

FUNCTION	LAPLACE TRANSFORM
$f(t)$	$F(s)$
$af(t) + bg(t)$	$aF(s) + bG(s)$
$f'(t)$	$sF(s) - f(0)$
$f^{(n)}(t)$	$s^n F(s) - s^{n-1}f(0) - \dots - sf^{(n-2)}(0) - f^{(n-1)}(0)$
$\int_0^t f(\tau)d\tau$	$\frac{F(s)}{s}$
$e^{at}f(t)$	$F(s - a)$
$u(t - a)f(t - a)$	$e^{-as}F(s)$
$(f * g)(t)$	$F(s)G(s)$ where $(f * g)(t) = \int_0^t f(\tau)g(t - \tau)d\tau$
$tf(t)$	$-F'(s)$
$t^n f(t)$	$(-1)^n F^{(n)}(s)$
$\frac{f(t)}{t}$	$\int_s^\infty F(\sigma)d\sigma$
$f(t)$, period p	$\frac{1}{1 - e^{-ps}} \int_0^p e^{-st} f(t)dt$
t^n	$\frac{n!}{s^{n+1}}$
t^a	$\frac{\Gamma(a+1)}{s^{a+1}}$ where $\Gamma(x) = \int_0^\infty e^{-t} t^{x-1} dt$
e^{at}	$\frac{1}{s - a}$
$\cos(kt)$	$\frac{s}{s^2 + k^2}$
$\sin(kt)$	$\frac{k}{s^2 + k^2}$
$\cosh(kt)$	$\frac{s}{s^2 - k^2}$
$\sinh(kt)$	$\frac{k}{s^2 - k^2}$
$u(t - a)$	$\frac{e^{-as}}{s}$ where $u(t - a)$ is 0 when $t < a$, and 1 when $t \geq a$
$\delta(t - a)$	e^{-as} where $\delta(t - a)$ is a unit impulse at time $t = a$