STAT 1222 Spring 2015

Common Final Exam April 30, 2015

Please print the following information:

Name: _____ Instructor: _____

Student ID #: _____ Section/Time: _____

THIS EXAM HAS TWO PARTS

PART I. Consists of 30 multiple choice questions worth a total of 60 points. Read all questions carefully. You may do calculations on the test paper. Mark the number of the opscan sheet corresponding to the test question number with a Number 2 pencil or a mechanical pencil with HB lead. Mark only one answer; otherwise the answer will be counted as incorrect. In case there is more than one answer, mark the best answer. Please make sure that your name appears on the opscan sheet in the spaces provided.

PART II. This part consists of 3 questions (40 points in total). You MUST show all work for each question in the space provided to receive full credit for that question. If you write your explanations in another part of the test, please indicate accordingly.

At the end of the examination, you MUST hand in this test booklet, your answer sheet and all scratch paper.

FOR DEPARTMENTAL USE ONLY:
PART II:

Questions	1	2	3
Maximum	16	11	13
Score			

Part I Part II Total

1. The Department of Education wishes to estimate the proportion of all college students who have a job off-campus. It surveyed 1600 randomly selected students; 451 had such jobs. The *population* of interest to the Department of Education is:

   (a) All 1600 students surveyed.
   (b) The 451 students in the survey who had off-campus jobs.
   (c) All college students.
   (d) All college students who have off-campus jobs.

Use the following information to answer the questions 2 to 4.

Consider the sample data:

$$3, \quad -2, \quad 1, \quad 0, \quad -5, \quad 3, \quad 2, \quad 0$$

2. The sample mean of the data is about

   (a) 1.00 **(b)** 0.86 **(c)** 0.25 **(d)** 1.80 **(e)** 2.05

3. The sample standard deviation of the data is about

   (a) 2.71 **(b)** 3.24 **(c)** 3.80 **(d)** 6.92 **(e)** 1.00

4. The median of the sample data is

   (a) 0 **(b)** 1 **(c)** -1 **(d)** 2 **(e)** 0.5

5. The variability of a sample data set is measured by which of the following statistics?
   I. most frequent value
   II. sample size
   III. range
   IV. standard deviation
   V. median

   (a) II only **(b)** I and V only **(c)** IV only **(d)** III only **(e)** III and IV only

The following is for questions 6 and 7.

The annual 2-mile fun-run is a traditional fund-raising event to support local arts and sciences activities. It is known that the mean and standard deviation of finish times for this event are respectively $\mu = 30$ and $\sigma = 5.5$ minutes. Suppose the distribution of finish times is approximately bell-shaped and symmetric.

6. Find the approximate proportion of runners who finish in under 19 minutes.

   (a) 0.16 (b) 0.32 (c) 0.05 (d) 0.025 (e) 0.975

7. A person finished this running in 25 minutes. The corresponding z-score for this person is about

   (a) 0 (b) 0.91 (c) 5.5 (d) 1.00 (e) -0.91

Use the following information for questions 8 to 9

A random sample was taken of 3600 adults who were either employed or unemployed. People were classified according to education and employment status. In the education category, " degree" means a professional degree or a degree above high school diploma. Suppose a person is randomly selected from this group.

	unemployed	employed	**total**
no diploma	46	494	540
high school diploma	105	1947	2052
degree	29	979	1008
total	180	3420	3600

8. The probability that the person is unemployed is about:

   (a) 0.05 (b) 0.18 (c) 0.46 (d) 0.95 (e) 0.35

9. The probability that the person is either unemployed or has no diploma is about:

   (a) 0.15 (b) 0.05 (c) 0.26 (d) 0.19 (e) 0.01

Use the following information for questions 10 to 11.

In the following probability distribution table, X denotes the number of children 18 years old or younger in a family in a small town. One family is randomly selected from this town.

X	0	1	2	3	4	5
$P(X)$	0.10	0.40	0.30	0.10	0.05	0.05

10. Find the probability that X is at least 3.

    (a) 0.10 (b) 0.20 (c) 0.30 (d) 0.40 (e) 0.50

11. Find the mean of X.

    (a) 1.75 (b) 1.0 (c) 1.5 (d) 2.0 (e) 2.5

12. If z denotes the standard normal random variable, then $P(-0.57 \leq z \leq 0.22)$ is about

    (a) 0.7900 (b) 0.5871 (c) 0.3500 (d) 0.3028 (e) 0.8714

Use the following information for questions 13 to 14.

At the end of each semester, Professor Mann calculates an overall score for each of his students in large sections of an Introductory Statistics course. The overall score is calculated based on each students performance on homework, attendance, tests, quizzes and a final exam. A final grade is then assigned based on the overall score for the course. In a particular semester, the scores are normally distributed with a mean score of $\mu = 78$ and a standard deviation $\sigma = 6$.

13. Find the probability that a randomly selected student's overall score is more than 87.

    (a) 0.9332 (b) 0.5000 (c) 0.0668 (d) 0.1251 (e) 0.6800

14. Professor Mann decides to give A to the top 14% of the students. What is the the minimum score a student can get and still get an A?

    (a) 84.5 (b) 90.0 (c) 89.8 (d) 85.7 (e) 87.9

Use the following information for questions 15 to 16.

Scores for students on the verbal portion of the SAT-I test are normally distributed with a mean of 509 and a standard deviation of 108. A random sample of 36 students who took the SAT-I test is selected. Let $\bar{x}$ represent the mean score of the sample.

15. Find the mean and standard deviation of $\bar{x}$, i.e., $\mu_{\bar{x}}, \sigma_{\bar{x}}$.

    (a) $\mu_{\bar{x}} = 509$, $\sigma_{\bar{x}} = 108$.
    (b) $\mu_{\bar{x}} = 509$, $\sigma_{\bar{x}} = 18$
    (c) $\mu_{\bar{x}} = 84.833$, $\sigma_{\bar{x}} = 108$
    (d) $\mu_{\bar{x}} = 509$, $\sigma_{\bar{x}} = 3$.
    (e) $\mu_{\bar{x}} = 14.139$, $\sigma_{\bar{x}} = 3$.

16. The probability that the sample mean score $\bar{x}$ is greater than 540 is about

    (a) 0.9573 (b) 0.5427 (c) 0.6554 (d) 0.0427 (e) 0.17

17. Last Wednesday, a random sample of 24 students were surveyed to find how long it takes to walk from the Fretwell building to the College of Education building. The survey team found a sample mean of 12.3 minutes with a standard deviation of 3.2 minutes. Assuming walking times from Fretwell to the College of Education are normally distributed, Which of the following is the correct 95% confidence interval for the population mean of walking times?

    (a) $12.3 \pm (1.645)(\frac{3.2}{\sqrt{24}})$.
    (b) $12.3 \pm (2.069)(\frac{3.2}{\sqrt{24}})$.
    (c) $12.3 \pm (2.500)(\frac{3.2}{\sqrt{24}})$.
    (d) $12.3 \pm (2.575)(\frac{3.2}{\sqrt{24}})$.
    (e) $12.3 \pm (1.96)(\frac{3.2}{\sqrt{24}})$.

18. A poll was taken of 588 residents in a county. The residents sampled were asked whether they think their local government did a good job overall. 490 responded "yes". Let p denote the proportion of all residents in that county who think their local government did a good job. Construct a 95% confidence interval for p. Round off to two decimal places.

    (a) $(489.97, 490.03)$
    (b) $(0.77, 0.89)$
    (c) $(0.68, 0.92)$
    (d) $(0.10, 1.56)$
    (e) $(0.80, 0.86)$

19. The advertising department of a nationally circulated magazine wishes to estimate the mean age of its subscribers to within 0.5 year with 90% confidence. If they estimate that the standard deviation of the ages of their subscribers is about 5 years, what is the minimum size of the sample they must take?

(a) 17 (b) 165 (c) 45 (d) 271 (e) 13

20. In a situation of hypothesis testing, what happens when the null hypothesis H_0 is wrongly rejected when it is actually true?

(a) The Type I error probability is 1 or 100% .
(b) The Type I error probability is 0 or 0%.
(c) The Type II error probability is 0.5 or 50%.
(d) A Type II error occurs.
(e) A Type I error occurs.

Use the following information for questions 21 to 22.

In a survey of 1000 new college graduates 250 had a professional job on graduation day. Based on this survey, one wants to test $H_0 : p = 0.24$ vs $H_a : p \neq 0.24$, where p denotes the proportion of all new college graduates with a professional job.

21. The value of the test statistic is about

(a) 0.25 (b) 0.74 (c) 0.24 (d) 0.50 (e) 1.20

22. The p-value of the above test is about

(a) 0.2296 (b) 0.7704 (c) 1.5408 (d) 0.4592
(e) impossible to tell from the information given

Use the following information for questions 23 to 25.

A report from the office of the superintendent claims that the average reading test score of 4th grade students in the school district is 76. A group of parents suspects that the real mean is lower than this reported score so they draw a random sample consisting of 37 4th grade student reading exam scores. They find that the sample mean is 74 and the sample standard deviation is 4.5.

23. To test the superintendent's office claim, state the correct null and alternative hypotheses.

(a) $H_0 : \mu \geq 76$, $H_a : \mu < 76$
(b) $H_0 : \mu \leq 76$, $H_a : \mu > 76$
(c) $H_0 : \mu \geq 74$, $H_a : \mu < 74$
(d) $H_0 : \mu \leq 76$, $H_a : \mu > 74$
(e) $H_0 : \mu \geq 74$, $H_a : \mu < 76$

24. The value of the test statistic is

(a) 2.70 (b) -0.44 (c) -16.44 (d) 0.44 (e) -2.70

25. Find the P-value for the test and state your conclusion at the significance level of 0.05.

(a) P-value: 0.9965; Decision: Fail to reject H_0.
(b) P-value: 0.9965; Decision: Reject H_0.
(c) P-value: 0.0035; Decision: Fail to reject H_0.
(d) P-value: 0.0035; Decision: Reject H_0.
(e) P-value: 0.95; Decision: Fail to Reject H_0.

The following is used for questions 26 to 28.

To investigate the effective of a medication on total cholesterol level in patients with a condition for which the medication is indicated, the cholesterol level in five patients was measured at the beginning and then at the end of a three month regimen on the drug. Results are shown in the table.

Member	1	2	3	4	5
Start	105	121	115	134	128
End	113	127	114	136	131

The difference in the cholesterol levels (d = End − Start), for this sample of 5 patients results in $\bar{d} = 3.6$ and $s_d = 3.51$. Assume that the cholesterol levels are approximately normally distributed.

26. Does the medication **change** cholesterol level? Choose the appropriate hypotheses to test the claim.

(a) $H_0 : \mu_d = 0$ versus $H_a : \mu_d \neq 0$
(b) $H_0 : \bar{d} \leq 0$ versus $H_a : \bar{d} > 0$
(c) $H_0 : \mu_d \leq 0$ versus $H_a : \mu_d > 0$
(d) $H_0 : \mu_d \geq 0$ versus $H_a : \mu_d < 0$.
(e) $H_0 : \mu_d < 0$ versus $H_a : \mu_d \geq 0$.

27. The value of the standardized test statistic is about

(a) 1.96 (b) 1.645 (c)2.293 (d) 0.459 (e) 1.28

28. At $\alpha = .05$, which of the following is true?

(a) Rejection Region: $z < -1.96$ or $z > 1.96$.
(b) Rejection Region: $z < -1.645$.
(c) Rejection Region: $t > 2.132$.
(d) Rejection Region: $t < -2.776$ or $t > 2.776$.
(e) Rejection Region: $t < -2.132$ or $t > 2.132$.

Use the following information for questions 29 to 30

Do larger universities tend to have more property crime? University crime statistics are affected by a variety of factors such as surrounding community, accessibility given to outside visitors, etc. Let x represent student enrollment (in thousands) and let y represent the number of burglaries in a year on the university campus. A random sample of $n = 8$ universities in California yielded the following data regarding the enrollments and annual burglary incidents.

x	12.5	30.0	24.5	14.3	7.5	27.7	16.2	20.1
y	26	73	39	23	15	30	15	25

The equation of the regression line relating y to x as well as the coefficient of correlation are computed to be

$$\hat{y} = -4.13 + 1.83x, \qquad r = 0.76$$

29. The predicted number of annual burglary incidents for a California university with 23 (thousands) students is about

(a) 46 (b) 32.3 (c) 38 (d) 27 (e) 42

30. Which of the following conclusions may be made?

(a) x and y are very poorly correlated.
(b) x and y are almost perfectly correlated, and y tends to increase as x is decreased.
(c) x and y are almost perfectly correlated, and y tends to increase as x is increased.
(d) x and y are moderately linearly correlated, and y tends to increase as x is decreased.
(e) x and y are moderately linearly correlated, and y tends to increase as x is increased.

End of Multiple Choice Section

1. The table below reports the ages (in years) and the number of hours of sleep in one night by seven adults.

Age, x	35	20	59	42	68	38	75
Hours of sleep, y	7	9	5	6	5	8	4

$n = 7, \quad \sum x = 337, \quad \sum x^2 = 18563, \quad \sum y = 44, \quad \sum y^2 = 296, \quad \sum xy = 1916.$

(a) [4 pts.] Find the coefficient of correlation between x and y and interpret its meaning in the context of the problem.

(b) [6 pts.] At $\alpha = .05$, test $H_0 : \rho = 0$ vs $H_a : \rho \neq 0$.

(c) [4 pts.] Find the equation of the regression line between y and x.

(d) [2 pts.] Can you use the equation in part (c) to predict y when $x = 10$? Why or why not?

2. A fair coin is tossed twice.

(a) [3 pts.] List the sample space.

(b) [3 pts.] Let A be the event that the first toss is a head and B be the event that the second toss is a head. Find the three events A, B, A and B.

(c) [3 pts.] Find $P(A)$, $P(B)$, $P(A \text{ and } B)$.

(d) [2 pts.] Find $P(A \text{ or } B)$.

3. An employee group for a national retailer claims that the mean time spent by employees on personal phone calls is less than 10 minutes per day. A random sample of 25 employees for the retailer showed a sample mean of 9.2 minutes with a standard deviation of 2 minutes. Assume that the time spent by employees on personal phone calls is normally distributed. Let μ denote the mean time spent by employees on personal phone calls.

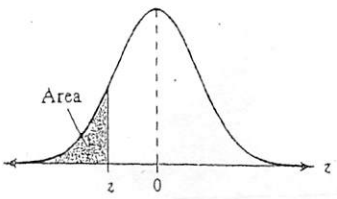
   (a) [3 pts.] Find a 95% confidence interval for μ.

   (b)[3 pts.] Specify the correct null and alternative hypotheses you would use to investigate the employee group's claim.

   (c) [3 pts.] Find the value of the standardized test statistic.

   (d)[4 pts.] Find the rejection region at $\alpha = .05$ and state your conclusion in the context of the problem.

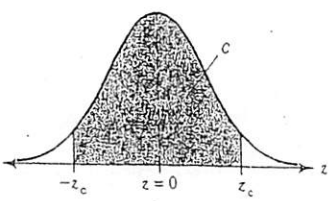
Standard Normal Distribution



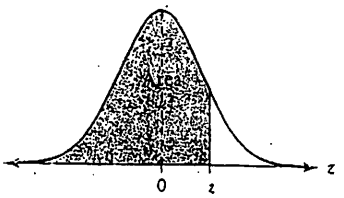
z	.09	.08	.07	.06	.05	.04	.03	.02	.01	.00
− 3.4	.0002	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003
− 3.3	.0003	.0004	.0004	.0004	.0004	.0004	.0004	.0005	.0005	.0005
− 3.2	.0005	.0005	.0005	.0006	.0006	.0006	.0006	.0006	.0007	.0007
− 3.1	.0007	.0007	.0008	.0008	.0008	.0008	.0009	.0009	.0009	.0010
− 3.0	.0010	.0010	.0011	.0011	.0011	.0012	.0012	.0013	.0013	.0013
− 2.9	.0014	.0014	.0015	.0015	.0016	.0016	.0017	.0018	.0018	.0019
− 2.8	.0019	.0020	.0021	.0021	.0022	.0023	.0023	.0024	.0025	.0026
− 2.7	.0026	.0027	.0028	.0029	.0030	.0031	.0032	.0033	.0034	.0035
− 2.6	.0036	.0037	.0038	.0039	.0040	.0041	.0043	.0044	.0045	.0047
− 2.5	.0048	.0049	.0051	.0052	.0054	.0055	.0057	.0059	.0060	.0062
− 2.4	.0064	.0066	.0068	.0069	.0071	.0073	.0075	.0078	.0080	.0082
− 2.3	.0084	.0087	.0089	.0091	.0094	.0096	.0099	.0102	.0104	.0107
− 2.2	.0110	.0113	.0116	.0119	.0122	.0125	.0129	.0132	.0136	.0139
− 2.1	.0143	.0146	.0150	.0154	.0158	.0162	.0166	.0170	.0174	.0179
− 2.0	.0183	.0188	.0192	.0197	.0202	.0207	.0212	.0217	.0222	.0228
− 1.9	.0233	.0239	.0244	.0250	.0256	.0262	.0268	.0274	.0281	.0287
− 1.8	.0294	.0301	.0307	.0314	.0322	.0329	.0336	.0344	.0351	.0359
− 1.7	.0367	.0375	.0384	.0392	.0401	.0409	.0418	.0427	.0436	.0446
− 1.6	.0455	.0465	.0475	.0485	.0495	.0505	.0516	.0526	.0537	.0548
− 1.5	.0559	.0571	.0582	.0594	.0606	.0618	.0630	.0643	.0655	.0668
− 1.4	.0681	.0694	.0708	.0721	.0735	.0749	.0764	.0778	.0793	.0808
− 1.3	.0823	.0838	.0853	.0869	.0885	.0901	.0918	.0934	.0951	.0968
− 1.2	.0985	.1003	.1020	.1038	.1056	.1075	.1093	.1112	.1131	.1151
− 1.1	.1170	.1190	.1210	.1230	.1251	.1271	.1292	.1314	.1335	.1357
− 1.0	.1379	.1401	.1423	.1446	.1469	.1492	.1515	.1539	.1562	.1587
− 0.9	.1611	.1635	.1660	.1685	.1711	.1736	.1762	.1788	.1814	.1841
− 0.8	.1867	.1894	.1922	.1949	.1977	.2005	.2033	.2061	.2090	.2119
− 0.7	.2148	.2177	.2206	.2236	.2266	.2296	.2327	.2358	.2389	.2420
− 0.6	.2451	.2483	.2514	.2546	.2578	.2611	.2643	.2676	.2709	.2743
− 0.5	.2776	.2810	.2843	.2877	.2912	.2946	.2981	.3015	.3050	.3085
− 0.4	.3121	.3156	.3192	.3228	.3264	.3300	.3336	.3372	.3409	.3446
− 0.3	.3483	.3520	.3557	.3594	.3632	.3669	.3707	.3745	.3783	.3821
− 0.2	.3859	.3897	.3936	.3974	.4013	.4052	.4090	.4129	.4168	.4207
− 0.1	.4247	.4286	.4325	.4364	.4404	.4443	.4483	.4522	.4562	.4602
− 0.0	.4641	.4681	.4721	.4761	.4801	.4840	.4880	.4920	.4960	.5000

Critical Values

Level of Confidence c	z_c
0.80	1.28
0.90	1.645
0.95	1.96
0.99	2.575



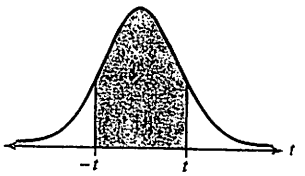
Standard Normal Distribution *(continued)*



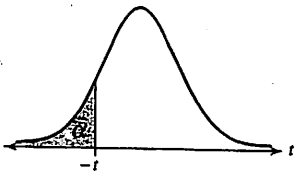
z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
0.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
0.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
0.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
0.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
0.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
0.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
0.7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
0.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
0.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9279	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
1.6	.9452	.9463	.9474	.9484	.9495	.9505	.9515	.9525	.9535	.9545
1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9699	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.9767
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990
3.1	.9990	.9991	.9991	.9991	.9992	.9992	.9992	.9992	.9993	.9993
3.2	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9995	.9995	.9995
3.3	.9995	.9995	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998

Table 5— *t*-Distribution

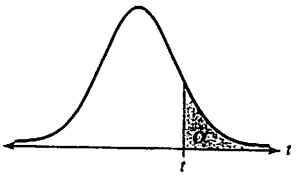
	Level of confidence, c	0.80	0.90	0.95	0.98	0.99
	One tail, α	0.10	0.05	0.025	0.01	0.005
d.f.	Two tails, α	0.20	0.10	0.05	0.02	0.01
1		3.078	6.314	12.706	31.821	63.657
2		1.886	2.920	4.303	6.965	9.925
3		1.638	2.353	3.182	4.541	5.841
4		1.533	2.132	2.776	3.747	4.604
5		1.476	2.015	2.571	3.365	4.032
6		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
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	1.688	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
45		1.301	1.679	2.014	2.412	2.690
50		1.299	1.676	2.009	2.403	2.678
60		1.296	1.671	2.000	2.390	2.660
70		1.294	1.667	1.994	2.381	2.648
80		1.292	1.664	1.990	2.374	2.639
90		1.291	1.662	1.987	2.368	2.632
100		1.290	1.660	1.984	2.364	2.626
500		1.283	1.648	1.965	2.334	2.586
1000		1.282	1.646	1.962	2.330	2.581
∞		1.282	1.645	1.960	2.326	2.576



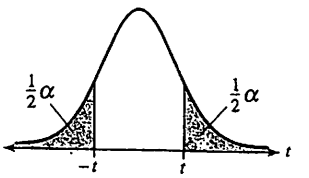
c-confidence interval



Left-tailed test



Right-tailed test



Two-tailed test