

Table of Laplace Transforms and trigonometry

$f(t)$	$F(s)$
$af(t) + bg(t)$	$aF(s) + bG(s)$
$tf(t)$	$-F'(s)$
$t^n f(t)$	$(-1)^n F^{(n)}(s)$
$e^{-at} f(t)$	$F(s + a)$
$f(t - T)\theta(t - T)$	$e^{-Ts} F(s)$
$f'(t)$	$sF(s) - f(0)$
$f''(t)$	$s^2 F(s) - sf(0) - f'(0)$
$f^{(n)}(t)$	$s^n F(s) - \sum_{k=1}^n s^{n-k} f^{(k-1)}(0)$
$\int_0^t f(\tau) d\tau$	$\frac{F(s)}{s}$
$\theta(t)$	$\frac{1}{s}$
$\frac{t^n}{n!}$	$\frac{1}{s^{n+1}}$
e^{-at}	$\frac{1}{s + a}$
$\cosh(at)$	$\frac{s}{s^2 - a^2}$
$\sinh(at)$	$\frac{a}{s^2 - a^2}$
$\cos(bt)$	$\frac{s}{s^2 + b^2}$
$\sin(bt)$	$\frac{b}{s^2 + b^2}$
$\frac{t}{2b} \sin(bt)$	$\frac{s}{(s^2 + b^2)^2}$
$\frac{1}{2b^3} (\sin(bt) - bt \cos(bt))$	$\frac{1}{(s^2 + b^2)^2}$

$$\begin{aligned}
 2 \sin(a) \sin(b) &= \cos(a - b) - \cos(a + b) \\
 2 \sin(a) \cos(b) &= \sin(a - b) + \sin(a + b) \\
 2 \cos(a) \cos(b) &= \cos(a - b) + \cos(a + b)
 \end{aligned}$$