



Notation Recap

Notation is an essential tool for communicating mathematical ideas. We have introduced the fundamentals of notation in this lesson that will allow you to read, write, and communicate with others using your new skills!

Notation and Random Variables

As a quick recap, **capital letters** signify **random variables**. When we look at **individual instances** of a particular random variable, we identify these as **lowercase letters** with subscripts attached themselves to each specific observation.

For example, we might have **X** be the amount of time an individual spends on our website. Our first visitor arrives and spends 10 minutes on our website, and we would say **x₁** is 10 minutes.

We might imagine the random variables as columns in our dataset, while a particular value would be notated with the lower case letters.

Notation	English	Example
X	A random variable	Time spent on website
x_1	First observed value of the random variable X	15 mins
$\sum_{i=1}^n x_i$	Sum values beginning at the first observation and ending at the last	5 + 2 + ... + 3
$\frac{1}{n} \sum_{i=1}^n x_i$	Sum values beginning at the first observation and ending at the last and divide by the number of observations (the mean)	(5 + 2 + 3)/3
\bar{x}	Exactly the same as the above - the mean of our data.	(5 + 2 + 3)/3

Notation for the Mean

We took our notation even farther by introducing the notation for summation \sum . Using this we were able to calculate the mean as:

$$\frac{1}{n} \sum_{i=1}^n x_i$$

In the next section, you will see this notation used to assist in your understanding of calculating various measures of spread. Notation can take time to fully grasp. Understanding notation not only helps in conveying mathematical ideas, but also in writing computer programs - if you decide

