**Confidence Intervals**

* Definitions:

1) margin of error: -usually expressed as plus or minus () a number of points or a percent

 -Example: 68% of people use their toothbrush longer than 3 months. Results of

 survey are accurate with 3%, 19 times out of 20 (95%)

2) confidence interval:- the survey or poll result **plus or minus the margin of error**

 -Example: **68%  3% or 65% to 71%**

 - If there were 5000 in the total population, the **range** of the number of people who

 use their toothbrush longer than 3 months would be:

 68% of 5000 people = 0.68 x 5000 = 3400 people

 3% of 3400 people = 3400 x 0.03 = 102 people

 **3400  102 people**

3) confidence level: the number of times out of 100 (a percentage) that the results of the survey and

 the true population lie within the confidence interval.

 - Example: It can be said with **95% (19/20) confidence** that 3298 to 3502 people,

 in a population of 5000 use their toothbrushes longer than 3 months.

* Read example p. 295-296 Do Reflecting p.296

A.

B.

* Your Turn p. 298 The Effect of Sample Size on Margin of Error and Confidence Levels

Note:

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ sample size means a poll or survey may be more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

As sample size \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the margin of error \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Using the same confidence level (ex. 95%), as the sample size \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the range in the confidence interval \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because the confidence interval is calculated using the margin of error.

* Read example p. 298

Your Turn p. 299

Note:

If the margin of error remains the same, to have a \_\_\_\_\_\_\_\_\_\_\_ confidence level, a \_\_\_\_\_\_\_\_\_\_\_\_\_ sample size is needed.

* Read example p. 300 Do Your Turn
* Example: p. 304 #9a