**Confidence Intervals**

**(1) The mean income of the entire population in the state of Massachusetts is $60,000, with a population standard deviation of $5,000. You sample 100 BC alumni. Based on the population parameters, calculate the 95% confidence interval, and make a conclusion statement.**

N = 100

Z-Critical Value = 1.96 (based on 95% confidence)

Ssm **=**  : Standard Deviation of Sample Mean =

Ssm = = 500

Conclusion:

We are 95% confident that the true population proportion value for BC alumni falls between $59,020 and $60,980.

**(2) Which dining hall do BC students prefer, Hillside or McElroy? You survey 100 students at random and find that 63% prefer Hillside and 37% prefer McElroy. Based on the known proportions of this sample, calculate the 95% confidence interval.**

Z-critical value = 1.96 (based on 95% confidence)

Ssm = :

Ssm = = .04828

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Conclusion:

We are 95% confident that the true population proportion value for Hillside falls between 53.54% and 72.46%.

Thus, we conclude that we are 95% confident that BC students prefer Hillside over McElroy.

-this is because the confidence interval does not include 50%, which would indicate that the “race is too close to call”