

SOLUTIONS

King Fahd University of Petroleum & Minerals
Department of Mathematical Science
STAT-211-Term042-I

Quiz #6
ID:

Section:
Serial:

Name: _____

Question One (5-Points)

Write **True** if the statement is true or **False** if not: _____

1. The sampling error of the sample proportion \bar{p} may be negative: **True**
2. The sampling distribution of the sample mean of a random sample from a normal population is always normal regardless of the sample size: **True**
3. As the sample size increases the sampling error always decreases: **False**
4. The standard error of the sample mean \bar{x} may change from sample to sample of the same size: **False**
5. Different samples of the same size may yield different sampling error: **True**

Question Two (5-Points)

A population is normally distributed, with a mean of 1,000 and a standard deviation of 200. Use this information to answer the following two questions (1, 2)

1. The probability that a random sample of size 5 selected from this population will have a sample mean less than 970 is:
a. 0..2734 b. 0.2266 c. 0.7266 d. **0.3669**
2. The probability that a random sample of size 25 selected from this population will have a sample mean between 980 and 1020 is equal to:
a. 0.1915 b. **0.3830** c. 0.9876 d. *None*

Given a population in which the probability of success is $p = 0.40$, if a sample of 1000 is taken, use this information to answer the following three questions (3, 4 and 5)

3. If the sample yields 420 success items, then the sampling error for this sample is :
a. -0.02 b. **0.02** c. 0.16 d. 0.18
4. The probability that the proportion of success in the sample is less than 0.44 is equal to:
a. **0.9951** b. 0.0049 c. 0.4951 d. *None*
5. If the $P(\bar{p} > p_0) = 0.0985$ then the value of p_0 equals to:
a. **0.42** b. 0.44 c. 0.4 d. *None*

NOTE: you may use One of the following areas, where

z_0	0.29	0.34	0.5	0.75	1.29	2.58
$P(0 < Z < z_0)$	0.1141	0.1331	0.1915	0.2734	0.4015	0.4951