Somatórios

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$$A = 1, \quad B = \sum_{k=1}^{j} A, \quad C = \sum_{j=i+1}^{n} B, \quad D = \sum_{i=1}^{n-1} C$$

$$B = \sum_{k=1}^{j} A \rightarrow B = \sum_{k=1}^{j} 1 \rightarrow B = 1 * (j - 1 + 1) \rightarrow B = j$$

$$C = \sum_{j=i+1}^{n} B \rightarrow C = \sum_{j=1}^{n} j - \sum_{j=1}^{i} j \rightarrow C = \frac{n(n+1)}{2} - \frac{i(i+1)}{2}$$

$$D = \sum_{i=1}^{n-1} C \rightarrow D = \sum_{i=1}^{n-1} \left(\frac{n(n+1)}{2} - \frac{i(i+1)}{2} \right) \rightarrow$$

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

$$D = \left(\frac{n^2 + n}{2} \right) * (n - 1) - \sum_{i=1}^{n-1} \left(\frac{(i^2 + i)}{2} \right) \rightarrow$$

$$D = \left[\frac{1}{2} * (n^2 + n) * (n - 1) \right] - \left[\frac{1}{2} * \sum_{i=1}^{n-1} (i^2 + i) \right] \rightarrow$$

$$D = \left[\frac{1}{2} * (n^3 - n^2 + n^2 - n) \right] - \left[\frac{1}{2} * \sum_{i=1}^{n-1} (i^2) + \sum_{i=1}^{n-1} (i) \right] \rightarrow$$

$$D = \left[\frac{1}{2} * (n^3 - n) \right] - \left[\frac{1}{2} * \left(\frac{(n^2 + n)(2n + 1)}{6} + \frac{n^2 + n}{2} \right) \right] \rightarrow$$

$$D = \frac{n^3 - n}{2} - \frac{(n^2 + n)(2n + 1)}{12} + \frac{n^2 + n}{4}$$