Mode

The *mode* is a type of average.

For data, it is the item that occurs most frequently in a set of data, and is meaningful for both quantitative and qualitative data.

A set of data can have more than one mode, if more than one item has the same greatest frequency. For example, for the data $1, 1, 1, 2, 4, 4, 4, 7, 7, 8$, there are two modes: 1 and 4. This data would sometimes be called *bimodal*.

For grouped data, if all of the classes have the same class width, then the *modal class* is the class with the greatest frequency.

If the classes have different widths, then their frequency densities need to be calculated. In this case, the *modal class* is the class with the greatest frequency density.

There are corresponding definitions for random variables. For a discrete random variable X, a mode of X is a value m for which $P(X = m)$ is greatest. (As with data, a random variable can have more than one mode.)

For a continuous random variable X with probability density function $f(x)$, a mode of X is a value m for which $f(m)$ is greatest.

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