**Sean Parrell 9/4/2024 Project 1**

**Sample Mean**

The sample mean is calculated using the following formula:

Where:

* xˉ (x with the line above the x) is the sample mean,
* n is the sample size (the number of data points),
* xi​ are the individual data points.

For the drying time data:

xi=3.4,2.5,4.8,2.9,3.6,2.8,3.3,5.6,3.7,2.8,4.4,4.0,5.2,3.0,4.8

We compute the sample mean as:

**Sample Variance**

The sample variance measures how much the data points are different from the sample mean. The formula for sample variance is:

Where:

* s^2 is the sample variance,
* n−1 is the degrees of freedom (since we are working with a sample),
* xi​ are the data points,
* xˉ (x with the line above the x) is the sample mean.

**Steps to Calculate Variance:**

1. Subtract the mean from each data point and square the result. For example:
2. Repeat this for all the data points, and sum up the squared differences:
3. Divide the sum of squared differences by n−1 (where n=15):

That means the sample variance is approximately s^2=0.94.

**Sample Standard Deviation**

The sample standard deviation is the square root of the variance, and it stands for the average distance of each data point from the mean. The formula is:

Using the calculated variance:

That means the sample standard deviation is approximately s=0.97.

**Final Results**

* **Sample Mean**: 3.79
* **Sample Variance**: 0.94
* **Sample Standard Deviation**: 0.97