

You can edit, delete, or change the point values of test questions on this page. If necessary, test attempts will be regraded after you submit your changes.

Question Settings

Description

Answer all questions.

It is a closed-book quiz. You are only allowed to use calculator and the normal distribution table provided in NTU Learn.

Select the most suitable answers.

Some questions may have **multiple answers**.

You are not allowed taking photos of any questions in this mock quiz. If you do so, your final marks may be reduced.

This quiz has 15 questions.

Instructions

Total Questions	15
Total Points	18
Number of Attempts	358

Select: [All](#) [None](#) | Select by Type:

- Question Type -

Points

Update and Regrade

Hide Question Details

☐ 1. Multiple Choice: Q1: Decreasing the sample size, while hol...

Question

Decreasing the sample size, while holding the confidence level the same, will do what to the length of your confidence interval?

Answer

✔ make it bigger

make it smaller

it will stay the same

cannot be determined from the given information

Points: 1

☐ 2. Multiple Choice: Q2: The average teacher's salary in Japan...

Question

The average teacher's salary in Japan is US\$52,174. Suppose that the distribution is normal with standard deviation \$7500. If we sample 100 teachers' salaries, what is the probability that the sample mean is less than \$50,000 per year?

Answer

✔ a. 0.0019

b. 0.0100

c. 0.0150

d. 0.0138

e. 0.0108

f. 0.0025

Points: 1

☐ 3. Multiple Choice: Q3: The lengths of pregnancies are normal...

Question

The lengths of pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. If 25 pregnant women are put on a special diet just before they become pregnant, find the probability that their lengths of pregnancy have a mean that is less than 260 days (assuming that the diet has no effect).

Answer

✔ a. 0.0038

Points: 1

b. 0.0214

c. 0.0104

d. 0.0054

e. 0.0024

f. 0.0144

☐ 4. Multiple Choice: Q4: Assume that a test has a mean score o...

Points: 1

Question

Assume that a test has a mean score of 75 and a standard deviation of 10. Assume the distribution of scores is approximately normal. What score should be used to identify the top 2.5%?

Answer

a. 90.5

b. 92.6

☒ c. 94.6

d. 85.7

e. 83.7

f. 80.7

☐ 5. Multiple Choice: Assume that a test has a mean score o...

Points: 1

Question

Assume that a test has a mean score of 75 and a standard deviation of 10. Assume the distribution of scores is approximately normal. What is the probability that the mean of a group of 100 will score below 70?

Answer

a. 0.0133

b. 0.1256

c. 0.1253

☒ d. almost 0

e. 0.0312

f. 0.0412

☐ 6. Multiple Choice: Q6: If you increase the sample size and c...

Points: 1

Question

If you increase the sample size and confidence level at the same time, what will happen to the length of your confidence interval?

Answer

a. make it bigger

b. make it smaller

c. it will stay the same

☒ d. cannot be determined from the given information

☐ 7. Multiple Answer: Q7: Which of the following is a property ...

Points: 2

Question	Which of the following is a property of the Sampling Distribution of \bar{x} ?
Answer	<p>a. \bar{x} always has a normal distribution.</p> <p>b. The mean of the sampling distribution of \bar{x} is μ the population mean.</p> <p>c. if you increase your sample size, \bar{x} will always get closer μ to the population mean.</p> <p>d. the standard deviation of the sample mean is the same as the standard deviation from the original population σ.</p>

☐ 8. Multiple Choice: Q8: Decreasing the confidence level, whil...

Points: 1

Question	Decreasing the confidence level, while holding the sample size the same, will do what to the length of your confidence interval?
Answer	<p>a. make it bigger</p> <p>b. make it smaller</p> <p>c. it will stay the same</p> <p>d. cannot be determined from the given information</p>

☐ 9. Multiple Choice: Q9: What is meant by the term "90% confid..."

Points: 1

Question	What is meant by the term "90% confident" when constructing a confidence interval for a mean?
Answer	<p>If we took repeated samples, approximately 90% of the samples would produce the same confidence interval.</p> <p>If we took repeated samples, approximately 90% of the confidence intervals calculated from those samples would contain the sample mean.</p> <p>If we took repeated samples, approximately 90% of the confidence intervals calculated from those samples would contain the true value of the population mean.</p> <p>If we took repeated samples, the sample mean would equal the population mean in approximately 90% of the samples.</p>

☐ 10. Multiple Choice: Q10: Six different national brands of choc...

Points: 1

Question	Six different national brands of chocolate chip cookies were randomly selected at the supermarket. The grams of fat per serving are as follows: 8, 8; 10, 7, 9, 9. Assume the underlying distribution is normal and its population variance is 1.1. Construct a 90% confidence interval for the population mean grams of fat per serving of chocolate chip cookies sold in supermarkets.
Answer	<p>a. Cannot determine the confidence interval due to small sample size.</p> <p>b. (8.29 8.71)</p> <p>c. (7.94 9.06)</p> <p>d. (7.80 , 9.20)</p> <p>e. (8.37 8.63)</p> <p>f. (7.38 9.62)</p>

☐ 11. Multiple Answer: Q11: Construct a 99% [Math formula] confid...

Points: 1

Question	Construct a 99% confidence interval for a population proportion p if $n=1236$, $x=109$
Answer	<div><div>a. (0.047 0.129)</div><div>b. (0.025 0.151)</div><div>c. (0.033 0.143)</div><div>d. (0.068 0.108)</div><div><input checked="" type="checkbox"/> e. (0.0674,0.109)</div><div>f. (0.0003 0.173)</div></div>

☐ 12. True/False: Q12: A national survey of 1,000 adults was...

Points: 1

Question	<p>A national survey of 1,000 adults was conducted on May 13, 2013 by Rasmussen Reports. It concluded with 95% confidence that 49% to 55% of Americans believe that big-time college sports programs corrupt the process of higher education. Can we (with 95% confidence) conclude that more than half of all American adults believe this?</p> <p>Select True if the answer is yes.</p> <p>Select False if the answer is no.</p>
Answer	<div><div>True</div><div><input checked="" type="checkbox"/> False</div></div>

☐ 13. Multiple Choice: The average height of young adult mal...

Points: 1

Question	The average height of young adult males has a normal distribution with standard deviation of 2.5 inches. You want to estimate the mean height of students at your college or university to within one inch with 93% confidence. How many male students must you measure?
Answer	<div><div>a. 18</div><div><input checked="" type="checkbox"/> b. 21</div><div>c. 23</div><div>d. 24</div><div>e. 16</div><div>f. 30</div></div>

☐ 14. Multiple Choice: Q14: Insurance companies are interested in...

Points: 2

Question	Insurance companies are interested in knowing the population percent of non-smokers in country A. When designing a study to determine this population proportion, what is the minimum number they would need to survey to be 95% confident that the population proportion is estimated to within 0.03?
Answer	<div><div><input checked="" type="checkbox"/> 1,068</div><div>1020</div><div>1500</div><div>2500</div><div>Non of the others</div><div>1256</div></div>

15. Multiple Choice: Q15: Why do we always use $\frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$, ...

Points: 2

Question

Why do we always use $\frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$, instead of $\frac{1}{n} \sum_{i=1}^n (X_i - \bar{X})^2$ to estimate population variance σ^2 ?

Answer

None of the others is the correct reason/

$\frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$ is more suitable for small sample size problem and $\frac{1}{n} \sum_{i=1}^n (X_i - \bar{X})^2$ is more suitable for large sample size problem.

$\frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$ is a biased estimator to σ^2 .

✓ $\frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$ is an unbiased estimator to σ^2 .