Brief Table of Laplace Transforms

$f(t)$	$F(s) = \mathscr{L}\{f\}(s)$
1	$\frac{1}{s}$
e^{at}	$\frac{1}{s-a}$
$t^n, n = 1, 2, \ldots$	$\frac{n!}{s^{n+1}}$
$\sin bt$	$\frac{b}{s^2+b^2}$
$\cos bt$	$\frac{s}{s^2+b^2}$
$e^{at}t^n, n = 1, 2, \ldots$	$\frac{n!}{(s-a)^{n+1}}$
$e^{at}\sin bt$	$\frac{b}{(s-a)^2+b^2}$
$e^{at}\cos bt$	$\frac{s-a}{(s-a)^2+b^2}$
$e^{at}f(t)$	$F(s-a)$
$f'(t)$	$sF(s) - f(0)$
$f''(t)$	$s^2F(s) - sf(0) - f'(0)$
$t^n f(t)$	$(-1)^n \frac{d^n}{ds^n} F(s)$
$(f * g)(t)$	$F(s)G(s)$
For $a \geq 0$,	
$f(t-a)u(t-a)$	$e^{-as}F(s)$
$g(t)u(t-a)$	$e^{-as}\mathscr{L}\{g(t+a)\}(s)$
$\delta(t-a)$	e^{-as}

Theorem 9.
If f has period T and is piecewise continuous on $[0, T]$, then the Laplace transform of one period, $F_T(s)$, is related to the Laplace transform by

$$F(s) = \frac{F_T(s)}{1 - e^{-sT}}.$$