

Table of Laplace Transforms: $\mathcal{L}(f(t)) = F(s)$

$f(t)$	$F(s)$
$t^n, n = 0, 1, 2, \dots$	$\frac{n!}{s^{n+1}}$
e^{at}	$\frac{1}{s - a}$
$\cos kt$	$\frac{s}{s^2 + k^2}$
$\sin kt$	$\frac{k}{s^2 + k^2}$
$e^{at}f(t)$	$F(s - a)$
$\mathcal{U}(t - a)f(t - a), a \geq 0$	$e^{-as}F(s)$
$f^{(n)}(t), n = 0, 1, 2, \dots$	$s^n F(s) - s^{n-1}f(0) - \dots - sf^{(n-2)}(0) - f^{(n-1)}(0)$
$t^n f(t), n = 0, 1, 2, \dots$	$(-1)^n F^{(n)}(s)$
$(f * g)(t)$	$\mathcal{L}(f(t))\mathcal{L}(g(t))$
$\delta(t - t_0), t_0 > 0$	e^{-st_0}