

Section
2.4

Part IV.

Summarizing Data

using

Measures of Variation

$$\text{Variance} = (\text{Std. Dev.})^2$$

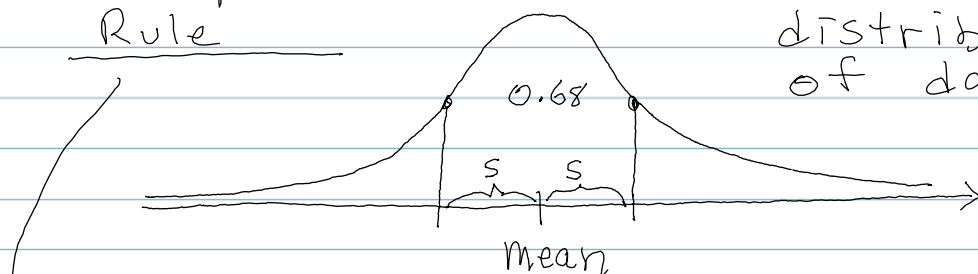
$$\text{Sample Variance} = S^2$$

$$\text{Population Variance} = \sigma^2 = \text{Var}(x)$$

$$\text{Juice Amounts} \rightarrow S = \sqrt{0.06696} = 0.2588$$
$$\text{Variance} = S^2 = 0.06696$$

The Empirical
Rule

For bell-shaped
distributions
of data.



1. About 68% of data values lie within 1 standard deviation of the mean.
2. About 95% of data values lie within 2 standard deviations of the mean.
3. About 99.7% of data values lie within 3 standard deviations of the mean.

→ Rule for Unusualness/Significance

- Any value that is more than (around) 2 standard deviations above or below the mean is considered unusual or significant. In a bell-shaped distribution of data, this occurs about 5% of the time.