Name(s) _____ Date _____

Elementary Statistics   Period _____

Chapter 7 Project: Population Estimates & Sample Sizes

Due by the start of class on Thursday, April 21ˢᵗ, 2022

1. Choose a population to study:_____

    *Assume the population approximates a normal distribution.

2. Choose a topic to study. It must be data that would be classified as ratio (numerical with a true sense of zero) & should be something that people can easily answer about themselves._____

_____

    *Each group must choose a different topic & must be approved by Mrs. Armstrong before starting data collection.

3. Collect data from at least 30 people & record the results in the following table:

Name	Data	Name	Data
1		21	
2		22	
3		23	
4		24	
5		25	
6		26	
7		27	
8		28	
9		29	
10		30	
11		31	
12		32	
13		33	
14		34	
15		35	
16		36	
17		37	
18		38	
19		39	
20		40	

4. Calculate the sample mean:_____ & the sample standard deviation: _____

5. *Estimate the population proportion with 95% confidence:*

    a. Choose a population proportion for your data (ie: success would be number of people over 5 feet 10 inches tall)

    b. Use your answer to question #5a and find the sample proportion for your data:

    c. Find the critical value necessary to estimate the population proportion:

    d. Find the margin of error:

    e. Construct the confidence interval estimate of the population proportion.

    f. How would you interpret your results with respect to the population you are studying?

    g. How many people should you sample if you want your estimate to be within 3% of the population proportion?

6. *Estimate the population mean with 95% confidence:*

    a. What is the best point estimate of the population mean?

    b. Find the critical value necessary to estimate the population mean:

    c. Find the margin of error:

    d. Construct the confidence interval estimate of the population mean.

    e. How would you interpret your results with respect to the population you are studying?

    f. How many people should you sample if you want your estimate to be within 3% of the population mean? (Use your sample standard deviation as σ)

7. *Estimate the population standard deviation with 95% confidence:*

     a. What is the best point estimate of the population standard deviation?

     b. Find the critical values necessary to estimate the population standard deviation:

     c. Construct the confidence interval estimate of the population standard deviation.

     d. How would you interpret your results with respect to the population you are studying?

     e. How many people should you sample if you want your estimate to be within 5% of the population standard deviation?

8. How you will present your project results to the class? (ie: poster, powerpoint, …)

9. What materials are necessary for your presentation?