

10.24: Assignment- Distribution of Sample Means

Question 1:

Scores on the math portion of the SAT (SAT-M) in a recent year have followed a normal distribution with mean $\mu = 507$ and standard deviation $\sigma = 111$.

What is the probability that the mean SAT-M score of a random sample of 4 students who took the test that year is more than 600? Explain why you can solve this problem, even though the sample size ($n = 4$) is very low.

Question 2:

Bags of a certain brand of potato chips say that the net weight of the contents is 35.6 grams. Assume that the standard deviation of the individual bag weights is 5.2 grams.

A quality control engineer selects a random sample of 35 bags. The mean weight of these 35 bags turns out to be 33.6 grams.

If the mean and standard deviation of individual bags is reported correctly, what is the probability that a random sample of 35 bags has a mean weight of 33.6 grams or less.

Question 3:

Does the sample provide strong evidence that the mean weight of the bags is lower than the 35.6 grams listed on the package?

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