$\forall x \in [-1,1], \quad \sin(\arccos x) = \cos(\arcsin x) = \sqrt{1-x^2};$
$\forall x \in]-1,1[, \quad \tan(\arcsin x) = \dfrac{x}{\sqrt{1-x^2}};$ $\forall x \in [-1,1]\backslash\{0\}, \quad \tan(\arccos x) = \dfrac{\sqrt{1-x^2}}{x};$
$\forall x \in \mathbb{R}, \quad \sin(\arctan x) = \dfrac{x}{\sqrt{1+x^2}};$ $\forall x \in \mathbb{R}, \quad \cos(\arctan x) = \dfrac{1}{\sqrt{1+x^2}};$
$\forall x \in \mathbb{R}, \quad \cosh(\mathrm{argsh} x) = \sqrt{x^2+1};$ $\forall x \in [1,+\infty[, \quad \sinh(\mathrm{argch} x) = \sqrt{x^2-1}.$

Dérivation des fonctions réciproques

$$\forall x \in]-1,1[, \quad \arcsin' x = \frac{1}{\sqrt{1-x^2}};$$
$$\forall x \in]-1,1[, \quad \arccos' x = -\frac{1}{\sqrt{1-x^2}};$$
$$\forall x \in \mathbb{R}, \quad \arctan' x = \frac{1}{1+x^2};$$
$$\forall x \in \mathbb{R}, \quad \mathrm{argsh}' x = \frac{1}{\sqrt{x^2+1}};$$
$$\forall x \in]1,+\infty[, \quad \mathrm{argch}' x = \frac{1}{\sqrt{x^2-1}};$$
$$\forall x \in]-1,1[, \quad \mathrm{argth}' x = \frac{1}{1-x^2}.$$

Expression des fonctions hyperboliques réciproques

$$\forall x \in \mathbb{R}, \quad \mathrm{argsh} x = \ln\left(x+\sqrt{x^2+1}\right);$$
$$\forall x \geq 1, \quad \mathrm{argch} x = \ln\left(x+\sqrt{x^2-1}\right);$$
$$\forall x \in]-1,1[, \quad \mathrm{argth} x = \frac{1}{2}\ln\left(\frac{1+x}{1-x}\right).$$

Polynômes de Tchebychev

Soit $n \in \mathbb{N}^*$. Il existe un polynôme $T_n \in \mathbb{Z}_n[X]$ de coefficient dominant 2^{n-1} tel que

$$\begin{aligned} \forall x \in \mathbb{R}, \quad \cos(nx) &= T_n(\cos x) \\ &= 2^{n-1}(\cos x)^n + a_{n-1}(\cos x)^{n-1}(\cos x)^{n-1} + ... + a_1 \cos x + a_0, \quad a_0 ... a_{n-1} \in \mathbb{Z}. \end{aligned}$$