

Table Number: _____

Group Name: _____

Group Members: _____

GUESS MY PARAMETER

CONFIDENCE INTERVAL vs HYPOTHESIS TEST vs PROBABILITY

For each of the following scenarios answer the following:

- a) What is the population parameter of interest? Proportion or mean (p or μ)? How do you know?
 - b) What is the most appropriate approach to answer the given question? Your options are (1) finding a confidence interval, (2) performing a hypothesis test, and (3) finding a probability involving sampling distributions. Explain your reasoning.
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1. In 2010, a survey found that the typical attention span of a university student is 10 minutes (http://news.bbc.co.uk/2/hi/uk_news/education/8449307.stm). A university professor claims that this has decreased over the years. How may she support her claim?
 - a) Proportion or Mean? How do you know?

 - b) Confidence Interval? Hypothesis test? Probability? Explain.
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2. In a survey of 450,000 U.S. adults, the CDC found that 80% of those surveyed did not get the recommended amount of exercise (<https://www.cbsnews.com/news/cdc-80-percent-of-american-adults-dont-get-recommended-exercise/>). Attempting to convince his students to keep up with their exercise outside of class, a gym instructor claims that 90% of adults do not get enough exercise and have health problems. Is his claim plausible?
 - a) Proportion or Mean? How do you know?

 - b) Confidence Interval? Hypothesis test? Probability? Explain then do it:

3. When a new restaurant opens, the owners know that most restaurants of their size need to earn more than \$30000 per week for the first year of operation. Other restaurants in their vicinity earn \$29,203.48 per week on average with a standard deviation of \$2534.68. Six months after opening, the owners take a sample of weekly revenue from nine randomly chosen weeks. What is the probability that the average weekly revenue for these 9 weeks will be above \$30,000. Assume that weekly revenue for the region is normally distributed.
- a) Proportion or Mean? How do you know?
- b) Confidence Interval? Hypothesis test? Probability? Explain then do it:
4. The acceptance rate to The Ohio State University is 49%. If 100 students from a certain high school in all apply to OSU, what is the probability that no more than 40 of those students will be accepted?
- a) Proportion or Mean? How do you know?
- b) Confidence Interval? Hypothesis test? Probability? Explain then do it:
5. A study in 2010 reported that 62% of personal bankruptcy filings were due to medical reasons and the bills attached to them. An economist believes that this percentage has changed. How may the economist support their claim?
- a) Proportion or Mean? How do you know?
- b) Confidence Interval? Hypothesis test? Probability? Explain then do it: