$$\sum_{l=1}^{10000} \sum_{i=1}^{n-5} \sum_{j=i+2}^{\frac{n}{2}} \sum_{k=1}^{n} 1$$

A. $\sum_{k=1}^{n} 1 = n - 1 + 1 = n$

B. $\sum_{j=i+2}^{\frac{n}{2}} n = \sum_{j=2}^{\frac{n}{2}-i} n + i = \sum_{j=2}^{\frac{n}{2}-i} n + \sum_{j=2}^{\frac{n}{2}-i} i =$

$$= n\left(\frac{n}{2} - i - 2 + 1\right) + i\left(\frac{n}{2} - i - 2 + 1\right)$$

$$= (n+i)\left(\frac{n}{2} - i - 1\right)$$

$$= \frac{1}{2}(n+i)(n - 2i - 2)$$

C. $\sum_{i=1}^{n-5} \frac{1}{2}(n+i)(n-2i-2) = \frac{1}{2}\sum_{i=1}^{n-5} n^2 - 2ni - 2n + ni - 2i^2 - 2i =$

$$= \frac{1}{2}\left[\sum_{i=1}^{n-5} n^2 - 2n + \sum_{i=1}^{n-5} - ni - 2i + \sum_{i=1}^{n-5} - 2i^2\right]$$

$$= \frac{1}{2}\left[(n-5)(n^2 - 2n) - \frac{(n+2)(n-6)(n-5)}{2} - \frac{2(n-5)(n-4)(2n-9)}{6}\right]$$

$$= -\frac{n^3 - 39n^2 + 206n - 180}{12}$$

D. $\sum_{l=1}^{10\,000} -\frac{n^2 - 39n^2 + 206n - 180}{12} = 10\,000\left(-\frac{n^2 - 39n^2 + 206n - 180}{12}\right) =$

Função de Custo

$$= -\frac{2500n^3 - 97500n^2 + 515000n - 270000}{3}$$

Complexidade

$O(n^3)$