Table of Laplace Transformations

$f(t)$	$\mathscr{L}\{f\}(s)$
1	$\dfrac{1}{s}, \quad s > 0$
e^{at}	$\dfrac{1}{s-a}, \quad s > a$
$t^n \ n = 1, 2, \ldots$	$\dfrac{n!}{s^{n+1}}, \quad s > 0$
$\sin bt$	$\dfrac{b}{s^2 + b^2}, \quad s > 0$
$\cos bt$	$\dfrac{s}{s^2 + b^2}, \quad s > 0$
$e^{at} t^n \ n = 1, 2, \ldots$	$\dfrac{n!}{(s-a)^{n+1}}, \quad s > a$
$e^{at} \sin bt$	$\dfrac{b}{(s-a)^2 + b^2}, \quad s > a$
$e^{at} \cos bt$	$\dfrac{s-a}{(s-a)^2 + b^2}, \quad s > a$
$u(t-a)$	$\dfrac{e^{-as}}{s}$
$\delta(t-a)$	e^{-as}

Other Formulas:

- $\mathscr{L}\{g(t)u(t-a)\}(s) = e^{-as}\mathscr{L}\{g(t+a)\}(s).$

- $\mathscr{L}^{-1}\{e^{-as}F(s)\}(t) = f(t-a)u(t-a).$

- For $f(t)$ periodic with period T, $\mathscr{L}\{f\}(s) = \dfrac{F_T(s)}{1 - e^{-sT}}$