p 157 n. 224

$2\text{sen}^2x - 2\text{sen}x\cos x = 1 \qquad I=[0,\pi]$

$2\text{sen}^2x - 2\text{sen}x\cos x - \text{sen}^2x - \cos^2 x = 0$

$\text{sen}^2x - 2\text{sen}x\cos x - \cos^2x = 0 \qquad CE\ \cos x \neq 0$

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

$k \in \mathbb{N}$

Verifico la soluzioni dell'equaz per $x=\frac{\pi}{2}$

$1-0-0=0$ NO!

Divido tutto per $\cos^2 x$

$tg^2x - 2tgx - 1 = 0$

$tgx_{1,2} = 1 \pm \sqrt{1+1} = 1 \pm \sqrt{2}$

$tgx = 1+\sqrt{2} \rightarrow x = \frac{3}{8}\pi$

$tgx = 1-\sqrt{2} \Rightarrow x = \frac{7}{8}\pi$

$f(x) = 2\text{sen}^2x - 2\text{sen}x\cos x \qquad I=[0,\pi]$

$f(x)=0 \rightarrow 2\text{sen}^2x - 2\text{sen}x\cos x = 0$

$2\text{sen}x(\text{sen}x - \cos x) = 0$

$\text{sen}x = 0 \rightarrow x=0 \quad x=\pi$

$\text{sen}x - \cos x = 0$

$tgx - 1 = 0$

$tgx = 1 \rightarrow x = \frac{\pi}{4}$

$f(x) = 2\text{sen}^2x - 2\text{sen}x\cos x$

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

$\cos^2x - \text{sen}^2x = \cos 2x$

$1-\text{sen}^2x - \text{sen}^2x = \cos 2x$

$1-2\text{sen}^2x = \cos 2x$

$2\text{sen}^2x = 1-\cos 2x$

$f(x) = 1-\cos 2x - \text{sen}2x$

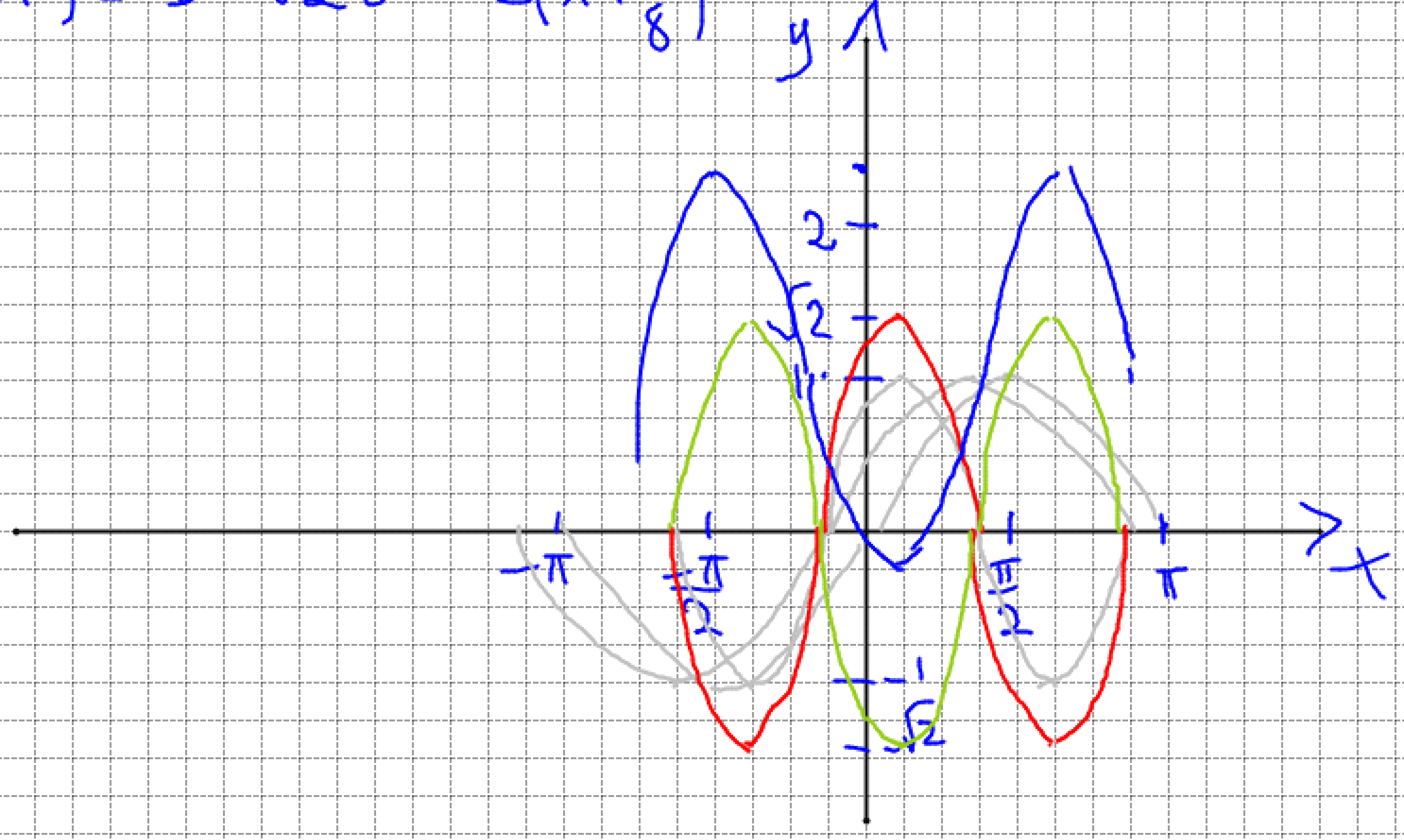
$f(x) = 1-(\text{sen}2x + \cos 2x)$

$a=1 \quad b=1 \quad \sqrt{a^2+b^2} = \sqrt{2}$

$f(x) = 1 - \sqrt{2}\left(\frac{\sqrt{2}}{2}\text{sen}2x + \frac{\sqrt{2}}{2}\cos 2x\right)$

$f(x) = 1-\sqrt{2}\,\text{sen}\left(2x+\frac{\pi}{4}\right)$

$f(x) = 1-\sqrt{2}\,\text{sen}\,2\left(x+\frac{\pi}{8}\right)$



$Y = \text{sen}\left(2x - \frac{\pi}{2}\right) + 1$

$\vec{v}\left(\frac{\pi}{2}, +1\right)$

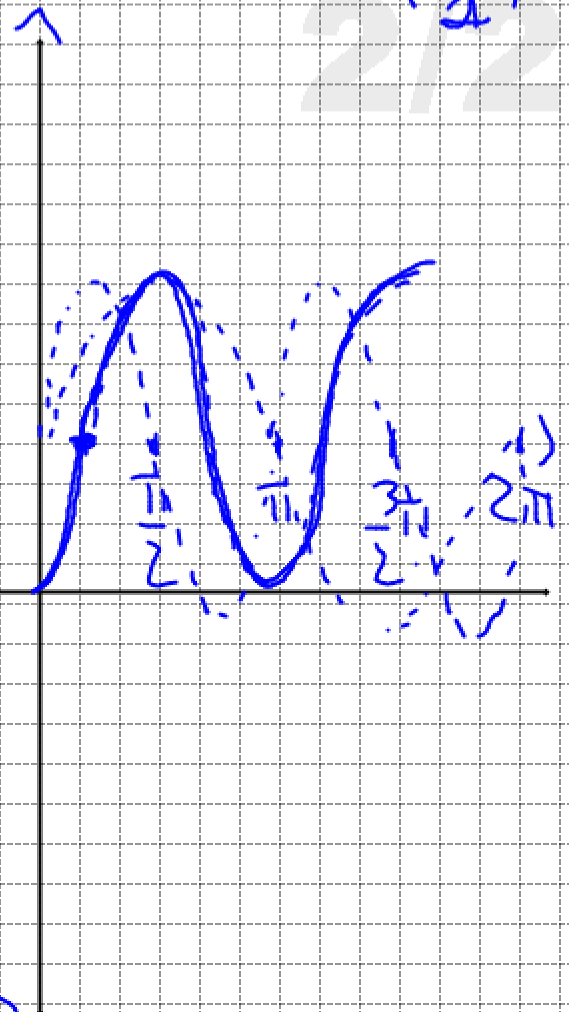
$\begin{cases} 2x - \frac{\pi}{2} = X \\ y - 1 = Y \end{cases}$

$\text{sen}\left(2x - \frac{\pi}{2}\right) = 0$

$\begin{cases} x = \frac{1}{2}X + \frac{\pi}{4} \\ y = Y + 1 \end{cases}$

$\text{sen}\, 2\left(x - \frac{\pi}{4}\right)$

$Y + 1 = \text{sen}\, X$



$\text{sen}\left(2x - \frac{\pi}{2}\right) + 1 = 0$

$\text{sen}\left(2x - \frac{\pi}{2}\right) = -1$

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

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

$x = \pi + k\pi$