Some Mathematical Formulae

$L(1) = \frac{1}{s}$

$L(t^n) = \frac{n!}{s^{(n+1)}}$

$L[e^{(}at)] = \frac{1}{s-a}$

$L(sin\ at) = \frac{a}{s^2+a^2}$

$L(sinh\ at) = \frac{a}{s^2-a^2}$

$L(cos\ at) = \frac{s}{s^2+a^2}$

$L(cosh\ at) = \frac{s}{s^2-a^2}$

$L[e^{(}at) * f(t)] = \bar{f}(s-a)$

Transforms of periodic function: $L[f(t)] = \frac{\int_0^T (e^{(}-st) * f(t)dt)}{1-e^- sT}$

Transforms of derivatives: $L[f^n(t)] = s^n \bar{f}(s) - s^{(}n-1)f\prime(0) - s^{(}n-2)f\prime\prime(0) - .. - f^{(}n-1)(0)$

Transforms of integrals: $L[\int_0^t f(u)du] = \frac{\bar{f}(s)}{s}$