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**Problem Set**

Problem Set due May  
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Week 1: Sampling &gt; Problem Set &gt; Question 1



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# Question 1

On a scale of 1 to 10, how much do UT Austin students like Austin?

1. What are the true mean and standard deviation for our population of UT Austin students?
2. What should the sampling distribution of the mean look like, as predicted by the Central Limit Theorem?
3. How do our simulated values compare to these predicted values?

Use the "StudentSurvey.csv" dataset to answer the following questions. Instructions for installing "StudentSurvey.csv" can be found under the **Examine the Data** unit in this week's **Pre-Lab** section.

(1/1 point)

1a. Create a histogram of the "austin" variable for the entire population of students that took the survey. Which best describes the shape of the distribution?

☒ Left (Negative) Skewed

☐ Normal

☐ Right (Positive) Skewed

☐ Uniform

*You have used 1 of 1 submissions*

(1/1 point)

1b. What is the population mean for the "austin" variable? (Round to 2 decimal places.)

8.39

✓ Answer: 8.39

8.39

*You have used 1 of 1 submissions*

(1/1 point)

1c. What is the population standard deviation for the "austin" variable? (Report to 2 decimal places.)

1.51

✓ Answer: 1.51

1.51

*You have used 1 of 1 submissions*

1d. Use the **Central Limit Theorem** to predict the mean and standard deviation of the sampling distribution of means for samples of size  $n=10$  drawn from this population:

(1/1 point)

What is the expected mean? (Round to 2 decimal places.)

8.39

✓ Answer: 8.39

8.39

*You have used 1 of 1 submissions*

(1/1 point)

What is the expected standard deviation? (Round to 2 decimal places.)

✓ Answer: .48

*You have used 1 of 1 submissions*

(1/1 point)

1e. Simulate drawing 1,000 random samples of sample size  $n=10$  from the "austin" distribution, then create a histogram of the sampling distribution and calculate its mean and standard deviation. How do these simulated values compare to the those predicted by the Central Limit Theorem?

☐ The Central Limit Theorem is not correct.☒ The values are close to one another. ✓☐ The values are not close.*You have used 1 of 1 submissions*

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