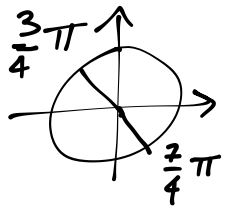
12/11/2018



269 $\sin\left(\frac{3}{4}\pi + x\right) + \cos\left(x - \frac{7}{4}\pi\right) = \sqrt{2}$

$$\sin\frac{3}{4}\pi\cos x + \cos\frac{3}{4}\pi\sin x + \cos x\cos\frac{7}{4}\pi +$$

$$+\sin x\sin\frac{7}{4}\pi = \sqrt{2}$$

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

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

$$\cos x - \sin x = 1 \longrightarrow \begin{cases} X = \cos x \\ Y = \sin x \end{cases}$$

$$\begin{cases} X - Y = 1 \\ X^2 + Y^2 = 1 \end{cases} \qquad \begin{cases} X = Y + 1 \\ (Y+1)^2 + Y^2 = 1 \end{cases}$$

$$Y^2 + 1 + 2Y + Y^2 = 1 \qquad 2Y^2 + 2Y = 0$$

$$2Y(Y+1) = 0 \quad \begin{cases} Y = 0 & X = 1 \\ Y = -1 & X = 0 \end{cases}$$

$$\begin{cases} \cos x = 1 \\ \sin x = 0 \end{cases} \quad \vee \quad \begin{cases} \cos x = 0 \\ \sin x = -1 \end{cases}$$

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

372 $\dfrac{1-\cos 2x}{\sin 2x} - \dfrac{\sin x}{1+\cos 2x} = 0$

C.E.

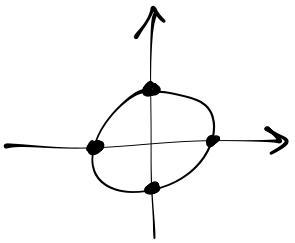
$\sin 2x \neq 0$

$2x \neq k\pi \Rightarrow x \neq k\dfrac{\pi}{2}$

$\cos 2x \neq -1$

$2x \neq \pi + 2k\pi$

$x \neq \dfrac{\pi}{2} + k\pi$



C.E.

IN DEFINITIVA $\boxed{x \neq k\dfrac{\pi}{2}}$

$$\frac{1-\cos 2x}{2\cos x \sin x} - \frac{\sin x}{1+2\cos^2 x - 1} = 0$$

$$\frac{1-(1-2\sin^2 x)}{2\cos x \sin x} - \frac{\sin x}{2\cos^2 x} = 0$$

$$\frac{1-1+2\sin^2 x}{2\cos x \sin x} - \frac{\sin x}{2\cos^2 x} = 0$$

$$\frac{2\sin^2 x}{2\cos x \sin x} - \frac{\sin x}{2\cos^2 x} = 0$$

$$\frac{2\sin x \cos x - \sin x}{2\cos^2 x} = 0$$

$\sin x (2\cos x - 1) = 0$

$\sin x = 0 \quad x = k\pi$ N.A.

$2\cos x - 1 = 0$

$\cos x = \dfrac{1}{2}$

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

408

$$\frac{\cos 8x - \cos 2x}{\cos(\pi - 4x)} = 1$$

$\cos(\pi - 4x) = -\cos 4x$

FORMULA DI PROSTAFERESI

$$\cos p - \cos q = -2 \sin \frac{p+q}{2} \sin \frac{p-q}{2}$$

C.E.

$\cos 4x \neq 0 \Rightarrow 4x \neq \frac{\pi}{2} + k\pi \Rightarrow$ $\boxed{x \neq \frac{\pi}{8} + k\frac{\pi}{4}}$ C.E.

$\cos 8x - \cos 2x = -\cos 4x$

$\cos 8x + \cos 4x - \cos 2x = 0$

$\cos 8x + \cos 4x = \cos 2x$

$$\cos p + \cos q = 2 \cos \frac{p+q}{2} \cos \frac{p-q}{2}$$

$$2 \cos \frac{8x+4x}{2} \cos \frac{8x-4x}{2} = \cos 2x$$

$\boxed{2 \cos 6x \cos 2x = \cos 2x \rightarrow \cos 2x = 0 \text{ è soluzione}}$

oppure

$2 \cos 6x \cos 2x - \cos 2x = 0$

$\cos 2x (2 \cos 6x - 1) = 0$

$\cos 2x = 0$ $\qquad$ $\cos 6x = \frac{1}{2}$

$2x = \frac{\pi}{2} + k\pi$ $\qquad$ V $\qquad$ $6x = \pm \frac{\pi}{3} + 2k\pi$

$\boxed{x = \frac{\pi}{4} + k\frac{\pi}{2} \quad \text{V} \quad x = \pm \frac{\pi}{18} + k\frac{\pi}{3}}$