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$$4 \cos^2(2x - \frac{\pi}{3}) - 1 = 0$$

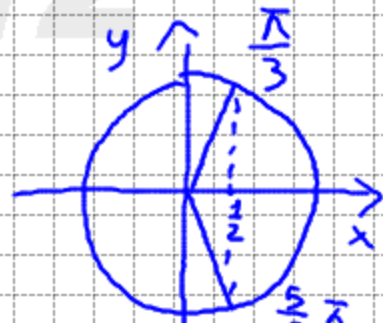
$$2x - \frac{\pi}{3} = t$$

$$4 \cos^2 t = 1$$

$$\cos^2 t = \frac{1}{4}$$

$$\cos t = \pm \frac{1}{2}$$

$$\cos(2x - \frac{\pi}{3}) = \frac{1}{2}$$



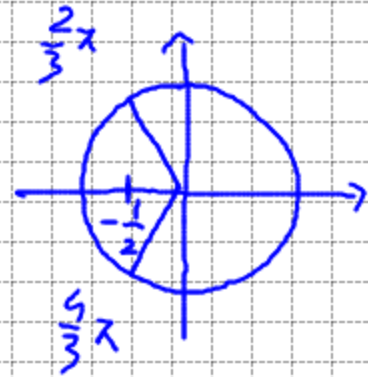
$$x = \frac{\pi}{3} + k\pi \quad k \in \mathbb{N}$$

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

$$x = \pi + k\pi \quad k \in \mathbb{N}$$

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

$$\cos(2x - \frac{\pi}{3}) = -\frac{1}{2}$$



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

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

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

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

$$x = \frac{5}{6}\pi + k\pi \quad k \in \mathbb{N}$$

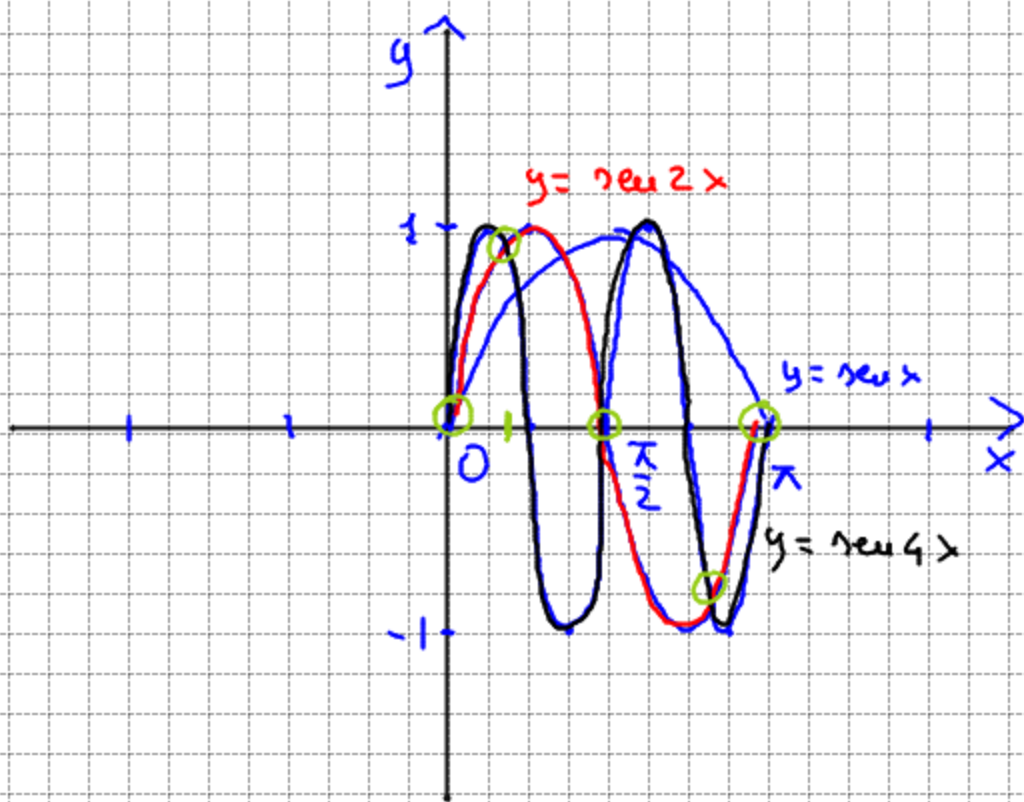
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$$I = [0, \pi]$$

$$\text{sen } 4x = \text{sen } 2x$$

$$y = \text{sen } 4x$$

$$y = \text{sen } 2x$$



$$\text{sen } 4x = \text{sen } 2x$$

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

$$2x = 2k\pi \quad k \in \mathbb{N}$$

$$x = k\pi \quad k \in \mathbb{N}$$

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

$$x = \frac{\pi}{6} + k \frac{\pi}{3} \quad k \in \mathbb{N}$$

$$k=0$$

$$x=0$$

$$x = \frac{\pi}{6}$$

$$k=1$$

$$x=\pi$$

$$x = \frac{\pi}{6} + \frac{\pi}{3} = \frac{\pi}{2}$$

$$k=2$$

$$x = \frac{5}{6}\pi$$

$$x = \frac{2}{3}\pi + \frac{\pi}{6} = \pi$$

Tracciare il grafico di $y = \cos\left(x + \frac{\pi}{6}\right) + \sin\left(\frac{\pi}{3} - x\right)$

$$y = \cos x \cos \frac{\pi}{6} - \sin \frac{\pi}{6} \sin x + \sin \frac{\pi}{3} \cos x - \sin x \cos \frac{\pi}{3}$$

$$y = \frac{\sqrt{3}}{2} \cos x - \frac{1}{2} \sin x + \frac{\sqrt{3}}{2} \cos x - \frac{1}{2} \sin x$$

$$y = \sqrt{3} \cos x - \sin x$$

$$\sqrt{a^2 + b^2} = \sqrt{3 + 1} = 2 \quad y = 2 \left(\frac{\sqrt{3}}{2} \cos x - \frac{1}{2} \sin x \right)$$

$$\begin{cases} \sin \alpha = \frac{\sqrt{3}}{2} \\ \cos \alpha = -\frac{1}{2} \end{cases}$$

$$\alpha = \frac{2}{3}\pi$$

$$y = 2 \sin \left(x + \frac{2}{3}\pi \right)$$

$$2 \left(\sin x \cos \frac{2}{3}\pi + \sin \frac{2}{3}\pi \cos x \right)$$