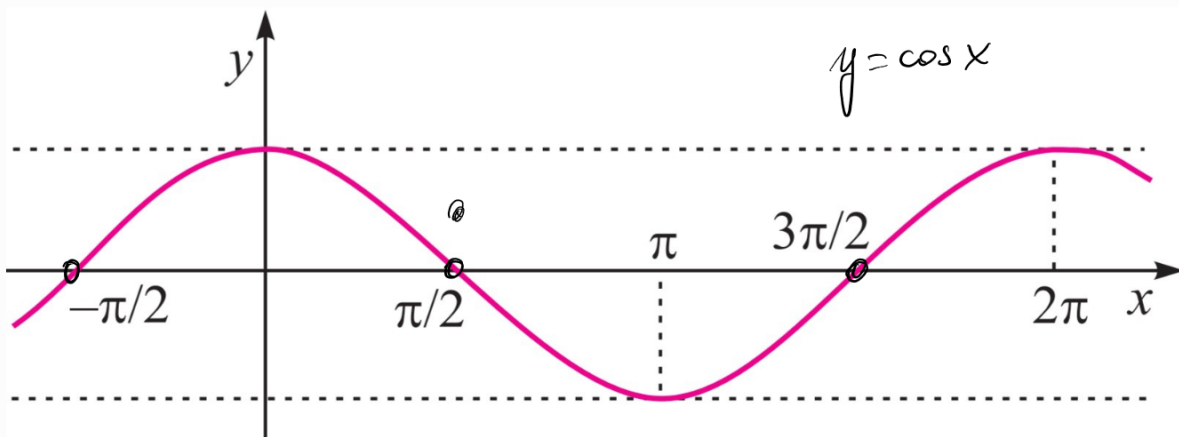
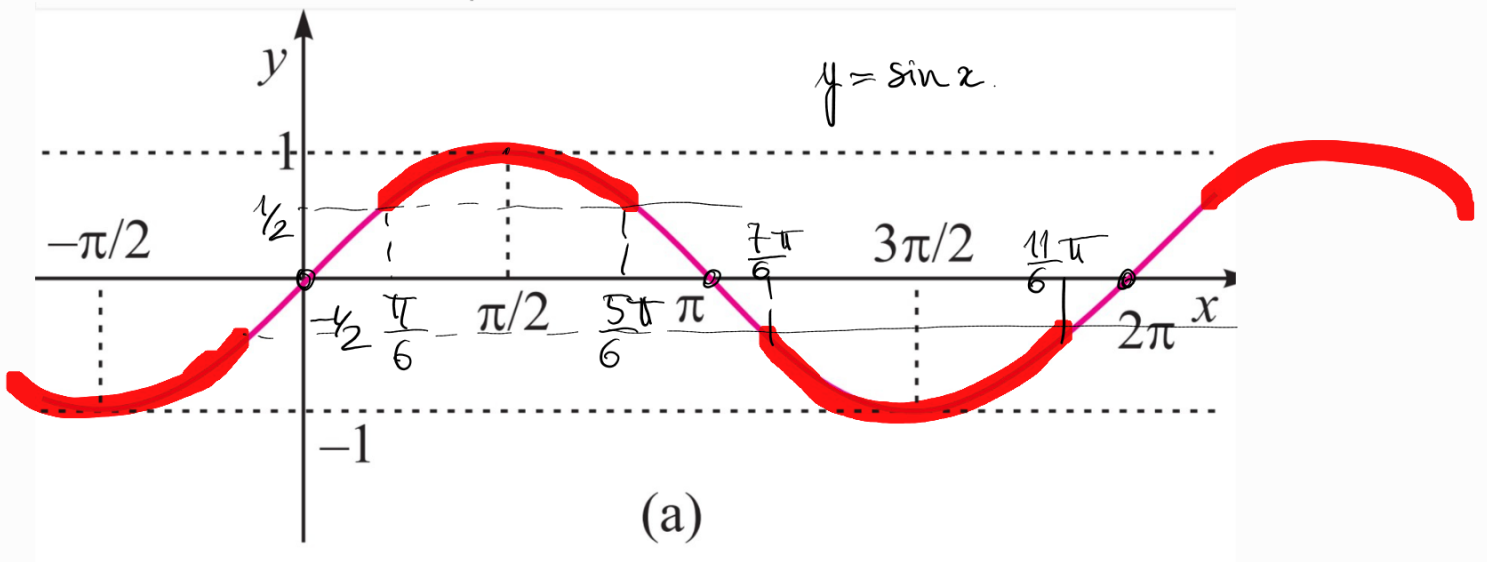


$$\operatorname{sen} \frac{\pi}{6} = \frac{1}{2}$$

$$\operatorname{sen} \frac{\pi}{4} = \frac{\sqrt{2}}{2}$$

$$\operatorname{sen} \frac{\pi}{3} = \frac{\sqrt{3}}{2}$$



Sono funzioni periodiche di periodo 2π

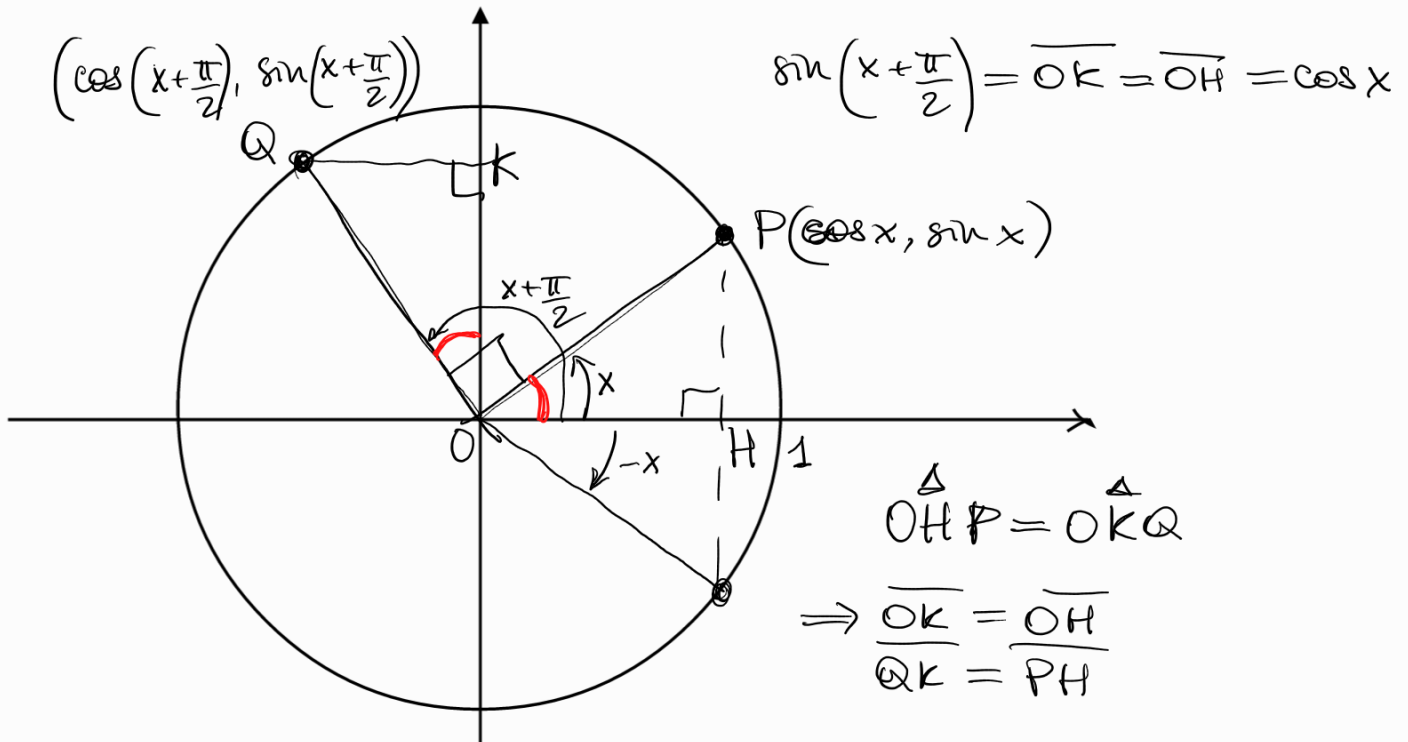
$$\cos(x + 2\pi) = \cos x \quad \forall x \in \mathbb{R}$$

$$\sin(x + 2\pi) = \sin x \quad \text{"}$$

$\sin x$ è dispari
 $\cos x$ è pari

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

$\forall x \in \mathbb{R}$.



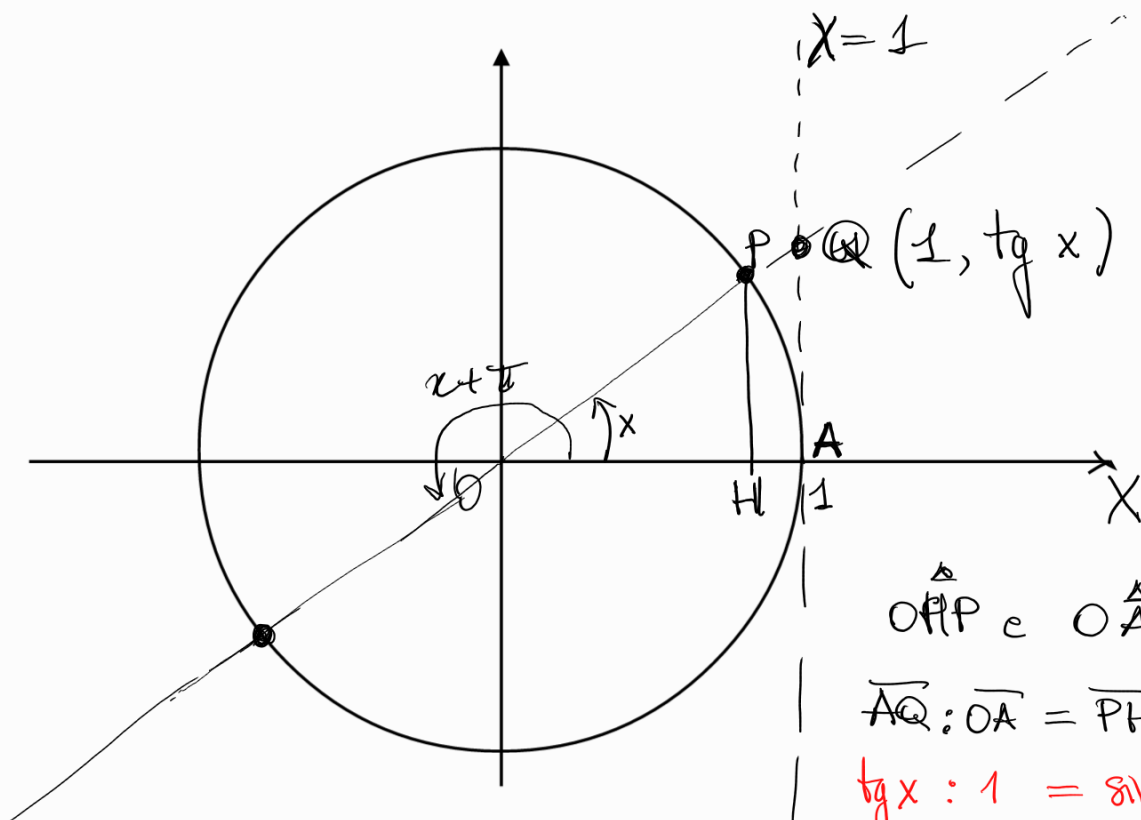
Hanno lo stesso grafico, a meno di una traslazione

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

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

Vale l'identità fondamentale della trigonometria:

$$\cos^2 x + \sin^2 x = 1 \quad \forall x \in \mathbb{R}.$$



$\triangle OHP$ e $\triangle OAQ$ sono simili

$$\overline{AQ} : \overline{OA} = \overline{PH} : \overline{OH}$$

$$\text{tg } x : 1 = \sin x : \cos x$$

$$\text{tg } x = \frac{\sin x}{\cos x}$$

$$\text{tg } x = \frac{\sin x}{\cos x}$$

definita per $\cos x \neq 0$

cioè per $x \neq \frac{\pi}{2} + k\pi$

$$\text{tg}(x + \pi) = \frac{\sin(x + \pi)}{\cos(x + \pi)} = \frac{-\sin x}{-\cos x} = \text{tg } x.$$

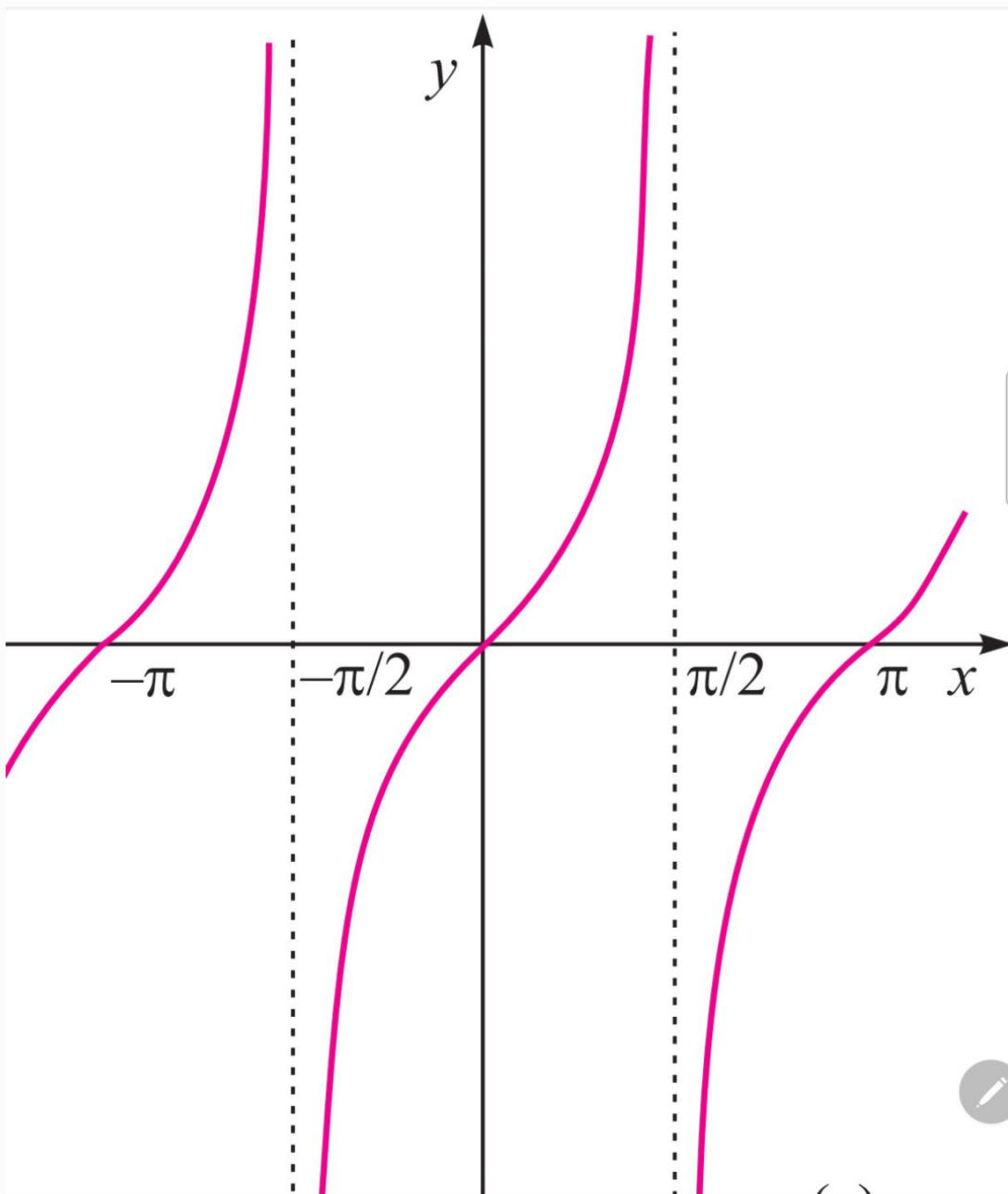
$$\neq \frac{\pi}{2} (2k+1) \quad k \in \mathbb{Z}$$

$\text{tg } x$ è periodica di periodo π .

Altre funzioni trigonometriche meno importanti.

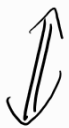
$$\text{cotg } x = \frac{\cos x}{\sin x}; \quad \text{definita per } \sin x \neq 0, \text{ cioè } x \neq k\pi.$$

$$\text{sec } x = \frac{1}{\cos x}; \quad \text{cosec } x = \frac{1}{\sin x};$$

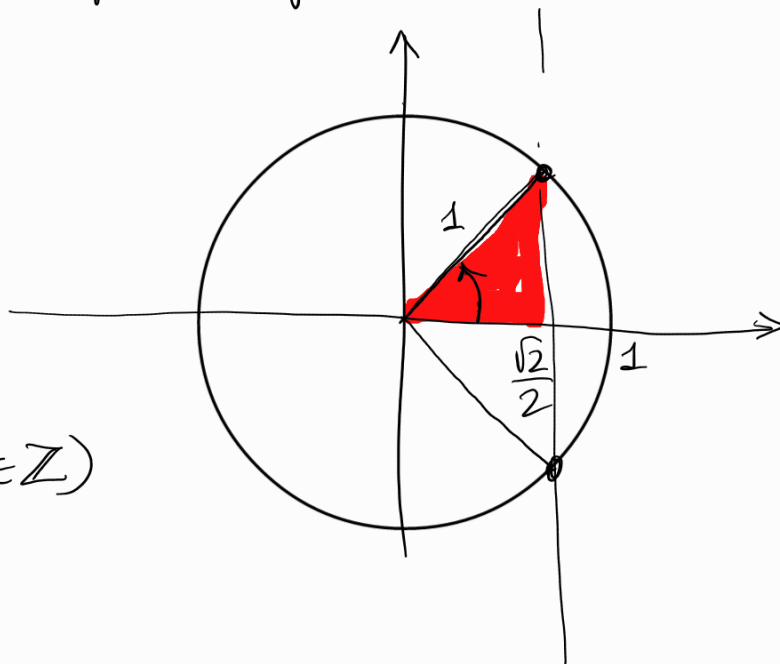


Equazioni e disequⁿⁱ trigonometriche.

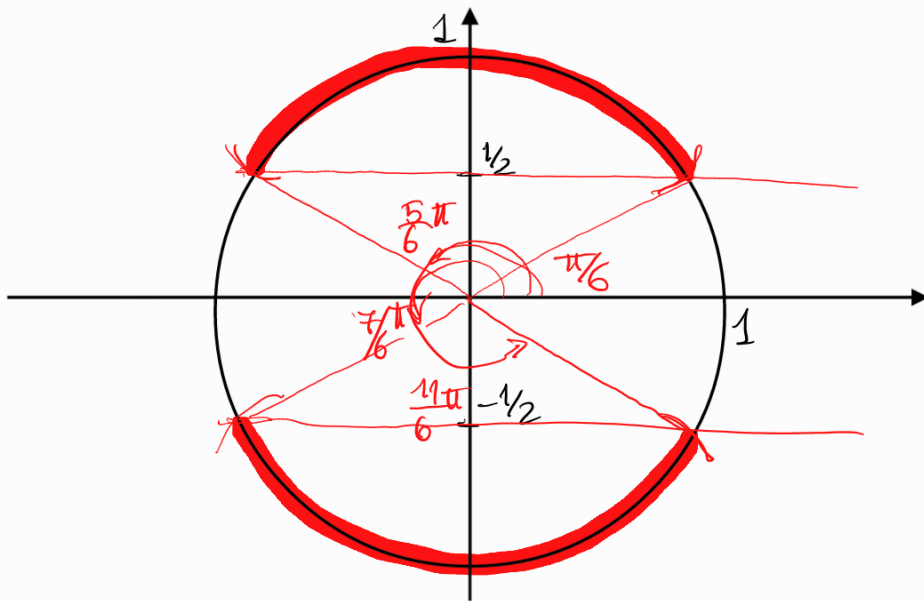
$$\cos x = \frac{\sqrt{2}}{2}$$



$$x = \pm \frac{\pi}{4} + 2k\pi \quad (k \in \mathbb{Z})$$



$$\sin^2 x > \frac{1}{4} \iff \sin x < -\frac{1}{2} \vee \sin x > \frac{1}{2}.$$



$$\text{Sol}^{\text{ni}} \left(\frac{\pi}{6} + 2k\pi < x < \frac{5\pi}{6} + 2k\pi \right) \vee \left(\frac{7\pi}{6} + 2k\pi < x < \frac{11\pi}{6} + 2k\pi \right)$$

$$\frac{7\pi}{6} < x < \cancel{\frac{\pi}{6}}$$