	2.84	2.71	2.56	2.41	2.33	2.25	2.16	2.06	1.96	1.86
38	7.35	5.21	4.34	3.86	3.54	3.32	3.15	3.02	2.92	2.83	2.69	2.55	2.40	2.32	2.23	2.14	2.05	1.95	1.84
39	7.33	5.19	4.33	3.84	3.53	3.30	3.14	3.01	2.90	2.81	2.68	2.54	2.38	2.30	2.22	2.13	2.03	1.93	1.82
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.66	2.52	2.37	2.29	2.20	2.11	2.02	1.92	1.81
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.50	2.35	2.20	2.12	2.03	1.94	1.84	1.73	1.60
100	6.90	4.82	3.98	3.51	3.21	2.99	2.82	2.69	2.59	2.50	2.37	2.22	2.07	1.98	1.89	1.80	1.69	1.57	1.43
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.34	2.19	2.03	1.95	1.86	1.76	1.66	1.53	1.38
inf	6.64	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.19	2.04	1.88	1.79	1.70	1.59	1.48	1.33	1.05

Valores críticos de la distribución F de Fisher

α = 0.025

	V_1																		
V_2	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	inf
1	647.79	799.48	864.15	899.60	921.83	937.11	948.20	956.64	963.28	968.63	976.72	984.87	993.08	997.27	1001.40	1005.60	1009.79	1014.04	1018.23
2	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.39	39.40	39.41	39.43	39.45	39.46	39.46	39.47	39.48	39.49	39.50
3	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47	14.42	14.34	14.25	14.17	14.12	14.08	14.04	13.99	13.95	13.90
4	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90	8.84	8.75	8.66	8.56	8.51	8.46	8.41	8.36	8.31	8.26
5	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62	6.52	6.43	6.33	6.28	6.23	6.18	6.12	6.07	6.02
6	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46	5.37	5.27	5.17	5.12	5.07	5.01	4.96	4.90	4.85
7	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82	4.76	4.67	4.57	4.47	4.41	4.36	4.31	4.25	4.20	4.14
8	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30	4.20	4.10	4.00	3.95	3.89	3.84	3.78	3.73	3.67
9	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03	3.96	3.87	3.77	3.67	3.61	3.56	3.51	3.45	3.39	3.33
10	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78	3.72	3.62	3.52	3.42	3.37	3.31	3.26	3.20	3.14	3.08
11	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59	3.53	3.43	3.33	3.23	3.17	3.12	3.06	3.00	2.94	2.88
12	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.28	3.18	3.07	3.02	2.96	2.91	2.85	2.79	2.73
13	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31	3.25	3.15	3.05	2.95	2.89	2.84	2.78	2.72	2.66	2.60
14	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21	3.15	3.05	2.95	2.84	2.79	2.73	2.67	2.61	2.55	2.49
15	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12	3.06	2.96	2.86	2.76	2.70	2.64	2.59	2.52	2.46	2.40
16	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.89	2.79	2.68	2.63	2.57	2.51	2.45	2.38	2.32
17	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.82	2.72	2.62	2.56	2.50	2.44	2.38	2.32	2.25
18	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.77	2.67	2.56	2.50	2.44	2.38	2.32	2.26	2.19
19	5.92	4.51	3.90	3.56	3.33	3.17	3.05	2.96	2.88	2.82	2.72	2.62	2.51	2.45	2.39	2.33	2.27	2.20	2.13
20	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.84	2.77	2.68	2.57	2.46	2.41	2.35	2.29	2.22	2.16	2.09
21	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.80	2.73	2.64	2.53	2.42	2.37	2.31	2.25	2.18	2.11	2.04
22	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76	2.70	2.60	2.50	2.39	2.33	2.27	2.21	2.14	2.08	2.00
23	5.75	4.35	3.75	3.41	3.18	3.02	2.90	2.81	2.73	2.67	2.57	2.47	2.36	2.30	2.24	2.18	2.11	2.04	1.97
24	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.70	2.64	2.54	2.44	2.33	2.27	2.21	2.15	2.08	2.01	1.94
25	5.69	4.29	3.69	3.35	3.13	2.97	2.85	2.75	2.68	2.61	2.51	2.41	2.30	2.24	2.18	2.12	2.05	1.98	1.91
26	5.66	4.27	3.67	3.33	3.10	2.94	2.82	2.73	2.65	2.59	2.49	2.39	2.28	2.22	2.16	2.09	2.03	1.95	1.88
27	5.63	4.24	3.65	3.31	3.08	2.92	2.80	2.71	2.63	2.57	2.47	2.36	2.25	2.19	2.13	2.07	2.00	1.93	1.85
28	5.61	4.22	3.63	3.29	3.06	2.90	2.78	2.69	2.61	2.55	2.45	2.34	2.23	2.17	2.11	2.05	1.98	1.91	1.83
29	5.59	4.20	3.61	3.27	3.04	2.88	2.76	2.67	2.59	2.53	2.43	2.32	2.21	2.15	2.09	2.03	1.96	1.89	1.81
30	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57	2.51	2.41	2.31	2.20	2.14	2.07	2.01	1.94	1.87	1.79
31	5.55	4.16	3.57	3.23	3.01	2.85	2.73	2.64	2.56	2.50	2.40	2.29	2.18	2.12	2.06	1.99	1.92	1.85	1.77
32	5.53	4.15	3.56	3.22	3.00	2.84	2.71	2.62	2.54	2.48	2.38	2.28	2.16	2.10	2.04	1.98	1.91	1.83	1.75
33	5.51	4.13	3.54	3.20	2.98	2.82	2.70	2.61	2.53	2.47	2.37	2.26	2.15	2.09	2.03	1.96	1.89	1.81	1.73
34	5.50	4.12	3.53	3.19	2.97	2.81	2.69	2.59	2.52	2.45	2.35	2.25	2.13	2.07	2.01	1.95	1.88	1.80	1.72
35	5.48	4.11	3.52	3.18	2.96	2.80	2.68	2.58	2.50	2.44	2.34	2.23	2.12	2.06	2.00	1.93	1.86	1.79	1.70
36	5.47	4.09	3.50	3.17	2.94	2.78	2.66	2.57	2.49	2.43	2.33	2.22	2.11	2.05	1.99	1.92	1.85	1.77	1.69
37	5.46	4.08	3.49	3.16	2.93	2.77	2.65	2.56	2.48	2.42	2.32	2.21	2.10	2.04	1.97	1.91	1.84	1.76	1.67
38	5.45	4.07	3.48	3.15	2.92	2.76	2.64	2.55	2.47	2.41	2.31	2.20	2.09	2.03	1.96	1.90	1.82	1.75	1.66
39	5.43	4.06	3.47	3.14	2.91	2.75	2.63	2.54	2.46	2.40	2.30	2.19	2.08	2.02	1.95	1.89	1.81	1.74	1.65
40	5.42	4.05	3.46	3.13	2.90	2.74	2.62	2.53	2.45	2.39	2.29	2.18	2.07	2.01	1.94	1.88	1.80	1.72	1.64
60	5.29	3.93	3.34	3.01	2.79	2.63	2.51	2.41	2.33	2.27	2.17	2.06	1.94	1.88	1.82	1.74	1.67	1.58	1.48
100	5.18	3.83	3.25	2.92	2.70	2.54	2.42	2.32	2.24	2.18	2.08	1.97	1.85	1.78	1.71	1.64	1.56	1.46	1.35
120	5.15	3.80	3.23	2.89	2.67	2.52	2.39	2.30	2.22	2.16	2.05	1.94	1.82	1.76	1.69	1.61	1.53	1.43	1.31
inf	5.03	3.69	3.12	2.79	2.57	2.41	2.29	2.19	2.11	2.05	1.95	1.83	1.71	1.64	1.57	1.49	1.39	1.27	1.04

Valores críticos de la distribución F de Fisher

α = 0.05

	V_1																		
V_2	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	inf
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54	241.88	243.90	245.95	248.02	249.05	250.10	251.14	252.20	253.25	254.30
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.41	19.43	19.45	19.45	19.46	19.47	19.48	19.49	19.50
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.74	8.70	8.66	8.64	8.62	8.59	8.57	8.55	8.53
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.91	5.86	5.80	5.77	5.75	5.72	5.69	5.66	5.63
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.68	4.62	4.56	4.53	4.50	4.46	4.43	4.40	4.37
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.00	3.94	3.87	3.84	3.81	3.77	3.74	3.70	3.67
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.57	3.51	3.44	3.41	3.38	3.34	3.30	3.27	3.23
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.28	3.22	3.15	3.12	3.08	3.04	3.01	2.97	2.93
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.07	3.01	2.94	2.90	2.86	2.83	2.79	2.75	2.71
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.91	2.85	2.77	2.74	2.70	2.66	2.62	2.58	2.54
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.79	2.72	2.65	2.61	2.57	2.53	2.49	2.45	2.41
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.69	2.62	2.54	2.51	2.47	2.43	2.38	2.34	2.30
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.60	2.53	2.46	2.42	2.38	2.34	2.30	2.25	2.21
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.53	2.46	2.39	2.35	2.31	2.27	2.22	2.18	2.13
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.48	2.40	2.33	2.29	2.25	2.20	2.16	2.11	2.07
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.42	2.35	2.28	2.24	2.19	2.15	2.11	2.06	2.01
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.38	2.31	2.23	2.19	2.15	2.10	2.06	2.01	1.96
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.34	2.27	2.19	2.15	2.11	2.06	2.02	1.97	1.92
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.31	2.23	2.16	2.11	2.07	2.03	1.98	1.93	1.88
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.28	2.20	2.12	2.08	2.04	1.99	1.95	1.90	1.84
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.25	2.18	2.10	2.05	2.01	1.96	1.92	1.87	1.81
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.23	2.15	2.07	2.03	1.98	1.94	1.89	1.84	1.78
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.20	2.13	2.05	2.01	1.96	1.91	1.86	1.81	1.76
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.18	2.11	2.03	1.98	1.94	1.89	1.84	1.79	1.73
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.16	2.09	2.01	1.96	1.92	1.87	1.82	1.77	1.71
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.15	2.07	1.99	1.95	1.90	1.85	1.80	1.75	1.69
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20	2.13	2.06	1.97	1.93	1.88	1.84	1.79	1.73	1.67
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19	2.12	2.04	1.96	1.91	1.87	1.82	1.77	1.71	1.65
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18	2.10	2.03	1.94	1.90	1.85	1.81	1.75	1.70	1.64
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.09	2.01	1.93	1.89	1.84	1.79	1.74	1.68	1.62
31	4.16	3.30	2.91	2.68	2.52	2.41	2.32	2.25	2.20	2.15	2.08	2.00	1.92	1.88	1.83	1.78	1.73	1.67	1.61
32	4.15	3.29	2.90	2.67	2.51	2.40	2.31	2.24	2.19	2.14	2.07	1.99	1.91	1.86	1.82	1.77	1.71	1.66	1.60
33	4.14	3.28	2.89	2.66	2.50	2.39	2.30	2.23	2.18	2.13	2.06	1.98	1.90	1.85	1.81	1.76	1.70	1.64	1.58
34	4.13	3.28	2.88	2.65	2.49	2.38	2.29	2.23	2.17	2.12	2.05	1.97	1.89	1.84	1.80	1.75	1.69	1.63	1.57
35	4.12	3.27	2.87	2.64	2.49	2.37	2.29	2.22	2.16	2.11	2.04	1.96	1.88	1.83	1.79	1.74	1.68	1.62	1.56
36	4.11	3.26	2.87	2.63	2.48	2.36	2.28	2.21	2.15	2.11	2.03	1.95	1.87	1.82	1.78	1.73	1.67	1.61	1.55
37	4.11	3.25	2.86	2.63	2.47	2.36	2.27	2.20	2.14	2.10	2.02	1.95	1.86	1.82	1.77	1.72	1.66	1.60	1.54
38	4.10	3.24	2.85	2.62	2.46	2.35	2.26	2.19	2.14	2.09	2.02	1.94	1.85	1.81	1.76	1.71	1.65	1.59	1.53
39	4.09	3.24	2.85	2.61	2.46	2.34	2.26	2.19	2.13	2.08	2.01	1.93	1.85	1.80	1.75	1.70	1.65	1.58	1.52
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.00	1.92	1.84	1.79	1.74	1.69	1.64	1.58	1.51
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.92	1.84	1.75	1.70	1.65	1.59	1.53	1.47	1.39
100	3.94	3.09	2.70	2.46	2.31	2.19	2.10	2.03	1.97	1.93	1.85	1.77	1.68	1.63	1.57	1.52	1.45	1.38	1.28
120	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.96	1.91	1.83	1.75	1.66	1.61	1.55	1.50	1.43	1.35	1.26
inf	3.84	3.00	2.61	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.75	1.67	1.57	1.52	1.46	1.40	1.32	1.22	1.03

Valores críticos de la distribución F de Fisher

α = 0.10

	V_1																		
V_2	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	inf
1	39.86	49.50	53.59	55.83	57.24	58.20	58.91	59.44	59.86	60.19	60.71	61.22	61.74	62.00	62.26	62.53	62.79	63.06	63.32
2	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38	9.39	9.41	9.42	9.44	9.45	9.46	9.47	9.47	9.48	9.49
3	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24	5.23	5.22	5.20	5.18	5.18	5.17	5.16	5.15	5.14	5.13
4	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94	3.92	3.90	3.87	3.84	3.83	3.82	3.80	3.79	3.78	3.76
5	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32	3.30	3.27	3.24	3.21	3.19	3.17	3.16	3.14	3.12	3.11
6	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96	2.94	2.90	2.87	2.84	2.82	2.80	2.78	2.76	2.74	2.72
7	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72	2.70	2.67	2.63	2.59	2.58	2.56	2.54	2.51	2.49	2.47
8	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56	2.54	2.50	2.46	2.42	2.40	2.38	2.36	2.34	2.32	2.29
9	3.36	3.01	2.81	2.69	2.61	2.55	2.51	2.47	2.44	2.42	2.38	2.34	2.30	2.28	2.25	2.23	2.21	2.18	2.16
10	3.29	2.92	2.73	2.61	2.52	2.46	2.41	2.38	2.35	2.32	2.28	2.24	2.20	2.18	2.16	2.13	2.11	2.08	2.06
11	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.30	2.27	2.25	2.21	2.17	2.12	2.10	2.08	2.05	2.03	2.00	1.97
12	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21	2.19	2.15	2.10	2.06	2.04	2.01	1.99	1.96	1.93	1.90
13	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.20	2.16	2.14	2.10	2.05	2.01	1.98	1.96	1.93	1.90	1.88	1.85
14	3.10	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.12	2.10	2.05	2.01	1.96	1.94	1.91	1.89	1.86	1.83	1.80
15	3.07	2.70	2.49	2.36	2.27	2.21	2.16	2.12	2.09	2.06	2.02	1.97	1.92	1.90	1.87	1.85	1.82	1.79	1.76
16	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06	2.03	1.99	1.94	1.89	1.87	1.84	1.81	1.78	1.75	1.72
17	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03	2.00	1.96	1.91	1.86	1.84	1.81	1.78	1.75	1.72	1.69
18	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00	1.98	1.93	1.89	1.84	1.81	1.78	1.75	1.72	1.69	1.66
19	2.99	2.61	2.40	2.27	2.18	2.11	2.06	2.02	1.98	1.96	1.91	1.86	1.81	1.79	1.76	1.73	1.70	1.67	1.63
20	2.97	2.59	2.38	2.25	2.16	2.09	2.04	2.00	1.96	1.94	1.89	1.84	1.79	1.77	1.74	1.71	1.68	1.64	1.61
21	2.96	2.57	2.36	2.23	2.14	2.08	2.02	1.98	1.95	1.92	1.87	1.83	1.78	1.75	1.72	1.69	1.66	1.62	1.59
22	2.95	2.56	2.35	2.22	2.13	2.06	2.01	1.97	1.93	1.90	1.86	1.81	1.76	1.73	1.70	1.67	1.64	1.60	1.57
23	2.94	2.55	2.34	2.21	2.11	2.05	1.99	1.95	1.92	1.89	1.84	1.80	1.74	1.72	1.69	1.66	1.62	1.59	1.55
24	2.93	2.54	2.33	2.19	2.10	2.04	1.98	1.94	1.91	1.88	1.83	1.78	1.73	1.70	1.67	1.64	1.61	1.57	1.53
25	2.92	2.53	2.32	2.18	2.09	2.02	1.97	1.93	1.89	1.87	1.82	1.77	1.72	1.69	1.66	1.63	1.59	1.56	1.52
26	2.91	2.52	2.31	2.17	2.08	2.01	1.96	1.92	1.88	1.86	1.81	1.76	1.71	1.68	1.65	1.61	1.58	1.54	1.50
27	2.90	2.51	2.30	2.17	2.07	2.00	1.95	1.91	1.87	1.85	1.80	1.75	1.70	1.67	1.64	1.60	1.57	1.53	1.49
28	2.89	2.50	2.29	2.16	2.06	2.00	1.94	1.90	1.87	1.84	1.79	1.74	1.69	1.66	1.63	1.59	1.56	1.52	1.48
29	2.89	2.50	2.28	2.15	2.06	1.99	1.93	1.89	1.86	1.83	1.78	1.73	1.68	1.65	1.62	1.58	1.55	1.51	1.47
30	2.88	2.49	2.28	2.14	2.05	1.98	1.93	1.88	1.85	1.82	1.77	1.72	1.67	1.64	1.61	1.57	1.54	1.50	1.46
31	2.87	2.48	2.27	2.14	2.04	1.97	1.92	1.88	1.84	1.81	1.77	1.71	1.66	1.63	1.60	1.56	1.53	1.49	1.45
32	2.87	2.48	2.26	2.13	2.04	1.97	1.91	1.87	1.83	1.81	1.76	1.71	1.65	1.62	1.59	1.56	1.52	1.48	1.44
33	2.86	2.47	2.26	2.12	2.03	1.96	1.91	1.86	1.83	1.80	1.75	1.70	1.64	1.61	1.58	1.55	1.51	1.47	1.43
34	2.86	2.47	2.25	2.12	2.02	1.96	1.90	1.86	1.82	1.79	1.75	1.69	1.64	1.61	1.58	1.54	1.50	1.46	1.42
35	2.85	2.46	2.25	2.11	2.02	1.95	1.90	1.85	1.82	1.79	1.74	1.69	1.63	1.60	1.57	1.53	1.50	1.46	1.41
36	2.85	2.46	2.24	2.11	2.01	1.94	1.89	1.85	1.81	1.78	1.73	1.68	1.63	1.60	1.56	1.53	1.49	1.45	1.40
37	2.85	2.45	2.24	2.10	2.01	1.94	1.89	1.84	1.81	1.78	1.73	1.68	1.62	1.59	1.56	1.52	1.48	1.44	1.40
38	2.84	2.45	2.23	2.10	2.01	1.94	1.88	1.84	1.80	1.77	1.72	1.67	1.61	1.58	1.55	1.52	1.48	1.44	1.39
39	2.84	2.44	2.23	2.09	2.00	1.93	1.88	1.83	1.80	1.77	1.72	1.67	1.61	1.58	1.55	1.51	1.47	1.43	1.38
40	2.84	2.44	2.23	2.09	2.00	1.93	1.87	1.83	1.79	1.76	1.71	1.66	1.61	1.57	1.54	1.51	1.47	1.42	1.38
60	2.79	2.39	2.18	2.04	1.95	1.87	1.82	1.77	1.74	1.71	1.66	1.60	1.54	1.51	1.48	1.44	1.40	1.35	1.29
100	2.76	2.36	2.14	2.00	1.91	1.83	1.78	1.73	1.69	1.66	1.61	1.56	1.49	1.46	1.42	1.38	1.34	1.28	1.22
120	2.75	2.35	2.13	1.99	1.90	1.82	1.77	1.72	1.68	1.65	1.60	1.55	1.48	1.45	1.41	1.37	1.32	1.26	1.19
inf	2.71	2.30	2.08	1.95	1.85	1.77	1.72	1.67	1.63	1.60	1.55	1.49	1.42	1.38	1.34	1.30	1.24	1.17	1.03