College of Science.
Department of Statistics & Operations Research

كلية العلوم
قسم الإحصاء وبحوث العمليات

Final Exam
Academic Year 1443-1444 Hijri- SecondSemester

Exam Information معلومات الامتحان			
Course name	**Biostatistics (A)**		**اسم المقرر**
Course Code	**Stat 109**		**رمز المقرر**
Exam Date	**2023-02-19**	**1444-07-28**	**تاريخ الامتحان**
Exam Time	**01: 00 PM**		**وقت الامتحان**
Exam Duration	**2 hours**	**ساعتان**	**مدة الامتحان**
Classroom No.			**رقم قاعة الاختبار**
Instructor Name			**اسم استاذ المقرر**
Student Information معلومات الطالب			
Student's Name			**اسم الطالب**
ID number			**الرقم الجامعي**
Section No.			**رقم الشعبة**
Serial Number			**الرقم التسلسلي**

General Instructions: **تعليمات عامة:**

• Do not copy answers from your neighbors. They have different questions forms.	• لا تنسخ الإجابات من أصدقائك، لديهم نماذج أسئلة مختلفة.
• Choose the nearest number to your answer.	• اختر أقرب رقم لإجابتك.
• Do not use pencils or red pens.	• لا تستخدم أقلام الرصاص أو الأقلام الحمراء.
• Correction will be from cover page **only**.	• يجب نقل الاجابات بدقة ولن ينظر لورقة الأسئلة من الداخل.
• For each question, put the code (Capital Letters) of the correct answer in the following table beneath the question number	• لكل سؤال، ضع رمز (الحروف الكبيرة) للإجابة الصحيحة في الجدول التالي أسفل رقم السؤال.

This section is ONLY for instructor

#	Course Learning Outcomes (CLOs)	Related Questions	Points	Final Score
1	Confident interval about population parameter			
2	Testing hypothesis about population parameter			40

1	2	3	4	5	6	7	8	9	10
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**

Choose the right answer for each question:

Question(1- 6):

The heights of a random sample of 20 college students showed a mean of 174.5 centimeters with a standard deviation of 6.9 centimeters . Assume normal population .

- **Construct a 90% confidence interval for the mean height of all college students.**

1) The point estimate of μ is

A)	2.6268	B)	6.9	C)	174.5	D)	20

2) The reliability coefficient (at 90% confident level) **is**

A)	1.729	B)	1.725	C)	1.645	D)	1.96

3) The 90% upper limit of the confidence interval for the population mean μ is

A)	176.55	B)	172.45	C)	171.83	D)	177.17

- **Can it be concluded from these data that the population mean height of all college students is less than 160 ? $\alpha = 0.1$**

4) The alternative hypotheses is:

A)	$\mu \geq 160$	B)	$\bar{X} > 160$	C)	$\mu < 160$	D)	$\bar{X} < 160$

5) The test statistics equals

A)	9.398	B)	24.69	C)	113.10	D)	1.3620

6) The decision is

A)	Reject H_0	B)	Accept H_0

Question(7 - 12):

Suppose that we are interested in making some statistical inferences about the mean, μ, of a normal population with standard deviation σ =2 . Suppose that a random sample of size 49 with sample mean 4.5 .

7) The standard error of the sample mean $\bar{X}$ is

A)	0.0408	B)	0.2020	C)	0.2857	D)	0.5714

8) The 95% confidence interval for the population mean μ is

A)	(4.03 , 5.06)	B)	(4.03 , 4.97)	C)	(3.94 , 5.06)	D)	(3.94 , 4.97)

9) The length of 95% confidence interval for the population mean μ is

A)	1.97	B)	0.94	C)	1.12	D)	1.03

➢ **To test $H_0: \mu \leq 3 \quad vs \quad H_A: \mu > 3$ at $\alpha = 0.025$, then**

10) The test statistics equals

A)	15.75	B)	7.4246	C)	5.25	D)	4.5

11) The rejection region of H_0 is

A)	$(1.96, \infty)$	B)	$(-\infty, 1.96)$	C)	$(-\infty, -1.645)$	D)	$(1.645, \infty)$

12) The decision is

A)	Reject H_0	B)	Accept H_0

Questions(13 - 17):

The weekly weight losses of all dieters on Diet I have a normal distribution with a standard deviation of 0.4 pound. The weekly weight losses of all dieters on Diet II have a normal distribution with a standard deviation of 0.7 pound. Two random independent samples are observed. The following table showed the samples results.

	Diet I	Diet II
Sample size	**25**	**36**
Sample mean	**1.3 pounds**	**1.5 pounds**

Let μ_I represents the weekly weight losses mean of all dieters on Diet I and μ_{II} represents the weekly weight losses mean of all dieters on Diet II.

13) The good point estimate for $\mu_I - \mu_{II}$ is

A)	- 0.2	B)	1.3	C)	-1.5	D)	0.2

14) The margin of error of 90% confident interval of $\mu_I - \mu_{II}$ is

A)	$Z_{0.95}\sqrt{\frac{0.4^2}{25}+\frac{0.7^2}{36}}$	B)	$t_{0.95}\sqrt{\frac{0.4^2}{25}+\frac{0.7^2}{36}}$	C)	$Z_{0.95}\sqrt{\frac{0.4}{25}+\frac{0.7}{36}}$	D)	$t_{0.95}\sqrt{\frac{0.4}{25}+\frac{0.7}{36}}$

15) The upper limit of 90% confidence interval of $\mu_I - \mu_{II}$ is

A)	-0.4327	B)	-1.6903	C)	0.0327	D)	2.3097

➢ **Test $\mu_I - \mu_{II} = 0$ vs $\mu_I - \mu_{II} \neq 0$ at level of significance of 0.01.**

16) The acceptance region of the test is

A)	(-2.575, 2.575)	B)	(-1.645, 1.645)	C)	$(-\infty, -1.645) \cup (1.645, \infty)$	D)	$(-\infty, -2.575) \cup (2.575, \infty)$

17) The conclusion is

A)	There is a difference between the weight losses mean on Diet I and II $\mu_I \neq \mu_{II}$	B)	There is not a deference between the weight losses mean on Diet I and II $\mu_I = \mu_{II}$

Questions (18 -22):

Suppose we want to estimate the difference between the mean salaries in Riyal of all male (μ_M) and all female (μ_F) in a certain company. A sample of size 27 males is drawn from the population of male salaries. Another sample of size 25 females is drawn from the population of female salaries. The researcher believes that the mean male salaries is higher than the mean female salaries by 1450 riyal at level of significance 0.05.

	Mean	Sample standard deviation	Sample size
Male	**10000**	**100**	**27**
Female	**8500**	**200**	**25**

Assume equal variances and the two populations are normal . Find

18) The research hypothesis is

A)	$H_A: \mu_M - \mu_F > 1450$	B)	$H_0: \mu_M - \mu_F \geq 1450$
C)	$H_0: \mu_M - \mu_F < 1450$	D)	$H_A: \mu_M - \mu_F \geq 1450$

19) The value of pooled variance (S_P^2) is

A)	148	B)	154	C)	24400	D)	25400

20) The test statistic is

A)	$Z = \frac{\bar{X}_M - \bar{X}_F}{\sqrt{\frac{100^2}{27} + \frac{200^2}{25}}}$	B)	$Z = \frac{(\bar{X}_M - \bar{X}_F) - 1450}{\sqrt{\frac{S_p^2}{27} + \frac{S_p^2}{25}}}$	C)	$T = \frac{(\bar{X}_M - \bar{X}_F) - 1450}{\sqrt{\frac{S_p^2}{27} + \frac{S_p^2}{25}}}$	D)	$T = \frac{(\bar{X}_M - \bar{X}_F) - 1450}{\sqrt{\frac{100^2}{27} + \frac{200^2}{25}}}$

21) The critical value is

A)	2.0086	B)	1.645	C)	1.6759	D)	1.96

22) The decision is

A)	Reject H_0	B)	Accept H_0

Question(23 - 25):

A drug company wishes to test a drug for its effectiveness in treating a rare illness in which glycolipids are poorly metabolized. The company is only able to find 8 patients willing to cooperate in the early trials of the drug. The following table shows the glycolipid concentrations before and after the drug.

The patient	1	2	3	4	5	6	7	8
Before the drug X_i	152	148	143	142	143	147	137	136
After the drug Y_i	145	142	144	138	142	139	139	140
$D_i = X_i - Y_i$	7	6	-1	4	1	8	-2	- 4

Assume normal distribution for the differences. The value of sample mean of the differences $\bar{D} = 2.375$ and standard deviation of the difference S_D = 4.502 .

- **Test the effectiveness of the drug at α = 0.05 as a level of significance .**

  H_0: μ_D = 0 versus H_A: $\mu_D \neq 0$

23) The value of the test statistic is:

A)	**T** = 4.22	B)	**Z** = 4.22	C)	**T** =1.492	D)	**Z** =1.492

24) The decision is:

A)	**Reject** H_0	B)	**Accept** H_0

25) The upper limit of 95 % confident interval for μ_D is:

A)	-0.745	B)	-1.389	C)	6.139	D)	5.947

Question(26 - 30):

In a sample of 71 case of food-poising in Saudi Arabia, 38% of cases had a public restaurant as the source of food-poising. Find

26) The point estimate of *P* is

A)	0.71	B)	0.62	C)	0.38	D)	0.23

27) The 90% lower limit for population proportion *P* is

A)	0.2671	B)	0.47476	C)	0.2852	D)	0.1254

- **Test whether the population proportion is less than 45% .Use level of significance 0.01 .**

28) The null hypothesis H_0 is

A)	$H_0: P < 0.45$	B)	$H_0: P \leq 0.45$	C)	$H_0: P \geq 0.45$	D)	$H_0: P \geq 0.38$

29) The P-value =

A)	0.88298	B)	0.88877	C)	0.11702— 0.11215	D)	0.21123

30) Decision is

A)	Reject H_0	B)	Accept H_0

Question(31 - 35):

Trachoma is a major cause of visual disability and preventable blindness. Suppose that in a samples of school children from Dammam and Riyadh, the results given in the following table

	Sample size	Number with active trachoma (X)
Dammam(1)	115	20
Riyadh (2)	190	9

31) The point estimate of the difference between two proportion $P_1 - P_2$ is

A)	0.9049	B)	0.1265	C)	0.1739	D)	0.0474

32) The lower limit of 99% confident interval of $P_1 - P_2$ is

A)	0.01323	B)	0.0272	C)	0.2258	D)	0.2354

- **Test $H_0: P_1 - P_2 \leq 0$ vs $H_A: P_1 - P_2 > 0$ .Assume equal proportion with level of significant 0.01 . Then,**

33) The value of pooled proportion ($\bar{P}$) is

A)	0.9049	B)	0.0951	C)	0.1739	D)	0.0474

34) The value of the test statistic is

A)	2.2419	B)	3.6499--- 3.651454	C)	2.5324	D)	3.2806

35) The decision is (Reject H_0)

A)	Reject H_0				B)	Accept H_0

Question(36- 40):

36) …… is the smallest value of α for which we can reject the null hypothesis.

A)	β	B)	Type I error	C)	p-value	D)	None of these

37) β is the:

A)	P (Accepting H_0 | H_0 is false)	B)	Accepting H_0 when H_0 is false
C)	P (Rejecting H_0| H_0 is true)	D)	Rejecting H_0 when H_0 is true

38) The most typical form of a calculated confidence interval is

A)	**Point estimate ± standard error**	B)	**Population parameter ± standard error**
C)	**Point estimate ± (standard error× reliability coefficient)**	D)	**Population parameter ± margin of error**

39) When the sample size n decrease, the width of the C.I. will

A)	decrease	B)	increase	C)	It does not change	D)	We can not decide

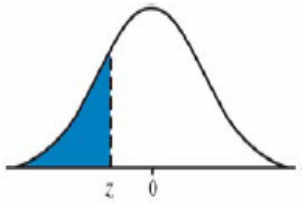
40) Type I error is

A)	P(Accepting H_0 | H_0 is false)	B)	Accepting H_0 when H_0 is false
C)	P(Rejecting H_0| H_0 is true)	D)	Rejecting H_0 when H_0 is true

End of the Questions

Standard Normal Table

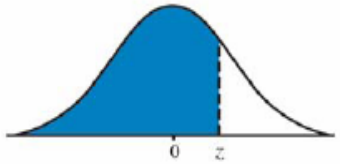
Areas Under the Standard Normal Curve



z	-0.09	-0.08	-0.07	-0.06	-0.05	-0.04	-0.03	-0.02	-0.01	-0.00	z
-3.50	0.00017	0.00017	0.00018	0.00019	0.00019	0.00020	0.00021	0.00022	0.00022	0.00023	-3.50
-3.40	0.00024	0.00025	0.00026	0.00027	0.00028	0.00029	0.00030	0.00031	0.00032	0.00034	-3.40
-3.30	0.00035	0.00036	0.00038	0.00039	0.00040	0.00042	0.00043	0.00045	0.00047	0.00048	-3.30
-3.20	0.00050	0.00052	0.00054	0.00056	0.00058	0.00060	0.00062	0.00064	0.00066	0.00069	-3.20
-3.10	0.00071	0.00074	0.00076	0.00079	0.00082	0.00084	0.00087	0.00090	0.00094	0.00097	-3.10
-3.00	0.00100	0.00104	0.00107	0.00111	0.00114	0.00118	0.00122	0.00126	0.00131	0.00135	-3.00
-2.90	0.00139	0.00144	0.00149	0.00154	0.00159	0.00164	0.00169	0.00175	0.00181	0.00187	-2.90
-2.80	0.00193	0.00199	0.00205	0.00212	0.00219	0.00226	0.00233	0.00240	0.00248	0.00256	-2.80
-2.70	0.00264	0.00272	0.00280	0.00289	0.00298	0.00307	0.00317	0.00326	0.00336	0.00347	-2.70
-2.60	0.00357	0.00368	0.00379	0.00391	0.00402	0.00415	0.00427	0.00440	0.00453	0.00466	-2.60
-2.50	0.00480	0.00494	0.00508	0.00523	0.00539	0.00554	0.00570	0.00587	0.00604	0.00621	-2.50
-2.40	0.00639	0.00657	0.00676	0.00695	0.00714	0.00734	0.00755	0.00776	0.00798	0.00820	-2.40
-2.30	0.00842	0.00866	0.00889	0.00914	0.00939	0.00964	0.00990	0.01017	0.01044	0.01072	-2.30
-2.20	0.01101	0.01130	0.01160	0.01191	0.01222	0.01255	0.01287	0.01321	0.01355	0.01390	-2.20
-2.10	0.01426	0.01463	0.01500	0.01539	0.01578	0.01618	0.01659	0.01700	0.01743	0.01786	-2.10
-2.00	0.01831	0.01876	0.01923	0.01970	0.02018	0.02068	0.02118	0.02169	0.02222	0.02275	-2.00
-1.90	0.02330	0.02385	0.02442	0.02500	0.02559	0.02619	0.02680	0.02743	0.02807	0.02872	-1.90
-1.80	0.02938	0.03005	0.03074	0.03144	0.03216	0.03288	0.03362	0.03438	0.03515	0.03593	-1.80
-1.70	0.03673	0.03754	0.03836	0.03920	0.04006	0.04093	0.04182	0.04272	0.04363	0.04457	-1.70
-1.60	0.04551	0.04648	0.04746	0.04846	0.04947	0.05050	0.05155	0.05262	0.05370	0.05480	-1.60
-1.50	0.05592	0.05705	0.05821	0.05938	0.06057	0.06178	0.06301	0.06426	0.06552	0.06681	-1.50
-1.40	0.06811	0.06944	0.07078	0.07215	0.07353	0.07493	0.07636	0.07780	0.07927	0.08076	-1.40
-1.30	0.08226	0.08379	0.08534	0.08691	0.08851	0.09012	0.09176	0.09342	0.09510	0.09680	-1.30
-1.20	0.09853	0.10027	0.10204	0.10383	0.10565	0.10749	0.10935	0.11123	0.11314	0.11507	-1.20
-1.10	0.11702	0.11900	0.12100	0.12302	0.12507	0.12714	0.12924	0.13136	0.13350	0.13567	-1.10
-1.00	0.13786	0.14007	0.14231	0.14457	0.14686	0.14917	0.15151	0.15386	0.15625	0.15866	-1.00
-0.90	0.16109	0.16354	0.16602	0.16853	0.17106	0.17361	0.17619	0.17879	0.18141	0.18406	-0.90
-0.80	0.18673	0.18943	0.19215	0.19489	0.19766	0.20045	0.20327	0.20611	0.20897	0.21186	-0.80
-0.70	0.21476	0.21770	0.22065	0.22363	0.22663	0.22965	0.23270	0.23576	0.23885	0.24196	-0.70
-0.60	0.24510	0.24825	0.25143	0.25463	0.25785	0.26109	0.26435	0.26763	0.27093	0.27425	-0.60
-0.50	0.27760	0.28096	0.28434	0.28774	0.29116	0.29460	0.29806	0.30153	0.30503	0.30854	-0.50
-0.40	0.31207	0.31561	0.31918	0.32276	0.32636	0.32997	0.33360	0.33724	0.3409	0.34458	-0.40
-0.30	0.34827	0.35197	0.35569	0.35942	0.36317	0.36693	0.37070	0.37448	0.37828	0.38209	-0.30
-0.20	0.38591	0.38974	0.39358	0.39743	0.40129	0.40517	0.40905	0.41294	0.41683	0.42074	-0.20
-0.10	0.42465	0.42858	0.43251	0.43644	0.44038	0.44433	0.44828	0.45224	0.45620	0.46017	-0.10
-0.00	0.46414	0.46812	0.47210	0.47608	0.48006	0.48405	0.48803	0.49202	0.49601	0.50000	-0.00

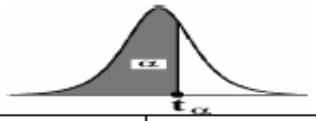
Standard Normal Table (continued)

Areas Under the Standard Normal Curve



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	z
0.00	0.50000	0.50399	0.50798	0.51197	0.51595	0.51994	0.52392	0.52790	0.53188	0.53586	0.00
0.10	0.53983	0.54380	0.54776	0.55172	0.55567	0.55962	0.56356	0.56749	0.57142	0.57535	0.10
0.20	0.57926	0.58317	0.58706	0.59095	0.59483	0.59871	0.60257	0.60642	0.61026	0.61409	0.20
0.30	0.61791	0.62172	0.62552	0.62930	0.63307	0.63683	0.64058	0.64431	0.64803	0.65173	0.30
0.40	0.65542	0.65910	0.66276	0.66640	0.67003	0.67364	0.67724	0.68082	0.68439	0.68793	0.40
0.50	0.69146	0.69497	0.69847	0.70194	0.70540	0.70884	0.71226	0.71566	0.71904	0.72240	0.50
0.60	0.72575	0.72907	0.73237	0.73565	0.73891	0.74215	0.74537	0.74857	0.75175	0.75490	0.60
0.70	0.75804	0.76115	0.76424	0.76730	0.77035	0.77337	0.77637	0.77935	0.78230	0.78524	0.70
0.80	0.78814	0.79103	0.79389	0.79673	0.79955	0.80234	0.80511	0.80785	0.81057	0.81327	0.80
0.90	0.81594	0.81859	0.82121	0.82381	0.82639	0.82894	0.83147	0.83398	0.83646	0.83891	0.90
1.00	0.84134	0.84375	0.84614	0.84849	0.85083	0.85314	0.85543	0.85769	0.85993	0.86214	1.00
1.10	0.86433	0.86650	0.86864	0.87076	0.87286	0.87493	0.87698	0.87900	0.88100	0.88298	1.10
1.20	0.88493	0.88686	0.88877	0.89065	0.89251	0.89435	0.89617	0.89796	0.89973	0.90147	1.20
1.30	0.90320	0.90490	0.90658	0.90824	0.90988	0.91149	0.91309	0.91466	0.91621	0.91774	1.30
1.40	0.91924	0.92073	0.92220	0.92364	0.92507	0.92647	0.92785	0.92922	0.93056	0.93189	1.40
1.50	0.93319	0.93448	0.93574	0.93699	0.93822	0.93943	0.94062	0.94179	0.94295	0.94408	1.50
1.60	0.94520	0.94630	0.94738	0.94845	0.94950	0.95053	0.95154	0.95254	0.95352	0.95449	1.60
1.70	0.95543	0.95637	0.95728	0.95818	0.95907	0.95994	0.96080	0.96164	0.96246	0.96327	1.70
1.80	0.96407	0.96485	0.96562	0.96638	0.96712	0.96784	0.96856	0.96926	0.96995	0.97062	1.80
1.90	0.97128	0.97193	0.97257	0.97320	0.97381	0.97441	0.97500	0.97558	0.97615	0.97670	1.90
2.00	0.97725	0.97778	0.97831	0.97882	0.97932	0.97982	0.98030	0.98077	0.98124	0.98169	2.00
2.10	0.98214	0.98257	0.98300	0.98341	0.98382	0.98422	0.98461	0.98500	0.98537	0.98574	2.10
2.20	0.98610	0.98645	0.98679	0.98713	0.98745	0.98778	0.98809	0.98840	0.98870	0.98899	2.20
2.30	0.98928	0.98956	0.98983	0.99010	0.99036	0.99061	0.99086	0.99111	0.99134	0.99158	2.30
2.40	0.99180	0.99202	0.99224	0.99245	0.99266	0.99286	0.99305	0.99324	0.99343	0.99361	2.40
2.50	0.99379	0.99396	0.99413	0.99430	0.99446	0.99461	0.99477	0.99492	0.99506	0.99520	2.50
2.60	0.99534	0.99547	0.99560	0.99573	0.99585	0.99598	0.99609	0.99621	0.99632	0.99643	2.60
2.70	0.99653	0.99664	0.99674	0.99683	0.99693	0.99702	0.99711	0.99720	0.99728	0.99736	2.70
2.80	0.99744	0.99752	0.99760	0.99767	0.99774	0.99781	0.99788	0.99795	0.99801	0.99807	2.80
2.90	0.99813	0.99819	0.99825	0.99831	0.99836	0.99841	0.99846	0.99851	0.99856	0.99861	2.90
3.00	0.99865	0.99869	0.99874	0.99878	0.99882	0.99886	0.99889	0.99893	0.99896	0.9990	3.00
3.10	0.99903	0.99906	0.99910	0.99913	0.99916	0.99918	0.99921	0.99924	0.99926	0.99929	3.10
3.20	0.99931	0.99934	0.99936	0.99938	0.99940	0.99942	0.99944	0.99946	0.99948	0.99950	3.20
3.30	0.99952	0.99953	0.99955	0.99957	0.99958	0.99960	0.99961	0.99962	0.99964	0.99965	3.30
3.40	0.99966	0.99968	0.99969	0.99970	0.99971	0.99972	0.99973	0.99974	0.99975	0.99976	3.40
3.50	0.99977	0.99978	0.99978	0.99979	0.99980	0.99981	0.99981	0.99982	0.99983	0.99983	3.50

Critical Values of the t-distribution (t_α)



ν=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
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
35	1.3062	1.6896	2.0301	2.4377	2.7238
40	1.3030	1.6840	2.0210	2.4230	2.7040
45	1.3006	1.6794	2.0141	2.4121	2.6896
50	1.2987	1.6759	2.0086	2.4033	2.6778
60	1.2958	1.6706	2.0003	2.3901	2.6603
70	1.2938	1.6669	1.9944	2.3808	2.6479
80	1.2922	1.6641	1.9901	2.3739	2.6387
90	1.2910	1.6620	1.9867	2.3685	2.6316
100	1.2901	1.6602	1.9840	2.3642	2.6259
120	1.2886	1.6577	1.9799	2.3578	2.6174
140	1.2876	1.6558	1.9771	2.3533	2.6114
160	1.2869	1.6544	1.9749	2.3499	2.6069
180	1.2863	1.6534	1.9732	2.3472	2.6034
200	1.2858	1.6525	1.9719	2.3451	2.6006
∞	1.282	1.645	1.960	2.326	2.576