

Standard Deviation

1. Below is the string measurement data you should use for this project:

1.5	1.5	1.6	1.4	1.5	1.6	1.6	1.5	1.5	1.5
1.4	1.5	1.5	1.5	1.6	1.7	1.5	1.3	1.4	1.5
1.3	1.3	1.4	1.7	1.5	1.6	1.5	1.4	1.5	1.6

2. Find the mean of the data. 2. _____
3. Find the MAD (Mean Absolute Deviation) of the data. 3. _____
4. **Accurately** sketch the histogram for this 4.
Data. Each bar of the histogram should
Be 1 unit wide (1 cm).

5. Add three vertical lines to your sketch in question 4. One line at the mean (labeled \bar{x}), and the other two located 1 MAD above the mean (labeled $\bar{x} + \text{MAD}$) and 1 MAD below the mean (labeled $\bar{x} - \text{MAD}$).
6. In the chart below, calculate the squares of the deviations for each corresponding data point in the 1st chart.

7. Calculate the VARIANCE \rightarrow the mean of the squares of deviation. 7. _____
8. Calculate the STANDARD DEVIATION \rightarrow root of the variance. 8. _____
9. Add 2 more dashed vertical lines to your graph in #4. This time, add a line one standard deviation above the mean (labeled as $\bar{x} + \sigma$) and a line one standard deviation below the mean (labeled as $\bar{x} - \sigma$).
10. It is possible to calculate the variance and standard deviation with the aid of the good old graphing calculator. Can you figure it out?