

# Theoretical Guide

## Programadores Roblox

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### 1 Progressions

This text will appear **immediately** below the category title.

You can add images like *this*:



#### 1.1 Sum of the first $n$ squares

The sum of the squares of the first  $n$  numbers:

$$\sum_{k=1}^n (k^2) = \frac{n(n+1)(2n+1)}{6}$$

#### 1.2 Sum of the first $n$ even numbers

The sum of the first  $n$  even numbers:

$$\sum_{k=1}^n (2k) = n^2 + n$$

#### 1.3 Sum of the first $n$ odd numbers

The sum of the first  $n$  odd numbers:

$$\sum_{k=1}^n (2k-1) = n^2$$

#### 1.4 Geometric Progression

General Term:  $a_1 \times q^{n-1}$

$$\text{Sum: } \frac{a_1(q^n - 1)}{q - 1}$$

Infinite Sum:

$$-1 < q < 1$$

$$\frac{a_1}{1 - q}$$

#### 1.5 Sum of the first $n$ terms

The sum of the first  $n$  natural numbers:

$$\sum_{k=1}^n (k) = \frac{n(n+1)}{2}$$

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