

招生學年度	九十九	招生類別	轉學招生考試
系所班別	企業管理學系三年級、財務金融學系三年級		
科目	統計學		
注意事項	可使用掌上型計算機		

Please show all work to receive credit.

- The weights of chocolate bars are normally distributed with a mean $\mu = 69.0$ ounces, and a standard deviation $\sigma = 2.8$ ounces.
 - (10%) What range that 95% of mean are in?
 - (10%) What is the probability that a chocolate bar is more than 75 ounces?
- Given that the probability of selecting a number from the interval $[0, 2]$ is $f(x) = cx$.
 - (10%) Find the value of c so that this is a probability distribution.
 - (10%) Find the probability that a selected number is from the interval $[1, 2]$.
- Tom is searching for a used motorcycle to buy, so he posts an ad to a website. After three days, there are 150 motorcycles are matching and the details are shown in Table 1. Assume that each used motorcycle is owned by a different person, that all the owners will call Tom and that they are equally likely to call him.

<Table 1>

Motorcycle	\$16,000~\$16,999	\$17,000~\$17,999	Total
Type 1	4	5	9
Type 2	7	1	8
Type 3	34	32	66
Type 4	18	5	23
Type 5	34	10	44
Total	97	53	150

- (5%) What is the probability that the first caller will be a Type 4 owner?
 - (5%) What is the probability that first caller will own a Type 3 that costs between \$16,000~\$16,999?
 - (5%) If the first call offers Tom a Type 5, what is the probability that it costs less than \$17,000?
 - (5%) Now Suppose Tom ignores calls with cars whose cost is $\geq \$17,000$. What is the probability that first call he takes will offer to sell him a Type 4?
4. (20%) A tire manufacturer is interested in whether a newly designed tire had an effect on the average life. To test this hypothesis, 744 observations from old tires and 552 from new tires are to be used. Table 2 shows the results. Is the average life of a new tire significantly different from an old tire at 10% significant level?

<Table 2>

Tires	N	Mean	Variance
Old	744	57.65 months	16.4
New	552	60.48 months	19.1

5. A manager wants to know the relationship between the number of interviews conducted by interviewers and the interviewer experience. A sample of 10 interviewers is selected. Their experience and the number of interviews completed are shown in Table 3.

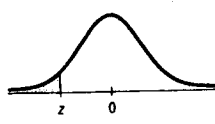
- (8%) Use linear regression to determine the equation of the line of best fit for this data.
- (8%) Determine the correlation coefficient and explain what it means.
- (4%) Determine the number of interviews completed when the interviewer has 45 weeks of experience.

<Table 3>

Weeks of Experience	15	41	58	18	37	52	28	24	45	33
Number of interviews completed	4	9	12	6	8	10	6	5	10	7

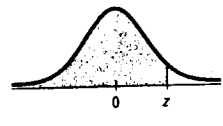
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Table Z
Areas under the standard Normal curve



		Second decimal place in z										
		0.09	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01	0.00	z
0.0064	0.0066	0.0068	0.0069	0.0071	0.0073	0.0075	0.0078	0.0080	0.0082		-2.4	
0.0084	0.0087	0.0089	0.0091	0.0094	0.0096	0.0099	0.0102	0.0104	0.0107		-2.3	
0.0110	0.0113	0.0116	0.0119	0.0122	0.0125	0.0129	0.0132	0.0136	0.0139		-2.2	
0.0143	0.0146	0.0150	0.0154	0.0158	0.0162	0.0166	0.0170	0.0174	0.0179		-2.1	
0.0183	0.0188	0.0192	0.0197	0.0202	0.0207	0.0212	0.0217	0.0222	0.0228		-2.0	
0.0233	0.0239	0.0244	0.0250	0.0256	0.0262	0.0268	0.0274	0.0281	0.0287		-1.9	
0.0294	0.0301	0.0307	0.0314	0.0322	0.0329	0.0336	0.0344	0.0351	0.0359		-1.8	
0.0367	0.0375	0.0384	0.0392	0.0401	0.0409	0.0418	0.0427	0.0436	0.0446		-1.7	
0.0455	0.0465	0.0475	0.0485	0.0495	0.0505	0.0516	0.0526	0.0537	0.0548		-1.6	
0.0559	0.0571	0.0582	0.0594	0.0606	0.0618	0.0630	0.0643	0.0655	0.0668		-1.5	
0.0681	0.0694	0.0708	0.0721	0.0735	0.0749	0.0764	0.0778	0.0793	0.0808		-1.4	
0.0823	0.0838	0.0853	0.0869	0.0885	0.0901	0.0918	0.0934	0.0951	0.0968		-1.3	
0.0985	0.1003	0.1020	0.1038	0.1056	0.1075	0.1093	0.1112	0.1131	0.1151		-1.2	
0.1170	0.1190	0.1210	0.1230	0.1251	0.1271	0.1292	0.1314	0.1335	0.1357		-1.1	
0.1379	0.1401	0.1423	0.1446	0.1469	0.1492	0.1515	0.1539	0.1562	0.1587		-1.0	

Table Z (cont.)
Areas under the standard Normal curve



		Second decimal place in z									
z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621	
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830	
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015	
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177	
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319	
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441	
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545	
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633	
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706	
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767	
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817	
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857	
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890	
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916	
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936	

Two-tail probability		0.20	0.10	0.05	0.02	0.01
One-tail probability		0.10	0.05	0.025	0.01	0.005
Table T	df					
Values of t_{α}	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

