

Elementary Laplace's transforms

$j(t) = L^{-1}\{J(s)\}$	$J(s) = L\{j(t)\}$
1	$\frac{1}{s}, \quad s > 0$
e^{at}	$\frac{1}{s-a}, \quad s > a$
$t^n, \quad n = \text{positive integer}$	$\frac{n!}{s^{n+1}}, \quad s > 0$
$e^{at}t^n, \quad n = \text{positive integer}$	$\frac{n!}{(s-a)^{n+1}}, \quad s > a$
$\sin(bt)$	$\frac{b}{s^2+b^2}, \quad s > 0$
$\cos(bt)$	$\frac{s}{s^2+b^2}, \quad s > 0$
$e^{at} \sin(bt)$	$\frac{b}{(s-a)^2+b^2}, \quad s > a$
$e^{at} \cos(bt)$	$\frac{s-a}{(s-a)^2+b^2}, \quad s > a$
$e^{at} j(t)$	$J(s-a)$
$\sinh(at)$	$\frac{a}{s^2-a^2}, \quad s > a $
$\cosh(at)$	$\frac{s}{s^2-a^2}, \quad s > a $
$u(t-c) := \begin{cases} 1, & t \geq c \\ 0, & t < c \end{cases}$	$\frac{e^{-cs}}{s}, \quad s > 0$
$u(t-c)j(t-c)$	$e^{-cs}J(s)$
$j^{(n)}(t)$	$s^n J(s) - s^{n-1}j(0) - s^{n-2}j'(0) - \dots - j^{(n-1)}(0)$