Table of Laplace Transforms

	$f(t)$	$\mathcal{L}(f(t)) = F(s)$
(1)	e^{at}	$\frac{1}{s-a}$
(2)	$t^n, n = 0, 1, 2, \ldots$	$\frac{n!}{s^{n+1}}$
(3)	$\cos \omega t$	$\frac{s}{s^2+\omega^2}$
(4)	$\sin \omega t$	$\frac{\omega}{s^2+\omega^2}$
(5)	$\cosh at$	$\frac{s}{s^2-a^2}$
(6)	$\sinh at$	$\frac{a}{s^2-a^2}$
(7)	$e^{at} f(t)$	$F(s-a)$
(8)	$e^{at} \cos \omega t$	$\frac{s-a}{(s-a)^2+\omega^2}$
(9)	$e^{at} \sin \omega t$	$\frac{\omega}{(s-a)^2+\omega^2}$
(10)	$t^n e^{at}, n = 0, 1, 2, \ldots$	$\frac{n!}{(s-a)^{n+1}}$
(11)	$f'(t)$	$sF(s) - f(0)$
(12)	$f''(t)$	$s^2F(s) - sf(0) - f'(0)$
(13)	$f(t-a)u(t-a)$	$e^{-as}F(s)$
(14)	$u(t-a)$	$\frac{e^{-as}}{s}$
(15)	$f(t)u(t-a)$	$e^{-as}\mathcal{L}(f(t+a))$
(16)	$\delta(t-a)$	e^{-as}
(17)	$f(t)$ (with period p)	$\frac{1}{1-e^{-ps}} \int_0^p e^{-st} f(t)dt$
(18)	$f(t) * g(t)$	$F(s) \cdot G(s)$
(19)	$-tf(t)$	$F'(s) = \frac{d}{ds}F(s)$