Table of Laplace Transforms

In the following, all functions (signals) map $\mathbf{R}_+$ into $\mathbf{R}$.

General

Function	Laplace transform
$f(t)$	$F(s) = \int_0^\infty f(t)e^{-st}\,dt$
$f+g$	$F+G$
αf $(\alpha \in \mathbf{R})$	αF
$\dfrac{df}{dt}$	$sF(s) - f(0)$
$\dfrac{d^k f}{dt^k}$	$s^k F(s) - s^{k-1}f(0) - s^{k-2}\dfrac{df}{dt}(0) - \cdots - \dfrac{d^{k-1}f}{dt^{k-1}}(0)$
$g(t) = \int_0^t f(\tau)\,d\tau$	$G(s) = \dfrac{F(s)}{s}$
$f(\alpha t)$, $\alpha > 0$	$\dfrac{1}{\alpha}F(s/\alpha)$
$e^{at}f(t)$	$F(s-a)$
$tf(t)$	$-\dfrac{dF}{ds}$
$t^k f(t)$	$(-1)^k \dfrac{d^k F(s)}{ds^k}$
$\dfrac{f(t)}{t}$	$\int_s^\infty F(s)\,ds$
$g(t) = \begin{cases} 0 & 0 \le t < T \\ f(t-T) & t \ge T \end{cases}$	$G(s) = e^{-sT}F(s)$

Specific

Function	Laplace transform
1	$\frac{1}{s}$
δ	1
$\delta^{(k)}$	s^k
t	$\frac{1}{s^2}$
$\frac{t^k}{k!},\ k \geq 0$	$\frac{1}{s^{k+1}}$
e^{at}	$\frac{1}{s-a}$
$\cos \omega t$	$\frac{s}{s^2+\omega^2} = \frac{1/2}{s-j\omega} + \frac{1/2}{s+j\omega}$
$\sin \omega t$	$\frac{\omega}{s^2+\omega^2} = \frac{1/2j}{s-j\omega} - \frac{1/2j}{s+j\omega}$
$\cos(\omega t + \phi)$	$\frac{s\cos\phi - \omega \sin\phi}{s^2+\omega^2}$
$e^{-at}\cos \omega t$	$\frac{s+a}{(s+a)^2+\omega^2}$
$e^{-at}\sin \omega t$	$\frac{\omega}{(s+a)^2+\omega^2}$