Table of Laplace Transform Pairs

	Signal	Waveform $f(t)$	Transform $F(s)$
1	Impulse	$\delta(t)$	1
2	Step	$u(t)$	$\dfrac{1}{s}$
3	Ramp	$t\,u(t)$	$\dfrac{1}{s^2}$
4	Power of t	$\dfrac{t^{n-1}}{(n-1)!}u(t) \quad n=1,2,3\ldots$	$\dfrac{1}{s^n}$
5	Exponential	$e^{-\alpha t}\,u(t)$	$\dfrac{1}{s+\alpha}$
6	Damped ramp	$t\,e^{-\alpha t}u(t)$	$\dfrac{1}{(s+\alpha)^2}$
7	Damped Power of t	$\dfrac{t^{n-1}}{(n-1)!}e^{-\alpha t}u(t) \quad n=1,2,3\ldots$	$\dfrac{1}{(s+\alpha)^n}$
8	Sine	$\sin\beta t\ u(t)$	$\dfrac{\beta}{s^2+\beta^2}$
9	Cosine	$\cos\beta t\ u(t)$	$\dfrac{s}{s^2+\beta^2}$
10	Sinusoid	$\sqrt{a^2+b^2}\cos\left(\beta t - \tan^{-1}\dfrac{b}{a}\right)u(t)$	$\dfrac{a\,s+b\,\beta}{s^2+\beta^2}$
11	Damped Sine	$e^{-\alpha t}\sin\beta t\ u(t)$	$\dfrac{\beta}{(s+\alpha)^2+\beta^2}$
12	Damped Cosine	$e^{-\alpha t}\cos\beta t\ u(t)$	$\dfrac{s+\alpha}{(s+\alpha)^2+\beta^2}$
13	Damped Sinusoid (Complex Poles)	$2\|k\|e^{-\alpha t}\cos(\beta t + \angle k)u(t)$	$\dfrac{k}{(s-p)}+\dfrac{k^*}{(s-p^*)}$ where $p=-\alpha+j\beta$
		$\sqrt{a^2+b^2}\,e^{-\alpha t}\cos\left(\beta t - \tan^{-1}\dfrac{b}{a}\right)u(t)$	$\dfrac{a(s+\alpha)+b\beta}{(s+\alpha)^2+\beta^2}$
14	Double Complex Poles	$2\|k\|e^{-\alpha t}t\cos(\beta t + \angle k)u(t)$	$\dfrac{k}{(s-p)^2}+\dfrac{k^*}{(s-p^*)^2}$ where $p=-\alpha+j\beta$