

- 1.(15%) When a machine that is used to make bolts at a Steel Corporation is working properly, the mean length of these bolts is 2.5 inches. However, from time to time this machine falls out of alignment and produces bolts that have a mean length of either less than 2.5 inches or more than 2.5 inches. When this happens, the process is stopped and the machine is adjusted. To check whether or not the machine is producing bolts with a mean length of 2.5 inches, the quality control department at the company takes a sample of bolts each week and makes a test of hypothesis.
- (1) One such random sample of 49 bolts produced a mean length of 2.49 inches and a standard deviation of 0.021 inches. Using the 5% significance level, can we conclude that the machine needs to be adjusted? (7%)
- (2) Suppose the null hypothesis stated in that example is false and the true mean length of all bolts produced by the machine at the time of the selection of the sample was 2.498 inches. What is the probability of making a Type II error if $\alpha=0.05$? What is the power of the test? (8%)
- 2.(10%) According to the Census Bureau, the mean monthly salary of people with a professional degree was \$4,961 in 2020. Assume that this result holds true for the 2020 population of all people with a professional degree. A random sample of 400 people with a professional degree taken recently showed that their mean monthly salary is \$5,067 with a standard deviation of \$985.
- (1) Find the p -value for the test of hypothesis with the alternative hypothesis that the current mean monthly salary of all people with a professional degree is greater than \$4,961. (8%)
- (2) If $\alpha=0.01$, based on the p -value calculated in part (1), would you reject the null hypothesis? (2%)
- 3.(25%) The following table was obtained from the regression analysis.

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 D_1 + \epsilon$$

PREDICTOR	COEF	STDEV	t-RATIO
CONSTANT	46.36	(A)	3.76
x_1	-0.05201	(B)	-3.04
x_2	0.09208	(C)	3.12
x_3	-0.001704	(D)	-0.19
D_1	1.032	(E)	1.02

S = (F) R-SQ = (G) R-SQ(ADJ) = 99.6%

ANALYSIS OF VARIANCE

SOURCE	DF	SS	MS	F
REGRESSION	(H)	(I)	(J)	(L)
ERROR	9	7.25	(K)	
TOTAL	13	2918.00		

Please answer the following questions.

- (1) Fill the blanks (A)-(L). (6%)
- (2) Write the estimated regression equation. (1%)
- (3) Explain the meaning of b_2 obtained by estimating the given regression model. (2%)
- (4) What are the values of the standard deviation of errors, the coefficient of multiple determination, the adjusted coefficient of multiple determination, SST, SSR, SSE, MSR, and MSE? (3%)
- (5) Write the values of the standard deviation, the observed value of t for the estimated coefficient b_4 . (1%)

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- (6) What is the predicted value of y for $x_1=210$, $x_2=195$, $x_3=260$, and $D_1=1$? (1%)
(7) What is the point estimate of the expected (mean) value of y for all elements given that $x_1=290$, $x_2=230$, $x_3=195$, and $D_1=0$? (1%)
(8) Determine a 99% confidence interval for the coefficient of x_1 ? (3%)
(9) Using the 2.5% significance level, can you conclude that the coefficient of x_2 is positive? (3%)
(10) Using the 5% significance level, test whether or not the coefficients of all independent variables in the population regression model are equal to zero. (4%)

4.(10%) Find the moment generating function corresponding to the following probability density functions:

(1) $f(x) = \frac{2x}{c^2}$, $0 < x < c$, where $c > 0$. (5%)

(2) $f(x) = \frac{1}{2} \exp(-|x-\alpha|)$, $-\infty < x < \infty$, where $-\infty < \alpha < \infty$. (5%)

5.(15%) Let X and Y be two independent random variables that follow a Poisson distribution with rate parameter θ and λ , respectively, i.e., $X \sim \text{Poisson}(\theta)$ and $Y \sim \text{Poisson}(\lambda)$. Show that the distribution of $X/(X+Y)$ is binomial with success probability $\theta/(\theta+\lambda)$.

Note: the probability density function of a Poisson distribution with rate parameter γ is

$$f(Z = z) = \frac{\gamma^z e^{-\gamma}}{z!}.$$

6.(25%) Suppose the distribution of Y , conditional on $X = x$, is normal with mean x and variance x^2 and that the marginal distribution of X is uniform $(0,1)$.

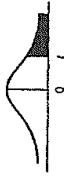
(1) Find $E[Y]$, $Var[Y]$, and $Cov(X, Y)$. (15%)

(2) Prove that Y/X and X are independent. (10%)

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The t distribution Table

The entries in the table give the critical values of t for the specified number of degrees of freedom and areas in the right tail.



df	Area in the Right Tail under the t Distribution Curve				
	.10	.05	.025	.01	.005
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.941	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.326	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831
22	1.321	1.717	2.074	2.508	2.819
23	1.319	1.714	2.069	2.500	2.807
24	1.318	1.711	2.064	2.492	2.797
25	1.316	1.708	2.060	2.485	2.787
26	1.315	1.706	2.056	2.479	2.779
27	1.314	1.703	2.052	2.473	2.771
28	1.313	1.701	2.048	2.467	2.763
29	1.311	1.699	2.045	2.462	2.756
30	1.310	1.697	2.042	2.457	2.750
31	1.309	1.696	2.040	2.453	2.744
32	1.309	1.694	2.037	2.449	2.738
33	1.308	1.692	2.035	2.445	2.733
34	1.307	1.691	2.032	2.441	2.728
35	1.306	1.690	2.030	2.438	2.724
36	1.306	1.689	2.028	2.434	2.719
37	1.305	1.687	2.026	2.431	2.715
38	1.304	1.686	2.024	2.429	2.712
39	1.304	1.685	2.023	2.426	2.708
40	1.303	1.684	2.021	2.423	2.704
∞	1.282	1.645	1.960	2.326	2.576

Standard Normal Distribution Table

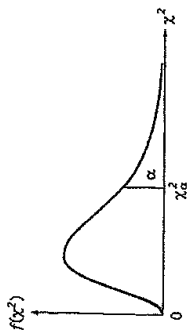
The entries in the table give the areas under the standard normal curve from 0 to z .



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	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.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	.4921	.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	.4978	.4979	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

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Critical Values of χ^2



Degrees of Freedom	$\chi^2_{.995}$	$\chi^2_{.990}$	$\chi^2_{.975}$	$\chi^2_{.950}$	$\chi^2_{.900}$	Degrees of Freedom	$\chi^2_{.100}$	$\chi^2_{.050}$	$\chi^2_{.025}$	$\chi^2_{.010}$	$\chi^2_{.005}$
1	.0000393	.0001571	.0009821	.0039321	.0157908	1	2.70554	3.84146	5.02389	6.63490	7.87944
2	.0100251	.0201007	.0506356	.102587	.210720	2	4.60517	5.99147	7.37776	9.21034	10.5966
3	.0717212	.114832	.215795	.351846	.584375	3	6.25139	7.81473	9.34840	11.3449	12.8381
4	.206990	.297110	.484419	.710721	1.063623	4	7.77944	9.48773	11.1433	13.2767	14.8602
5	.411740	.554300	.831211	1.145476	1.61031	5	9.23635	11.0705	12.8325	15.0863	16.7496
6	.675727	.872085	1.237347	1.63539	2.20413	6	10.6446	12.5916	14.4494	16.8119	18.5476
7	.989265	1.239043	1.68987	2.16735	2.83311	7	12.0170	14.0671	16.0128	18.4753	20.2777
8	1.344419	1.646482	2.17973	2.73264	3.48954	8	13.3616	15.5073	17.5346	20.0902	21.9550
9	1.734926	2.087912	2.70039	3.32511	4.16816	9	14.6837	16.9190	19.0228	21.6660	23.5893
10	2.15585	2.55821	3.24697	3.94080	4.86518	10	15.9871	18.3070	20.4831	23.2093	25.1882
11	2.60321	3.05347	3.81575	4.57481	5.57779	11	17.2750	19.6751	21.9200	24.7250	26.7569
12	3.07382	3.57056	4.40379	5.22603	6.30380	12	18.5494	21.0261	23.3367	26.2170	28.2995
13	3.56503	4.10691	5.00874	5.89186	7.04150	13	19.8119	22.3621	24.7356	27.6883	29.8194
14	4.07468	4.66043	5.62872	6.57063	7.78953	14	21.0642	23.6848	26.1190	29.1413	31.3193
15	4.60094	5.22935	6.26214	7.26094	8.54675	15	22.3072	24.9958	27.4884	30.5779	32.8013
16	5.14224	5.81221	6.90766	7.96164	9.31223	16	23.5418	26.2962	28.8454	31.9999	34.2672
17	5.69724	6.40776	7.56418	8.67176	10.0852	17	24.7690	27.5871	30.1910	33.4087	35.7185
18	6.26481	7.01491	8.23075	9.39046	10.8649	18	25.9894	28.8693	31.5264	34.8053	37.1564
19	6.84398	7.63273	8.90655	10.1170	11.6509	19	27.2036	30.1435	32.8523	36.1908	38.5822
20	7.43386	8.26040	9.59083	10.8508	12.4426	20	28.4120	31.4104	34.1696	37.5662	39.9968
21	8.03366	8.89720	10.28293	11.5913	13.2396	21	29.6151	32.6705	35.4789	38.9321	41.4010
22	8.64272	9.54249	10.9823	12.3380	14.0415	22	30.8133	33.9244	36.7807	40.2894	42.7956
23	9.26042	10.19567	11.6885	13.0905	14.8479	23	32.0069	35.1725	38.0757	41.6384	44.1813
24	9.88623	10.8564	12.4011	13.8848	15.6587	24	33.1963	36.4151	39.3641	42.9798	45.5585
25	10.5197	11.5240	13.1197	14.6114	16.4734	25	34.3816	37.6525	40.6465	44.3141	46.9278
26	11.1603	12.1981	13.8439	15.3791	17.2919	26	35.5631	38.8852	41.9232	45.6417	48.2899
27	11.8076	12.8786	14.5733	16.1513	18.1138	27	36.7412	40.1133	43.1944	46.9630	49.6449
28	12.4613	13.5648	15.3079	16.9279	18.9392	28	37.9159	41.3372	44.4607	48.2782	50.9933
29	13.1211	14.2565	16.0471	17.7083	19.7677	29	39.0875	42.5569	45.7222	49.5879	52.3356
30	13.7867	14.9535	16.7908	18.4926	20.5992	30	40.2560	43.7729	46.9792	50.8922	53.6720
40	20.7065	22.1643	24.4331	26.5093	29.0505	40	51.8050	55.7585	59.3417	63.6907	66.7659
50	27.9907	29.7067	32.3574	34.7642	37.6886	50	63.1671	67.5048	71.4202	76.1539	79.4900
60	35.5346	37.4848	40.4817	43.1879	46.4589	60	74.3970	79.0819	83.2976	88.3794	91.9517
70	43.2752	45.4418	48.7576	51.7393	55.3290	70	85.5271	90.5312	95.0231	100.425	104.215
80	51.1720	53.5400	57.1532	60.3915	64.2778	80	96.5782	101.879	106.629	112.329	116.321
90	59.1963	61.7541	65.6466	69.1260	73.2912	90	107.565	113.145	118.136	124.116	128.299
100	67.3276	70.0648	74.2219	77.9295	82.3581	100	118.498	124.342	129.561	135.807	140.169

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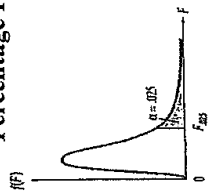
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Percentage Points of the F-distribution, $\alpha = 0.025$

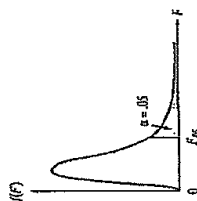


		NUMERATOR DEGREES OF FREEDOM								
		1	2	3	4	5	6	7	8	9
DENOMINATOR DEGREES OF FREEDOM	1	6478	7995	8642	8996	9218	9371	9482	9567	9633
	2	3851	3900	3917	3925	3929	3933	3936	3937	3939
	3	1744	1604	1544	1510	1488	1473	1462	1454	1447
	4	1222	1065	998	936	896	868	848	836	826
	5	881	726	660	623	599	582	570	560	552
	6	681	554	509	472	452	445	443	443	443
	7	579	471	438	412	398	393	393	393	393
	8	509	421	398	378	368	365	365	365	365
	9	454	381	361	345	338	336	336	336	336
	10	411	344	327	314	309	308	308	308	308
	11	376	314	299	288	285	285	285	285	285
	12	347	290	277	268	266	266	266	266	266
	13	323	270	258	250	249	249	249	249	249
	14	303	254	243	236	236	236	236	236	236
	15	286	240	230	224	224	224	224	224	224
	16	272	228	219	214	214	214	214	214	214
	17	260	218	210	206	206	206	206	206	206
	18	250	210	202	198	198	198	198	198	198
	19	241	204	196	192	192	192	192	192	192
	20	234	198	190	186	186	186	186	186	186
	21	228	192	184	180	180	180	180	180	180
	22	223	187	179	175	175	175	175	175	175
	23	219	183	175	171	171	171	171	171	171
	24	215	180	172	168	168	168	168	168	168
	25	212	177	169	165	165	165	165	165	165
	26	209	175	167	163	163	163	163	163	163
	27	207	173	165	161	161	161	161	161	161
	28	205	171	163	159	159	159	159	159	159
	29	203	170	162	158	158	158	158	158	158
	30	202	169	161	157	157	157	157	157	157
	40	194	163	155	151	151	151	151	151	151
60	187	158	150	146	146	146	146	146	146	
120	181	153	145	141	141	141	141	141	141	
∞	180	152	144	140	140	140	140	140	140	

		NUMERATOR DEGREES OF FREEDOM										
		10	12	15	20	24	30	40	60	120	∞	
DENOMINATOR DEGREES OF FREEDOM	1	9856	9957	9949	9931	9912	1001	1006	1010	1014	1018	
	2	3940	3941	3943	3945	3946	3947	3946	3947	3948	3949	
	3	1442	1434	1425	1417	1412	1408	1404	1404	1399	1395	
	4	884	875	866	856	851	846	841	841	836	831	
	5	662	652	643	633	628	623	618	618	612	607	
	6	546	537	527	517	512	507	501	501	496	491	
	7	476	467	457	447	442	436	431	431	425	420	
	8	430	420	410	400	395	389	384	384	378	373	
	9	396	387	377	367	362	356	351	351	345	340	
	10	372	362	352	342	337	331	326	326	320	314	
	11	353	343	333	323	317	312	306	306	300	294	
	12	337	328	318	308	302	296	291	291	285	279	
	13	325	315	305	295	289	284	278	278	272	266	
	14	315	305	295	285	279	273	267	267	261	255	
	15	306	296	286	276	270	264	258	258	252	246	
	16	299	289	279	269	263	257	251	251	245	239	
	17	292	282	272	262	256	250	244	244	238	232	
	18	287	277	267	257	251	245	239	239	233	227	
	19	282	272	262	252	246	240	234	234	228	222	
	20	277	267	257	247	241	235	229	229	223	217	
	21	273	263	253	243	237	231	225	225	219	213	
	22	270	260	250	240	234	228	222	222	216	210	
	23	267	257	247	237	231	225	219	219	213	207	
	24	264	254	244	234	228	222	216	216	210	204	
	25	261	251	241	231	225	219	213	213	207	201	
	26	259	249	239	229	223	217	211	211	205	199	
	27	257	247	237	227	221	215	209	209	203	197	
	28	255	245	235	225	219	213	207	207	201	195	
	29	253	243	233	223	217	211	205	205	199	193	
	30	251	241	231	221	215	209	203	203	197	191	
	40	239	229	219	209	203	197	191	191	185	179	
60	227	217	207	197	191	185	179	179	173	167		
120	216	206	196	186	180	174	168	168	162	156		
∞	215	205	195	185	179	173	167	167	161	155		

見背面

Percentage Points of the F-distribution, $\alpha = 0.05$



v_2	NUMERATOR DEGREES OF FREEDOM								
	1	2	3	4	5	6	7	8	9
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90
12	4.75	3.89	3.49	3.26	3.11	2.99	2.91	2.85	2.80
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65
15	4.54	3.68	3.28	3.06	2.90	2.79	2.71	2.64	2.59
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.35	2.29
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.33	2.28
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04
80	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88

v_1	NUMERATOR DEGREES OF FREEDOM										
	10	12	15	20	24	30	40	60	120	∞	
1	241.9	243.9	245.9	248.0	249.1	250.1	251.1	252.2	253.3	254.3	
2	19.40	19.41	19.43	19.45	19.45	19.46	19.47	19.48	19.49	19.50	
3	8.79	8.74	8.70	8.66	8.64	8.62	8.59	8.57	8.55	8.53	
4	5.96	5.91	5.86	5.80	5.77	5.75	5.72	5.69	5.66	5.63	
5	4.74	4.68	4.62	4.56	4.53	4.50	4.46	4.43	4.40	4.36	
6	4.06	4.00	3.94	3.87	3.84	3.81	3.77	3.74	3.70	3.67	
7	3.64	3.57	3.51	3.44	3.41	3.38	3.34	3.30	3.27	3.23	
8	3.35	3.28	3.22	3.15	3.12	3.08	3.04	3.01	2.97	2.93	
9	3.14	3.07	3.01	2.94	2.90	2.85	2.83	2.79	2.75	2.71	
10	2.98	2.91	2.85	2.77	2.74	2.70	2.66	2.62	2.58	2.54	
11	2.85	2.78	2.72	2.65	2.61	2.57	2.53	2.49	2.45	2.40	
12	2.75	2.68	2.62	2.54	2.51	2.47	2.43	2.38	2.34	2.30	
13	2.67	2.60	2.53	2.46	2.42	2.38	2.34	2.29	2.25	2.21	
14	2.60	2.53	2.46	2.39	2.35	2.31	2.27	2.22	2.18	2.13	
15	2.54	2.48	2.40	2.33	2.29	2.25	2.20	2.16	2.11	2.07	
16	2.49	2.42	2.35	2.28	2.24	2.19	2.15	2.10	2.06	2.01	
17	2.45	2.38	2.31	2.24	2.20	2.15	2.11	2.06	2.02	1.97	
18	2.41	2.34	2.27	2.19	2.15	2.11	2.06	2.02	1.97	1.92	
19	2.38	2.31	2.23	2.16	2.11	2.07	2.03	1.98	1.93	1.88	
20	2.35	2.28	2.20	2.12	2.08	2.04	1.99	1.95	1.90	1.84	
21	2.32	2.25	2.18	2.10	2.06	2.01	1.96	1.92	1.87	1.81	
22	2.30	2.23	2.15	2.07	2.03	1.98	1.94	1.89	1.84	1.78	
23	2.27	2.20	2.13	2.05	2.01	1.96	1.91	1.86	1.81	1.76	
24	2.25	2.18	2.11	2.03	1.98	1.94	1.89	1.84	1.79	1.73	
25	2.24	2.16	2.09	2.01	1.96	1.92	1.87	1.82	1.77	1.71	
26	2.22	2.15	2.07	1.99	1.95	1.90	1.85	1.80	1.75	1.69	
27	2.20	2.13	2.06	1.97	1.93	1.88	1.84	1.79	1.73	1.67	
28	2.19	2.12	2.04	1.96	1.91	1.87	1.82	1.77	1.71	1.65	
29	2.18	2.10	2.03	1.94	1.90	1.85	1.81	1.75	1.70	1.64	
30	2.16	2.09	2.01	1.93	1.89	1.84	1.79	1.74	1.68	1.62	
40	2.08	2.00	1.92	1.84	1.79	1.74	1.69	1.64	1.58	1.51	
60	1.99	1.91	1.84	1.75	1.70	1.65	1.59	1.53	1.47	1.39	
80	1.91	1.83	1.75	1.66	1.61	1.55	1.50	1.43	1.35	1.25	
∞	1.83	1.75	1.67	1.57	1.52	1.46	1.39	1.32	1.22	1.00	

試題隨卷繳回