

大同大學 101 學年度轉學入學考試試題

考試科目:統計學

所別:資訊經營學系

第1頁/共2頁

註:本次考試 不可以參考自己的書籍及筆記; 不可以使用字典; 可以使用計算器。

- (10%) 請針對下列敘述，若敘述為真，請填Y；若敘述為假，請填N：
 - 樣本平均數 \bar{x} 是否有其機率分配?
 - 樣本比例 \hat{p} 是否有其機率分配?
 - 樣本變異數 s^2 是否有其機率分配?
- (10%) 請以常態分配計算，若您投擲一枚公正硬幣50次，試問其出現20次正面的機率為何?
- (20%) 假設本校3000名學生的身高為常態分配，已知平均身高為168公分，標準差為6公分。求：
 - 約有多少人的身高界於162公分與174公分之間?
 - 若隨機抽出26位同學，則此26位同學的平均身高界於166至169公分的機率為何?
- (15%) 若搭乘客運從台北到楊梅所需的時間呈常態分配，今抽取16個客運班次，記錄其所花費之時間分別為（單位為小時）：1.4, 1.5, 0.9, 0.8, 1.9, 1.8, 2.3, 2.0, 1.4, 3.4, 3.0, 2.2, 1.2, 2.6, 0.9, 1.8。試求從台北到楊梅所需的平均時間的信賴區間為何（在90%的信賴水準下）?
- (20%) 根據資料顯示，全桃園縣的高中生，有30%想要在畢業後出國留學，在95%的信賴水準下，試求在不同抽樣數目下，全桃園縣高中生畢業後想要出國留學比例的信賴區間。
 - 抽樣人數100人
 - 抽樣人數200人
- (15%) 廠商宣稱其生產之螺絲帽重量平均為83克，今自其所生產之螺絲帽中隨機抽取20個樣本，得到重量資料如下（單位：公克）

81	84	83	82	85	86	84	83	84	82
88	82	82	83	81	83	84	85	85	87

試以 $\alpha=0.01$ 檢定該廠商所宣稱之平均重量為83克的說法是否正確。
- (10%) 王先生有4套西裝、12條領帶、5雙鞋子。他出差要帶2套西裝、5條領帶及2雙鞋子，請問共有多少種選法?

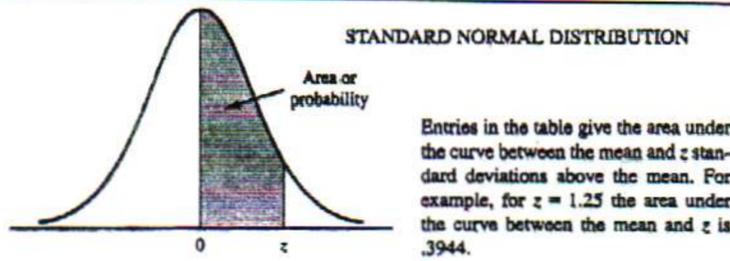
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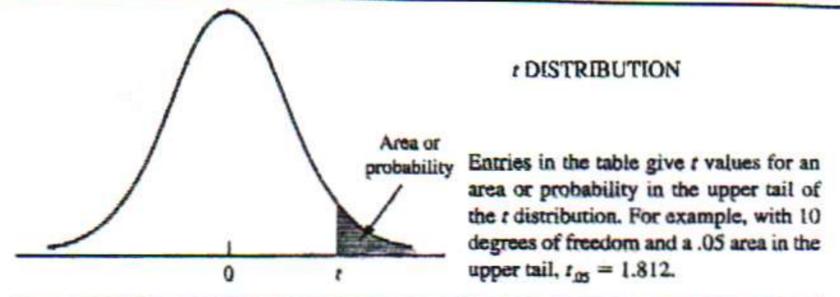
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第2頁/共2頁

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z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4978	.4979	.4979	.4980	.4981	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990



Degrees of Freedom	Area in Upper Tail				
	.10	.05	.025	.01	.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

F DISTRIBUTION

$\alpha = 0.05$

$F_{\alpha}(v_1, v_2)$

$v_2 \backslash v_1$	1	2	3	4	5	6	7	8	9
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54
2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.385
3	10.128	9.5521	9.2766	9.1172	9.0135	8.9406	8.8868	8.8452	8.8123
4	7.7086	6.9443	6.5914	6.3883	6.2560	6.1631	6.0942	6.0410	5.9988
5	6.6079	5.7861	5.4095	5.1922	5.0503	4.9503	4.8759	4.8183	4.7725
6	5.9874	5.1433	4.7571	4.5337	4.3874	4.2839	4.2066	4.1468	4.0990
7	5.5914	4.7374	4.3468	4.1203	3.9715	3.8660	3.7870	3.7257	3.6767
8	5.3177	4.4590	4.0662	3.8378	3.6875	3.5806	3.5005	3.4381	3.3881
9	5.1174	4.2565	3.8626	3.6331	3.4817	3.3738	3.2927	3.2296	3.1789
10	4.9646	4.1028	3.7083	3.4780	3.3258	3.2172	3.1355	3.0717	3.0204
11	4.8443	3.9823	3.5874	3.3567	3.2039	3.0946	3.0123	2.9480	2.8962
12	4.7472	3.8853	3.4903	3.2592	3.1059	2.9961	2.9134	2.8486	2.7964
13	4.6672	3.8056	3.4105	3.1791	3.0254	2.9153	2.8321	2.7669	2.7144
14	4.6001	3.7389	3.3439	3.1122	2.9582	2.8477	2.7642	2.6987	2.6458
15	4.5431	3.6823	3.2874	3.0556	2.9013	2.7905	2.7066	2.6408	2.5876
16	4.4940	3.6337	3.2389	3.0069	2.8524	2.7413	2.6572	2.5911	2.5377
17	4.4513	3.5915	3.1968	2.9647	2.8100	2.6987	2.6143	2.5480	2.4943
18	4.4139	3.5546	3.1599	2.9277	2.7729	2.6613	2.5767	2.5102	2.4563
19	4.3808	3.5219	3.1274	2.8951	2.7401	2.6283	2.5435	2.4768	2.4227
20	4.3513	3.4928	3.0984	2.8661	2.7109	2.5990	2.5140	2.4471	2.3928
21	4.3248	3.4668	3.0725	2.8401	2.6848	2.5727	2.4876	2.4205	2.3661
22	4.3009	3.4434	3.0491	2.8167	2.6613	2.5491	2.4638	2.3965	2.3419
23	4.2793	3.4221	3.0280	2.7955	2.6400	2.5277	2.4422	2.3748	2.3201
24	4.2597	3.4028	3.0088	2.7763	2.6207	2.5082	2.4226	2.3551	2.3002
25	4.2417	3.3852	2.9912	2.7587	2.6030	2.4904	2.4047	2.3371	2.2821
26	4.2252	3.3690	2.9751	2.7426	2.5868	2.4741	2.3883	2.3205	2.2655
27	4.2100	3.3541	2.9604	2.7278	2.5719	2.4591	2.3732	2.3053	2.2501
28	4.1960	3.3404	2.9467	2.7141	2.5581	2.4453	2.3593	2.2913	2.2360
29	4.1830	3.3277	2.9340	2.7014	2.5454	2.4324	2.3463	2.2782	2.2229
30	4.1709	3.3158	2.9223	2.6896	2.5336	2.4205	2.3343	2.2662	2.2107
40	4.0848	3.2317	2.8387	2.6060	2.4495	2.3359	2.2490	2.1802	2.1240
60	4.0012	3.1504	2.7581	2.5252	2.3683	2.2540	2.1665	2.0970	2.0401
120	3.9201	3.0718	2.6802	2.4472	2.2900	2.1750	2.0867	2.0164	1.9588
∞	3.8415	2.9957	2.6049	2.3719	2.2141	2.0986	2.0096	1.9384	1.8800

VALUES OF $e^{-\mu}$

μ	$e^{-\mu}$	μ	$e^{-\mu}$	μ	$e^{-\mu}$
.00	1.0000	2.05	.1287	4.05	.0174
.05	.9512	2.10	.1225	4.10	.0166
.10	.9048	2.15	.1165	4.15	.0158
.15	.8607	2.20	.1108	4.20	.0150
.20	.8187	2.25	.1054	4.25	.0143
.25	.7788	2.30	.1003	4.30	.0136
.30	.7408	2.35	.0954	4.35	.0129
.35	.7047	2.40	.0907	4.40	.0123
.40	.6703	2.45	.0863	4.45	.0117
.45	.6376	2.50	.0821	4.50	.0111
.50	.6065	2.55	.0781	4.55	.0106
.55	.5769	2.60	.0743	4.60	.0101
.60	.5488	2.65	.0707	4.65	.0096
.65	.5220	2.70	.0672	4.70	.0091
.70	.4966	2.75	.0639	4.75	.0087
.75	.4724	2.80	.0608	4.80	.0082
.80	.4493	2.85	.0578	4.85	.0078
.85	.4274	2.90	.0550	4.90	.0074
.90	.4066	2.95	.0523	4.95	.0071
.95	.3867	3.00	.0498	5.00	.0067
1.00	.3679	3.05	.0474	6.00	.0025
1.05	.3499	3.10	.0450	7.00	.0009
1.10	.3329	3.15	.0429	8.00	.000335
1.15	.3166	3.20	.0408	9.00	.000123
1.20	.3012	3.25	.0388	10.00	.000045
1.25	.2865	3.30	.0369		
1.30	.2725	3.35	.0351		
1.35	.2592	3.40	.0334		
1.40	.2466	3.45	.0317		
1.45	.2346	3.50	.0302		
1.50	.2231	3.55	.0287		
1.55	.2122	3.60	.0273		
1.60	.2019	3.65	.0260		
1.65	.1920	3.70	.0247		
1.70	.1827	3.75	.0235		
1.75	.1738	3.80	.0224		
1.80	.1653	3.85	.0213		
1.85	.1572	3.90	.0202		
1.90	.1496	3.95	.0193		
1.95	.1423	4.00	.0183		
2.00	.1353				