

銘傳大學九十學年度二年制在職進修專班招生考試

第一節

統計學 試題

可使用計算機

- 一、 文山中學為了解該校學生的平均身高 μ ，隨機從全校學生中抽出 64 位同學，結果這 64 位同學的平均身高為 165 公分，標準差為 4 公分。
(假設該校學生人數眾多，可視為無限母體)
 - (1) 試估計 μ 值。(5%)
 - (2) 試求 μ 的 95% 信賴區間。(10%)
 - (3) 若實際上 $\mu = 168$ 公分，則你在上述(2)中算出的信賴區間包含 μ 的機率為多少？(5%)

- 二、 為了解台北市每部自用轎車一年平均行駛里程 μ 是否超過 10,000 公里，特舉行一次抽樣調查，隨機抽出 100 部自用轎車，要求他們紀錄一年的行駛里程數，結果抽出的 100 部自用轎車一年平均行駛 10,850 公里，且有 2,500 公里的標準差。
 - (1) 試取顯著水準 $\alpha = 0.05$ ，以檢定 μ 是否超過 10,000 公里？(15%)
 - (2) 試計算 p-值(p-value)。(5%)

- 三、 設 Z 為標準常態隨機變數，試求滿足下列式子的 k 值。
 - (1) $P(Z > k) = 0.9474$ 。(5%)
 - (2) $P(|Z| \leq k) = 0.7016$ 。(5%)

- 四、 試就下列資料計算(1)平均數 (5%) (2)中位數 (5%) (3)眾數 (5%)
5,7,8,4,9,3

- 五、 設 A, B 為兩互相獨立事件，且 $P(A) = 0.3, P(B) = 0.1$ 。
 - (1) 試問 A, B 是否為兩互斥(mutually exclusive)事件？為什麼？(5%)
 - (2) 試求 $P(A | B)$ 。(5%)
 - (3) 試求 $P(A \cup B)$ 。(5%)

- 六、 某電冰箱製造商供應四種不同顏色：乳白，淡黃，淺綠和鐵灰色的小型冰箱。在已賣出的 200 台該型冰箱中，不同顏色的售出數量如下表：

顏色	乳白	淡黃	淺綠	鐵灰
數量	45	51	58	46

試問上述資料是否提供足夠證據顯示某些顏色的冰箱較其他顏色受顧客歡迎？取顯著水準 $\alpha=0.05$ 檢定之。(15%)

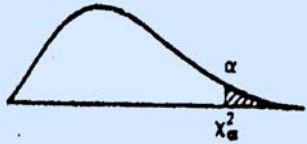
七、針對中共軍事演習，我方必須嚴陣以待，以防其假戲真做。設有一雷達監視員，當雷達螢光幕上有異常狀況出現時，他必須再下兩項中作一決定：

H0：無任何事故，只不過是雷達螢光幕暫時的不穩

H1：有敵機來襲

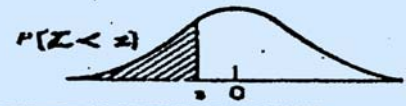
如果雷達監視員發出了錯誤的警報，則他犯了何種誤差？(型一誤差或型二誤差)(5%)

χ^2 一分配右尾百分點 $\chi^2_{\alpha}(d.f.)$



α	.995	.990	.975	.950	.050	.025	.010	.005
d.f.								
1	392704×10^{-10}	157088×10^{-9}	982069×10^{-9}	393214×10^{-8}	3.84146	5.02389	6.63490	7.87944
2	.0100251	.0201007	.0506356	.102587	5.99147	7.37776	9.21034	10.5966
3	.0717212	.114832	.215795	.351846	7.81473	9.34840	11.3449	12.8381
4	.206990	.297110	.484419	.710721	9.48773	11.1433	13.2767	14.8602
5	.411740	.554300	.831211	1.145476	11.0705	12.8325	15.0863	16.7496
6	.675727	.872085	1.237347	1.63539	12.5916	14.4494	16.8119	18.5476
7	.989265	1.239043	1.68987	2.16735	14.0671	16.0128	18.4753	20.2777
8	1.344419	1.646482	2.17973	2.73264	15.5073	17.5346	20.0902	21.9550
9	1.734926	2.087912	2.70039	3.32511	16.9190	19.0228	21.6660	23.5893

標準常態分配值



z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.5	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0002
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
-1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
-1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-0.7	.2420	.2389	.2358	.2327	.2297	.2266	.2236	.2206	.2177	.2148
-0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
-0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

試題完