SAMPLE STANDARD DEVIATION

- The sample standard deviation \( s \) is approximately the average distance of observations from their mean.

With this in mind, list the following sets of numbers in order from smallest standard deviation to largest standard deviation.

(a) \{1024, 1026, 1025\}

(b) \{1024, 1026\}

(c) \{78, 78, 78\}

(d) \{1, 10, 100, 1000\}

(e) \{512.4, 512.9, 512.8, 512.5, 512.7, 512.7, 512.6\}

- The variance \( s^2 \) and the standard deviation \( s \) are both measures of spread, but only \( s \) is in the original units.

- To compute \( s \), first compute the mean \( \bar{x} \) and then the variance

\[
s^2 = \frac{\sum (x_i - \bar{x})^2}{n - 1},
\]

then take the square root.

- \( s \) is very sensitive to outliers. In other words, one or two observations far from the mean can increase \( s \) dramatically.