

Standard Deviation Calculation worksheet

No. of results (n)	Sample 1			Sample 2			Sample 3			Sample 4		
	x	$x - \bar{x}$	$(x - \bar{x})^2$	x	$x - \bar{x}$	$(x - \bar{x})^2$	x	$x - \bar{x}$	$(x - \bar{x})^2$	x	$x - \bar{x}$	$(x - \bar{x})^2$
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
Σx		$\Sigma(x - \bar{x})^2$			$\Sigma(x - \bar{x})^2$			$\Sigma(x - \bar{x})^2$			$\Sigma(x - \bar{x})^2$	
n		n-1			n-1			n-1			n-1	
Mean = $\Sigma x / n$												
$^{(1)} \sigma = \frac{\sqrt{\Sigma(x - \bar{x})^2}}{n}$		$^{(2)} \sigma = \frac{\sqrt{\Sigma(x - \bar{x})^2}}{n - 1}$			$^{(2)} \sigma = \frac{\sqrt{\Sigma(x - \bar{x})^2}}{n - 1}$			$^{(2)} \sigma = \frac{\sqrt{\Sigma(x - \bar{x})^2}}{n - 1}$			$^{(2)} \sigma = \frac{\sqrt{\Sigma(x - \bar{x})^2}}{n - 1}$	

<p>Notes:</p> <ol style="list-style-type: none"> The symbol Σ means 'the sum of'. As a rule of thumb, you should use Equation (1) when $n = 20$ or more, and Equation (2) when n is less than 20. The symbol σ is the standard deviation. 	<p>Procedure:</p> <ol style="list-style-type: none"> Write all of your results in the 'x' column. Add up your results & record the total in the cell Σx. Record the number of results in cell 'n'. Calculate the Mean using $\Sigma x / n$. Now minus the Mean from each of your results and record each of these values in the column '$x - \bar{x}$'. Now using the x^2 button on your calculator or similar function on a computer square each value you obtained in step 5 and record this in the column '$(x - \bar{x})^2$'. Add up all the values in this column and record the total in the cell $\Sigma(x - \bar{x})^2$. Calc 'n-1' and record the value in the cell. To calculate formula (1) divide your '$\Sigma(x - \bar{x})^2$' value by your 'n' value, then using the $\sqrt{\quad}$ button on your calculator (or computer) calculate the square root of the value you just worked out. This value is your Standard Deviation (SD) for formula (1). To calculate the Standard Deviation for formula (2) follow step '9' above but use 'n-1' instead of 'n'. Refer to 'Note 2' to work out which SD to report.
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