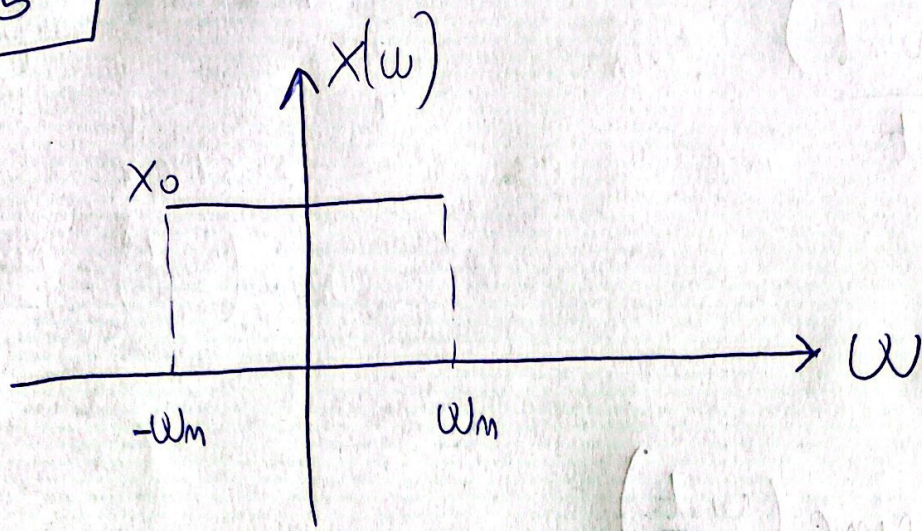


ES. 5



$$X(\omega) = \begin{cases} X_0 & , |\omega| < \omega_m \\ 0 & , |\omega| \geq \omega_m \end{cases}$$

$$x(t) = \frac{1}{2\pi} \int_{-\infty}^{+\infty} X(\omega) e^{j\omega t} d\omega$$

TRASFORMATA  
APERIODICA  
(SINPLESS)

$$= \frac{1}{2\pi} X_0 \int_{-\omega_m}^{\omega_m} e^{j\omega t} d\omega = \frac{X_0}{2\pi} \left[ \frac{e^{j\omega t}}{jt} \right]_{-\omega_m}^{\omega_m}$$

$$= \frac{X_0}{2\pi} \frac{e^{j\omega_m t} - e^{-j\omega_m t}}{jt} = \frac{X_0}{2\pi} \frac{2j \sin(\omega_m t)}{jt}$$



$$= \frac{X_0}{\pi} \frac{\sin(\omega_m t)}{\omega_m t} \cdot (\omega_m)$$

MOLTIPLICA  $\frac{\omega_m}{\omega_m}$

PER

SCRIVERE CON

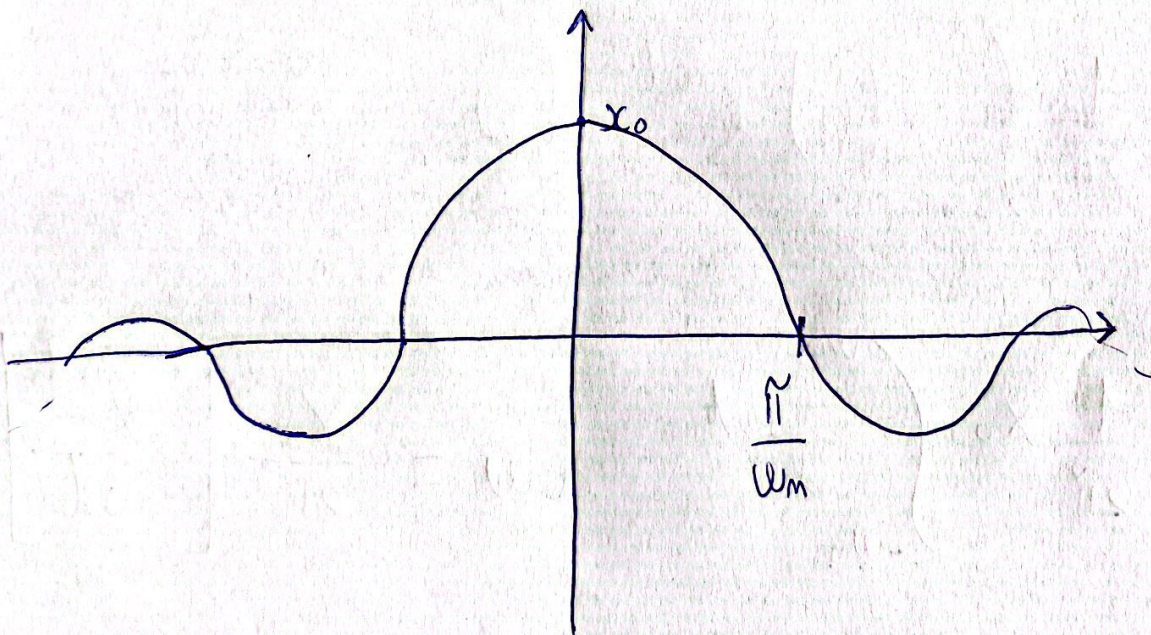
SYNC



$$\text{sinc}\left(\frac{\omega_m t}{\pi}\right) = \frac{\sin(\omega_m t)}{\omega_m t}$$

$$= \frac{X_0 \omega_m}{\pi} \cdot \text{sinc}\left(\frac{\omega_m t}{\pi}\right)$$

$$= X_0 \cdot \text{sinc}\left(\frac{\omega_m t}{\pi}\right)$$



DI NUOVO! RELAZIONE EVIDENTE FRA BWDA e DURATA