國立中央大學八十三學年度研究所碩士班入學試題卷

系所別： 財務管理研究所 組 科目： 統計學 共 4 頁 第 1 頁

參考用

I. Suppose that during practice, a basketball player can make a free throw 80% of the time. Furthermore, assume that a sequence of free throw shooting can be thought of as independent Bernoulli trials. Let X equal the minimum number of free throws that this player must attempt to make a total of 10 shots.

Required:

(i) Define the p.d.f. of X. [5 points]
(ii) Give the values of the mean, variance, and standard deviation of X. [5 points]
(iii) Find the values of $P(X \le 12)$, $P(X \ge 15)$, and $P(X = 17)$. [5 points]

II. Let X equal the time between calls that are made over the public safety radio. On four different days (February 14, 21, and 28, and March 6) and during a period of one hour on each day, the following observations of X were made:

5 7 8 20 17 2 24 8 8 6 4
3 42 10 18 5 7 3 4 5 10

If calls arrive randomly in accordance with an approximate Poisson process, then the distribution of X should be approximately exponential.

Required:

(i) Calculate the values of the sample mean and sample standard deviation. Are they close to each other in value? [5 points]
(ii) Construct a q-q plot of the ordered observations versus the respective quantiles of the exponential distribution with a mean of $\theta=1$. [5 points]
(iii) Construct a box-and-whisker diagram. Does it indicate that the data are skewed, as would be true for observations from an exponential distribution? [5 points]

III. Suppose that a security analyst wishes to compare the dividend yields of stocks traded on the American Stock Exchange (ASE) with those traded on the New York Stock Exchange (NYSE). Random samples of 8 issues from the ASE and 10 issues from the NYSE are selected; the results are presented in Table III-a.

Table III-a: Computing dividend yields of selected issues from the American and New York Stock Exchanges

American Stock Exchange ($n_1 = 8$)			New York Stock Exchange ($n_2 = 10$)		
(1) Dividends per Share	(2) Price per Share	(1)/(2) Dividend Yield %	(1) Dividends per Share	(2) Price per Share	(1)/(2) Dividend Yield %
$0.60	$11.88	5.1	$0.22	$ 8.00	2.8
0.12	8.75	1.4	0.60	8.25	7.3
0.24	14.75	1.6	2.00	20.38	9.8
0.20	3.50	5.7	1.08	15.50	7.0
0.80	8.25	9.7	1.59	16.75	9.5
1.30	14.25	9.1	1.00	18.25	5.5
0.35	3.12	11.2	0.80	14.25	5.6
0.32	3.88	8.2	3.60	33.25	10.8
			0.80	17.12	4.7
			0.50	7.75	6.5

Table III-b: Combined Ranks

American Stock Exchange Dividend Yield Rankings ($n_1 = 8$)	New York Stock Exchange Dividend Yield Rankings ($n_2 = 10$)
5	3
1	11
2	16
8	10
15	14
13	6
18	7
12	17
	4
	9

Required:

(i) If the security analyst is specifically concerned with comparing the median dividend yields rather than just any differences whatsoever in the dividend yields, what assumption(s) must be made concerning the distributions of dividend yields in both populations from which the random samples were drawn? [5 points]
(ii) Since the security analyst is not specifying which of the two groups is likely to possess a greater median dividend yield, the test is two tailed. Establish the null and alternative hypotheses to be tested. [5 points]
(iii) Assume that the Wilcoxon rank-sum test is the appropriate testing procedure. The combined ranking of the $n_1 = 8$ dividend yields from the issues on the SSE with the $n_2 = 10$ dividend yields from the issues on the NYSE is formed as in Table III-b. Calculate the test statistics T_1, the sum of the ranks assigned to the smaller sample. At 0.05 level of significance, what conclusion can be reached based on the calculated test statistics T_1 ? [5 points]

IV. When a series appears to be increasing at an increasing rate such that the percent difference from observation to observation is constant, we may fit an exponential trend equation of the form $\hat{Y}_i = b_0 b_1^{X_i}$, where b_0 = estimated Y intercept; and $(b_1 - 1) \times 100\%$ = estimated annual compound growth rate (in percent). If we take the natural logarithm (base e) of both sides of the above exponential equation, we have $\ln \hat{Y}_i = \ln b_0 + X_i \ln b_1$.

Now, consider the net sales for the Eastman Kodak Company. The following computer output is an estimated exponential model of net sales at Eastman Kodak based on the annual data over the 20-year period 1970 through 1989. (The raw data are not shown here.)

```
Dependent Variable: Y = Log Net Sales
Predictor Variable: X = Year - 1969
   Predictor      Coefficient        Stdev          t-ratio        p-value
   Constant         1.0300          0.0522         19.7158         0.0000
      X             0.0936          0.0044         21.4610         0.0000
```

Required:

(i) What is the estimated annual compound growth rate in net sales at Eastman Kodak? [5 points]
(ii) Predict the net sales for the year 1993. [5 points]

V. The following regression model has been used to estimate the demand for imports into the U.S.:

$$Y_t = \alpha + \beta_1 X_{1t} + \beta_2 X_{2t} + \varepsilon_t$$

where Y_t is the value of imported manufactured goods in year t ($billion); X_{1t} is an index of the relative price of domestic goods to imported goods in year t; X_{2t} is the value of Gross Domestic Product (GDP) in year t ($100 billion).

The following computer output represents a regression using annual data from 1970 to 1986:

```
The regression equation is
Y = 148 + 25.9 X1 + .115 X2
Predictor          Coef          Stdev        t-ratio
Constant         147.82          15.09          9.79
X1                25.894          5.470          4.73
X2               0.11494         .05297          2.17
s = 10.18       R-sq = 64.2%       R-sq(adj) = 59.1%

Analysis of Variance
SOURCE            DF          SS            MS
Regression         2        2600.3        1300.2
Error             14        1449.6         103.5
Total             16        4049.9
```

Required:

(i) What is the interpretation of the coefficients β_1 and β_2 in the above model? [5 points]
(ii) What does the estimated value of R^2 represent for this regression? [5 points]
(iii) Obtain a 95% confidence interval for the true coefficient of X_{1t}. [5 points]
(iv) Is the coefficient of the relative price index statistically significantly different from zero? [5 points]
(v) Test the hypothesis that $\beta_1 = 20$ against the alternative that it is greater than 20. [5 points]
(vi) Do the 2 explanatory variables X_{1t} and X_{2t} (considered together) have a statistically significant effect on the level of imports? [5 points]

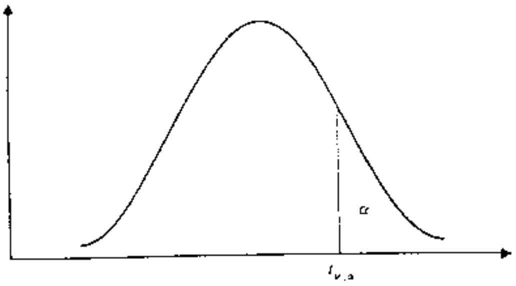
VI. Three financial analysts were asked to predict earnings growth over the coming year for four oil companies. Their forecasts, as projected percentage increases in earnings, are given in the accompanying table.

OIL COMPANY	ANALYST		
	A	B	C
1	8	12	7
2	9	9	8
3	12	10	9
4	11	10	10

Required:

(i) Set out the two-way analysis of variance table. [10 points]
(ii) Test the null hypothesis that the population mean growth forecasts are the same for the all oil companies. [5 points]

. Cutoff points for the Student's t distribution



or selected probabilities, α, the table shows the values $t_{\nu,\alpha}$ such that $P(t_\nu > t_{\nu,\alpha}) = \alpha$, where t_ν is a Student's t andom variable with ν degrees of freedom. For example, the probability is .10 that a Student's t random ariable with 10 degrees of freedom exceeds 1.372.

ν	α .100	.050	.025	.010	.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	4.541	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	1.325	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
40	1.303	1.684	2.021	2.423	2.704
60	1.296	1.671	2.000	2.390	2.660
∞	1.282	1.645	1.960	2.326	2.576

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Lower and upper critical values T_{n_1} of Wilcoxon rank sum test

參考用

n_1	α One Tailed	Two Tailed	n_2 4	5	6	7	8	9	10
4	.05	.10	11,25						
	.025	.05	10,26						
	.01	.02	—,—						
	.005	.01	—,—						
5	.05	.10	12,28	19,36					
	.025	.05	11,29	17,38					
	.01	.02	10,30	16,39					
	.005	.01	—,—	15,40					
6	.05	.10	13,31	20,40	28,50				
	.025	.05	12,32	18,42	26,52				
	.01	.02	11,33	17,43	24,54				
	.005	.01	10,34	16,44	23,55				
7	.05	.10	14,34	21,44	29,55	39,66			
	.025	.05	13,35	20,45	27,57	36,69			
	.01	.02	11,37	18,47	25,59	34,71			
	.005	.01	10,38	16,49	24,60	32,73			
8	.05	.10	15,37	23,47	31,59	41,71	51,85		
	.025	.05	14,38	21,49	29,61	38,74	49,87		
	.01	.02	12,40	19,51	27,63	35,77	45,91		
	.005	.01	11,41	17,53	25,65	34,78	43,93		
9	.05	.10	16,40	24,51	33,63	43,76	54,90	66,105	
	.025	.05	14,42	22,53	31,65	40,79	51,93	62,109	
	.01	.02	13,43	20,55	28,68	37,82	47,97	59,112	
	.005	.01	11,45	18,57	26,70	35,84	45,99	56,115	
10	.05	.10	17,43	26.54	35,67	45,81	56,96	69,111	82,128
	.025	.05	15,45	23,57	32,70	47,84	53,99	65,115	78,132
	.01	.02	13,47	21,59	29,73	39,87	49.103	61,119	74,136
	.005	.01	12,48	19,61	27,75	37,89	47,105	58,122	71,139

SOURCE: Adapted from Table 1 of F. Wilcoxon and R. A. Wilcox, *Some Rapid Approximate Statistical Procedures* (Pearl River, N.Y., Lederle Laboratories, 1964), with permission of the American Cyanamid Company.

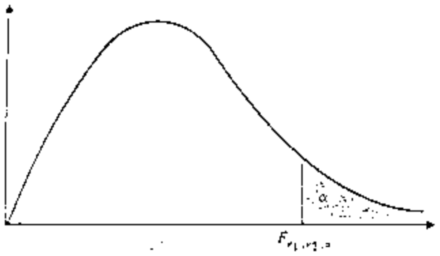
Lower and upper critical values W of Wilcoxon signed-ranks test

n	One Tailed: $\alpha = .05$ Two-Tailed: $\alpha = .10$	$\alpha = .025$ $\alpha = .05$	$\alpha = .01$ $\alpha = .02$	$\alpha = .005$ $\alpha = .01$
	(Lower, Upper)			
5	0,15	—,—	—,—	—,—
6	2,19	0,21	—,—	—,—
7	3,25	2,26	0.28	—,—
8	5.31	3,33	1,35	0,36
9	8.37	5,40	3,42	1,44
10	10,45	8,47	5.50	3,52
11	13,53	10,56	7,59	5,61
12	17,61	13,65	10,68	7,71
13	21,70	17,74	12.79	10,81
14	25.80	21,84	16,89	13,92
15	30,90	25,95	19,101	16,104
16	35,101	29.107	23,113	19,117
17	41,112	34,119	27,126	23,130
18	47,124	40.131	32,139	27,144
19	53,137	46,144	37,153	32,158
20	60,150	52,158	43,167	37,173

SOURCE: Adapted from Table 2 of F. Wilcoxon and R. A. Wilcox, *Some Rapid Approximate Statistical Procedures* (Pearl River, N.Y.: Lederle Laboratories, 1964), with permission of the American Cyanamid Company.

參考用

Cutoff points for the *F* distribution



For probabilities α = .05 and α = .01, the tables show the values $F_{\nu_1,\nu_2,\alpha}$ such that $P(F_{\nu_1,\nu_2} > F_{\nu_1,\nu_2,\alpha}) = \alpha$, where F_{ν_1,ν_2} is an *F* random variable with numerator degrees of freedom ν_1 and denominator degrees of freedom ν_2. For example, the probability is .05 that an $F_{1,20}$ random variable exceeds 4.35.

α = .05

DENOMINATOR ν_2	NUMERATOR 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	1.50	1.43	1.35	1.25
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.75	1.67	1.57	1.52	1.46	1.39	1.32	1.22	1.00

α = .01

DENOMINATOR ν_2	NUMERATOR ν_1																		
	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞
1	4052	4999.5	5403	5625	5764	5859	5928	5982	6022	6056	6106	6157	6209	6235	6261	6287	6313	6339	6366
2	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39	99.40	99.42	99.43	99.45	99.46	99.47	99.47	99.48	99.49	99.50
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	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	3.00
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	5.18	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	2.06
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	2.03
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
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	1.80
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
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
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.18	2.04	1.88	1.79	1.70	1.59	1.47	1.32	1.00

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