$\mathbf{DL_n(0)}$ de quelques fonctions

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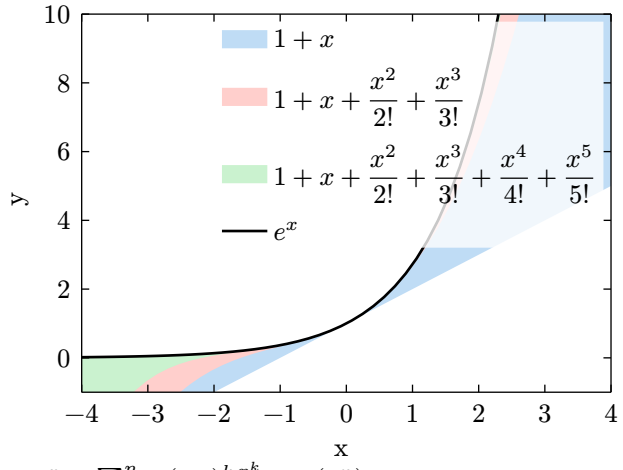
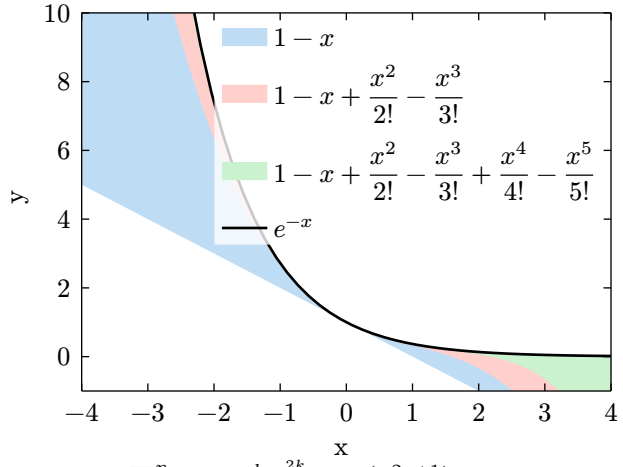
I - *Exponentielle et fonctions trigo*

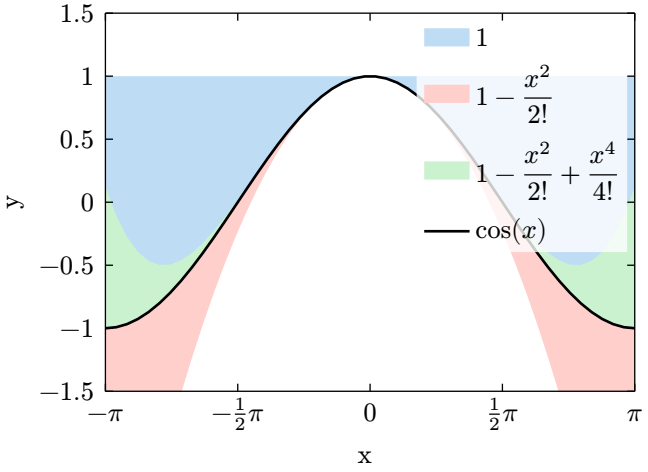
- $e^x = \sum_{k=0}^{n} \frac{x^k}{k!} + o(x^n)$



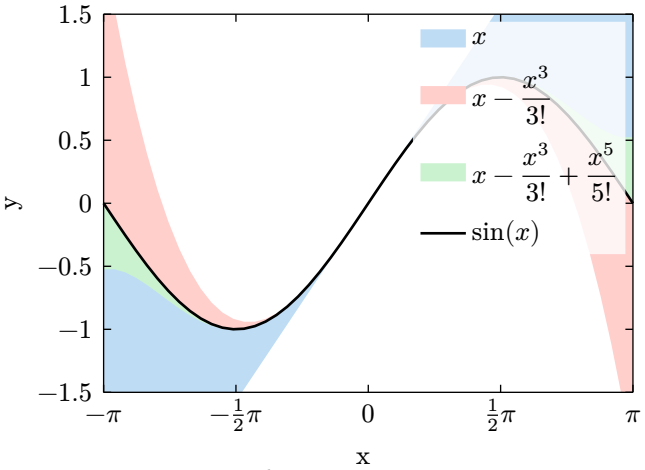
- $e^{-x} = \sum_{k=0}^{n} (-1)^k \frac{x^k}{k!} + o(x^n)$



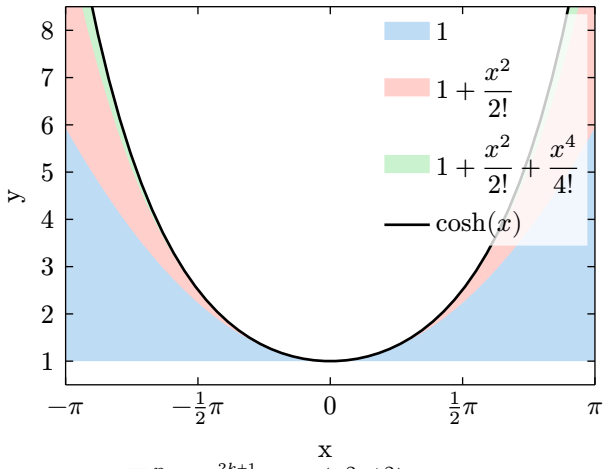
- $\cos(x) = \sum_{k=0}^{n} (-1)^k \frac{x^{2k}}{(2k)!} + o(x^{2n+1})$



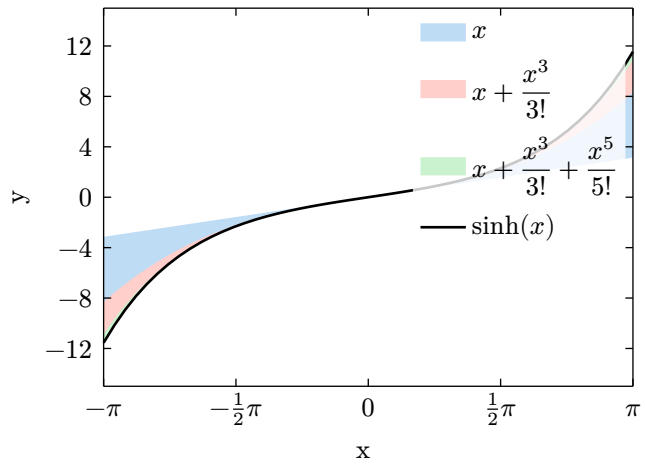
- $\sin(x) = \sum_{k=0}^{n} (-1)^k \frac{x^{2k+1}}{(2k+1)!} + o(x^{2n+2})$



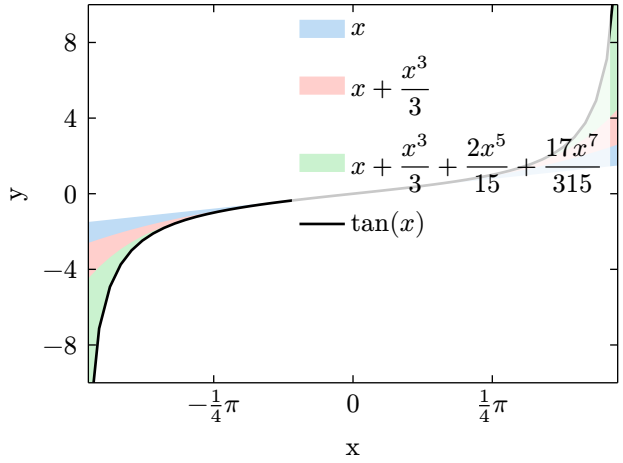
- $\cosh(x) = \sum_{k=0}^{n} \frac{x^{2k}}{(2k)!} + o(x^{2n+1})$



- $\sinh(x) = \sum_{k=0}^{n} \frac{x^{2k+1}}{(2k+1)!} + o(x^{2n+2})$

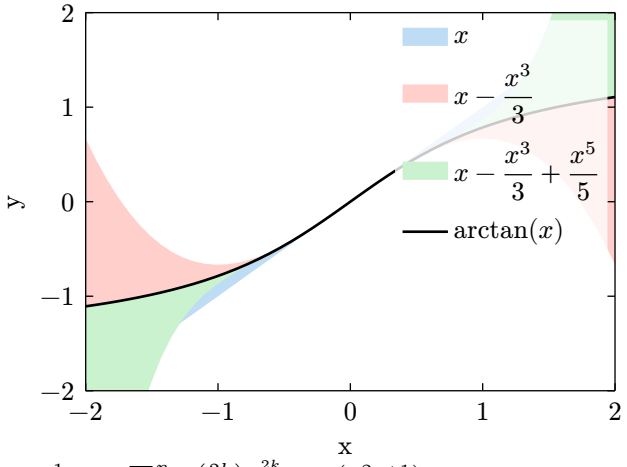


- $\tan(x) = x + \frac{x^3}{3} + \frac{2x^5}{15} + \frac{17x^7}{315} + o(x^8)$

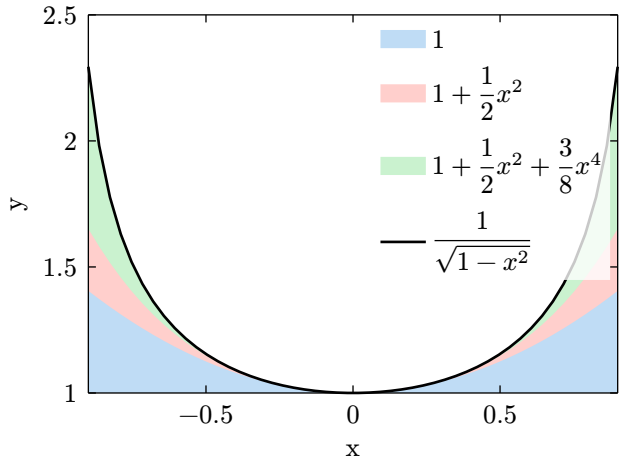


II - *Fonctions trigo reciproques*

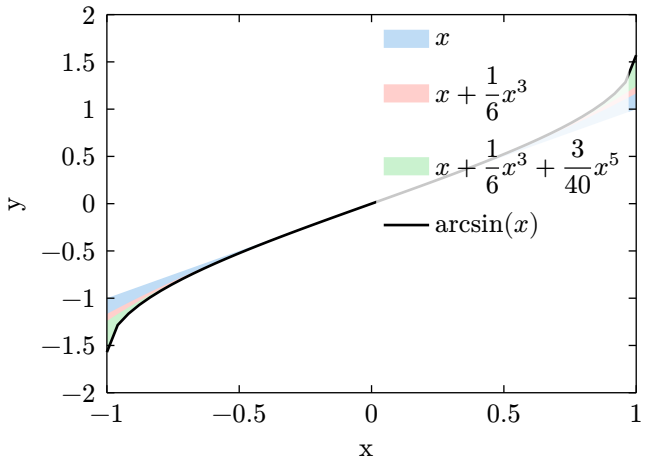
- $\arctan(x) = \sum_{k=0}^{n} (-1)^k \frac{x^{2k+1}}{2k+1} + o(x^{2n+2})$



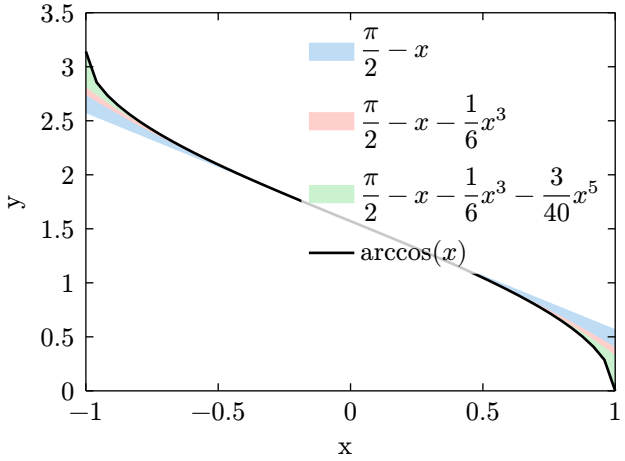
- $\frac{1}{\sqrt{1-x^2}} = \sum_{k=0}^{n} \binom{2k}{k} \frac{x^{2k}}{2^{2k}} + o(x^{2n+1})$



- $\arcsin(x) = \sum_{k=0}^{n} \binom{2k}{k} \frac{x^{2k+1}}{2^{2k}(2k+1)} + o(x^{2n+2})$

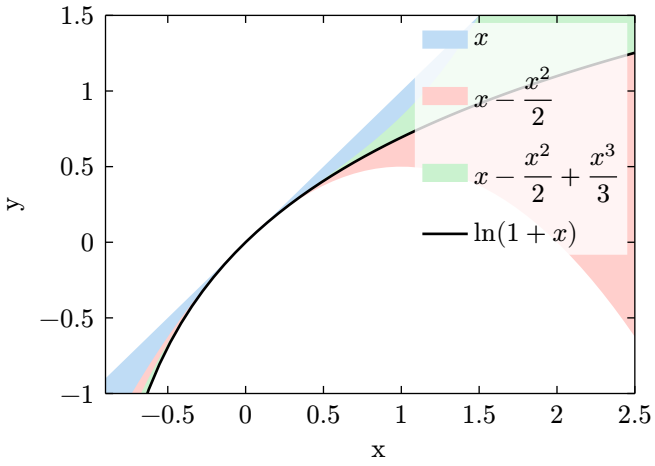


- $\arccos(x) = \frac{\pi}{2} - \arcsin(x)$



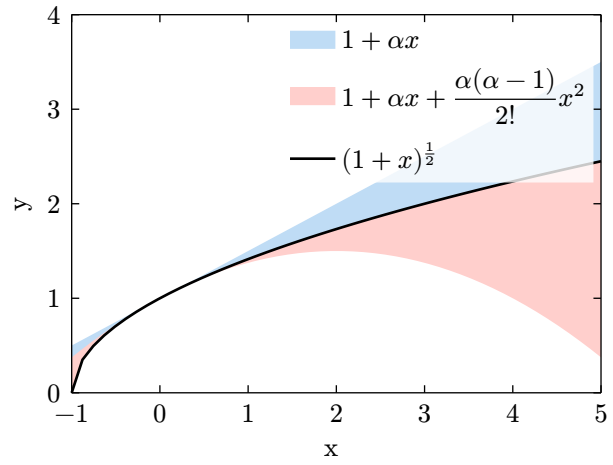
III - *Fonctions usuelles*

- $\ln(1+x) = \sum_{k=0}^{n} (-1)^k \frac{x^{k+1}}{k+1} + o(x^{n+1})$

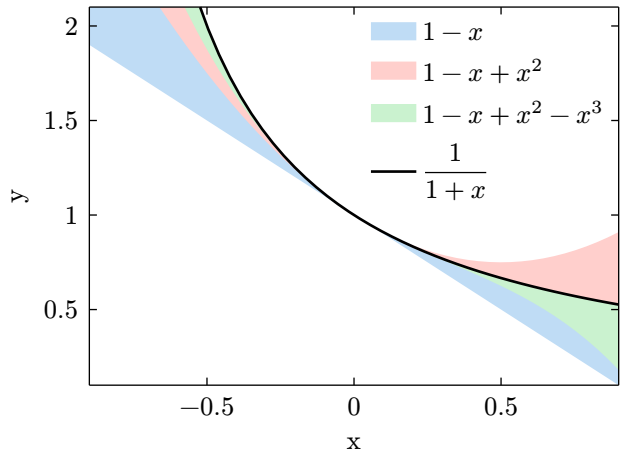


- $(1+x)^\alpha = \sum_{k=0}^{n} \alpha(\alpha-1)...(\alpha-k+1)\frac{x^k}{k!} + o(x^n)$

  Pour $\alpha = \frac{1}{2}$:



- $\frac{1}{1+x} = \sum_{k=0}^{n} (-1)^k x^k + o(x^n)$



- $\frac{1}{1-x} = \sum_{k=0}^{n} x^k + o(x^n)$