

Start-Tech Academy

MEASURES OF DISPERSION

The measures that help us learn about the spread of a data set are called the measures of dispersion.

Steps

There are three measures of dispersion:

- Range
- Standard Deviation
- Variance



RANGE

Range is the difference between the largest and the smallest values in a data set

Range = Largest value - Smallest value

Example

For the ages of people attending a party below, what is the range?

14

31

33

31

33

30

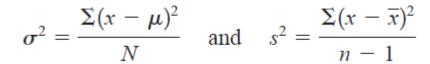
Range =
$$34 - 7 = 27$$

Range is influenced by outliers, therefore may not be very useful.

VARIANCE & STANDARD DEVIATION

Variance is the average of the squared differences from the Mean. **Standard Deviation** is the square root of variance.

Formula



Population standard deviation Sample standard deviation

Where Σ is the sum of, N is the population size, n is the sample size, μ is the population mean, and \overline{x} is the sample mean.

Larger sigma value means that the data is more widely spread.

VARIANCE & STANDARD DEVIATION

Variance is the average of the squared differences from the Mean. **Standard Deviation** is the square root of variance.

Example

For the ages of people attending a party below, what is the standard deviation?

10	14	26	25	30	34	14	33	33
13	21	25	29	28	7	31	31	30
25	33	31	13	28	33			

Standard Deviation = Sqr root of variance = 8.23

