Pares de transformada de Laplace

	$f(t)$	$F(s)$
1	Impulso unitário $\delta(t)$	1
2	Degrau unitário $1(t)$	$\frac{1}{s}$
3	t	$\frac{1}{s^2}$
4	$\frac{t^{n-1}}{(n-1)!} \qquad (n = 1, 2, 3, \ldots)$	$\frac{1}{s^n}$
5	e^{-at}	$\frac{1}{s+a}$
6	te^{-at}	$\frac{1}{(s+a)^2}$
7	$\frac{1}{(n-1)!} t^{n-1} e^{-at} \qquad (n = 1, 2, 3, \ldots)$	$\frac{1}{(s+a)^n}$
8	$\frac{1}{b-a}(e^{-at} - e^{-bt})$	$\frac{1}{(s+a)(s+b)}$
9	$\frac{1}{ab}\left[1 + \frac{1}{a-b}(be^{-at} - ae^{-bt})\right]$	$\frac{1}{s(s+a)(s+b)}$
10	$\operatorname{sen} \omega t$	$\frac{\omega}{s^2 + \omega^2}$
11	$\cos \omega t$	$\frac{s}{s^2 + \omega^2}$
12	$e^{-at} \operatorname{sen} \omega t$	$\frac{\omega}{(s+a)^2 + \omega^2}$
13	$e^{-at} \cos \omega t$	$\frac{s+a}{(s+a)^2 + \omega^2}$
14	$\frac{\omega_n}{\sqrt{1-\zeta^2}} e^{-\zeta\omega_n t} \operatorname{sen} \omega_n \sqrt{1-\zeta^2}\, t$	$\frac{\omega_n^2}{s^2 + 2\zeta\omega_n s + \omega_n^2}$
15	$-\frac{1}{\sqrt{1-\zeta^2}} e^{-\zeta\omega_n t} \operatorname{sen}(\omega_n \sqrt{1-\zeta^2}\, t - \phi)$ $\phi = \tan^{-1} \frac{\sqrt{1-\zeta^2}}{\zeta}$	$\frac{s}{s^2 + 2\zeta\omega_n s + \omega_n^2}$
16	$1 - \frac{1}{\sqrt{1-\zeta^2}} e^{-\zeta\omega_n t} \operatorname{sen}(\omega_n \sqrt{1-\zeta^2}\, t + \phi)$ $\phi = \tan^{-1} \frac{\sqrt{1-\zeta^2}}{\zeta}$	$\frac{\omega_n^2}{s(s^2 + 2\zeta\omega_n s + \omega_n^2)}$

Propriedades das transformadas de Laplace

1	$\mathcal{L}_\pm\left[\frac{d}{dt} f(t)\right] = sF(s) - f(0\pm)$
2	$\mathcal{L}_\pm\left[\frac{d^2}{dt^2} f(t)\right] = s^2F(s) - sf(0\pm) - \dot{f}(0\pm)$
3	$\mathcal{L}_\pm\left[\frac{d^n}{dt^n} f(t)\right] = s^nF(s) - \sum_{k=1}^{n} s^{n-k} \overset{(k-1)}{f}(0\pm)$ onde $\overset{(k-1)}{f}(t) = \frac{d^{k-1}}{dt^{k-1}} f(t)$
4	$\mathcal{L}_\pm\left[\int f(t)\,dt\right] = \frac{F(s)}{s} + \frac{1}{s}\left[\int f(t)\,dt\right]_{t=0\pm}$
5	$\mathcal{L}\left[\int_0^t f(t)\,dt\right] = \frac{F(s)}{s}$
6	$\int_0^\infty f(t)\,dt = \lim_{s\to 0} F(s) \qquad$ se $\int_0^\infty f(t)\,dt$ existir
7	$\mathcal{L}[e^{-at} f(t)] = F(s+a)$
8	$\mathcal{L}[f(t-a)1(t-a)] = e^{-as}F(s) \qquad a \geq 0$
9	$\mathcal{L}[tf(t)] = -\frac{dF(s)}{ds}$
10	$\mathcal{L}[t^2 f(t)] = \frac{d^2}{ds^2} F(s)$
11	$\mathcal{L}[t^n f(t)] = (-1)^n \frac{d^n}{ds^n} F(s) \qquad n = 1, 2, 3, \ldots$
12	$\mathcal{L}\left[\frac{1}{t} f(t)\right] = \int_s^\infty F(s)\,ds \qquad$ se $\lim_{t\to 0} \frac{1}{t} f(t)$ existir
13	$\mathcal{L}\left[f\left(\frac{t}{a}\right)\right] = aF(as)$
14	$\mathcal{L}\left[\int_0^t f_1(t-\tau) f_2(\tau)\,d\tau\right] = F_1(s)F_2(s)$
15	$\mathcal{L}[f(t)g(t)] = \frac{1}{2\pi j} \int_{c-j\infty}^{c+j\infty} F(p)G(s-p)\,dp$