

Lab Assignment 7.1

Name: _____ Date: _____ Row: _____

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1. An unknown distribution has a mean of 45 and a standard deviation of eight. Samples of size $n = 30$ are drawn randomly from the population. Find the probability that the sample mean is between 42 and 50.
2. According to the Internal Revenue Service, the average length of time for an individual to complete (keep records for, learn, prepare, copy, assemble, and send) IRS Form 1040 is 10.53 hours (without any attached schedules). The distribution is unknown. Let us assume that the standard deviation is two hours. Suppose we randomly sample 36 taxpayers. a. In words, \bar{X} =
2. In words, \bar{X} =
3. $\bar{X} \sim$
4. Would you be surprised if the 36 taxpayers finished their Form 1040s in an average of more than 12 hours? Explain why or why not in complete sentences.
5. Would you be surprised if one taxpayer finished his or her Form 1040 in more than 12 hours? In a complete sentence, explain why.
3. Suppose that a category of world-class runners are known to run a marathon (26 miles) in an average of 145 minutes with a standard deviation of 14 minutes. Consider 49 of the races. Let \bar{X} the average of the 49 races.
 1. $\bar{X} \sim$
 2. Find the probability that the runner will average between 142 and 146 minutes in these 49 marathons.
 3. Find the 80th percentile for the average of these 49 marathons.
4. Cans of a cola beverage claim to contain 16 ounces. The amounts in a sample are measured and the statistics are $n = 34$, $\bar{x} = 16.01$ ounces. If the cans are filled so that $\mu = 16.00$ ounces (as labeled) and $\sigma = 0.143$ ounces.
 1. Find the probability that a sample of 34 cans will have an average amount greater than 16.01 ounces.
 1. Do the results suggest that cans are filled with an amount greater than 16 ounces?

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