Formulaire de Transformée de Laplace et de Fourier

Notations :

- $L[x(t)]$ Transformée de Laplace
- $F[x(t)]$ Transformée de Fourier
- $$VP(\frac{1}{x}) = \frac{1}{x}\ \forall x \neq 0, \quad = 0\ si\ x = 0$$
- $$\omega_o = 2\pi f_o$$

$x(t)$	$L[x(t)]$	$F[x(t)]$
$\delta^{(n)}(t)$	p^n	$(j2\pi f)^n$
1	$2\pi\delta(\frac{p}{j})$	$\delta(f)$
$e^{-a\|t\|}, \quad a > 0$	$\frac{2a}{a^2-p^2}, \quad \Re(p) \in,]-a, a[$	$\frac{2a}{a^2+(2\pi f)^2}$
$e^{j2\pi f_o t}$	$2\pi\delta(\frac{p}{j} - 2\pi f_o)$	$\delta(f - f_o)$
$\sum_{n=-\infty}^{+\infty} \delta(t - nT)$	$\frac{2\pi}{T} \sum_{n=-\infty}^{+\infty} \delta(\frac{s}{j} - n\frac{2\pi}{T})$	$\frac{1}{T} \sum_{n=-\infty}^{+\infty} \delta(f - \frac{n}{T})$
$\cos(2\pi f_o t)$	$\pi\delta(\frac{p}{j} - 2\pi f_o) + \pi\delta(\frac{p}{j} + 2\pi f_o)$	$\frac{1}{2}\delta(f - f_o) + \frac{1}{2}\delta(f + f_o)$
$\sin(2\pi f_o t)$	$\frac{\pi}{j}\delta(\frac{p}{j} - 2\pi f_o) - \frac{\pi}{j}\delta(\frac{p}{j} + 2\pi f_o)$	$\frac{1}{2j}\delta(f - f_o) - \frac{1}{2j}\delta(f + f_o)$
$\Pi_T(t)$	$T\, sinc(\frac{pT}{2j})$	$T\, sinc(\pi f T)$
$F_o sinc(\pi F_o t)$	$\Pi_{F_o}(\frac{p}{j})$	$\Pi_{F_o}(f)$

$x(t)$	$L[x(t)]$	$F[x(t)]$
$\Gamma(t)$	$\frac{1}{p}, \qquad \Re(p) \geq 0$	$VP(\frac{1}{j2\pi f}) + \frac{1}{2}\delta(f)$
$e^{p_o t}\Gamma(t)$	$\frac{1}{p-p_o}, \qquad \Re(p) > \Re(p_o)$	$\frac{1}{j2\pi f - p_o}$
$\frac{t^{n-1}}{(n-1)!}\Gamma(t))$	$\frac{1}{p^n}, \qquad \Re(p) \geq 0$	$VP(\frac{1}{(j2\pi f)^n}) + \frac{(j/2\pi)^{n-1}}{(n-1)!}\delta^{(n-1)}(f)$
$e^{-at}\Gamma(t), \qquad a > 0$	$\frac{1}{p+a}, \qquad \Re(p) > -a$	$\frac{1}{j2\pi f + a}$
$te^{-at}\Gamma(t), \qquad a > 0$	$\frac{1}{(p+a)^2}, \qquad \Re(p) > -a$	$\frac{1}{(j2\pi f + a)^2}$
$\sin(\omega_o t)\Gamma(t)$	$\frac{\omega_o}{p^2+\omega_o^2}, \qquad \Re(p) \geq 0$	$\frac{1}{2}VP(\frac{f_o}{f_o^2 - f^2}) + \frac{1}{4j}[\delta(f - f_o) - \delta(f + f_o)]$
$\cos(\omega_o t)\Gamma(t)$	$\frac{p}{p^2+\omega_o^2}, \qquad \Re(p) \geq 0$	$\frac{1}{2j\pi}VP(\frac{f}{f_o^2 - f^2}) + \frac{1}{4}[\delta(f - f_o) + \delta(f + f_o)]$
$e^{j\omega_o t}\Gamma(t)$	$\frac{1}{p-j\omega_o}, \qquad \Re(p) \geq 0$	$\frac{1}{2j\pi}VP(\frac{1}{f-f_o}) + \frac{1}{2}\delta(f - f_o)$
$e^{-at}\sin(\omega_o t)\Gamma(t), \qquad a > 0$	$\frac{\omega_o}{(p+a)^2+\omega_o^2} \quad \Re(p) > -a$	$\frac{2\pi f}{(j2\pi f+a)^2+(2\pi f_o)^2}$
$e^{-at}\cos(\omega_o t)\Gamma(t), \qquad a > 0$	$\frac{p+a}{(p+a)^2+\omega_o^2}, \qquad \Re(p) > -a$	$\frac{j2\pi f+a}{(j2\pi f+a)^2+(2\pi f_o)^2}$