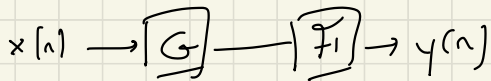


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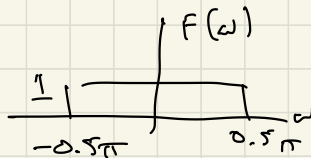
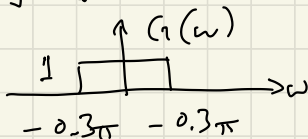
$$y[n] = f[n] * g[n] * x[n] = h[n] * x[n]$$



$$g[n] = 0.3 \operatorname{sinc}(0.3\pi n) = \left(\frac{\omega_c}{\pi}\right) \operatorname{sinc}(\omega_c n) \quad \omega_c = 0.3\pi$$

$$f[n] = 0.5 \operatorname{sinc}(0.5\pi n) = \left(\frac{\omega_z}{\pi}\right) \operatorname{sinc}(\omega_z n) \quad \omega_z = 0.5\pi$$

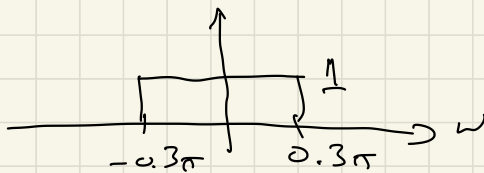
$$h[n] = ?$$



$$Y(\omega) = F(\omega) G(\omega) X(\omega) = H(\omega) X(\omega)$$

$$H(\omega) = F(\omega) G(\omega)$$

$$= \begin{cases} 1 & |\omega| < 0.3\pi \\ 0 & \text{else} \end{cases}$$



$$h[n] = 0.3 \operatorname{sinc}(0.3\pi n)$$