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Index No.

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**Institute of Certified Management Accountants of Sri Lanka  
Foundation Level**

**November 2014 Examination**

<b>Examination Date :</b>	23 <sup>rd</sup> November 2014	<b>Number of Pages :</b>	11
<b>Examination Time:</b>	9.30 a.m. – 11.30 a.m.	<b>Number of Questions:</b>	50

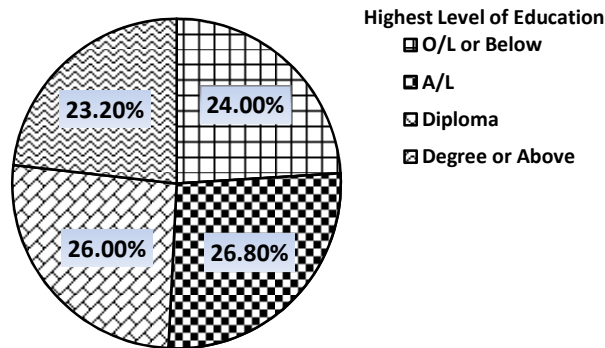
**Instructions to Candidates**

1. Time allowed is **two (2) hours**.
2. Total: **100 Marks**.
3. Answer **all** questions.
4. You will need to write your **index number** on the question paper as instructed. Please ensure that your index number is written on each page and that you collate and secure your script at the end of the assessment.
5. **Please indicate your answers in the question paper itself.** Strictly prohibited to take out your question paper / working sheets from the Examination Centre.
6. **Encircle** the correct answer in relation to **Multiple Choice Questions**. **Provide a concise answer in the space provided in relation to questions that require short answers.**
7. Candidates are allowed to use non-programmable calculators.
8. The answers should be in **English Language**.

<b><u>Subject</u></b>	<b><u>Subject Code</u></b>
<b>Business Mathematics &amp; Statistics</b>	<b>(BMS / FL 3 - 103)</b>

- (1) Simplify  $\frac{\sqrt[3]{64x^3y^9}}{4xz^{-2}}$  and express with positive exponents.
- (a)  $16y^3z^2$  (b)  $x^3z^2$   
 (c)  $x^9y^3z^{-2}$  (d)  $y^3z^2$
- (2) The factored expression of  $8x^3 + 125$  is:
- (a)  $(8x + 5)(4x^2 + 25 + 10x)$  (b)  $(2x + 25)(4x^2 + 25 - 20x)$   
 (c)  $(2x + 5)(4x^2 + 25 - 10x)$  (d)  $(2x - 5)(4x^2 + 25 + 10x)$
- (3) Lelani is 32 years older than her daughter. In 3 years, Lelani will be five times as old as her daughter. How old is Lelani after four years from now?
- (a) 37 years (b) 39 years  
 (c) 40 years (d) 41 years
- (4) RBB research firm began operations in the year 2002. In the beginning, RBB had only 7 data analysts. No recruitments were made for the analysts' cadre until the end of 2004. In the year 2005, the Director of the firm decided to increase the cadre of analysts by 5 each subsequent year. What would be the cadre size of analysts by the end of 2016?
- (a) 474 (b) 553  
 (c) 623 (d) 798
- (5) Miss. Surangi deposited Rs.7,500/- in a bank. The account pays 8.5% compounded semi-annually. How long will it take the deposited amount to double itself?
- (a) Approximately 8 years (b) Approximately 33 years  
 (c) Approximately 47 years (d) Approximately 53 years

- (6) What annual rate of interest compounded annually should you seek if you want to double your investment in 6 years?
- (a) 12.24% (b) 6.12%  
(c) 5.24% (d) 4%
- (7) The graph of  $4x + 3y = 12$  is the line which passes through the points:
- (a) (0, 4) and (0, 3) (b) (4, 0) and (0, 3)  
(c) (0, 4) and (3, 0) (d) (4, 0) and (3, 0)
- (8) The first order derivative of the function  $y = 4x^5(3x + 2)$  with respect to  $x$  is:
- (a)  $20x^4(3x - 1)$  (b)  $60x^4$   
(c)  $72x^5 - 40x^4$  (d)  $20x^4(3x - 2) + 12x^5$
- (9) Second order derivative of a certain function is  $f''(x) = 12x - 19$ . Critical values of  $f'(x)$  can be found at  $x = -3$ ,  $x = 4$  and  $x = 7$ . At which of the following critical values, a relative maximum exists?
- (a)  $x = -19$  (b)  $x = -3$   
(c)  $x = 4$  (d)  $x = 7$
- (10) The indefinite integral of the function  $y = \frac{50}{x}$  is:
- (a)  $\frac{50}{x^{-2}}$  (b)  $\frac{50}{x^2}$   
(c)  $\ln(50x) + C$  (d)  $50\ln(x) + C$
- (11) Those methods involving collecting, organizing and summarizing data are discussed in:
- (a) Descriptive Statistics (b) Inferential Statistics  
(c) Definite integration (d) Differentiation
- (12) Which of the following is not a continuous random variable?
- (a) The weight of a particular commodity  
(b) The length of time required to perform a particular task by a worker  
(c) The favorite radio channel of an individual  
(d) Z-Score of a student passed in a G.C.E. A/L examination
- (13) Following Pie chart presents the highest level of education of a group of employees in a certain company. If the group size is 250, how many employees have failed in the G.C.E. A/L examination?



- (a) 60 (b) 67  
(c) 127 (d) 190

- (14) Which of the following pairs is not included in measures of central tendency?
- (a) Standard Deviation, Second Quartile
  - (b) Mean, Variance
  - (c) Range, Median
  - (d) Standard Deviation, Inter-Quartile Range

**Answer the 15<sup>th</sup> question to 19<sup>th</sup> question based on the above information.**

In a garment factory, bonuses are paid for its operators according to their average efficiency. The structure of payment of bonus as follows.

Efficiency	Bonus in Rs.
Efficiency < 40	0
$40 \leq \text{Efficiency} < 60$	1,000
$60 \leq \text{Efficiency} < 70$	1,500
$70 \leq \text{Efficiency} < 80$	2,000
$80 \leq \text{Efficiency} < 90$	3,000
Efficiency $\geq 90$	5,000

Average efficiencies of employees who work in the factory are as follows.

61	47	75	74	50
69	86	60	34	29
81	67	39	27	42
65	67	67	51	86

- (15) The simple arithmetic mean of bonuses of employees is:
- (a) Rs. 2,084/-
  - (b) Rs. 1,375/-
  - (c) Rs. 2,500/-
  - (d) Rs. 1,350/-
- (16) The median of bonuses of employees is:
- (a) Rs. 0
  - (b) Rs.1,000/-
  - (c) Rs.1,500/-
  - (d) Rs.2,000/-
- (17) The mode of bonuses of employees is:
- (a) Rs. 0
  - (b) Rs.1,000/-
  - (c) Rs.1,500/-
  - (d) Rs.2,000/-
- (18) The standard deviation of bonuses of employees is:
- (a) Rs. 944.16/-
  - (b) Rs. 891,447/-
  - (c) Rs. 920.26/-
  - (d) Rs. 846,875/-
- (19) The skewness of bonuses of employees is:
- (a) -0.4075
  - (b) +0.4075
  - (c) 0
  - (d) +0.1661
- (20) Mr. Samantha is the Head of the Finance Division of RANMASU Bank. According to his past experience he says that the probability of exceeding their total number of depositors 10,000 is 0.25. Which of the following approach has been used by Mr. Samantha in order to estimate the above mentioned probability?
- (a) Classical approach
  - (b) Relative frequency approach
  - (c) Axiomatic approach
  - (d) Subjective approach

(21) Two coins are tossed. One coin is unbiased, and the other is biased so that a head is three times as likely as a tail. The probability of obtaining a head and a tail is:

- (a)  $\frac{1}{2}$  (b)  $\frac{1}{3}$   
 (c)  $\frac{1}{4}$  (d)  $\frac{1}{6}$

(22) In a group of 30 students, 4 out of 12 females and 7 males got “A” passes for the Business Mathematics in the final examination. What is the probability that a person chosen at random from this group is a male or a person who has got an “A” pass?

- (a)  $\frac{2}{3}$  (b)  $\frac{11}{15}$   
 (c)  $\frac{4}{5}$  (d)  $\frac{29}{30}$

(23) Some of the whole numbers from 1 to 10 are included for sets A and B; Set A = {1, 4, 5, 7, 8} and Set B = {2, 6, 8, 10}. Elements of the set  $(A \cup B)'$  are:

- (a) {8} (b) {3, 9}  
 (c) {1, 4, 5, 7} (d) {1, 2, 4, 5, 7, 8, 10}

(24) A lot of 90 bolts consist of 7 defectives. If two bolts are selected at random without replacement from this lot, what is the probability that selected all two bolts are defective?

- (a)  $\frac{7}{90}$  (b)  $\frac{6}{89}$   
 (c)  $\frac{7}{1335}$  (d)  $\frac{49}{8100}$

(25) A random variable is said to be continuous if

- (a) its possible values can be counted.  
 (b) it can assume any real number within an interval.  
 (c) the rules of probability apply.  
 (d) it assumes only positive values.

(26) The following table provides a probability distribution of X. What is  $\Pr(X > 2)$ ?

<b>X</b>	-2	1	1.5	2
<b>Pr(X = x)</b>	P	P	0.1	3p

- (a) 0.54  
 (b) 0.18  
 (c) 0.1  
 (d) 0

(27) Mrs. Nirmani is the best machine operator in AKL garment factory. Her cycle time for a certain task follows a normal distribution with the mean of 20 seconds. For a certain cycle, what is the probability of the length of time greater than 20 seconds?

- (a) 0 (b) 0.25  
 (c) 0.5 (d) 1

(28) Marks of 200 candidates in an examination follow a normal distribution with a mean of 50 and a standard deviation of 20 marks. Given that the pass mark is 40, what is the estimate for the proportion of candidates who failed the exam?

- (a) 0.3086 (b) 0.5  
 (c) 0.6914 (d) 0.8086

- (29) A certain university has four faculties with 6,250 students. Faculty of Management Studies and Commerce is the largest faculty of that university with 4,329 students. The Department of Decision Sciences is one department attached to the Management Faculty and 75 students are studying in that department. Head of the Department of Decision Sciences wants to estimate the average performance of students attached to the department and he selected 30 students randomly. The size of the population in this study is:
- (a) 30 (b) 75  
(c) 4,329 (d) 6,250
- (30) Which of the followings is not a reason for sampling?
- (a) The destructive nature of certain tests.  
(b) The physical impossibility of checking all items in the population.  
(c) The cost of studying all items in a population.  
(d) Estimates produced by a sample are true population parameters.
- (31) Which of the followings is not a type of non-probability sampling?
- (a) Judgmental sampling (b) Cluster sampling  
(c) Quota sampling (d) Convenience sampling
- (32) Which of the followings is not a property of the t-distribution?
- (a) It is a continuous distribution  
(b) Its mean is always zero  
(c) The variable associated with the t-distribution ranges from 0 to  $+\infty$   
(d) It is bell shaped and symmetrical about the mean
- (33) A government official selected a random sample of 20 farmers and recorded the area which they used to cultivate paddy. The sample variance is 0.12. The official assumes that the area follows a normal distribution with the mean of 0.3 acres. The official wants to determine the probability that the average area of the selected group is greater than 0.5 acres. Which of the followings is the most appropriate probability distribution that can be used to calculate that probability?
- (a) T-distribution (b) Normal distribution  
(c) Chi-square distribution (d) Binomial distribution
- (34) The manager of a supermarket selected a random sample of 15 customers. It is assumed that the spending of a customer follows a normal distribution with the mean of Rs.1,250/-. The manager wants to calculate the probability that the average spending of a customer is less than Rs.500/-. If the calculated value of the test statistic is -2.145, the corresponding probability is:
- (a) 0.015 (b) 0.025  
(c) 0.035 (d) 0.045
- (35) Which of the followings is not included to the statistical inference?
- (a) Point estimation (b) Interval estimation  
(c) Hypothesis testing (d) Sampling
- (36) An interval estimate is a range of values used to
- (a) Calculate a statistic  
(b) Estimate a population parameter  
(c) Estimate the skewness of the sampling distribution  
(d) Estimate the range of a variable

- (37) A random sample of 100 observations has a mean of 23.26 for a certain random variable. The population standard deviation is known to be 4.762. The 94.52% confidence interval for the mean of that random variable is:
- (a) 22.35, 24.17 (b) 22.33, 24.19  
(c) 21.35, 23.17 (d) 25.35, 26.57
- (38) In testing hypothesis, the researcher initially assumes
- (a) The null hypothesis is true  
(b) The alternative hypothesis is true  
(c) Population parameters are unknown  
(d) Both the null hypothesis and the alternative hypothesis are false
- (39) According to the results of a hypothesis test, the p value is 0.08 and the researcher has rejected the null hypothesis. Which of the followings has been used by the researcher as the level of significance of the test?
- (a) 0.01 (b) 0.025  
(c) 0.05 (d) 0.1
- (40) A university student has taken a random sample of 16 passengers from the Homagama bus stand, who were waiting for a bus. The student wants to test whether the mean waiting time of passengers is significantly greater than 15 minutes at 5% level of significance. It is assumed that the waiting time follows a normal distribution. If the calculated value of the test statistic is +1.821, what would be the decision?
- (a) The mean waiting time is equal to 15 minutes  
(b) The mean waiting time is not significantly greater than 15 minutes  
(c) The mean waiting time is significantly greater than 15 minutes  
(d) Given details are not enough in order to make a decision
- (41) Which of the following values must not represent a value of the Pearson correlation coefficient?
- (a) 0 (b) 0.05  
(c) -1.01 (d) +1
- (42) Mr. Ginige is the Production Manager of a certain manufacturing organization. He selected a group of employees from his company and collected their efficiency and absenteeism rates. After analyzing data, he says that “as the absenteeism rate decreases, the efficiency rate increases in a linear pattern”. The association between both variables is strong. Which of the following values can be assumed for the Pearson correlation coefficient?
- (a) -0.92 (b) -0.092  
(c) +0.92 (d) +0.092
- (43) A simple linear regression model has the form,  $Y = 3.21 + 1.94 X$ . What is the expected value of Y when  $X = 0$ ?
- (a) 0 (b) 1.94  
(c) 3.21 (d) 5.15
- (44) If the coefficient of determination for a simple linear regression model; ( $Y = 0.765 + 2.543X$ ) is 0.85. Which of the followings gives the right interpretation for the value?
- (a) 85% of the total variance of X is explained by the fitted model;  $Y = 0.765 + 2.543X$   
(b) 85% of the total variation of Y is explained by the fitted model;  $Y = 0.765 + 2.543X$   
(c) 85% of the total variance of X is explained by Y  
(d) None of the above

- (45) Gradual, long-term movement in the time series is called
- (a) Cyclical Variation (b) Seasonal Variation  
(c) Trend (d) Random Variation
- (46) Given forecast errors of -1.3, 4.2, 3, -0.8, 1.2 and -2.1, what is the mean absolute deviation?
- (a) 0.7 (b) 2.1  
(c) 4.2 (d) 12.6
- (47) Which of the following values of  $\alpha$  would cause exponential smoothing to respond the most quickly to forecast errors?
- (a) 0 (b) 0.12  
(c) 0.2 (d) 0.35
- (48) Which of the following values cannot occur in a random variable which follows a chi-square distribution?
- (a) -0.05 (b) 0.025  
(c) 0.95 (d) 1.23
- (49) When performing the chi-square test of independence in bi-variate problems, degrees of freedom is: (R = No. of rows, C = No. of columns)?
- (a)  $(R - 1)(C - 1)$  (b)  $(R - 1)(C + 1)$   
(c)  $(R + 1)(C - 1)$  (d)  $RC + R - C + 1$
- (50) Dean of the Faculty of Applied Sciences in a certain state university is interested in studying the association between the gender and job satisfaction of its lecturers. A Chi-square test was performed and the P value of the test was 0.0314. What would be the statistical decision at 5% level of significance?
- (a) There is a significant association between the gender and the job satisfaction.  
(b) Job satisfaction of female lecturers is significantly less than that of male lecturers.  
(c) There is no significant association between the gender and the job satisfaction.  
(d) Job satisfaction of female lecturers is significantly greater than that of male lecturers.

**(50 × 2 Marks = Total 100 Marks)**

## List of formulae

### Compound Interest

$$S = P(1+i)^n$$

S = Accumulated amount

P = Principle amount

I = interest rate per period

n = number of interest periods

### Differentiation

If  $f(x) = x^n$ , where  $n$  is a real number, then,  $f'(x) = nx^{n-1}$ .

If  $f(x) = g(x) \cdot h(x)$  and  $g'(x)$  and  $h'(x)$  exist,  $f'(x) = g(x) \cdot h'(x) \pm h(x) \cdot g'(x)$

### Integration

$$\int \frac{f'(x)}{f(x)} dx = \ln f(x) + C$$

### Summary Measures for a group data distribution

$$\text{Simple Arithmetic Mean} = \frac{\sum_{i=1}^N f_i x_i}{N}$$

$$\text{Median} = \text{Size of } \left( \frac{N+1}{2} \right)^{\text{th}} \text{ item of ordered data set}$$

$$\sigma^2 = \frac{\sum fX^2}{N} - \mu_x^2$$

$$\text{Coefficient of Skewness (Sk}_p) = \frac{3(\text{Mean} - \text{Median})}{\sigma}$$

### Probability

$$\Pr(A \cup B) = \Pr(A) + \Pr(B) - \Pr(A \cap B)$$

$$\Pr(A/B) = \frac{\Pr(A \cap B)}{\Pr(B)}$$

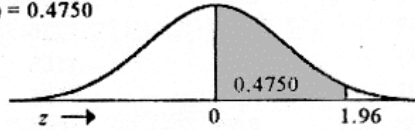
### Exponential Smoothing Formula

$$\text{MAD} = \frac{\sum |\text{Forecast Errors}|}{n}$$



# AREAS UNDER THE NORMAL CURVE

Example  
If  $z = 1.96$ , then  
 $P(0 \text{ to } z) = 0.4750$



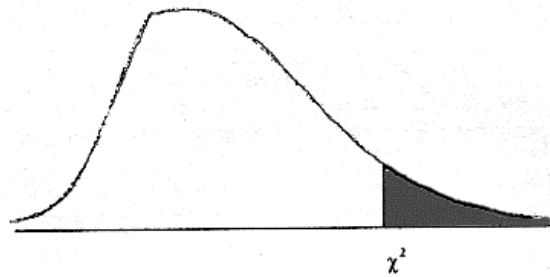
Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4235	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990

# STUDENT'S *t*-DISTRIBUTION

df	Level of significance for one-tailed test					
	0.100	0.050	0.025	0.010	0.005	0.0005
	Level of significance for two-tailed test					
	0.20	0.10	0.05	0.002	0.01	0.001
1	3.078	6.314	12.706	31.821	63.657	636.619
2	1.886	2.920	4.303	6.965	9.925	31.599
3	1.638	2.353	3.182	4.541	5.841	12.924
4	1.533	2.132	2.776	3.747	4.604	8.610
5	1.476	2.015	2.571	3.365	4.032	6.869
6	1.440	1.943	2.447	3.143	3.707	5.959
7	1.415	1.895	2.365	2.998	3.499	5.408
8	1.397	1.860	2.306	2.896	3.355	5.041
9	1.383	1.833	2.262	2.821	3.250	4.781
10	1.372	1.812	2.228	2.764	3.169	4.587
11	1.363	1.796	2.201	2.718	3.106	4.437
12	1.356	1.782	2.179	2.681	3.055	4.318
13	1.350	1.771	2.160	2.650	3.012	4.221
14	1.345	1.761	2.145	2.624	2.977	4.140
15	1.341	1.753	2.131	2.602	2.947	4.073
16	1.337	1.746	2.120	2.583	2.921	4.015
17	1.333	1.740	2.110	2.567	2.898	3.965
18	1.330	1.734	2.101	2.552	2.878	3.922
19	1.328	1.729	2.093	2.539	2.861	3.883
20	1.325	1.725	2.086	2.528	2.845	3.850
21	1.323	1.721	2.080	2.518	2.831	3.819
22	1.321	1.717	2.074	2.508	2.819	3.792
23	1.319	1.714	2.069	2.500	2.807	3.768
24	1.318	1.711	2.064	2.492	2.797	3.745
25	1.316	1.708	2.060	2.485	2.787	3.725
26	1.315	1.706	2.056	2.479	2.779	3.707
27	1.314	1.703	2.052	2.473	2.771	3.690
28	1.313	1.701	2.048	2.467	2.763	3.674
29	1.311	1.699	2.045	2.462	2.756	3.659
30	1.310	1.697	2.042	2.457	2.750	3.646
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.296	1.671	2.000	2.390	2.660	3.460
120	1.289	1.658	1.980	2.358	2.617	3.373
$\infty$	1.282	1.645	1.960	2.326	2.576	3.291

## CRITICAL VALUES OF CHI-SQUARE

This table contains the values of  $\chi^2$  that correspond to a specific right-tail area and specific numbers of degrees of freedom df.



Degrees of Freedom	Possible values of $\chi^2$			
	Right-tail Area			
df	0.10	0.05	0.02	0.01
1	2.706	3.841	5.412	6.635
2	4.605	5.991	7.824	9.210
3	6.251	7.815	9.837	11.345
4	7.779	9.488	11.668	13.277
5	9.236	11.070	13.388	15.086
6	10.645	12.592	15.033	16.812
7	12.017	14.067	16.622	18.475
8	13.362	15.507	18.168	20.090
9	14.684	16.919	19.679	21.666
10	15.987	18.307	21.161	23.209
11	17.275	19.675	22.618	24.725
12	18.549	21.026	24.054	26.217
13	19.812	22.362	25.472	27.688
14	21.064	23.685	26.873	29.141
15	22.307	24.996	28.259	30.578
16	23.542	26.296	29.633	32.000
17	24.769	27.587	30.995	33.409
18	25.989	28.869	32.346	34.805
19	27.204	30.144	33.687	36.191
20	28.412	31.410	35.020	37.566
21	29.615	32.671	36.343	38.932
22	30.813	33.924	37.659	40.289
23	32.007	35.172	38.968	41.638
24	33.196	36.415	40.270	42.980
25	34.382	37.652	41.566	44.314
26	35.563	38.885	42.856	45.642
27	36.741	40.113	44.140	46.963
28	37.916	41.337	45.419	48.278
29	39.087	42.557	46.693	49.588
30	40.256	43.773	47.962	50.892