x_i

$$x_1 + x_2 + x_3 + x_4 = \sum_{i=1}^{4} x_i$$

$$x_1 + x_2 + \ldots + x_N = \sum_{i=1}^{N} x_i = x_1 + \sum_{i=2}^{N} x_i =$$

$$= \left(\sum_{i=1}^{N-1} x_i \right) + x_N =$$

$$= x_1 + \left(\sum_{i=2}^{N-1} x_i \right) + x_N$$

$$\sum_{i=1}^{N} x_i = \sum_{i=0}^{N-1} x_{i+1}$$

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x_i y_i

$$\sum_{i=1}^{N} x_i^2 y_i = x_1^2 y_1 + x_2^2 y_2 + \ldots + x_N^2 y_N$$

$$\sum_{i=1}^{3} x_i y_{i+1} = x_1 y_2 + x_2 y_3 + x_3 y_4$$

$$\sum_{i=1}^{4} \left(\sum_{j=1}^{3} x_i y_j \right) = x_1 y_1 + x_1 y_2 + x_1 y_3 + x_2 y_1 + x_2 y_2 + x_2 y_3 +$$

$i=1$ $i=2$ $i=3$ $i=4$

$$\sum_{i=1}^{4} x_i \sum_{j=1}^{3} y_j$$

for i in range(1,5):
    $x_i \leftarrow \ldots$
    for j in range(1,4):
        $y_j \leftarrow \ldots$

$$\sum_{i=1}^{4} \left(\sum_{j=i}^{3} x_j y_j \right) = \sum_{j=1}^{3} x_j y_j + \sum_{j=2}^{3} x_j y_j + \sum_{j=3}^{3} x_j y_j = x_1 y_1 + x_2 y_2 + x_3 y_3 + x_2 y_2 + x_3 y_3 + x_3 y_3$$

$$\prod_{i=1}^{4} x_i = x_1 \cdot x_2 \cdot x_3 \cdot x_4$$

$$\sum_{i=1}^{N}\sum_{j=1}^{M} x_i y_j = \sum_{j=1}^{M}\sum_{i=1}^{N} x_i y_j$$

$$\prod_{i=1}^{N}\sum_{j=1}^{M} x_i y_j \neq \sum_{j=1}^{M}\prod_{i=1}^{N} x_i y_j$$

$$\sum_{i=1}^{N} x_i \sum_{j=1}^{M} y_j$$

$$\sum_{j=1}^{M} y_j \sum_{i=1}^{N} x_i$$

$$\sum_{i=1}^{N} x_{ii}$$

$$\sum_{j'=1}^{N} x_{ij}$$

x_{ij}

$i = 1, 2, \dots, M$

$j = 1, 2, \dots, N$

wiersz i-ty

$$\begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1N} \\ x_{21} & x_{22} & \cdots & x_{2N} \\ \vdots & \vdots & & \vdots \\ x_{M1} & x_{M2} & \cdots & x_{MN} \end{bmatrix}$$

kolumna j-ta

dla $M = N$

$x_{1,11}$

$x_i^{(j)}$

$$\sum_{i=1}^{N}\sum_{j=1}^{N} x_{ij}$$

W domu

x_{ij} - kwadratowa $M = N$

$2^{(-\frac{1}{2}+\frac{1}{3})\cdot 4}$

$$\begin{bmatrix} x_1^{(1)} & x_1^{(2)} & \cdots & x_1^{(N)} \\ x_2^{(1)} & x_2^{(2)} & \cdots & x_2^{(N)} \\ \vdots & \vdots & & \vdots \\ x_M^{(1)} & x_M^{(2)} & \cdots & x_M^{(N)} \end{bmatrix}$$