Fonctions circulaires inverses

Arccosinus

La fonction ***arccosinus*** :

$$\arccos x : [-1,1] \to [0,\pi]$$

est la bijection réciproque de

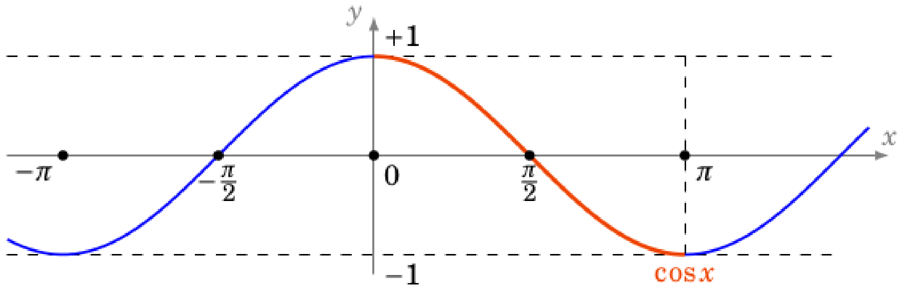
$$\cos x : [0,\pi] \to [-1,1]$$

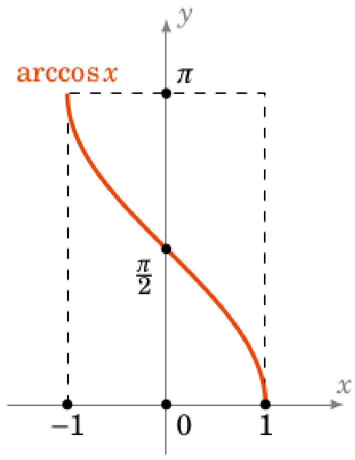
$$\cos(\arccos x) = x \qquad \forall x \in [-1,1]$$

$$\arccos(\cos x) = x \qquad \forall x \in [0,\pi]$$

$$(\arccos x)' = -\frac{1}{\sqrt{1-x^2}} \qquad \forall x \in (-1,1)$$

$$\text{Si } x \in [0,\pi] \quad \cos x = y \Leftrightarrow x = \arccos y$$





Arcsinus

La fonction ***arcsinus*** :

$$\arcsin x : [-1,1] \to \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$$

est la bijection réciproque de

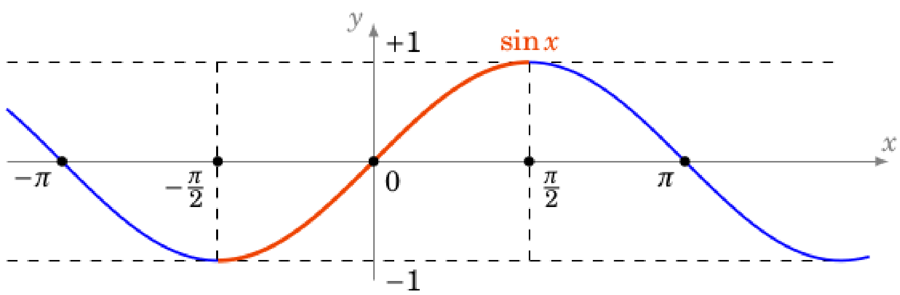
$$\sin x : \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \to [-1,1]$$

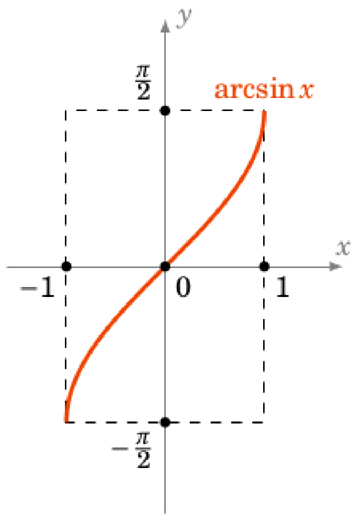
$$\sin(\arcsin x) = x \qquad \forall x \in [-1,1]$$

$$\arcsin(\sin x) = x \qquad \forall x \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$$

$$(\arcsin x)' = \frac{1}{\sqrt{1-x^2}} \qquad \forall x \in (-1,1)$$

$$\text{Si } x \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \quad \sin x = y \Leftrightarrow x = \arcsin y$$





Arctangente

La fonction ***arctangente*** :

$$\arctan x : \mathbb{R} \to \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$$

est la bijection réciproque de

$$\tan x : \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \to \mathbb{R}$$

$$\tan(\arctan x) = x \qquad \forall x \in \mathbb{R}$$

$$\arctan(\tan x) = x \qquad \forall x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$$

$$(\arctan x)' = \frac{1}{1+x^2} \qquad \forall x \in \mathbb{R}$$

$$\text{Si } x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) \ \tan x = y \Leftrightarrow x = \arctan y$$