HW8

2020年4月9日 星期四　　下午5:02

Homework 8_...

Homework 8

Due Apr 9 at 11:59pm　**Points** 35　**Questions** 10
Available Apr 2 at 11pm - Apr 9 at 11:59pm 7 days　**Time Limit** None
Allowed Attempts 2

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	4 minutes	28 out of 35
LATEST	Attempt 2	4 minutes	28 out of 35
	Attempt 1	67 minutes	28 out of 35

ⓘ Correct answers are hidden.

Score for this attempt: **28** out of 35
Submitted Apr 7 at 6:44pm
This attempt took 4 minutes.

Question 1　4 / 4 pts

A company receives shipments of a component used in the manufacture of a component for a high-end acoustic speaker system. When the components arrive, the company selects a random sample from the shipment and subjects the selected components to a rigorous set of tests to determine if the components in the shipments conform to their specifications. From a recent large shipment, a random sample of 250 of the components was tested, and 24 units failed one or more of the tests. At the 98% level of confidence, what is the margin of error in the point estimate of the proportion of components in the shipment that

fail to meet the company's specifications?

0.0434

Question 2　4 / 4 pts

A company receives shipments of a component used in the manufacture of a component for a high-end acoustic speaker system. When the components arrive, the company selects a random sample from the shipment and subjects the selected components to a rigorous set of tests to determine if the components in the shipments conform to their specifications. From a recent large shipment, a random sample of 250 of the components was tested, and 24 units failed one or more of the tests. What is the 95% confidence interval estimate for the true proportion of components, *p*, that fail to meet the specifications? Round your answer to 2 decimal places. Input your answer in the format: (lower confidence limit, upper confidence limit)

(0.06, 0.13)

Question 3　4 / 4 pts

After a college football team once again lost a game to their archrival, the alumni association conducted a survey to see if alumni were in

favor of firing the coach. A simple random sample of 100 alumni from the population of all living alumni was taken. Sixty-four of the alumni in the sample were in favor of firing the coach. Let *p* represent the proportion of all living alumni who favored firing the coach. What is a 99% confidence interval for *p*?

- ○ 0.64 ± 0.079
- ◉ 0.64 ± 0.124
- ○ 0.64 ± 0.048
- ○ 0.64 ± 0.094

Question 4　3 / 3 pts

A study was conducted at the University of Waterloo on the impact characteristics of football helmets used in competitive high school programs. There were three types of helmets considered, classified according to liner type: suspension, padded-suspension, and padded. In the study, a measurement called the Gadd Severity Index (GSI) was obtained on each helmet, using a standardized impact test. A helmet was deemed to have failed if the GSI was greater than 1200. Of the 81 helmets tested, 29 failed the GSI 1200 criterion. How many suspension-type helmets should be tested so that the margin of error does not exceed 0.05 with 95% confidence?

- ○ 82
- ◉ 354

- ○ 271
- ○ 20
- ○ 250
- ○ 385

Question 5　4 / 4 pts

Battery packs in radio-controlled racing cars need to be able to last pretty long. The distribution of the lifetimes of battery packs made by Lectric Co. is slightly left skewed. Assume that the standard deviation of the lifetime distribution is σ = 2.5 hours. A simple random sample of 75 battery packs results in a mean of $\bar{x}$ = 29.6 hours. What is a 90% confidence interval for μ, the true average lifetime of the battery packs made by Lectric Co.?

- ○ (29.03, 30.17)
- ◉ (29.13, 30.07)
- ○ The confidence interval cannot be calculated because the population distribution is not Normal.
- ○ (28.86, 30.34)

Question 6　3 / 3 pts

Suppose that the population of the scores of all high school seniors who took the SAT Math (SAT-M) test this year follows a Normal distribution with standard deviation σ = 100. You read a report that says, "On the basis of a simple random sample of 100 high school seniors that took the SAT-M test this year, a confidence interval for μ is found to be 512.00 ± 25.75." What was the confidence level used to calculate this confidence interval?

- ○ 95%
- ○ 90%
- ○ 99.9%
- ◉ 99%

Question 7　3 / 3 pts

Suppose we wish to calculate a 90% confidence interval for the average amount spent on books by freshmen in their first year at a major university. The interval is to have a margin of error of $2. Assume that the amount spent on books by freshmen has a Normal distribution with a standard deviation of σ = $30. How many observations are required to achieve this margin of error?

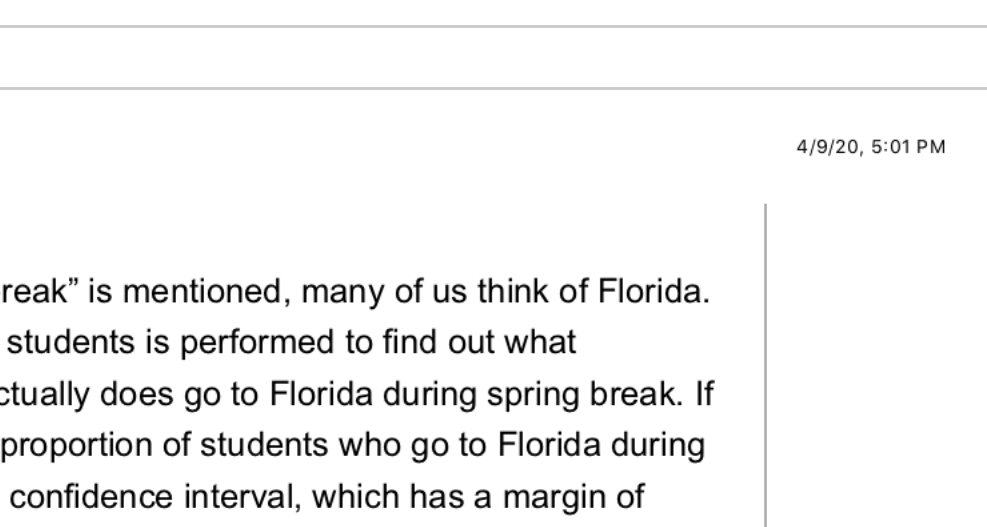
- ○ 608

- ○ 865
- ◉ 609
- ○ 25

Incorrect

Question 8　0 / 3 pts

The breaking strength of yarn used in the manufacture of woven carpet material is Normally distributed with σ = 2.4 psi. A random sample of 16 specimens of yarn from a production run was measured for breaking strength, and based on the mean of the sample $\bar{x}$, a confidence interval was found to be (128.7, 131.3). What is the confidence level, *C*, of this interval?



- ○ 0.97
- ◉ 0.99
- ○ It can't be determined with the information provided.
- ○ 0.95
- ○ 0.90

Question 9　3 / 3 pts

When the term "spring break" is mentioned, many of us think of Florida. A survey among college students is performed to find out what proportion of students actually does go to Florida during spring break. If we wish to estimate the proportion of students who go to Florida during spring break with a 90% confidence interval, which has a margin of error of no more than 4 percentage points (*m* = 0.04), what is the minimum number of students that needs to be sampled? Input your answer as an integer.

423

Incorrect

Question 10　0 / 4 pts

A fire insurance company wishes to study the amount of fire damage in major residential fires. The data they collected from a simple random sample of fires in the past six months are shown below.

Damage (in thousands of dollars)	26.2	17.8	23.1	36.0	31.1	43.2	36.4	26.1

The fire chief wishes to estimate the mean amount of damage with a 95% confidence interval. What is the 95% confidence interval for the true mean μ? Round your answer for the confidence limits to 3 decimal places. Input your answer in the following format: (lower confidence limit, upper confidence limit). You can use MINITAB to obtain the confidence interval.

(23.075, 36.901)

Quiz Score: **28** out of 35