Example

Find the mean, median, mode, and standard deviation for the given set of ungrouped data.

$$1, 2, 3, 3, 4$$

**SOLUTION:**

Since there are 5 numbers, the mean is:

$$\bar{x} = \frac{1 + 2 + 3 + 3 + 4}{5} = \frac{13}{5} = 2.6$$

When the numbers are listed in ascending order, the number in the middle is 3. Therefore, the median is 3.

Since 3 appears more often than any of the other numbers in the data set, the mode is 3.

The standard deviation is

$$s = \sqrt{\frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1}},$$

where $$n = 5$$ since there are 5 numbers. Also, $$x_1, x_2, x_3, x_4, x_5$$ are the 5 numbers and $$\bar{x}$$ is the mean found earlier. So then the standard deviation is:

$$s = \sqrt{\frac{(1 - 2.6)^2 + (2 - 2.6)^2 + (3 - 2.6)^2 + (3 - 2.6)^2 + (4 - 2.6)^2}{5 - 1}}$$

$$\approx 1.1402$$