Table of Laplace Transforms	
$y(t)$	$\mathcal{L}\{y(t)\} = Y(s)$
1	$\frac{1}{s}$
e^{at}	$\frac{1}{s-a}$
t^n	$\frac{n!}{s^{n+1}}$
$t^n e^{at}$	$\frac{n!}{(s-a)^{n+1}}$
$\sin bt$	$\frac{b}{s^2+b^2}$
$\cos bt$	$\frac{s}{s^2+b^2}$
$e^{at}\sin bt$	$\frac{b}{(s-a)^2+b^2}$
$e^{at}\cos bt$	$\frac{s-a}{(s-a)^2+b^2}$
$u(t-a)$	$\frac{e^{-as}}{s}$
$\delta(t-a)$	e^{-as}
$y(t)$	$Y(s)$
$y'(t)$	$sY(s) - y(0)$
$y''(t)$	$s^2Y(s) - sy(0) - y'(0)$
Shifting Theorem: $\tilde{f}(t-c)u(t-c)$	$e^{-cs}\mathcal{L}\{\tilde{f}(t)\}$
Convolution Theorem: $f(t) * g(t)$	$F(s)\ G(s)$

Definition of the convolution operator:

$$f(t) * g(t) \equiv \int_0^t f(t-v)g(v)\ dv$$