

La Place transformations :

$$f(s) = \int_0^{\infty} e^{-st} F(t) dt$$

$\delta(t)$	1
C	C/s
t^n	$\frac{\Gamma(n+1)}{s^{n+1}}$
e^{at}	$\frac{1}{s-a}$
$\sin at$	$\frac{a}{s^2+a^2}$
$\cos at$	$\frac{s}{s^2+a^2}$
$\sinh at$	$\frac{a}{s^2-a^2}$
$\cosh at$	$\frac{s}{s^2-a^2}$

$$(n > -1) \text{ \& } \Gamma(int+1) = int!$$

(shifted constant)

La Place operations :

$F(at)$	$\frac{1}{a} f(s/a)$
$F'(t)$	$s f(s) - F(0)$
$\int_0^t F(t) dt$	$\frac{1}{s} f(s)$

dummy variable

$F * G$	$f(s)g(s)$
$t F(t)$	$-f'(s)$
$\frac{1}{t} F(t)$	$\int_s^{\infty} f(s) ds$

$$e^{at} F(t) \rightarrow f(s-a)$$

$$F(t-a)u(t-a) \rightarrow e^{-as} f(s)$$

$$F * G = \int_0^t F(t-x) G(x) dx$$

(commutative)