Your work has been saved and submitted

Written Mar 27, 2025 6:32 PM - Mar 27, 2025 7:53 PM • Attempt 1 of Unlimited

Attempt Score **8 / 9 - 88.89 %**

Overall Grade (Highest Attempt) **8 / 9 - 88.89 %**

Question 1   1 / 1 point

We take a random sample of 7 tablet computers, and measure the time until their screens become scratched or cracked (in months). The following are our observations.

Assume that the times until being scratched or cracked are approximately normally distributed. Let μ be the true mean time (in months) until tablet screens become cracked or scratched.

If we test the research hypothesis that the true mean is greater than 9, what would be the probability distribution we would use to calculate our p-value?

○ t_8

○ none of the above

◉ t_6

○ t_7

○ Z

Question 2   1 / 1 point

We wish to estimate μ, the true mean calcium content (in mg) per cup of parsley. We take a random sample of 5 cups of parsley, and find the sample mean calcium content is 82.5 mg, and the sample standard deviation of the calcium content is 3.4 mg. Assume the calcium content in each sample is normally distributed.

What is a 98% confidence interval for μ?

○ (77.38, 87.62)

○ (76.13, 88.87)

○ (76.96, 86.04)

◉ (76.80, 88.20)

○ (76.78, 88.22)

Question 3   1 / 1 point

We are interested in **p**, the population proportion of all people who are currently happy with their cell phone plans. In a small study done in 2012, it was found that in a sample of 150 people, there were 90 who were happy with their cell phone plans.

If we test the research hypothesis that p is less than 0.7, what would be the observed value of the test statistic?

○ 2.67

◉ -2.67

○ -2.5

○ 2.5

Question 4   1 / 1 point

A study investigated hand washing behaviour in public washrooms in two major cities: Gotham and Metropolis. A random sample of 586 people in Gotham found that 83% of them washed their hands before leaving a public washroom, whereas a random sample of 682 people in Metropolis found that 72% of them washed their hands before leaving a public washroom. Calculate the **unpooled estimated standard error** you would use to test the claim that the proportion of hand washers is greater in Metropolis.

Round your answer in 4 decimal places.

Answer:

0.0232

Question 5   1 / 1 point

We would like to estimate **p**, the true proportion of Victoria residents who would like a subway system to be created. From a random sample of 360 Victoria residents, we find that 290 would like a subway system to be created.

Give the **lower confidence limit** of a 98% confidence interval for the true proportion. Give your answer to four decimal places.

Answer:

0.7570

Question 6   1 / 1 point

From a random sample of 14 people who travel to work, we find the sample mean travel time (in hours) is 0.9, and the sample standard deviation is s = 0.27.

Let μ be the true mean travel time.

Using these data as a pilot study, find the sample size needed to create a 90% confidence interval for the true mean, where the margin of error will be 0.01 hours.

Your answer for sample size must be a whole number.

Answer:

1,973

Question 7   1 / 1 point

We are interested in **p**, the population proportion of all Canadians who have a motorcycle license.

Find the sample size needed to construct a 92% confidence interval for p with a margin of error of 0.01

○ 9604

○ 4900

○ 7656

◉ 7657

Question 8   0 / 1 point

Suppose that $X \sim Exp(\lambda = 1.7)$.

Then $P(X \geq 3) = 1 - P(X \leq 2)$.

◉ True

○ False

Question 9   1 / 1 point

A computer network experiences attacks according to a Poisson process, at an average rate of **0.5 attacks per week**.

Let the random variable X measure the number of weeks until the network experiences its **first** attack.

What is the probability the first attack will occur after the second week. That is to say, what is $P(X \geq 2)$.

Round your answer to four decimal places.

Answer:

0.3679

Done