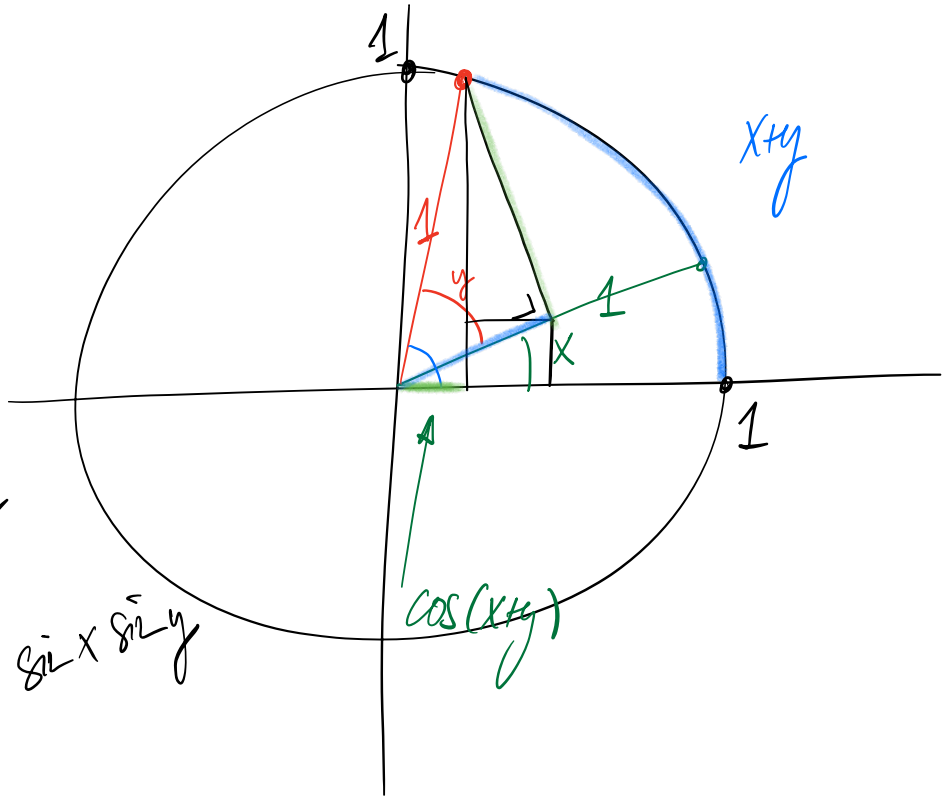
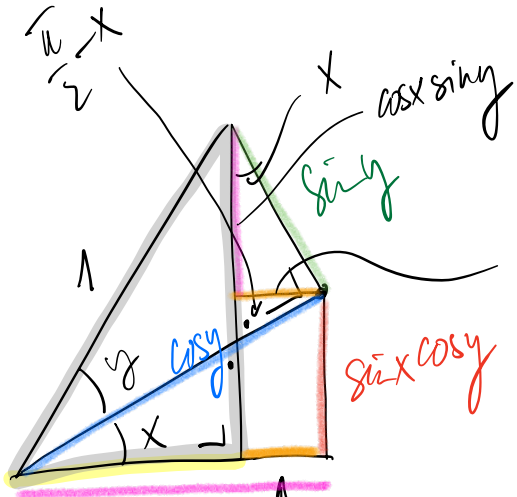
$\sin(x+y)$

$\cos(x+y)$





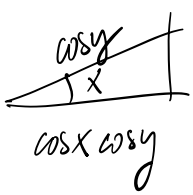
$\sin x \sin y$

$\cos x \cos y$

$\sin x \cos y$

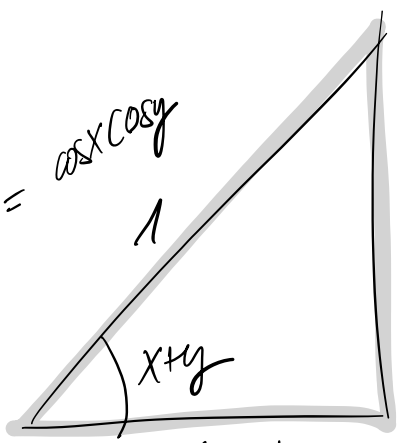
$\cos x \cos y - \sin x \sin y$

$\cos(x+y)$



$\cos x = \frac{adj}{cosy}$

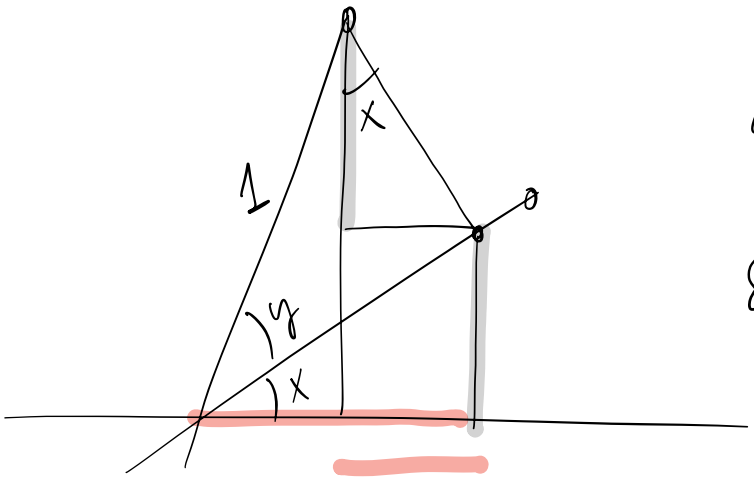
$adj = \cos x \cos y$



$\cos(x+y)$

$\cos x \sin y + \sin x \cos y$

$\sin(x+y)$



$$\cos(x+y) = \cos x \cos y - \sin x \sin y$$

$$\sin(x+y) = \cos x \sin y + \sin x \cos y$$

$$\cos(2x) = \cos(x+x) = \cos x \cos x - \sin x \sin x$$

$$\sin(2x) = \sin(x+x) = \cos x \sin x + \sin x \cos x = 2 \sin x \cos x$$

$\sin^2 x + \cos^2 x = 1$ $\quad 1 - \sin^2 x \quad (1 - \cos^2 x)$

$$\Rightarrow \quad \cos(2x) = \cos^2 x - \sin^2 x = 1 - 2\sin^2 x$$

$$= 2\cos^2 x - 1$$

$$\Rightarrow \quad \sin^2 x = \frac{1 - \cos(2x)}{2}$$

$$\cos^2 x = \frac{\cos(2x) + 1}{2}$$

En déduite

$$\tan(x+y) = \frac{\sin(x+y)}{\cos(x+y)} = \ldots$$

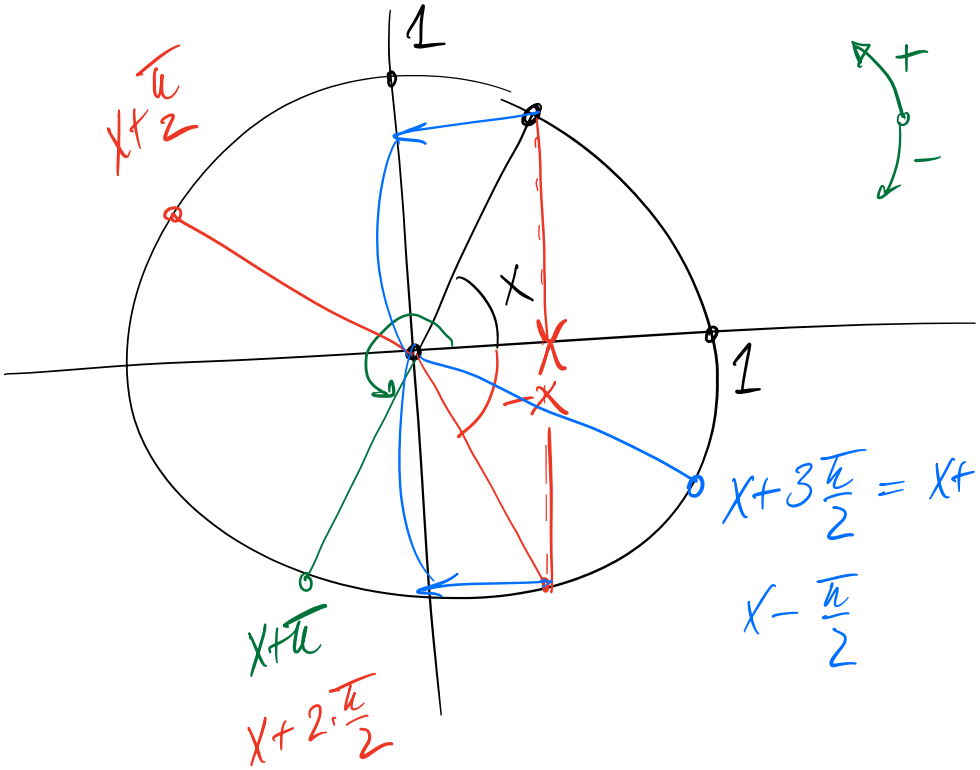
A' compléter

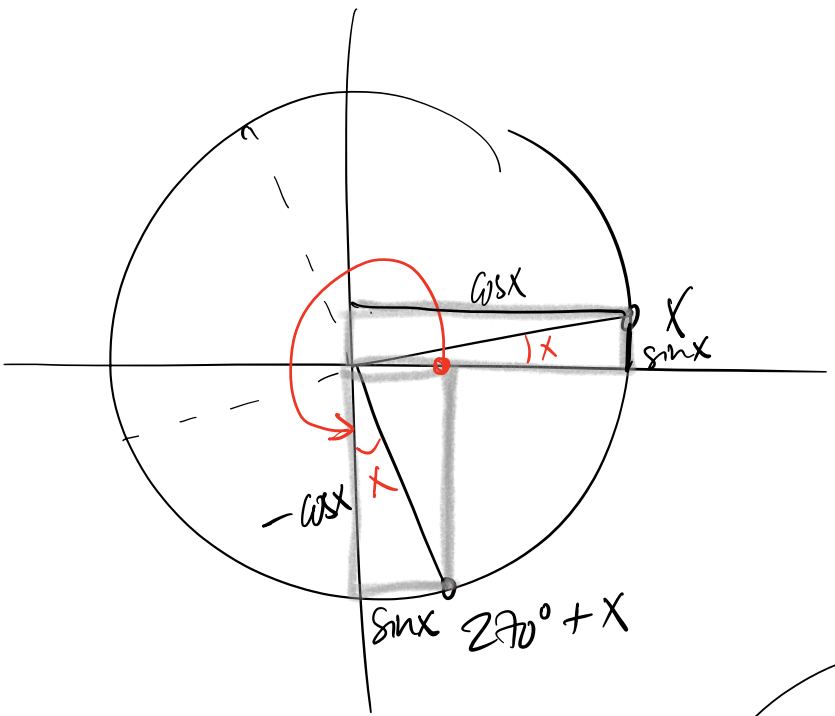
4.3.2

$\cos(x) = \cos(-x)$

$\sin x = -\sin(-x)$

$\sin(-x) = -\sin(x)$



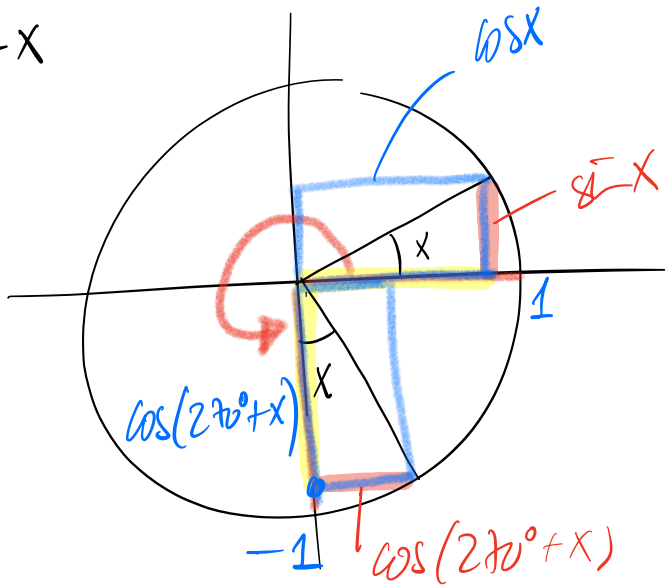


$= \cos\left(x - \frac{\pi}{2}\right)$

$\cos(270° + x) = \sin x$

$\sin(270° + x) = -\cos x$

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



cos est périodique,
de période 2π

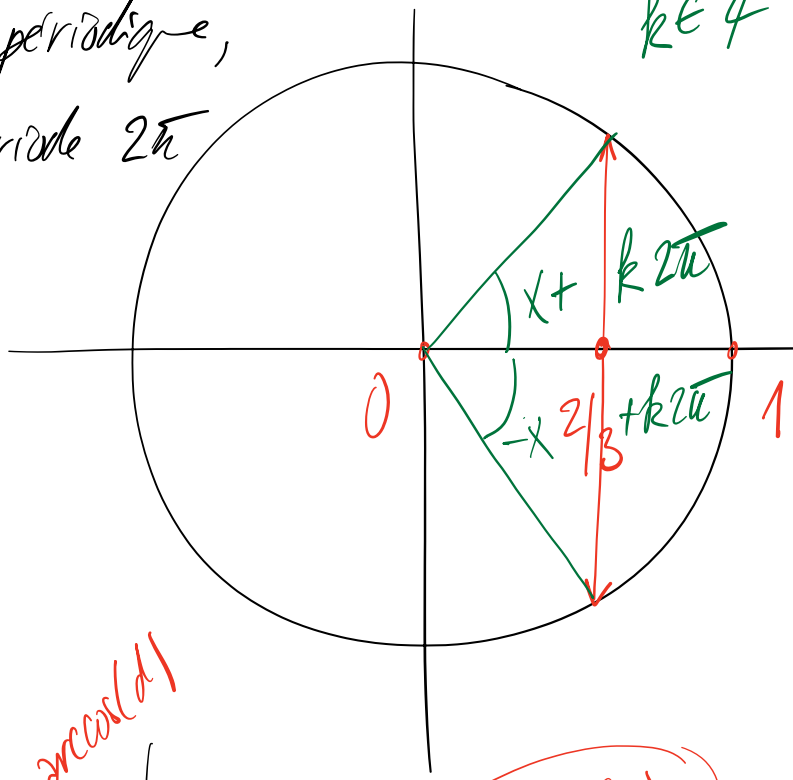
$k \in \mathbb{Z}$

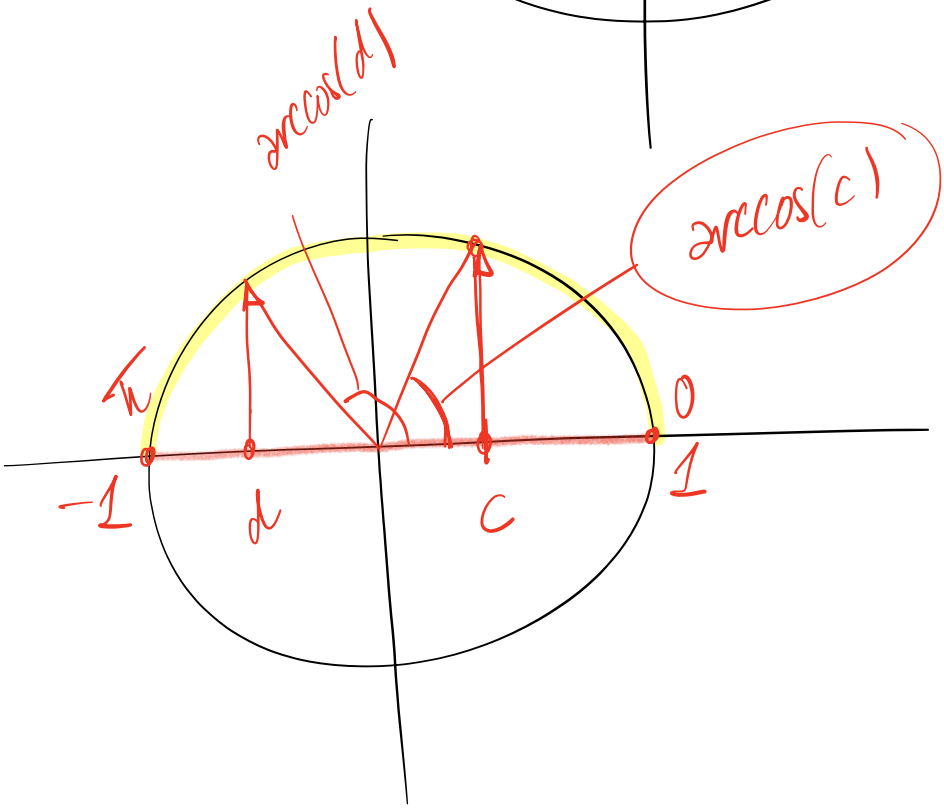
$$\cos(x) = \frac{2}{3}$$

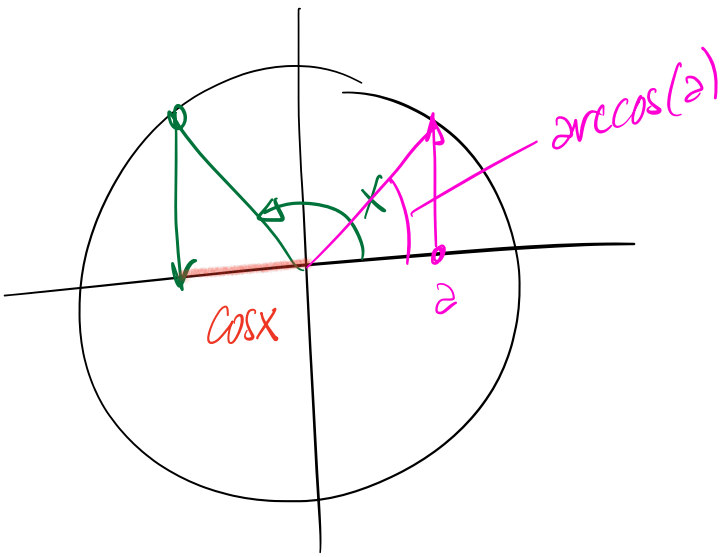
$$\Leftrightarrow \quad x = \arccos\left(\frac{2}{3}\right) + k2\pi$$

$$x = -\arccos\left(\frac{2}{3}\right) + k \cdot 2\pi$$

$k \in \mathbb{Z}$







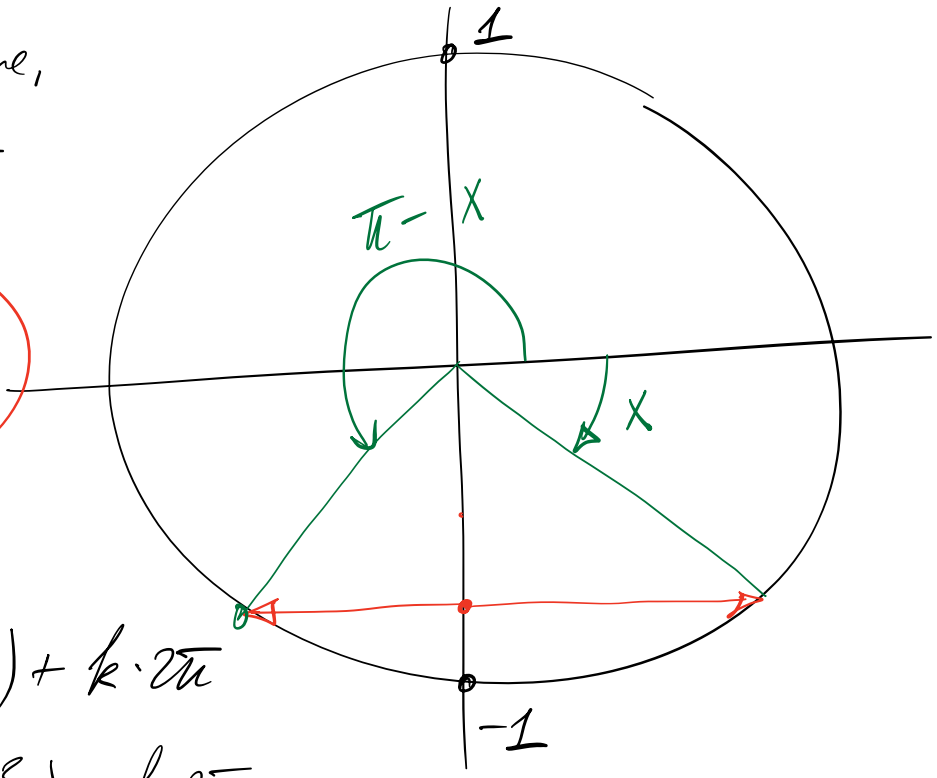
$$\cos : \mathbb{R} \longrightarrow [-1;1]$$
$$x \longmapsto \cos x$$

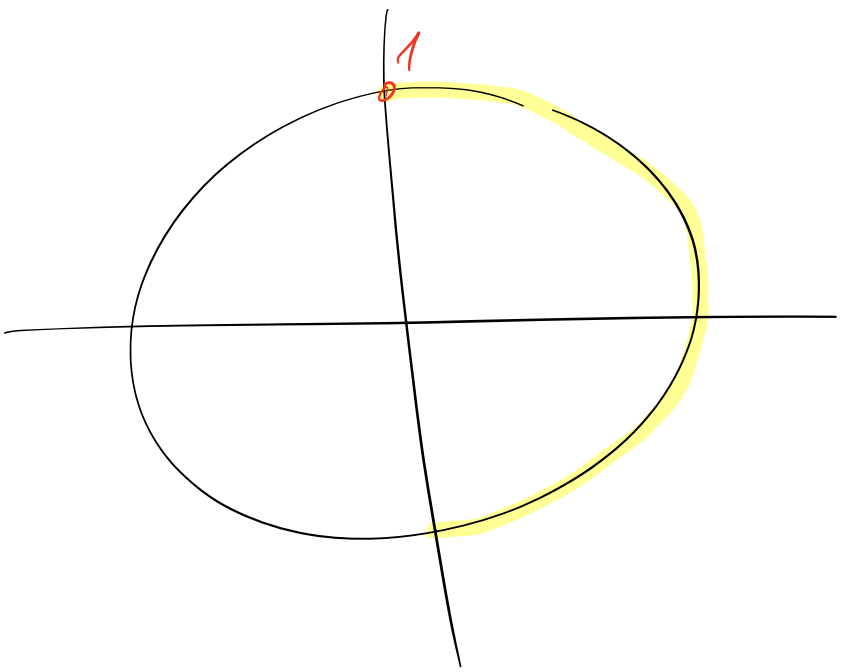
$$\arccos : [-1;1] \longrightarrow \mathbb{R}$$
$$x \longmapsto \arccos(x)$$

sin est périodique,

de période 2π

$$\sin(x) = -\frac{3}{4}$$



$$x = \arcsin\left(-\frac{3}{4}\right) + k \cdot 2\pi$$

$$x = \pi - \arcsin\left(-\frac{3}{4}\right) + k \cdot 2\pi$$