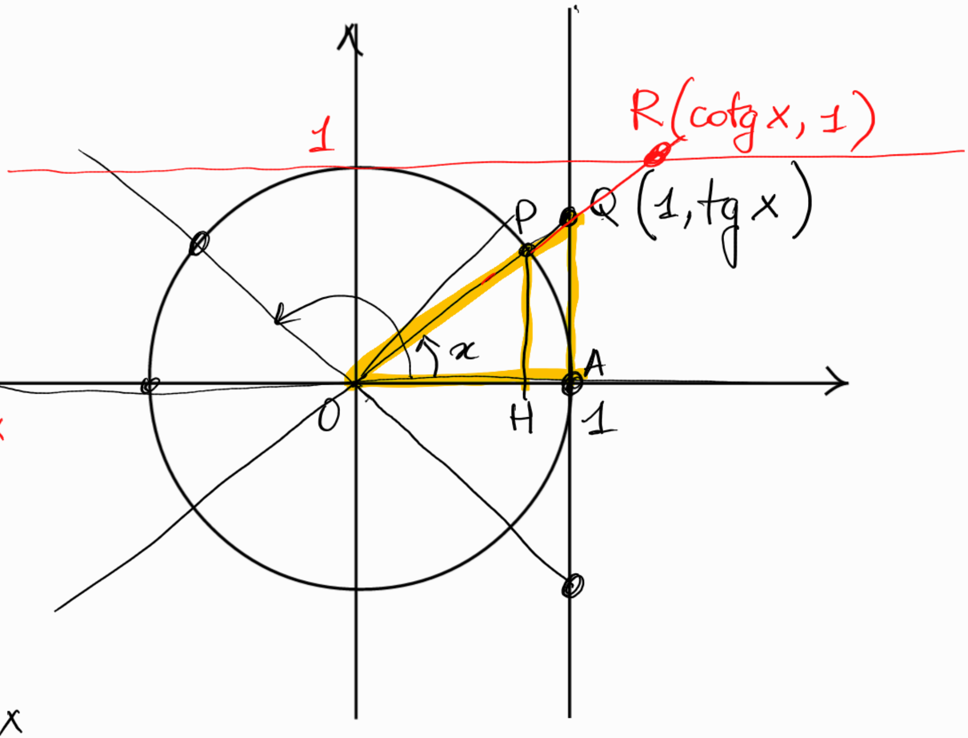
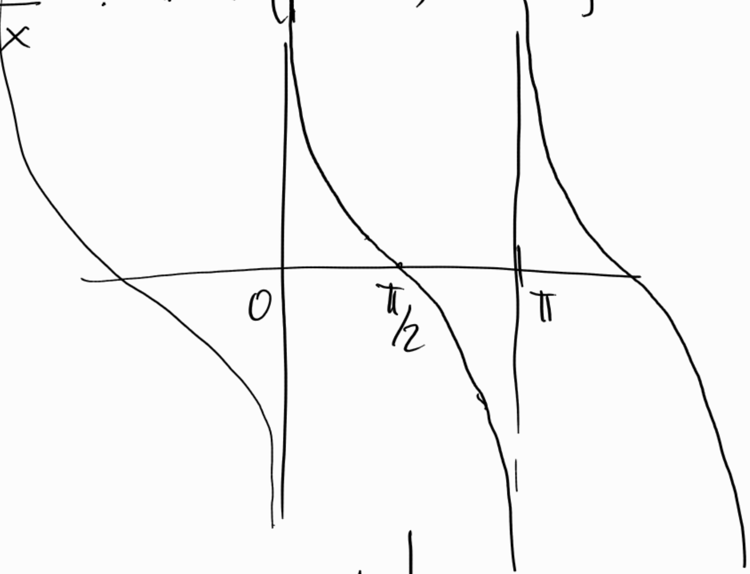


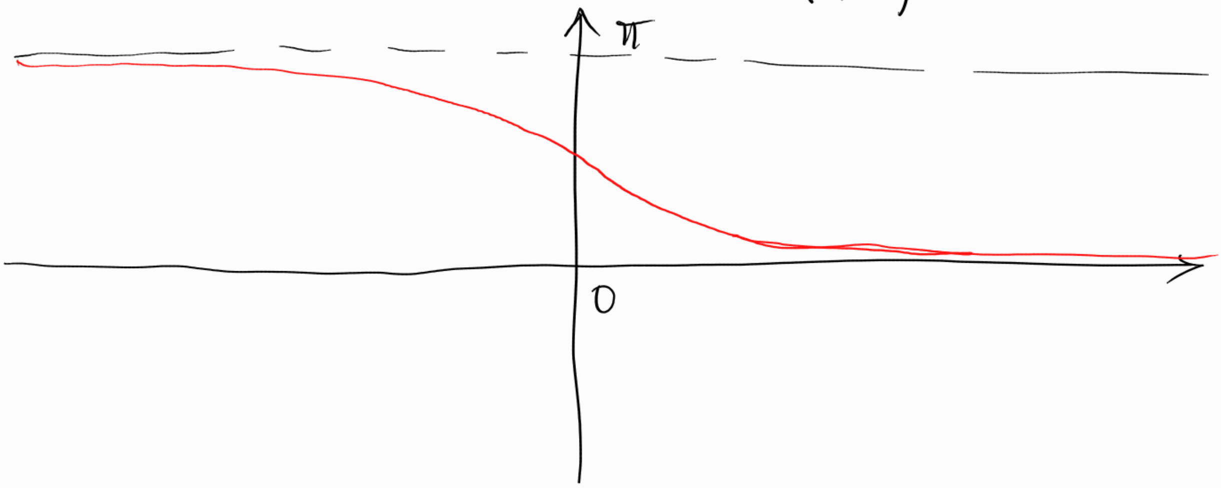
$$\frac{\overline{AQ}}{\underbrace{\overline{AO}}_{=1}} = \frac{\overbrace{\overline{PH}}^{=\sin x}}{\underbrace{\overline{OH}}_{\cos x}}$$

$$\overline{AQ} = \frac{\sin x}{\cos x} = \operatorname{tg} x$$

$$\underset{\displaystyle \cot x}{\overset{\shortparallel}{\operatorname{cotg} x}} = \frac{\cos x}{\sin x} : \mathbb{R} \setminus \{x = k\pi,\ k \in \mathbb{Z}\} \longrightarrow \mathbb{R}$$

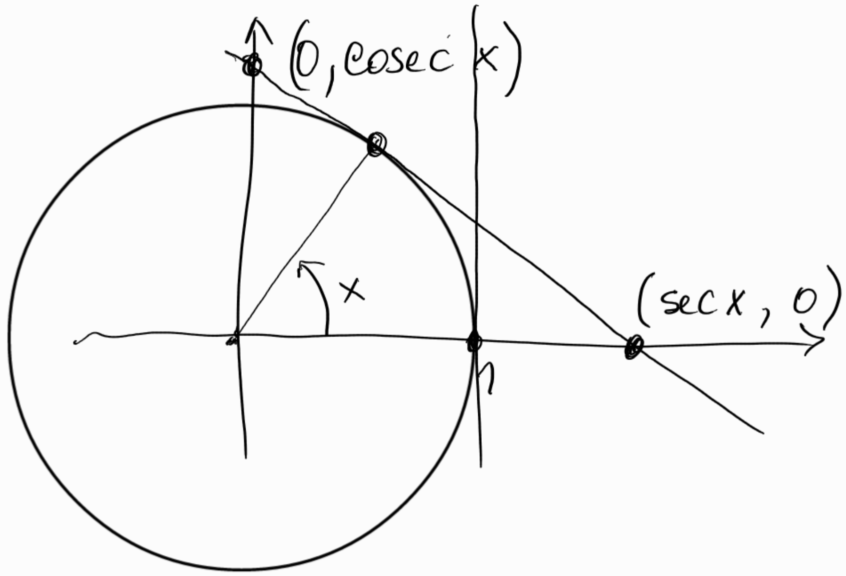


arccotg è l'inversa di $\operatorname{cotg}\big|_{(0,\pi)}$.



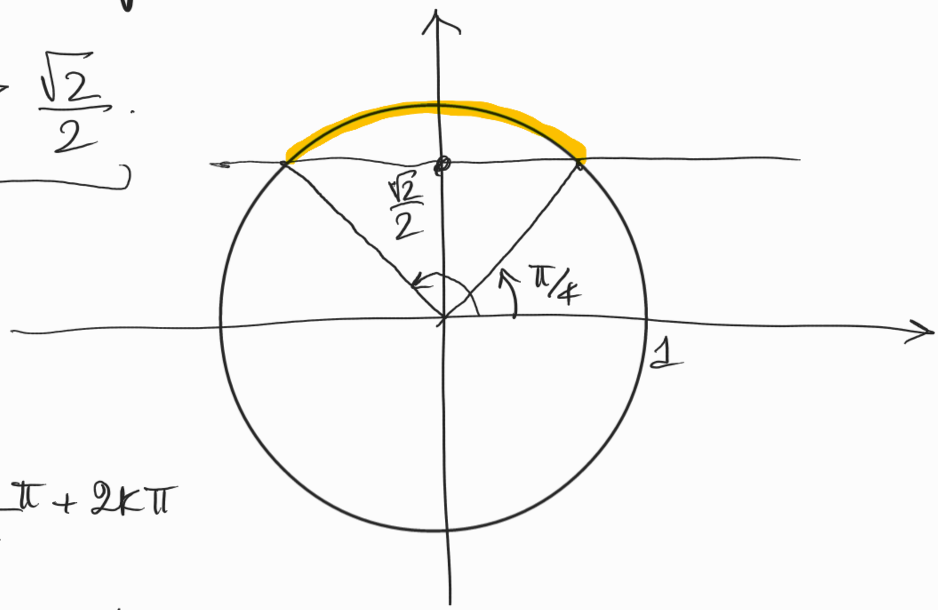
Altre funzioni di interesse

$$f(x) = \sec x = \frac{1}{\cos x} \; ; \quad g(x) = \operatorname{cosec} x = \frac{1}{\sin x}$$

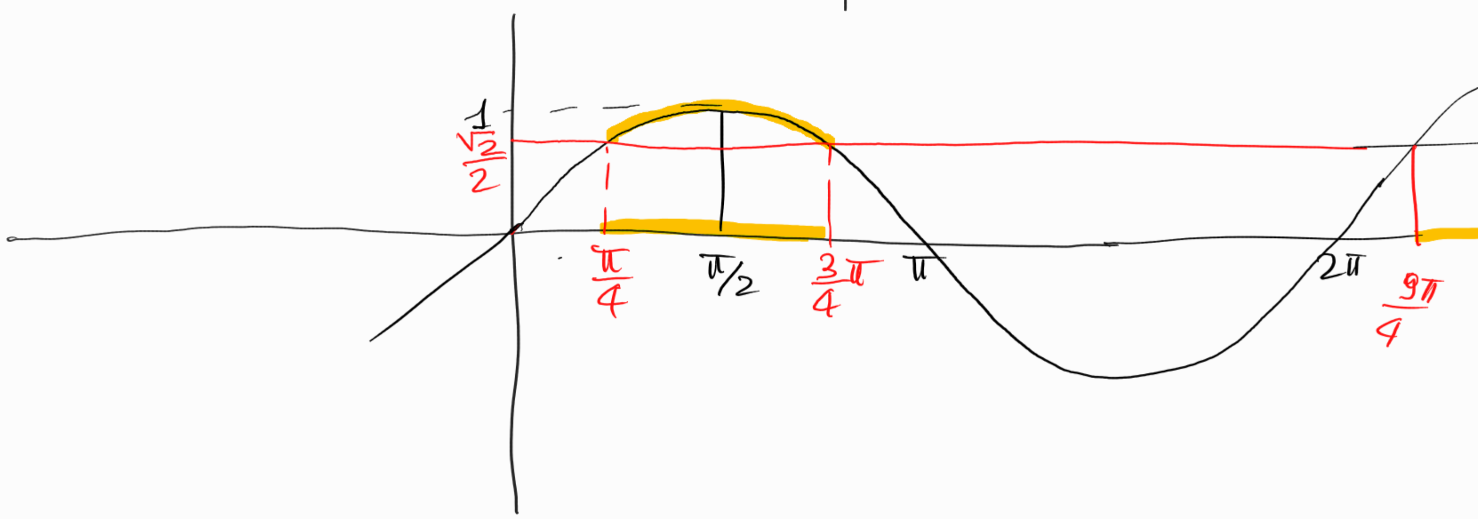


Eq.^{ni} e diseq.^{ni} trigonometriche

$$\sin x > \frac{\sqrt{2}}{2}$$



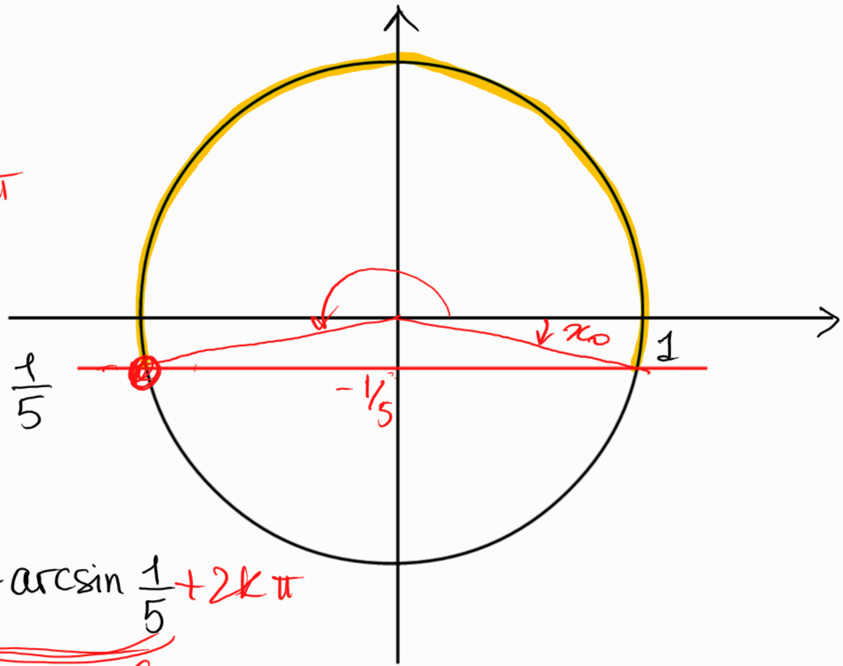
$$\frac{\pi}{4} + 2k\pi < x < \frac{3}{4}\pi + 2k\pi$$



$$\sin x \underset{\geq}{>} -\frac{1}{5}$$

$$x_0 + 2k\pi < x < \pi - x_0 + 2k\pi$$

$$x_0 = \arcsin\left(-\frac{1}{5}\right) = -\arcsin\frac{1}{5}$$



$$\underbrace{-\arcsin\frac{1}{5}} + 2k\pi \underset{\leq}{<} x \underset{\leq}{<} \underbrace{\pi + \arcsin\frac{1}{5}} + 2k\pi \quad (k \in \mathbb{Z}).$$

$$6\underbrace{\sin^2 x}_{1-\cos^2 x} + \cos x - 4 \leq 0$$

$$\sin^2 x + \cos^2 x = 1.$$
$$\sin^2 x = 1 - \cos^2 x$$

$$6 - 6\cos^2 x + \cos x - 4 \leq 0$$

$$\boxed{6\cos^2 x - \cos x - 2 \geq 0.}$$

diseq^{ne} di 2° grado in $t = \cos x$.

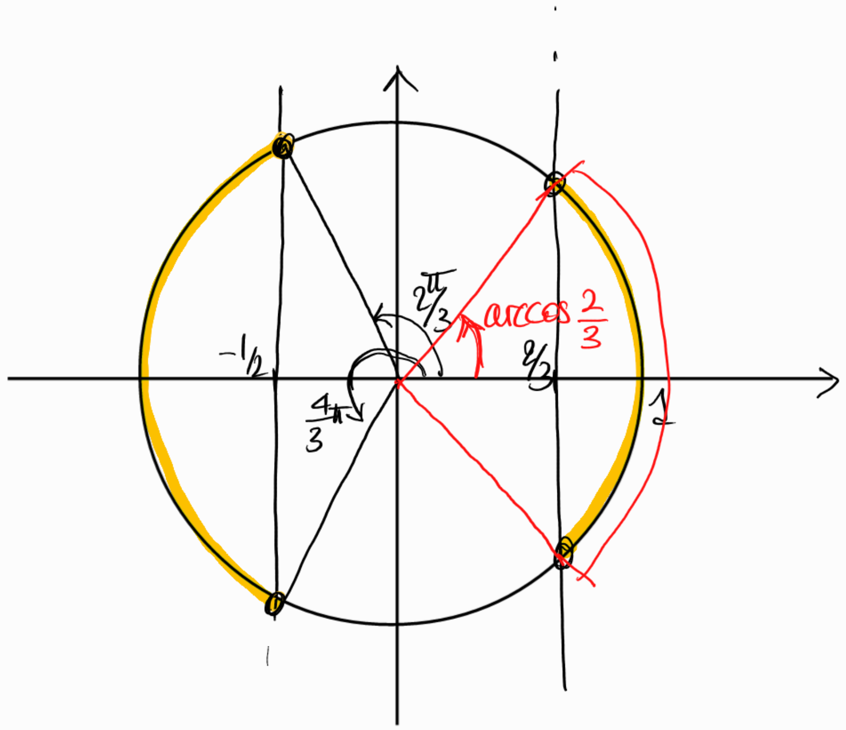
$$6t^2 - t - 2 \geq 0.$$
$$6t^2 - t - 2 = 0$$

$$t_{1,2} = \frac{1 \pm \sqrt{1+48}}{12} = \frac{1 \pm 7}{12} = \begin{cases} -1/2 \\ \frac{2}{3} \end{cases}$$

$$\left(t \leq -\frac{1}{2}\right) \vee \left(t \geq \frac{2}{3}\right)$$

La diseq^{ne} equivale a $\left(\cos x \leq -\frac{1}{2}\right) \vee \left(\cos x \geq \frac{2}{3}\right)$

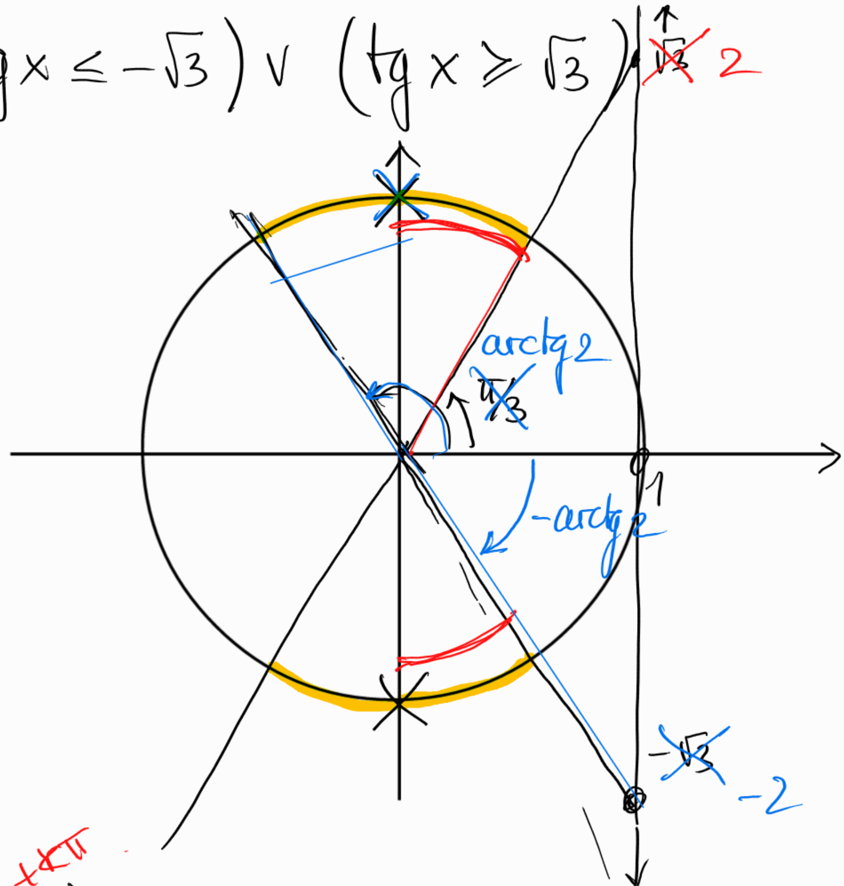
$$\left(\cos x \le -\frac{1}{2}\right) \vee \left(\cos x \ge \frac{2}{3}\right)$$



$$\left(-\arccos\frac{2}{3} + 2k\pi \le x \le \arccos\frac{2}{3} + 2k\pi\right) \vee \left(\frac{2}{3}\pi + 2k\pi \le x \le \frac{4}{3}\pi + 2k\pi.\right)$$

$$\operatorname{tg}^2 x \ge 3 \iff \left(\operatorname{tg} x \le -\sqrt{3}\right) \vee \left(\operatorname{tg} x \ge \sqrt{3}\right)$$

$x \ne \frac{\pi}{2} + k\pi$



$$\left(-\frac{\pi}{2} + k\pi < x \le -\frac{\pi}{3} + k\pi\right) \vee \left(\frac{\pi}{3} + k\pi \le x < \frac{\pi}{2} + k\pi\right)$$

o, equivalentemente,

$$\frac{\pi}{3} + k\pi \le x \le \frac{2}{3}\pi + k\pi \qquad x \ne \frac{\pi}{2} + k\pi \qquad (k \in \mathbb{Z})$$

$$\mathrm{tg}^2 x \geq 4 \iff (\mathrm{tg}\, x \leq -2) \vee (\mathrm{tg}\, x \geq 2)$$

Si rifanno tutti i passaggi, il disegno resta sostanzialmente lo stesso e si ottiene

$$\mathrm{arctg}\, 2 + k\pi \leq x \leq \pi - \mathrm{arctg}\, 2 + k\pi \qquad x \neq \frac{\pi}{2} + k\pi$$

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