

جدول التوزيع الطبيعي المعياري (القيم السالبة)

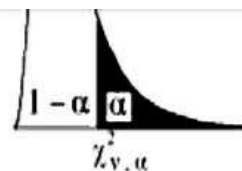
z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-0	.50000	.49601	.49202	.48803	.48405	.48006	.47608	.47210	.46812	.46414
-0.1	.46017	.45620	.45224	.44828	.44433	.44034	.43640	.43251	.42858	.42465
-0.2	.42074	.41683	.41294	.40905	.40517	.40129	.39743	.39358	.38974	.38591
-0.3	.38209	.37828	.37448	.37070	.36693	.36317	.35942	.35569	.35197	.34827
-0.4	.34458	.34090	.33724	.33360	.32997	.32636	.32276	.31918	.31561	.31207
-0.5	.30854	.30503	.30153	.29806	.29460	.29116	.28774	.28434	.28096	.27760
-0.6	.27425	.27093	.26763	.26435	.26109	.25785	.25463	.25143	.24825	.24510
-0.7	.24196	.23885	.23576	.23270	.22965	.22663	.22363	.22065	.21770	.21476
-0.8	.21186	.20897	.20611	.20327	.20045	.19766	.19489	.19215	.18943	.18673
-0.9	.18406	.18141	.17879	.17619	.17361	.17106	.16853	.16602	.16354	.16109
-1	.15866	.15625	.15386	.15151	.14917	.14686	.14457	.14231	.14007	.13786
-1.1	.13567	.13350	.13136	.12924	.12714	.12507	.12302	.12100	.11900	.11702
-1.2	.11507	.11314	.11123	.10935	.10749	.10565	.10383	.10204	.10027	.09853
-1.3	.09680	.09510	.09342	.09176	.09012	.08851	.08692	.08534	.08379	.08226
-1.4	.08076	.07927	.07780	.07636	.07493	.07353	.07215	.07078	.06944	.06811
-1.5	.06681	.06552	.06426	.06301	.06178	.06057	.05938	.05821	.05705	.05592
-1.6	.05480	.05370	.05262	.05155	.05050	.04947	.04846	.04746	.04648	.04551
-1.7	.04457	.04363	.04272	.04182	.04093	.04006	.03920	.03836	.03754	.03673
-1.8	.03593	.03515	.03438	.03362	.03288	.03216	.03144	.03074	.03005	.02938
-1.9	.02872	.02807	.02743	.02680	.02619	.02559	.02500	.02442	.02385	.02330
-2	.02275	.02222	.02169	.02118	.02068	.02018	.01970	.01923	.01876	.01831
-2.1	.01786	.01743	.01700	.01659	.01618	.01578	.01539	.01500	.01463	.01426
-2.2	.01390	.01355	.01321	.01287	.01255	.01222	.01191	.01160	.01130	.01101
-2.3	.01072	.01044	.01017	.00990	.00964	.00939	.00914	.00889	.00866	.00842
-2.4	.00820	.00798	.00776	.00755	.00734	.00714	.00695	.00676	.00657	.00639
-2.5	.00621	.00604	.00587	.00570	.00554	.00539	.00523	.00508	.00494	.00480
-2.6	.00466	.00453	.00440	.00427	.00415	.00402	.00391	.00379	.00368	.00357
-2.7	.00347	.00336	.00326	.00317	.00307	.00298	.00289	.00280	.00272	.00264
-2.8	.00256	.00248	.00240	.00233	.00226	.00219	.00212	.00205	.00199	.00193
-2.9	.00187	.00181	.00175	.00169	.00164	.00159	.00154	.00149	.00144	.00139
-3	.00135	.00131	.00126	.00122	.00118	.00114	.00111	.00107	.00104	.00100
-3.1	.00097	.00094	.00090	.00087	.00084	.00082	.00079	.00076	.00074	.00071
-3.2	.00069	.00066	.00064	.00062	.00060	.00058	.00056	.00054	.00052	.00050
-3.3	.00048	.00047	.00045	.00043	.00042	.00040	.00039	.00038	.00036	.00035
-3.4	.00034	.00032	.00031	.00030	.00029	.00028	.00027	.00026	.00025	.00024
-3.5	.00023	.00022	.00022	.00021	.00020	.00019	.00019	.00018	.00017	.00017
-3.6	.00016	.00015	.00015	.00014	.00014	.00013	.00013	.00012	.00012	.00011
-3.7	.00011	.00010	.00010	.00010	.00009	.00009	.00008	.00008	.00008	.00008
-3.8	.00007	.00007	.00007	.00006	.00006	.00006	.00006	.00005	.00005	.00005
-3.9	.00005	.00005	.00004	.00004	.00004	.00004	.00004	.00004	.00003	.00003
-4	.00003	.00003	.00003	.00003	.00003	.00003	.00002	.00002	.00002	.00002

جدول التوزيع الطبيعي المعياري (القيم الموجبة)

z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
+0	.50000	.50399	.50798	.51197	.51595	.51994	.52392	.52790	.53188	.53586
+0.1	.53983	.54380	.54776	.55172	.55567	.55966	.56360	.56749	.57142	.57535
+0.2	.57926	.58317	.58706	.59095	.59483	.59871	.60257	.60642	.61026	.61409
+0.3	.61791	.62172	.62552	.62930	.63307	.63683	.64058	.64431	.64803	.65173
+0.4	.65542	.65910	.66276	.66640	.67003	.67364	.67724	.68082	.68439	.68793
+0.5	.69146	.69497	.69847	.70194	.70540	.70884	.71226	.71566	.71904	.72240
+0.6	.72575	.72907	.73237	.73565	.73891	.74215	.74537	.74857	.75175	.75490
+0.7	.75804	.76115	.76424	.76730	.77035	.77337	.77637	.77935	.78230	.78524
+0.8	.78814	.79103	.79389	.79673	.79955	.80234	.80511	.80785	.81057	.81327
+0.9	.81594	.81859	.82121	.82381	.82639	.82894	.83147	.83398	.83646	.83891
+1	.84134	.84375	.84614	.84849	.85083	.85314	.85543	.85769	.85993	.86214
+1.1	.86433	.86650	.86864	.87076	.87286	.87493	.87698	.87900	.88100	.88298
+1.2	.88493	.88686	.88877	.89065	.89251	.89435	.89617	.89796	.89973	.90147
+1.3	.90320	.90490	.90658	.90824	.90988	.91149	.91308	.91466	.91621	.91774
+1.4	.91924	.92073	.92220	.92364	.92507	.92647	.92785	.92922	.93056	.93189
+1.5	.93319	.93448	.93574	.93699	.93822	.93943	.94062	.94179	.94295	.94408
+1.6	.94520	.94630	.94738	.94845	.94950	.95053	.95154	.95254	.95352	.95449
+1.7	.95543	.95637	.95728	.95818	.95907	.95994	.96080	.96164	.96246	.96327
+1.8	.96407	.96485	.96562	.96638	.96712	.96784	.96856	.96926	.96995	.97062
+1.9	.97128	.97193	.97257	.97320	.97381	.97441	.97500	.97558	.97615	.97670
+2	.97725	.97778	.97831	.97882	.97932	.97982	.98030	.98077	.98124	.98169
+2.1	.98214	.98257	.98300	.98341	.98382	.98422	.98461	.98500	.98537	.98574
+2.2	.98610	.98645	.98679	.98713	.98745	.98778	.98809	.98840	.98870	.98899
+2.3	.98928	.98956	.98983	.99010	.99036	.99061	.99086	.99111	.99134	.99158
+2.4	.99180	.99202	.99224	.99245	.99266	.99286	.99305	.99324	.99343	.99361
+2.5	.99379	.99396	.99413	.99430	.99446	.99461	.99477	.99492	.99506	.99520
+2.6	.99534	.99547	.99560	.99573	.99585	.99598	.99609	.99621	.99632	.99643
+2.7	.99653	.99664	.99674	.99683	.99693	.99702	.99711	.99720	.99728	.99736
+2.8	.99744	.99752	.99760	.99767	.99774	.99781	.99788	.99795	.99801	.99807
+2.9	.99813	.99819	.99825	.99831	.99836	.99841	.99846	.99851	.99856	.99861
+3	.99865	.99869	.99874	.99878	.99882	.99886	.99889	.99893	.99896	.99900
+3.1	.99903	.99906	.99910	.99913	.99916	.99918	.99921	.99924	.99926	.99929
+3.2	.99931	.99934	.99936	.99938	.99940	.99942	.99944	.99946	.99948	.99950
+3.3	.99952	.99953	.99955	.99957	.99958	.99960	.99961	.99962	.99964	.99965
+3.4	.99966	.99968	.99969	.99970	.99971	.99972	.99973	.99974	.99975	.99976
+3.5	.99977	.99978	.99978	.99979	.99980	.99981	.99981	.99982	.99983	.99983
+3.6	.99984	.99985	.99985	.99986	.99986	.99987	.99987	.99988	.99988	.99989
+3.7	.99989	.99990	.99990	.99990	.99991	.99991	.99992	.99992	.99992	.99992
+3.8	.99993	.99993	.99993	.99994	.99994	.99994	.99994	.99995	.99995	.99995
+3.9	.99995	.99995	.99996	.99996	.99996	.99996	.99996	.99996	.99997	.99997
+4	.99997	.99997	.99997	.99997	.99997	.99997	.99998	.99998	.99998	.99998

Percentage Points of the χ^2 Distribution; $\chi^2_{v,\alpha}$

$$P(\chi^2 > \chi^2_{v,\alpha}) = \alpha$$



	α														
v	0.001	0.005	0.010	0.025	0.050	0.100	0.250	0.500	0.750	0.900	0.950	0.975	0.990	0.995	0.999
1	10.83	7.88	6.63	5.02	3.84	2.71	1.32	0.45	0.10	0.02					
2	13.82	10.60	9.21	7.38	5.99	4.61	2.77	1.39	0.58	0.21	0.10	0.05	0.02	0.01	
3	16.27	12.84	11.34	9.35	7.81	6.25	4.11	2.37	1.21	0.58	0.35	0.22	0.11	0.07	0.02
4	18.47	14.86	13.28	11.14	9.49	7.78	5.39	3.36	1.92	1.06	0.71	0.48	0.30	0.21	0.09
5	20.52	16.75	15.09	12.83	11.07	9.24	6.63	4.35	2.67	1.61	1.15	0.83	0.55	0.41	0.21
6	22.46	18.55	16.81	14.45	12.59	10.64	7.84	5.35	3.45	2.20	1.64	1.24	0.87	0.68	0.38
7	24.32	20.28	18.48	16.01	14.07	12.02	9.04	6.35	4.25	2.83	2.17	1.69	1.24	0.99	0.60
8	26.12	21.95	20.09	17.53	15.51	13.36	10.22	7.34	5.07	3.49	2.73	2.18	1.65	1.34	0.86
9	27.88	23.59	21.67	19.02	16.92	14.68	11.39	8.34	5.90	4.17	3.33	2.70	2.09	1.73	1.15
10	29.59	25.19	23.21	20.48	18.31	15.99	12.55	9.34	6.74	4.87	3.94	3.25	2.56	2.16	1.48
11	31.26	26.76	24.72	21.92	19.68	17.28	13.70	10.34	7.58	5.58	4.57	3.82	3.05	2.60	1.83
12	32.91	28.30	26.22	23.34	21.03	18.55	14.85	11.34	8.44	6.30	5.23	4.40	3.57	3.07	2.21
13	34.53	29.82	27.69	24.74	22.36	19.81	15.98	12.34	9.30	7.04	5.89	5.01	4.11	3.57	2.62
14	36.12	31.32	29.14	26.12	23.68	21.06	17.12	13.34	10.17	7.79	6.57	5.63	4.66	4.07	3.04
15	37.70	32.80	30.58	27.49	25.00	22.31	18.25	14.34	11.04	8.55	7.26	6.26	5.23	4.60	3.48
16	39.25	34.27	32.00	28.85	26.30	23.54	19.37	15.34	11.91	9.31	7.96	6.91	5.81	5.14	3.94
17	40.79	35.72	33.41	30.19	27.59	24.77	20.49	16.34	12.79	10.09	8.67	7.56	6.41	5.70	4.42
18	42.31	37.16	34.81	31.53	28.87	25.99	21.60	17.34	13.68	10.86	9.39	8.23	7.01	6.26	4.90
19	43.82	38.58	36.19	32.85	30.14	27.20	22.72	18.34	14.56	11.65	10.12	8.91	7.63	6.84	5.41
20	45.31	40.00	37.57	34.17	31.41	28.41	23.83	19.34	15.45	12.44	10.85	9.59	8.26	7.43	5.92
21	46.80	41.40	38.93	35.48	32.67	29.62	24.93	20.34	16.34	13.24	11.59	10.28	8.90	8.03	6.45
22	48.27	42.80	40.29	36.78	33.92	30.81	26.04	21.34	17.24	14.04	12.34	10.98	9.54	8.64	6.98
23	49.73	44.18	41.64	38.08	35.17	32.01	27.14	22.34	18.14	14.85	13.09	11.69	10.20	9.26	7.53
24	51.18	45.56	42.98	39.36	36.42	33.20	28.24	23.34	19.04	15.66	13.85	12.40	10.86	9.89	8.08
25	52.62	46.93	44.31	40.65	37.65	34.38	29.34	24.34	19.94	16.47	14.61	13.12	11.52	10.52	8.65
30	59.70	53.67	50.89	46.98	43.77	40.26	34.80	29.34	24.48	20.60	18.49	16.79	14.95	13.79	11.59
40	73.40	66.77	63.69	59.34	55.76	51.81	45.62	39.34	33.66	29.05	26.51	24.43	22.16	20.71	17.92
50	86.66	79.49	76.15	71.42	67.50	63.17	56.33	49.33	42.94	37.69	34.76	32.36	29.71	27.99	24.67
60	99.61	91.95	88.38	83.30	79.08	74.40	66.98	59.33	52.29	46.46	43.19	40.48	37.48	35.53	31.74
70	112.32	104.21	100.43	95.02	90.53	85.53	77.58	69.33	61.70	55.33	51.74	48.76	45.44	43.28	39.04
80	124.84	116.32	112.33	106.63	101.88	96.58	88.13	79.33	71.14	64.28	60.39	57.15	53.54	51.17	46.52
90	137.21	128.30	124.12	118.14	113.15	107.57	98.65	89.33	80.62	73.29	69.13	65.65	61.75	59.20	54.16
100	149.45	140.17	135.81	129.56	124.34	118.50	109.14	99.33	90.13	82.36	77.93	74.22	70.06	67.33	61.92

~~_____~~

F جدول (4) توزيع

$$P(X \geq a), \quad X \sim F(0.05, \vartheta_1, \vartheta_2)$$

$\vartheta_2 \backslash \vartheta_1$	1	2	3	4	5	6	7	8	9	10	12	15
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5	241.9	243.9	245.9
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
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
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	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.68	4.62
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96	1.91	1.83	1.75
inf	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.75	1.67

تابع - جدول (4) توزيع F

$$P(X \geq a), \quad X \sim F(0.05, \vartheta_1, \vartheta_2)$$

$\vartheta_2 \backslash \vartheta_1$	20	24	30	40	60	120	inf
1	248.0	249.1	250.1	251.1	252.2	253.3	254.3
2	19.45	19.45	19.46	19.47	19.48	19.49	19.50
3	8.66	8.64	8.62	8.59	8.57	8.55	8.53
4	5.80	5.77	5.75	5.72	5.69	5.66	5.63
5	4.56	4.53	4.50	4.46	4.43	4.40	4.36
6	3.87	3.84	3.81	3.77	3.74	3.70	3.67
7	3.44	3.41	3.38	3.34	3.30	3.27	3.23
8	3.15	3.12	3.08	3.04	3.01	2.97	2.93
9	2.94	2.90	2.86	2.83	2.79	2.75	2.71
10	2.77	2.74	2.70	2.66	2.62	2.58	2.54
11	2.65	2.61	2.57	2.53	2.49	2.45	2.40
12	2.54	2.51	2.47	2.43	2.38	2.34	2.30
13	2.46	2.42	2.38	2.34	2.30	2.25	2.21
14	2.39	2.35	2.31	2.27	2.22	2.18	2.13
15	2.33	2.29	2.25	2.20	2.16	2.11	2.07
16	2.28	2.24	2.19	2.15	2.11	2.06	2.01
17	2.23	2.19	2.15	2.10	2.06	2.01	1.96
18	2.19	2.15	2.11	2.06	2.02	1.97	1.92
19	2.16	2.11	2.07	2.03	1.98	1.93	1.88
20	2.12	2.08	2.04	1.99	1.95	1.90	1.84
21	2.10	2.05	2.01	1.96	1.92	1.87	1.81
22	2.07	2.03	1.98	1.94	1.89	1.84	1.78
23	2.05	2.01	1.96	1.91	1.86	1.81	1.76
24	2.03	1.98	1.94	1.89	1.84	1.79	1.73
25	2.01	1.96	1.92	1.87	1.82	1.77	1.71
26	1.99	1.95	1.90	1.85	1.80	1.75	1.69
27	1.97	1.93	1.88	1.84	1.79	1.73	1.67
28	1.96	1.91	1.87	1.82	1.77	1.71	1.65
29	1.94	1.90	1.85	1.81	1.75	1.70	1.64
30	1.93	1.89	1.84	1.79	1.74	1.68	1.62
40	1.84	1.79	1.74	1.69	1.64	1.58	1.51
60	1.75	1.70	1.65	1.59	1.53	1.47	1.39
120	1.66	1.61	1.55	1.50	1.43	1.35	1.25
inf	1.57	1.52	1.46	1.39	1.32	1.22	1.00

تابع - جدول (4) توزيع F

$$P(X \geq a), \quad X \sim F(0.1, \vartheta_1, \vartheta_2)$$

$\vartheta_2 \backslash \vartheta_1$	1	2	3	4	5	6	7	8	9	10	12	15
1	39.86	49.5	53.59	55.83	57.24	58.2	58.91	59.44	59.86	60.19	60.71	61.22
2	8.53	9	9.16	9.24	9.29	9.33	9.35	9.37	9.38	9.39	9.41	9.42
3	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24	5.23	5.22	5.2
4	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94	3.92	3.9	3.87
5	4.06	3.78	3.62	3.52	3.45	3.4	3.37	3.34	3.32	3.3	3.27	3.24
6	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96	2.94	2.9	2.87
7	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72	2.7	2.67	2.63
8	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56	2.54	2.5	2.46
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
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
11	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.3	2.27	2.25	2.21	2.17
12	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21	2.19	2.15	2.1
13	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.2	2.16	2.14	2.1	2.05
14	3.1	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.12	2.1	2.05	2.01
15	3.07	2.7	2.49	2.36	2.27	2.21	2.16	2.12	2.09	2.06	2.02	1.97
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
17	3.03	2.64	2.44	2.31	2.22	2.15	2.1	2.06	2.03	2	1.96	1.91
18	3.01	2.62	2.42	2.29	2.2	2.13	2.08	2.04	2	1.98	1.93	1.89
19	2.99	2.61	2.4	2.27	2.18	2.11	2.06	2.02	1.98	1.96	1.91	1.86
20	2.97	2.59	2.38	2.25	2.16	2.09	2.04	2	1.96	1.94	1.89	1.84
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
22	2.95	2.56	2.35	2.22	2.13	2.06	2.01	1.97	1.93	1.9	1.86	1.81
23	2.94	2.55	2.34	2.21	2.11	2.05	1.99	1.95	1.92	1.89	1.84	1.8
24	2.93	2.54	2.33	2.19	2.1	2.04	1.98	1.94	1.91	1.88	1.83	1.78
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
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
27	2.9	2.51	2.3	2.17	2.07	2	1.95	1.91	1.87	1.85	1.8	1.75
28	2.89	2.5	2.29	2.16	2.06	2	1.94	1.9	1.87	1.84	1.79	1.74
29	2.89	2.5	2.28	2.15	2.06	1.99	1.93	1.89	1.86	1.83	1.78	1.73
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
40	2.84	2.44	2.23	2.09	2	1.93	1.87	1.83	1.79	1.76	1.71	1.66
60	2.79	2.39	2.18	2.04	1.95	1.87	1.82	1.77	1.74	1.71	1.66	1.6
120	2.75	2.35	2.13	1.99	1.9	1.82	1.77	1.72	1.68	1.65	1.6	1.55
inf	2.71	2.3	2.08	1.94	1.85	1.77	1.72	1.67	1.63	1.6	1.55	1.49

تابع - جدول (4) توزيع F

$$P(X \geq a), \quad X \sim F(0.1, \vartheta_1, \vartheta_2)$$

$\vartheta_2 \backslash \vartheta_1$	20	24	30	40	60	120	inf
1	61.74	62	62.26	62.53	62.79	63.06	63.33
2	9.44	9.45	9.46	9.47	9.47	9.48	9.49
3	5.18	5.18	5.17	5.16	5.15	5.14	5.13
4	3.84	3.83	3.82	3.8	3.79	3.78	3.76
5	3.21	3.19	3.17	3.16	3.14	3.12	3.11
6	2.84	2.82	2.8	2.78	2.76	2.74	2.72
7	2.59	2.58	2.56	2.54	2.51	2.49	2.47
8	2.42	2.4	2.38	2.36	2.34	2.32	2.29
9	2.3	2.28	2.25	2.23	2.21	2.18	2.16
10	2.2	2.18	2.16	2.13	2.11	2.08	2.06
11	2.12	2.1	2.08	2.05	2.03	2	1.97
12	2.06	2.04	2.01	1.99	1.96	1.93	1.9
13	2.01	1.98	1.96	1.93	1.9	1.88	1.85
14	1.96	1.94	1.91	1.89	1.86	1.83	1.8
15	1.92	1.9	1.87	1.85	1.82	1.79	1.76
16	1.89	1.87	1.84	1.81	1.78	1.75	1.72
17	1.86	1.84	1.81	1.78	1.75	1.72	1.69
18	1.84	1.81	1.78	1.75	1.72	1.69	1.66
19	1.81	1.79	1.76	1.73	1.7	1.67	1.63
20	1.79	1.77	1.74	1.71	1.68	1.64	1.61
21	1.78	1.75	1.72	1.69	1.66	1.62	1.59
22	1.76	1.73	1.7	1.67	1.64	1.6	1.57
23	1.74	1.72	1.69	1.66	1.62	1.59	1.55
24	1.73	1.7	1.67	1.64	1.61	1.57	1.53
25	1.72	1.69	1.66	1.63	1.59	1.56	1.52
26	1.71	1.68	1.65	1.61	1.58	1.54	1.5
27	1.7	1.67	1.64	1.6	1.57	1.53	1.49
28	1.69	1.66	1.63	1.59	1.56	1.52	1.48
29	1.68	1.65	1.62	1.58	1.55	1.51	1.47
30	1.67	1.64	1.61	1.57	1.54	1.5	1.46
40	1.61	1.57	1.54	1.51	1.47	1.42	1.38
60	1.54	1.51	1.48	1.44	1.4	1.35	1.29
120	1.48	1.45	1.41	1.37	1.32	1.26	1.19
inf	1.42	1.38	1.34	1.3	1.24	1.17	1

تابع - جدول (4) توزيع F

$$P(X \geq a), \quad X \sim F(0.025, \vartheta_1, \vartheta_2)$$

$\vartheta_1 \backslash \vartheta_2$	1	2	3	4	5	6	7	8	9	10	12	15
1	647.79	799.5	864.16	899.58	921.85	937.11	948.22	956.66	963.28	968.63	976.71	984.87
2	38.51	39	39.17	39.25	39.3	39.33	39.36	39.37	39.39	39.4	39.41	39.43
3	17.44	16.04	15.44	15.1	14.88	14.73	14.62	14.54	14.47	14.42	14.34	14.25
4	12.22	10.65	9.98	9.6	9.36	9.2	9.07	8.98	8.9	8.84	8.75	8.66
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	8.81	7.26	6.6	6.23	5.99	5.82	5.7	5.6	5.52	5.46	5.37	5.27
7	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.9	4.82	4.76	4.67	4.57
8	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.3	4.2	4.1
9	7.21	5.71	5.08	4.72	4.48	4.32	4.2	4.1	4.03	3.96	3.87	3.77
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
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
12	6.55	5.1	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.28	3.18
13	6.41	4.97	4.35	4	3.77	3.6	3.48	3.39	3.31	3.25	3.15	3.05
14	6.3	4.86	4.24	3.89	3.66	3.5	3.38	3.29	3.21	3.15	3.05	2.95
15	6.2	4.77	4.15	3.8	3.58	3.41	3.29	3.2	3.12	3.06	2.96	2.86
16	6.12	4.69	4.08	3.73	3.5	3.34	3.22	3.12	3.05	2.99	2.89	2.79
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
18	5.98	4.56	3.95	3.61	3.38	3.22	3.1	3.01	2.93	2.87	2.77	2.67
19	5.92	4.51	3.9	3.56	3.33	3.17	3.05	2.96	2.88	2.82	2.72	2.62
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
21	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.8	2.73	2.64	2.53
22	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76	2.7	2.6	2.5
23	5.75	4.35	3.75	3.41	3.18	3.02	2.9	2.81	2.73	2.67	2.57	2.47
24	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.7	2.64	2.54	2.44
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
26	5.66	4.27	3.67	3.33	3.1	2.94	2.82	2.73	2.65	2.59	2.49	2.39
27	5.63	4.24	3.65	3.31	3.08	2.92	2.8	2.71	2.63	2.57	2.47	2.36
28	5.61	4.22	3.63	3.29	3.06	2.9	2.78	2.69	2.61	2.55	2.45	2.34
29	5.59	4.2	3.61	3.27	3.04	2.88	2.76	2.67	2.59	2.53	2.43	2.32
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
40	5.42	4.05	3.46	3.13	2.9	2.74	2.62	2.53	2.45	2.39	2.29	2.18
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
120	5.15	3.8	3.23	2.89	2.67	2.52	2.39	2.3	2.22	2.16	2.05	1.95
inf	5.02	3.69	3.12	2.79	2.57	2.41	2.29	2.19	2.11	2.05	1.94	1.83

تابع - جدول (4) توزيع F

$$P(X \geq a), \quad X \sim F(0.025, \vartheta_1, \vartheta_2)$$

$\vartheta_2 \backslash \vartheta_1$	20	24	30	40	60	120	inf
1	993.1	997.25	1001.41	1005.6	1009.8	1014.02	1018.26
2	39.45	39.46	39.47	39.47	39.48	39.49	39.5
3	14.17	14.12	14.08	14.04	13.99	13.95	13.9
4	8.56	8.51	8.46	8.41	8.36	8.31	8.26
5	6.33	6.28	6.23	6.18	6.12	6.07	6.02
6	5.17	5.12	5.07	5.01	4.96	4.9	4.85
7	4.47	4.42	4.36	4.31	4.25	4.2	4.14
8	4	3.95	3.89	3.84	3.78	3.73	3.67
9	3.67	3.61	3.56	3.51	3.45	3.39	3.33
10	3.42	3.37	3.31	3.26	3.2	3.14	3.08
11	3.23	3.17	3.12	3.06	3	2.94	2.88
12	3.07	3.02	2.96	2.91	2.85	2.79	2.73
13	2.95	2.89	2.84	2.78	2.72	2.66	2.6
14	2.84	2.79	2.73	2.67	2.61	2.55	2.49
15	2.76	2.7	2.64	2.59	2.52	2.46	2.4
16	2.68	2.63	2.57	2.51	2.45	2.38	2.32
17	2.62	2.56	2.5	2.44	2.38	2.32	2.25
18	2.56	2.5	2.45	2.38	2.32	2.26	2.19
19	2.51	2.45	2.39	2.33	2.27	2.2	2.13
20	2.46	2.41	2.35	2.29	2.22	2.16	2.09
21	2.42	2.37	2.31	2.25	2.18	2.11	2.04
22	2.39	2.33	2.27	2.21	2.15	2.08	2
23	2.36	2.3	2.24	2.18	2.11	2.04	1.97
24	2.33	2.27	2.21	2.15	2.08	2.01	1.94
25	2.3	2.24	2.18	2.12	2.05	1.98	1.91
26	2.28	2.22	2.16	2.09	2.03	1.95	1.88
27	2.25	2.19	2.13	2.07	2	1.93	1.85
28	2.23	2.17	2.11	2.05	1.98	1.91	1.83
29	2.21	2.15	2.09	2.03	1.96	1.89	1.81
30	2.2	2.14	2.07	2.01	1.94	1.87	1.79
40	2.07	2.01	1.94	1.88	1.8	1.72	1.64
60	1.94	1.88	1.82	1.74	1.67	1.58	1.48
120	1.82	1.76	1.69	1.61	1.53	1.43	1.31
inf	1.71	1.64	1.57	1.48	1.39	1.27	1

تابع - جدول (4) توزيع F

$$P(X \geq a), \quad X \sim F(0.01, \vartheta_1, \vartheta_2)$$

$\vartheta_1 \backslash \vartheta_2$	1	2	3	4	5	6	7	8	9	10	12	15
1	4052.18	4999.5	5403.35	5624.58	5763.65	5858.99	5928.36	5981.07	6022.47	6055.85	6106.32	6157.29
2	98.5	99	99.17	99.25	99.3	99.33	99.36	99.37	99.39	99.4	99.42	99.43
3	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35	27.23	27.05	26.87
4	21.2	18	16.69	15.98	15.52	15.21	14.98	14.8	14.66	14.55	14.37	14.2
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
6	13.75	10.93	9.78	9.15	8.75	8.47	8.26	8.1	7.98	7.87	7.72	7.56
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
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
9	10.56	8.02	6.99	6.42	6.06	5.8	5.61	5.47	5.35	5.26	5.11	4.96
10	10.04	7.56	6.55	5.99	5.64	5.39	5.2	5.06	4.94	4.85	4.71	4.56
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.4	4.25
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.5	4.39	4.3	4.16	4.01
13	9.07	6.7	5.74	5.21	4.86	4.62	4.44	4.3	4.19	4.1	3.96	3.82
14	8.86	6.52	5.56	5.04	4.7	4.46	4.28	4.14	4.03	3.94	3.8	3.66
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4	3.9	3.81	3.67	3.52
16	8.53	6.23	5.29	4.77	4.44	4.2	4.03	3.89	3.78	3.69	3.55	3.41
17	8.4	6.11	5.19	4.67	4.34	4.1	3.93	3.79	3.68	3.59	3.46	3.31
18	8.29	6.01	5.09	4.58	4.25	4.02	3.84	3.71	3.6	3.51	3.37	3.23
19	8.19	5.93	5.01	4.5	4.17	3.94	3.77	3.63	3.52	3.43	3.3	3.15
20	8.1	5.85	4.94	4.43	4.1	3.87	3.7	3.56	3.46	3.37	3.23	3.09
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.4	3.31	3.17	3.03
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
23	7.88	5.66	4.77	4.26	3.94	3.71	3.54	3.41	3.3	3.21	3.07	2.93
24	7.82	5.61	4.72	4.22	3.9	3.67	3.5	3.36	3.26	3.17	3.03	2.89
25	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.22	3.13	2.99	2.85
26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.18	3.09	2.96	2.82
27	7.68	5.49	4.6	4.11	3.79	3.56	3.39	3.26	3.15	3.06	2.93	2.78
28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.12	3.03	2.9	2.75
29	7.6	5.42	4.54	4.05	3.73	3.5	3.33	3.2	3.09	3.01	2.87	2.73
30	7.56	5.39	4.51	4.02	3.7	3.47	3.3	3.17	3.07	2.98	2.84	2.7
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.8	2.67	2.52
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.5	2.35
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
inf	6.64	4.61	3.78	3.32	3.02	2.8	2.64	2.51	2.41	2.32	2.19	2.04

تابع - جدول (4) توزيع F

$$P(X \geq a), \quad X \sim F(0.01, \vartheta_1, \vartheta_2)$$

$\vartheta_2 \backslash \vartheta_1$	20	24	30	40	60	120	inf
1	6208.73	6234.63	6260.65	6286.78	6313.03	6339.39	6365.86
2	99.45	99.46	99.47	99.47	99.48	99.49	99.5
3	26.69	26.6	26.51	26.41	26.32	26.22	26.13
4	14.02	13.93	13.84	13.75	13.65	13.56	13.46
5	9.55	9.47	9.38	9.29	9.2	9.11	9.02
6	7.4	7.31	7.23	7.14	7.06	6.97	6.88
7	6.16	6.07	5.99	5.91	5.82	5.74	5.65
8	5.36	5.28	5.2	5.12	5.03	4.95	4.86
9	4.81	4.73	4.65	4.57	4.48	4.4	4.31
10	4.41	4.33	4.25	4.17	4.08	4	3.91
11	4.1	4.02	3.94	3.86	3.78	3.69	3.6
12	3.86	3.78	3.7	3.62	3.54	3.45	3.36
13	3.67	3.59	3.51	3.43	3.34	3.26	3.17
14	3.51	3.43	3.35	3.27	3.18	3.09	3
15	3.37	3.29	3.21	3.13	3.05	2.96	2.87
16	3.26	3.18	3.1	3.02	2.93	2.85	2.75
17	3.16	3.08	3	2.92	2.84	2.75	2.65
18	3.08	3	2.92	2.84	2.75	2.66	2.57
19	3	2.93	2.84	2.76	2.67	2.58	2.49
20	2.94	2.86	2.78	2.7	2.61	2.52	2.42
21	2.88	2.8	2.72	2.64	2.55	2.46	2.36
22	2.83	2.75	2.67	2.58	2.5	2.4	2.31
23	2.78	2.7	2.62	2.54	2.45	2.35	2.26
24	2.74	2.66	2.58	2.49	2.4	2.31	2.21
25	2.7	2.62	2.54	2.45	2.36	2.27	2.17
26	2.66	2.59	2.5	2.42	2.33	2.23	2.13
27	2.63	2.55	2.47	2.38	2.29	2.2	2.1
28	2.6	2.52	2.44	2.35	2.26	2.17	2.06
29	2.57	2.5	2.41	2.33	2.23	2.14	2.03
30	2.55	2.47	2.39	2.3	2.21	2.11	2.01
40	2.37	2.29	2.2	2.11	2.02	1.92	1.81
60	2.2	2.12	2.03	1.94	1.84	1.73	1.6
120	2.04	1.95	1.86	1.76	1.66	1.53	1.38
inf	1.88	1.79	1.7	1.59	1.47	1.33	1