

$$\begin{cases} x = \frac{y}{2} \\ \sin^2 x + \cos^2 y = \frac{1}{2} \end{cases} \quad \begin{cases} x = \frac{y}{2} \\ \sin^2 \frac{y}{2} + \cos^2 y = \frac{1}{2} \end{cases}$$

$$\begin{cases} x = \frac{y}{2} \\ \frac{1 - \cos y}{2} + \cos^2 y = \frac{1}{2} \end{cases} \quad \begin{cases} x = \frac{y}{2} \\ 1 - \cos y + 2\cos^2 y = 1 \end{cases}$$

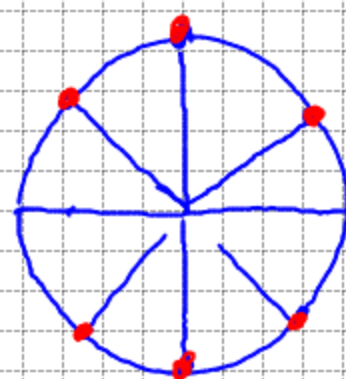
$$\begin{cases} x = \frac{y}{2} \\ 2\cos^2 y - \cos y = 0 \end{cases} \quad \bullet \quad \begin{cases} x = \frac{y}{2} \\ \cos y (2\cos y - 1) = 0 \end{cases}$$

$$\cos y (2\cos y - 1) = 0$$

1)  $\cos y = 0$

$$y = \frac{\pi}{2} + k\pi \quad k \in \mathbb{N}$$

$$x = \frac{y}{2} \rightarrow x = \frac{\frac{\pi}{2} + k\pi}{2} \rightarrow x = \frac{\pi}{4} + k\frac{\pi}{2}$$



2)  $2\cos y - 1 = 0$

$$\cos y = \frac{1}{2}$$



A)  $y = \frac{\pi}{3} + 2k\pi \quad k \in \mathbb{N}$        $x = \frac{y}{2} \rightarrow \frac{\frac{\pi}{3} + 2k\pi}{2} \quad k \in \mathbb{N}$

B)  $y = \frac{5}{3}\pi + 2k\pi \quad k \in \mathbb{N}$

$$x = \frac{\pi}{6} + k\pi \quad k \in \mathbb{N}$$

$$x = \frac{y}{2} \rightarrow x = \frac{\frac{5\pi}{3} + 2k\pi}{2} \rightarrow x = \frac{5\pi}{6} + k\pi \quad k \in \mathbb{N}$$

$$\text{Sol}_1 \begin{cases} y = \frac{\pi}{2} + k\pi \quad k \in \mathbb{N} \\ x = \frac{\pi}{4} + k\frac{\pi}{2} \quad k \in \mathbb{N} \end{cases}$$

$$\text{Sol}_2 \begin{cases} y = \frac{\pi}{3} + 2k\pi \quad k \in \mathbb{N} \\ x = \frac{\pi}{6} + k\pi \quad k \in \mathbb{N} \end{cases}$$

$$\text{Sol}_3 \begin{cases} y = \frac{5}{3}\pi + 2k\pi \quad k \in \mathbb{N} \\ x = \frac{5}{6}\pi + k\pi \quad k \in \mathbb{N} \end{cases}$$

$$f(x) = \cos 2x - 1$$

$$g(x) = \sin 2x$$

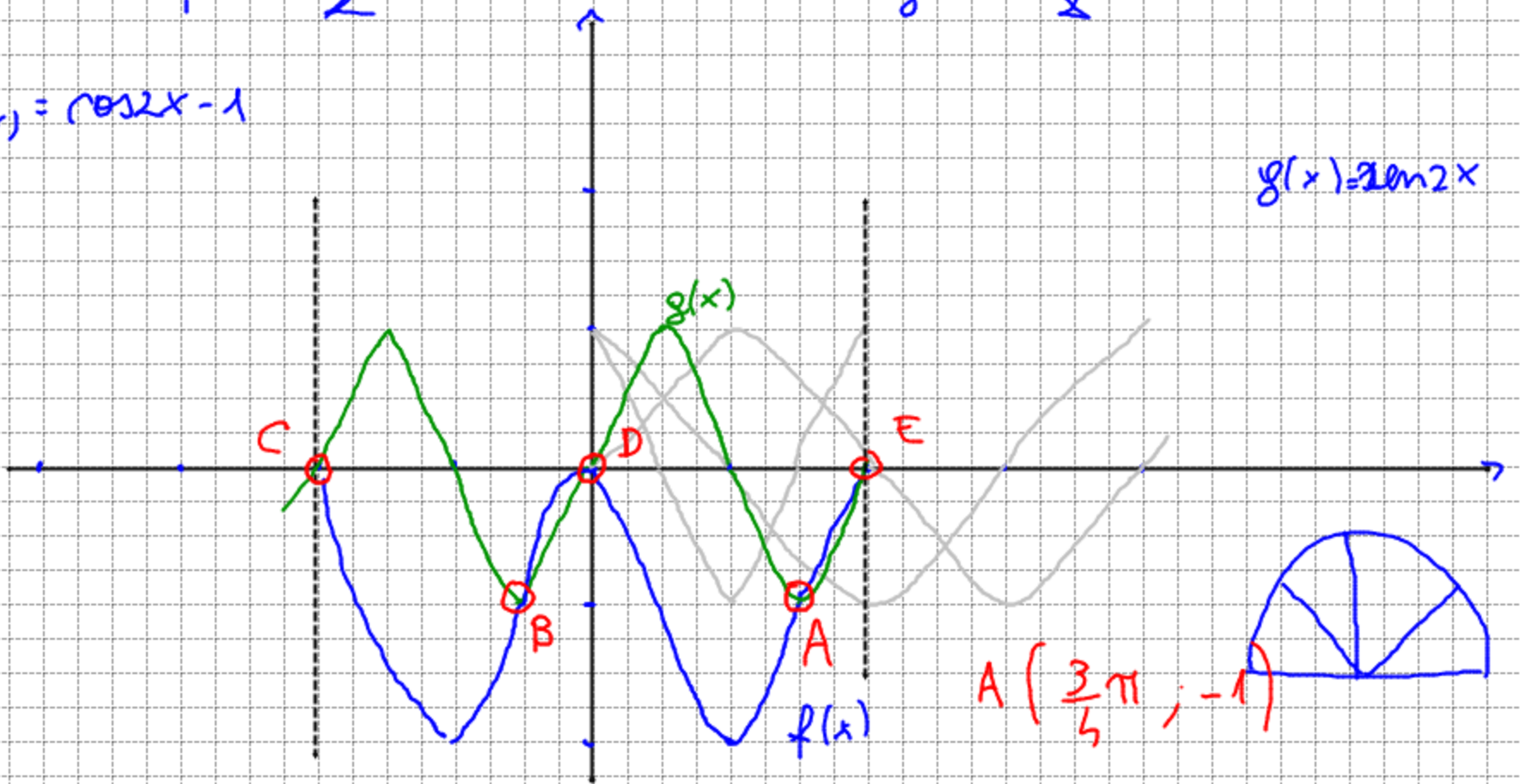
$$T = ?$$

$$T_f = \frac{2\pi}{2} = \pi$$

$$T_g = \frac{2\pi}{2} = \pi$$

$$f(x) = \cos 2x - 1$$

$$g(x) = \sin 2x$$



$$A \left( \frac{3\pi}{4}; -1 \right)$$

$$B \left( -\frac{\pi}{4}; -1 \right)$$

$$C \left( -\pi; 0 \right)$$

$$D \left( 0; 0 \right)$$

$$E \left( \pi; 0 \right)$$

$$h(x) = f(x) + g(x)$$

$$h(x) = \cos 2x - 1 + \sin 2x$$

$$h(x) = [\sin 2x + \cos 2x] - 1$$

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

$$h(x) = \sqrt{2} \left[ \cos \frac{\pi}{4} \sin 2x + \sin \frac{\pi}{4} \cos 2x \right] - 1$$

$$a = 1$$

$$b = 1$$

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

$$h(x) = \sqrt{2} \sin \left( 2x + \frac{\pi}{4} \right) - 1$$

y  
2

$$h(x) = \sqrt{2} \sin \left( 2x + \frac{\pi}{4} \right) - 1$$

