Sequence and Series

Sequence

A sequence is a function that assigns real numbers to all positive integers denoted by u_n, $\{u_n\}$ or (u_n).

For example:

- $1, 2, 3, 4, \ldots$ where $u_n = n$
- $-1, 1, -1, 1, \ldots$ where $u_n = (-1)^n$

Series

A series is the sum of all terms in a sequence, or a partial amount of terms. It is usally written in the form of $\sum$ and a variable that denotes the terms of the sequence.

Here is a list of sequences and their corresponding series:

Sequence	Series
$u_n = n \quad (1, 2, 3, 4, ...)$	$\sum_i i \quad (1 + 2 + 3 + 4 + ...)$
$u_n = \frac{1}{n} \quad (1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, ...)$	$\sum_i \frac{1}{i} \quad (1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + ...)$

Partial Sum

A partial sum is a small portion of a series that starts and ends at a specific point.

$$\sum_{i=1}^{n} f(i)$$

This is the sum of the values of a function f from $i = 1$ to $i = n$.