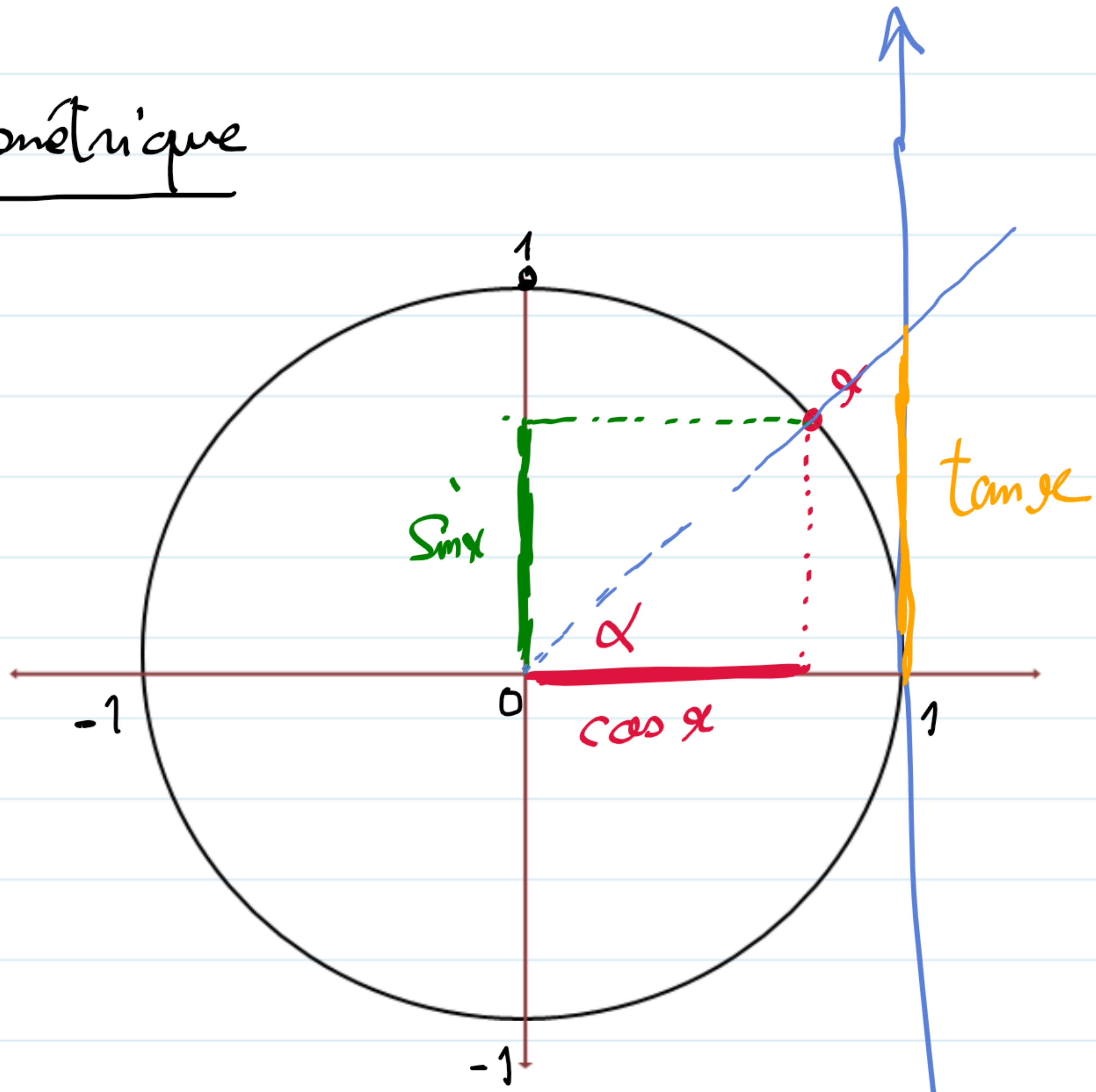
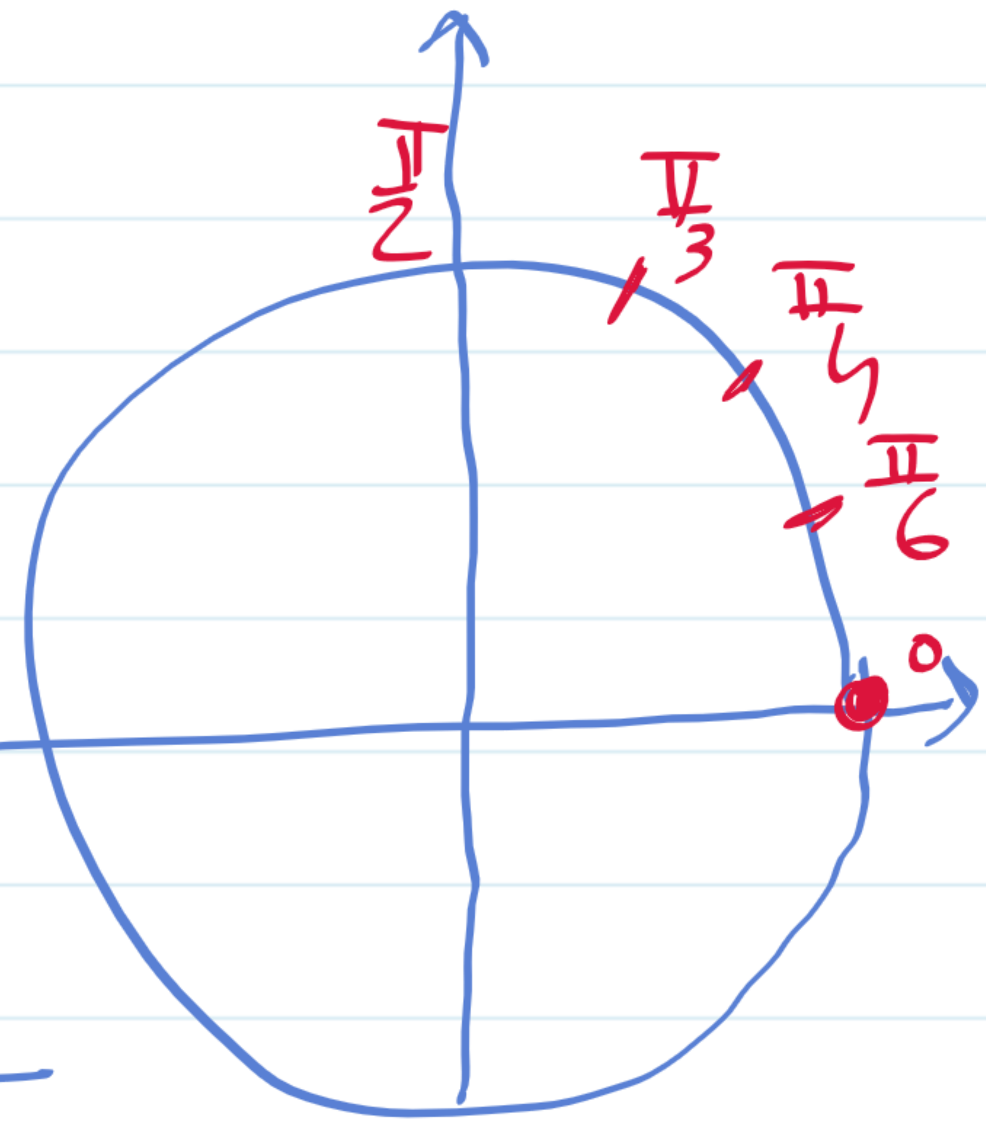
Résumé : Calcul trigonométrique

• Cercle trigonométrique



$\pi = 180°$

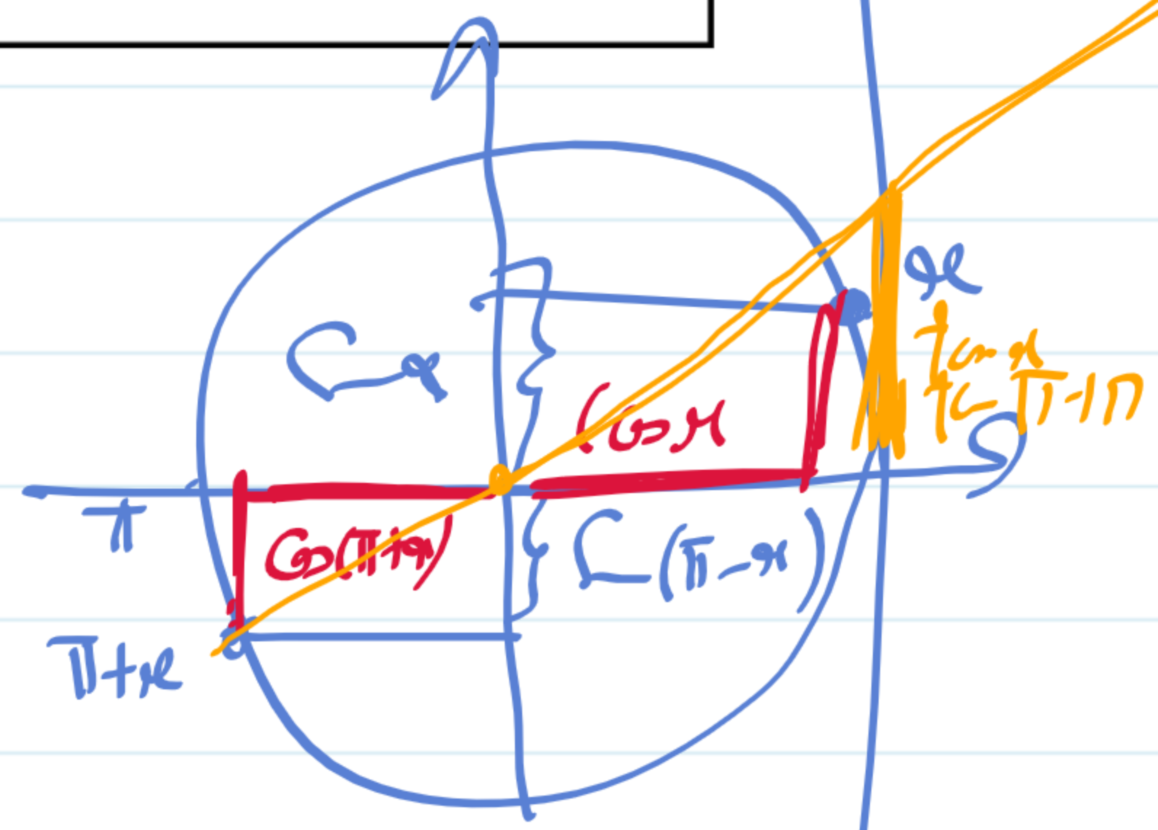
x	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\pi/2$
$\sin x$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos x$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
$\tan x$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	$\times$



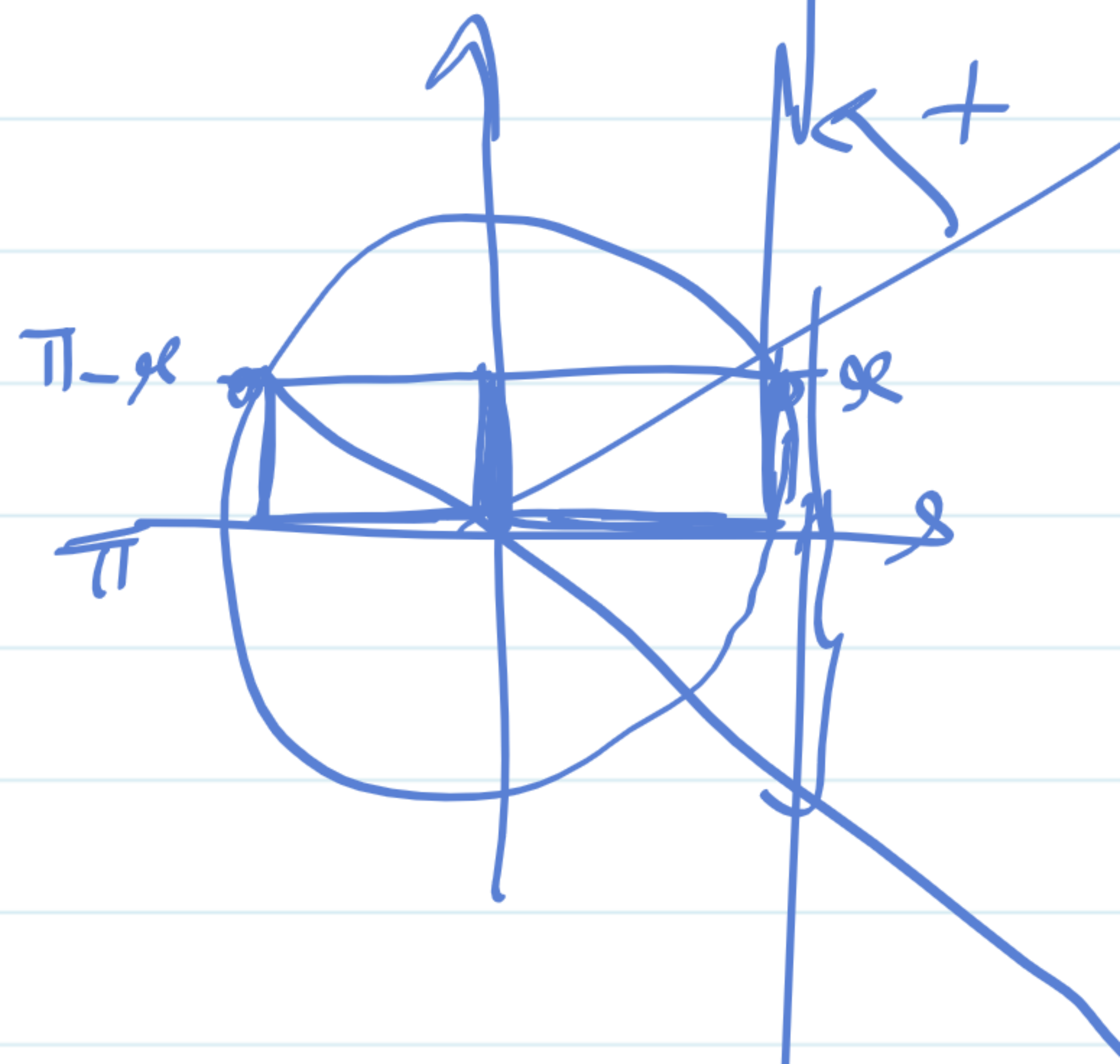
$\frac{\sqrt{\cdot}}{2}$

Les relations fondamentales :

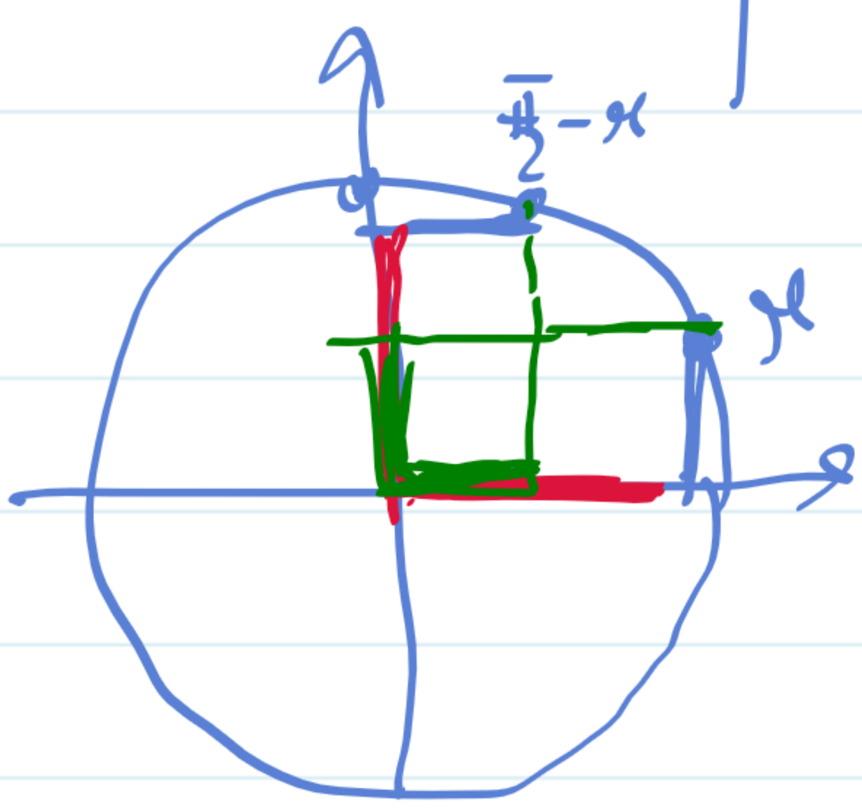
$$\boxed{\begin{aligned}
\sin(a+b) &= \sin(a)\cos(b) + \sin(b)\cos(a) \\
\sin(a-b) &= \sin(a)\cos(b) - \sin(b)\cos(a) \\
\cos(a+b) &= \cos(a)\cos(b) - \sin(a)\sin(b) \\
\cos(a-b) &= \cos(a)\cos(b) + \sin(a)\sin(b) \\
\tan(a+b) &= \frac{\tan(a)+\tan(b)}{1-\tan(a)\tan(b)} \\
\tan(a-b) &= \frac{\tan(a)-\tan b}{1+\tan(a)\tan(b)}
\end{aligned}}$$



$$\sin(\pi+x) = -\sin x$$
$$\cos(\pi+x) = -\cos x$$
$$\tan(\pi+x) = \tan x$$



$$\sin(\pi-x) = \sin x$$
$$\cos(\pi-x) = -\cos x$$
$$\tan(\pi-x) = -\tan x$$

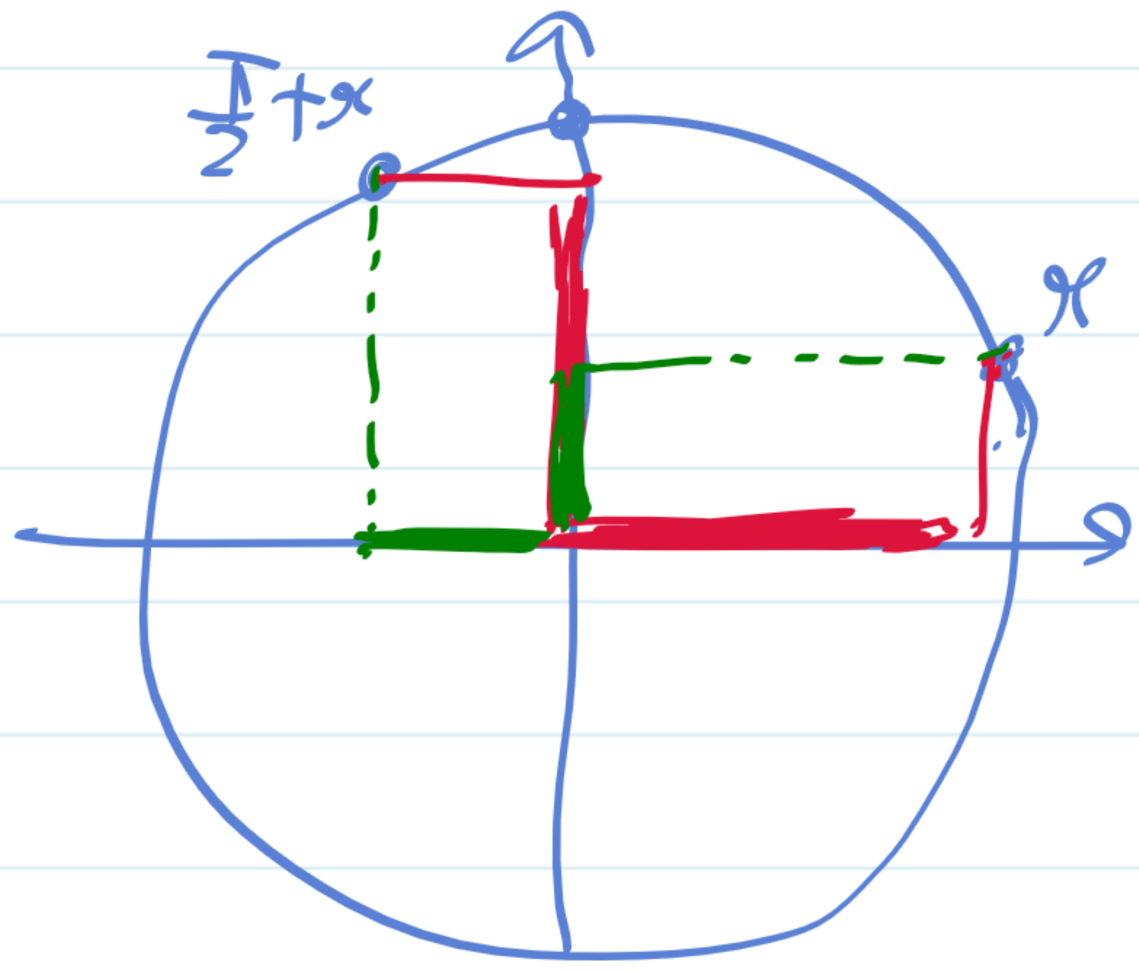


$$\sin\left(\frac{\pi}{2}-x\right) = \cos x$$
$$\cos\left(\frac{\pi}{2}-x\right) = \sin x$$
$$\tan\left(\frac{\pi}{2}-x\right) = \frac{1}{\tan x} = \operatorname{cotan} x$$

$$\sin\left(\frac{\pi}{2}+x\right) = \cos x$$

$$\cos\left(\frac{\pi}{2}+x\right) = -\sin x$$

$$\tan\left(\frac{\pi}{2}+x\right) = \frac{-1}{\tan x} = -\operatorname{cotan} x$$



$$\boxed{\begin{aligned}\sin(2x) &= 2\sin x \cos x\\ \cos(2x) &= \cos^2 x - \sin^2 x = 1 - 2\sin^2 x = 2\cos^2 x - 1\\ \tan(2x) &= \frac{2\tan x}{1-\tan^2 x}\end{aligned}}$$

Formules de linéarisation :

$$\boxed{\begin{aligned}\sin x \cos y &= \frac{1}{2}\left[\sin(x+y) + \sin(x-y)\right]\\ \cos x \cos y &= \frac{1}{2}\left[\cos(x+y) + \cos(x-y)\right]\\ \sin x \sin y &= -\frac{1}{2}\left[\cos(x+y) - \cos(x-y)\right]\end{aligned}}$$

$$\boxed{\begin{aligned}\sin(x) + \sin(y) &= 2\sin\left(\frac{x+y}{2}\right)\cos\left(\frac{x-y}{2}\right)\\ \sin x - \sin y &= 2\cos\left(\frac{x+y}{2}\right)\sin\left(\frac{x-y}{2}\right)\\ \cos x + \cos y &= 2\cos\left(\frac{x+y}{2}\right)\cos\left(\frac{x-y}{2}\right)\\ \cos x - \cos y &= -2\sin\left(\frac{x+y}{2}\right)\sin\left(\frac{x-y}{2}\right)\end{aligned}}$$