


Course No: BUS1309
Course Title: statistics
Date: Saturday, March 29, 2014
No. of Questions: (3)
Time: one hour
Using Calculator (yes)

University of Palestine

Midterm Exam
2014-2013
Total Grade:

Instructor Name: Nafez M. Barakat
Student No.: _____
Student Name: _____
College Name: _____
Dep. / Specialist: _____
Using Dictionary (No)

SECTION I: MULTIPLE-CHOICE

- The classification of student class designation (freshman, sophomore, junior, senior) is an example of
 - a categorical random variable.
 - a discrete random variable.
 - a continuous random variable.
 - a parameter
- Which of the following statements about the median is not true?
 - It is more affected by extreme values than the arithmetic mean.
 - It is a measure of central tendency.
 - It is equal to Q2.
 - It is equal to the mode in bell-shaped "normal" distributions.
- Which of the following is true about the sampling distribution of the sample mean?
 - The mean of the sampling distribution is always μ .
 - The standard deviation of the sampling distribution is always σ .
 - The shape of the sampling distribution is always approximately normal.
 - All of the above are true.
- When determining the sample size necessary for estimating the true population mean, which factor is not considered when sampling with replacement?
 - The population size.
 - The population standard deviation.
 - The level of confidence desired in the estimate.
 - The allowable or tolerable sampling error
- The width of a confidence interval estimate for a proportion will be
 - narrower for 99% confidence than for 95% confidence.
 - wider for a sample size of 100 than for a sample size of 50.
 - narrower for 90% confidence than for 95% confidence.
 - narrower when the sample proportion is 0.50 than when the sample proportion is 0.20.

SECTION II: TRUE OR FALSE

- () The median of the values 3.4, 4.7, 1.9, 7.6, and 6.5 is 1.9.
- () The Z scores can be used to identify outliers.
- () The probability that a standard normal random variable, Z, falls between -1.50 and 0.81 is 0.7242 .
- () As the sample size increases, the standard error of the mean increases.
- () Suppose $\mu = 50$ and $\sigma^2 = 100$ for a population. In a sample where $n = 100$ is randomly taken, 95% of all possible sample means will fall between 48.04 and 51.96.

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SECTION III: FREE RESPONSE PROBLEMS

1. Suppose Z has a standard normal distribution with a mean of 0 and standard deviation of 1.

a. The probability that Z is less than 1.15 is _____.

b. The probability that Z is between -2.33 and 2.33 is _____.

c. So 96% of the possible Z values are between _____ and _____ (symmetrically distributed about the mean).

2. The amount of pyridoxine (in grams) per multiple vitamin is normally distributed with $\mu = 110$ grams and $\sigma = 25$ grams. A sample of 25 vitamins is to be selected. What is the probability that the sample mean will be between 100 and 120 grams?

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3. A sample of 11 circuits from a large normal population has a mean resistance of 2.20 ohms. We know from past testing that the population standard deviation is 0.35 ohms. Determine a 95% confidence interval for the true mean resistance of the population .

$$\bar{X} \pm Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

$$Z = \frac{(\bar{X} - \mu_{\bar{X}})}{\sigma_{\bar{X}}} = \frac{(\bar{X} - \mu)}{\frac{\sigma}{\sqrt{n}}}$$

$$Z = \frac{X - \mu}{\sigma}$$

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Table entry for z is the area under the standard normal curve to the left of z .

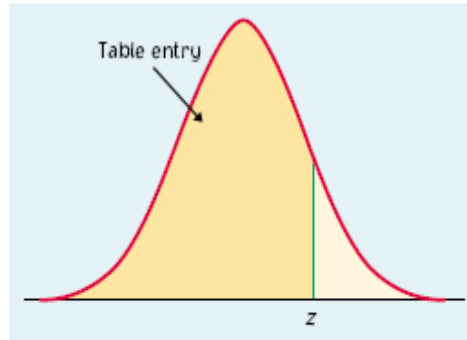


TABLE A Standard normal probabilities (continued)

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.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	.7704	.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	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998