Karta wzorów – kolokwium 2

Filtracja fourierowska

$$e^{j\omega_0 t} \rightarrow H(\omega_0)e^{j\omega_0 t}, \ \cos(\omega_0 t) \rightarrow \mathrm{Re}\{H(\omega_0)e^{j\omega_0 t}\} = A(\omega_0)\cos(\omega_0 t + \varphi(\omega_0))$$

$$\sin(\omega_0 t) \rightarrow \mathrm{Im}\{H(\omega_0)e^{j\omega_0 t}\} = A(\omega_0)\sin(\omega_0 t + \varphi(\omega_0)), \ A(\omega) = |H(\omega)|, \ \varphi(\omega) = \arg H(\omega)$$

$$H(\omega) = H(s)\big|_{s=j\omega}, \ h(t)\overset{\mathcal{L}}{\leftrightarrow}H(s), \ h(t)\overset{F}{\leftrightarrow}H(\omega)$$

Pasmo 3-decybelowe: $A(\omega_{3dB}) = A_{\max}/\sqrt{2}$

Próbkowanie

$$X_s(\omega) = \frac{1}{T_s}\sum_n X(\omega - n\omega_s)$$

Filtracja cyfrowa

$$e^{j\Omega_0 n} \rightarrow H(\Omega_0)e^{j\Omega_0 n}, \ \cos(\Omega_0 n) \rightarrow \mathrm{Re}\{H(\Omega_0)e^{j\Omega_0 n}\} = A(\Omega_0)\cos(\Omega_0 n + \varphi(\Omega_0))$$

$$\sin(\Omega_0 n) \rightarrow \mathrm{Im}\{H(\Omega_0)e^{j\Omega_0 n}\} = A(\Omega_0)\sin(\Omega_0 n + \varphi(\Omega_0)), \ A(\Omega) = \left|H(e^{j\Omega})\right|, \ \varphi(\Omega) = \arg H(e^{j\Omega})$$

$$H(e^{j\Omega}) = H(z)\big|_{z=e^{j\Omega}}, \ h[n]\overset{Z}{\leftrightarrow}H(z), \ h[n]\overset{F_D}{\leftrightarrow}H(e^{j\Omega}), \ \Omega \text{ - pulsacja unormowana [rad]}$$