**10.1: Confidence Interval Basics**

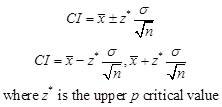
The confidence level C gives us the probability that the interval will capture the true mean of the population. So when we use a 95% confidence level, we have a 95% chance of arriving at an interval containing the true population mean.

**Confidence Intervals:** A level C confidence interval for a parameter has two parts:

1) A confidence level, C, which gives the probability that the interval will capture the true parameter in repeated samples.

2) An interval calculated from the data in the form: CI = Estimate + margin of error

**Confidence Interval for a Population Mean (σ Known)**



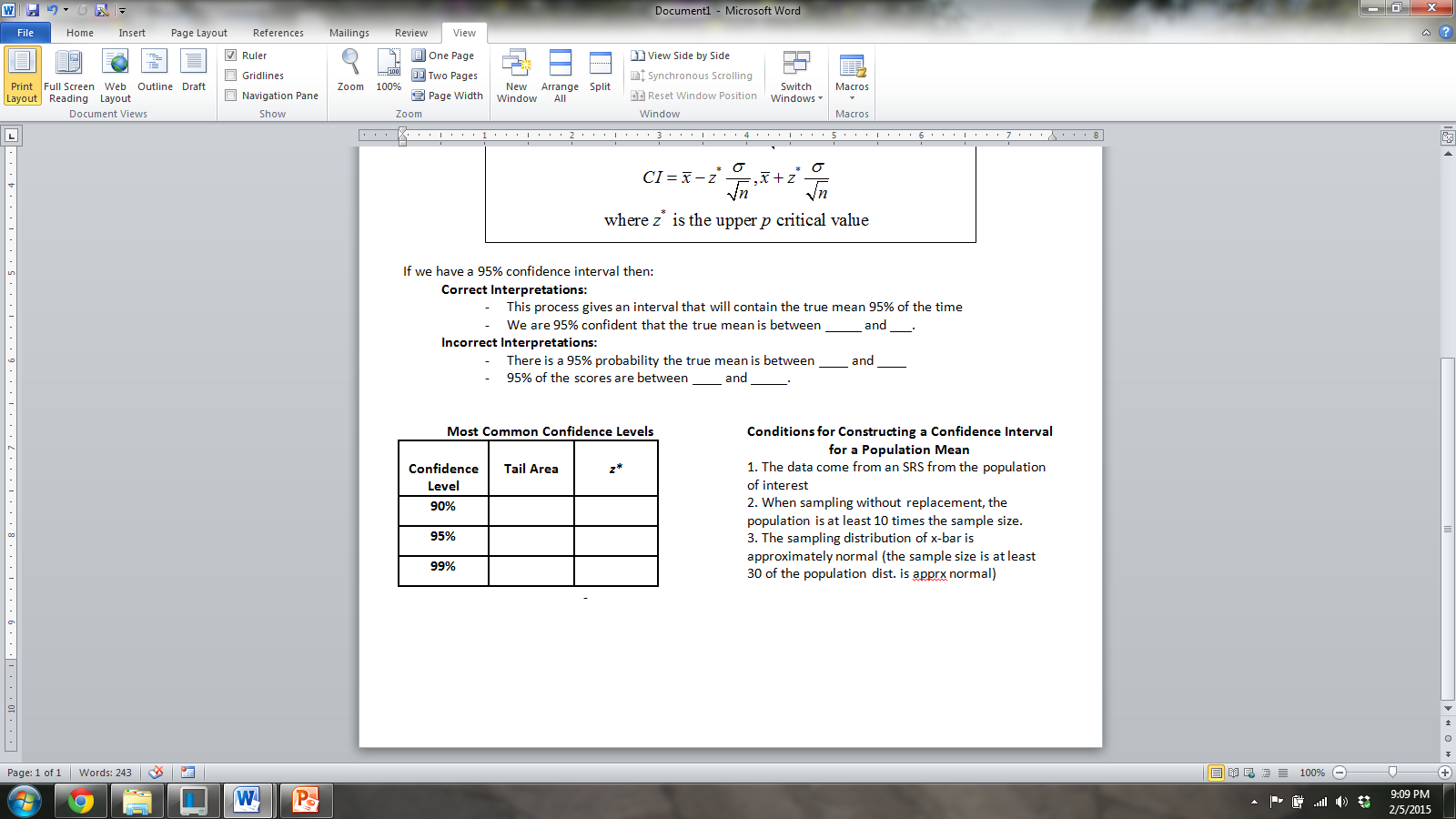
If we have a 95% confidence interval then:

**Correct Interpretations:**

* This process gives an interval that will contain the true mean 95% of the time
* We are 95% confident that the true mean is between \_\_\_\_\_ and \_\_\_.

**Incorrect Interpretations:**

* There is a 95% probability the true mean is between \_\_\_\_ and \_\_\_\_
* 95% of the scores are between \_\_\_\_ and \_\_\_\_\_.



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**Inference Steps for Confidence Intervals: Margin of error ( )**

(1) **State** the parameter of interest in context. - To reduce the margin of error….

(2) **Plan.** Name inference procedure and check - choose a smaller confidence level

conditions/assumptions. - reduce your standard deviation

(3) **Calculate** the confidence interval - increase your sample size

(4) **Interpret** your results in context.