Lesson 16: Describing Categorical Data (Proportions)

Preparation

Directions: Please fill in Part I as you study the Reading Assignment. Once you finish the reading, complete the questions on Part II. You may use your notes, the key, and the help videos. Be sure to take this completed assignment to your group meeting where you can ask and help answer questions on this assignment.

Problems

Part I: Use the information in the reading assignment to complete these questions.

1. Pick from the list of graphs below, which graphs you can use to describe categorical data:
   a. Histograms
   b. Pie Charts
   c. Boxplots
   d. Bar Charts
2. When given a sample, what is the formula to compute $\hat{p}$? Explain which each variable stands for in your formula.
3. What is the mean of the sampling distribution of the samples proportion $\hat{p}$? (State this answer in words - not just a symbol.)
4. What is the standard deviation of the sampling distribution of the samples proportion $\hat{p}$ (You may state this answer in symbols. Please include what each symbol In your formula stands for.)?
5. What is the difference between categorical and quantitative data? What are a couple of examples of categorical data (open-ended)?

Part II:

6. Open the file Class Survey using the file format for your class. Create a pie chart for Class Rank. Label it. Post it here.
7. Next create a bar graph for Class Rank. Label it. Post it here.
8. Show at least five ways (graphs and numerical statistics) to describe the data above.
9. *Seven* Percent is the true unknown percent of the population that do not have traditional phones and instead rely on cell phones (7% is p). Suppose a random sample of 750 telephone users is obtained. What is the probability that more than 60 phone users (8%) in the survey use only cell phones?
   a. What is the "mean" and standard deviation of the sampling distribution based on 750 telephone users?
   b. What is the z-score you would use?
   c. What is the probability that more than 8% in the survey use only cell phones?