Theoretical Guide
Programadores Roblox

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1 Progressions

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

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:

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

2 Geometry

2.1 Equação da Reta (forma geral)

Os pontos (x, y) que pertencem a uma reta r devem satisfazer:

$$ax + by + c = 0$$

3 Math

4 Identities

5 Constants

6 Bitwise

7 Notes

8 C++

9 Counting Problems

10 Number Theory