



$$x[n] = e^{jm\omega_0}$$

$$y[n] = \sum_{k=-\infty}^{+\infty} h[k] x[n-k] = \sum_k h[k] e^{j(m-k)\omega_0}$$

$$= \sum_k h[k] e^{jm\omega_0} e^{-jk\omega_0}$$

$$= e^{jm\omega_0} \sum_k h[k] e^{-jk\omega_0}$$

$$\sum_k h[k] e^{-jk\omega} \Big|_{\omega=\omega_0} = H(e^{j\omega}) \Big|_{\omega=\omega_0}$$

$$= e^{jm\omega_0} \boxed{H(e^{j\omega_0})}$$

$$\cong \mathcal{F}\{h[n]\} \Big|_{\omega=\omega_0}$$



$$H(e^{j\omega}) = |H(e^{j\omega})| e^{j\angle H(e^{j\omega})}$$

