

Mean Encyclopedia Article

Mean

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Contents

Mean Encyclopedia Article.....	1
Contents.....	2
Mean.....	3

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The **arithmetic** mean, or as it is sometimes referred to, the average of a data set, is the sum of all data values divided by the number of items in the set. A mean is considered to be a measure of central tendency--it describes a "typical" value to represent the data set. It describes or gives a summary of a whole distribution of events or measurements. The information given by measures of central tendency can be used for description or comparison.

An example of finding an arithmetic mean using a particular data set is as follows: in the set 1, 2, 5, 10, 12, 14, 16, 17, 20 the mean is calculated as $1 + 2 + 5 + 10 + 12 + 14 + 16 + 17 + 20 \div 9 = 10.8$. It is very likely that the mean will be a number not directly represented in the data set. However, every number in the data set affects the mean. If an "outlier" (a data value very unlike the rest) is present, the mean can misrepresent the data set. One symbol often used for mean is $\bar{x}$. The arithmetic mean is the most common measure used for central tendency--the others being **median** and **mode**.

The geometric mean, m , of two numbers (x and y) is the **square** root of their product. $x \div m = m \div y$ or $m = \sqrt{xy}$. The geometric mean is also referred to as the geometric proportional. It is used in **geometry** to find the lengths of sides in similar triangles using the **altitude**.