Laplace Transforms

$f(t)$	$\mathscr{L}\{f(t)\} = F(s)$
1	$\dfrac{1}{s}$
t	$\dfrac{1}{s^2}$
t^n	$\dfrac{n!}{s^{n+1}}$
e^{at}	$\dfrac{1}{s-a}$
$\sin kt$	$\dfrac{k}{s^2+k^2}$
$\cos kt$	$\dfrac{s}{s^2+k^2}$
$u(t-a)$	$\dfrac{e^{-as}}{s}$
$f(t-a)u(t-a)$	$e^{-as}F(s)$
$e^{at}f(t)$	$F(s-a)$
$f'(t)$	$sF(s)-f(0)$
$f''(t)$	$s^2F(s)-sf(0)-f'(0)$
$f^{(n)}(t)$	$s^nF(s)-s^{(n-1)}f(0)-s^{(n-2)}f'(0)-\cdots-f^{(n-1)}(0)$
$\displaystyle\int_0^t f(\tau)\,d\tau$	$\dfrac{F(s)}{s}$
$(f*g)(t)=\displaystyle\int_0^t f(\tau)g(t-\tau)\,d\tau$	$F(s)G(s)$
$\delta(t)$	1
$\delta(t-t_0)$	e^{-st_0}
$t^nf(t)$	$(-1)^n\dfrac{d^n}{ds^n}F(s)$
$f(t)$ has period T	$\dfrac{1}{1-e^{-sT}}\displaystyle\int_0^T e^{-st}f(t)\,dt$