所　別：管理技術研究所
學程別：工業管理學程
組別：
科目：統計學

共 5 題，每題 20 分。
請顯示計算過程，只寫答案不能獲得所有配分。

1. 設有一個兩元隨機變數 (X, Y)，其聯合機率密度函數為：
(20%)　$f(x, y) = 8xy$　　$0 < y < x < 1$

試求
(a) X 的邊際機率密度函數　(8%)
(b) Y 的邊際機率密度函數　(8%)
(c) X, Y 的相關係數　(4%)

2

(20%) Assume that 15% of the items produced in an assembly line operation are defective, but that the firm's production manager is not aware of this situation. Assume further that 50 parts are tested by the quality assurance department in order to determine the quality of the assembly operation. Let $\bar{p}$ be the sample proportion defective found by the quality assurance test.

(a) Show the sampling distribution for $\bar{p}$. (10%)
(b) What is the probability that the sample proportion will be within ±.03 of the population proportion defective? (5%)
(c) If the test shows $\bar{p} = .10$ or more, the assembly line operation will be shut down to check for the cause of the defects. What is the probability that the sample of 50 parts will lead to the conclusion that the assembly line should be shut down? (5%)

3

(20%) The following are the burning times of flares of two different design types. The design engineers are interested in both the mean and variance of the burning times

Type 1		Type 2	
65	82	64	56
81	67	71	69
57	59	83	74
66	75	59	82
82	70	65	79

(a) Test the hypothesis that the two variances are equal. use $\alpha = .05$　(10%)

(b) using the results of (a), test the hypothesis that the mean times are equal $\alpha = .05$　(

4.

(20%) Shown below is a 3 × 3 contingency table with observed frequencies from a sample of 240.

	Column Factor		
Row Factor	A	B	C
P	20	30	20
Q	30	60	25
R	10	15	30

(a.) test the hypothesis that the proportions of A, B, C are equal. $\alpha = .05$ (6%
(b) test the hypothesis that the proportions of P, Q, R are equal. $\alpha = .05$ (6%
(c) test for independence of the Row and Column factors. $\alpha = .05$ (8%

5.

(20%) In a manufacturing process the assembly line speed (feet per minute) was thought to affect the number of defective parts found during the inspection process. To test this theory, management devised a situation where the same batch of parts was inspected visually at a variety of line speeds. Table below gives the collected data.

Line Speed	Number of Defective Parts Found
20	21
20	19
40	15
30	16
60	14
40	17

(a). find the correlation coefficient of line speed and number of defective parts found, and test if it is significant. $\alpha = .05$ (5%)
(b) develop the estimated regression equation that relates line speed to the number defective parts found, and test if the fit is significant. $\alpha = .05$ (5%)
(c) Develop a 95% confidence interval to predict the mean number of defective pa for a line speed of 50 feet per minute. (10%)

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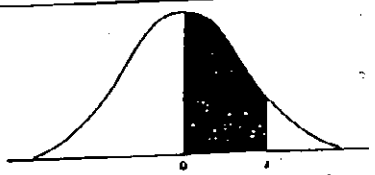
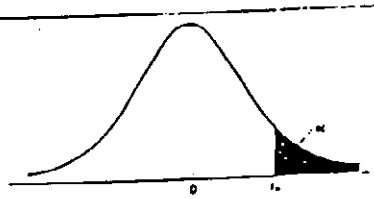
Areas Under the Standard Normal Curve



The following table provides the area between the mean and normal deviate value z.

Normal Deviate z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1955	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2612	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3022	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4983	.4985	.4986	.4986
3.0	.49865	.4987	.4987	.4985	.4988	.4989	.4989	.4989	.4990	.4990
4.0	.49997									

Student t Distribution

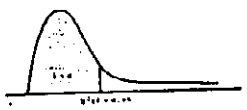


The following table provides the values of t_α that correspond to a given upper-tail area α and a specified number of degrees of freedom.

Degrees of Freedom	Upper-Tail Area α								
	.4	.25	.1	.05	.025	.01	.005	.0025	.001
1	0.325	1.000	3.078	6.314	12.706	31.821	63.657	127.32	318.31
2	.289	.816	1.886	2.920	4.303	6.965	9.925	14.089	22.327
3	.277	.765	1.638	2.353	3.182	4.541	5.841	7.453	10.214
4	.271	.741	1.533	2.132	2.776	3.747	4.604	5.598	7.173
5	0.267	0.727	1.476	2.015	2.571	3.365	4.032	4.773	5.893
6	.265	.718	1.440	1.943	2.447	3.143	3.707	4.317	5.208
7	.263	.711	1.415	1.895	2.365	2.998	3.499	4.029	4.785
8	.262	.706	1.397	1.860	2.306	2.896	3.355	3.833	4.501
9	.261	.703	1.383	1.833	2.262	2.821	3.250	3.690	4.297
10	0.260	0.700	1.372	1.812	2.228	2.764	3.169	3.581	4.144
11	.260	.697	1.363	1.796	2.201	2.718	3.106	3.497	4.025
12	.259	.695	1.356	1.782	2.179	2.681	3.055	3.428	3.930
13	.259	.694	1.350	1.771	2.160	2.650	3.012	3.372	3.852
14	.258	.692	1.345	1.761	2.145	2.624	2.977	3.326	3.787
15	0.258	0.691	1.341	1.753	2.131	2.602	2.947	3.286	3.733
16	.258	.690	1.337	1.746	2.120	2.583	2.921	3.252	3.686
17	.257	.689	1.333	1.740	2.110	2.567	2.898	3.222	3.646
18	.257	.688	1.330	1.734	2.101	2.552	2.878	3.197	3.610
19	.257	.688	1.328	1.729	2.093	2.539	2.861	3.174	3.579
20	0.257	0.687	1.325	1.725	2.086	2.528	2.845	3.153	3.552
21	.257	.686	1.323	1.721	2.080	2.518	2.831	3.135	3.527
22	.256	.686	1.321	1.717	2.074	2.508	2.819	3.119	3.505
23	.256	.685	1.319	1.714	2.069	2.500	2.807	3.104	3.485
24	.256	.685	1.318	1.711	2.064	2.492	2.797	3.091	3.467
25	0.256	0.684	1.316	1.708	2.060	2.485	2.787	3.078	3.450
26	.256	.684	1.315	1.706	2.056	2.479	2.779	3.067	3.435
27	.256	.684	1.314	1.703	2.052	2.473	2.771	3.057	3.421
28	.256	.683	1.313	1.701	2.048	2.467	2.763	3.047	3.408
29	.256	.683	1.311	1.699	2.045	2.462	2.756	3.038	3.396
30	0.256	0.683	1.310	1.697	2.042	2.457	2.750	3.030	3.385
40	.255	.681	1.303	1.684	2.021	2.423	2.704	2.971	3.307
60	.254	.679	1.296	1.671	2.000	2.390	2.660	2.915	3.232
120	.254	.677	1.289	1.658	1.980	2.358	2.617	2.860	3.160
∞	.253	.674	1.282	1.645	1.960	2.326	2.576	2.807	3.090

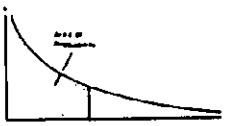
Percentiles of the χ^2 Distribution

Entry is $\chi^2(1-\alpha;\nu)$ where $P(\chi^2(\nu) \le \chi^2(1-\alpha;\nu)) = 1-\alpha$



ν	1 − α									
	.005	.010	.025	.050	.100	.900	.950	.975	.990	.995
1	0.0⁴393	0.0³157	0.0³982	0.0²393	0.0158	2.71	3.84	5.02	6.63	7.88
2	0.0100	0.0201	0.0506	0.103	0.211	4.61	5.99	7.38	9.21	10.60
3	0.072	0.115	0.216	0.352	0.584	6.25	7.81	9.35	11.34	12.84
4	0.207	0.297	0.484	0.711	1.064	7.78	9.49	11.14	13.28	14.86
5	0.412	0.554	0.831	1.145	1.61	9.24	11.07	12.83	15.09	16.75
6	0.676	0.872	1.24	1.64	2.20	10.64	12.59	14.45	16.81	18.55
7	0.989	1.24	1.69	2.17	2.83	12.02	14.07	16.01	18.48	20.28
8	1.34	1.65	2.18	2.73	3.49	13.36	15.51	17.53	20.09	21.96
9	1.73	2.09	2.70	3.33	4.17	14.68	16.92	19.02	21.67	23.59
10	2.16	2.56	3.25	3.94	4.87	15.99	18.31	20.48	23.21	25.19
11	2.60	3.05	3.82	4.57	5.58	17.28	19.68	21.92	24.73	26.76
12	3.07	3.57	4.40	5.23	6.30	18.55	21.03	23.34	26.22	28.30
13	3.57	4.11	5.01	5.89	7.04	19.81	22.36	24.74	27.69	29.82
14	4.07	4.66	5.63	6.57	7.79	21.06	23.68	26.12	29.14	31.32
15	4.60	5.23	6.26	7.26	8.55	22.31	25.00	27.49	30.58	32.80
16	5.14	5.81	6.91	7.96	9.31	23.54	26.30	28.85	32.00	34.27
17	5.70	6.41	7.56	8.67	10.09	24.77	27.59	30.19	33.41	35.72
18	6.26	7.01	8.23	9.39	10.86	25.99	28.87	31.53	34.81	37.16
19	6.84	7.63	8.91	10.12	11.65	27.20	30.14	32.85	36.19	38.58
20	7.43	8.26	9.59	10.85	12.44	28.41	31.41	34.17	37.57	40.00
21	8.03	8.90	10.28	11.59	13.24	29.62	32.67	35.48	38.93	41.40
22	8.64	9.54	10.98	12.34	14.04	30.81	33.92	36.78	40.29	42.80
23	9.26	10.20	11.69	13.09	14.85	32.01	35.17	38.08	41.64	44.18
24	9.89	10.86	12.40	13.85	15.66	33.20	36.42	39.36	42.98	45.56
25	10.52	11.52	13.12	14.61	16.47	34.38	37.65	40.65	44.31	46.93
26	11.16	12.20	13.84	15.38	17.29	35.56	38.89	41.92	45.64	48.29
27	11.81	12.88	14.57	16.15	18.11	36.74	40.11	43.19	46.96	49.64
28	12.46	13.56	15.31	16.93	18.94	37.92	41.34	44.46	48.28	50.99
29	13.12	14.26	16.05	17.71	19.77	39.09	42.56	45.72	49.59	52.34
30	13.79	14.95	16.79	18.49	20.60	40.26	43.77	46.98	50.89	53.67
40	20.71	22.16	24.43	26.51	29.05	51.81	55.76	59.34	63.69	66.77
50	27.99	29.71	32.36	34.76	37.69	63.17	67.50	71.42	76.15	79.49
60	35.53	37.48	40.48	43.19	46.46	74.40	79.08	83.30	88.38	91.95

Exponential Probabilities for Cumulative Values of z



Entries in this table give the area under the curve between zero and z. For example, for $z = 1.2$ and $z = .06$, the area under the curve is .8772, because $z = 1.26$.

z	.00	.01	.02	.03	.04	.05	.06	.07	.08
0.0	0.0000	0.0100	0.0199	0.0296	0.0392	0.0488	0.0582	0.0676	0.0769
0.1	0.0953	0.1042	0.1131	0.1219	0.1306	0.1393	0.1479	0.1563	0.1647
0.2	0.1813	0.1894	0.1975	0.2055	0.2134	0.2212	0.2289	0.2366	0.2441
0.3	0.2592	0.2666	0.2739	0.2811	0.2882	0.2953	0.3023	0.3093	0.3161
0.4	0.3297	0.3363	0.3430	0.3495	0.3560	0.3624	0.3687	0.3750	0.3812
0.5	0.3935	0.3995	0.4055	0.4114	0.4173	0.4231	0.4288	0.4345	0.4401
0.6	0.4512	0.4566	0.4621	0.4674	0.4727	0.4780	0.4831	0.4883	0.4934
0.7	0.5034	0.5084	0.5133	0.5181	0.5229	0.5276	0.5323	0.5370	0.5416
0.8	0.5507	0.5551	0.5596	0.5640	0.5683	0.5726	0.5768	0.5810	0.5852
0.9	0.5934	0.5975	0.6015	0.6054	0.6094	0.6133	0.6171	0.6209	0.6247
1.0	0.6321	0.6358	0.6394	0.6430	0.6465	0.6501	0.6535	0.6570	0.6604
1.1	0.6671	0.6704	0.6737	0.6770	0.6802	0.6834	0.6865	0.6896	0.6927
1.2	0.6958	0.7018	0.7048	0.7077	0.7106	0.7135	0.7163	0.7192	0.7220
1.3	0.7275	0.7302	0.7329	0.7355	0.7381	0.7408	0.7433	0.7459	0.7484
1.4	0.7534	0.7559	0.7583	0.7607	0.7631	0.7654	0.7678	0.7701	0.7724
1.5	0.7769	0.7791	0.7813	0.7835	0.7856	0.7878	0.7899	0.7919	0.7940
1.6	0.7961	0.8001	0.8021	0.8041	0.8060	0.8060	0.8099	0.8118	0.8136
1.7	0.8173	0.8191	0.8209	0.8227	0.8245	0.8263	0.8280	0.8299	0.8314
1.8	0.8347	0.8363	0.8380	0.8396	0.8413	0.8428	0.8443	0.8459	0.8474
1.9	0.8504	0.8519	0.8534	0.8549	0.8563	0.8577	0.8591	0.8605	0.8619
2.0	0.8647	0.8660	0.8673	0.8687	0.8700	0.8713	0.8725	0.8738	0.8751
2.1	0.8775	0.8788	0.8800	0.8812	0.8823	0.8835	0.8847	0.8858	0.8870
2.2	0.8893	0.8903	0.8914	0.8925	0.8935	0.8946	0.8956	0.8967	0.8977
2.3	0.8997	0.9007	0.9017	0.9027	0.9037	0.9046	0.9056	0.9065	0.9074
2.4	0.9083	0.9101	0.9111	0.9120	0.9128	0.9137	0.9146	0.9154	0.9163
2.5	0.9179	0.9187	0.9195	0.9203	0.9211	0.9219	0.9227	0.9235	0.9242
2.6	0.9257	0.9265	0.9272	0.9279	0.9286	0.9293	0.9301	0.9307	0.9314
2.7	0.9328	0.9335	0.9341	0.9348	0.9354	0.9361	0.9367	0.9373	0.9380
2.8	0.9393	0.9398	0.9404	0.9410	0.9416	0.9422	0.9427	0.9433	0.9439
2.9	0.9450	0.9455	0.9461	0.9466	0.9471	0.9477	0.9482	0.9487	0.9492
3.0	0.9503	0.9507	0.9512	0.9517	0.9522	0.9526	0.9531	0.9536	0.9540
3.1	0.9550	0.9554	0.9558	0.9563	0.9567	0.9571	0.9576	0.9580	0.9584
3.2	0.9592	0.9596	0.9600	0.9604	0.9608	0.9613	0.9616	0.9620	0.9624
3.3	0.9631	0.9635	0.9638	0.9642	0.9646	0.9649	0.9653	0.9656	0.9660
3.4	0.9666	0.9670	0.9673	0.9676	0.9679	0.9683	0.9686	0.9689	0.9692
3.5	0.9698	0.9701	0.9704	0.9707	0.9710	0.9713	0.9716	0.9718	0.9721
3.6	0.9727	0.9729	0.9732	0.9735	0.9737	0.9740	0.9743	0.9745	0.9748
3.7	0.9753	0.9755	0.9758	0.9760	0.9762	0.9765	0.9767	0.9769	0.9772
3.8	0.9776	0.9779	0.9781	0.9783	0.9785	0.9787	0.9789	0.9791	0.9793
3.9	0.9795	0.9800	0.9802	0.9804	0.9806	0.9807	0.9809	0.9811	0.9813

命題請勿超出線外

所　別：管理技術研究所　　組別：　　科目：統計學
學程別：工業管理學程

$F_{0.05,\nu_1,\nu_2}$

ν_2 \ ν_1	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞
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	248.0	249.1	250.1	251.1	252.2	253.3	254.3
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	4.36
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	2.40
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
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
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	1.66	1.61	1.55	1.55	1.43	1.35	1.25
[illegible]	[illegible]	3.00	2.60	2.37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

$F_{0.025,\nu_1,\nu_2}$

ν_2 \ ν_1	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞
1	647.8	799.5	864.2	899.6	921.8	937.1	948.2	956.7	963.3	968.6	976.7	984.9	993.1	997.2	1001	1006	1010	1014	1018
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	4.42	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	2.72
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	3001	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	1.61	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
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
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
∞	5.02	3.69	3.12	2.79	2.57	2.41	2.29	2.19	2.11	2.05	1.94	1.83	1.71	1.64	1.57	1.48	1.39	1.27	1.00

命題請勿超出線外