Problem 1.   A population has a mean of 50 and a standard deviation of 6. What are the mean and standard deviation of the sampling distribution of the mean for $n = 16$?

Problem 2.   Given a test that is normally distributed with mean $\mu = 100$ and a standard deviation of $\sigma = 12$, find the following:

 (a) the probability that a single score drawn at random will be less than 120

 (b) the probability that a single score drawn at random will be greater than 123

 (c) the probability that a sample of 25 scores will have a mean less than 106

 (d) the probability that the mean of a sample of 36 scores will be either less than 95 or greater than 105

 (e) the test score such that the probability of scoring above it is 5%.

Problem 3.   In Wisconsin, the mean donut consumption in a week is 48 donuts per person, and the standard deviation of weekly donut consumption is 12 donuts.[1] This week, Jiminy Glick has a weekly donut Z-score of 1.5. How many donuts did Jiminy Glick eat this week?

Problem 4.   On average, I eat 7 pizzas per week, with a standard deviation of 1 pizza, and my pizza consumption is normally distributed. What is the probability that I eat less than 5 pizzas in a given week? Don't use R or a normal table.

Problem 5.   Explain when you should use the normal distribution and when you should use the $T(n-1)$ distribution for analyzing sampling means. (Ignore the $T(n-1)$ distribution for now if it hasn't been discussed in lecture yet.)

Problem 6.   Explain the difference between time series data, panel data, and cross-sectional data.

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[1]I miss Wisconsin.