

16/5/2018

EQUAZIONI GONIOMETRICHE ELEMENTARI

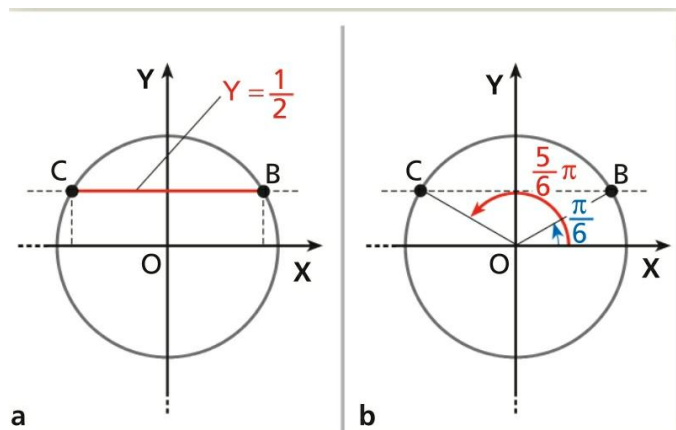
$$2 \sin X - 1 = 0$$

$$\Downarrow$$

$$2 \sin X = 1$$

$$\Downarrow$$

$$\sin X = \frac{1}{2}$$



$$X = \frac{\pi}{6} + 2K\pi$$

$$\vee \quad X = \left(\pi - \frac{\pi}{6}\right) + 2K\pi$$

$$X = \frac{\pi}{6} + 2K\pi \quad \vee \quad X = \frac{5}{6}\pi + 2K\pi$$

REGOLA GENERALE PER

$$\sin X = m$$

↑
numero
reale

$m < -1 \quad \vee \quad m > 1 \Rightarrow$ EQ. IMPOSSIBILE

$-1 \leq m \leq 1 \Rightarrow$ Trovo un angolo il cui seno è m

$$\hookrightarrow \alpha = \arcsin(m)$$

$$X = \alpha + 2K\pi \quad \vee \quad X = (\pi - \alpha) + 2K\pi$$

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

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

$$\alpha = \arcsin\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{3}$$

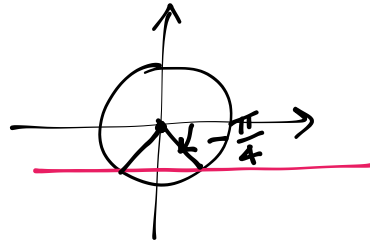
$$x = \frac{\pi}{3} + 2k\pi \quad \vee \quad x = \pi - \frac{\pi}{3} + 2k\pi$$

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

129

$$2 \sin x = -\sqrt{2}$$

$$\sin x = -\frac{\sqrt{2}}{2}$$



$$\alpha = \arcsin\left(-\frac{\sqrt{2}}{2}\right) = -\frac{\pi}{4}$$

$$x = -\frac{\pi}{4} + 2k\pi \quad \vee \quad x = \overbrace{\pi - \left(-\frac{\pi}{4}\right)}^{\pi + \frac{\pi}{4}} + 2k\pi$$

$$x = -\frac{\pi}{4} + 2k\pi \quad \vee \quad x = \frac{5}{4}\pi + 2k\pi$$

132

$$2 \sin 3x - 1 = 0$$

$$\sin 3x = \frac{1}{2}$$

$$\alpha = \arcsin\left(\frac{1}{2}\right) = \frac{\pi}{6}$$

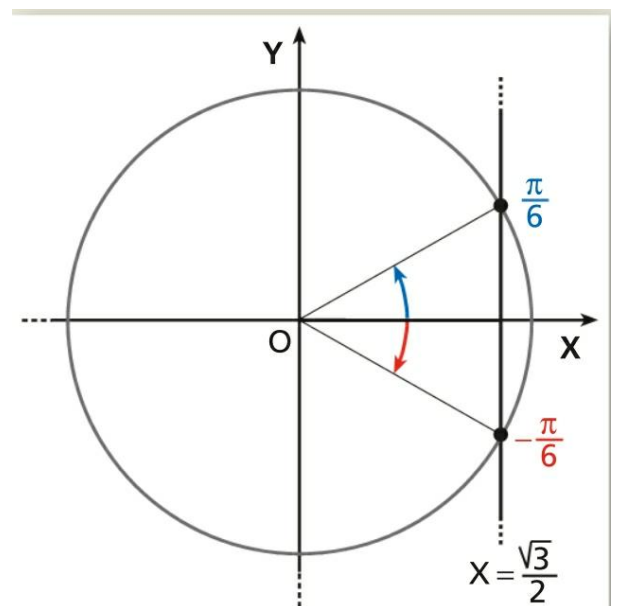
$$3x = \frac{\pi}{6} + 2k\pi \quad \vee \quad 3x = \frac{5}{6}\pi + 2k\pi$$

$$x = \frac{\pi}{18} + \frac{2}{3}k\pi \quad \vee \quad x = \frac{5}{18}\pi + \frac{2}{3}k\pi$$

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

$$\alpha = \arccos\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{6}$$

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



REGOLA GENERALE PER

$$\cos x = m$$

numero reale

$m < -1 \vee m > 1 \Rightarrow$ EQ. IMPOSSIBILE

$-1 \leq m \leq 1 \Rightarrow$ trova $\alpha = \arccos(m)$

$$x = \pm \alpha + 2k\pi$$

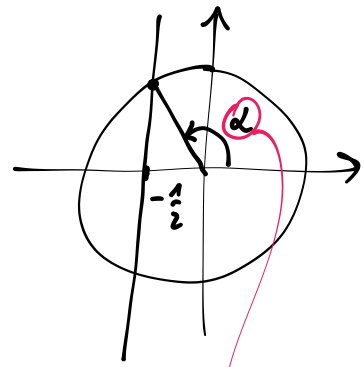
142

$$\cos x = -\frac{1}{2}$$

$$\left[x = \pm \frac{2}{3}\pi + 2k\pi \right]$$

$$\alpha = \arccos\left(-\frac{1}{2}\right) = \frac{2}{3}\pi$$

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



$\frac{\pi}{2} + \frac{\pi}{6} \rightarrow \frac{2}{3}\pi$
 opposite $\pi - \frac{\pi}{3} \rightarrow \frac{2}{3}\pi$