

Week 9

The logo for Stamford Online, featuring a stylized orange 'S' with a blue dot in the center.

stamfordonline
EDUCATION BEYOND BORDERS



Measures of Dispersion

Learning outcome:

- Calculate the value of
standard deviation
variance



Standard deviation

Find the standard deviation for the following table

Sales	f
1000-1999	3
2000-2999	5
3000-3999	4
4000-4999	2

Solution:

Sales	f	x	fx	fx ²
1000-1999	3	1499.5	4498.5	6745500.75
2000-2999	5	2499.5	12497.5	31237501.25
3000-3999	4	3499.5	13998	48986001
4000-4999	2	4499.5	8999	40491000.5
	14		39993	127460003.5

$$\begin{aligned}\text{Standard deviation} &= \sqrt{\frac{127460003.5}{14} - \left(\frac{39993}{14}\right)^2} \\ &= 971.53\end{aligned}$$

Variance

Find the variance of the previous table.

$$\begin{aligned}\text{Variance} &= \text{Standard deviation}^2 \\ &= 971.53^2 = 943878\end{aligned}$$

