Statistics Worksheet: Variance and Standard Deviation

1. Calculate the sample variance and the sample standard deviation for the following set of scores: 1, 1, 0, 4. Note that these data have a *SS* of 9.

Steps:

* To find the variance, recall that the equation is *s*2 = $\frac{SS}{n-1}$
* We already know that *SS* = 9 and *n* = 4.



* To find the standard deviation, recall that the equation is *s* = $√$$\frac{SS}{n-1}$ or 



* If we round to the second decimal place then *s* = 1.73
1. A set of scores (*n* = 10) has a *SS* = 90. What is the sample variance and sample standard deviation?

Steps:

* To find the variance, recall that the equation is *s*2 = $\frac{SS}{n-1}$
* We already know that *SS* = 90 and *n* = 10.



* To find the standard deviation, recall that the equation is *s* = $√$$\frac{SS}{n-1}$ or 



* If we round to the second decimal place then *s* = 3.16
1. If the sample standard deviation of a set of scores (*n* = 6) is 3, what is the *SS* and the *S*2?
* To find the variance when given the standard deviation, recall that the equation for a sample standard deviation is $√$$\frac{SS}{n-1}$ or 
* Thus, we can find the variance by raising 3 to the second power, or, squaring it.

*s*2 = 32 =9

* To find SS, recall that the equation for sample variance is *S*2 =$\frac{SS}{n-1}$



1. If the sample variance of a set of scores (*n* = 25) is 9, what is the standard deviation?
* Recall that the equation for standard deviation is 
* Or, the square root of the variance. 
* Therefore, we can input the value of the variance that we were given, which is 9. Then find the square root.



5. Find the variance for a sample of test scores (*n* = 5), which has a *SS* = 40.

* Recall that the formula for sample variance is *s*2 = 
* 

6. A set of scores (*N* = 9) has a *SS* of 144. What would the variance be if the scores were for a population?

* Recall that the formula for calculating the variance of a population is 



7. A sample of scores (*n* = 6) has a standard deviation of 3. What is the value of *SS*?

* First, find variance by squaring the standard deviation. *s*2= 32= 9
* If the variance is 9, we use the variance formula to find the *SS*.

 

* *s*2 = 45