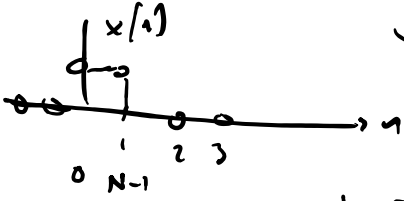
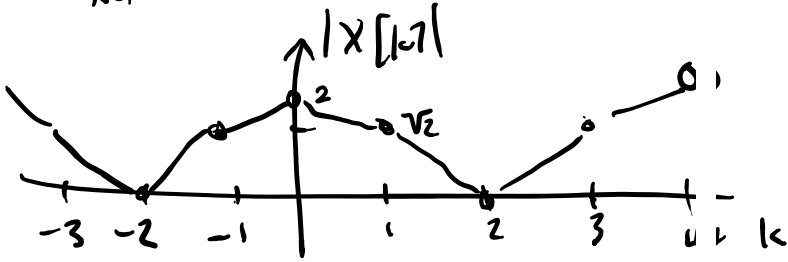


$x(n)$

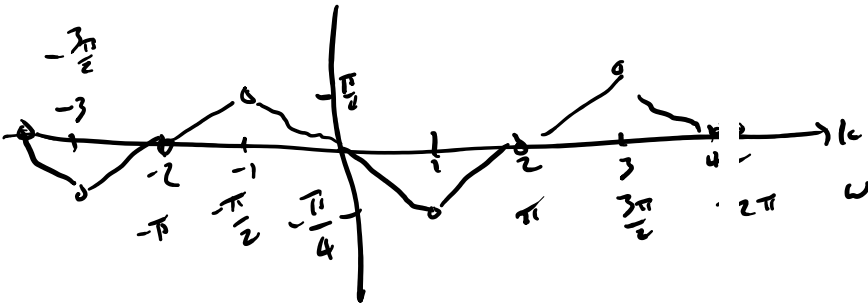


$$X(\omega) = 1 + e^{-j\omega} + \dots + e^{-j\omega(N-1)}$$

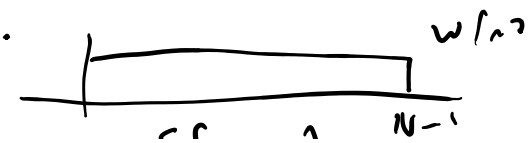
$$= e^{-j\frac{\omega}{2}} \frac{\sin(\frac{N\omega}{2})}{\sin(\frac{\omega}{2})}$$



$\angle X[k]$



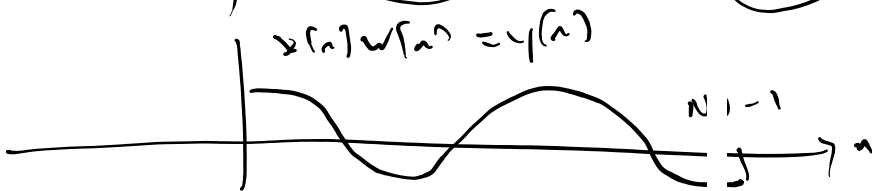
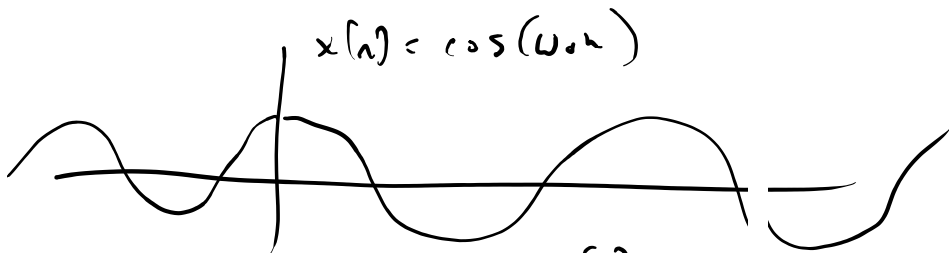
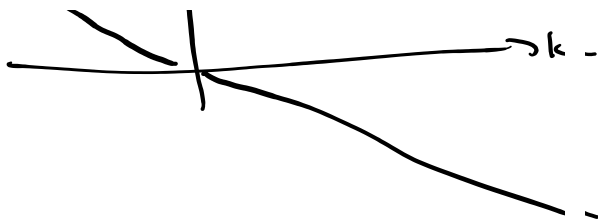
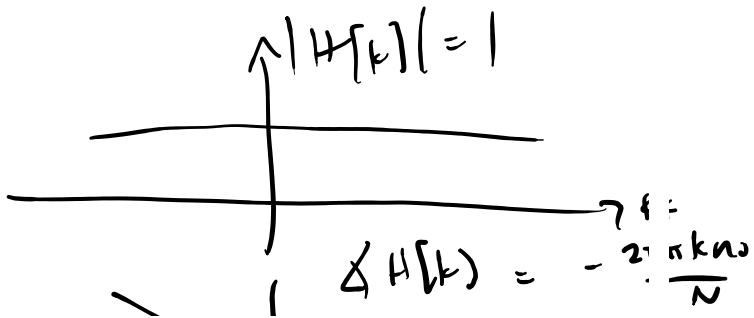
$$\delta[n - n_0] = h[n]$$



$$= \int_{n_0}^{n_0+1} \delta[n-n_0] w[n] h[n] = h[n_0]$$

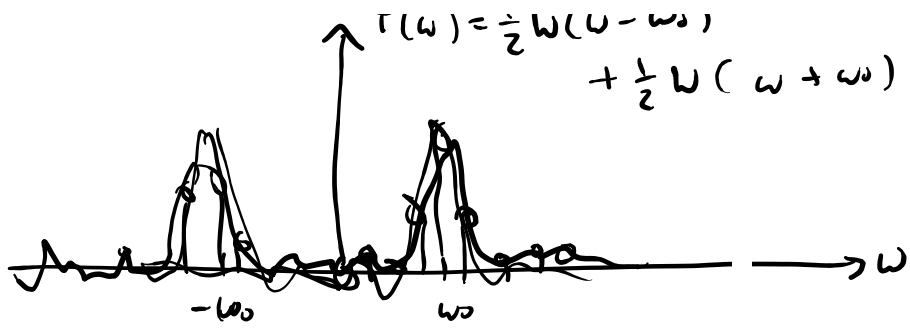
$$H[k] = H(\omega) \Big|_{\omega = \frac{2\pi k}{N}}$$

$$= e^{-j \left(\frac{2\pi k}{N} \right) n_0}$$



$$X[k] = Y[k] = Y(\omega) \Big|_{\omega = \frac{2\pi k}{N}}$$

$w[n] = 1, n = 0, \dots, N-1$



$$X(k) = Y(\omega) \Big|_{\omega = \frac{2\pi k}{N}}$$