

Example Question:

2. Using the definitional formulas, find the mean, standard deviation, and variance of the population from which the following sample of data was randomly drawn. The data represents the dementor scores of the patients in dementor units. Please show all work and round to four decimal places.

-118	-399.3190	96.4843	399.1058
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Example Answer:

Score	Score - Mean = Deviation	Deviation Squared
-117.9998	-117.9998 - -5.4323 = -112.5675	12671.4421
-399.3194	-399.3194 - -5.4323 = -393.8871	155147.0475
96.4843	96.4843 - -5.4323 = 101.9166	10386.9934
399.1058	399.1058 - -5.4323 = 404.5381	163651.0744
Sum = -21.7291	0.0001	341856.5574

$$\text{Mean} = -21.7291/4 = -5.4323$$

$$\text{Sample Variance} = 341,856.5574/3 = 113,952.1858$$

$$\text{Sample Standard Deviation} = \sqrt{113,952.1858} = 337.5680$$

Example Explanation:

- First, sum up the scores and divide by n to find the mean.
- Next, subtract the mean from each score to find the deviation.
- Square each deviation.
- Sum the squared deviations.
- To get the sample variance, divide the sum of squared deviations by N - 1
- To get the sample standard deviation, square root the sample variance.