$$1+x+x^2+x^3+\dots = \sum_{i=0}^{\infty} x^i = \sum_{i=0}^{\infty} y_i$$

$$y_i = x^i$$

$$1+x+x^2+x^3+x^4 = \sum_{i=0}^{4} x^i = \sum_{k=0}^{4} x^k$$

$$1+x+x^2+\dots+x^n = \sum_{p=0}^{n} x^p$$

$$\boxed{e^x = \sum_{k=0}^{\infty} \frac{x^k}{k!}} = 1+x+\frac{x^2}{2!}+\frac{x^3}{3!}+\frac{x^4}{4!}+\dots$$

$$\sum_{i=1}^{n} (a_i+b_i) = \sum_{i=1}^{n} a_i + \sum_{i=1}^{n} b_i$$

$$(a_1+b_1)+(a_2+b_2)+\dots = (a_1+a_2+\dots)+(b_1+b_2+\dots)$$

commutativité
associativité

$$\sum_{i=1}^{n} \lambda \cdot a_i = \lambda \cdot \sum_{i=1}^{n} a_i \qquad \lambda \in \mathbb{R}$$

lambda

$$\sum_{i=1}^{n} \sum_{j=1}^{m} a_i b_j = \sum_{j=1}^{m} \sum_{i=1}^{n} a_i b_j$$

$\boxed{1.1.1}$

$$\sum_{i=1}^{5} x_i = x_1 + x_2 + x_3 + x_4 + x_5$$

i varie de 1 à 5, i est entier

$$\sum_{i=0}^{3} y_i = y_0 + y_1 + y_2 + y_3$$

$$\sum_{i=1}^{5} (x_i + 8) = \sum_{i=1}^{5} x_i + \sum_{i=1}^{5} 8 = \underbrace{\sum_{i=1}^{5} x_i}_{\checkmark} + 8 \cdot \sum_{i=1}^{5} 1$$

$1+1+1+1+1$

$$= \sum_{i=1}^{5} x_i + 8 \cdot 5$$

$$\boxed{\sum_{i=1}^{n} 1 = n}$$

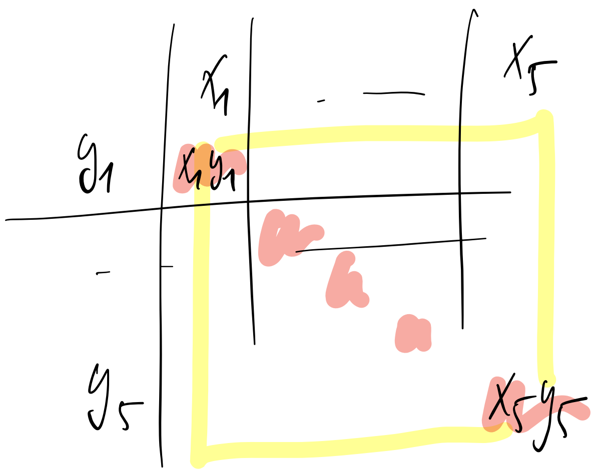
$$\boxed{\sum_{i=1}^{n} k = k \cdot n}$$

$$\sum_{i=1}^{n} 1 = \underbrace{1+1+1+\dots+1}_{n \text{ fois}} = n$$

$$\sum_{i=3}^{4} z_i = z_3 + z_4$$

$$\sum_{k=1}^{5} x_k y_k = x_1 y_1 + \dots + x_5 y_5$$

$$\sum x_k \cdot \sum y_k = (x_1 + \dots + x_5)(y_1 + \dots + y_5)$$



	a_1	a_2	a_3
a_1	a_1^2	a_1a_2	a_1a_3
a_2	a_2a_1	a_2^2	a_2a_3
a_3	a_3a_1	a_3a_2	a_3^2

$$\sum_{i=0}^{n} (-1)^i = \underbrace{(-1)^0 + (-1)^1}_{0} + \underbrace{(-1)^2 + (-1)^3}_{0} + \ldots + (-1)^n$$

$$= 1 + (-1) + 1 + (-1) + 1 + (-1)$$

$$\sum_{i=0}^{n} (-1)^i = (-1)^0 + (-1)^1 + (-1)^2 + (-1)^3 + \dots + (-1)^n$$

$$= \underbrace{1 + (-1)}_{0} + \underbrace{1 + (-1)}_{0} + \dots + (-1)^n$$

$$= \begin{cases} 0 & \text{si } n \text{ est impair} \\ 1 & \text{sinon} \end{cases}$$

$$\sum_{i=2}^{n} (x_i - x_{i-1}) = \sum_{i=2}^{n} x_i - \underbrace{\sum_{i=2}^{n} x_{i-1}}$$

$$x_{2-1} + x_{3-1} + \dots + x_{n-1}$$

$$\boxed{x_1 + x_2 + \dots + x_{n-1}}$$

$$= \sum_{i=2}^{n} x_i - \sum_{i=1}^{n-1} x_i$$

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

$$= \underbrace{\sum_{i=2}^{n-1} x_i - \sum_{i=2}^{n-1} x_i}_{=0} + x_n - x_1 = x_n - x_1$$