Formelsamling för:
Nanoteknikens matematiska metoder (FMFF20)

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1 Laplacetransformer

$f(t)$	$F(s)$
1	$\frac{1}{s}$
e^{at}	$\frac{1}{s-a}$
t^n	$\frac{n!}{s^{n+1}}$
$\sin(at)$	$\frac{a}{s^2+a^2}$
$\cos(at)$	$\frac{s}{s^2+a^2}$
$\sinh(at)$	$\frac{a}{s^2-a^2}$
$\cosh(at)$	$\frac{s}{s^2-a^2}$
Stegfkn: $\theta(t-a)$	$\frac{e^{-as}}{s}$
$\delta(t)$	1
$\delta(t-a)$	e^{-as}
$\frac{df}{dt}$	$sF(s)-f(0)$
$g(t)=\int_0^t f(t')\,dt'$	$G(s)=\frac{F(s)}{s}+\frac{g(0)}{s}$

2 Impedanser

$$
\begin{aligned}
Z_R &= R \\
Z_L &= i\omega L \\
Z_C &= -\frac{i}{\omega C}
\end{aligned}
$$

3 Integralsatser

Stokes sats:

$$\oint_{\Gamma(S)} \mathbf{a} \cdot d\mathbf{r} = \int_S (\nabla \times \mathbf{a}) \cdot d\mathbf{S}$$

Gauss' sats:

$$\int_{S(V)} \mathbf{a} \cdot d\mathbf{S} = \int_V \nabla \cdot \mathbf{a} \, dV$$