Answer to Question #85645 – Math – Statistics and Probability

Question

Given the set of data 2, 3, 7, 4, 9. Calculate the sample standard deviation.

Solution

Given observations 2 , 3 , 7 , 4 , 9

Number of observations n = 5

Sum of observations $\sum_{i=1}^{i=5} x_i$ = 2 + 3 + 7 + 4 + 9 = 25

Sum of squares of observations $\sum_{i=1}^{5} x_i^2 = 2^2 + 3^2 + 7^2 + 4^2 + 9^2 = 157$

$(\text{Standard deviation})^2 = \frac{\sum_{i=1}^{5} x_i^2}{n} - (\frac{\sum_{i=1}^{i=5} x_i}{n})^2 = \frac{157}{5} - (\frac{25}{5})^2 = 31.4 - 25 = 6.4$

Standard deviation = $\sqrt{6.4} = 2.5298$.

Answer: 2.5298.