Mathematics Tutorials

Set Theory

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The Coefficient of Variation

The coefficient of variation is the ratio of the standard deviation to the mean, and is a useful statistic for comparing the degree of variation from one data series to another, particularly if the means are drastically different from each other.

When comparing different distributions are compared, the distribution with the highest CV value has the greatest dispersion.

Computing The Coefficient of Variation

The coefficient of variation (CV) is calculated by dividing the sample standard deviation (s) by the absolute value of the sample mean ($|\bar{x}|$). The coefficient of variation is normally expressed as a percentage.

The formula is as follows:

$$CV = \frac{s}{|\bar{x}|} \times 100\%$$

N.B. Remember that the standard deviation is the square root of the variance.

Example 1

Data on the delivery time (in hours) of purchases were collected for a random sample of similar orders sent to a building supplies company. The following summary statistics are available:

mean	median	variance	maximum	minimum	IQR
12	13	16	20	2	8

Use the data to compute the coefficient of variation.