

Laplace Transforms

Mathematics

The transforms worth knowing, including the two derivative rules.

Defined for s large enough that the integral converges.

$f(t)$	Its transform $F(s)$
1	$1/s$
t^n	$n! / s^{(n+1)}$
$e^{(at)}$	$1/(s - a)$
$\sin \omega t$	$\omega/(s^2 + \omega^2)$
$\cos \omega t$	$s/(s^2 + \omega^2)$
$f'(t)$	$sF(s) - f(0)$
$f''(t)$	$s^2F(s) - sf(0) - f'(0)$

The transform turns differentiation into multiplication by s . That is what converts a differential equation into an algebraic one.