Name Date:

**Directions:** Calculate the Mean, Variance, and Standard Deviation for each Sample. Show all of your work to the right side of the problem!

## Standard Deviation

The Standard Deviation is a measure of how spread out numbers are.

Its symbol is often **σ** (the greek letter sigma)

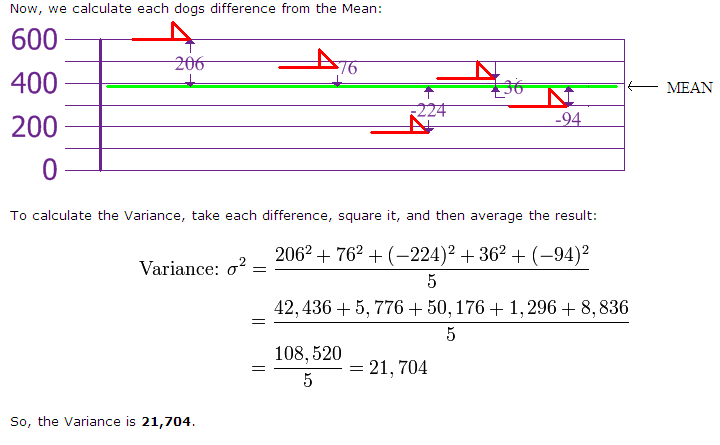
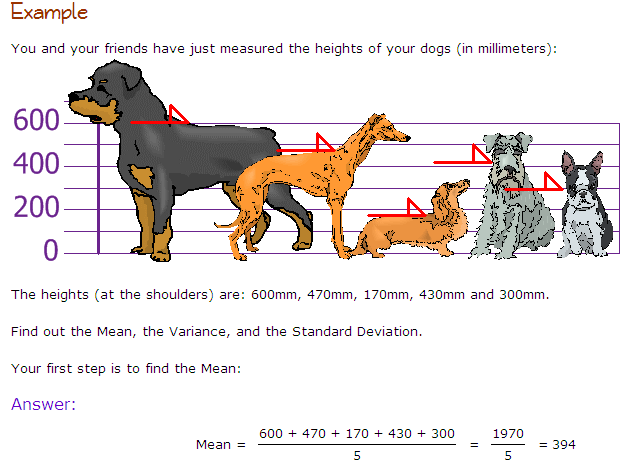
The formula is easy: it is the **square root** of the **Variance.** So now you ask, "What is the Variance?"

## Variance

The Variance is defined as: The average of the **squared** differences from the Mean.

To calculate the variance follow these steps:

* Work out the [Mean](http://www.mathsisfun.com/mean.html) (the simple average of the numbers)
* Then for each number: subtract the Mean and square the result (the *squared difference*).
* Then work out the average of those squared differences.



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| --- | --- |
| **1)** | **PRACTICE PROBLEMS:**  [5, 2, 1, 9]  Mean =   Variance =   Standard Deviation from Variance = |
|  |  |
| **2)** | [6, 1, 3, 7, 4]  Mean =   Variance =   Standard Deviation from Variance = |
| **3)** | [2, 5, 7, 5, 1]  Mean =   Variance =   Standard Deviation from Variance = |
| **4)** | [9, 2, 7, 2, 6]  Mean =   Variance =   Standard Deviation from Variance = |
|  |  |
| **5)** | [6, 8, 6, 3, 4]  Mean =   Variance =   Standard Deviation from Variance = |
|  |  |
| **6)** | [6, 6, 9, 9, 6, 1]  Mean =   Variance =   Standard Deviation from Variance = |
|  |  |
| **7)** | [4, 8, 9, 7, 6, 7]  Mean =   Variance =   Standard Deviation from Variance = |
|  |  |
| **8)** | [2, 6, 2, 4, 3, 1]  Mean =   Variance =   Standard Deviation from Variance = |
|  |  |

9) What is Standard Deviation? Why would we bother calculating it?