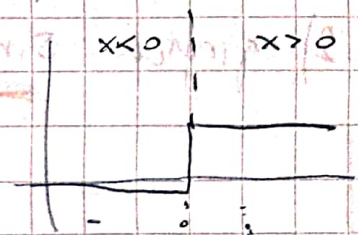


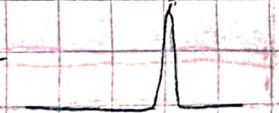
Problema III

a) graficar $f(x) = H(\sin(x))$

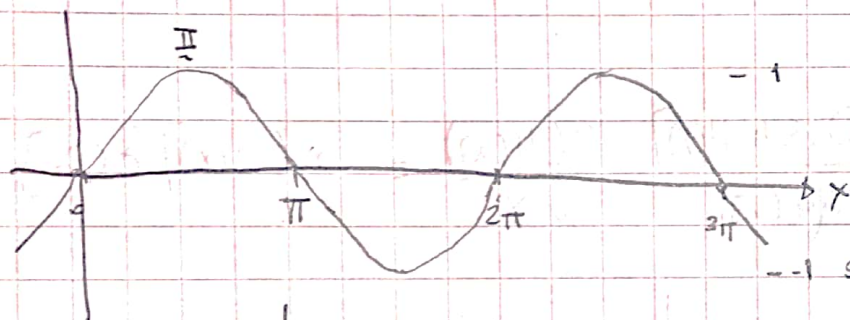
$$H(x) =$$



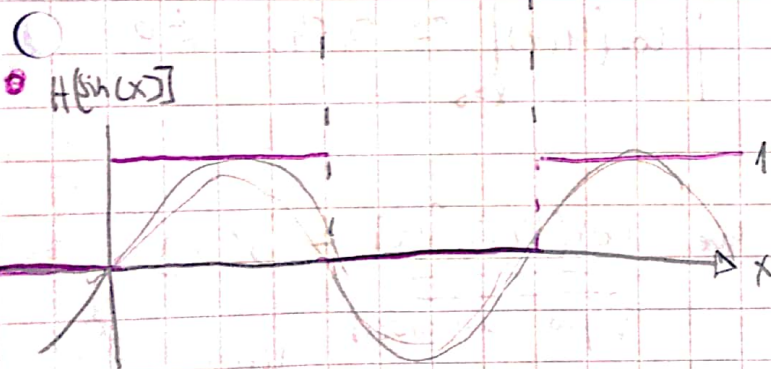
$$H'(x) = \delta(x) =$$



$$\sin(x)$$



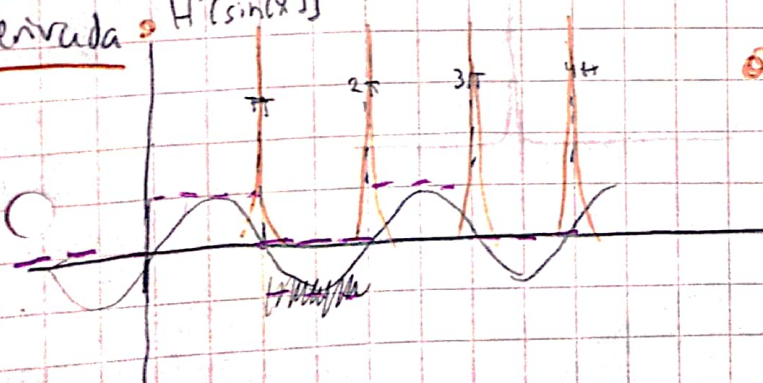
$$\sin(x) < 0 \Rightarrow H(\sin(x)) = 0$$



$$H(\sin(x)) = \begin{cases} 1 & 2n\pi < x < (2n+1)\pi \\ 0 & (2n+1)\pi < x < (2n+2)\pi \end{cases}$$

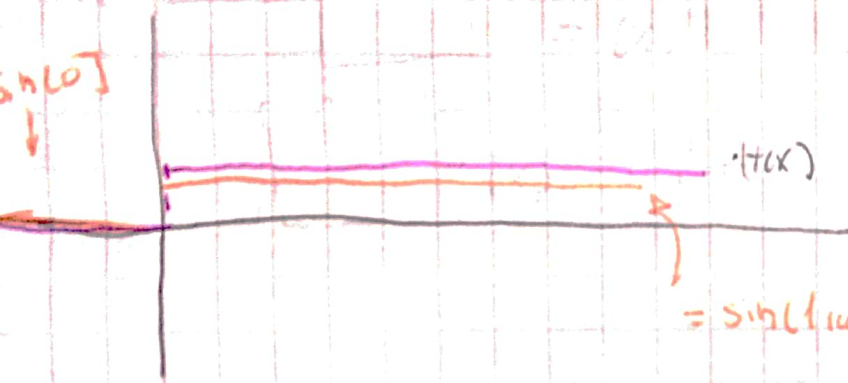
$$n \in \mathbb{Z}$$

derivada $H'(\sin(x)) =$



$$= \delta(\sin(x))$$

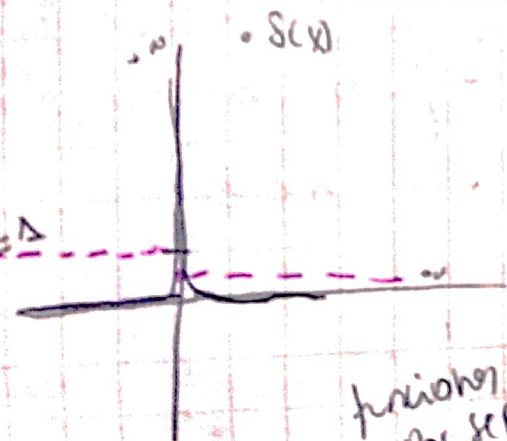
2) grafica $\sin(H(x))$



$$= \sin(1) \approx 0,84147...$$

derivada de $\frac{\partial \sin(H(x))}{\partial x} = \frac{\partial \sin(H(x))}{\partial H(x)} \cdot \frac{\partial H(x)}{\partial x} = \cos(H(x)) \delta(x)$

$$= \cos(H(x)) \delta(x) = \cos(H(x)) \Big|_{x=0} \approx 0,54 \neq 0$$



funciones
por separado

así que

$$\cos(H(x)) \delta(x) = \delta(x)$$

gráfico $\cos(H(x)) \delta(x)$

termino
dominante

