

Answer on Question #85452 – Math – Statistics and Probability

Question

The mean of 25 observations is N , the total of the observations is 300, while $\sum_{i=1}^{25} [(x_i - N)^2] = 625$.

Find

The value of N (2 Marks)

The standard deviation of the observation (2 Marks)

Solution

The mean of 25 observations is equal to $N = \frac{\sum_{i=1}^{25} x_i}{25}$.

But $\sum_{i=1}^{25} x_i = 300$. So $N = \frac{300}{25} = 12$.

The standard deviation of the observation is equal to $\sigma = \sqrt{\frac{\sum_{i=1}^{25} (x_i - N)^2}{25}}$.

But $\sum_{i=1}^{25} (x_i - N)^2 = 625$. Therefore $\sigma = \sqrt{\frac{625}{25}} = 5$.

Answer:

$N = 12$.

The standard deviation of the observation is equal to 5.