TEMA 0: INTRODUCCIÓ

SUMATORIS

$$\sum_{i=1}^{n} a_i = a_1 + a_2 + \cdots + a_n \; ;$$

$$si \quad n \le m : \quad \sum_{i=n}^{m} a_i = a_n + a_{n+1} + \cdots + a_m$$

$$\sum_{i=n}^{m} f(i) = f(n) + f(n+1) + \cdots + f(m)$$

Canvi d'índex: $i' = i + i_o$

Propietats:

$$\sum_{i=n}^{m} (f(i) + g(i)) = \left(\sum_{i=n}^{m} f(i) \right) + \left(\sum_{i=n}^{m} g(i) \right)$$

$$\sum_{i=n}^{m} cf(i) = c \sum_{i=n}^{m} f(i)$$

Casos particulars:

Progressions aritmètiques: $a_1, a_1 + d, a_1 + 2d, a_1 + 3d, a_1 + 4d, \cdots$

a_1, d nombres reals i: $a_i = a_{i-1} + d$

a_1, d nombres reals i: $a_i = a_1 + (i-1)d$

$$\sum_{i=1}^{n} a_i = \frac{(a_1 + a_n)}{2} n$$

Progressions geomètriques: $a_1, a_1 r, a_1 r^2, a_1 r^3, a_1 r^4, \cdots$

a_1, r nombres reals i: $a_i = a_{i-1} r$

a_1, r nombres reals i: $a_i = a_1 r^{i-1}$

$$\sum_{i=1}^{n} a_i = \frac{a_1 - a_n r}{1 - r} = \frac{a_n r - a_1}{r - 1}$$

PRODUCTES

$$si \quad n \le m : \quad \prod_{i=n}^{m} f(i) = f(n) \cdot f(n+1) \cdots f(m)$$

Canvi d'índex: $i' = i + i_o$

Propietats:

$$\prod_{i=n}^{m} (f(i) \cdot g(i)) = \left(\prod_{i=n}^{m} f(i) \right) \cdot \left(\prod_{i=n}^{m} g(i) \right)$$

$$\prod_{i=n}^{m} (f(i))^c = \left(\prod_{i=n}^{m} f(i) \right)^c$$

$$\prod_{i=n}^{m} c \cdot f(i) = c^{m-n+1} \prod_{i=n}^{m} f(i)$$