**Large Sample Confidence Intervals (Section 7.2)**

Given a random sample , we can use the CLT to construct the confidence interval for the population mean By the CLT,

is approximately Therefore,

Or equivalently

Or the random interval

contains with an approximate probability 0.95. It is approximately a 95% confidence interval.

If we want an confidence interval, replace 1.96 with .

Example: (Exercise #13) For a sample of 50 kitchens with gas cooking appliances monitored during a one-week period, the sample mean level was 654.16 ppm and the sample standard deviation was 164.43ppm. Find a 95 percent confidence interval for true average level in the population of all homes from which the sample was selected.

= (608.58, 699.74). We are 95% confident that the true average CO2 level in this population of homes with gas cooking appliances is between 608.58ppm and 699.74ppm