

Standard Deviation

Standard deviation: The measure of variability (or spread) of the values in a data set.

Steps to calculate the standard Deviation

Step 1: Calculate the mean.

Step 2: Subtract the mean from all of the data values.

Step 3: Square the results from step 2.

Step 4: Average the results from step 3 to get the variance.

Step 5: Take the square root of the variance to get the standard deviation.

Example

Calculate the standard deviation for the data set:

99, 90, 98, 97, 95, 94, 90, 92, 93, 89

$$\text{mean } (\bar{x}): \frac{937}{10} = 93.7$$

Data values (x)	$x - \bar{x}$	$(x - \bar{x})^2$	Variance (Average of the squared difference)	Standard Deviation (square root of the variance)
99	5.3	28.09	$\frac{112.1}{10}$ $V = 11.21$	$\sqrt{11.21}$ $Sd = 3.35$
90	-3.7	13.69		
98	4.3	18.49		
97	3.3	10.89		
95	1.3	1.69		
94	0.3	.09		
90	-3.7	13.69		
92	-1.7	2.89		
93	-.7	.49		
89	-4.7	22.09		