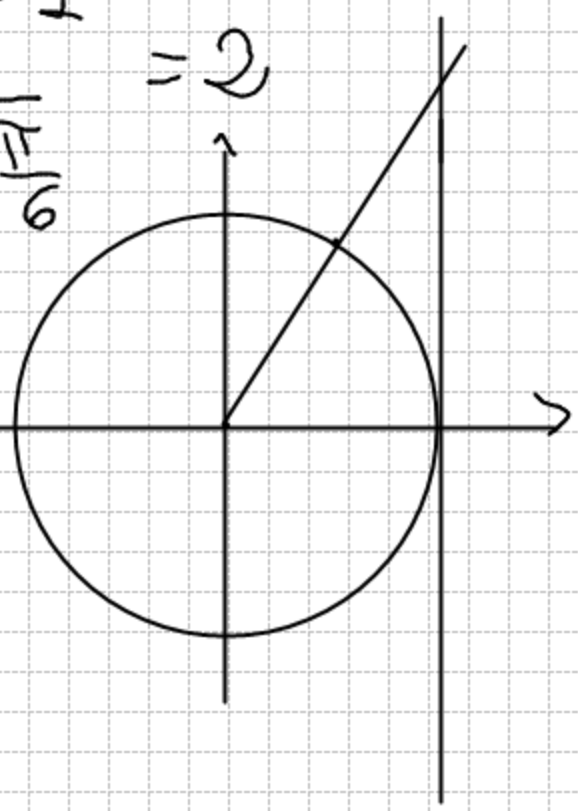
$$tg\left(x+\frac{\pi}{3}\right)+ctg\left(\frac{\pi}{6}-x\right)=2$$

$$\frac{tgx+tg\frac{\pi}{3}}{1-tgx\,tg\frac{\pi}{3}}+\frac{ctg\frac{\pi}{6}ctgx+1}{ctgx-ctg\frac{\pi}{6}}=2$$



$$\frac{tgx+\sqrt{3}}{1-\sqrt{3}tgx}+\frac{\sqrt{3}ctgx+1}{ctgx-\sqrt{3}}=2$$

$$\frac{tgx+\sqrt{3}}{1-\sqrt{3}tgx}+\frac{\sqrt{3}\frac{1}{tgx}+1}{\frac{1}{tgx}-\sqrt{3}}=2$$

$$\frac{tgx+\sqrt{3}}{1-\sqrt{3}tgx}+\frac{\frac{\sqrt{3}+tgx}{tgx}}{\frac{1-\sqrt{3}tgx}{tgx}}=2$$

$$\frac{tgx+\sqrt{3}}{1-\sqrt{3}tgx}+\frac{tgx+\sqrt{3}}{1-\sqrt{3}tgx}=2$$

$$2\left(\frac{tgx+\sqrt{3}}{1-\sqrt{3}tgx}\right)=2$$

C.E.

$1-\sqrt{3}tgx\neq 0$

$\sqrt{3}tgx\neq 1$

$tgx\neq\frac{1}{\sqrt{3}}$

$$tgx+\sqrt{3}=1-\sqrt{3}tgx$$

$$tgx+\sqrt{3}-1+\sqrt{3}tgx=0$$

$$tgx(1+\sqrt{3})=(1-\sqrt{3})$$

$$tgx=\frac{1-\sqrt{3}}{1+\sqrt{3}} \qquad tgx=\frac{(1-\sqrt{3})^2}{-2}$$

$$tgx=\frac{1+3-2\sqrt{3}}{-2} \qquad tgx=\frac{2(\sqrt{3}-2)}{2}$$

$$tgx=\sqrt{3}-2 \qquad x=-\frac{\pi}{12}+k\pi \quad k\in\mathbb{N}$$

Nº 65 pag 144

$\cos(\text{arctg}\, x) = \cos y$

y

$\text{arctg}\, x = y \quad x = \text{Tg}\, y \quad x = \text{tg}\, y = \dfrac{\text{sen}\, y}{\cos y} \qquad \cos y = \dfrac{\text{sen}\, y}{\text{tg}\, y}$

$= \cos y = \dfrac{\text{sen}\, y}{x} = (*)$

$\text{tg}\, y = \dfrac{\text{sen}\, y}{\cos y} \qquad \text{tg}\, y = \dfrac{\text{sen}\, y}{\sqrt{1 - \text{sen}^2 y}}$

$x^2 = \dfrac{\text{sen}^2 y}{1 - \text{sen}^2 y} \qquad x^2(1 - \text{sen}^2 y) = \text{sen}^2 y$

$\text{sen}^2 y (1 + x^2) = x^2$

$\text{sen}^2 y = \dfrac{x^2}{1 + x^2} \qquad \text{sen}\, y = \dfrac{x}{\sqrt{1 + x^2}}$

$(*) = \dfrac{\dfrac{x}{\sqrt{1+x^2}}}{x} = \dfrac{x}{x\sqrt{1+x^2}} = \dfrac{1}{\sqrt{1+x^2}}$

Nº 62 pag 144

$$\operatorname{tg}\left(\operatorname{arcsen}\left(-\frac{5}{13}\right)\right)$$

$$\operatorname{arcsen}\left(-\frac{5}{13}\right) = x \Rightarrow \operatorname{sen} x = -\frac{5}{13}$$

$$\operatorname{tg}\left(\operatorname{arcsen}\left(-\frac{5}{13}\right)\right) = \operatorname{tg} x$$

$$\operatorname{tg} x = \frac{\operatorname{sen} x}{\cos x}$$

$$\operatorname{tg} x \cos x = -\frac{5}{13}$$

$$\cos x = \sqrt{1 - \frac{25}{169}}$$

$$\operatorname{tg} x = \frac{-\frac{5}{13}}{\sqrt{1-\frac{25}{169}}}$$

$$\operatorname{tg} x = \frac{-\frac{5}{13}}{\sqrt{\frac{144}{169}}} =$$

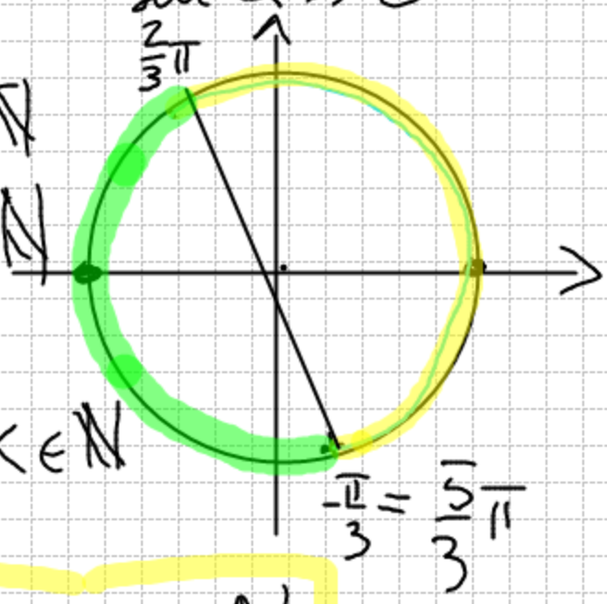
$$\operatorname{tg} x = \frac{-\frac{5}{13}}{\frac{12}{13}} = -\frac{5}{12}$$

n° 20 pag 141

$$\left|\operatorname{sen}\left(x+\frac{\pi}{3}\right)\right| = 1$$

$$\underbrace{\operatorname{sen}\left(x+\frac{\pi}{3}\right)}_{\alpha} \geq 0$$

$\operatorname{sen}\alpha \geq 0$



$$0+2k\pi \leq \alpha \leq \pi+2k\pi \quad k\in\mathbb{N}$$

$$0+2k\pi \leq x+\frac{\pi}{3} \leq \pi+2k\pi \quad k\in\mathbb{N}$$

$\left(-\frac{\pi}{3}+\pi=\frac{2}{3}\pi\right)$

$$-\frac{\pi}{3}+2k\pi \leq x \leq +\frac{2}{3}\pi+2k\pi \quad k\in\mathbb{N}$$

Se $-\frac{\pi}{3}+2k\pi \leq x \leq +\frac{2}{3}\pi+2k\pi \quad k\in\mathbb{N}$

$$\operatorname{sen}\left(x+\frac{\pi}{3}\right)=1 \iff x+\frac{\pi}{3}=\frac{\pi}{2}+2k\pi \quad k\in\mathbb{N}, \; x=\frac{\pi}{6}+2k\pi \; k\in\mathbb{N}$$

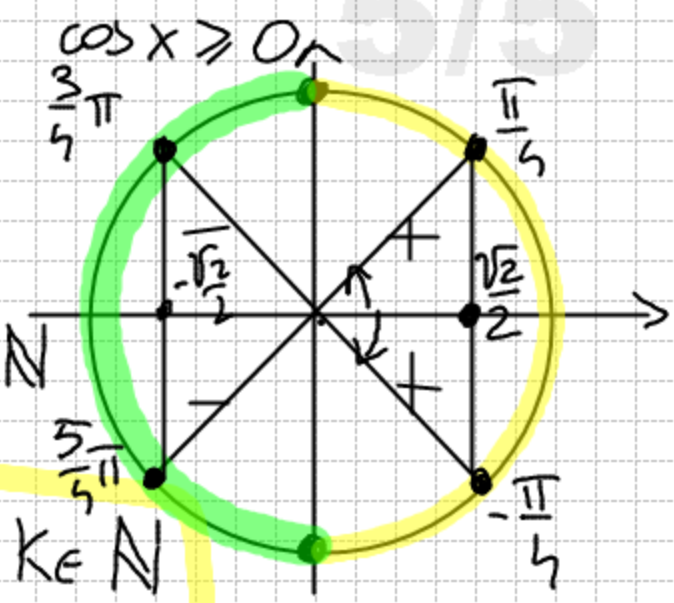
Se $\frac{2}{3}\pi+2k\pi < x < \frac{5}{3}\pi+2k\pi \quad k\in\mathbb{N}$

$$-\operatorname{sen}\left(x+\frac{\pi}{3}\right)=1 \iff x+\frac{\pi}{3}=\frac{3}{2}\pi+2k\pi \quad k\in\mathbb{N}$$

$$x=\frac{7}{6}\pi+2k\pi \quad k\in\mathbb{N}$$

n 15 PAG 141

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



$\cos x \geq 0$ se

$$-\frac{\pi}{2} + 2k\pi \leq x \leq \frac{\pi}{2} + 2k\pi \quad k \in \mathbb{N}$$

Se $-\frac{\pi}{2} + 2k\pi \leq x \leq \frac{\pi}{2} + 2k\pi \quad k \in \mathbb{N}$

$\cos x = \frac{\sqrt{2}}{2}$ $\quad x = \pm\frac{\pi}{4} + 2k\pi \quad k \in \mathbb{N}$ *

Se $\frac{\pi}{2} + 2k\pi \leq x \leq \frac{3}{2}\pi + 2k\pi \quad k \in \mathbb{N}$

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

$x = \frac{3}{4}\pi + 2k\pi \quad k \in \mathbb{N}$

$x = \frac{5}{4}\pi + 2k\pi \quad k \in \mathbb{N}$ *

Soluzioni $x = \frac{\pi}{4} + k\frac{\pi}{2} \quad k \in \mathbb{N}$