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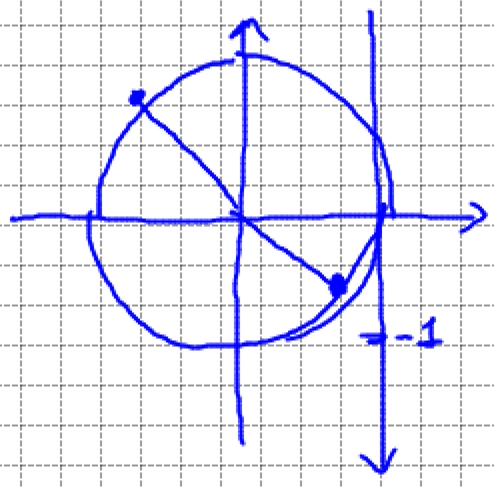
$$\frac{\operatorname{sen}2x+1}{\operatorname{sen}x+\cos x}=\frac{\sqrt{3}-1}{2}$$

C.E $\operatorname{sen}x+\cos x\neq 0$ $\cos x\neq 0$ $x\neq\frac{\pi}{2}+k\pi$ $k\in N$

$\operatorname{tg}x+1\neq 0 \Rightarrow \operatorname{tg}x\neq -1$

$x\neq\frac{3}{4}\pi+k\pi$ $k\in N$



$$2\operatorname{sen}2x+2=(\sqrt{3}-1)(\operatorname{sen}x+\cos x)$$

$$4\operatorname{sen}x\cos x+2=(\sqrt{3}-1)\operatorname{sen}x+(\sqrt{3}-1)\cos x$$

$$(\sqrt{3}-1)\operatorname{sen}x+(\sqrt{3}-1)\cos x-4\operatorname{sen}x\cos x-2=0$$

pongo $\operatorname{tg}\frac{x}{2}=t \Rightarrow \begin{cases}\cos x=\frac{1-t^2}{1+t^2}\\ \operatorname{sen}x=\frac{2t}{1+t^2}\end{cases}$

$$(\sqrt{3}-1)\left(\frac{2t}{1+t^2}\right)+(\sqrt{3}-1)\left(\frac{1-t^2}{1+t^2}\right)-4\left(\frac{2t}{1+t^2}\right)\left(\frac{1-t^2}{1+t^2}\right)-2=0$$

$$\frac{(\sqrt{3}-1)(2t+1-t^2)}{1+t^2}-\frac{8t(1-t^2)}{(1+t^2)^2}-2=0$$

$$(1+t^2)(\sqrt{3}-1)(2t+1-t^2)-8t(1-t^2)-2(1+t^4+2t^2)=0$$

$$(\sqrt{3}-1)(2t+1-\cancel{t^2}+2t^3+\cancel{t^2}-t^4)-8t+8t^3-2-2t^4-4t^2$$

$$(-\sqrt{3}-1)t^4+(6-\sqrt{3})t^3-4t^2+2(\sqrt{3}-5)t-3+\sqrt{3}=0$$

NO!!

$$\frac{\operatorname{sen}2x+1}{\operatorname{sen}x+\cos x}=\frac{\sqrt{3}-1}{2}$$

$$\frac{2\operatorname{sen}x\cos x+\operatorname{sen}^2x+\cos^2x}{\operatorname{sen}x+\cos x}=\frac{\sqrt{3}-1}{2}$$

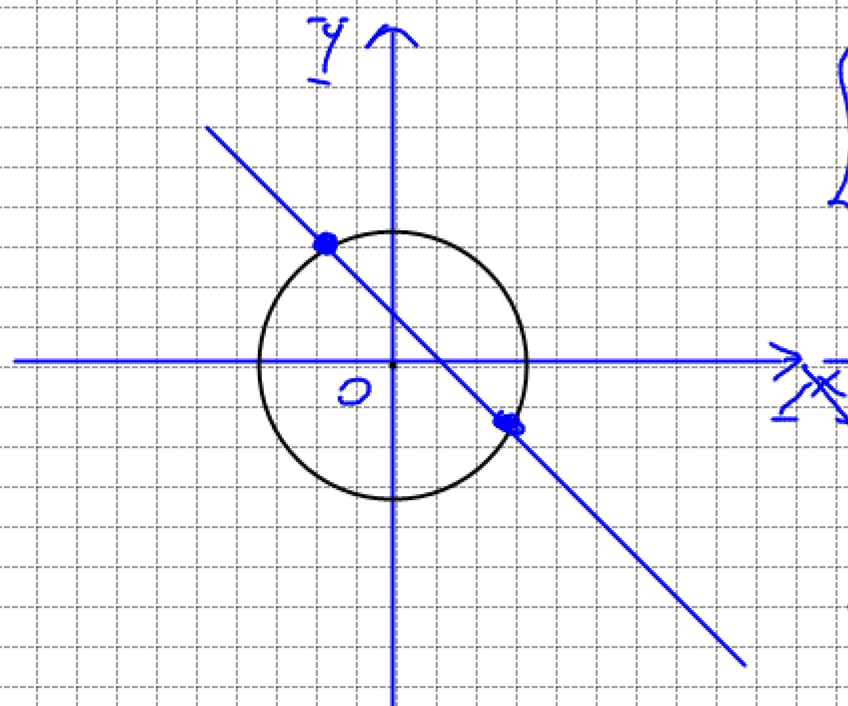
$$\frac{(\cos x+\operatorname{sen}x)^2}{\operatorname{sen}x+\cos x}=\frac{\sqrt{3}-1}{2}$$

$$\cos x+\operatorname{sen}x=\frac{\sqrt{3}-1}{2}$$

$$\operatorname{sen} x + \cos x = \frac{\sqrt{3}-1}{2}$$

2/2

$$\begin{cases} \operatorname{sen} x = \bar{Y} \\ \cos x = \bar{X} \end{cases} \qquad \begin{cases} \bar{Y} + \bar{X} = \frac{\sqrt{3}-1}{2} \\ \bar{X}^2 + \bar{Y}^2 = 1 \end{cases}$$



$$\begin{cases} \bar{Y} = \frac{\sqrt{3}-1}{2} - \bar{X} \\ \bar{X}^2 + \frac{4-2\sqrt{3}}{4} + \bar{X}^2 - (\sqrt{3}-1)\bar{X} = 1 \end{cases}$$

$$\begin{cases} \bar{Y} = \frac{\sqrt{3}-1}{2} - \bar{X} \\ 2\bar{X}^2 - (\sqrt{3}-1)\bar{X} + \frac{4-2\sqrt{3}}{4} = 1 \end{cases}$$

$$\begin{cases} 2X^2 - (\sqrt{3}-1)X - \frac{\sqrt{3}}{2} = 0 \\ X^2 + Y^2 = 1 \end{cases} \qquad \begin{cases} x_{1,2} = \frac{\sqrt{3}-1 \pm \sqrt{3+1-2\sqrt{3}+4\sqrt{3}}}{4} \\ \bar{X}^2 + \bar{Y}^2 = 1 \end{cases}$$

$$\begin{cases} \bar{x}_{1,2} = \frac{\sqrt{3}-1 \pm (\sqrt{3}+1)}{4} \\ \bar{X}^2 + \bar{Y}^2 = 1 \end{cases} \quad \begin{matrix} \frac{2\sqrt{3}}{4} = \frac{\sqrt{3}}{2} \\ -\frac{1}{2} \end{matrix}$$

$$\begin{cases} \bar{X} = \frac{\sqrt{3}}{2} \\ \bar{Y}^2 = 1 - \frac{3}{4} \end{cases} \qquad \begin{cases} \bar{X} = \frac{\sqrt{3}}{2} \\ \bar{Y} = \pm\frac{1}{2} \end{cases} \qquad \begin{cases} \cos x = \frac{\sqrt{3}}{2} \\ \operatorname{sen} x = \frac{1}{2} \end{cases} \qquad \begin{cases} \cos x = \frac{\sqrt{3}}{2} \\ \operatorname{sen} x = -\frac{1}{2} \end{cases}$$

$$\begin{cases} \bar{X} = -\frac{1}{2} \\ \bar{Y}^2 = 1 - \frac{1}{4} \end{cases} \qquad \begin{cases} \bar{X} = -\frac{1}{2} \\ \bar{Y} = \pm\frac{\sqrt{3}}{2} \end{cases} \qquad \begin{cases} \operatorname{sen} x = \frac{\sqrt{3}}{2} \\ \cos x = -\frac{1}{2} \end{cases} \qquad \begin{cases} \operatorname{sen} x = -\frac{\sqrt{3}}{2} \\ \cos x = -\frac{1}{2} \end{cases}$$