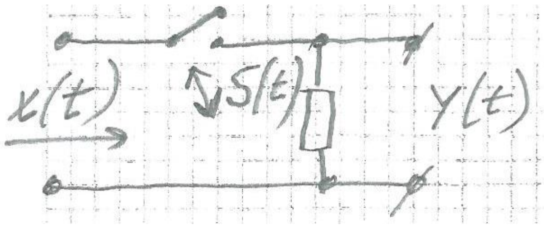
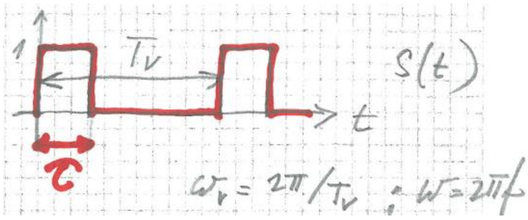
Věta o frekvenčním posunutí

$$x(t) \leftrightarrow F(\omega) \iff x(t)\cdot e^{j\omega_0 t} \leftrightarrow F(\omega \pm \omega_0)$$

Shannon t.





$$S(t) = x(t)\sum_{-\infty}^{+\infty} c_k e^{j\omega_v kt} \qquad \omega_V = \frac{2\pi}{T_V} \qquad \omega = 2\pi f$$

$$c_k = \frac{1}{T_V}\int_{-\frac{T_V}{2}}^{+\frac{T_V}{2}} S(t)\cdot e^{-j\omega_V kt} = \frac{\tau}{T_V} S_i(k\pi\tau f_v) = \frac{\tau}{T_V} S_i(\xi)$$

$$Y(t) = x(t)\cdot\sum_{-\infty}^{+\infty} c_k \cdot e^{j\omega_v kt}$$

FT:

$$Y_k(f) = \int_{-\infty}^{+\infty} x(t)\cdot e^{-j(\omega - k\omega_V)t}dt = c_k \cdot X(f - kf_v)$$ ←k-tý člen rozvoje

$$Y(f) = \sum_{k=-\infty}^{+\infty} c_k x(f - kf_v) = c_0 x(f) + \sum_{k=1}^{\infty} c_k k x(f \pm kf_v)$$