Formulas for Laplace Transforms

$f(t)$	$(\mathcal{L}f)(s)$
1	$\frac{1}{s}$
$t^n, n = 0, 1, 2, \ldots$	$\frac{n!}{s^{n+1}}$
e^{at}	$\frac{1}{s-a}$
$t^k e^{at}$	$\frac{k!}{(s-a)^{k+1}}$
$\sin at$	$\frac{a}{s^2+a^2}$
$\cos at$	$\frac{s}{s^2+a^2}$
$e^{bt} f(t)$	$(\mathcal{L}f)(s-b)$
$u_c(t) f(t-c)$	$e^{-cs}(\mathcal{L}f)(s)$
$\delta(t-t_0)$	$e^{-t_0 s}$

Formulas for Laplace Transforms of Derivatives

$$(\mathcal{L}f')(s) = s(\mathcal{L}f)(s) - f(0)$$

$$(\mathcal{L}f'')(s) = s^2(\mathcal{L}f)(s) - sf(0) - f'(0)$$