**Part VII: Chapter 7: Confidence Intervals**

**Task 1: Use the data set to find (p hat) for the percent of the sample that are smokers. Based on this data, construct a 95% confidence interval for the percentage of youths that smoke. Describe what requirements must be met for this interval to be valid and whether you think that this data set meets these requirements. Interpret the meaning of the confidence interval in words.**

**Task 2: Repeat the confidence interval procedure for 80% confidence, 90% confidence, 98% confidence and 99% confidence.**

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| --- | --- | --- |
| **Confidence Level** | **Confidence Interval** | **Margin of Error** |
| **80%** |  |  |
| **90%** |  |  |
| **95%** |  |  |
| **98%** |  |  |
| **99%** |  |  |

**Be examining this table, answer the following questions.**

* **As the confidence level increases, what happens to the width of the interval?**
* **As the confidence level increases, what happens to the margin of error?**
* **If the confidence level were 92%, would the confidence interval estimate be more or less precise than for 95%?**

**Task 3: Use the data set to find a 95% confidence interval for the FEV of youths (those less than 20 years old). Describe what requirements must be met for this interval to be valid and whether you think that this data set meets these requirements. Interpret the meaning of the confidence interval in words.**