

TABELA DE TRANSFORMADAS DE LAPLACE

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

	Função $f(t)$	Transformada $F(s)$
1	Impulso unitário $\delta(t)$	1
2	Degrau unitário $1(t)$	$\frac{1}{s}$
3	Rampa Unitária t	$\frac{1}{s^2}$
4	$t^n \quad (n = 1, 2, 3, \dots)$	$\frac{n!}{s^{n+1}}$
5	e^{-at}	$\frac{1}{s+a}$
6	te^{-at}	$\frac{1}{(s+a)^2}$
7	$t^n e^{-at} \quad (n = 1, 2, 3, \dots)$	$\frac{n!}{(s+a)^{n+1}}$
8	$\frac{1}{a}(1 - e^{-at})$	$\frac{1}{s(s+a)}$
9	$\frac{1}{a^2}(1 - e^{-at} - ate^{-at})$	$\frac{1}{s(s+a)^2}$
10	$\frac{1}{b-a}(e^{-at} - e^{-bt})$	$\frac{1}{(s+a)(s+b)}$
11	$\frac{1}{b-a}(be^{-bt} - ae^{-at})$	$\frac{s}{(s+a)(s+b)}$
12	$\sin \omega t$	$\frac{\omega}{s^2 + \omega^2}$
13	$\cos \omega t$	$\frac{s}{s^2 + \omega^2}$
14	Senóide Amortecida $e^{-at} \sin \omega t$	$\frac{\omega}{(s+a)^2 + \omega^2}$
15	Cossenóide Amortecida $e^{-at} \cos \omega t$	$\frac{s+a}{(s+a)^2 + \omega^2}$
16	$\frac{\omega_n}{\sqrt{1-\zeta^2}} e^{-\zeta\omega_n t} \sin \omega_n \sqrt{1-\zeta^2} t$	$\frac{\omega_n^2}{s^2 + 2\zeta\omega_n s + \omega_n^2}$