THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF MANAGEMENT STUDIES

BACHELOR OF MANAGEMENT STUDIES (HONOURS) DEGREE PROGRAMME

OSU 4410 - BUSINESS STATISTICS
FINAL EXAMINATION – 2024/25
DURATION – THREE (03) HOURS

DATE: 12TH JUNE 2025 *TIME: 9.30 AM – 12.30 PM*

INSTRUCTIONS:

- **Answer FIVE questions ONLY.**
- **All questions carry equal marks.**
- **Use of a non-programmable calculator is allowed.**
- **All workings pertaining to answers should be properly submitted.**
- **This question paper consists of 6 questions in 10 pages.**

Question 1

A. Four percent (4%) of the batteries produced in a factory are defective. If a random sample of 15 batteries is selected from the production line, what is the probability that more than 6 batteries are defective? (4 marks)

B. A website receives an average of 10 user logins per hour. What is the probability that more than 8 logins occur in a given hour? (4 marks)

C. Briefly describe the following: (4 marks)
   i. Normal approximation to Binomial distribution.
   ii. Normal approximation to Poisson distribution.

D. In a fishery, the weights of fish caught have a mean of 200 grams and a standard deviation of 30 grams. What is the probability that a randomly selected fish weighs between 150 grams and 180 grams? (4 marks)

E. According to a Statistics Sourcebook of Criminal Statistics, 7.5% of young adults reported using alcohol daily for the past 30 days. Find the probability that, in a national poll of 1024 young adults, between 40 and 55 inclusive will indicate that they have used alcohol daily for the past 30 days. (4 marks)

(Total: 20 marks)

Question 2

A. A random sample of 64 graduate students of a university showed a mean age 27 years and standard deviation of 5 years. Establish a 99% confidence interval of the true mean age of all graduate students at the university. (4 marks)

B. Briefly describe the following: (10 marks)

i. Critical region
ii. Null hypothesis
iii. Alternative hypothesis
iv. Test Statistic
v. Type I error

C. An inventor has developed a new, energy-efficient machine. He claims that the machine will run continuously for at least 6 hours (360 minutes) on a single gallon of regular gasoline. Suppose a simple random sample of 30 machines is tested. The machines run for an average of 355 minutes, with a standard deviation of 20 minutes. Test the manufacturer's claim at 0.05 level of significance. (6 marks)

(Total: 20 marks)

Question 3

Each person in a group of 300 students following a certain study program was identified as male or female and then asked whether he or she preferred taking courses in the areas of Biological Sciences, Physical Sciences, Information Technology, Agriculture, Social Sciences, and Languages. The contingency table below shows the frequencies found for these categories. Does this sample present sufficient evidence to reject the claim that "preference for courses is independent of the gender of a college student"? Consider the .05 level of significance.

Preferred Course	Gender		Total
	Male	Female	
Biological Sciences	17	20	37
Physical Sciences	54	14	68
Information Technology	32	25	57
Agriculture	24	21	45
Social Sciences	14	23	37
Languages	21	35	56
Total	162	138	300

(Total: 20 marks)

Question 4

A nutritionist wants to study the relationship between weekly vegetable servings and fasting blood glucose levels in women aged 40 years. A sample of 10 women aged 40 was selected. The number of vegetable servings consumed in a typical week and the fasting blood glucose level (in mg/dL) were recorded for each person. The sample data is provided in the table below.

Number of vegetable servings per week	Fasting blood glucose level (mg/dL)
4	83
10	78
2	100
3	98
7	85
5	86
6	83
8	82
2	102
9	78
Total = 56	Total = 875

A. Plot the data on a scatter diagram and interpret the relationship you can observe. (5 marks)

B. Calculate the correlation between weekly vegetable servings and fasting blood glucose levels in women aged 40 years. Interpret the correlation between the two factors? (5 marks)

C. Calculate the regression equation for the scenario. (5 marks)

D. If the number of weekly vegetable servings is 5 per week, what amount of fasting blood glucose level would you predict? Compare that result in the table. Why doesn't the regression equation predict the exact value? (5 marks)

(Total: 20 marks)

Question 5

A. The marketing manager of a company wants to find whether annual sales made by each sales manager can be predicted based on the years of education and years of experience. The SPSS outputs related to the regression analysis are provided below.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-8510.838	586.586		-14.509	.000
	Years of experience	1874.500	31.239	.919	60.005	.000
	Years of education	609.391	38.237	.244	15.937	.000

a. Dependent Variable: Last year sales

i. Determine the regression equation based on the output tables given. (3 marks)

ii. The management of the company claims that the weekly sales increase with the years of experience. Is this statement correct? Justify your answer. (3 marks)

iii. Interpret the coefficient of the variable of 'years of education'. (Its strength and how it may affect the sales value) (3 marks)

B. Comment on the correlation coefficient values (i.e. the relationship and its strength) given in the below table at 5% significance level. (8 marks)

Dimension	Coefficient of correlation with variable E	Sig (p)
A	0.855	0.005
B	-0.362	0.001
C	-0.780	0.078
D	0.082	0.162

C. Briefly discuss the importance of correlation analysis and regression analysis. (3 marks)

(Total: 20 marks)

Question 6

A. The quarterly earnings of a distribution company have been recorded for the period 2021 - 2024. These data (in millions of Rupees) are shown in the accompanying table.

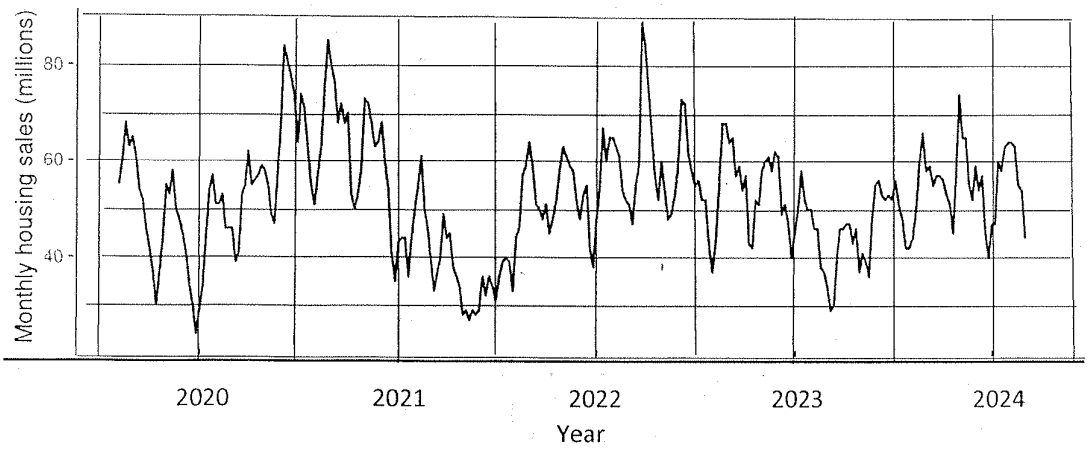
Period	Year	Quarter	Sales	Quarterly Moving Averages	Centered Moving Averages (CMA)	Sales/ CMA
1	2021	1	211			
2		2	274			
3		3	235	236.75	235.625	1
4		4	227	234.5	236.375	0.96
5	2022	1	202	(a)	244.75	0.83
6		2	289	(b)	252.375	1.15
7		3	287	(c)	(f)	(k)
8		4	236	263.25	(g)	(l)
9	2023	1	241	258.75	(h)	0.95
10		2	271	250.75	258.125	1.05
11		3	255	265.5	265.125	0.96
12		4	295	264.75	265.875	1.11
13	2024	1	238	267	(i)	(m)
14		2	280	(d)	(j)	(n)
15		3	280	(e)		
16		4	231			

i. Calculate the values for *(a) – (n).* (7 marks)

ii. Find the adjusted seasonal index values. (5 marks)

iii. If the trend line equation is, Sales = 237.83+1.8*Period, find the forecasted sales for the four quarters of year 2025. (4 marks)

B. Interpret the following graph with the knowledge of time series. (4 marks)



(Total: 20 marks)

Binomial Probability Distribution Table

$n = 15$

x	$p = 0.01$	$p = 0.02$	$p = 0.03$	$p = 0.04$	$p = 0.05$	$p = 0.06$	$p = 0.07$	$p = 0.08$	$p = 0.09$	
0	0.8601	0.7386	0.6333	0.5421	0.4633	0.3953	0.3367	0.2863	0.2430	15
1	0.1303	0.2261	0.2938	0.3388	0.3658	0.3785	0.3801	0.3734	0.3605	14
2	0.0092	0.0323	0.0636	0.0988	0.1348	0.1691	0.2003	0.2273	0.2496	13
3	0.0004	0.0029	0.0085	0.0178	0.0307	0.0468	0.0653	0.0857	0.1070	12
4	0.0000	0.0002	0.0008	0.0022	0.0049	0.0090	0.0148	0.0223	0.0317	11
5	0.0000	0.0000	0.0001	0.0002	0.0006	0.0013	0.0024	0.0043	0.0069	10
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0006	0.0011	9
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	8
	$p = 0.99$	$p = 0.98$	$p = 0.97$	$p = 0.96$	$p = 0.95$	$p = 0.94$	$p = 0.93$	$p = 0.92$	$p = 0.91$	x
x	$p = 0.10$	$p = 0.15$	$p = 0.20$	$p = 0.25$	$p = 0.30$	$p = 0.35$	$p = 0.40$	$p = 0.45$	$p = 0.50$	
0	0.2059	0.0874	0.0352	0.0134	0.0047	0.0016	0.0005	0.0001	0.0000	15
1	0.3432	0.2312	0.1319	0.0668	0.0305	0.0126	0.0047	0.0016	0.0005	14
2	0.2669	0.2856	0.2309	0.1559	0.0916	0.0476	0.0219	0.0090	0.0032	13
3	0.1285	0.2184	0.2501	0.2252	0.1700	0.1110	0.0634	0.0318	0.0139	12
4	0.0428	0.1156	0.1876	0.2252	0.2186	0.1792	0.1268	0.0780	0.0417	11
5	0.0105	0.0449	0.1032	0.1651	0.2061	0.2123	0.1859	0.1404	0.0916	10
6	0.0019	0.0132	0.0430	0.0917	0.1472	0.1906	0.2066	0.1914	0.1527	9
7	0.0003	0.0030	0.0138	0.0393	0.0811	0.1319	0.1771	0.2013	0.1964	8
8	0.0000	0.0005	0.0035	0.0131	0.0348	0.0710	0.1181	0.1647	0.1964	7
9	0.0000	0.0001	0.0007	0.0034	0.0116	0.0298	0.0612	0.1048	0.1527	6
10	0.0000	0.0000	0.0001	0.0007	0.0030	0.0096	0.0245	0.0515	0.0916	5
11	0.0000	0.0000	0.0000	0.0001	0.0006	0.0024	0.0074	0.0191	0.0417	4
12	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0016	0.0052	0.0139	3
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0010	0.0032	2
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0005	1
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0
	$p = 0.90$	$p = 0.85$	$p = 0.80$	$p = 0.75$	$p = 0.70$	$p = 0.65$	$p = 0.60$	$p = 0.55$	$p = 0.50$	x

$$P(r) = {}^{n}C_r p^r q^{(n-r)}$$

$$P(x) = \frac{e^{-\lambda}\lambda^x}{x!} \text{ where, } e = 2.718$$

$$\underline{x} \pm z^*\sigma/\sqrt{n}$$

$$\underline{x} \pm t^*s/\sqrt{n}$$

$$P \pm z\sqrt{\frac{p(1-p)}{n}}$$

$$\chi^2 = \sum_{i=1}^{k}\left[\frac{(O_i - E_i)^2}{E_i}\right]$$

$$z = \frac{\underline{x} - \mu}{\frac{\sigma}{\sqrt{n}}}$$

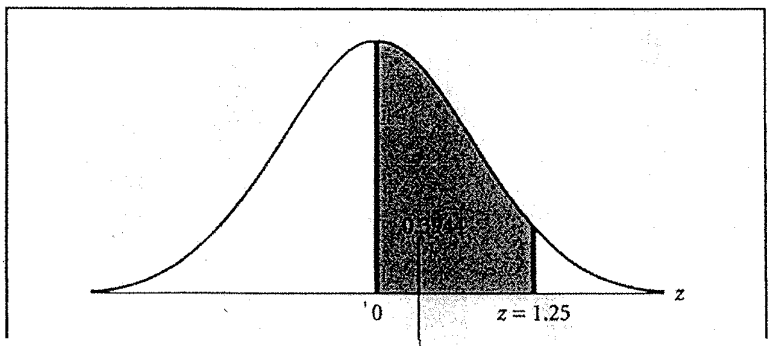
$$z = \frac{\underline{x}_1 - \underline{x}_2 - (\mu_1 - \mu_2)}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$$

$$r = \frac{\sum xy - \frac{\sum(x).\sum(y)}{n}}{\sqrt{\left(\sum x^2 - \frac{(\sum x)^2}{n}\right)\left(\sum y^2 - \frac{(\sum y)^2}{n}\right)}}$$

$$b = \frac{n\sum xy - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$$

$$a = \frac{\sum y}{n} - b.\frac{\sum x}{n}$$

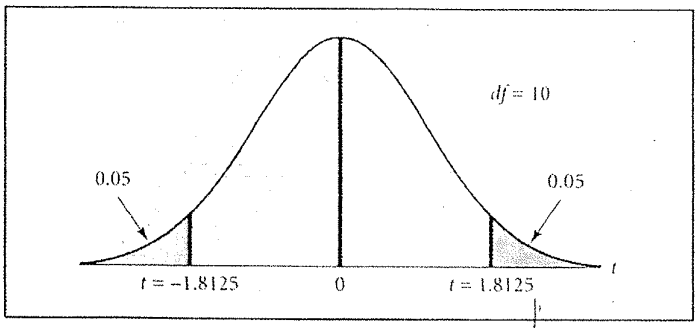
Standard Normal Distribution Table



z	0	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	0.4236	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

Highlighted value is 0.3944

Critical Values for t- Distribution

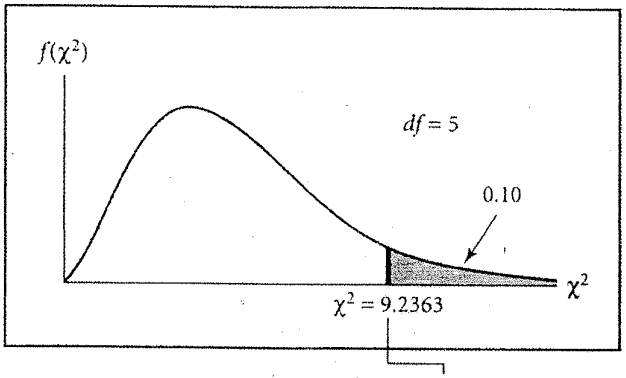


PROBABILITES (OR AREAS UNDER *t*-DISTRIBUTION CURVE)

Conf. Level	*0.1*	*0.3*	*0.5*	*0.7*	*0.8*	*0.9*	*0.95*	*0.98*	*0.99*
One Tail	*0.45*	*0.35*	*0.25*	*0.15*	*0.1*	*0.05*	*0.025*	*0.01*	*0.005*
Two Tails	*0.9*	*0.7*	*0.5*	*0.3*	*0.2*	*0.1*	*0.05*	*0.02*	*0.01*
df					*Values of t*				
1	0.1584	0.5095	1.0000	1.9626	3.0777	6.3137	12.7062	31.8210	63.6559
2	0.1421	0.4447	0.8165	1.3862	1.8856	2.9200	4.3027	6.9645	9.9250
3	0.1366	0.4242	0.7649	1.2498	1.6377	2.3534	3.1824	4.5407	5.8408
4	0.1338	0.4142	0.7407	1.1896	1.5332	2.1318	2.7765	3.7469	4.6041
5	0.1322	0.4082	0.7267	1.1558	1.4759	2.0150	2.5706	3.3649	4.0321
6	0.1311	0.4043	0.7176	1.1342	1.4398	1.9432	2.4469	3.1427	3.7074
7	0.1303	0.4015	0.7111	1.1192	1.4149	1.8946	2.3646	2.9979	3.4995
8	0.1297	0.3995	0.7064	1.1081	1.3968	1.8595	2.3060	2.8965	3.3554
9	0.1293	0.3979	0.7027	1.0997	1.3830	1.8331	2.2622	2.8214	3.2498
10	0.1289	0.3966	0.6998	1.0931	1.3722	1.8125	2.2281	2.7638	3.1693
11	0.1286	0.3956	0.6974	1.0877	1.3634	1.7959	2.2010	2.7181	3.1058
12	0.1283	0.3947	0.6955	1.0832	1.3562	1.7823	2.1788	2.6810	3.0545
13	0.1281	0.3940	0.6938	1.0795	1.3502	1.7709	2.1604	2.6503	3.0123
14	0.1280	0.3933	0.6924	1.0763	1.3450	1.7613	2.1448	2.6245	2.9768
15	0.1278	0.3928	0.6912	1.0735	1.3406	1.7531	2.1315	2.6025	2.9467
16	0.1277	0.3923	0.6901	1.0711	1.3368	1.7459	2.1199	2.5835	2.9208
17	0.1276	0.3919	0.6892	1.0690	1.3334	1.7396	2.1098	2.5669	2.8982
18	0.1274	0.3915	0.6884	1.0672	1.3304	1.7341	2.1009	2.5524	2.8784
19	0.1274	0.3912	0.6876	1.0655	1.3277	1.7291	2.0930	2.5395	2.8609
20	0.1273	0.3909	0.6870	1.0640	1.3253	1.7247	2.0860	2.5280	2.8453
21	0.1272	0.3906	0.6864	1.0627	1.3232	1.7207	2.0796	2.5176	2.8314
22	0.1271	0.3904	0.6858	1.0614	1.3212	1.7171	2.0739	2.5083	2.8188
23	0.1271	0.3902	0.6853	1.0603	1.3195	1.7139	2.0687	2.4999	2.8073
24	0.1270	0.3900	0.6848	1.0593	1.3178	1.7109	2.0639	2.4922	2.7970
25	0.1269	0.3898	0.6844	1.0584	1.3163	1.7081	2.0595	2.4851	2.7874
26	0.1269	0.3896	0.6840	1.0575	1.3150	1.7056	2.0555	2.4786	2.7787
27	0.1268	0.3894	0.6837	1.0567	1.3137	1.7033	2.0518	2.4727	2.7707
28	0.1268	0.3893	0.6834	1.0560	1.3125	1.7011	2.0484	2.4671	2.7633
29	0.1268	0.3892	0.6830	1.0553	1.3114	1.6991	2.0452	2.4620	2.7564
30	0.1267	0.3890	0.6828	1.0547	1.3104	1.6973	2.0423	2.4573	2.7500
40	0.1265	0.3881	0.6807	1.0500	1.3031	1.6839	2.0211	2.4233	2.7045
50	0.1263	0.3875	0.6794	1.0473	1.2987	1.6759	2.0086	2.4033	2.6778
60	0.1262	0.3872	0.6786	1.0455	1.2958	1.6706	2.0003	2.3901	2.6603
70	0.1261	0.3869	0.6780	1.0442	1.2938	1.6669	1.9944	2.3808	2.6479
80	0.1261	0.3867	0.6776	1.0432	1.2922	1.6641	1.9901	2.3739	2.6387
90	0.1260	0.3866	0.6772	1.0424	1.2910	1.6620	1.9867	2.3685	2.6316
100	0.1260	0.3864	0.6770	1.0418	1.2901	1.6602	1.9840	2.3642	2.6259
250	0.1258	0.3858	0.6755	1.0386	1.2849	1.6510	1.9695	2.3414	2.5956
500	0.1257	0.3855	0.6750	1.0375	1.2832	1.6479	1.9647	2.3338	2.5857
∞					See Normal Distribution				

Highlighted value is 1.8125

Critical Values for Chi-Squared Distribution



PROBABILITIES (OR AREAS UNDER CHI-SQUARE DISTRIBUTION CURVE ABOVE GIVEN CHI-SQUARE VALUES)

	0.995	0.99	0.975	0.95	0.90	0.10	0.05	0.025	0.01	0.005
df	*Values of Chi-Squared*									
1	0.0000	0.0002	0.0010	0.0039	0.0158	2.7055	3.8415	5.0239	6.6349	7.8794
2	0.0100	0.0201	0.0506	0.1026	0.2107	4.6052	5.9915	7.3778	9.2104	10.5965
3	0.0717	0.1148	0.2158	0.3518	0.5844	6.2514	7.8147	9.3484	11.3449	12.8381
4	0.2070	0.2971	0.4844	0.7107	1.0636	7.7794	9.4877	11.1433	13.2767	14.8602
5	0.4118	0.5543	0.8312	1.1455	1.6103	9.2363	11.0705	12.8325	15.0863	16.7496
6	0.6757	0.8721	1.2373	1.6354	2.2041	10.6446	12.5916	14.4494	16.8119	18.5475
7	0.9893	1.2390	1.6899	2.1673	2.8331	12.0170	14.0671	16.0128	18.4753	20.2777
8	1.3444	1.6465	2.1797	2.7326	3.4895	13.3616	15.5073	17.5345	20.0902	21.9549
9	1.7349	2.0879	2.7004	3.3251	4.1682	14.6837	16.9190	19.0228	21.6660	23.5893
10	2.1558	2.5582	3.2470	3.9403	4.8652	15.9872	18.3070	20.4832	23.2093	25.1881
11	2.6032	3.0535	3.8157	4.5748	5.5778	17.2750	19.6752	21.9200	24.7250	26.7569
12	3.0738	3.5706	4.4038	5.2260	6.3038	18.5493	21.0261	23.3367	26.2170	28.2997
13	3.5650	4.1069	5.0087	5.8919	7.0415	19.8119	22.3620	24.7356	27.6882	29.8193
14	4.0747	4.6604	5.6287	6.5706	7.7895	21.0641	23.6848	26.1189	29.1412	31.3194
15	4.6009	5.2294	6.2621	7.2609	8.5468	22.3071	24.9958	27.4884	30.5780	32.8015
16	5.1422	5.8122	6.9077	7.9616	9.3122	23.5418	26.2962	28.8453	31.9999	34.2671
17	5.6973	6.4077	7.5642	8.6718	10.0852	24.7690	27.5871	30.1910	33.4087	35.7184
18	6.2648	7.0149	8.2307	9.3904	10.8649	25.9894	28.8693	31.5264	34.8052	37.1564
19	6.8439	7.6327	8.9065	10.1170	11.6509	27.2036	30.1435	32.8523	36.1908	38.5821
20	7.4338	8.2604	9.5908	10.8508	12.4426	28.4120	31.4104	34.1696	37.5663	39.9969
21	8.0336	8.8972	10.2829	11.5913	13.2396	29.6151	32.6706	35.4789	38.9322	41.4009
22	8.6427	9.5425	10.9823	12.3380	14.0415	30.8133	33.9245	36.7807	40.2894	42.7957
23	9.2604	10.1957	11.6885	13.0905	14.8480	32.0069	35.1725	38.0756	41.6383	44.1814
24	9.8862	10.8563	12.4011	13.8484	15.6587	33.1962	36.4150	39.3641	42.9798	45.5584
25	10.5196	11.5240	13.1197	14.6114	16.4734	34.3816	37.6525	40.6465	44.3140	46.9280
26	11.1602	12.1982	13.8439	15.3792	17.2919	35.5632	38.8851	41.9231	45.6416	48.2898
27	11.8077	12.8785	14.5734	16.1514	18.1139	36.7412	40.1133	43.1945	46.9628	49.6450
28	12.4613	13.5647	15.3079	16.9279	18.9392	37.9159	41.3372	44.4608	48.2782	50.9936
29	13.1211	14.2564	16.0471	17.7084	19.7677	39.0875	42.5569	45.7223	49.5878	52.3355
30	13.7867	14.9535	16.7908	18.4927	20.5992	40.2560	43.7730	46.9792	50.8922	53.6719

Highlighted value is 9.2363