1. An important issue facing Americans is the large number of medical malpractice lawsuits and the expenses that they generate. In a study of 1228 randomly selected medical malpractice lawsuits, it is found that 856 of them were later dropped or dismissed (based on data from the Physician Insurers Ass of America).

Construct a 95% confidence interval **estimate of the proportion** of medical malpractice lawsuits that are dropped or dismissed.

2. **How many** integrated circuits must be randomly selected and tested for time to failure in order to estimate the mean time to failure? We want 95% confidence that the sample mean is within 2 hr of the population mean, and the population standard deviation is known to be 18.6 hours.

3.

Twelve different video games showing substance use were observed. The duration times (in seconds) of alcohol use were recorded, with the times listed below. The design of the study justifies the assumption that the sample can be treated as a simple random sample. Use the sample data to construct a 95% confidence interval **estimate** of the **mean** duration time that the video showed the use of alcohol.

84 ; 14; 583; 50; 0; 57; 207; 43; 178; 0; 2; 57.

4.

The proper operation of typical home appliances requires voltage levels that do not vary much. Listed below are ten voltage levels (in volts) recorded in the author’s home on ten different days:

123.3; 123.5; 123.7; 123.4; 123.6; 123.5; 123.5; 123.4; 123.6; 123.8

Use the sample data to construct a 95% confidence interval **estimate** of the standard **deviation** of all voltage levels.

5. A simple random sample of 125 SAT scores has a mean of 1522. Asume that SAT scores have normal distribution with standard deviation of 333.

a. Construct 95% confidence interval **estimate** of the **mean** SAT score.

b. Construct 99% confidence interval estimate of the mean SAT score

6. What sample size is needed to estimate the mean white blood cell count for the population of adults in the United States? Assume that you want 99% confidence that the sample mean is within 0.2 of the population mean. The population standard deviation is 2.5.