$$x[k+L] = x[k]$$

$$x(t+T) = x(t)$$

$$x[k] = \sum_{p=\langle L \rangle} X_p^c e^{jp\Theta k}$$

$$x(t) = \sum_{p=-\infty}^{\infty} X_p^c e^{jp\Omega t}$$

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

$$\Theta = \frac{2\pi}{L}$$

$$\Omega = \frac{2\pi}{T}$$

$$X_p^c = \frac{1}{L} \sum_{k=\langle L \rangle} x[k] e^{-jp\Theta k}$$

$$X_p^c = \frac{1}{T} \int_{-T/2}^{T/2} x(t) e^{-jp\Omega t} dt$$

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

$$P_x = \frac{1}{L} \sum_{k=\langle L \rangle} \left| x[k] \right|^2$$

$$P_x = \frac{1}{T} \int_{-T/2}^{T/2} \left| x(t) \right|^2 dt$$

$$E_x = \int_{-\infty}^{\infty} \left| x(t) \right|^2 dt$$

$$P_x = \sum_{p=\langle L \rangle} \left| X_p^c \right|^2$$

$$P_x = \sum_{p=-\infty}^{\infty} \left| X_p^c \right|^2$$

$$E_x = \frac{1}{2\pi} \int_{-\infty}^{\infty} \left| X(j\omega) \right|^2 d\omega$$

$x(t)$ valós, akkor $X_{-p}^{c} = \left(X_{p}^{c}\right)^{*}$

$$x(t) = X_0 + \sum_{p=1}^{\infty} X_p \cos(p\Omega t + \xi_p)$$

$$\Omega = \frac{2\pi}{T}$$

$$X_0 = X_0^c \quad X_p = 2\left|X_p^c\right| \quad \xi_p = arcX_p^c$$

$$X_p^c = \frac{1}{2} X_p e^{j\xi_p} = \frac{1}{T} \int_{-T/2}^{T/2} x(t) e^{-jp\Omega t} dt$$

$$\Omega = \frac{2\pi}{T}$$

$$X_0 = \frac{1}{T} \int_{-T/2}^{T/2} x(t) dt$$

$$x(t) = X_0 + \sum_{p=1}^{\infty} X_p \cos(p\Omega t + \xi_p)$$

$x(t)$	X_p^c	$\cos(p\Omega t + \xi_p)$
páros	valós	$\cos(p\Omega t)$
páratlan	képzetes	$\sin(p\Omega t)$

Felbontás páros és páratlan komponensekre: $x(t) = x_e(t) + x_o(t)$

Páros $x_e(t) = \dfrac{x(t) + x(-t)}{2}$

Páratlan $x_o(t) = \dfrac{x(t) - x(-t)}{2}$

$x[k]$ valós, akkor $X_{-p}^{c} = \left(X_{p}^{c}\right)^{*}$

L páratlan, M_o=(L-1)/2

$$\boxed{x[k] = X_0 + \sum_{p=1}^{M_o} X_p \cos(p\Theta k + \xi_p)} \qquad \Theta = \frac{2\pi}{L}$$

$$X_0 = X_0^c \quad X_p = 2\left|X_p^c\right| \quad \xi_p = arcX_p^c$$

L páros, M_e=L/2-1

$$\boxed{x[k] = X_0 + \sum_{p=1}^{M_e} X_p \cos(p\Theta k + \xi_p) + (-1)^k X_{L/2}} \qquad p\Theta = \frac{L}{2}\frac{2\pi}{L} = \pi$$

$$X_0 = X_0^c \quad X_p = 2\left|X_p^c\right| \quad X_{L/2} = X_{L/2}^c \quad \xi_p = arcX_p^c$$

$$X_p^c = \frac{1}{2} X_p e^{j\xi_p} = \frac{1}{L} \sum_{k=\langle L \rangle} x[k] e^{-jp\Theta k}$$

$$\Theta = \frac{2\pi}{L}$$

$$X_0 = \frac{1}{L} \sum_{k=\langle L \rangle} x[k]$$

$$X_{L/2} = X_{L/2}^c = \frac{1}{L} \sum_{k=\langle L \rangle} x[k] (-1)^k$$

páros L