C7 Practice Quiz from 1314 _____ likes free samples
AP Statistics 2122 Period:

1. The number of hours a light bulb burns before failing varies from bulb to bulb with a mean of 200 hours and a standard deviation of 12.3 hours. The distribution is skewed right.
    a. An SRS of 5 bulbs was selected.
        i. Describe the shape of the distribution.

        ii. Find the sampling distribution mean and standard deviation.

    b. An SRS of 40 bulbs were selected.
        i. Describe the shape of the distribution.

        ii. Find the sampling distribution mean and standard deviation.

2. A certain beverage company is suspected of underfilling its cans of soda. The company advertises that its cans contain, on average, 12 ounces of soda with a standard deviation of 0.4 ounces. Assume that the company is telling the truth.
    a. A quality control inspector measures the content of an SRS of 50 cans. What are the mean and standard deviation of the sampling distribution?

    b. The inspector obtains a sample mean of 11.9 ounces. Find the probability that a random sample of 50 cans produces a sample mean of 11.9 ounces or less.

    c. What would you conclude about whether the company is underfilling its cans of soda? Justify your answer.

3. Explain the Central Limit Theorem in your own words. Remember: CLT refers to the *shape* of a sampling distribution.

4. The graph below shows the population distribution of test scores on a challenging exam.
    a. On the graph, label the horizontal axis with the approximate location of the population mean.
    b. Use a solid line to draw an estimate of the graph of the sampling distribution of the sample mean for n = 4.
    c. Use a dotted line for n = 50.