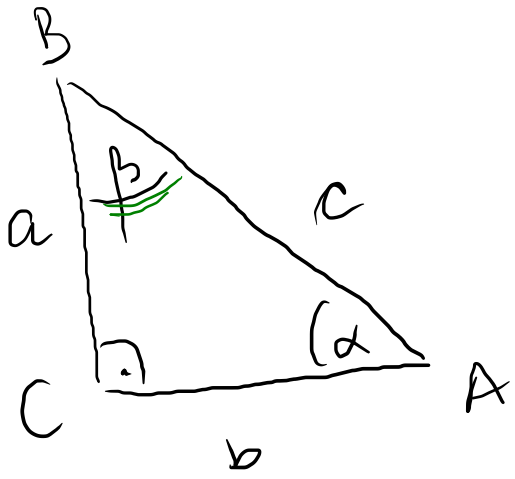
TRIGONOMETRIJA



$$c^2 = a^2 + b^2$$

$$\alpha + \beta = \frac{\pi}{2}$$

$$\beta = \frac{\pi}{2} - \alpha$$

$$\sin\alpha = \frac{a}{c} = \cos\beta = \cos\left(\frac{\pi}{2} - \alpha\right)$$

$$\cos\alpha = \frac{b}{c} = \sin\beta = \sin\left(\frac{\pi}{2} - \alpha\right)$$

$$\operatorname{tg}\alpha = \frac{a}{b}$$

$$\operatorname{ctg}\alpha = \frac{b}{a}$$

$$\cos\frac{\pi}{3} = \sin\left(\frac{\pi}{2} - \frac{\pi}{3}\right) = \sin\frac{\pi}{6}$$

1) $\sin^2\alpha + \cos^2\alpha = 1$

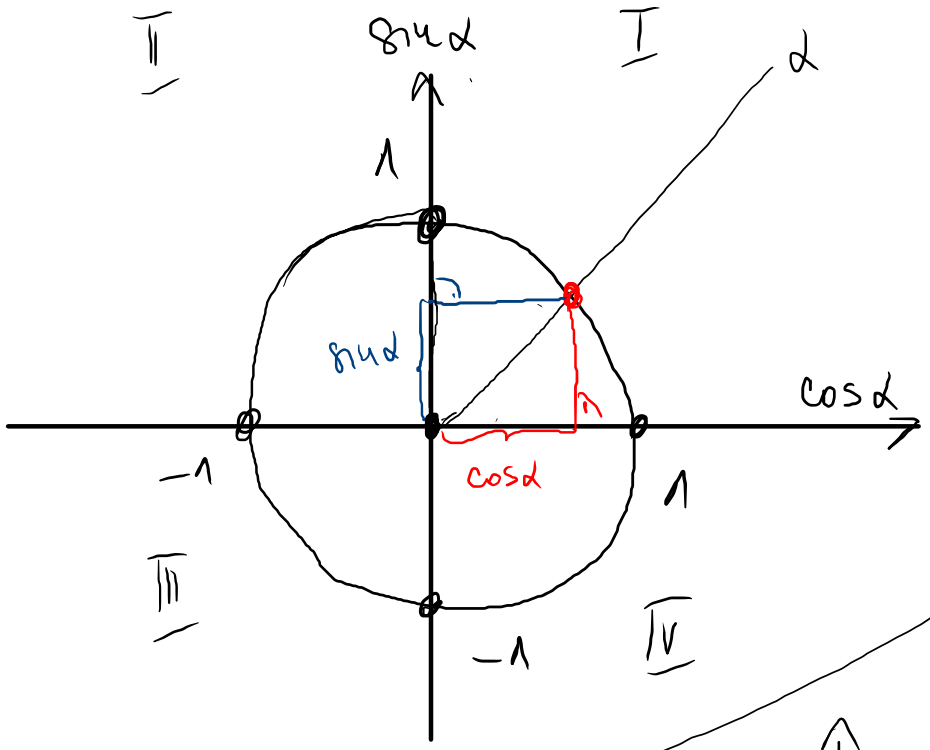
2) $\operatorname{tg}\alpha = \frac{\sin\alpha}{\cos\alpha}$

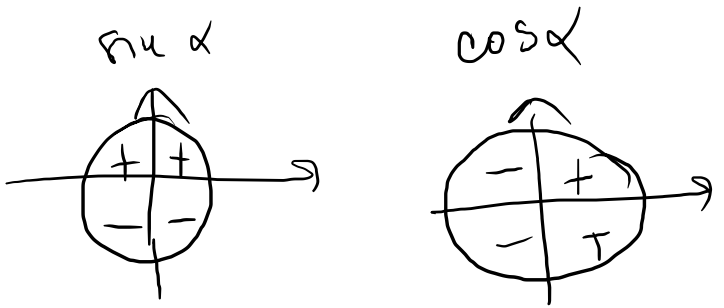
3) $\operatorname{ctg}\alpha = \frac{\cos\alpha}{\sin\alpha}$

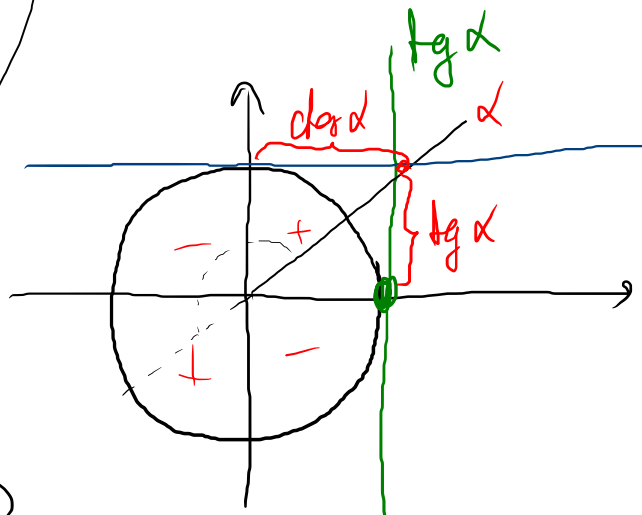
4) $\operatorname{tg}\alpha = \frac{1}{\operatorname{ctg}\alpha}$

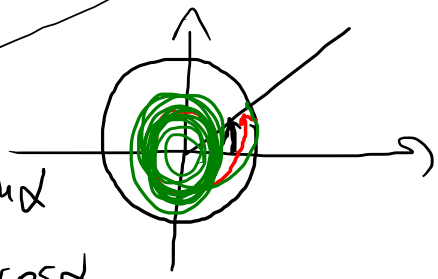
5) $-1 \leq \sin\alpha \leq 1$

6) $-1 \leq \cos\alpha \leq 1$









$$\sin(\alpha + 2k\pi) = \sin\alpha$$

$$\cos(\alpha + 2k\pi) = \cos\alpha$$

$$k \in \mathbb{Z}$$

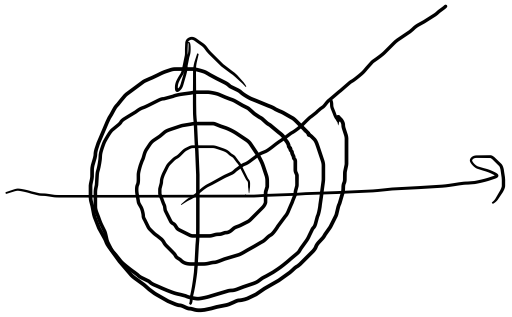
$$\operatorname{tg}(\alpha + k\pi) = \operatorname{tg}\alpha$$

$$\operatorname{ctg}(\alpha + k\pi) = \operatorname{ctg}\alpha$$

$$k \in \mathbb{Z}$$

$$\cos\left(\frac{25\pi}{3}\right) = \cos\left(\frac{24+1}{3}\pi\right) = \cos\left(\left(8+\frac{1}{3}\right)\pi\right)$$

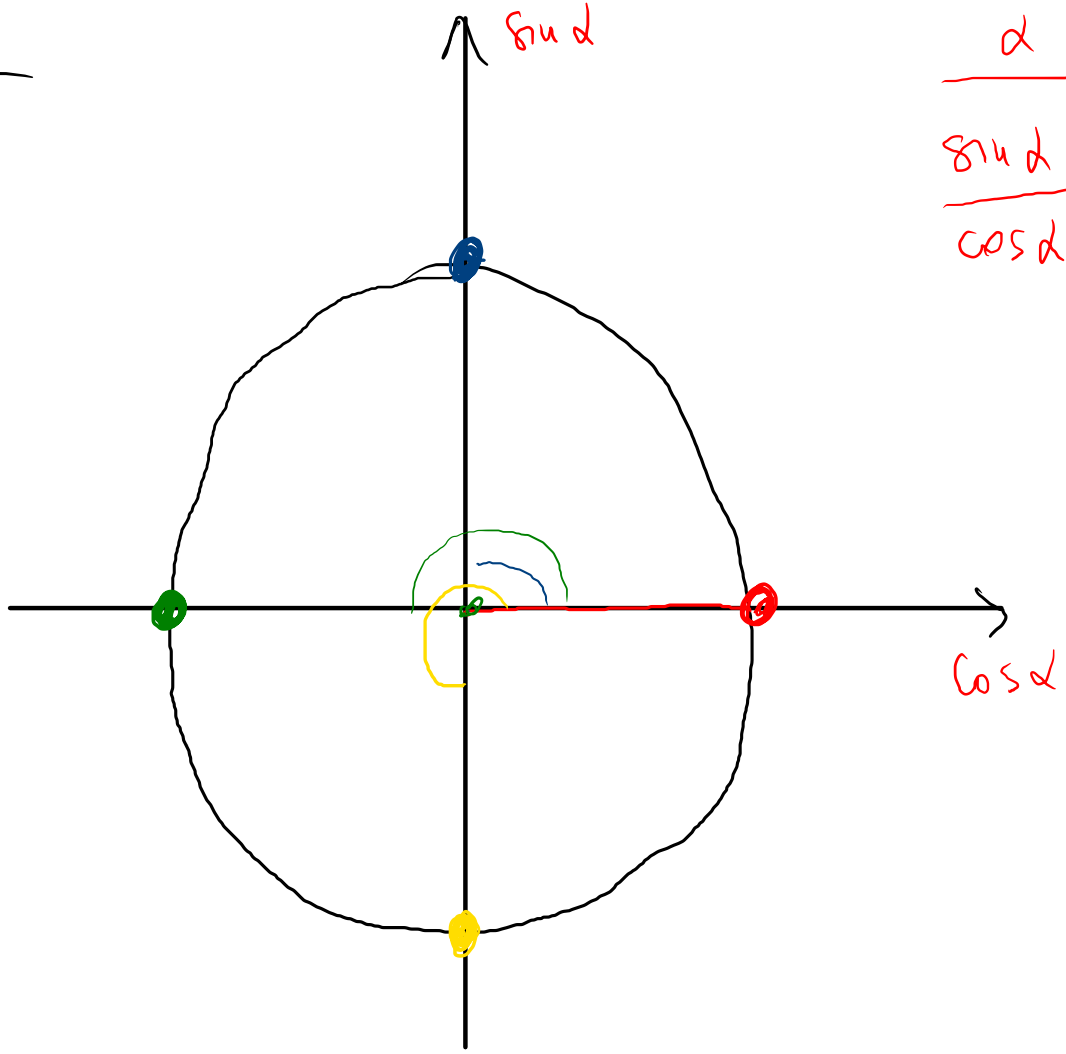
$$= \cos\left(\frac{\pi}{3} + 2\cdot 4\pi\right) = \cos\frac{\pi}{3}$$



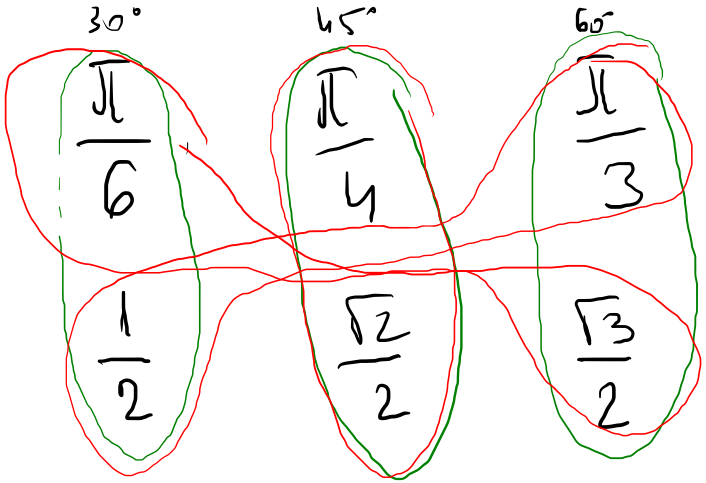
$\pi = 180°$

$360° = 2\pi$

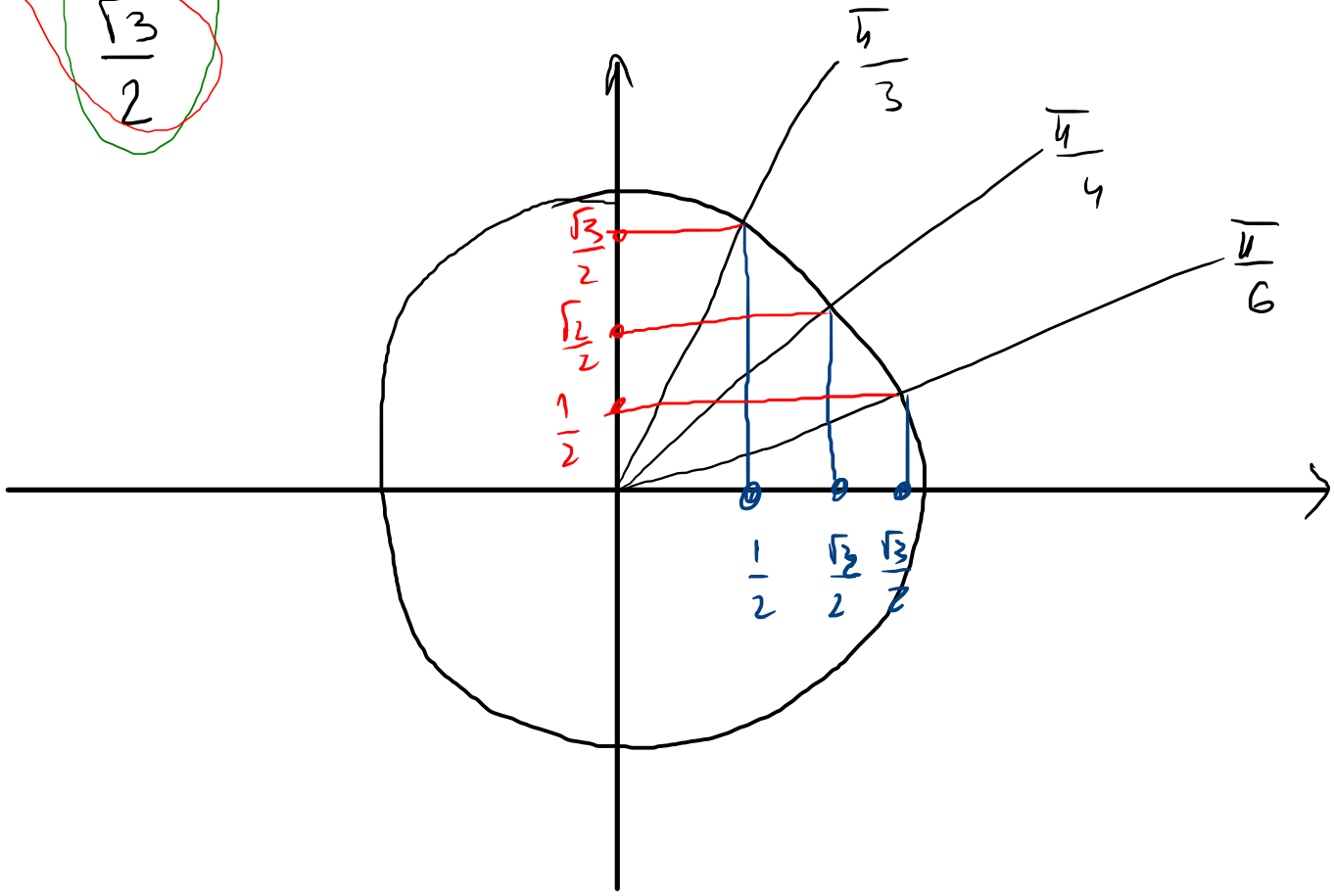
$90° = \frac{\pi}{2}$



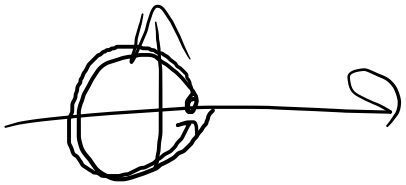
α	0	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$
$\sin\alpha$	0	1	0	-1
$\cos\alpha$	1	0	-1	0



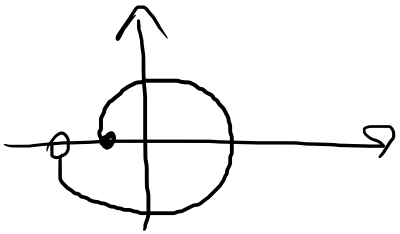
$$\cos\frac{\pi}{3} = \frac{1}{2}$$

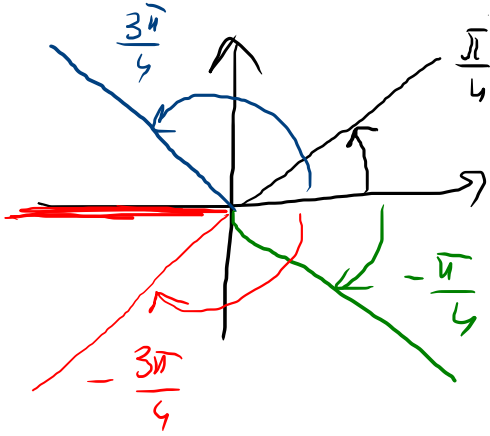


$[0, 2\pi)$



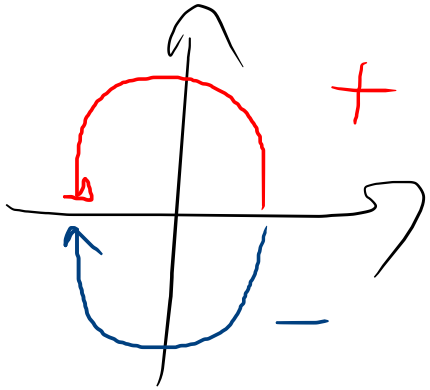
$(-\pi, \pi]$





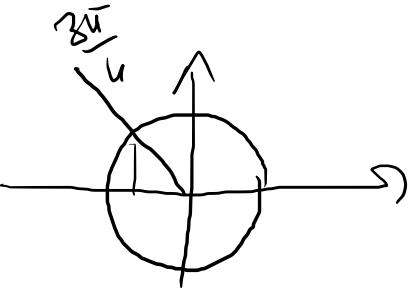
$\sin(-\alpha) = -\sin\alpha$

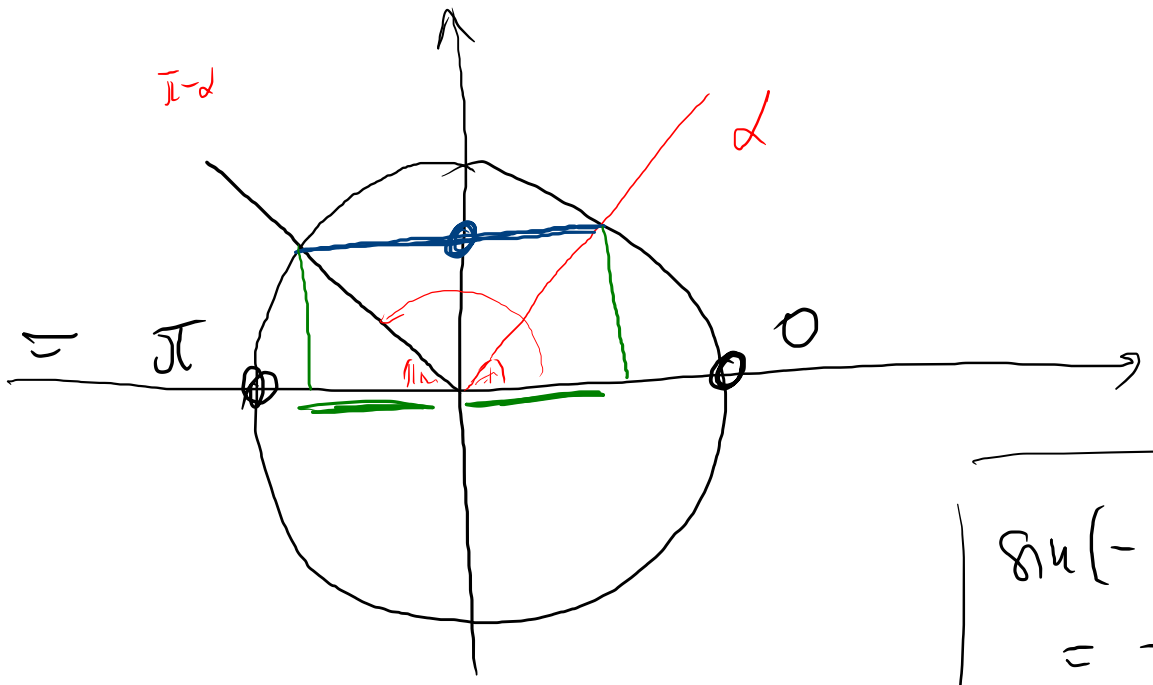
$\cos(-\alpha) = \cos\alpha$



$\cos\left(-\frac{\pi}{4}\right) = \cos\frac{\pi}{4} = \frac{\sqrt{2}}{2}$

$\sin\left(-\frac{\pi}{6}\right) = -\sin\frac{\pi}{6} = -\frac{1}{2}$





$$\sin\frac{3\pi}{4} = \sin\frac{\pi}{4} = \frac{\sqrt{2}}{2}$$

$$\cos\frac{3\pi}{4} = -\cos\frac{\pi}{4} = -\frac{\sqrt{2}}{2}$$

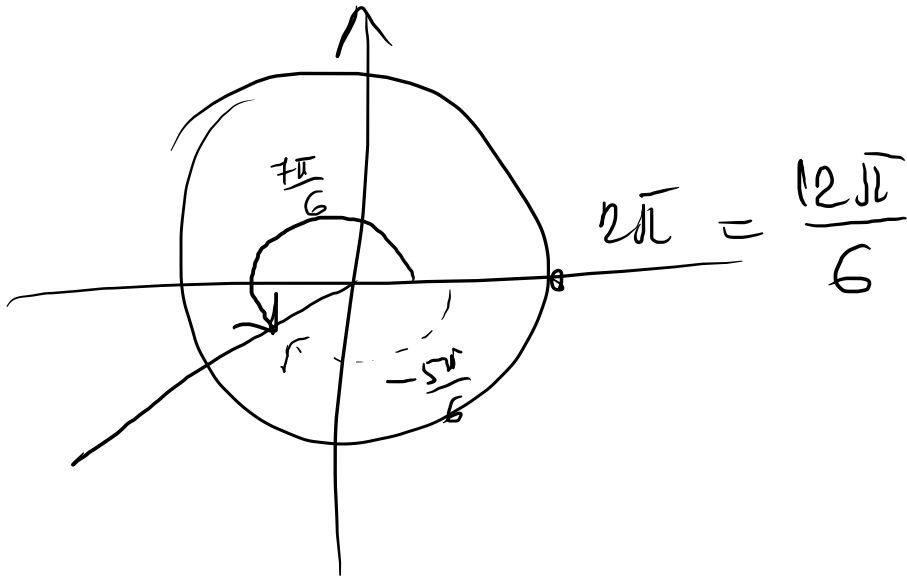
$$\sin\left(-\frac{5\pi}{6}\right) = -\sin\frac{5\pi}{6}$$

$$= -\sin\frac{\pi}{6} = -\frac{1}{2}$$

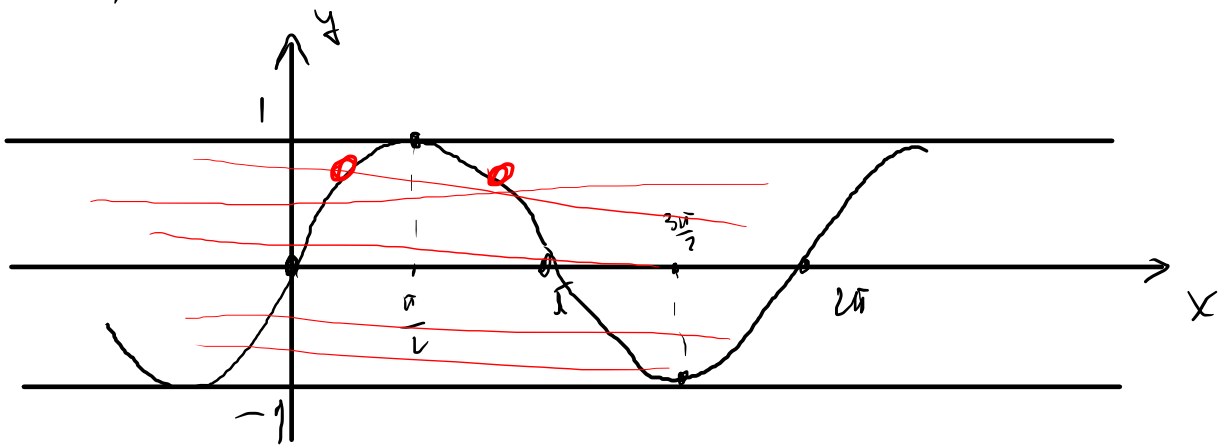
$$\sin\frac{7\pi}{6} = \sin\left(-\frac{5\pi}{6}\right)$$

$$\left(-\pi, \pi\right]$$

$$\left(-\frac{6\pi}{6}, \frac{6\pi}{6}\right] \longrightarrow$$



$\sin x$



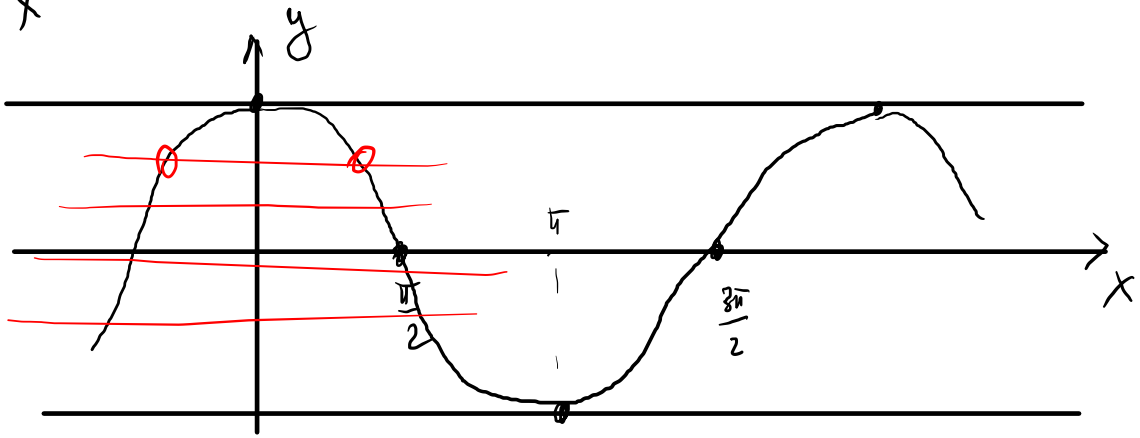
$\sin : \mathbb{R} \to [-1, 1]$

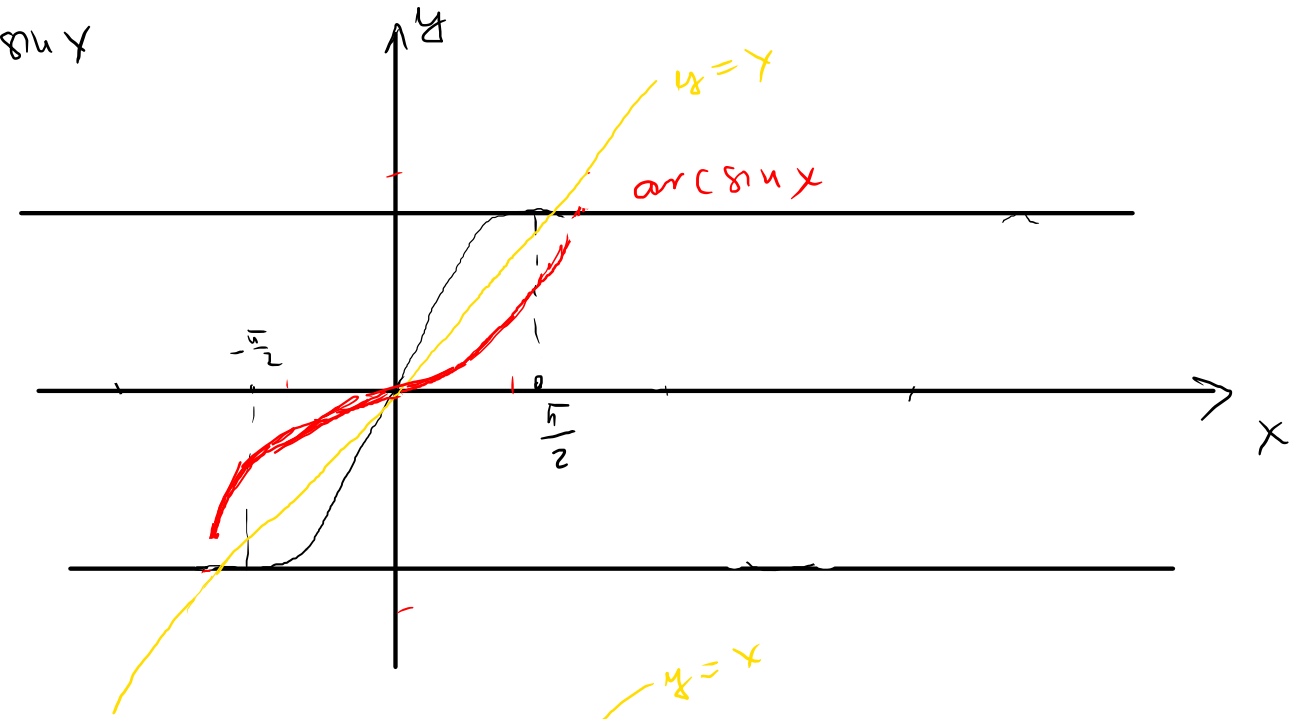
$\cos : \mathbb{R} \to [-1, 1]$

jest „no"

musi „1 -1" no $\mathbb{R}$

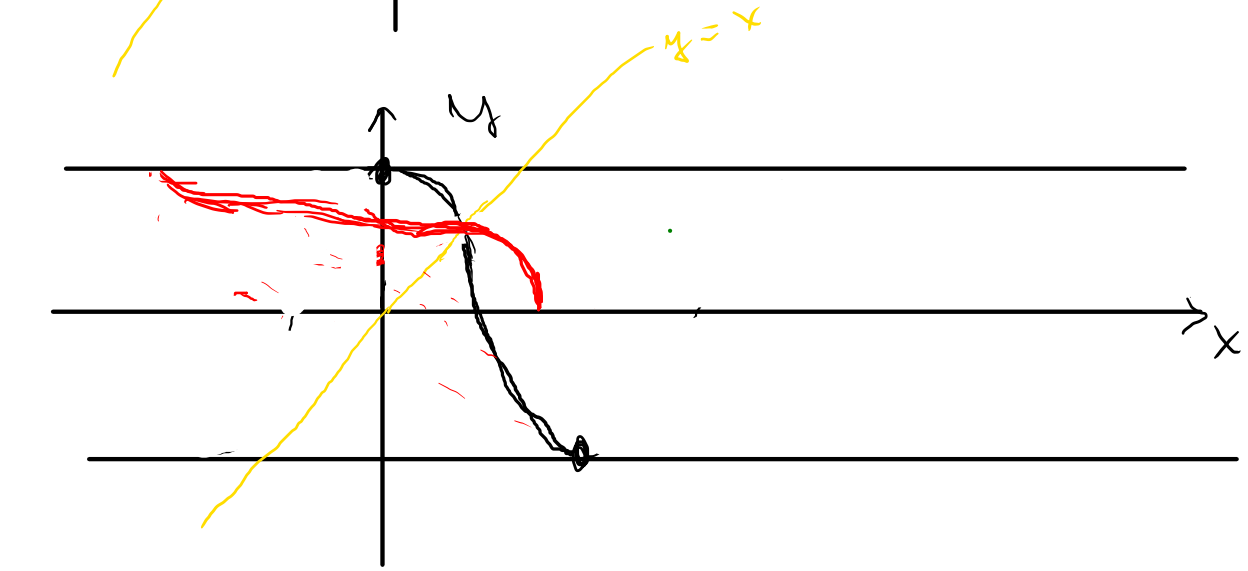
$\cos x$





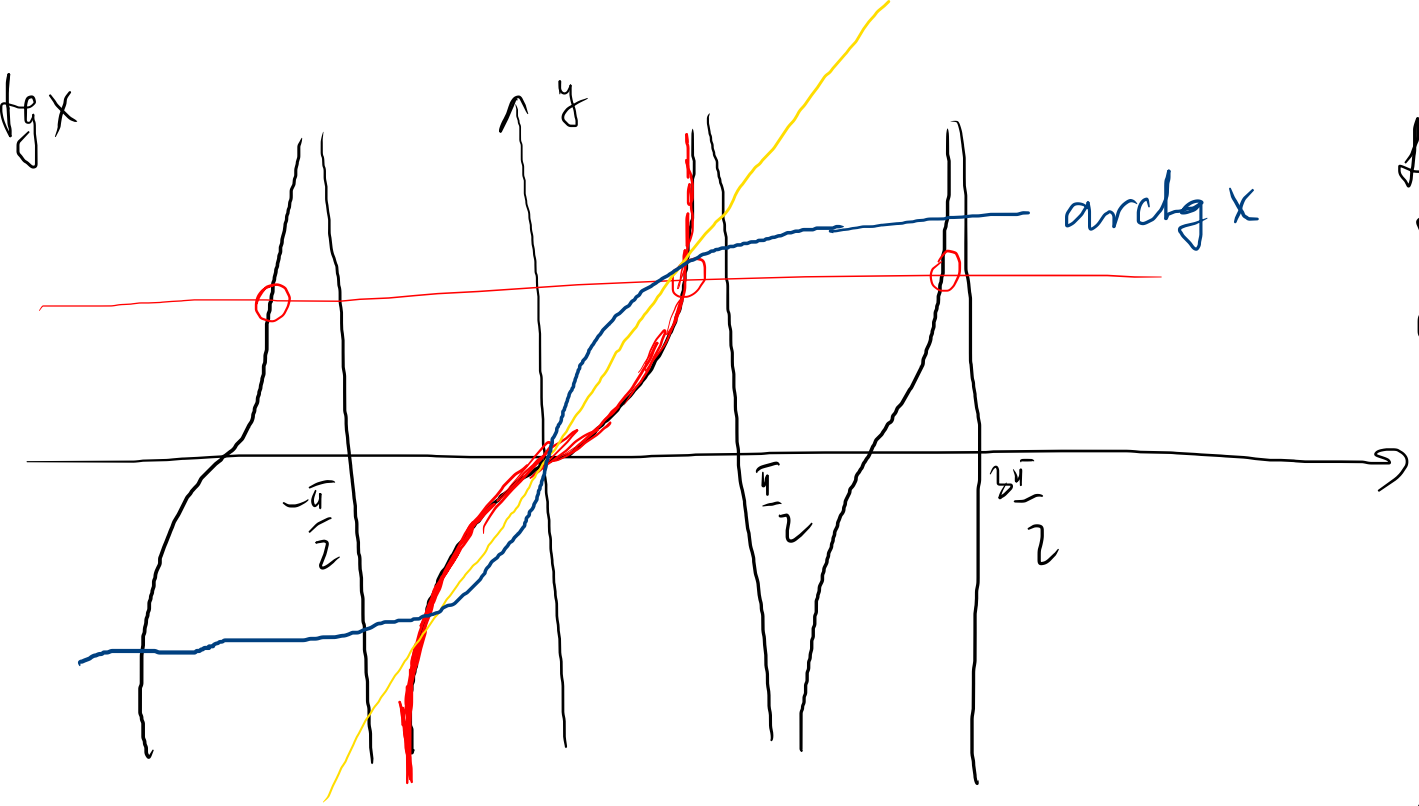
$\sin : \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \to [-1, 1]$

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



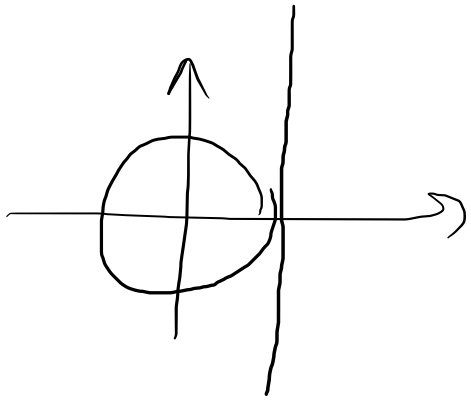
$\cos : [0, \pi] \to [-1, 1]$

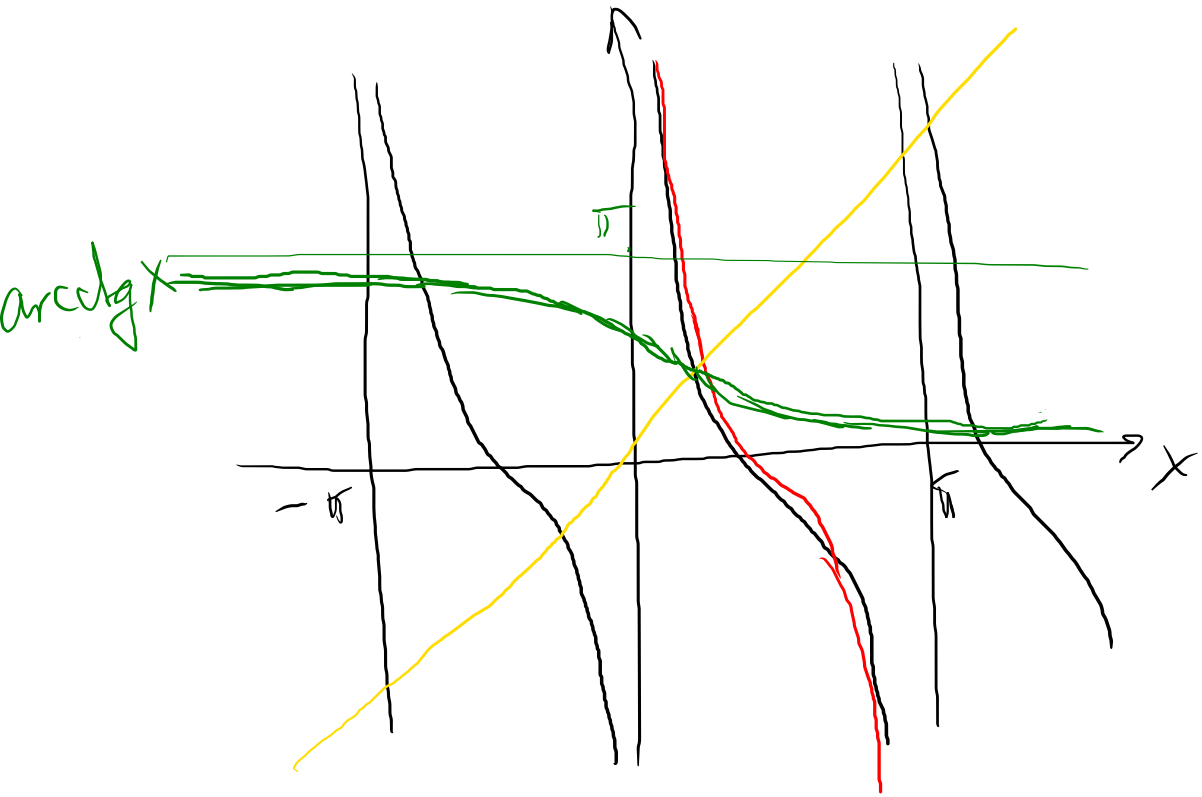
$\arccos : [-1, 1] \to [0, \pi]$



$tg : \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \to \mathbb{R}$

$arctg : \mathbb{R} \to \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$





$\operatorname{ctg} : [0, \pi] \to \mathbb{R}$

$\operatorname{arcctg} : \mathbb{R} \to [0, \pi]$