Laplaceova transformacija

$f(t)$	$\mathcal{L}(f(t)) = F(s)$
1	$\frac{1}{s}$
t^n $(n = 0, 1, 2, \ldots)$	$\frac{n!}{s^{n+1}}$
$f'(t)$	$sF(s) - f(0)$
e^{at}	$\frac{1}{s-a}$
$e^{at}f(t)$	$F(s-a)$
$\mathcal{U}(t-a)$	$\frac{e^{-as}}{s}$
$f(t-a)\mathcal{U}(t-a)$	$e^{-as}F(s)$
$\delta(t)$	1
$\delta(t-t_0)$	e^{-st_0}
$\sin(\omega t)$	$\frac{\omega}{s^2+\omega^2}$
$\cos(\omega t)$	$\frac{s}{s^2+\omega^2}$

Delilniki

Tokovni delilnik

$I = \frac{U_g}{R} = U_g \frac{R_1+R_2}{R_1 \cdot R_2}$

$U_g = I \cdot R_1 \cdot \frac{R_2}{R_1+R_2}$

Napetostni delilnik

$U_i = U_g \frac{R_i}{R_i+R_j}$

Diferencialne enačbe

$f(t) = i_{homo}(t) + i_{parti}(t)$

$x = K_1 \cdot e^{p_1} + K_2 \cdot e^{p_2}$

Fourierjeva vrsta

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

$a_0 = \frac{1}{T}\int_\tau^{\tau+T} f(x)dx$

Trigonometrična vrsta

$a_n = \frac{2}{T}\int_\tau^{\tau+T} f(t) \cdot cos(\omega nt)dt$

$b_n = \frac{2}{T}\int_\tau^{\tau+T} f(t) \cdot sin(\omega nt)dt$

$u(t) = a_0 + \sum_{n=1}^{\infty}(a_n \cdot cos(\omega nt) + b_n \cdot sin(\omega nt))$

$c_0 = a_0$

$c_n = \sqrt{a_n^2 + b_n^2}$

$\rho_n = arctg(\frac{b_n}{a_n})$

Zveze

$cos(n\pi) = (-1)^n$

$cos(2n\pi) = 1$

$sin(n\pi) = 0$

Primeri

$\int cos(ax)dx = \frac{sin(ax)}{a}$

$\int sin(ax)dx = -\frac{cos(ax)}{a}$

$\int x \cdot cos(ax)dx = \frac{xsin(ax)}{a} + \frac{cos(ax)}{a^2}$

$\int x \cdot sin(ax)dx = -\frac{xcos(ax)}{a} + \frac{sin(ax)}{a^2}$

Eksponenta vrsta

$A_n = \frac{1}{T}\int_0^T f(x) \cdot e^{-jn\pi x}dx$

$x(t) = a_0 + \sum_{n\neq 0} A_n$

Zveze

$e^{-j\pi n} = (-1)^n$

Primeri

$\int e^{ax}dx = \frac{e^{ax}}{a}$

$\int x \cdot e^{ax}dx = \frac{xe^{ax}}{a} - \frac{e^{ax}}{a^2}$

Frekvenca

$c = \lambda f$

$f = 2\pi\omega$

Teorem o maksimalnem prenosu moči

$Z_b = Z_g^*$

Resonančna frekvenca

$Im(Z) = 0\Omega$

Kvaliteta

$Q = \frac{X_L(\omega)}{R(\omega)}$

$Q = -\frac{X_C(\omega)}{R(\omega)}$

Energijska formula

$Q = \omega \frac{\sum W_C(\omega)}{\sum P(\omega)}$

$W = \int_0^T u(t) \cdot i(t)dt$

Linearnost

$H(a_1x_1 + a_2x_2) = a_1H(x_1) + a_2H(x_2)$