

Module 3 Discussion

Pedro Gómez Martín

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There are geometric and arithmetic series and sequences the letter n denotes the position of the term in the sequence, arithmetic can be expressed as $x_n = an + b$ where a is the initial value and b is the constant added each time, this can also be expressed as $x_n = x_{n-1} + b$ where $x_0 = a$ and geometric as $x_n = ar^{n-1}$ where a is the initial value and r the common ratio. Also, they can be represented as $x_n = rx_{n-1}$ where $x_0 = a$
Sequences are ordered lists that follow a rule. Such as $a_n = a + n$
Sequences can be finite or infinite, here is an example

$$\{a_n\}_{n=3}^{\infty} \quad a_n = \left(\frac{1}{2}\right)^{n-1}$$

Series are expressed with the upper-case greek letter “sigma” Σ and are the sum of a sequence, here is an example of an infinite series:

$$\sum_{n=1}^{\infty} \left(\frac{1}{2}\right)^{n-1}$$