

淡江大學九十一年度碩士班招生考試試題

系別：運輸管理學系

科目：統計學

160-1

准帶項目請打「○」否則打「×」	
計算機	字典
○	×

本試題共 3 頁

- 一、某一交叉路口，每週發生筆事事件的件數為 Y ，觀察該路口 50 週以來發生筆事事件件數之統計結果如下表所示：

Y	0	1	2	3 以上
次數	29	14	7	0

假設每週之觀察為互相獨立，試在顯著水準 $\alpha=0.05$ 下，檢定「隨機變數 Y 為卜瓦松(Poisson)分配」之假說。(20%)

- 二、某市調公司欲推估今年支持汽機車分流取締政策之比例 P ，若此市調公司期望估計誤差不超過 0.05 的機率為 0.95，請問在下面三種情況下，應抽出多少樣本？

- 1) 根據過去資料顯示， P 大約為 0.45。(5%)
- 2) 先抽 50 人，得知支持者有 18 人。(5%)
- 3) P 未知。(5%)

- 三、在某城市的人口中，男性占 60%，女性占 40%。已知男性中有 30% 的人是小汽車駕駛人，女性中有 10% 的人是小汽車駕駛人，今由此城市中隨機選出一人，若已知此人是小汽車駕駛人，則此人是 1) 男性(5%)，2) 女性(5%) 的機率各為何？

- 四、臺北市公車處為研究公車車齡與維修費用之間的關係，隨機抽出 12 輛公車記錄其車齡(單位：年)與維修費用(單位：千元)如下：

車齡 (x)	1	2	2	2	2	3	4	4	5	5	5	6
維修 費用 (y)	3.5	3.75	4.8	5.14	5.8	5.5	7.6	8.03	7.9	9.5	10.3	11.8

若已知其關係可用簡單線性迴歸方程式 $y=\beta_0+\beta_1x$ 來表示，試求迴歸係數 β_1 的 95% 信賴區間。(20%)

- 五、某鐵路路線之月平均誤點率為 0.03，今由稽查人員在某月該路線上隨機抽取 300 個車次加以檢視，假設抽樣分配近似常態分配，試問其誤點率介於 0.02 至 0.04 間之機率為何？(15%)

- 六、統計學的範圍可區分為敘述統計與推論統計，試說明各自的意義與各自所應包括的內容。(20%)

淡江大學九十一學年度碩士班招生考試試題

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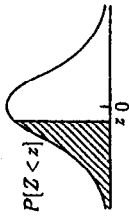
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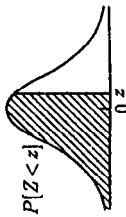
本試題共 3 頁

表二 標準常態機率分配表



z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.5	.0002	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0010	.0011
-3.4	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0010	.0011	.0012
-3.3	.0005	.0006	.0007	.0008	.0009	.0010	.0011	.0012	.0013	.0014
-3.2	.0007	.0008	.0009	.0010	.0011	.0012	.0013	.0014	.0015	.0016
-3.1	.0010	.0011	.0012	.0013	.0014	.0015	.0016	.0017	.0018	.0019
-3.0	.0013	.0014	.0015	.0016	.0017	.0018	.0019	.0020	.0021	.0022
-2.9	.0019	.0020	.0021	.0022	.0023	.0024	.0025	.0026	.0027	.0028
-2.8	.0026	.0027	.0028	.0029	.0030	.0031	.0032	.0033	.0034	.0035
-2.7	.0035	.0036	.0037	.0038	.0039	.0040	.0041	.0042	.0043	.0044
-2.6	.0044	.0045	.0046	.0047	.0048	.0049	.0050	.0051	.0052	.0053
-2.5	.0054	.0055	.0056	.0057	.0058	.0059	.0060	.0061	.0062	.0063
-2.4	.0064	.0065	.0066	.0067	.0068	.0069	.0070	.0071	.0072	.0073
-2.3	.0074	.0075	.0076	.0077	.0078	.0079	.0080	.0081	.0082	.0083
-2.2	.0084	.0085	.0086	.0087	.0088	.0089	.0090	.0091	.0092	.0093
-2.1	.0094	.0095	.0096	.0097	.0098	.0099	.0100	.0101	.0102	.0103
-2.0	.0104	.0105	.0106	.0107	.0108	.0109	.0110	.0111	.0112	.0113
-1.9	.0114	.0115	.0116	.0117	.0118	.0119	.0120	.0121	.0122	.0123
-1.8	.0124	.0125	.0126	.0127	.0128	.0129	.0130	.0131	.0132	.0133
-1.7	.0134	.0135	.0136	.0137	.0138	.0139	.0140	.0141	.0142	.0143
-1.6	.0144	.0145	.0146	.0147	.0148	.0149	.0150	.0151	.0152	.0153
-1.5	.0154	.0155	.0156	.0157	.0158	.0159	.0160	.0161	.0162	.0163
-1.4	.0164	.0165	.0166	.0167	.0168	.0169	.0170	.0171	.0172	.0173
-1.3	.0174	.0175	.0176	.0177	.0178	.0179	.0180	.0181	.0182	.0183
-1.2	.0184	.0185	.0186	.0187	.0188	.0189	.0190	.0191	.0192	.0193
-1.1	.0194	.0195	.0196	.0197	.0198	.0199	.0200	.0201	.0202	.0203
-1.0	.0204	.0205	.0206	.0207	.0208	.0209	.0210	.0211	.0212	.0213
-0.9	.0214	.0215	.0216	.0217	.0218	.0219	.0220	.0221	.0222	.0223
-0.8	.0224	.0225	.0226	.0227	.0228	.0229	.0230	.0231	.0232	.0233
-0.7	.0234	.0235	.0236	.0237	.0238	.0239	.0240	.0241	.0242	.0243
-0.6	.0244	.0245	.0246	.0247	.0248	.0249	.0250	.0251	.0252	.0253
-0.5	.0254	.0255	.0256	.0257	.0258	.0259	.0260	.0261	.0262	.0263
-0.4	.0264	.0265	.0266	.0267	.0268	.0269	.0270	.0271	.0272	.0273
-0.3	.0274	.0275	.0276	.0277	.0278	.0279	.0280	.0281	.0282	.0283
-0.2	.0284	.0285	.0286	.0287	.0288	.0289	.0290	.0291	.0292	.0293
-0.1	.0294	.0295	.0296	.0297	.0298	.0299	.0300	.0301	.0302	.0303
0	.0304	.0305	.0306	.0307	.0308	.0309	.0310	.0311	.0312	.0313
0.1	.0314	.0315	.0316	.0317	.0318	.0319	.0320	.0321	.0322	.0323
0.2	.0324	.0325	.0326	.0327	.0328	.0329	.0330	.0331	.0332	.0333
0.3	.0334	.0335	.0336	.0337	.0338	.0339	.0340	.0341	.0342	.0343
0.4	.0344	.0345	.0346	.0347	.0348	.0349	.0350	.0351	.0352	.0353
0.5	.0354	.0355	.0356	.0357	.0358	.0359	.0360	.0361	.0362	.0363
0.6	.0364	.0365	.0366	.0367	.0368	.0369	.0370	.0371	.0372	.0373
0.7	.0374	.0375	.0376	.0377	.0378	.0379	.0380	.0381	.0382	.0383
0.8	.0384	.0385	.0386	.0387	.0388	.0389	.0390	.0391	.0392	.0393
0.9	.0394	.0395	.0396	.0397	.0398	.0399	.0400	.0401	.0402	.0403
1.0	.0404	.0405	.0406	.0407	.0408	.0409	.0410	.0411	.0412	.0413
1.1	.0414	.0415	.0416	.0417	.0418	.0419	.0420	.0421	.0422	.0423
1.2	.0424	.0425	.0426	.0427	.0428	.0429	.0430	.0431	.0432	.0433
1.3	.0434	.0435	.0436	.0437	.0438	.0439	.0440	.0441	.0442	.0443
1.4	.0444	.0445	.0446	.0447	.0448	.0449	.0450	.0451	.0452	.0453
1.5	.0454	.0455	.0456	.0457	.0458	.0459	.0460	.0461	.0462	.0463
1.6	.0464	.0465	.0466	.0467	.0468	.0469	.0470	.0471	.0472	.0473
1.7	.0474	.0475	.0476	.0477	.0478	.0479	.0480	.0481	.0482	.0483
1.8	.0484	.0485	.0486	.0487	.0488	.0489	.0490	.0491	.0492	.0493
1.9	.0494	.0495	.0496	.0497	.0498	.0499	.0500	.0501	.0502	.0503
2.0	.0504	.0505	.0506	.0507	.0508	.0509	.0510	.0511	.0512	.0513
2.1	.0514	.0515	.0516	.0517	.0518	.0519	.0520	.0521	.0522	.0523
2.2	.0524	.0525	.0526	.0527	.0528	.0529	.0530	.0531	.0532	.0533
2.3	.0534	.0535	.0536	.0537	.0538	.0539	.0540	.0541	.0542	.0543
2.4	.0544	.0545	.0546	.0547	.0548	.0549	.0550	.0551	.0552	.0553
2.5	.0554	.0555	.0556	.0557	.0558	.0559	.0560	.0561	.0562	.0563
2.6	.0564	.0565	.0566	.0567	.0568	.0569	.0570	.0571	.0572	.0573
2.7	.0574	.0575	.0576	.0577	.0578	.0579	.0580	.0581	.0582	.0583
2.8	.0584	.0585	.0586	.0587	.0588	.0589	.0590	.0591	.0592	.0593
2.9	.0594	.0595	.0596	.0597	.0598	.0599	.0600	.0601	.0602	.0603
3.0	.0604	.0605	.0606	.0607	.0608	.0609	.0610	.0611	.0612	.0613
3.1	.0614	.0615	.0616	.0617	.0618	.0619	.0620	.0621	.0622	.0623
3.2	.0624	.0625	.0626	.0627	.0628	.0629	.0630	.0631	.0632	.0633
3.3	.0634	.0635	.0636	.0637	.0638	.0639	.0640	.0641	.0642	.0643
3.4	.0644	.0645	.0646	.0647	.0648	.0649	.0650	.0651	.0652	.0653
3.5	.0654	.0655	.0656	.0657	.0658	.0659	.0660	.0661	.0662	.0663

表二 (續) 標準常態機率分配表



z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
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	.7703	.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	.9996	.9996	.9996	.9996	.9996	.9996	.9997	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998
3.5	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998

「此表採錄於 Johnson, R.A. and Bhattacharyya, G.K. (1996), STATISTICS, 3 edition, John Wiley and Sons, Inc.」

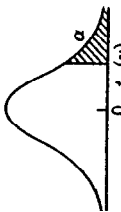
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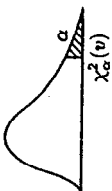
本試題共 2 頁

表三 t 分配百分點表



自由度 (v)	.25	.10	.05	.025	.01	.00833	.00625	.005
1	1.000	3.078	6.314	12.706	31.821	38.190	50.923	63.657
2	.816	1.886	2.920	4.303	6.965	7.649	8.860	9.925
3	.765	1.638	2.353	3.182	4.541	4.857	5.392	5.841
4	.741	1.533	2.132	2.776	3.747	3.961	4.315	4.604
5	.727	1.476	2.015	2.571	3.365	3.534	3.810	4.032
6	.718	1.440	1.943	2.447	3.143	3.287	3.521	3.707
7	.711	1.415	1.895	2.365	2.998	3.128	3.335	3.499
8	.706	1.397	1.860	2.306	2.896	3.016	3.206	3.355
9	.703	1.383	1.833	2.262	2.821	2.933	3.111	3.250
10	.700	1.372	1.812	2.228	2.764	2.870	3.038	3.169
11	.697	1.363	1.796	2.201	2.718	2.820	2.981	3.106
12	.695	1.356	1.782	2.179	2.681	2.779	2.934	3.055
13	.694	1.350	1.771	2.160	2.650	2.746	2.896	3.012
14	.692	1.345	1.761	2.145	2.624	2.718	2.864	2.977
15	.691	1.341	1.753	2.131	2.602	2.694	2.837	2.947
16	.690	1.337	1.746	2.120	2.583	2.673	2.813	2.921
17	.689	1.333	1.740	2.110	2.567	2.655	2.793	2.898
18	.688	1.330	1.734	2.101	2.552	2.639	2.775	2.878
19	.688	1.328	1.729	2.093	2.539	2.625	2.759	2.861
20	.687	1.325	1.725	2.086	2.528	2.613	2.744	2.845
21	.686	1.323	1.721	2.080	2.518	2.601	2.732	2.831
22	.686	1.321	1.717	2.074	2.508	2.591	2.720	2.819
23	.685	1.319	1.714	2.069	2.500	2.582	2.710	2.807
24	.685	1.318	1.711	2.064	2.492	2.574	2.700	2.797
25	.684	1.316	1.708	2.060	2.485	2.566	2.692	2.787
26	.684	1.315	1.706	2.056	2.479	2.559	2.684	2.779
27	.684	1.314	1.703	2.052	2.473	2.552	2.676	2.771
28	.683	1.313	1.701	2.048	2.467	2.546	2.669	2.763
29	.683	1.311	1.699	2.045	2.462	2.541	2.663	2.756
30	.683	1.310	1.697	2.042	2.457	2.536	2.657	2.750
40	.681	1.303	1.684	2.021	2.423	2.499	2.616	2.704
60	.679	1.296	1.671	2.000	2.398	2.463	2.575	2.660
80	.677	1.289	1.658	1.980	2.358	2.428	2.536	2.617
100	.674	1.282	1.645	1.960	2.326	2.394	2.498	2.576

表四 卡方分配百分點表



自由度 (v)	.99	.975	.95	.90	.80	.70	.60	.50	.40	.30	.20	.10	.05	.025	.01
1	.00002	.0001	.004	.02	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.60
2	.02	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.75
3	.30	.40	.48	.58	.68	.78	.88	.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68
4	.71	.83	.93	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16
5	.82	.94	1.04	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27
6	.93	1.05	1.15	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38
7	1.04	1.16	1.26	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49
8	1.16	1.28	1.38	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61
9	1.28	1.40	1.50	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73
10	1.40	1.52	1.62	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85
11	1.52	1.64	1.74	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87	2.97
12	1.64	1.76	1.86	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79	2.89	2.99	3.09
13	1.76	1.88	1.98	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81	2.91	3.01	3.11	3.21
14	1.88	2.00	2.10	2.23	2.33	2.43	2.53	2.63	2.73	2.83	2.93	3.03	3.13	3.23	3.33
15	2.00	2.12	2.22	2.35	2.45	2.55	2.65	2.75	2.85	2.95	3.05	3.15	3.25	3.35	3.45
16	2.12	2.24	2.34	2.47	2.57	2.67	2.77	2.87	2.97	3.07	3.17	3.27	3.37	3.47	3.57
17	2.24	2.36	2.46	2.59	2.69	2.79	2.89	2.99	3.09	3.19	3.29	3.39	3.49	3.59	3.69
18	2.36	2.48	2.58	2.71	2.81	2.91	3.01	3.11	3.21	3.31	3.41	3.51	3.61	3.71	3.81
19	2.48	2.60	2.70	2.83	2.93	3.03	3.13	3.23	3.33	3.43	3.53	3.63	3.73	3.83	3.93
20	2.60	2.72	2.82	2.95	3.05	3.15	3.25	3.35	3.45	3.55	3.65	3.75	3.85	3.95	4.05
21	2.72	2.84	2.94	3.07	3.17	3.27	3.37	3.47	3.57	3.67	3.77	3.87	3.97	4.07	4.17
22	2.84	2.96	3.06	3.19	3.29	3.39	3.49	3.59	3.69	3.79	3.89	3.99	4.09	4.19	4.29
23	2.96	3.08	3.18	3.31	3.41	3.51	3.61	3.71	3.81	3.91	4.01	4.11	4.21	4.31	4.41
24	3.08	3.20	3.30	3.43	3.53	3.63	3.73	3.83	3.93	4.03	4.13	4.23	4.33	4.43	4.53
25	3.20	3.32	3.42	3.55	3.65	3.75	3.85	3.95	4.05	4.15	4.25	4.35	4.45	4.55	4.65
26	3.32	3.44	3.54	3.67	3.77	3.87	3.97	4.07	4.17	4.27	4.37	4.47	4.57	4.67	4.77
27	3.44	3.56	3.66	3.79	3.89	3.99	4.09	4.19	4.29	4.39	4.49	4.59	4.69	4.79	4.89
28	3.56	3.68	3.78	3.91	4.01	4.11	4.21	4.31	4.41	4.51	4.61	4.71	4.81	4.91	5.01
29	3.68	3.80	3.90	4.03	4.13	4.23	4.33	4.43	4.53	4.63	4.73	4.83	4.93	5.03	5.13
30	3.80	3.92	4.02	4.15	4.25	4.35	4.45	4.55	4.65	4.75	4.85	4.95	5.05	5.15	5.25
40	4.30	4.42	4.52	4.65	4.75	4.85	4.95	5.05	5.15	5.25	5.35	5.45	5.55	5.65	5.75
50	4.80	4.92	5.02	5.15	5.25	5.35	5.45	5.55	5.65	5.75	5.85	5.95	6.05	6.15	6.25
60	5.30	5.42	5.52	5.65	5.75	5.85	5.95	6.05	6.15	6.25	6.35	6.45	6.55	6.65	6.75
70	5.80	5.92	6.02	6.15	6.25	6.35	6.45	6.55	6.65	6.75	6.85	6.95	7.05	7.15	7.25
80	6.30	6.42	6.52	6.65	6.75	6.85	6.95	7.05	7.15	7.25	7.35	7.45	7.55	7.65	7.75
90	6.80	6.92	7.02	7.15	7.25	7.35	7.45	7.55	7.65	7.75	7.85	7.95	8.05	8.15	8.25
100	7.30	7.42	7.52	7.65	7.75	7.85	7.95	8.05	8.15	8.25	8.35	8.45	8.55	8.65	8.75

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