Esercizio inventato

$$\sin x + \cos x = \frac{1}{5}$$

Angolo aggiunto: $a \sin x + b \cos x = r \sin(x + \alpha)$ $\quad r = \sqrt{a^2 + b^2}$

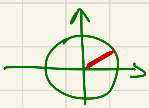
$\alpha = \operatorname{arctg}\left(\frac{b}{a}\right)$

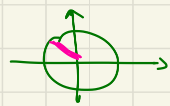
$r = \sqrt{2} \qquad \alpha = \operatorname{arctg}(1) = \frac{\pi}{4}$

$$\sqrt{2} \sin\left(x + \frac{\pi}{4}\right) = \frac{1}{5}$$

$$\sin\left(x + \frac{\pi}{4}\right) = \frac{1}{5\sqrt{2}} = \frac{\sqrt{2}}{10}$$

$$x + \frac{\pi}{4} = \arcsin\left(\frac{\sqrt{2}}{10}\right) + 2k\pi \quad \Big| \quad x + \frac{\pi}{4} = \pi - \arcsin\left(\frac{\sqrt{2}}{10}\right) + 2k\pi$$





Metodo AVA: $\sin x + \cos x = \frac{1}{5} \rightsquigarrow$

$$\sin^2 x + \cos^2 x + 2 \sin x \cos x = \frac{1}{25}$$

$$1 + \sin 2x = \frac{1}{25}$$

$$\sin 2x = -\frac{24}{25}$$

$$2x = \arcsin\left(-\frac{24}{25}\right) + 2k\pi \quad \Big| \quad 2x = \pi - \arcsin\left(-\frac{24}{25}\right) + 2k\pi$$

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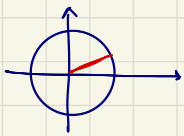
n68: $\sqrt{3}\sec 2x = 2$ C.E. $2x \neq \frac{\pi}{2} + k\pi$

$x \neq \frac{\pi}{4} + \frac{k}{2}\pi$

$\sqrt{3} = 2\cos 2x$

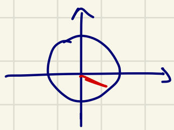
$\cos 2x = \frac{\sqrt{3}}{2}$

$2x = \frac{\pi}{6} + 2k\pi$



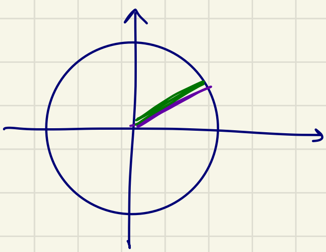
$x = \frac{\pi}{12} + k\pi$

$2x = -\frac{\pi}{6} + 2k\pi$



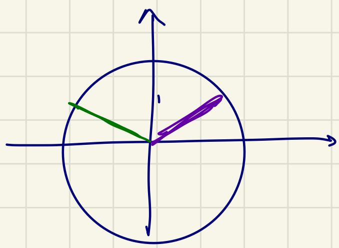
$x = -\frac{\pi}{12} + k\pi$

121: $\sin\left(2x - \frac{\pi}{3}\right) = \sin(2x)$



$2x - \frac{\pi}{3} = 2x + \underbrace{2k\pi}_{\text{sempre da aggiungere}}$

$\boxed{-\frac{\pi}{3} = 2k\pi}$ Impossibile



$2x - \frac{\pi}{3} = \pi - 2x + 2k\pi$

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

$\boxed{x = \frac{1}{3}\pi + \frac{k}{2}\pi}$