

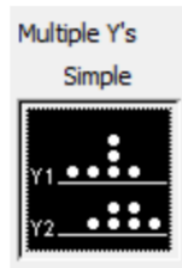
15.3.7: Chapter 8 Lab

Central Limit Theorem

Open the Minitab file lab07.mpj from the website.

The lifetime of optical scanning drives follows a skewed distribution with $\mu = 100$ and $\sigma = 100$. The five columns labeled CLT $n=$ represent 1000 simulated random samples of 1, 5, 10, 30, and 100 from this population.

1. Make dot plots of all 5 sample sizes using the Multiple Y's Simple option and paste the result here.



- a. As the sample size changes, describe the change in center.
 - b. As the sample size changes, describe the change in spread.
 - c. As the sample size changes, describe the change in shape.
2. Using the command `STAT>DISPLAY DESCRIPTIVE STATISTICS`, determine the mean and standard deviation for each of the five groups. Paste the results here.
 - a. The Central Limit Theorem states that the Expected Value of \bar{X} is μ . As the sample size increases, describe the change in mean. Is this consistent with the Central Limit Theorem?
 - b. The Central Limit Theorem states that the Standard Deviation of \bar{X} is σ/\sqrt{n} . As the sample size increases, describe the change in standard deviation. Is this consistent with the Central Limit Theorem?
 3. What you have observed are the three important parts of the Central Limit Theorem for the distribution of the sample mean \bar{X} . In your own words, describe these three important parts.

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