

CURVE DEL TIPO $y = a \sin x + b \cos x$ ($a, b \in \mathbb{R}$)

$$y = a \sin x + b \cos x$$

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

$-1 \leq \quad \leq 1 \quad -1 \leq \quad \leq 1$

$$\cos \alpha = \frac{a}{\sqrt{a^2 + b^2}} ; \sin \alpha = \frac{b}{\sqrt{a^2 + b^2}}$$

$$y = \sqrt{a^2 + b^2} (\cos \alpha \sin x + \sin \alpha \cos x)$$

$$y = \sqrt{a^2 + b^2} \sin(x + \alpha)$$

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

$$a = \sqrt{3}$$
$$b = 1$$

$$\sqrt{a^2 + b^2} = \sqrt{4} = 2$$

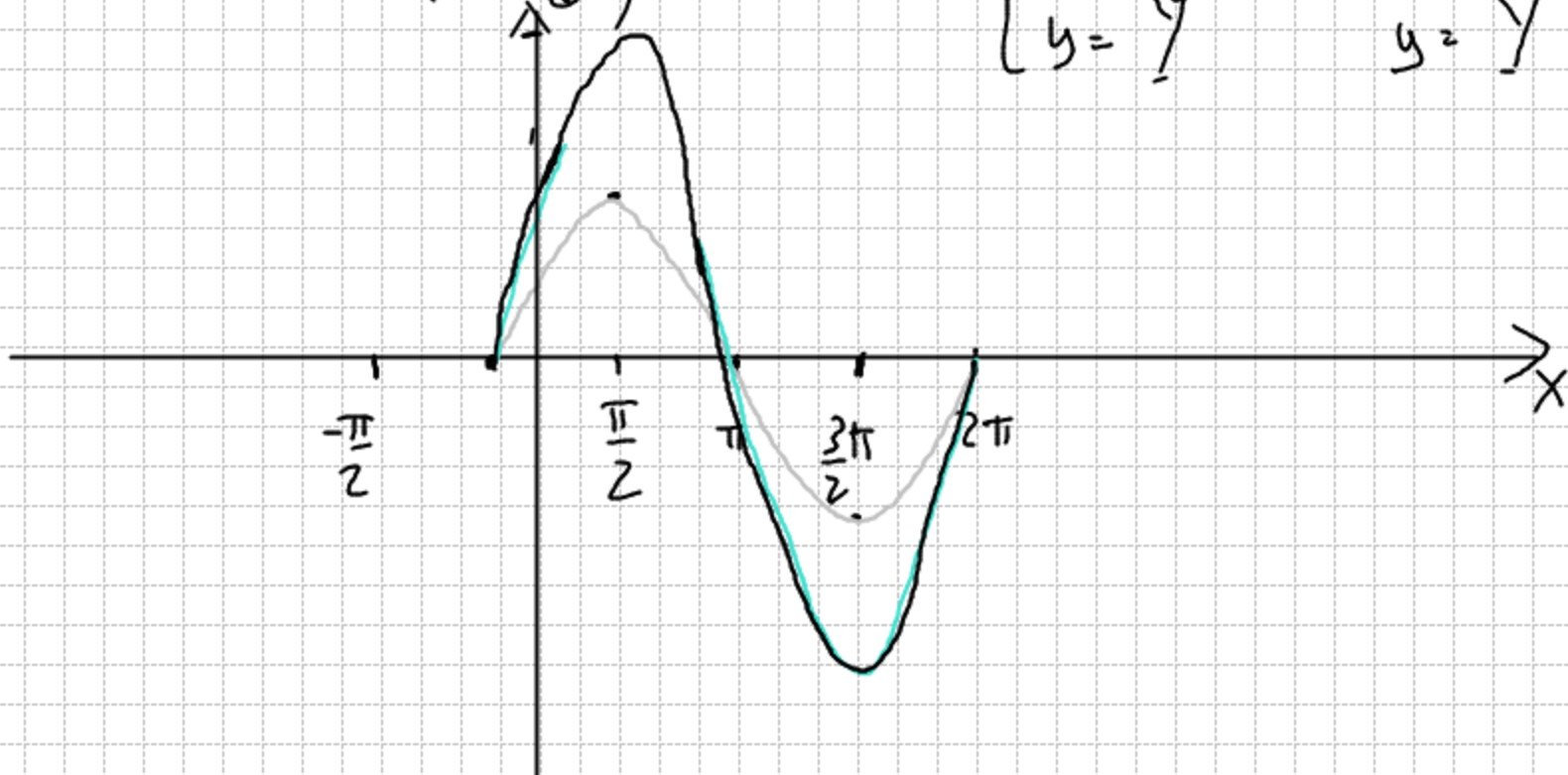
$$y = 2 \left(\frac{\sqrt{3}}{2} \sin x + \frac{1}{2} \cos x \right)$$

$$\left. \begin{array}{l} \cos \alpha = \frac{\sqrt{3}}{2} \\ \sin \alpha = \frac{1}{2} \end{array} \right\} \Rightarrow \alpha = \frac{\pi}{6}$$

$$y = 2 \left(\cos \frac{\pi}{6} \sin x + \sin \frac{\pi}{6} \cos x \right)$$

$$y = 2 \sin \left(x + \frac{\pi}{6} \right)$$

$$\begin{cases} x + \frac{\pi}{6} = \bar{X} \\ y = \bar{Y} \end{cases} \quad \begin{cases} x = \bar{X} - \frac{\pi}{6} \\ y = \bar{Y} \end{cases}$$



ESEMPIO

2/2

$$y = \text{sen } x - \text{cos } x + 3$$

$$y - 3 = \text{sen } x - \text{cos } x \quad \begin{cases} a = 1 \\ b = 1 \end{cases}$$
$$y - 3 = \sqrt{2} \left(\frac{1}{\sqrt{2}} \text{sen } x - \frac{1}{\sqrt{2}} \text{cos } x \right)$$

$$\left. \begin{aligned} \text{cos } d &= \frac{\sqrt{2}}{2} \\ \text{sen } d &= \frac{\sqrt{2}}{2} \end{aligned} \right\} d = \frac{\pi}{4}$$

$$y - 3 = \sqrt{2} \text{sen} \left(x - \frac{\pi}{4} \right)$$

$$\begin{cases} X = x - \frac{\pi}{4} \\ Y = y - 3 \end{cases} \quad \begin{cases} x = X + \frac{\pi}{4} \\ y = Y + 3 \end{cases}$$
$$\rightarrow Y = \sqrt{2} \text{sen}(X)$$

