Funções

Domain → Codomain

One to One (Interjections)	Functions that assign every domain value to a different codomain value.
Onto (Surjections)	Every codomain value has at least one domain value assigned to it.
Bijections	A function that's both an interjection and a surjection.

Números Primos

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

Least Common Multiple: The smallest integer divisible by both a and b when $lcm(a, b)$.
Greatest Common Divisor: The greatest positive common divisors between two numbers when $gcm(a, b)$.
Numbers are relatively prime if their greatest common divisor is 1.

Formulários de Somação

Sum	Closed Form	Sum	Closed Form
$\sum_{k=0}^{n} ar^k \ (r \neq 0)$	$\frac{ar^{n+1}-a}{r-1}, \ r \neq 1$	$\sum_{k=1}^{n} k^3$	$\frac{n^2(n+1)^2}{4}$
$\sum_{k=1}^{n} k$	$\frac{n(n+1)}{2}$	$\sum_{k=0}^{\infty} x^k, \lvert x\rvert < 1$	$\frac{1}{1-x}$
$\sum_{k=1}^{n} k^2$	$\frac{n(n+1)(2n+1)}{6}$	$\sum_{k=1}^{\infty} kx^{k-1}, \lvert x\rvert < 1$	$\frac{1}{(1-x)^2}$

O Algoritmo Euclidiano

$gcd(a, b)$ — find the last non zero remainder using long division $\frac{a}{b}, \frac{b}{R}$.

Congruencia

$x \equiv y \ (mod \ z)$ if $(x - y) \ mod \ z = 0$

$$ax \equiv b \ (mod \ c) \rightarrow x \equiv n \ (mod \ c) \leftarrow an + cm = b \leftarrow b = aw_1 + r_1$$
$$a = r_1 w_2 + r_2$$

中國剩餘定理

System of n Equations	r_i	M_i when $M = \sum_{i=1}^{n} m_i$	$x_i \Leftarrow M_i x_i \equiv 1 \ (mod \ m_i)$
$x \equiv a \ (mod \ m_1)$ $x \equiv b \ (mod \ m_2)$ $x \equiv c \ (mod \ m_3)$	a b c	$\frac{M}{M_1}$ … …	$M_1 x_i \equiv 1 \ (mod \ m_1)$ … …

$$s = \sum_{i=1}^{n} x_i \Rightarrow x = s \ mod \ M$$