Progresii

1. Fie progresia aritmetica $a_1, a_2, \ldots, a_n, \ldots \quad , n \in \mathbb{N}$

$$d = a_n - a_{n-1};$$
$$a_n = a_1 + d(n-1);$$
$$S_n = \frac{a_1 + a_n}{2} n;$$
$$S_n = \frac{2a_1 + d(n-1)}{2};$$

unde d – ratia progresiei, a_n – termenul de rang n, S_n – suma primilor n termeni ai progresiei.

2. Fie progresia geometrica $b_1, b_2, \ldots, b_n, \ldots \quad , n \in \mathbb{N}$

$$q = \frac{b_n}{b_{n-1}};$$
$$b_n = b_1 q^{n-1};$$
$$S_n = \frac{b_1(q^n - 1)}{q - 1} \quad \left(S_n = \frac{b_1(1-q)^n}{1-q} \right);$$
$$S_n = \frac{b_n q - b_1}{q - 1} \quad \left(S_n = \frac{b_1 - b_n q}{1-q} \right);$$

unde q – ratia progresiei, S_n – suma primilor n termeni ai progresiei.

Suma progresiei geometrice infinit descrescatoare este

$$S = \frac{b_1}{1-q},$$

unde $|q| < 1$.