A.2 Table of Laplace Transforms

$f(t)$	$\mathcal{L}(f) = F(s)$
$f'(t)$	$sF(s) - f(0)$
$f''(t)$	$s^2F(s) - sf(0) - f'(0)$
$f^{(n)}(t)$	$s^nF(s) - s^{n-1}f(0) - \cdots - f^{(n-1)}(0)$
t^n	$\dfrac{n!}{s^{n+1}}$
$e^{\alpha t}$	$\dfrac{1}{s-\alpha}$
$e^{\alpha t}f(t)$	$F(s-\alpha)$
$f(ct)$	$\dfrac{1}{c}F\left(\dfrac{s}{c}\right)$
$\cos(\beta t)$	$\dfrac{s}{s^2+\beta^2}$
$\sin(\beta t)$	$\dfrac{\beta}{s^2+\beta^2}$
$\cosh(\beta t)$	$\dfrac{s}{s^2-\beta^2}$
$\sinh(\beta t)$	$\dfrac{\beta}{s^2-\beta^2}$
$e^{\alpha t}\cos(\beta t)$	$\dfrac{s-\alpha}{(s-\alpha)^2+\beta^2}$
$e^{\alpha t}\sin(\beta t)$	$\dfrac{\beta}{(s-\alpha)^2+\beta^2}$
$u_c(t)$, $c > 0$	e^{-cs}/s
$u_c(t)f(t-c)$, $c > 0$	$e^{-cs}F(s)$
$\delta(t-c)$, $c > 0$	e^{-cs}
$\displaystyle\int_0^t f(t-\tau)g(\tau)\,d\tau \doteq f * g$	$F(s)G(s)$
$f(t)$ with $f(t+T) = f(t)$	$\dfrac{\int_0^T f(t)e^{-st}dt}{1-e^{-sT}}$
$t^nf(t)$	$(-1)^n\dfrac{d^n}{ds^n}F(s)$