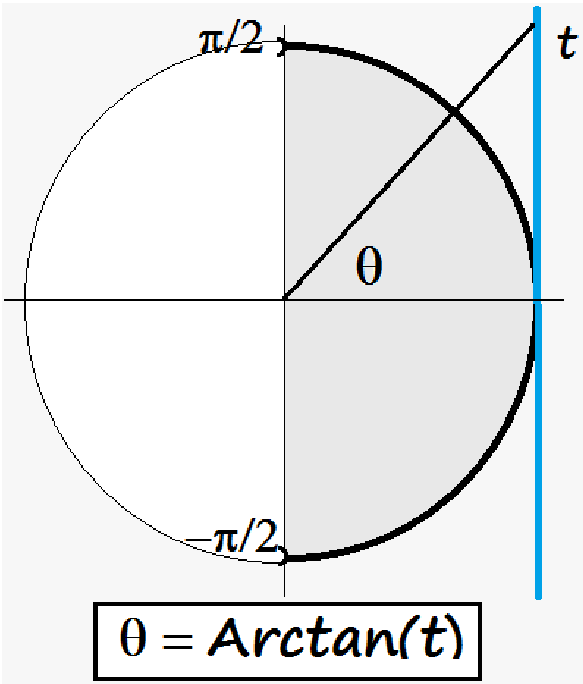
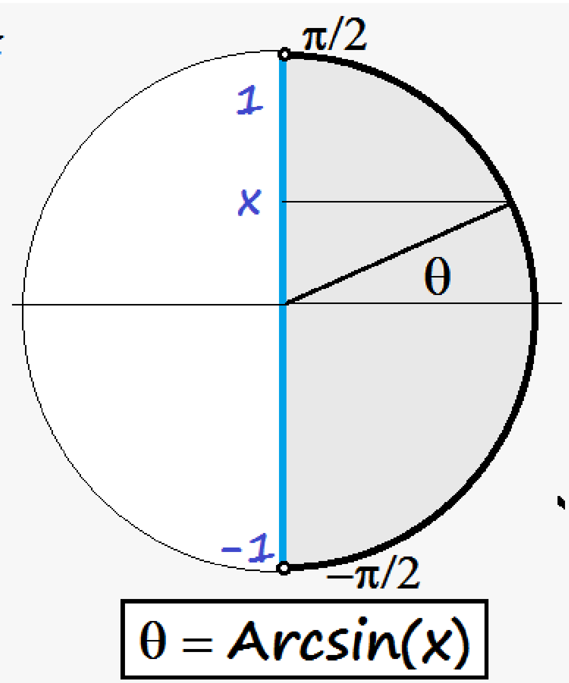
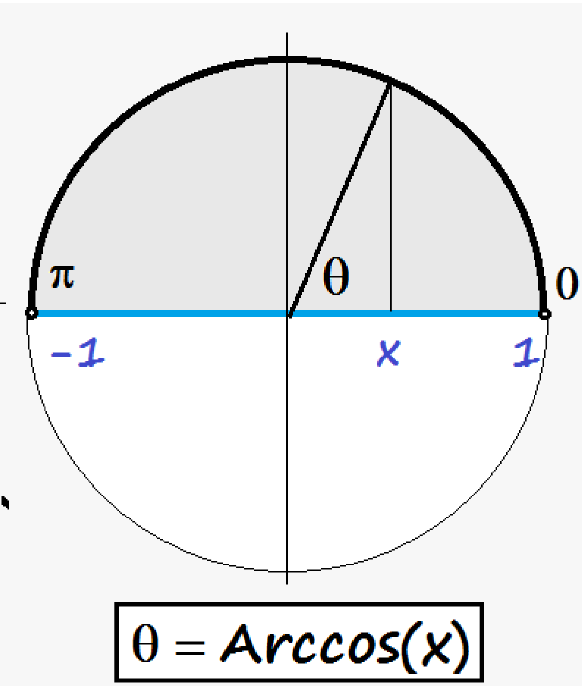
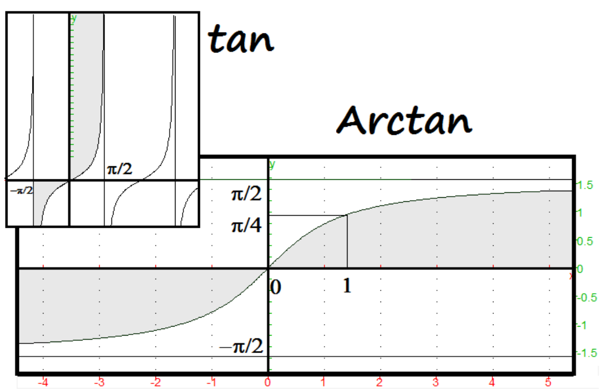
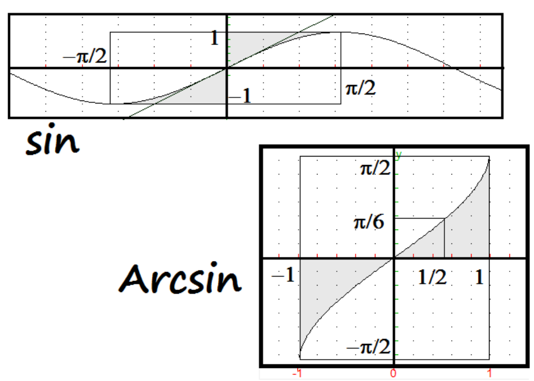
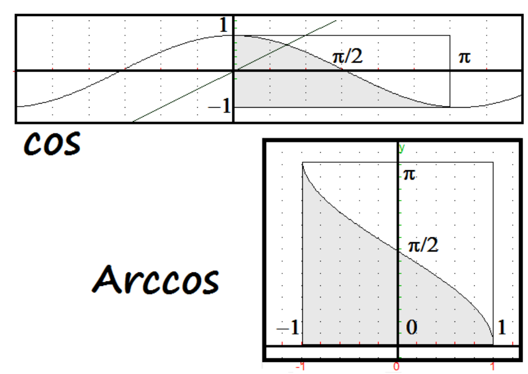
Arctan	Arcsin	Arccos
longueur donne angle		
de $]-\infty,\ +\infty[$ dans $\left]-\frac{\pi}{2},\ \frac{\pi}{2}\right[$	de $[-1,\ 1]$ dans $\left[-\frac{\pi}{2},\ \frac{\pi}{2}\right]$	de $[-1,\ 1]$ dans $[0,\ \pi]$
$\forall t \in \mathbb{R}$, $\theta = Arctan(t) \Leftrightarrow \begin{pmatrix} -\frac{\pi}{2} & < \theta & < \frac{\pi}{2} \\ & et & \\ \tan(\theta) & = & t \end{pmatrix}$	$\forall x \in [-1,\ 1]$, $\theta = Arcsin(t) \Leftrightarrow \begin{pmatrix} -\frac{\pi}{2} & \leqslant \theta & \leqslant \frac{\pi}{2} \\ & et & \\ \sin(\theta) & = & x \end{pmatrix}$	$\forall x \in [-1,\ 1]$, $\theta = Arccos(t) \Leftrightarrow \begin{pmatrix} 0 & \leqslant \theta & \leqslant \pi \\ & et & \\ \cos(\theta) & = & x \end{pmatrix}$
		
impaire	impaire	ni paire ni impaire
		

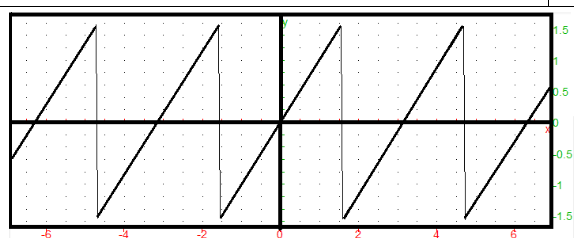
Arctan	Arcsin	Arccos
$\forall t \in]0,\ +\infty[,\ Arctan(t) + Arctan\left(\frac{1}{t}\right) = +\frac{\pi}{2}$ $\forall t \in]-\infty,\ 0[,\ Arctan(t) + Arctan\left(\frac{1}{t}\right) = -\frac{\pi}{2}$	$\forall x \in [-1,\ 1],\ Arcsin(x) + Arccos(x) = \frac{\pi}{2}$	
$\forall t \in \mathbb{R},\ \sin(Arctan(t)) = \frac{t}{\sqrt{1+t^2}}$	$\forall \mathbf{x} \in [-\mathbf{1},\ \mathbf{1}],\ \sin(\mathbf{Arcsin}(\mathbf{x})) = \mathbf{x}$	$\forall x \in [-1,\ 1],\ \sin(Arccos(x)) = \sqrt{1-x^2}$
$\forall t \in \mathbb{R},\ \cos(Arctan(t)) = \frac{1}{\sqrt{1+t^2}}$	$\forall x \in [-1,\ 1],\ \cos(Arcsin(x)) = \sqrt{1-x^2}$	$\forall \mathbf{x} \in [-\mathbf{1},\ \mathbf{1}],\ \cos(\mathbf{Arccos}(\mathbf{x})) = \mathbf{x}$
$\forall \mathbf{t} \in \mathbb{R},\ \tan(\mathbf{Arctan}(\mathbf{t})) = \mathbf{t}$	$\forall x \in]-1,\ 1[,\ \tan(Arcsin(x)) = \frac{x}{\sqrt{1-x^2}}$	$\forall x \in [-1,\ 1]-\{0\},\ \tan(Arccos(x)) = \frac{\sqrt{1-x^2}}{x}$

Dérivation

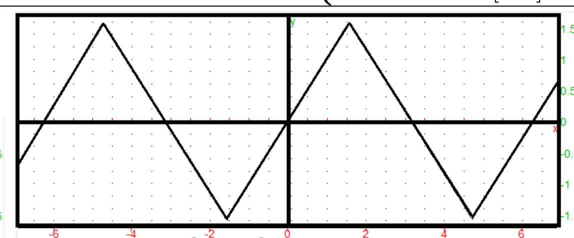
$\forall t \in \mathbb{R},\ Arctan'(t) = \frac{1}{1+t^2}$	$\forall x \in]-1,\ 1[,\ Arcsin'(x) = \frac{1}{\sqrt{1-x^2}}$	$\forall x \in]-1,\ 1[,\ Arccos'(x) = \frac{-1}{\sqrt{1-x^2}}$
$\int_a^b \frac{dt}{1+t^2} = Arctan(b) - Arctan(a)$	$\int_a^b \frac{dt}{\sqrt{1-t^2}} = Arcsin(b) - Arcsin(a)$	

Composition

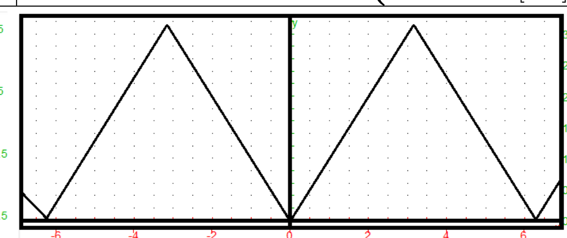
$\forall \theta \in \left]-\frac{\pi}{2},\ \frac{\pi}{2}\right[,\ Arctan(\tan(\theta)) = \theta$	$\forall \theta \in \left[-\frac{\pi}{2},\ \frac{\pi}{2}\right],\ Arcsin(\sin(\theta)) = \theta$	$\forall \theta \in [0,\ \pi],\ Arccos(\cos(\theta)) = \theta$
$\forall \theta \in \mathbb{R} - \left\{\frac{\pi}{2} + k.\Pi \mid k \in \mathbb{Z}\right\},\ Arctan(\tan(\theta)) = \theta\ [\pi]$	$\forall \theta \in \mathbb{R},\ Arcsin(\sin(\theta)) = \begin{cases} \theta & [2.\pi] \\ ou & \\ \pi - \theta & [2.\pi] \end{cases}$	$\forall \theta \in \mathbb{R},\ Arccos(\cos(\theta)) = \begin{cases} \theta & [2.\pi] \\ ou & \\ -\theta & [2.\pi] \end{cases}$



Arctan(tan(θ))



Arcsin(sin(θ))



Arccos(cos(θ))

Primitives (retenir juste « par parties »)

$x \to x.Arctan(x) - \frac{1}{2}.\ln(1+x^2)$	$x \to x.Arcsin(x) + \sqrt{1-x^2}$	$x \to x.Arccos(x) - \sqrt{1-x^2}$

Tableau de valeurs

0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	$+\infty$
0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$

0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$

-1	$-\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
π		$\frac{\pi}{2}$	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$\frac{\pi}{6}$	0

Equations

$\tan(\theta) = t\ (t \in \mathbb{R})$	$\sin(\theta) = x\ (x \in [-1,\ 1])$	$\cos(\theta) = x\ (x \in [-1,\ 1])$
$S_\theta = \{Arctan(t) + k.\pi \mid k \in \mathbb{Z}$	$S_\theta = \{Arcsin(x) + 2.k.\pi \mid k \in \mathbb{Z}\}$	$S_\theta = \{Arccos(x) + 2.k.\pi \mid k \in \mathbb{Z}\}$
	$\cup\{\pi - Arcsin(x) + 2.k.\pi \mid k \in \mathbb{Z}\}$	$\cup\{-Arccos(x) + 2.k.\pi \mid k \in \mathbb{Z}\}$