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Notation Recap

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

Notation and Random Variables

As a quick recap, **capital letters** signify **random variables**. When we look at **individual** particular random variable, we identify these as **lowercase letters** with subscript for each specific observation.

For example, we might have **X** be the amount of time an individual spends on our website when a 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 observation is notated with the lower case letters.

Notation	English
X	A random variable
x_1	First observed value of the random variable X
$\sum_{i=1}^n x_i$	Sum values beginning at the first observation and ending at the nth observation
$\frac{1}{n} \sum_{i=1}^n x_i$	Sum values beginning at the first observation and ending at the nth observation and divide by the number of observations (the mean)
\bar{x}	Exactly the same as the above - the mean of our data.

Notation for the Mean

We took our notation even farther by introducing the notation for summation, which allows us 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 measures of spread. Notation can take time to fully grasp. Understanding notation is not only for conveying mathematical ideas, but also in writing computer programs - if you don't know that too! Soon you will analyze data using spreadsheets. When that happens, notation will be hidden by the functions you will be using. But until we get to spreadsheets, we need to understand how mathematical ideas are commonly communicated. **This isn't a**