**Week 7 Reading Questions**

**Eco 602**

**Desireé Smith**

**Q1 (1 pt.):** Explain the effect, if any, of the population mean on the width of CIs for a population that is normally-distributed. If population mean does not affect the widths of CIs explain why not.

The population mean would not have an effect on the confidence interval. The mean is an average of all the numbers, so it is one point on the graph. There is no spread since it is a singular point.

**Q2 (1 pt.):** Explain the effect, if any, of the population standard deviation on the width of CIs. If population standard deviation does not affect the widths of CIs explain why not.

I believe that if the population standard deviation is higher than the width of the confidence interval will be wider. The SD is the spread of the data and if it is further from the mean then the SD will be higher. If the point fall within one SD of the mean, then the graph will be more narrow verses if the SD was more spread.

**Q3 (1 pt.):** Explain the effect, if any, of the *population size* on the width of CIs. If *population size* does not affect the widths of CIs explain why not.

As the population size increases then this gives us an opportunity to increase our sample size. The larger the sample population the more of a chance we must making sure that the true mean value falls in that 95% confidence interval. The effect that the population size has on the sample size which can affect the confidence interval.

**Q4 (1 pt.):** Explain the effect, if any, of the *sample size* on the width of CIs. If *sample size* does not affect the widths of CIs explain why not.

As the sample size increases, the width of the confidence interval becomes narrow. It becomes more accurate.

**Q5 (4 pts.):** Interpreting a CI. Use a narrative example of a real (or made up) dataset to describe what a Frequentist 95% confidence interval really means.

Suppose we were trying to determine which penguin had the longest flipper on average between two species of penguins in our study. We can say we have an infinitely, large population of these penguins to use for our sample. We will select a sample size and repeat this sampling many times. The confidence interval tells us that if we were to rerun the numbers multiple times then 95% of the confidence intervals you created will contain the true population parameter and help you determine the average length of the two species.