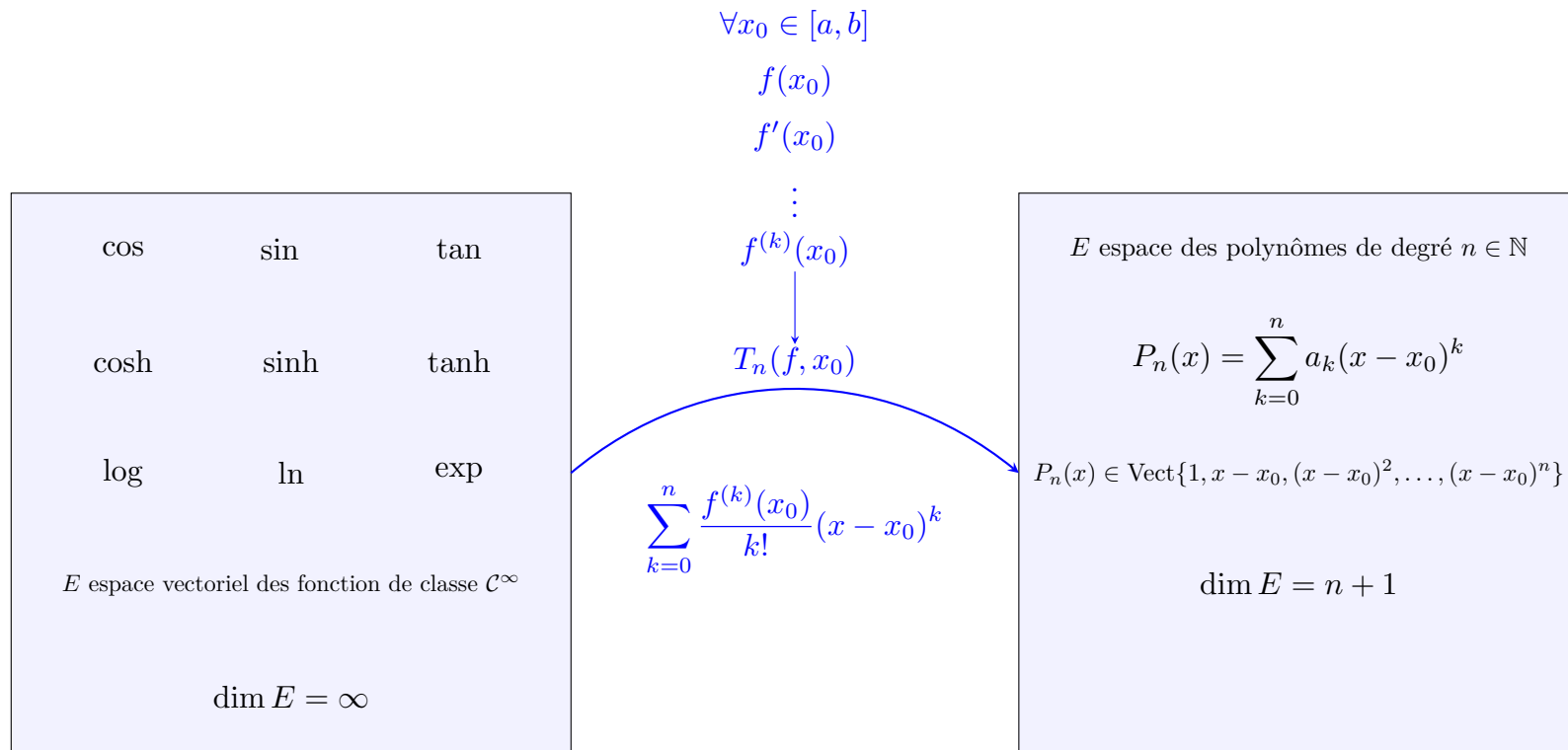




Inspiré du rappel de Monsieur H. Mahdioui



Le théorème de Taylor-Lagrange :

$$f \in \mathcal{C}^n([a, b], \mathbb{R}), \exists c \in]a, b[:$$

$$\begin{cases} f(b) = \sum_{k=0}^{n-1} \frac{f^{(k)}(a)}{k!} (b-a)^k + \frac{f^{(n)}(c)}{n!} (b-a)^n \\ f(x+h) = \sum_{k=0}^{n-1} \frac{f^{(k)}(x)}{k!} h^k + \frac{f^{(n)}(x+\theta h)}{n!} h^n \end{cases}$$

Le théorème de Taylor-Young :

$$\forall x \in [a, b] \text{ et } x_0 \in [a, b]$$

$$\begin{aligned} f(x) &= \sum_{k=0}^n \frac{f^{(k)}(x_0)}{k!} (x - x_0)^k + \varepsilon(x - x_0)(x - x_0)^n \\ &= T_n(f, x_0) + o((x - x_0)^n) \end{aligned}$$