

Fourier-Reihe Fourier-Integral

$x(t)$ periodisch

Fourier-Reihe

$$x(t) = \sum_{k=-\infty}^{\infty} c_k \cdot e^{jk \omega_0 t}$$

Fourier-Koeffizienten

$$c_k = \frac{1}{T_0} \int_{(T_0)} x(t) \cdot e^{-jk \omega_0 t} dt$$

$x(t)$ aperiodisch

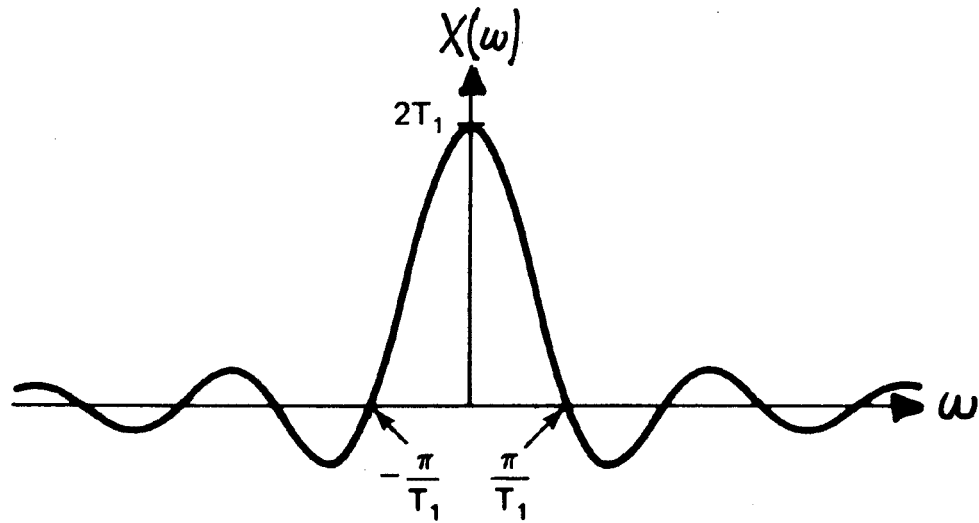
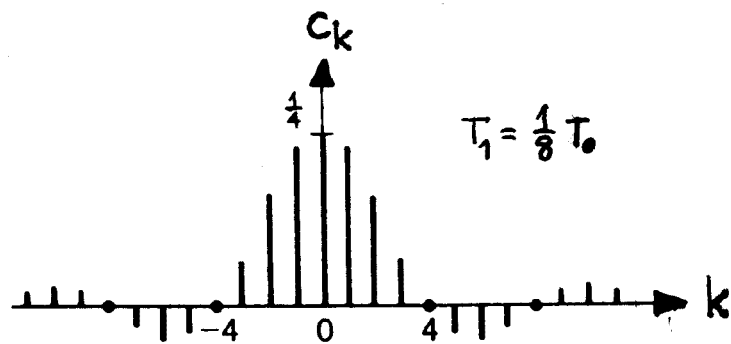
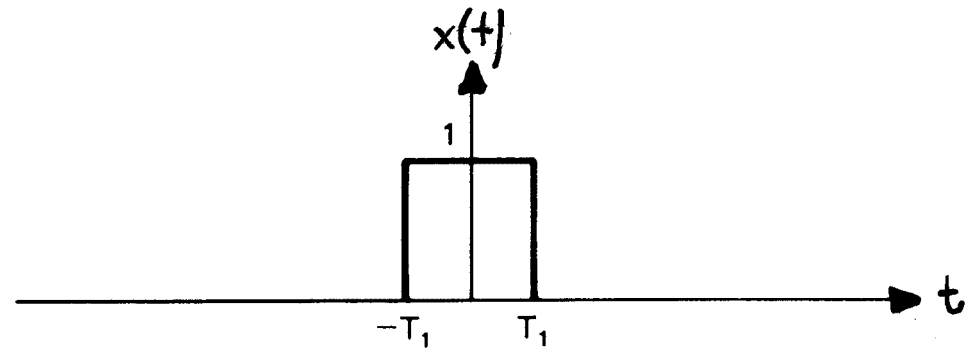
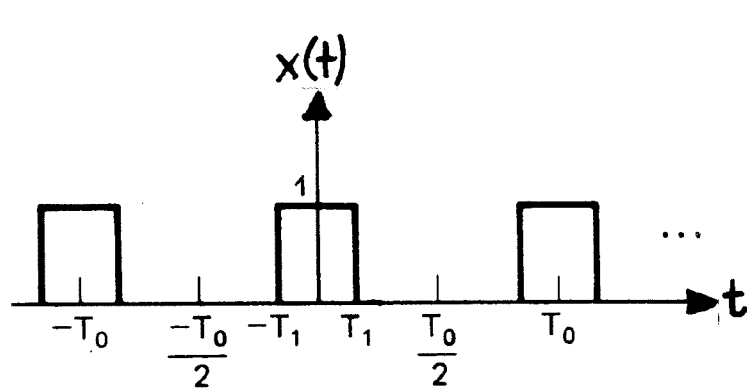
Fourier-Integral

$$x(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} X(\omega) \cdot e^{j\omega t} d\omega$$

Fourier-Transformierte

$$X(\omega) = \int_{-\infty}^{\infty} x(t) \cdot e^{-j\omega t} dt$$

Fourier-Reihe Fourier-Integral



Fourier-Reihe Fourier-Integral

$x(t)$ periodisch

$$x(t) = \sum_{k=-\infty}^{\infty} c_k e^{jk_0 t}$$

c_k = "Gewicht" der Frequenz k_0

$x(t)$ aperiodisch

$$x(t) = \int_{-\infty}^{\infty} \frac{1}{2\pi} X(\omega) d\omega e^{j\omega t}$$

$\frac{1}{2\pi} X(\omega) d\omega$ = "Gewicht" der Frequenzen $[\omega, \omega + d\omega]$