SKILL AND DRILL CONFIDENCE INTERVALS FOR A MEAN.

Construct a 95% confidence interval given each of the following sample means and sample sizes. Recall that the format of a confidence interval for a mean is:  where  and  the sample standard deviation. Assume conditions of the CLT are satisfied.

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1. What if: A shopper randomly selects four bags of oranges each bag labelled 10 pounds. The bags weighed 10.2, 10.5, 10.3, and 10.3 pounds. Assume the distribution of weights is Normal. Find a 95% confidence interval for the mean weight of all bags of oranges. Interpret your result.
2. In finding a confidence interval for a random sample of 30 students’ GPAs, one interval was  and the other was 
   1. One of them is a 95% interval and one is a 90% interval. Which is which and how do you know?
   2. If we used a large sample size would the 95% interval be wider or narrower than the one reported here?
3. State whether each of the following changes would make a confidence interval wider or narrower. (Assume nothing else changes.)
   1. Changing from a 90% confidence level to a 99% confidence level.
   2. Changing from a sample size of 30 to a sample size of 200.
   3. Changing from a standard deviation of 20 pounds to a standard deviation of 25 pounds.