

# Notes: Standard Deviation

Name: \_\_\_\_\_

- The standard deviation is a measure the degree each data point in the set of data points varies (or deviates) from the mean
- The wider the spread of scores, the \_\_\_\_\_ the standard deviation.
- For data that has a normal distribution, \_\_\_\_\_ of the data lies within one standard deviation of the mean

MEN	WOMEN
0.90	1.50
2.00	3.00
1.40	3.00
2.00	2.50
3.00	3.00
2.00	3.00
3.00	4.00
4.00	3.00
3.70	2.00

## HOW TO CALCULATE STANDARD DEVIATION:

1. Calculate the mean (M) of a set of data

MEN	WOMEN

2. Subtract the mean from each point of data to determine  $(X-M)$

MEN	WOMEN

3. Square each of the resulting numbers to determine  $(X-M)^2$

MEN	WOMEN

4. Add the values from the previous step together to get  $\sum(X-M)^2$

MEN	WOMEN

5. Calculate (n-1) by subtracting 1 from your sample size. Your sample size is the total number of data points you collected.

MEN	WOMEN

6. Divide the answer from  $\sum(X-M)^2$  by the answer from (n-1) to find  $\frac{\sum(X-M)^2}{n-1}$

MEN	WOMEN

7. Calculate the square root of your previous answer to determine the standard deviation

MEN	WOMEN

**SO WHAT?**

On a graph...

If SD error bars overlap...

If SD error bars do not overlap ...

$$S = \sqrt{\frac{\sum(X-M)^2}{n-1}}$$

